

SIEMENS

SIMOTION

Technology Packages Alarms

Diagnostics Manual

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Valid as from Version 4.4

01/2015

Legal information

Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

 DANGER
indicates that death or severe personal injury will result if proper precautions are not taken.

 WARNING
indicates that death or severe personal injury may result if proper precautions are not taken.

 CAUTION
indicates that minor personal injury can result if proper precautions are not taken.

NOTICE
indicates that property damage can result if proper precautions are not taken.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions.

Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Siemens products

Note the following:

 WARNING
Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

Trademarks

All names identified by ® are registered trademarks of Siemens AG. The remaining trademarks in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owner.

Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

Foreword

Foreword

This document is part of the **SIMOTION Service and Diagnostics** documentation package.

Scope

This document is valid for SIMOTION SCOUT V4.4:

- SIMOTION SCOUT V4.4 (engineering system for the SIMOTION product range)
- SIMOTION Kernel V3.0 to V4.4
- SIMOTION technology packages Cam, Cam_ext (Kernel V3.2 and higher) and TControl in the version for the respective kernel (including technology packages Gear, Position, and Basic MC in the case of versions up to Kernel V3.0).

Chapters in this manual

This documentation describes the generally valid SIMOTION alarms.

The alarms are organized numerically, first according to technology package (TP) and then according to technology object (TO).

TP Cam

- DriveAxis
- ExternalEncoderType
- PosAxis
- MeasuringInputType
- OutputCamType
- CamTrackType
- FollowingAxis
- FollowingObjectType
- CamType

TP Path

- PathObjectType
- PathAxis

TP Cam_ext

- AdditionObjectType
- ControllerObjectType
- FormulaObjectType
- FixedGearType
- SensorType

TP TControl

- TemperatureControllerType

SIMOTION Documentation

An overview of the SIMOTION documentation can be found in the SIMOTION Documentation Overview document.

This documentation is included as electronic documentation in the scope of delivery of SIMOTION SCOUT. It comprises ten documentation packages.

The following documentation packages are available for SIMOTION V4.4:

- SIMOTION Engineering System Handling
- SIMOTION System and Function Descriptions
- SIMOTION Service and Diagnostics
- SIMOTION IT
- SIMOTION Programming
- SIMOTION Programming - References
- SIMOTION C
- SIMOTION P
- SIMOTION D
- SIMOTION Supplementary Documentation

Hotline and Internet addresses

Additional information

Click the following link to find information on the following topics:

- Ordering documentation / overview of documentation
- Additional links to download documents
- Using documentation online (find and search manuals/information)

<http://www.siemens.com/motioncontrol/docu>

My Documentation Manager

Click the following link for information on how to compile documentation individually on the basis of Siemens content and how to adapt it for the purpose of your own machine documentation:

<http://www.siemens.com/mdm>

Training

Click the following link for information on SITRAIN - Siemens training courses for automation products, systems and solutions:

<http://www.siemens.com/sitrain>

FAQs

Frequently Asked Questions can be found in SIMOTION Utilities & Applications, which are included in the scope of delivery of SIMOTION SCOUT, and in the Service&Support pages in **Product Support**:

<http://support.automation.siemens.com>

Technical support

Country-specific telephone numbers for technical support are provided on the Internet under **Contact**:

<http://www.siemens.com/automation/service&support>

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Fundamental safety instructions

1.1 General safety instructions

 WARNING
<p>Risk of death if the safety instructions and remaining risks are not carefully observed</p> <p>If the safety instructions and residual risks are not observed in the associated hardware documentation, accidents involving severe injuries or death can occur.</p> <ul style="list-style-type: none"> • Observe the safety instructions given in the hardware documentation. • Consider the residual risks for the risk evaluation.

 WARNING
<p>Danger to life or malfunctions of the machine as a result of incorrect or changed parameterization</p> <p>As a result of incorrect or changed parameterization, machines can malfunction, which in turn can lead to injuries or death.</p> <ul style="list-style-type: none"> • Protect the parameterization (parameter assignments) against unauthorized access. • Respond to possible malfunctions by applying suitable measures (e.g. EMERGENCY STOP or EMERGENCY OFF).

1.2 Industrial security

Note

Industrial security

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, solutions, machines, equipment and/or networks. They are important components in a holistic industrial security concept. With this in mind, Siemens' products and solutions undergo continuous development. Siemens recommends strongly that you regularly check for product updates.

For the secure operation of Siemens products and solutions, it is necessary to take suitable preventive action (e.g. cell protection concept) and integrate each component into a holistic, state-of-the-art industrial security concept. Third-party products that may be in use should also be considered. For more information about industrial security, visit <http://www.siemens.com/industrialsecurity>.

To stay informed about product updates as they occur, sign up for a product-specific newsletter. For more information, visit <http://support.automation.siemens.com>



WARNING

Danger as a result of unsafe operating states resulting from software manipulation

Software manipulation (e.g. by viruses, Trojan horses, malware, worms) can cause unsafe operating states to develop in your installation which can lead to death, severe injuries and/or material damage.

- Keep the software up to date.
Information and newsletters can be found at:
<http://support.automation.siemens.com>
- Incorporate the automation and drive components into a state-of-the-art, integrated industrial security concept for the installation or machine.
For more detailed information, go to:
<http://www.siemens.com/industrialsecurity>
- Make sure that you include all installed products into the integrated industrial security concept.

TP Cam

2.1 DriveAxis

20001 Internal error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Error source
Parameters 2 to 4:	Fault number

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

RELEASE_DISABLE

Diagnostics buffer entry

Yes

20002 **Insufficient memory (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)**

Cause

The memory required by the system is no longer available.

This alarm can occur both during ramp-up and after program calls.

Meaning of alarm parameters

Parameter 1:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Parameters 2 to 4 are area-specific.

They are not fully utilized by all areas.

Command decoding area:

Parameters 2 and 4	refer to the command in which the error occurred.
Parameter 2:	Command return value
Parameter 4:	Command type

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

- Reduce the size of the ST code.
- Reduce the number of technology objects.
- Reduce the number of interpolation points for cams, if present.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

Yes

20003 Internal configuration error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system

Parameters 2 to 4 are area-specific.

These parameters are not fully utilized by all areas.

Command decoding area:

Parameters 2 and 4	refer to the command in which the error occurred.
Parameter 2:	Command return value
Parameter 4:	Command type

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

Yes

20004 Under logical address: /1/%d (bit number, if required: /2/%d) no driver (type: /3/%d) could be requested (error number: /4/%d)

Cause

The driver of a physical device or the device itself is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT

Remedy

- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

RELEASE_DISABLE

Diagnostics buffer entry

Yes

20005 **Device type:/3/%d, log. address:/1/%d faulted. (Bit:/2/%d, encoder number:/5/%d, reason: 0x/4/%Xh)**

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

The driver of a physical device or the device itself has failed or is faulty.

If this alarm occurs, the cause of the error must be evaluated in the external device (drive or encoder).

Meaning of alarm parameters

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver
12	Safety data block driver
13	Update counter
14	Operating characteristics data block driver

Logical address:	This is the logical input address configured on the technology object.
Bit number:	For bit driver type = 3 or 4 only; number of the bit
Encoder number:	Number of the encoder in case of telegrams with multiple encoders. Applies only when type = 2.
Reason:	0 - only defined when type = 2

Note

Addition of error messages

The codings for the reason of the failure specified below for the individual alarm types can also occur in combination. A group coding is indicated as the sum of several individual codings (e.g. 0x0005 = 0x0001 + 0x0004).

A failure reason labeled with DP can occur only for PROFIBUS devices.

Type = 1	
0x0001h	Fault message from the drive (note: for PROFIBUS drives, which support acyclic communication in accordance with PROFIdrive V3, the error number(s) of the drive are displayed in the diagnostic buffer, e.g. for Masterdrives MC)
0x0002h	DP: Drive signal "control requested" failed
0x0004h	DP: Drive disconnected itself
0x0008h	Slot for drive data is not available in the project
0x0010h	Actuator driver does not have a connection to the drive data
0x0020h	Actuator driver was not initialized during ramp-up
0x0080h	DP: Difference between configuration data and drive parameters (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	DP: Control signals to the PROFIdrive state machine were incorrectly specified
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
0x8000h	DP: Life-sign of drive has malfunctioned or failed
0x80000000h	The drive interface has been deactivated for the pending enables.
Type = 2	
0x0000h	The actual value changes exceed the limit value derived from the maximum velocity (configuration data TypeOfAxis.MaxVelocity.maximum) over multiple cycles. This monitoring can be activated or deactivated with configuration data TypeOfAxis.NumberOfEncoders.Encoder_x.AbsEncoder.enableAbsMonitoring.
0x0001h	Alarm message from encoder (note: the encoder error number(s) are displayed in the diagnostic buffer)
0x0002h	General hardware error of encoder
0x0004h	Encoder is dirty
0x0008h	Slot for encoder data is not available in the project
0x0010h	Encoder driver does not have a connection to the encoder data
0x0020h	Encoder driver was not initialized during ramp-up
0x0040h	Error when reading the absolute value of the encoder
0x0080h	DP: Difference between the configuration data and the encoder parameters Onboard C2xx: Inconsistency of the configuration data (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	Zero mark monitoring of encoder
0x0200h	DP: Encoder has gone to Parked state
0x4000h	DP: Encoder on bus failed (station failure)

0x8000h	DP: Life-sign of encoder has malfunctioned or failed. (note: for an encoder whose data are transferred in a drive telegram together with actuator data, the actuator life-sign applies to the encoder, e.g. for standard telegram 3 in accordance with PROFIdrive)
0x80000000h	The sensor interface has been deactivated for the pending enables.
Type = 3...6	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 7	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 8	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 9	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 10	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 11	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 12	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 13	
0x1h	The actual value was specified via a system variable and the permissible number of failure cycles was exceeded
0x2h	The actual value was updated with an update counter in the I/O area and the permissible number of failure cycles was exceeded

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

The remedy for the respective type and cause is described below.

Type 1

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- A system fault may be present. Call the hotline.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- When sign-of-life monitoring is set: Ensure that in HW Config for drive under DP slave properties - isochronous operation - drive, the "synchronize to equidistant DP cycle" field is activated.
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
- Up to SIMOTION RT V4.3: If the alarm occurs after the download on a drive with telegram 999: Compare the parameterized bit position for the "Pulses enabled" status signal in drive parameter p924 with the configuration data 'DriveControlConfig.PulsesEnabled' of the TO axis. In this case, there is not necessarily an incorrect parameterization and therefore a check cannot be performed by the system because of the BICO interconnection. Therefore, make sure that the Pulses enabled bit is in the correct position.

For reason 0x0100

- Correct your user program with regard to PROFIdrive-compliant specification of control bits in the _enable/disableAxis commands, e.g. control signal OFF (STW1.0 = false) must precede a drive connection.

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 2

For reason 0x0000

- Check the absolute encoder functions, connections and configuration. Take note of this when monitoring is deactivated (not with Alarm 20015).

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- Make sure that the user program does not reference a technology object containing an encoder (Axis, External Encoder) with an '_enableaxis' or '_enableexternalencoder' command while system variable 'sensordata.sensordata[n].state' is signaling invalid.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0040

- Compare the encoder type in the drive or encoder parameter P979 with the configuration data of the technology object.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
 - Compare the encoder type, resolution, shift factor, and, in the case of absolute encoders, the number of rotations in the drive or encoder parameter P979 to the encoder type, resolution, fine resolution, and, in the case of absolute encoders, the data length in the configuration data of the technology object.
- When using telegram 999, this message always appears, as the bit position is not checked by the system in this case, but has to be performed by the user.

For reason 0x0100

- Check the device functions, connections and wiring.

For reason 0x0200

- Find the cause of the error in the connected drive or encoder. Check whether the alarm was triggered due to a commissioning operation on the drive or encoder.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 3 - Type 6For reason 0x0000

- Check the configuration and the signal paths of the connection.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 7For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 8For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 9For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 10For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 11 - Type 12For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring. If the error cannot be acknowledged when the axis is in simulation mode, check whether the technology data block is activated, and if this is the case, deactivate it.

Type 13

For reason 0x1

- Check the specification of the actual value with regard to function, configuration, and task configuration.

For reason 0x2

- Check the device functions, configuration, connections and wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

RELEASE_DISABLE

Diagnostics buffer entry

Yes

20006 Configuration error (category: /1/%d, error number: /2/%d, additional information: /3/%d)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

This alarm indicates error states caused by a faulty or inconsistent configuration. The technology objects perform a plausibility check on the configuration. Errors are identified by the error codes below.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of the error
500	Illegal technology object configuration state.
501	More configuration data expected than received.
502	Invalid configuration data.
503	Version conflict in configuration.
504	The configured task level is not supported by this TO.
505	The value range of the maximum number of command IDs has been violated.
506	The configured task level is not supported by the used hardware.
1000	General configuration error
1001	Communication error during data transmission
2000	Error in actuator system configuration.
2001	Outside of manipulated variable limits.
2003	Error in load gear factors.
2004	Error in maximum velocity.
2005	Maximum velocity greater than maximum attainable velocity.
2006	Drive not suitable for torque-controlled or torque-limited operation
2007	Linear stepper motor not implemented
2008	Right-justified format for direct output not implemented
2009	Illegal value in resolution for direct output
2010	Missing configuration data for actuator system
2011	Missing configuration data for additional actuator system
2012	The backstop range (min to max) does not contain a zero point
2014	Drive or telegram not suitable for torque superimposition
2015	Gear ratios less than or equal to 0.
2016	Resolution for stepper motor is 0.
2017	Illegal value for configuration data maxSpeed.
2018	Illegal value for configuration data maxVelocity.
2019	Range limits of configuration data exceeded.
2020	Range limits for maximum acceleration exceeded.
2021	Illegal values for dead zone compensation.
2022	Illegal values for sliding friction compensation.
2023	Illegal values for backstop.
2024	Error in friction compensation parameter
2025	DIRECT output: Analog and bit driver of a shared output are parameterized in different ways on the various axes
2026	Illegal value for pulsesEnable
2027	Illegal value for maxSpeed ($\text{maxSpeed} \geq 2 * \text{nominalSpeed}$)
2028	Illegal value for maxSpeed ($\text{maxSpeed} \leq 10 \text{ V} / \text{maxSetPointVoltage} * \text{nominalSpeed}$)
2029	Illegal value in TypeOfAxis.SetPointDriverInfo
2030	A parameter in DriveData is not correct.
2031	A parameter in LinearMotorDriveData is not correct.
2032	A parameter in StepMotorDriveData is not correct.

2033	A parameter in QOutput.EnableBit is not correct.
2034	A parameter of the technological data block is not correct.
2035	A parameter of the safety data block is not correct.
2036	A parameter of the operating characteristics data block is not correct.
2037	Cannot change the configuration during the drive adaptation.
2038	Illegal value for the manipulated variable filter
2040	No driver could be requested under the logical input address.
2041	No driver could be requested under the logical output address.
2042	The numerator of the load gear is incorrect.
2043	The nominal factor of the load gear is incorrect.
2044	The value for the reference velocity is incorrect.
3000	Error in encoder system.
3001	Illegal value in Simulation.simulationMode
3002	The set axis type is invalid - illegal value in TypeOfAxis.typeOfAxis
3003	The set drive leadscrew pitch is invalid - illegal value in Leadscrew.pitchVal
3004	The set modulo activation is invalid - illegal value in Modulo.state
3005	Illegal specification(s) in the encoder data (incremental, absolute, etc.).
3006	The set number of encoders is invalid - illegal value in .NumberOfEncoders.numberOfEncoders
3007	Illegal incremental encoder number.
3008	Illegal data combination for homing with incremental encoder.
3009	The configuration of the 'Backlash compensation' encoder function is faulty - illegal value in .Encoder_N.IncBacklash or .Encoder_N.AbsBacklash
3010	Illegal data on SSI encoder.
3011	The configuration of the 'Absolute encoder adjustment' encoder function is faulty - illegal value in .Encoder_N.AbsHoming
3012	The configuration of the 'Counting direction of the raw actual encoder value' encoder function is faulty - illegal value in .Encoder_N.InversCountDirection.encoderFeedbackPolarity
3013	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptDrive
3014	The configuration of the 'Encoder limit frequency monitoring' encoder function is faulty - illegal value in .Encoder_N.FrequencyLimit.encoderFrequencyLimit
3015	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptLoad
3016	The load gear ratio configuration of a data set is faulty - illegal value in .DataSet_N.Gear
3017	Encoder data sequence and number of encoders do not match.
3018	The configuration of an encoder is incomplete
3019	The set mounting location of the encoder is invalid - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3020	The encoder simulation is either not supported or it is not activated simultaneously on the actuator and the sensor - illegal value in .Encoder_N.encoderIdentification or .SetPointDriverInfo.mode
3021	The number of configured data sets or the number of the active data set after the startup is invalid - illegal value in DataSet_N.numberOfDatasets or in DataSet_N.initDataSet

3022	The number of the encoder assigned to a data set is invalid - illegal value in DataSet_N.EncoderNumber.encoderNumber
3023	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptExtern
3024	The configuration of the encoder measuring wheel circumference is faulty - illegal value in .Encoder_N.pathPerRevolution.length
3025	The configuration of the 'Actual velocity monitoring' function is faulty - illegal value in .ActualVelocityMonitoring
3026	Illegal encoder number in absolute encoder configuration.
3027	The set message format of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absMessageFormat
3028	The set baud rate of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.baudRate
3029	The set protocol format of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absState
3030	The number of the encoder assigned to a data set is invalid - illegal value in DataSet_N.EncoderNumber.encoderNumber
3031	The encoder assigned to a data set does not exist - illegal value in DataSet_N.EncoderNumber.encoderNumber
3032	The load gear ratio numerator configuration of a data set is faulty - illegal value in .DataSet_N.Gear.numFactor
3033	The load gear ratio denominator configuration of a data set is faulty - illegal value in .DataSet_N.Gear.denFactor
3034	An encoder references a data set that does not exist
3035	An encoder references a data set that does not exist
3036	Encoder not configured.
3037	Homing with encoder zero mark and ENDAT encoder is not possible - illegal value in .Encoder_N.IncHomingEncoder.homingMode
3038	Homing to the falling edge of an external zero mark on an onboard input is not possible - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3039	Flying homing with encoder zero mark and ENDAT encoder is not possible - illegal value in .Encoder_N.IncHomingEncoder.passiveHomingMode
3040	Flying homing to the falling edge of an external zero mark on an onboard input is not possible - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3041	The (modified) encoder configuration does not permit any determination of the factors for converting the encoder raw actual values into actual position and velocity values or for converting the position and velocity setpoints into DSC encoder raw actual values, taking account of the mechanical relationships.
3042	Illegal data combination for homing with external encoder.
3043	The incremental position of the encoder is outside the permissible value range.
3044	The incremental position of the encoder is outside the permissible value range.
3045	The configuration of the linear encoder resolution is faulty - illegal value in .Encoder_N.Resolution
3046	The configuration of the encoder actual velocity values filter is faulty - illegal value in .Encoder_N.Filter
3047	The configuration of the encoder actual velocity values filter for the interpolator is faulty - illegal value in .SmoothingFilter

3048	The configuration of the encoder actual velocity values filter for the actual value coupling (Synchronous operation) is faulty - illegal value in .Extrapolation.Filter
3049	The set number of the DSC encoder is invalid - illegal value in .NumberOfEncoder.dscEncoderNumber
3050	The configuration of the encoder system has not been completed correctly.
3051	The configuration of the stepper motor encoder data is faulty - illegal value in .Encoder_N.StepMotorMonitoring
3052	The set encoder actual value type does not match its configuration or the technology object type - illegal value in .Encoder_N.encoderValueType
3053	Homing on a stepper motor is only possible with an external zero mark - illegal value in .Encoder_N.incHomingEncoder.homingMode
3054	Flying homing on a stepper motor is only possible with an external zero mark - illegal value in .Encoder_N.incHomingEncoder.passiveHomingMode
3055	The configuration of a stepper motor with encoder is only possible on a real axis - illegal value in .Encoder_N.encoderMode
3056	Only one encoder may be configured on a stepper motor - illegal value in .NumberOfEncoders.numberOfEncoders
3057	The DSC encoder is not a PROFIBUS encoder - illegal value in .NumberOfEncoders.dscEncoderNumber or .Encoder_N.encoderIdentification
3058	The DSC encoder telegram does not support DSC - illegal value in .Encoder_N.DriverInfo.telegramType
3059	Set modulo value in Modulo.length is smaller than an increment.
3060	The encoder configuration for the position difference measurement is faulty - illegal value in .Encoder_N.PositionDifferenceMeasurement
3061	The set limits for the position difference supplied by the encoder are invalid - illegal value in .Encoder_N.PositionDifferenceMeasurement.Range
3062	The activation of the 'Backlash compensation' encoder function is only possible for motor encoders - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3063	The configuration of a TO externalEncoder for the operation as encoder on a stepper motor is not possible - illegal value in .Encoder_N.encoderMode
3064	The set resolution of the encoder is invalid - illegal value in .Encoder_N.IncEncoder.incResolution
3065	The set resolution of the encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absResolution
3066	The set multiplication factor for the cyclic actual value of the encoder is invalid - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic
3067	The set multiplication factor for the cyclic actual value of the encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absResolutionMultiplierCyclic
3068	The assignment of a velocity encoder to a data set on a positioning axis is not permitted - illegal value in DataSet_N.EncoderNumber.encoderNumber
3069	The configuration of the 'Tolerance of an encoder error' encoder function is invalid - illegal value in .Encoder_N.SensorControlConfig.tolerateSensorDefect
3070	The configuration of the 'Direct reading of the actual speed value (Nact) from the PROFIDrive telegram' encoder function is faulty - illegal value in .Encoder_N.NistDriverConfig
3071	The configuration of the reference cam is invalid - illegal value in .Encoder_N.IncHomingEncoder.referenceCamType
3072	The configuration of the negative reversing cam is faulty - illegal value in .Homing.ReverseCamNegative

3073	The configuration of the positive reversing cam is faulty - illegal value in <code>.Homing.ReverseCamPositive</code>
3074	The set edge of the external zero mark does not match the set homing approach direction - illegal value in <code>.Encoder_N.IncHomingEncoder.approachDirection</code> or <code>.Homing.direction</code>
3075	The use of reversing cams in the selection of <code>.Homing.direction = 'POSITIVE_ALL_HOMING'</code> or <code>.Homing.direction = 'NEGATIVE_ALL_HOMING'</code> as homing approach direction is not permitted - illegal configuration in <code>.Homing.ReverseCamNegative._type</code> or <code>.Homing.ReverseCamPositive._type</code>
3076	The set approach direction of the zero mark or edge of the external zero mark does not match the set homing approach direction - illegal value in <code>.Encoder_N.IncHomingEncoder.approachDirection</code> or <code>.Homing.direction</code>
3077	The use of hardware limit switches as reference cams in the selection of <code>.Homing.direction = 'POSITIVE_ALL_HOMING'</code> or <code>.Homing.direction = 'NEGATIVE_ALL_HOMING'</code> as homing approach direction is not permitted - illegal value in <code>.Encoder_N.IncHomingEncoder.referenceCamType</code>
3078	The configuration of the 'Ready bit' encoder function is faulty - illegal value in <code>.Encoder_N.AnalogSensor.ReadyStateMonitoring</code>
3079	The configuration of the 'Error bit' encoder function is faulty - illegal value in <code>.Encoder_N.AnalogSensor.ErrorStateMonitoring</code>
3080	The encoder Ready bit is in the range of the actual encoder value data bit - illegal value in <code>.Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress</code> and/or <code>.Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber</code>
3081	The encoder Error bit is in the range of the actual encoder value data bit - illegal value in <code>.Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress</code> and/or <code>.Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber</code>
3082	The configuration of the external zero mark interface is faulty - illegal value in <code>.Encoder_N.IncHomingEncoder.StateDriveExternalZeroMark</code>
3083	The configuration of the 'Update counter' encoder function is faulty - illegal value in <code>.Encoder_N.AnalogSensor.UpdateCounter</code>
3084	The encoder Update counter bits are in the range of the actual encoder value data bits - illegal value in <code>.Encoder_N.AnalogSensor.UpdateCounter.logAddress</code> and/or <code>.Encoder_N.AnalogSensor.UpdateCounter.bitNumber</code>
3085	The encoder Update counter bits and the Read bit overlap - illegal value in <code>.Encoder_N.AnalogSensor.UpdateCounter.logAddress</code> and/or <code>.Encoder_N.AnalogSensor.UpdateCounter.bitNumber</code>
3086	The encoder Update counter bits and the Error bit overlap - illegal value in <code>.Encoder_N.AnalogSensor.UpdateCounter.logAddress</code> and/or <code>.Encoder_N.AnalogSensor.UpdateCounter.bitNumber</code>
3087	The configuration of the 'Direct reading of the actual speed value (Nact) from the PROFIDrive telegram' encoder function is faulty - illegal value in <code>.Encoder_N.SensorNist</code>
3088	The configuration of the encoder with the identification 'SET_ACTUAL_VALUE' is faulty - illegal value in <code>.Encoder_N.SensorSetActualValue</code>
3089	The configuration of the encoder actual position values filter is faulty - illegal value in <code>.Encoder_N.PositionFilter</code>
3090	The configuration of the encoder actual position values filter for the actual value coupling (Synchronous operation) is faulty - illegal value in <code>.Extrapolation.ExtrapolationPositionFilter</code>

3091	The set multiplication factor for the cyclic actual value is not consistent with the known value on the drive encoder - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic or .Encoder_N.absEncoder.absResolutionMultiplierCyclic or .Encoder_N.Resolution.multiplierCyclic
3092	The set modulo length is invalid - illegal value in Modulo.length
3093	The set modulo start value is invalid - illegal value in Modulo.startValue
3094	Homing with deactivated hardware limit switches as reversing cams is not possible - illegal value in .Homing.ReverseCamNegative._type and/ or .Homing.ReverseCamPosition._type
3095	The set encoder identification is invalid - illegal value in .Encoder_N.encoderIdentification
3096	The set encoder mode is invalid - illegal value in .Encoder_N.encoderMode
3097	The set encoder type is invalid - illegal value in .Encoder_N.encoderType
3098	The set encoder system is invalid - illegal value in .Encoder_N.encoderSystem
3099	The set actual value type is invalid - illegal value in .Encoder_N.encoderValueType
3100	The set utilization status of the actual value interface is invalid - illegal value in .Encoder_N.interfaceAllocation
3101	The set encoder mode is not supported by the TO externalEncoder - illegal value in .Encoder_N.encoderMode
3102	The set actual value type is not supported by the TO externalEncoder - illegal value in .Encoder_N.encoderValueType
3103	Only the 'VELOCITY' actual value type is permitted on a drive axis - illegal value in .Encoder_N.encoderValueType
3104	The set encoder mode does not match the set combination of encoder type and encoder identification - illegal value in .Encoder_N.encoderMode
3105	The set encoder type is not supported for encoders with the set encoder identification - illegal value in .Encoder_N.encoderType
3106	The encoder configuration does not match the set combination of encoder type and encoder identification - illegal value in .Encoder_N.encoderMode or .Encoder_N.encoderSystem or .Encoder_N.encoderValueType
3107	The configuration of the encoder for the position difference measurement requires the setting of the 'POSITION' actual value type - illegal value in .Encoder_N.encoderValueType
3108	Only encoders of the 'SENSOR_INCREMENTAL' type are supported on an axis of the 'REAL_AXIS_WITH_SIGNAL_OUTPUT' type - illegal value in .Encoder_N.encoderType
3109	Only the 'SENSOR_ABSOLUTE' encoder type is supported on an encoder with the 'SET_ACTUAL_VALUE' encoder identification - illegal value in .Encoder_N.encoderType
3110	The set combination of encoder type and encoder mode is not supported within the context of a linear encoder - illegal value in .Encoder_N.encoderType and .Encoder_N.encoderMode
3111	The configuration of a linear encoder on a rotary axis is not possible - illegal value in .Encoder_N.encoderSystem
3112	The configuration of the reference cam zero mark distance monitoring is faulty - illegal value in .Encoder_N.IncHomingEncoder.beroDistance or .Encoder_N.IncHomingEncoder.enableZeroMarkDistance

3113	The set home position offset is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.proceedShiftPos</code>
3114	The configuration of the reference cam interface is faulty - illegal value in <code>.Encoder_N.incHomingEncoder.bitNumberBero</code> or <code>.Encoder_N.incHomingEncoder.logAddressBero</code>
3115	The set zero mark approach direction is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.approachDirection</code>
3116	Homing setting faulty: Zero mark approach direction is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveApproachDirection</code>
3117	The configuration of the reference cam interface is faulty - illegal value in <code>.Encoder_N.incHomingEncoder.passiveBitNumberBero</code> or <code>.Encoder_N.incHomingEncoder.passiveLogAddressBero</code>
3118	The set homing mode is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.homingMode</code>
3119	The set homing mode is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveHomingMode</code>
3120	The set zero mark approach direction does not match the set homing mode - illegal value in <code>.Encoder_N.IncHomingEncoder.approachDirection</code>
3121	The set external zero mark approach direction does not match the set homing mode - illegal value in <code>.Encoder_N.IncHomingEncoder.approachDirection</code>
3122	The set zero mark approach direction does not match the set homing mode - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveApproachDirection</code>
3123	The set external zero mark approach direction does not match the homing mode - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveApproachDirection</code>
3124	The set type of the reference cam is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.referenceCamType</code>
3125	The set reference cam type does not match the set zero mark approach direction - illegal value in <code>.Encoder_N.IncHomingEncoder.referenceCamType</code>
3126	The resource required for the reference cam cannot be requested - illegal value in <code>.Encoder_N.IncHomingEncoder.logAddress</code> and/ or <code>.Encoder_N.IncHomingEncoder.bitNumber</code> or no memory available
3127	The resource required for the reference cam cannot be requested - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveLogAddress</code> and/ or <code>.Encoder_N.IncHomingEncoder.passiveBitNumber</code> or no memory available
3128	The resource required for the external zero mark cannot be requested - illegal value in <code>.Encoder_N.incHomingEncoder.StateDriveExternalZeroMark.logAddress</code> and/ or <code>.Encoder_N.incHomingEncoder.StateDriveExternalZeroMark.bitNumber</code> or no memory available
3129	The resource required for the positive reversing cam cannot be requested - illegal value in <code>.Homing.ReverseCamPositive.logAddress</code> and/ or <code>.Homing.ReverseCamPositive.bitNumber</code> or no memory available
3130	The resource required for the negative reversing cam cannot be requested - illegal value in <code>.Homing.ReverseCamNegative.logAddress</code> and/ or <code>.Homing.ReverseCamNegative.bitNumber</code> or no memory available
3131	The resource required for the 'Update counter' of the analog encoder cannot be requested - illegal value in <code>.Encoder_N.AnalogSensor.UpdateCounter.logAddress</code> and/ or <code>.Encoder_N.AnalogSensor.UpdateCounter.bitNumber</code> or no memory available

3132	The resource required for the 'Read state bit' of the analog encoder cannot be requested - illegal value in <code>.Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress</code> and/ or <code>.Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber</code> or no memory available
3133	The resource required for the 'Error state bit' of the analog encoder cannot be requested - illegal value in <code>.Encoder_N.AnalogSensor.ErrorStateMonitoring.logAddress</code> and/ or <code>.Encoder_N.AnalogSensor.ErrorStateMonitoring.bitNumber</code> or no memory available
3134	The configuration of the actual value interface is faulty - illegal value in <code>.EncoderN.DriverInfo</code>
3135	The configuration of the encoder actual value interface is faulty - illegal value in <code>.EncoderN.DriverInfoDirectIncremental</code>
3136	The configuration of the sensor measuring gear ratio is faulty - illegal value in <code>.Sensor.ConversionDataAdapt</code>
3137	Only an encoder with the 'DRIVE' encoder mounting type is permitted as DSC encoder - illegal value in <code>.Encoder_N.AssemblyBase.assemblyBase</code>
3138	An encoder with the encoder value type 'POSITION_AND_PROFIDRIVE_ENCODER_NIST_B' is supported only on a TO positioning axis or as TO external encoder in conjunction with the encoder identification 'DPMaster' or 'SIMULATION' and the encoder telegram type 'DP_TEL83_STANDARD' - illegal TO type or illegal value in <code>.Encoder_n.encoderIdentification</code> or in <code>.Encoder.DriverInfo.telegramType</code>
3139	The number assigned to an encoder lies outside the number of the last configured encoder 'NumberOfEncoders.numberOfEncoders'
3140	The configuration of the encoder configuration data adaptation is faulty - illegal value in <code>.Encoder_N.dataAdaption</code>
3141	Both the adapted and the configured encoder configuration are invalid
3143	The multiplication factor for the cyclic actual value and/or the multiplication factor for the absolute value in conjunction with the configured encoder mode (<code>Encoder_N.encoderMode</code>) is invalid - illegal value in <code>.Encoder_N.IncEncoder.incResolutionMultiplierCyclic</code> or <code>.Encoder_N.absEncoder.absResolutionMultiplierCyclic</code> and/ or <code>.Encoder_N.Resolution.multiplierCyclic</code> or <code>Encoder_N.Resolution.multiplierCyclic</code>
3144	The set fine resolution for the cyclic absolute value (<code>Gn_XIST2</code>) is invalid - illegal value in <code>.Encoder_N.AbsEncoder.absResolutionMultiplierAbsolute</code>
4000	Error in controller.
4001	Negative acceleration specified.
4002	Unknown 'FipoType' requested.
4003	Error in runtime system, ratio of controller cycle clock to interpolator cycle clock is incorrect.
4004	Requested filter order not possible.
4005	Reserve for later use.
4006	Maximum limit is lower than minimum.
4007	Reserve for later use.
4008	Error in configuration data for controller.
4009	Reserve for later use.
4010	Reserve for later use.

4011	Reserve for later use.
4012	Reserve for later use.
4013	Requested controller type is not available.
4014	Error in controller factors.
4015	Precontrol activated, kpc less than 0 or kpc greater than 150.
4016	Reserve for later use.
4017	Reserve for later use.
4018	Reserve for later use.
4019	Reserve for later use.
4020	Reserve for later use.
4021	Reserve for later use.
4022	Reserve for later use.
4023	Precontrol activated, kpc less than or equal to 0.
4024	Reference model monitoring: Error in value of tolerance window.
4025	Error in limit value for standstill signal.
4026	Error in parameter for positioning monitoring.
4027	Simultaneous activation of reference model and dynamic following error monitoring not allowed.
4028	Sampling time parameter calculated incorrectly.
4029	Too many data sets requested.
4030	Error in runtime system, ratio of controller cycle clock to interpolator cycle clock is incorrect.
4031	Error in time constant for emergency ramp generator (positionTimeConstant).
4032	Precontrol active, but fine interpolator type is DIRECT.
4033	Default data set outside limits.
4034	Maximum number of data sets not possible.
4035	Unknown data set change mode.
4036	Following error monitoring not activated/deactivated in all data sets.
4037	Reference model monitoring not activated/deactivated in all data sets.
4038	Different controller type in data sets.
4039	Precontrol activated/deactivated differently in data sets.
4040	Time constant is 0.
4041	Error in dynamic adaptation parameter.
4042	System variable initialization could not be read.
4043	Driver simulation not implemented.
4044	Connection for stepper motors not implemented.
4045	Maximum velocity cannot be attained; maximum drive speed or normalization factor is incorrect.
4046	DSC requires motor encoder data to be specified.
4047	Drive or telegram type not suitable for DSC.
4048	Error in clamping monitoring parameter. 'No detection' is not permitted for the fixed endstop detection
4049	A sensor is required to monitor actual velocity using 'DynamicControl'.
4050	Inconsistent PROFIBUS parameterization; the sum of Ti and To is greater than a DP cycle

4051	Error in manipulated variable limitation parameter of force/pressure controller
4052	Error in force/pressure entry monitoring parameter
4053	Error in force/pressure end value monitoring parameter
4054	Force/pressure entry monitoring tolerance less than pressure end value monitoring tolerance
4055	Error in force/pressure control deviation monitoring parameter
4056	Different activation/deactivation of control deviation monitoring of force/pressure controller in data sets not permitted
4057	Different manipulated variable inversion of force/pressure controller in data sets not permitted
4058	Different force/pressure sensor types in data sets not permitted
4059	Different activation/deactivation of anti-windup in data sets not permitted
4060	Kd factor of PID_ACTUAL controller is greater than 1
4061	Time constant of process model T1 less than or equal to T2
4062	Illegal actuator type selection
4063	Error in sliding friction compensation parameter
4064	Error in offset injection parameter
4065	Precontrol for force/pressure control not implemented
4066	Error in standstill monitoring parameter
4067	Following error monitoring: minVelocity cannot be greater than or equal to maxVelocity
4068	Maximum buffer length of balancing filter (Mode_2) is reached or exceeded. As the servo cycle is included in the calculation of the equivalent time constant of the speed control loop (=velocityTimeConstant), the maximum value of this time constant is limited to 16 servo cycles. The buffer length of the lag element is maximum 16.
4069	System-related dead times are less than 0 after allowing for additionalTime
4070	Controller types other than DIRECT require configuration of an encoder.
4071	Illegal values for delayTimeToActivate of standstill signal
4072	The I/O device for the positive HW limit switch is not available
4073	The I/O device for the negative HW limit switch is not available
4074	Range limits of controller parameter exceeded.
4075	Range limit of brake deceleration of emergency ramp exceeded.
4076	Range limit of equivalent time constant exceeded.
4077	Range limit for velocityTimeConstant exceeded.
4078	Error in value for QFDynamicData configuration.
4079	Error in value for reference model monitoring.
4080	Error in following error monitoring parameter
4081	Error in clamping monitoring parameter
4082	Error in value for DynamicData configuration.
4083	Error in value for PV controller configuration.
4084	Configuration data missing for controller.
4085	Error in value for SystemDeadTimeData configuration.
4086	Pressure control only possible with closed-loop speed controller
4087	DSC and compensation of valve curve not possible
4088	DSC not possible on hydraulic axes

4089	Time constants of dynamic response compensation must not be equal
4090	Incorrect value for system dead time correction
4091	Different activation of manipulated variable filter of pressure controller in data sets
4092	Different activation of dynamic response compensation in data sets
4093	Activation of DSC is not the same in all data sets
4094	Balancing filter type is not the same in all data sets
4095	Illegal value for balanceFilterMode. For a drive axis, only MODE_1 is permitted (PV_Controller.balanceFilterMode).
4096	Activation of anti-windup is not the same in all data sets
4097	Activation of setpoint quantization is not the same in all data sets
4098	Activation of the reference model monitoring is not the same in all data sets
4099	Fixed endstop detection mode is not the same in all data sets
4100	Force controller is not the same in all data sets
4101	Force sensor type UNI_DIRECTION is not implemented
4102	Error in the time constant for smoothing controller parameters
4103	If encoderNumber = 0, ControllerStruct.conType must be DIRECT.
4104	The travel to fixed stop function is not possible on a QF axis.
4105	The integratorFeedbackTimeConstant cannot be less than 0
4106	Illegal value for CommandValueQuantization.value
4107	An electrical drive axis (typeOfAxis = REAL_KIND_OF_AXIS) may only have DIRECT as controller type (conType = DIRECT)
4108	Dead time of dynamic response compensation must not be zero.
4109	Time constant for smoothing manipulated variable jumps during data set changeover must not be less than zero.
4110	The parameters of the manipulated variable filter in the pressure controller are illegal.
4111	Range limit for positionTimeConstante exceeded.
4112	Force/pressure controller type not possible.
4113	Time constant for smoothing manipulated variable jumps outside the limits.
4114	The speed/velocityReference parameter must be set to NOMINAL_SPEED with active adaptation.
4115	The torque/forceReference parameter must be set to NOMINAL_TORQUE/ FORCE with active adaptation.
4116	The parameters in HWEndPos are not consistent.
4117	The setting disableModeSpecification = OFF1_AND_OFF3_MODE is only possible with a digital drive coupling.
4120	Error in following error monitoring parameter. Illegal value in DynamicFollwong.minPositionTolerance
4121	Error in following error monitoring parameter. Illegal value in DynamicFollwong.maxPositionTolerance
4122	Error in following error monitoring parameter. Illegal value in DynamicFollwong.minVelocity
4123	Error in following error monitoring parameter. Illegal value in DynamicFollwong.warningLevel
4124	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.posWinToTime

4125	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.posWinToIDelayTime
4126	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.tolerance
5000	Encoder data sequence and number of encoders do not match.
5001	The set number of force/pressure sensors is invalid - illegal value in .NumberOfAdditionalSensors.number
5002	The set type of the force/pressure sensor is invalid - illegal value in .AdditionalSensor_N.additionalSensorType
5003	The actual value interface configuration of the force/pressure sensor is faulty - illegal value in .AdditionalSensor_N.DriverInfo
5004	The raw actual value weighting factors configuration of the force/pressure sensor is faulty - illegal value in .AdditionalSensor_N.ConversionData
5006	The value range limits configuration of the actual force/pressure value is faulty - illegal value in .AdditionalSensor_N.Range
5007	The configuration of the actual force/pressure value filter is faulty - illegal value in .AdditionalSensor.Filter
5008	Configuration of the force/pressure sensor not completed correctly.
5009	The number of the force/pressure sensor assigned to the data set is invalid - illegal value in .NumberOfDataSets.DataSet_N.AdditionalSensorNumber.number
5010	The sensor configuration for the force/pressure difference measurement is faulty - illegal value in .AdditionalSensor.PositionDifferenceMeasurement
5011	The number of the force/pressure sensor set as sensor A for the difference measurement is invalid - illegal value in .AdditionalSensor.PositionDifferenceMeasurement.numberSensorA
5012	The number of the force/pressure sensor set as sensor B for the difference measurement is invalid - illegal value in .AdditionalSensor.PositionDifferenceMeasurement.numberSensorB
5013	Illegal data in extrapolation configuration.
5014	The set execution cycle clock of the sensor is invalid - illegal value in Execution.executionlevel
5015	The set substitute value strategy for a technological alarm on the sensor is invalid - illegal value in .ValueOut.outputValueErrorBehaviorMode
5020	The configuration of the analog encoder actual value interface is faulty - illegal value in .Encoder_N.AnalogSensor.DriverInfo
5021	The configuration of the analog encoder actual position values filter is faulty - illegal value in .Encoder_N.AnalogSensor.PositionFilter
5022	The raw actual value weighting factors configuration of the analog encoder is faulty - illegal value in .Encoder_N.AnalogSensor.ConversionData
5023	The measuring input interface configuration for the analog encoder is faulty - illegal value in .Encoder_N.AnalogSensor.LogAddress
5030	The count value weighting factors configuration of the interval counter speed encoder is faulty - illegal value in .Encoder_N.IntervalCounterConversionData
5031	The set logical address for the count value interface of the interval counter speed encoder is faulty - illegal value in .Encoder_N.IntervalCounterConversionData.DriverInfo.logAddress
6000	The traversing distance monitoring up to the reference point switch is configured in the configuration data, but the configured maximum distance to be traversed is zero.

6001	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfMaxBufferedCommandId
6002	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfQueueCommands
6003	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfImmediateCommands
6004	Configuration of behaviourAtTheEndOfProfile not implemented
6005	Illegal value for configuration data for maximum acceleration
6006	Illegal value for configuration data for maximum jerk
6007	Illegal value for configuration data for maximum force/pressure setpoint
6008	Illegal value for configuration data for maximum force/pressure setpoint increase
6009	Illegal value for configuration data for Synchronous operation tolerance based on setpoint
6010	Illegal value for configuration data for Synchronous operation tolerance based on actual value
6011	Illegal value for configuration data for Synchronous operation tolerance activation based on setpoint
6012	Illegal value for configuration data for Synchronous operation tolerance activation based on actual value
6013	Illegal value for configuration data for profile end identification tolerance window
6014	Illegal value for configuration data for actual value extrapolation time
6015	Illegal value for configuration data for actual value coupling tolerance window
6016	Illegal value for the injection tolerance configuration (relieveWindow) at software limit switch
6017	Illegal value for the type specification configuration (monitoringAtMotionStart) at software limit switch
6052	Illegal value for the configuration mode (modeSpecificMonitoring) at software limit switch
6053	Illegal value for the profile type configuration (stopJerk) on software limit switch
6018	Illegal value for configuration data for axis-specific path tolerance activation based on setpoint
6019	Illegal value for configuration data for axis-specific path tolerance based on setpoint
6020	Illegal value for configuration data for axis-specific path synchronization tolerance activation based on setpoint
6021	Illegal value for configuration data for axis-specific path synchronization tolerance based on setpoint
6022	Illegal value for configuration data driveControlConfig.releaseDisableMode (RELEASE_DISABLE drive behavior error response)
6023	Illegal value for configuration data of velocity type with master value extrapolation of actual values
6024	Illegal value for configuration data TypeOfAxis.Homing.direction, 'Approach direction during homing'
6025	Illegal value for configuration data TypeOfAxis.Homing.beroDistance, 'Maximum distance to the homing output cam'
6026	Illegal value for configuration data for Synchronous operation error message at master value

6027	Illegal value for the configuration data TypeOfAxis.DecodingConfig.directionDynamic
6028	Illegal value for the configuration data TypeOfAxis.DecodingConfig.behaviourAtTheEndOfProfile
6029	Illegal value for the configuration data TypeOfAxis.DecodingConfig.decodeSequentialMotionCommand
6030	Illegal value for the configuration data TypeOfAxis.DecodingConfig.transferSuperimposedPosition
6031	Illegal value for the configuration data TypeOfAxis.DecodingConfig.speedModeSetPointZero
6032	Illegal value for the configuration data TypeOfAxis.DecodingConfig.stopWithJerk
6033	Illegal value for the configuration data TypeOfAxis.DecodingConfig.disableMotionOperation
6034	Illegal value for the configuration data TypeOfAxis.DecodingConfig.profileDynamicsLimiting
6035	Illegal value for the configuration data TypeOfAxis.DecodingConfig.cyclicSetUpInForceLimiting
6036	Illegal value for the configuration data TypeOfAxis.Homing.enableBeroDistance
6037	Illegal value for the configuration data TypeOfAxis.Homing.referencingNecessary
6038	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableLifeSignMonitoring
6039	Illegal value for the configuration data TypeOfAxis.DistributedMotion.numberOfLifeSignFailures
6040	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableDelayOfCommandValueOutput
6041	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableOffsetCompensation
6042	Illegal value for configuration data driveControlConfig.pulsesEnabledEvaluation (axis behavior for drive-independent stop response)
6050	Illegal value for the configuration data driveControlConfig.dataAdaption
6051	Illegal value for the configuration data driveControlConfig.disableModeSpecification
6043	Illegal value for the configuration data TypeOfAxis.ControllerSwitchData.NumberOfDigitalInputs.number
6044	Illegal logical address of the digital input in the configuration data structure TypeOfAxis.ControllerSwitchData.NumberOfDigitalInputs.DigitalInput_x
6045	Illegal value for configuration data for maximum deceleration
7000	Illegal data in process model configuration
2045	Evaluation of the PulsesEnabled bit (pulsesEnabledEvaluation = YES) is not possible in telegram 1 (telegramType = DP_TEL1_STANDARD).
2046	Evaluation of the PulsesEnabled bit (pulsesEnabledEvaluation) is not carried out when using DSDB.

Additional information:	More detailed description of the error origin
Meaning for category 3	Number of the data set on the technology object for which the alarm was issued
Meaning for category 4	Not relevant
Meaning for category 5	Number of the encoder on the technology object that issued the alarm

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT

Remedy

Change the configuration data.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

Yes

20007 Interconnection error (category: /1/%d, context: /2/%d, context parameter1: /3/%d, context parameter2: /4/%d)

Cause

This alarm indicates errors in the interconnection of technology objects. When the interconnection is established, the technology object verifies it on the basis of the interface properties. Errors are classified by category.

Additional information for a more detailed description of the error can be output from the context. An error context is output for selected error categories. Additional context parameters can be output for a context, if necessary. Context and context parameters are output as an integer value.

Meaning of alarm parameters

Category:	
1	Technology object compatibility error An interconnection is to be established with a technology object that has been configured with another reference system (e.g. output cams with rotary reference system and linear axis).
2	Exclusive interface An interface on a technology object that can only be connected to another technology object using one coupling type should be interconnected using different, mutually exclusive couplings. For example, the master value interface on a positioning axis for an interconnected synchronous object can only be operated as a setpoint or an actual value coupling.
3	Interconnection request The technology object awaits the interconnection to another technology object (necessary interconnection) in order to provide its functionality. Thus, for example, the interconnection to a gear axis is a required interconnection on a synchronous object.
4	Error during interface initialization The alarm is output in the event of initialization errors when connecting interfaces on the technology object.
5	Interface not available on technology object An interface required in the interconnection is not available on the technology object.
6	Recursion The interconnection on the technology object results in a recursion in the execution system of the technology package. The technology object does not support recursive execution.
7	Execution level compatibility error An interconnection is to be established with a technology object that is classified in a different execution level (e.g. output cam in execution level IPO and axis in execution level IPO_2). The technology object does not support interconnection to technology objects of other execution levels.
8	Initialization distribution In the case of interconnected technology objects that are distributed among different devices, an error occurred during initialization of the communication.

9	<p>Illegal TO state The technology object cannot be interconnected in the current state. A technology object can be interconnected only after the configuration has been successfully completed. Refer to the diagnostic buffer to determine the exact cause of the error. The cause of the illegal TO state is entered there (e.g. a level overflow during the configuration phase) and can then be corrected (in the example, by allowing level overflows in the task configuration).</p>
10	<p>Interface assignment The configured interface via which the technology object communicates cannot be used from the processing cycle clock of the technology object.</p>
11	<p>Active command in recursive TO interconnection The interconnection of the technology object and the enable state at its inputs result in an active recursive interconnection (positive feedback).</p>

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

Context / context parameter:

Contact the hotline and provide the name of the context parameter.

Category:

1 - Technology object compatibility error

Check the configuration and set a common reference system for the technology objects to be interconnected.

2 - Exclusive interface

Ensure that the project is consistent. Contact the hotline, if necessary.

3 - Interconnection request

Ensure that the project is consistent. The missing interconnection on the technology object is specified in the context:

Context

TO type

Interface

4 - Error during interface initialization

Contact the hotline and provide the name of the context parameter.

5 - Interface not available on technology object

Contact the hotline and provide the name of the context parameter.

6 - Recursion

Check the interconnection topology of your project. Remove unnecessary interconnections.

7 - Execution level compatibility error

Select a common execution level in the configuration for the technology objects to be interconnected (e.g. output cam and axis in IPO_2).

8 - Initialization distribution

- Ensure that your project is consistent. For proper configuration of communication, all devices must be compiled ('Project/Save and compile all' or "Save and compile all new').
- Determine whether all devices are selected for loading the project ('Target system/Select target devices...').
- Check whether the configured bus topology matches the actual bus topology.
- Ensure that the devices are linked in the bus configuration (PROFIBUS).
- Check whether isochronous operation was selected.
- In addition, the address areas that are used by the devices for communication must be set up. The address areas are automatically set up when the project is compiled; only afterwards is the valid hardware configuration available for downloading. Do not change automatically generated address areas afterwards.
- Contact the hotline and provide the name of the context parameter.

9 - Illegal technology object state

- Correct the configuration of the technology object.
- Eliminate the execution error.

10 - Interface assignment

- Configure the bus interface to match the processing cycle clock (e.g. fast bus system and axis in FastIPO).

11 - Active command in recursive TO interconnection

- Inputs of technology objects can already be enabled during the download (e.g. TO AdditionObjectType). Remove or change the relevant interconnection on the technology object or switch a technology object, whose input is enabled by the user program and not already by the download, into the positive feedback branch.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

Yes

20008 Assignment of USER_DEFAULT to system variables is not possible**Cause**

It is not appropriate to assign USER_DEFAULT to a UserDefault system variable, because the variable references itself in this case.

As a result, a meaningful value cannot be generated on readout. When this error occurs, the new Enum value is not assigned. The variable retains the old value.

Remedy

USER_DEFAULT is intended for use in technology commands. Avoid assigning it to system variables.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

20009 The permissible difference between encoders (/1/%d) and (/2/%d) has been exceeded

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

The permissible difference between two encoders (slip monitoring) has been exceeded.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT

Remedy

1. Check the mechanical configuration.
2. Check the settings of the dynamic limit values (acceleration, jerk).

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

Yes

20010 A restart is required to activate the configuration data**Cause**

The configuration cannot be activated, since data has been modified preventing the activation. The technology object must be restarted to activate the data.

Remedy

- Execute the technology object reset command, and set the 'activateRestart' parameter to 'ACTIVATE_RESTART'.
- Set the 'restartActivation' system variable to 'ACTIVATE_RESTART'.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

20011 **Error occurred while activating the configuration (category: /1/%d, error number: /2/%d, additional information: /3/%d)**

Cause

This alarm indicates error conditions when activating the configuration. The error conditions can be traced back to an incorrect or inconsistent configuration. The technology objects perform a plausibility check on the configuration. Errors are identified by the error codes below. The configuration is not activated when this alarm occurs.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of the error
500	Illegal technology object configuration state.
501	More configuration data expected than received.
502	Invalid configuration data.
503	Version conflict in configuration.
504	The configured task level is not supported by this TO.
505	The value range of the maximum number of command IDs has been violated.
506	The configured task level is not supported by the used hardware.
1000	General configuration error
1001	Communication error during data transmission
2000	Error in actuator system configuration.
2001	Outside of manipulated variable limits.
2003	Error in load gear factors.
2004	Error in maximum velocity.
2005	Maximum velocity greater than maximum attainable velocity.
2006	Drive not suitable for torque-controlled or torque-limited operation
2007	Linear stepper motor not implemented
2008	Right-justified format for direct output not implemented
2009	Illegal value in resolution for direct output
2010	Missing configuration data for actuator system
2011	Missing configuration data for additional actuator system
2012	The backstop range (min to max) does not contain a zero point
2014	Drive or telegram not suitable for torque superimposition
2015	Gear ratios less than or equal to 0.
2016	Resolution for stepper motor is 0.
2017	Illegal value for configuration data maxSpeed.
2018	Illegal value for configuration data maxVelocity.
2019	Range limits of configuration data exceeded.
2020	Range limits for maximum acceleration exceeded.
2021	Illegal values for dead zone compensation.
2022	Illegal values for sliding friction compensation.
2023	Illegal values for backstop.
2024	Error in friction compensation parameter
2025	DIRECT output: Analog and bit driver of a shared output are parameterized in different ways on the various axes
2026	Illegal value for pulsesEnable
2027	Illegal value for maxSpeed ($\text{maxSpeed} \geq 2 \cdot \text{nominalSpeed}$)
2028	Illegal value for maxSpeed ($\text{maxSpeed} \leq 10 \text{ V} / \text{maxSetPointVoltage} \cdot \text{nominalSpeed}$)
2029	Illegal value in TypeOfAxis.SetPointDriverInfo
2030	A parameter in DriveData is not correct.
2031	A parameter in LinearMotorDriveData is not correct.
2032	A parameter in StepMotorDriveData is not correct.

2033	A parameter in QOutput.EnableBit is not correct.
2034	A parameter of the technological data block is not correct.
2035	A parameter of the safety data block is not correct.
2036	A parameter of the operating characteristics data block is not correct.
2037	Cannot change the configuration during the drive adaptation.
2038	Illegal value for the manipulated variable filter
2040	No driver could be requested under the logical input address.
2041	No driver could be requested under the logical output address.
2042	The numerator of the load gear is incorrect.
2043	The nominal factor of the load gear is incorrect.
2044	The value for the reference velocity is incorrect.
3000	Error in encoder system.
3001	Illegal value in Simulation.simulationMode
3002	The set axis type is invalid - illegal value in TypeOfAxis.typeOfAxis
3003	The set drive leadscrew pitch is invalid - illegal value in Leadscrew.pitchVal
3004	The set modulo activation is invalid - illegal value in Modulo.state
3005	Illegal specification(s) in the encoder data (incremental, absolute, etc.).
3006	The set number of encoders is invalid - illegal value in .NumberOfEncoders.numberOfEncoders
3007	Illegal incremental encoder number.
3008	Illegal data combination for homing with incremental encoder.
3009	The configuration of the 'Backlash compensation' encoder function is faulty - illegal value in .Encoder_N.IncBacklash or .Encoder_N.AbsBacklash
3010	Illegal data on SSI encoder.
3011	The configuration of the 'Absolute encoder adjustment' encoder function is faulty - illegal value in .Encoder_N.AbsHoming
3012	The configuration of the 'Counting direction of the raw actual encoder value' encoder function is faulty - illegal value in .Encoder_N.InversCountDirection.encoderFeedbackPolarity
3013	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptDrive
3014	The configuration of the 'Encoder limit frequency monitoring' encoder function is faulty - illegal value in .Encoder_N.FrequencyLimit.encoderFrequencyLimit
3015	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptLoad
3016	The load gear ratio configuration of a data set is faulty - illegal value in .DataSet_N.Gear
3017	Encoder data sequence and number of encoders do not match.
3018	The configuration of an encoder is incomplete
3019	The set mounting location of the encoder is invalid - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3020	The encoder simulation is either not supported or it is not activated simultaneously on the actuator and the sensor - illegal value in .Encoder_N.encoderIdentification or .SetPointDriverInfo.mode
3021	The number of configured data sets or the number of the active data set after the startup is invalid - illegal value in DataSet_N.numberOfDatasets or in DataSet_N.initDataSet

3022	The number of the encoder assigned to a data set is invalid - illegal value in DataSet_N.EncoderNumber.encoderNumber
3023	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptExtern
3024	The configuration of the encoder measuring wheel circumference is faulty - illegal value in .Encoder_N.pathPerRevolution.length
3025	The configuration of the 'Actual velocity monitoring' function is faulty - illegal value in .ActualVelocityMonitoring
3026	Illegal encoder number in absolute encoder configuration.
3027	The set message format of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absMessageFormat
3028	The set baud rate of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.baudRate
3029	The set protocol format of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absState
3030	The number of the encoder assigned to a data set is invalid - illegal value in DataSet_N.EncoderNumber.encoderNumber
3031	The encoder assigned to a data set does not exist - illegal value in DataSet_N.EncoderNumber.encoderNumber
3032	The load gear ratio numerator configuration of a data set is faulty - illegal value in .DataSet_N.Gear.numFactor
3033	The load gear ratio denominator configuration of a data set is faulty - illegal value in .DataSet_N.Gear.denFactor
3034	An encoder references a data set that does not exist
3035	An encoder references a data set that does not exist
3036	Encoder not configured.
3037	Homing with encoder zero mark and ENDAT encoder is not possible - illegal value in .Encoder_N.IncHomingEncoder.homingMode
3038	Homing to the falling edge of an external zero mark on an onboard input is not possible - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3039	Flying homing with encoder zero mark and ENDAT encoder is not possible - illegal value in .Encoder_N.IncHomingEncoder.passiveHomingMode
3040	Flying homing to the falling edge of an external zero mark on an onboard input is not possible - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3041	The (modified) encoder configuration does not permit any determination of the factors for converting the encoder raw actual values into actual position and velocity values or for converting the position and velocity setpoints into DSC encoder raw actual values, taking account of the mechanical relationships.
3042	Illegal data combination for homing with external encoder.
3043	The incremental position of the encoder is outside the permissible value range.
3044	The incremental position of the encoder is outside the permissible value range.
3045	The configuration of the linear encoder resolution is faulty - illegal value in .Encoder_N.Resolution
3046	The configuration of the encoder actual velocity values filter is faulty - illegal value in .Encoder_N.Filter
3047	The configuration of the encoder actual velocity values filter for the interpolator is faulty - illegal value in .SmoothingFilter

3048	The configuration of the encoder actual velocity values filter for the actual value coupling (Synchronous operation) is faulty - illegal value in .Extrapolation.Filter
3049	The set number of the DSC encoder is invalid - illegal value in .NumberOfEncoder.dscEncoderNumber
3050	The configuration of the encoder system has not been completed correctly.
3051	The configuration of the stepper motor encoder data is faulty - illegal value in .Encoder_N.StepMotorMonitoring
3052	The set encoder actual value type does not match its configuration or the technology object type - illegal value in .Encoder_N.encoderValueType
3053	Homing on a stepper motor is only possible with an external zero mark - illegal value in .Encoder_N.incHomingEncoder.homingMode
3054	Flying homing on a stepper motor is only possible with an external zero mark - illegal value in .Encoder_N.incHomingEncoder.passiveHomingMode
3055	The configuration of a stepper motor with encoder is only possible on a real axis - illegal value in .Encoder_N.encoderMode
3056	Only one encoder may be configured on a stepper motor - illegal value in .NumberOfEncoders.numberOfEncoders
3057	The DSC encoder is not a PROFIBUS encoder - illegal value in .NumberOfEncoders.dscEncoderNumber or .Encoder_N.encoderIdentification
3058	The DSC encoder telegram does not support DSC - illegal value in .Encoder_N.DriverInfo.telegramType
3059	Set modulo value in Modulo.length is smaller than an increment.
3060	The encoder configuration for the position difference measurement is faulty - illegal value in .Encoder_N.PositionDifferenceMeasurement
3061	The set limits for the position difference supplied by the encoder are invalid - illegal value in .Encoder_N.PositionDifferenceMeasurement.Range
3062	The activation of the 'Backlash compensation' encoder function is only possible for motor encoders - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3063	The configuration of a TO externalEncoder for the operation as encoder on a stepper motor is not possible - illegal value in .Encoder_N.encoderMode
3064	The set resolution of the encoder is invalid - illegal value in .Encoder_N.IncEncoder.incResolution
3065	The set resolution of the encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absResolution
3066	The set multiplication factor for the cyclic actual value of the encoder is invalid - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic
3067	The set multiplication factor for the cyclic actual value of the encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absResolutionMultiplierCyclic
3068	The assignment of a velocity encoder to a data set on a positioning axis is not permitted - illegal value in DataSet_N.EncoderNumber.encoderNumber
3069	The configuration of the 'Tolerance of an encoder error' encoder function is invalid - illegal value in .Encoder_N.SensorControlConfig.tolerateSensorDefect
3070	The configuration of the 'Direct reading of the actual speed value (Nact) from the PROFIDrive telegram' encoder function is faulty - illegal value in .Encoder_N.NistDriverConfig
3071	The configuration of the reference cam is invalid - illegal value in .Encoder_N.IncHomingEncoder.referenceCamType
3072	The configuration of the negative reversing cam is faulty - illegal value in .Homing.ReverseCamNegative

3073	The configuration of the positive reversing cam is faulty - illegal value in .Homing.ReverseCamPositive
3074	The set edge of the external zero mark does not match the set homing approach direction - illegal value in .Encoder_N.IncHomingEncoder.approachDirection or .Homing.direction
3075	The use of reversing cams in the selection of .Homing.direction = 'POSITIVE_ALL_HOMING' or .Homing.direction = 'NEGATIVE_ALL_HOMING' as homing approach direction is not permitted - illegal configuration in .Homing.ReverseCamNegative._type or .Homing.ReverseCamPositive._type
3076	The set approach direction of the zero mark or edge of the external zero mark does not match the set homing approach direction - illegal value in .Encoder_N.IncHomingEncoder.approachDirection or .Homing.direction
3077	The use of hardware limit switches as reference cams in the selection of .Homing.direction = 'POSITIVE_ALL_HOMING' or .Homing.direction = 'NEGATIVE_ALL_HOMING' as homing approach direction is not permitted - illegal value in .Encoder_N.IncHomingEncoder.referenceCamType
3078	The configuration of the 'Ready bit' encoder function is faulty - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring
3079	The configuration of the 'Error bit' encoder function is faulty - illegal value in .Encoder_N.AnalogSensor.ErrorStateMonitoring
3080	The encoder Ready bit is in the range of the actual encoder value data bit - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress and/or .Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber
3081	The encoder Error bit is in the range of the actual encoder value data bit - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress and/or .Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber
3082	The configuration of the external zero mark interface is faulty - illegal value in .Encoder_N.IncHomingEncoder.StateDriveExternalZeroMark
3083	The configuration of the 'Update counter' encoder function is faulty - illegal value in .Encoder_N.AnalogSensor.UpdateCounter
3084	The encoder Update counter bits are in the range of the actual encoder value data bits - illegal value in .Encoder_N.AnalogSensor.UpdateCounter.logAddress and/or .Encoder_N.AnalogSensor.UpdateCounter.bitNumber
3085	The encoder Update counter bits and the Read bit overlap - illegal value in .Encoder_N.AnalogSensor.UpdateCounter.logAddress and/or .Encoder_N.AnalogSensor.UpdateCounter.bitNumber
3086	The encoder Update counter bits and the Error bit overlap - illegal value in .Encoder_N.AnalogSensor.UpdateCounter.logAddress and/or .Encoder_N.AnalogSensor.UpdateCounter.bitNumber
3087	The configuration of the 'Direct reading of the actual speed value (Nact) from the PROFIDrive telegram' encoder function is faulty - illegal value in .Encoder_N.SensorNist
3088	The configuration of the encoder with the identification 'SET_ACTUAL_VALUE' is faulty - illegal value in .Encoder_N.SensorSetActualValue
3089	The configuration of the encoder actual position values filter is faulty - illegal value in .Encoder_N.PositionFilter
3090	The configuration of the encoder actual position values filter for the actual value coupling (Synchronous operation) is faulty - illegal value in .Extrapolation.ExtrapolationPositionFilter

3091	The set multiplication factor for the cyclic actual value is not consistent with the known value on the drive encoder - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic or .Encoder_N.absEncoder.absResolutionMultiplierCyclic or .Encoder_N.Resolution.multiplierCyclic
3092	The set modulo length is invalid - illegal value in Modulo.length
3093	The set modulo start value is invalid - illegal value in Modulo.startValue
3094	Homing with deactivated hardware limit switches as reversing cams is not possible - illegal value in .Homing.ReverseCamNegative._type and/ or .Homing.ReverseCamPosition._type
3095	The set encoder identification is invalid - illegal value in .Encoder_N.encoderIdentification
3096	The set encoder mode is invalid - illegal value in .Encoder_N.encoderMode
3097	The set encoder type is invalid - illegal value in .Encoder_N.encoderType
3098	The set encoder system is invalid - illegal value in .Encoder_N.encoderSystem
3099	The set actual value type is invalid - illegal value in .Encoder_N.encoderValueType
3100	The set utilization status of the actual value interface is invalid - illegal value in .Encoder_N.interfaceAllocation
3101	The set encoder mode is not supported by the TO externalEncoder - illegal value in .Encoder_N.encoderMode
3102	The set actual value type is not supported by the TO externalEncoder - illegal value in .Encoder_N.encoderValueType
3103	Only the 'VELOCITY' actual value type is permitted on a drive axis - illegal value in .Encoder_N.encoderValueType
3104	The set encoder mode does not match the set combination of encoder type and encoder identification - illegal value in .Encoder_N.encoderMode
3105	The set encoder type is not supported for encoders with the set encoder identification - illegal value in .Encoder_N.encoderType
3106	The encoder configuration does not match the set combination of encoder type and encoder identification - illegal value in .Encoder_N.encoderMode or .Encoder_N.encoderSystem or .Encoder_N.encoderValueType
3107	The configuration of the encoder for the position difference measurement requires the setting of the 'POSITION' actual value type - illegal value in .Encoder_N.encoderValueType
3108	Only encoders of the 'SENSOR_INCREMENTAL' type are supported on an axis of the 'REAL_AXIS_WITH_SIGNAL_OUTPUT' type - illegal value in .Encoder_N.encoderType
3109	Only the 'SENSOR_ABSOLUTE' encoder type is supported on an encoder with the 'SET_ACTUAL_VALUE' encoder identification - illegal value in .Encoder_N.encoderType
3110	The set combination of encoder type and encoder mode is not supported within the context of a linear encoder - illegal value in .Encoder_N.encoderType and .Encoder_N.encoderMode
3111	The configuration of a linear encoder on a rotary axis is not possible - illegal value in .Encoder_N.encoderSystem
3112	The configuration of the reference cam zero mark distance monitoring is faulty - illegal value in .Encoder_N.IncHomingEncoder.beroDistance or .Encoder_N.IncHomingEncoder.enableZeroMarkDistance

3113	The set home position offset is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.proceedShiftPos</code>
3114	The configuration of the reference cam interface is faulty - illegal value in <code>.Encoder_N.incHomingEncoder.bitNumberBero</code> or <code>.Encoder_N.incHomingEncoder.logAddressBero</code>
3115	The set zero mark approach direction is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.approachDirection</code>
3116	Homing setting faulty: Zero mark approach direction is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveApproachDirection</code>
3117	The configuration of the reference cam interface is faulty - illegal value in <code>.Encoder_N.incHomingEncoder.passiveBitNumberBero</code> or <code>.Encoder_N.incHomingEncoder.passiveLogAddressBero</code>
3118	The set homing mode is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.homingMode</code>
3119	The set homing mode is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveHomingMode</code>
3120	The set zero mark approach direction does not match the set homing mode - illegal value in <code>.Encoder_N.IncHomingEncoder.approachDirection</code>
3121	The set external zero mark approach direction does not match the set homing mode - illegal value in <code>.Encoder_N.IncHomingEncoder.approachDirection</code>
3122	The set zero mark approach direction does not match the set homing mode - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveApproachDirection</code>
3123	The set external zero mark approach direction does not match the homing mode - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveApproachDirection</code>
3124	The set type of the reference cam is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.referenceCamType</code>
3125	The set reference cam type does not match the set zero mark approach direction - illegal value in <code>.Encoder_N.IncHomingEncoder.referenceCamType</code>
3126	The resource required for the reference cam cannot be requested - illegal value in <code>.Encoder_N.IncHomingEncoder.logAddress</code> and/ or <code>.Encoder_N.IncHomingEncoder.bitNumber</code> or no memory available
3127	The resource required for the reference cam cannot be requested - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveLogAddress</code> and/ or <code>.Encoder_N.IncHomingEncoder.passiveBitNumber</code> or no memory available
3128	The resource required for the external zero mark cannot be requested - illegal value in <code>.Encoder_N.incHomingEncoder.StateDriveExternalZeroMark.logAddress</code> and/ or <code>.Encoder_N.incHomingEncoder.StateDriveExternalZeroMark.bitNumber</code> or no memory available
3129	The resource required for the positive reversing cam cannot be requested - illegal value in <code>.Homing.ReverseCamPositive.logAddress</code> and/ or <code>.Homing.ReverseCamPositive.bitNumber</code> or no memory available
3130	The resource required for the negative reversing cam cannot be requested - illegal value in <code>.Homing.ReverseCamNegative.logAddress</code> and/ or <code>.Homing.ReverseCamNegative.bitNumber</code> or no memory available
3131	The resource required for the 'Update counter' of the analog encoder cannot be requested - illegal value in <code>.Encoder_N.AnalogSensor.UpdateCounter.logAddress</code> and/ or <code>.Encoder_N.AnalogSensor.UpdateCounter.bitNumber</code> or no memory available

3132	The resource required for the 'Read state bit' of the analog encoder cannot be requested - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress and/ or .Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber or no memory available
3133	The resource required for the 'Error state bit' of the analog encoder cannot be requested - illegal value in .Encoder_N.AnalogSensor.ErrorStateMonitoring.logAddress and/ or .Encoder_N.AnalogSensor.ErrorStateMonitoring.bitNumber or no memory available
3134	The configuration of the actual value interface is faulty - illegal value in .EncoderN.DriverInfo
3135	The configuration of the encoder actual value interface is faulty - illegal value in .EncoderN.DriverInfoDirectIncremental
3136	The configuration of the sensor measuring gear ratio is faulty - illegal value in .Sensor.ConversionDataAdapt
3137	Only an encoder with the 'DRIVE' encoder mounting type is permitted as DSC encoder - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3138	An encoder with the encoder value type 'POSITION_AND_PROFIDRIVE_ENCODER_NIST_B' is supported only on a TO positioning axis or as TO external encoder in conjunction with the encoder identification 'DPMMASTER' or 'SIMULATION' and the encoder telegram type 'DP_TEL83_STANDARD' - illegal TO type or illegal value in .Encoder_n.encoderIdentification or in .Encoder.DriverInfo.telegramType
3139	The number assigned to an encoder lies outside the number of the last configured encoder 'NumberOfEncoders.numberOfEncoders'
3140	The configuration of the encoder configuration data adaptation is faulty - illegal value in .Encoder_N.dataAdaption
3141	Both the adapted and the configured encoder configuration are invalid
3143	The multiplication factor for the cyclic actual value and/or the multiplication factor for the absolute value in conjunction with the configured encoder mode (Encoder_N.encoderMode) is invalid - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic or .Encoder_N.absEncoder.absResolutionMultiplierCyclic and/ or .Encoder_N.Resolution.multiplierCyclic or Encoder_N.Resolution.multiplierCyclic
3144	The set fine resolution for the cyclic absolute value (Gn_XIST2) is invalid - illegal value in .Encoder_N.AbsEncoder.absResolutionMultiplierAbsolute
4000	Error in controller.
4001	Negative acceleration specified.
4002	Unknown 'FipoType' requested.
4003	Error in runtime system, ratio of controller cycle clock to interpolator cycle clock is incorrect.
4004	Requested filter order not possible.
4005	Reserve for later use.
4006	Maximum limit is lower than minimum.
4007	Reserve for later use.
4008	Error in configuration data for controller.
4009	Reserve for later use.
4010	Reserve for later use.

4011	Reserve for later use.
4012	Reserve for later use.
4013	Requested controller type is not available.
4014	Error in controller factors.
4015	Precontrol activated, kpc less than 0 or kpc greater than 150.
4016	Reserve for later use.
4017	Reserve for later use.
4018	Reserve for later use.
4019	Reserve for later use.
4020	Reserve for later use.
4021	Reserve for later use.
4022	Reserve for later use.
4023	Precontrol activated, kpc less than or equal to 0.
4024	Reference model monitoring: Error in value of tolerance window.
4025	Error in limit value for standstill signal.
4026	Error in parameter for positioning monitoring.
4027	Simultaneous activation of reference model and dynamic following error monitoring not allowed.
4028	Sampling time parameter calculated incorrectly.
4029	Too many data sets requested.
4030	Error in runtime system, ratio of controller cycle clock to interpolator cycle clock is incorrect.
4031	Error in time constant for emergency ramp generator (positionTimeConstant).
4032	Precontrol active, but fine interpolator type is DIRECT.
4033	Default data set outside limits.
4034	Maximum number of data sets not possible.
4035	Unknown data set change mode.
4036	Following error monitoring not activated/deactivated in all data sets.
4037	Reference model monitoring not activated/deactivated in all data sets.
4038	Different controller type in data sets.
4039	Precontrol activated/deactivated differently in data sets.
4040	Time constant is 0.
4041	Error in dynamic adaptation parameter.
4042	System variable initialization could not be read.
4043	Driver simulation not implemented.
4044	Connection for stepper motors not implemented.
4045	Maximum velocity cannot be attained; maximum drive speed or normalization factor is incorrect.
4046	DSC requires motor encoder data to be specified.
4047	Drive or telegram type not suitable for DSC.
4048	Error in clamping monitoring parameter. 'No detection' is not permitted for the fixed endstop detection
4049	A sensor is required to monitor actual velocity using 'DynamicControl'.
4050	Inconsistent PROFIBUS parameterization; the sum of Ti and To is greater than a DP cycle

4051	Error in manipulated variable limitation parameter of force/pressure controller
4052	Error in force/pressure entry monitoring parameter
4053	Error in force/pressure end value monitoring parameter
4054	Force/pressure entry monitoring tolerance less than pressure end value monitoring tolerance
4055	Error in force/pressure control deviation monitoring parameter
4056	Different activation/deactivation of control deviation monitoring of force/pressure controller in data sets not permitted
4057	Different manipulated variable inversion of force/pressure controller in data sets not permitted
4058	Different force/pressure sensor types in data sets not permitted
4059	Different activation/deactivation of anti-windup in data sets not permitted
4060	Kd factor of PID_ACTUAL controller is greater than 1
4061	Time constant of process model T1 less than or equal to T2
4062	Illegal actuator type selection
4063	Error in sliding friction compensation parameter
4064	Error in offset injection parameter
4065	Precontrol for force/pressure control not implemented
4066	Error in standstill monitoring parameter
4067	Following error monitoring: minVelocity cannot be greater than or equal to maxVelocity
4068	Maximum buffer length of balancing filter (Mode_2) is reached or exceeded. As the servo cycle is included in the calculation of the equivalent time constant of the speed control loop (=velocityTimeConstant), the maximum value of this time constant is limited to 16 servo cycles. The buffer length of the lag element is maximum 16.
4069	System-related dead times are less than 0 after allowing for additionalTime
4070	Controller types other than DIRECT require configuration of an encoder.
4071	Illegal values for delayTimeToActivate of standstill signal
4072	The I/O device for the positive HW limit switch is not available
4073	The I/O device for the negative HW limit switch is not available
4074	Range limits of controller parameter exceeded.
4075	Range limit of brake deceleration of emergency ramp exceeded.
4076	Range limit of equivalent time constant exceeded.
4077	Range limit for velocityTimeConstant exceeded.
4078	Error in value for QFDynamicData configuration.
4079	Error in value for reference model monitoring.
4080	Error in following error monitoring parameter
4081	Error in clamping monitoring parameter
4082	Error in value for DynamicData configuration.
4083	Error in value for PV controller configuration.
4084	Configuration data missing for controller.
4085	Error in value for SystemDeadTimeData configuration.
4086	Pressure control only possible with closed-loop speed controller
4087	DSC and compensation of valve curve not possible
4088	DSC not possible on hydraulic axes

4089	Time constants of dynamic response compensation must not be equal
4090	Incorrect value for system dead time correction
4091	Different activation of manipulated variable filter of pressure controller in data sets
4092	Different activation of dynamic response compensation in data sets
4093	Activation of DSC is not the same in all data sets
4094	Balancing filter type is not the same in all data sets
4095	Illegal value for balanceFilterMode. For a drive axis, only MODE_1 is permitted (PV_Controller.balanceFilterMode).
4096	Activation of anti-windup is not the same in all data sets
4097	Activation of setpoint quantization is not the same in all data sets
4098	Activation of the reference model monitoring is not the same in all data sets
4099	Fixed endstop detection mode is not the same in all data sets
4100	Force controller is not the same in all data sets
4101	Force sensor type UNI_DIRECTION is not implemented
4102	Error in the time constant for smoothing controller parameters
4103	If encoderNumber = 0, ControllerStruct.conType must be DIRECT.
4104	The travel to fixed stop function is not possible on a QF axis.
4105	The integratorFeedbackTimeConstant cannot be less than 0
4106	Illegal value for CommandValueQuantization.value
4107	An electrical drive axis (typeOfAxis = REAL_KIND_OF_AXIS) may only have DIRECT as controller type (conType = DIRECT)
4108	Dead time of dynamic response compensation must not be zero.
4109	Time constant for smoothing manipulated variable jumps during data set changeover must not be less than zero.
4110	The parameters of the manipulated variable filter in the pressure controller are illegal.
4111	Range limit for positionTimeConstante exceeded.
4112	Force/pressure controller type not possible.
4113	Time constant for smoothing manipulated variable jumps outside the limits.
4114	The speed/velocityReference parameter must be set to NOMINAL_SPEED with active adaptation.
4115	The torque/forceReference parameter must be set to NOMINAL_TORQUE/ FORCE with active adaptation.
4116	The parameters in HWEndPos are not consistent.
4117	The setting disableModeSpecification = OFF1_AND_OFF3_MODE is only possible with a digital drive coupling.
4120	Error in following error monitoring parameter. Illegal value in DynamicFollwong.minPositionTolerance
4121	Error in following error monitoring parameter. Illegal value in DynamicFollwong.maxPositionTolerance
4122	Error in following error monitoring parameter. Illegal value in DynamicFollwong.minVelocity
4123	Error in following error monitoring parameter. Illegal value in DynamicFollwong.warningLevel
4124	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.posWinTolTime

4125	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.posWinTolDelayTime
4126	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.tolerance
5000	Encoder data sequence and number of encoders do not match.
5001	The set number of force/pressure sensors is invalid - illegal value in .NumberOfAdditionalSensors.number
5002	The set type of the force/pressure sensor is invalid - illegal value in .AdditionalSensor_N.additionalSensorType
5003	The actual value interface configuration of the force/pressure sensor is faulty - illegal value in .AdditionalSensor_N.DriverInfo
5004	The raw actual value weighting factors configuration of the force/pressure sensor is faulty - illegal value in .AdditionalSensor_N.ConversionData
5006	The value range limits configuration of the actual force/pressure value is faulty - illegal value in .AdditionalSensor_N.Range
5007	The configuration of the actual force/pressure value filter is faulty - illegal value in .AdditionalSensor.Filter
5008	Configuration of the force/pressure sensor not completed correctly.
5009	The number of the force/pressure sensor assigned to the data set is invalid - illegal value in .NumberOfDataSets.DataSet_N.AdditionalSensorNumber.number
5010	The sensor configuration for the force/pressure difference measurement is faulty - illegal value in .AdditionalSensor.PositionDifferenceMeasurement
5011	The number of the force/pressure sensor set as sensor A for the difference measurement is invalid - illegal value in .AdditionalSensor.PositionDifferenceMeasurement.numberSensorA
5012	The number of the force/pressure sensor set as sensor B for the difference measurement is invalid - illegal value in .AdditionalSensor.PositionDifferenceMeasurement.numberSensorB
5013	Illegal data in extrapolation configuration.
5014	The set execution cycle clock of the sensor is invalid - illegal value in Execution.executionlevel
5015	The set substitute value strategy for a technological alarm on the sensor is invalid - illegal value in .ValueOut.outputValueErrorBehaviorMode
5020	The configuration of the analog encoder actual value interface is faulty - illegal value in .Encoder_N.AnalogSensor.DriverInfo
5021	The configuration of the analog encoder actual position values filter is faulty - illegal value in .Encoder_N.AnalogSensor.PositionFilter
5022	The raw actual value weighting factors configuration of the analog encoder is faulty - illegal value in .Encoder_N.AnalogSensor.ConversionData
5023	The measuring input interface configuration for the analog encoder is faulty - illegal value in .Encoder_N.AnalogSensor.LogAddress
5030	The count value weighting factors configuration of the interval counter speed encoder is faulty - illegal value in .Encoder_N.IntervalCounterConversionData
5031	The set logical address for the count value interface of the interval counter speed encoder is faulty - illegal value in .Encoder_N.IntervalCounterConversionData.DriverInfo.logAddress
6000	The traversing distance monitoring up to the reference point switch is configured in the configuration data, but the configured maximum distance to be traversed is zero.

6001	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfMaxBufferedCommandId
6002	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfQueueCommands
6003	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfImmediateCommands
6004	Configuration of behaviourAtTheEndOfProfile not implemented
6005	Illegal value for configuration data for maximum acceleration
6006	Illegal value for configuration data for maximum jerk
6007	Illegal value for configuration data for maximum force/pressure setpoint
6008	Illegal value for configuration data for maximum force/pressure setpoint increase
6009	Illegal value for configuration data for Synchronous operation tolerance based on setpoint
6010	Illegal value for configuration data for Synchronous operation tolerance based on actual value
6011	Illegal value for configuration data for Synchronous operation tolerance activation based on setpoint
6012	Illegal value for configuration data for Synchronous operation tolerance activation based on actual value
6013	Illegal value for configuration data for profile end identification tolerance window
6014	Illegal value for configuration data for actual value extrapolation time
6015	Illegal value for configuration data for actual value coupling tolerance window
6016	Illegal value for the injection tolerance configuration (relieveWindow) at software limit switch
6017	Illegal value for the type specification configuration (monitoringAtMotionStart) at software limit switch
6052	Illegal value for the configuration mode (modeSpecificMonitoring) at software limit switch
6053	Illegal value for the profile type configuration (stopJerk) on software limit switch
6018	Illegal value for configuration data for axis-specific path tolerance activation based on setpoint
6019	Illegal value for configuration data for axis-specific path tolerance based on setpoint
6020	Illegal value for configuration data for axis-specific path synchronization tolerance activation based on setpoint
6021	Illegal value for configuration data for axis-specific path synchronization tolerance based on setpoint
6022	Illegal value for configuration data driveControlConfig.releaseDisableMode (RELEASE_DISABLE drive behavior error response)
6023	Illegal value for configuration data of velocity type with master value extrapolation of actual values
6024	Illegal value for configuration data TypeOfAxis.Homing.direction, 'Approach direction during homing'
6025	Illegal value for configuration data TypeOfAxis.Homing.beroDistance, 'Maximum distance to the homing output cam'
6026	Illegal value for configuration data for Synchronous operation error message at master value

6027	Illegal value for the configuration data TypeOfAxis.DecodingConfig.directionDynamic
6028	Illegal value for the configuration data TypeOfAxis.DecodingConfig.behaviourAtTheEndOfProfile
6029	Illegal value for the configuration data TypeOfAxis.DecodingConfig.decodeSequentialMotionCommand
6030	Illegal value for the configuration data TypeOfAxis.DecodingConfig.transferSuperimposedPosition
6031	Illegal value for the configuration data TypeOfAxis.DecodingConfig.speedModeSetPointZero
6032	Illegal value for the configuration data TypeOfAxis.DecodingConfig.stopWithJerk
6033	Illegal value for the configuration data TypeOfAxis.DecodingConfig.disableMotionOperation
6034	Illegal value for the configuration data TypeOfAxis.DecodingConfig.profileDynamicsLimiting
6035	Illegal value for the configuration data TypeOfAxis.DecodingConfig.cyclicSetUpInForceLimiting
6036	Illegal value for the configuration data TypeOfAxis.Homing.enableBeroDistance
6037	Illegal value for the configuration data TypeOfAxis.Homing.referencingNecessary
6038	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableLifeSignMonitoring
6039	Illegal value for the configuration data TypeOfAxis.DistributedMotion.numberOfLifeSignFailures
6040	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableDelayOfCommandValueOutput
6041	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableOffsetCompensation
6042	Illegal value for configuration data driveControlConfig.pulsesEnabledEvaluation (axis behavior for drive-independent stop response)
6050	Illegal value for the configuration data driveControlConfig.dataAdaption
6051	Illegal value for the configuration data driveControlConfig.disableModeSpecification
6043	Illegal value for the configuration data TypeOfAxis.ControllerSwitchData.NumberOfDigitalInputs.number
6044	Illegal logical address of the digital input in the configuration data structure TypeOfAxis.ControllerSwitchData.NumberOfDigitalInputs.DigitalInput_x
6045	Illegal value for configuration data for maximum deceleration
7000	Illegal data in process model configuration
2045	Evaluation of the PulsesEnabled bit (pulsesEnabledEvaluation = YES) is not possible in telegram 1 (telegramType = DP_TEL1_STANDARD).
2046	Evaluation of the PulsesEnabled bit (pulsesEnabledEvaluation) is not carried out when using DSDB.

Additional information:	More detailed description of the error origin
Meaning for category 3	Number of the data set on the technology object for which the alarm was issued
Meaning for category 4	Not relevant
Meaning for category 5	Number of the encoder on the technology object that did not issue the alarm

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT

Remedy

Change the configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

20012 Restart not carried out (reason: /1/%d)

Cause

Technology object could not be restarted.

Meaning of alarm parameters

Reason:	
1	The technology object configuration does not allow a restart with the restart system variable.
2	The technology object is not ready to be restarted.
3	A configured condition for restarting the technology object is not met (e.g. technology object must be 'disabled').
4	Restart was not performed with the last programmed configuration of the technology object because this is faulty
5	The configuration of the technology object does not permit any restart.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Reason:	
1	Initiate the restart using the reset command.
2	Reload the project.
3	Work around the cause stated in the Reason parameter, or reload the project.
4	Determine whether technological alarms were reported or error entries were made in the device diagnostics and, if necessary, remedy the cause.
5	Change the configuration to activate the appropriate restart capability.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

20014 Under logical address: /1/%d (optional log. address: /2/%d and bit no.: /3/%d of the enable output), a driver (type: /4/%d) could not be requested

Cause

The driver of a physical device is not available or is being used by another technology object.

The enable command for the technology object has been issued more than once with the 'immediately' stepping condition.

Meaning of alarm parameters

Logical address:	This is the address of the actuator driver configured on the technology object.
Logical address and bit number:	This specifies the address and bit number of the output enable bit.

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	DINT

Remedy

- Do not call the enable command cyclically "call the enable command only once for the axis enable".
- Check that the logical device was available at the time of the request or whether it was being used by another technology object.
- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

RELEASE_DISABLE

Diagnostics buffer entry

Yes

20015 Device type:/3/%d, log. address:/1/%d faulted. (Bit:/2/%d, encoder number:/5/%d, reason: 0x/4/%Xh)

Cause

The driver of a physical device or the device itself has failed or is faulty.

If this alarm occurs, the cause of the error must be evaluated in the external device (drive or encoder).

Meaning of alarm parameters

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver
12	Safety data block driver
13	Update counter
14	Operating characteristics data block driver

Logical address:	This is the logical input address configured on the technology object.
Bit number:	For bit driver type = 3 or 4 only; number of the bit
Encoder number:	Number of the encoder in case of telegrams with multiple encoders. Applies only when type = 2.
Reason:	0 - only defined when type = 2

Note

Addition of error messages

The codings for the reason of the failure specified below for the individual alarm types can also occur in combination. A group coding is indicated as the sum of several individual codings (e.g. 0x0005 = 0x0001 + 0x0004).

A failure reason labeled with DP can occur only for PROFIBUS devices.

Type = 1	
0x0001h	Fault message from the drive (note: for PROFIBUS drives, which support acyclic communication in accordance with PROFIdrive V3, the error number(s) of the drive are displayed in the diagnostic buffer, e.g. for Masterdrives MC)
0x0002h	DP: Drive signal "control requested" failed
0x0004h	DP: Drive disconnected itself
0x0008h	Slot for drive data is not available in the project
0x0010h	Actuator driver does not have a connection to the drive data
0x0020h	Actuator driver was not initialized during ramp-up
0x0080h	DP: Difference between configuration data and drive parameters (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	DP: Control signals to the PROFIdrive state machine were incorrectly specified
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
0x8000h	DP: Life-sign of drive has malfunctioned or failed
0x80000000h	The drive interface has been deactivated for the pending enables.
Type = 2	
0x0000h	The actual value changes exceed the limit value derived from the maximum velocity (configuration data TypeOfAxis.MaxVelocity.maximum) over multiple cycles. This monitoring can be activated or deactivated with configuration data TypeOfAxis.NumberOfEncoders.Encoder_x.AbsEncoder.enableAbsMonitoring.
0x0001h	Alarm message from encoder (note: the encoder error number(s) are displayed in the diagnostic buffer)
0x0002h	General hardware error of encoder
0x0004h	Encoder is dirty
0x0008h	Slot for encoder data is not available in the project
0x0010h	Encoder driver does not have a connection to the encoder data
0x0020h	Encoder driver was not initialized during ramp-up
0x0040h	Error when reading the absolute value of the encoder
0x0080h	DP: Difference between the configuration data and the encoder parameters Onboard C2xx: Inconsistency of the configuration data (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	Zero mark monitoring of encoder
0x0200h	DP: Encoder has gone to Parked state
0x4000h	DP: Encoder on bus failed (station failure)

0x8000h	DP: Life-sign of encoder has malfunctioned or failed. (note: for an encoder whose data are transferred in a drive telegram together with actuator data, the actuator life-sign applies to the encoder, e.g. for standard telegram 3 in accordance with PROFIdrive)
0x80000000h	The sensor interface has been deactivated for the pending enables.
Type = 3...6	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 7	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 8	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 9	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 10	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 11	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 12	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 13	
0x1h	The actual value was specified via a system variable and the permissible number of failure cycles was exceeded
0x2h	The actual value was updated with an update counter in the I/O area and the permissible number of failure cycles was exceeded

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

The remedy for the respective type and cause is described below.

Type 1

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- A system fault may be present. Call the hotline.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- When sign-of-life monitoring is set: Ensure that in HW Config for drive under DP slave properties - isochronous operation - drive, the "synchronize to equidistant DP cycle" field is activated.
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
- Up to SIMOTION RT V4.3: If the alarm occurs after the download on a drive with telegram 999: Compare the parameterized bit position for the "Pulses enabled" status signal in drive parameter p924 with the configuration data 'DriveControlConfig.PulsesEnabled' of the TO axis. In this case, there is not necessarily an incorrect parameterization and therefore a check cannot be performed by the system because of the BICO interconnection. Therefore, make sure that the Pulses enabled bit is in the correct position.

For reason 0x0100

- Correct your user program with regard to PROFIdrive-compliant specification of control bits in the _enable/disableAxis commands, e.g. control signal OFF (STW1.0 = false) must precede a drive connection.

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 2For reason 0x0000

- Check the absolute encoder functions, connections and configuration. Take note of this when monitoring is deactivated (not with Alarm 20015).

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- Make sure that the user program does not reference a technology object containing an encoder (Axis, External Encoder) with an '_enableaxis' or '_enableexternalencoder' command while system variable 'sensordata.sensordata[n].state' is signaling invalid.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0040

- Compare the encoder type in the drive or encoder parameter P979 with the configuration data of the technology object.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
 - Compare the encoder type, resolution, shift factor, and, in the case of absolute encoders, the number of rotations in the drive or encoder parameter P979 to the encoder type, resolution, fine resolution, and, in the case of absolute encoders, the data length in the configuration data of the technology object.
- When using telegram 999, this message always appears, as the bit position is not checked by the system in this case, but has to be performed by the user.

For reason 0x0100

- Check the device functions, connections and wiring.

For reason 0x0200

- Find the cause of the error in the connected drive or encoder. Check whether the alarm was triggered due to a commissioning operation on the drive or encoder.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 3 - Type 6

For reason 0x0000

- Check the configuration and the signal paths of the connection.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 7

For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 8

For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 9

For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 10

For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 11 - Type 12

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring. If the error cannot be acknowledged when the axis is in simulation mode, check whether the technology data block is activated, and if this is the case, deactivate it.

Type 13For reason 0x1

- Check the specification of the actual value with regard to function, configuration, and task configuration.

For reason 0x2

- Check the device functions, configuration, connections and wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

Yes

20016 Under logical address: /1/%d (bit number, if required: /2/%d) no driver (type: /3/%d) activated (error number: /4/%d)

Cause

The driver of a physical device or the device itself is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT

Remedy

- Check the activation/deactivation sequence for the interface.
- Note the runtimes of the commands and use the provided command control mechanisms (e.g. `nextCommand := WHEN_COMMAND_DONE`).
- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP
OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

Yes

20017 Internal algorithm error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Error source
Parameters 2 to 4:	Fault number

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact:

SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

RELEASE_DISABLE

Diagnostics buffer entry

Yes

20018 **Attempt to write the bit(s): 0x/1/%Xh in control word1 or the bit(s): 0x/2/%Xh in control word2 under the log. address: /3/%d has been rejected.**

Cause

An attempt to write certain bits in control word 1 or 2 has been rejected.

Meaning of alarm parameters

Bits:	Display of bits which could not be written
Log. address:	Logical address of the device driver

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT

Remedy

- Check the order of commands, particularly in relation to `_enableAxis(...)`.
- Check the command parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP
OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

Yes

20019 Error for the commissioning, reason: /1/%d (Parameter1: /2/%d, Parameter2: /3/%d)

Cause

A commissioning function could not be executed.

Meaning of alarm parameters

Reason:	
1	Failure of the life-sign between controller and SIMOTION SCOUT
2	Protocol error
3	Command decoding error

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT
2	UDINT
3	UDINT

Remedy

Reason:	
1	Check the connection properties. If required, increase the monitoring time.
2	Should a system error of this type occur, note the alarm number, the alarm text and the specified alarm parameters, and contact: SIEMENS AG I DT MC, Hotline.
3	Should a system error of this type occur, note the alarm number, the alarm text and the specified alarm parameters, and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / NONE

Preassignment for local reactions

NONE

Settable local reactions

NONE MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP
OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

Yes

20020 Output deactivated**Cause**

One or more outputs of the technology object have been deactivated. This is caused by the output-disable device status.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

20021 Configuration will be adapted internally (category: /1/%d, reason: /2/%d, limited value: /3/%f, additional information: /4/%d)

Cause

This alarm shows the implicit setting of configuration data to the maximum possible values. The technology objects perform a plausibility check on the configuration. Errors/manipulations are identified by the error codes below.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of configuration data
2001	Illegal value for maxSpeed (maxSpeed less than or equal to 2*nominalSpeed; maxSpeed will be set to 2*nominalSpeed)
2002	Illegal value for maxTorque/Force (maxTorque/Force less than or equal to 2*nominalTorque/Force; maxTorque/Force will be set to 2*nominalTorque/Force)
2003	Error during the adaptation of the Torque-/ForceReductionGranularity. p1544 is ignored and the default value used.
3001	The length of the backlash on reversal is limited to a permitted value (Encoder_N.incBacklash.length or Encoder_N.absBacklash.length).
3002	The compensation velocity of the backlash on reversal is limited to a permitted value (Encoder_N.incBacklash.velocity or Encoder_N.absBacklash.velocity).
3003	The value of the configuration data for the encoder system (.Encoder_N.encoderSystem) is limited to a permitted value.
3004	The value of the configuration data for the encoder resolution (rotary: .Encoder_N.incEncoder.incResolution, Encoder_N.absEncoder.absResolution; linear: Encoder_N.Resolution.distance) is limited to a permitted value.
3005	The value of the configuration data for the multiplication factor of the cyclical actual value (.Encoder_N.incEncoder.incResolutionMultiplierCyclic, Encoder_N.absEncoder.absResolutionMultiplierCyclic, Encoder_N.Resolution.multiplierCyclic) is limited to a permitted value.
3006	The value of the configuration data for the multiplication factor of the absolute value (Encoder_N.absEncoder.absResolutionMultiplierAbsolute) is limited to a permitted value.
3007	The value of the configuration data for the data length of the absolute value (Encoder_N.absEncoder.absDataLength) is limited to a permitted value.
3008	The value of the configuration data for the reference value of the Nact speed in the PROFIdrive telegram (Encoder_N.sensorNist.referenceValue) is limited to a permitted value.
3009	The load gear factor of the first data set is leading for the encoder simulation. The simulation with different load gear factors is not supported. The value of the configuration data for the load gear (DataSet_N.gear) is limited to the load gear ratio of the first data set.
4001	The delay time for the triggering of the standstill signal (StandStillSignal.delayTimeToActivate) is limited.
4002	The delay time until the position monitoring tolerance window is reached (PositionMonitoring.posWinToITime) is limited.
4003	The delay time until the activation of the position monitoring message (PositionMonitoring.posWinToIDelayTime) is limited.
4004	The delay time for the activation of the standstill monitoring message (StandStillMonitoring.delayTimeToActivate) is limited.
4005	The delay time of the actual value of the force/pressure entry monitoring (ForceControlRunningInWindowMonitoring.winToITime) is limited.
4006	The delay time until activation of the force/pressure entry monitoring (ForceControlRunningInWindowMonitoring.maxDelayTime) is limited.
4007	The delay time until activation of the force/pressure end value monitoring (ForceControlHeldValueMonitoring.delayTimeToActivate) is limited.

4008	The delay of the emergency ramp generator (EmergencyRampGenerator.maxDeceleration) is too small and set to the minimum possible value.
4009	The decay time constant of the friction compensation (Friction.decayTime) is limited.
4068	The maximum buffer length of the lag element in the balancing filter (Mode_2) is reached or exceeded. The lag element (maximum buffer length: 16 servo-cycles) is augmented by a PT1 element.
4069	The maximum buffer length of the lag component of the dynamic response compensation is reached or exceeded. The maximum value of this time constant is limited to 16 servo cycles. The buffer length of the lag element is maximum 16.

Additional information:	More detailed description of the error origin
Meaning for category 4	Not relevant
Meaning for category 5	Number of the encoder on the technology object that issued the alarm

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	LREAL
4	UDINT

Remedy

2001	Correct the reference value in the drive to $\text{maxSpeed(Velocity)} / 2$.
2002	Correct the reference value in the drive to $\text{maxTorque(Force)} / 2$.
2003	Set the reference value in the drive to 0x64 or 0x4000.
3001	Change the configuration data
3002	Change the configuration data
3003	Change the configuration data
3004	Change the configuration data
3005	Change the configuration data
3006	Change the configuration data
3007	Change the configuration data
3008	Change the configuration data
3009	Change the configuration data
4001	Change the configuration data
4002	Change the configuration data
4003	Change the configuration data
4004	Change the configuration data
4005	Change the configuration data
4006	Change the configuration data
4007	Change the configuration data
4008	Change the configuration data
4009	Change the configuration data
4068	Change the configuration data
4069	Change the configuration data

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP
OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

20022 Error occurred while modifying the configuration (category: /1/%d, reason: /2/%d, additional information: /3/%d, parameter: /4/%d)

Cause

This alarm indicates error conditions when modifying the configuration on the device.
 The configuration on the device is not modified when this alarm is issued.

Meaning of alarm parameters

Category:	Area in which the error occurred
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Reason:	Specification of the error
1	Adaptation of the configuration of the actuator or encoder without active drive interface is not possible
2	The actuator or the encoder is not assigned to any SINAMICS drive device
3	A parameter does not exist or its value either cannot be read or lies outside the permitted limits.
4	The adaptation of the actuator or encoder has not been activated
5	The reading of the parameters has been aborted because of a fault reported by the hardware
6	The adaptation is already active on the actuator or encoder
7	The modified configuration is activated only for reset TO enables.
8	The adaptation requires speedReference = NOMINAL_VALUE.
9	The adaptation requires torque/forceReference = NOMINAL_VALUE.
10	The enables are deleted by means of the adaptation
11	The adaptation is aborted due to a lack of resources.

Additional information:	More detailed description of the error origin
Meaning for category 4	Not relevant
Meaning for category 5	Number of the encoder on the technology object that issued the alarm

Parameters:	parameter affected when parameter error detected (reason = 3)
0	The read parameters are valid, but it was not possible to derive a consistent configuration.
1	Maximum speed/velocity (p1082)
2	Maximum torque/force (p1520)
3	Maximum torque/force (p1521)
4	Fine resolution of torque/force reduction (p1544)
5	Rated speed/velocity, reference velocity (p2000)
6	Rated torque/force (p2003)
7	Encoder system (r0979[1/11].0)
8	Encoder resolution (r0979[2/12])
9	Encoder fine resolution Gx_XIST1 (r0979[3/13])
10	Encoder fine resolution Gx_XIST2 (r0979[4/14])
11	Number of resolvable encoder revolutions (r0979[5/15])

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT
4	UDINT

Remedy

- For reason 1: Activate the drive interface of the actuator or affected device with `_enableAxisInterface()`.
- For reason 4: Activate the adaptation of the configuration for the actuator using `'TypeofAxis.Drivecontrolconfig.dataAdaption = YES'` or for an encoder using `'Encoder_N.encoderMode = PROFIDRIVE'`.
- For reason 6: Wait until completion of the active adaptation of the configuration for the actuator or encoder. Consider the current status of the adaptation in the `'actorData.dataAdaption'` or `'sensorData[N].dataAdaption'` system variable on the technology object.
- For reason 10: The enables must be deleted before calling the adaptation command.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP
OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

20023 Under logical address: /1/%d (bit number, if required: /2/%d) no I/O (type: /3/%d) are available (error number: /4/%d)

Cause

A physical device is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

RELEASE_DISABLE

Diagnostics buffer entry

Yes

20024 Under logical address: /1/%d (bit number, if required: /2/%d) no I/O (type: /3/%d) are available (error number: /4/%d)

Cause

A physical device is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

RELEASE_DISABLE

Diagnostics buffer entry

Yes

20025 Inconsistency between the TO and the drive/encoder configuration (category: /1/%d, additional information: /2/%d, reason: /3/%d)

Cause

An inconsistency has been detected between the drive/encoder configuration and the configuration of the technology object.

Meaning of alarm parameters

Category:	Area in which the error occurred.
4	Manipulated variable output
5	Encoder system

Additional information:	More detailed description of the error origin
Category 4	Not relevant
Category 5	Number of the encoder at which the inconsistency was detected

Reason:	Description of reason for error
91	The message length configured for the SSI encoder (Encoder_N.absEncoder.absMessageLength) is invalid.
92	The message format configured for the SSI encoder (Encoder_N.absEncoder.absMessageFormat) is invalid.
93	The encoder resolution configured for the SSI encoder (Encoder_N.absEncoder.absResolution) is invalid. The encoder resolution must be greater than one increment per encoder revolution.
94	The configured data width (Encoder_N.absEncoder.absDataLength) for the RIGHT_MARGIN message format configured on the SSI encoder (Encoder_N.absEncoder.absMessageFormat) is too large for the configured message length Encoder_N.absEncoder.absMessageLength).
95	The configured encoder resolution (Encoder_N.absEncoder.absResolution) for the RIGHT_MARGIN message format configured on the SSI encoder (Encoder_N.absEncoder.absMessageFormat) is larger than the encoder resolution which can be displayed by the configured data width (Encoder_N.absEncoder.absDataLength).
96	The configured encoder resolution (Encoder_N.absEncoder.absResolution) for the PINETREE message format configured on the SSI encoder (Encoder_N.absEncoder.absMessageFormat) is larger than the encoder resolution which can be displayed by the configured message length (Encoder_N.absEncoder.absMessageLength).
97	The encoder resolution which can be displayed by the configured data width (Encoder_N.absEncoder.absDataLength) for the PINETREE message format configured on the SSI encoder (Encoder_N.absEncoder.absMessageFormat) is larger than the configured data resolution (Encoder_N.absEncoder.absResolution).
100	The cycle clock period of the master application cycle (HW Config) is not identical to that of the servo cycle.
101	The processing cycle clock of the technology object is not identical to the application cycle of the drive.
110	The configured telegram type (SetPointDriverInfo.telegramType) is not compatible with the telegram type at the drive (P922).
111	The configured PZD number for the pulse enable signal (DriveControlConfig.pulsesEnabled.pzdNumber) is not consistent with the PZD number configured at the drive (P924).
112	The configured bit number for the pulse enable signal (DriveControlConfig.pulsesEnabled.bitNumber) is not consistent with the bit number configured at the drive (P924).
200	The cycle clock period of the master application cycle (HW Config) is not identical to that of the servo cycle.
201	The processing cycle clock of the technology object is not identical to the application cycle of the drive.
210	The configured telegram type (Encoder_N.driverInfo.telegramType) is not compatible with the telegram type at the drive (P922).
211	The encoder at the drive is not an absolute encoder (P979).
212	The configured encoder resolution (Encoder_N.absEncoder.absResolution, Encoder_N.incEncoder.incResolution) is not consistent with the encoder resolution configured at the drive encoder (P979).

213	The configured fine resolution for Gx_XIST1 (Encoder_N.absEncoder.absResolutionMultiplierCyclic, Encoder_N.incEncoder.incResolutionMultiplierCyclic, Encoder_N.Resolution.multiplierCyclic) is not consistent with the fine resolution configured at the drive encoder (P979).
214	The configured fine resolution for Gx_XIST2 (Encoder_N.absEncoder.absResolutionMultiplierAbsolute) is not consistent with the fine resolution configured at the drive encoder (P979).
215	The configured number of resolvable revolutions of the absolute encoder (Encoder_N.absEncoder.absDataLength minus Encoder_N.absEncoder.absResolution) is not consistent with the number of resolvable revolutions configured at the drive encoder (P979).
216	The configured format of the actual speed value is not supported (P65001).

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	DINT

Remedy

General	Check whether the false setting in the parameterization of the I/O device or in the configuration of the SIMOTION technology object is warranted. For PROFIBUS drives or encoders, compare the hardware configuration, the configuration of the technology object, and the drive parameter assignment.
Reason 91 ff.	Use the axis wizard or the expert list to adapt the configuration of the encoder at the technology object to the parameter assignment of the encoder connected to the drive and reload the project. Note the information on the onboard encoder interface on the SIMOTION C2xx in the Axis Function Manual.
Reason 100, 200	Compare the cycle clock parameters in the hardware configuration (PROFIBUS line, Slave OM for drive or encoder) and the execution system. The master application cycle and the servo must be set to the same cycle clock period.
Reason 101, 201	Compare the processing cycle clock of the technology object and the application cycle of the drive or encoder. Drives or encoders in the "Servo" application cycle can only run in the "Servo", "Ipo", or "Ipo2" processing cycle clock. The "FastServo" and "FastIPO" processing cycle clocks can only be used for drives or encoders with the "FastServo" application cycle.
Reason 110, 210	Compare the telegram type in the drive or encoder parameter p922 with the telegram type configured at the actuator or sensor of the technology object.
Reason 111, 112	The setting for the pulses enabled signal at the 'Axis' technology object (TypeOfAxis.DriveControlConfig.pulsesEnabled) does not match drive parameter p924. The position of the pulses enabled signal in the drive telegram is configured in both places. Note that in the configuration data of the TO, the number of the PZD is indicated in the telegram, but parameter r924 contains the signal number according to PROFIdrive. If the signal number is set to '0' in parameter p924, an entry is made in the diagnostics buffer regardless of the setting at the technology object.
Reason 211 ff.	Use the axis wizard or the expert list to adapt the configuration of the encoder at the technology object to the parameter assignment of the encoder connected to the drive and reload the project. Note the encoder parameter assignment in drive parameter P979.
Reason 216	Convert the format for N-act in the connected external encoder.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP
OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

Yes

30001 **Illegal parameter (parameter index according to standard sequence in the system functions: /1/%d, command type: /4/%X)**

Cause

Illegal parameter transfer to a system function. The command is not executed. This alarm occurs when the permissible parameter value range is violated. The permissible value range of the parameter is a function of its data type and the technological meaning of the parameter.

The parameter index indicates the position of the illegal parameter. The standard sequence of parameters in the system functions is apparent from the reference list associated with the command. The command type indicates the type of the faulty system function.

Meaning of alarm parameters

Parameter index:	Index of the system function parameter that triggered this error (listed according to the standard sequence in the system functions).
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the value range of the parameter data type.
- Check the technological meaning of the parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30002 Command aborted (reason: /1/%d, command type: /4/%X)

Additional references

Further information is provided in the Function Manual:

- Basic Functions and
- in the online help.

Cause

The command was aborted before or during execution.

This can be caused by:

- A substituted command
- Command buffer reset
- Error state

Note

This alarm is always output, e.g. for jogging (_move aborted with _stop) or for the retraction of the reference BERO for homing or when Synchronous operation (explicitly) deactivated.

Meaning of alarm parameters

Reason:	
1	Reset of the command buffer
2	Abort by another command
3	Abort by a stop
4	Abort by a higher-order stop
5	Abort by a pending error response
6	Abort due to ambiguous commandId
7	Acknowledgement delay
8	No actual value for axis/external encoder (e.g. encoder or data bus not ready)
9	Abort due to abort of a dependent command
10	Abort due to active Synchronous operation
11	Abort due to active superimposed motion
12	Abort due to active speed-controlled controller mode
13	Abort due to active position-controlled controller mode
14	Abort due to active travel to fixed end stop
15	Axis is not in pressure-limiting operation
16	Abort due to active pressure-controlled operation
17	Abort due to inactive pressure-controlled operation
18	Superimposed command is not permitted
19	Abort due to error during cam access
30	Axis is in pressure-limiting operation
31	Maximum number of active commands exceeded

33	Action only permissible in standstill
41	Command parameter became invalid during processing
42	No interconnection to a technology object
43	Abort due to a Cancel command in the user program
44	Abort because of a pending command with identical command parameters
52	Abort because enables are set
53	Abort because of running adaptation of drive data
55	Abort on the basis of internal limits.
56	Abort on the basis of active Safety Function.
57	Abort on the basis of active motion.

Command type:	Outputs the aborted command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Set up the command again via program.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30003 Command aborted because of full command buffer (command type: /4/%X)

Cause

The command is not entered in the command buffer because the buffer is already full.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the program flow.
- Typical cause: The 'nextCommand' parameter is passed with the value 'IMMEDIATELY', and the 'mergeMode' parameter is passed with the value 'SEQUENTIAL'.
 - Synchronize the command execution in the user program so that the command buffer is not occupied when the command is issued.
 - Use other values for the 'nextCommand' or 'mergeMode' parameters. Setting the 'nextCommand' to a value other than 'IMMEDIATELY' causes the program to wait for the command buffer to become available. In addition, setting a different 'mergeMode' means that the command buffer can be overwritten.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

30004 Command is not defined for this technology object type (command type: /4/%X)

Cause

Command was programmed on a technology object type not supporting processing of this command.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Issue the command on the correct technology object type.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30005 Ambiguous commandId (number of commands with the specified ID: /1/%d, command type: /4/%X)

Cause

The specified commandId refers to more than one command. The specified action is performed for the command matching the specified ID that has been in the interpolator for the longest time.

If no corresponding command is found in the interpolator, the action refers to the next command loaded in the interpolator.

Meaning of alarm parameters

Id:	Number of commands referenced by the specified command ID.
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Use a different 'commandId' for commands that are active simultaneously.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

30006 Command cannot be executed because of the current object state (command type: /4/%X)**Cause**

A reset command is active at the object or the object is deactivated.

For axes only:

A `_stopEmergency` command is active at the object and a `_stopEmergency` command is sent with a different parameter assignment which will thus not take effect.

For axes with force control or force limitation only:

Superimposed force control is not possible in the current object state.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the following:

- Check the object status.
- Check the possible execution sequence of the programmed commands.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30007 The error cannot be reset because of its configuration

Cause

The 30007 alarm will be output when an alarm is reset that can only be acknowledged with PowerOn.

Example:

The internal 20001 error can only be acknowledged with PowerOn.

If an attempt is made to reset the alarm with a `_reset...Error` command, the 30007 alarm will be output.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check whether the errors present on the technology object can be acknowledged.

Correct the cause of the error and switch the CPU off/on or load the project again.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

30008 **Link to a technology object necessary for this operation does not exist (command type: /4/%X)**

Cause

The object connection required for this operation has not been configured or the connected technology object has been deactivated.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the project configuration.
- Change the object connection in the command.
- Activate the connected technology object.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30009 **Command rejected as the decoding of the command of the technology object addressed has been deactivated/stopped (reason: /1/%d, command type: /4/%X)**

Cause

Command was rejected due to suspension of command decoding on the addressed technology object. The command decoding can be stopped by the DECODE_STOP alarm response, by deactivating or restarting the technology object, by starting the axis control panel in exclusive mode or by the absence of necessary interconnections.

Meaning of alarm parameters

Reason:	
1	Restart of the technology object
2	Technology object is deactivated
3	Technology object is in RUN mode.
4	Control panel active

Command type:	Outputs the type of the rejected command. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check why the command was rejected.
- If necessary, acknowledge any active errors once you have corrected the cause of the error.
- If the technology object is deactivated, you must activate it.
- Do not issue any commands while the technology object is restarting.
- Do not issue any commands while a connected technology object is restarting.
- Stop the axis control panel.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30010 Command not available (command type: /4/%X)

Cause

The command is not available in this version of the runtime software.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the version of the runtime software.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30011 **Parameter not available (parameter index according to the standard sequence in the system functions: /1/%d, command type: /4/%X)**

Cause

The parameter is not available in this version of the runtime software, the command is therefore rejected. The parameters indicate the position according to the standard sequence in the system functions and the command type of an incorrectly entered parameter.

Meaning of alarm parameters

Parameter index:	Index of the command parameter triggering this error according to the standard sequence in the system functions.
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the version of the runtime software.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30012 Command cannot be started synchronously (command type: /4/%X)

Cause

The command cannot be used within a 'BEGIN_SYNC' or 'END_SYNC' sequence. The command has only one return value in the user program, or the command is not capable of starting synchronously.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Do not use this command type during a BEGIN_SYNC, END_SYNC sequence.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

30013 Synchronous start of the command is carried out with mergeMode IMMEDIATELY (command type: /4/%X)

Cause

With synchronous command start, only merge modes that immediately override the current command (IMMEDIATELY) and superimpose the current command (SUPERIMPOSED_MOTION_MERGE) can be used.

If an illegal merge mode is programmed (e.g. SEQUENTIAL or NEXT_MOTION), the system automatically changes the merge mode to IMMEDIATELY and outputs this warning.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Program the command which is to be started synchronously to immediately override the current command. To do this, enter the value IMMEDIATELY in the 'mergeMode' command parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30014 **Coordinate system has not been offset because the internal traversing range limit was exceeded (Parameter1: /1/%d, command type: /2/%X)**

Cause

The programmed coordinate system offset causes the internal traversing range limit to be exceeded. The coordinate system is not offset.

Meaning of alarm parameters

Parameter 1:	
0	Negative internal traversing range limit
1	Positive internal traversing range limit

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	UDINT

Remedy

Check the programming for the coordinate system offset.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

30015 A technology required for this command has not been configured (technology: /1/%d, command type: /4/%X)

Cause

The command cannot be selected in this technology object configuration.

Meaning of alarm parameters

Technology:	
1	Axis with force/pressure control without flow/force specification
2	Axis with force/pressure control and flow/force specification
3	Axis without flow/force specification
4	Axis with flow/force specification
5	Axis with force specification
6	Axis with pressure setpoint specification
7	Axis with pressure limiting
8	Axis with speed limiting parallel to force/pressure control
9	Axis with flow specification
10	Do not use encoder simulation
11	Do not use a hydraulic axis

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Activate the technology needed for the command.

Technology:	
1	Select the 'REAL_AXIS_WITH_PRESSURE_CONTROL' mode in the 'TypeOfAxis' configuration data.
2	Select the 'REAL_QP_AXIS_WITH_CLOSED_LOOP_FORCE_CONTROL' mode in the 'TypeOfAxis' configuration data.
3	Select the 'VIRTUAL_AXIS', 'REAL_AXIS', or 'REAL_AXIS_WITH_FORCE_CONTROL' mode in the 'TypeOfAxis' configuration data.
4	Select the 'REAL_QPAXIS', 'REAL_QP_AXIS_WITH_OPEN_LOOP_FORCE_CONTROL', or 'REAL_QP_AXIS_WITH_CLOSED_LOOP_FORCE_CONTROL' mode in the 'TypeOfAxis' configuration data.
5	Select the 'REAL_QP_AXIS_WITH_OPEN_LOOP_FORCE_CONTROL' mode in the 'TypeOfAxis' configuration data.
6	Select the 'REAL_AXIS_WITH_PRESSURE_CONTROL' or 'REAL_QP_AXIS_WITH_CLOSED_LOOP_FORCE_CONTROL' mode in the 'TypeOfAxis' configuration data.
7	Select the 'REAL_AXIS_WITH_PRESSURE_CONTROL', 'REAL_QP_AXIS_WITH_OPEN_LOOP_FORCE_CONTROL', or 'REAL_QP_AXIS_WITH_CLOSED_LOOP_FORCE_CONTROL' mode in the 'TypeofAxis' configuration data.
8	Select the 'REAL_QP_AXIS_WITH_CLOSED_LOOP_FORCE_CONTROL' mode in the 'TypeOfAxis' configuration data.
9	Select a mode with flow specification in the 'TypeOfAxis' configuration data.
10	Select a mode that is not used for simulation of an encoder (TM41) in the 'TypeOfAxis' configuration data.
11	Select a mode without hydraulics in the 'TypeOfAxis' configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

40001 Illegal state change of axis**Cause**

The command for the axis state change could not be executed because:

- The operating mode phase is not yet complete
- The operating transition is not possible

Remedy

The operating mode phase is not yet complete	Repeat the command.
Operating transition not possible	Reset the system first.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

Yes

40002 Programmed velocity is limited

Cause

- The system is limiting the programmed velocity to the maximum permissible velocity.
- For a master axis with modulo range, the velocity is limited to a value which allows certain detection of the direction within an IPO cycle (half the modulo length).

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40003 Programmed acceleration (type: /1/%d) is limited**Cause**

The system is limiting the programmed acceleration to the maximum permissible acceleration.

Meaning of alarm parameters

Type:	
0	Positive acceleration
1	Negative acceleration/deceleration

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40004 Programmed jerk (type: /1/%d) is limited

Cause

The system is limiting the programmed jerk to the maximum permissible jerk.

Meaning of alarm parameters

Type:	
0	Increase in positive acceleration
1	Reduction in positive acceleration
2	Increase in negative acceleration/deceleration
3	Reduction in negative acceleration/deceleration

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

40005 Missing enable(s) (Parameter1: /1/%X) and/or incorrect mode (Parameter2: /2/%d)**Cause**

The enables are missing for a pending motion command and/or the axis follow-up mode is active.

Meaning of alarm parameters

Parameter1:	
Bit 1 =	0: POWER enable is available
	1: POWER enable is missing
Bit 2 =	0: DRIVE enable is available
	1: DRIVE enable is missing
Bit 3 =	0: Position controller enable is available
	1: Position controller enable is missing
Bit 4 =	0: Force/pressure controller enable is available
	1: Force/pressure controller enable is missing
Bit 5 =	0: Separate P-output enable is available
	1: Separate P-output enable is missing
Bit 7 =	For the output of bit 7, the enables are missing for: - Bit 1 POWER - Bit 2 DRIVE and - Bit 3 position controller.

Parameter2:	
0	Follow-up mode is deselected
1	Follow-up mode is selected

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	DINT

Remedy

Activate the enables before issuing a motion command.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

40006 Programmed velocity is zero

Cause

The programmed velocity is zero. The specified motion cannot be executed.

Remedy

Program a value other than zero. If USER_DEFAULT is referenced, a value not equal to zero must be programmed in the assigned system variable.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40007 Programmed acceleration (type: /1/%d) is zero**Cause**

The programmed acceleration is zero. The specified motion cannot be executed.

Meaning of alarm parameters

Type:	
0	Positive acceleration
1	Negative acceleration/deceleration

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT

Remedy

Program a value other than zero. If USER_DEFAULT is referenced, a value not equal to zero must be programmed in the assigned system variable.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40008 Programmed jerk (type: /1/%d) is zero

Cause

The programmed jerk is zero. The specified motion cannot be executed.

Meaning of alarm parameters

Type:	
0	Increase in positive acceleration
1	Reduction in positive acceleration
2	Increase in negative acceleration/deceleration
3	Reduction in negative acceleration/deceleration

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Program a value other than zero. If USER_DEFAULT is referenced, a value not equal to zero must be programmed in the assigned system variable.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40009 Velocity limit is zero

Cause

The programmed velocity limit is zero. The specified motion cannot be executed.

Remedy

Program a value other than zero in the dynamic limit values.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

40010 Acceleration limit (type: /1/%d) is zero

Cause

The programmed acceleration limit is zero. The specified motion cannot be executed.

Meaning of alarm parameters

Type:	
0	Positive acceleration
1	Negative acceleration/deceleration

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Program a value other than zero.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

40011 Programmed jerk limit (type: /1/%d) is zero**Cause**

The programmed jerk limit is zero. The specified motion cannot be executed.

Meaning of alarm parameters

Type:	
0	Increase in positive acceleration
1	Reduction in positive acceleration
2	Increase in negative acceleration/deceleration
3	Reduction in negative acceleration/deceleration

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Program a value other than zero.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

40012 Dynamic limitations (type: /1/%d) are being violated

Cause

The specified dynamic limitations are being violated. This can occur due to:

- Programming of substituted jerk-controlled motions with extremely divergent dynamic parameters, which would lead to an additional reversing motion, reducing the current acceleration.
- Programming of superimposed motions exceeding the resulting dynamic parameters, which would lead to overshoot or to a reversing motion when limited to the maximum velocity or when entering final velocity.

One or more physical variables (velocity, acceleration, jerk) may be affected. The violations have only a temporary effect.

Meaning of alarm parameters

Type:	
0	The jerk is changed; jerk limitation is exceeded.
1	Programmed jerk limitation is disabled during jerk-controlled motion.
2	The programmed acceleration is changed. The effective acceleration limitation is exceeded.
3	The programmed acceleration is changed, and the programmed jerk limitation is disabled. The effective acceleration limitation is exceeded.
4	The programmed dynamic values are limited during motion. The direction of motion is reversed.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

- For substituted motion:
Increase the dynamic response parameters.
- For superimposed motion:
Allow for the current active (resulting) limitations when programming the dynamic response parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40013 Programmed stop time is limited by acceleration limits

Cause

The specified stop time cannot be achieved. It is violated due to the maximum acceleration limits. Deceleration is performed with the maximum values.

Remedy

- Increase the programmed time.
- Check the maximum acceleration and the active programmed limits.
- Increase the limits, if necessary.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40014 Command not possible on virtual axis (command type: /4/%X)**Cause**

The command is not supported by virtual axes.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Use a real axis.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40015 Error occurred while accessing the specified curve profile (reason: /1/%d)

Cause

An error occurred while processing the curve profile.

Meaning of alarm parameters

Reason:	
1	The curve profile does not exist or is not linked with the object.
2	The curve profile is not interpolated.
3	The curve profile is already used.
4	Parameters and values of the curve profile in conjunction with the current values relative to the specified motion parameters contradict.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

- Check the programmed curve profile.
- Check the object connection with the curve profile.
- Check the program sequence.
- Check the parameterization of the profile with regard to the current reference values.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

40016 The specified curve profile has not been interpolated**Cause**

The system only accepts verified and interpolated curve profiles for this operation. The specified curve profile has not yet been interpolated.

Remedy

Check whether the specified curve profile has been interpolated.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40017 Curve profile starting point is outside the definition range

Cause

The addressed curve profile start point is outside the definition range of the curve profile.

Remedy

- Check the definition range of the curve profile.
- Check the curve profile start point.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40018 Dynamic response of the motion profiles (type: /1/%d) cannot be achieved (reason: /2/%d)

Cause

Specified dynamic response cannot be adhered to.

If this alarm occurs while the profile is being traversed, the currently programmed set position of the cam may be exceeded.

Meaning of alarm parameters

Type:	
1	Velocity-time profile
2	Position-time profile
3	Velocity-position profile
4	Velocity-interface position profile
5	Velocity-time limit profile
6	Velocity-position limit profile
7	Velocity-interface position limit profile

Reason:	
0	The velocity resulting from the profile has been limited to the programmed value.
1	The acceleration/deceleration resulting from the profile has been limited to the programmed value.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT

Remedy

- For superimposed motion:
Allow for the current active (resulting) limitations when programming the dynamic response parameters.
- Increase the dynamic response parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40019 Error occurred while accessing the specified motion interface**Cause**

The specified reference object for the motion interface does not exist or is not connected to the axis.

Remedy

- Check the programmed input interconnection.
- Check the program sequence.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40020 Dynamic response of the setpoints on the motion interface (type: /1/%d) cannot be achieved (reason: /2/%d)

Cause

Specified dynamic response cannot be adhered to.

Meaning of alarm parameters

Type:	
1	Velocity-based setpoints
2	Position-based setpoints

Reason:	
0	The velocity resulting from the interface has been limited to the programmed value.
1	The acceleration/deceleration resulting from the interface has been limited to the programmed value.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT

Remedy

- For superimposed motion:
Allow for the current active (resulting) limitations when programming the dynamic response parameters.
- Increase the dynamic response parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

40021 StopEmergency command abort because of a pending stop response with the same or higher priority

Cause

The axis StopEmergency command was aborted when called or while the command was running due to a stop response of the same or higher priority as a result of an error.

This alarm is generated to assist you in developing emergency stop strategies. For example, safe program execution can be ensured by changing the stop response.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40022 Programmed pressure limitation is limited

Cause

The system is limiting the programmed pressure limitation value to the maximum permissible pressure value.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40023 Programmed increase of the pressure limitation is limited**Cause**

The system is limiting the programmed pressure limitation increase to the maximum permissible pressure increase value.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40024 Programmed increase of the pressure limitation is zero

Cause

The programmed increase of the pressure limiting is zero. The specified pressure limiting characteristic cannot be calculated.

Remedy

Program a value other than zero. If USER_DEFAULT is referenced, a value not equal to zero must be programmed in the assigned system variable.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_ABORT

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40025 Maximum increase of the pressure limitation is zero**Cause**

The limit value for the pressure limitation increase is zero. The specified pressure limiting characteristic cannot be calculated.

Remedy

Program a value other than zero in the dynamic limit values.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_ABORT

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40026 Dynamic response of the pressure/pressure-limitation profiles (type: /1/%d) cannot be achieved (reason: /2/%d)

Cause

Specified dynamic response cannot be adhered to.

Meaning of alarm parameters

Type:	
1	Pressure-time limit profile
2	Pressure-position limit profile
3	Pressure-interface position limit profile
4	Pressure-time profile
5	Pressure-position profile
6	Pressure-interface position profile

Reason:	
0	The pressure/pressure limiting value resulting from the profile has been limited to the maximum pressure/pressure limiting value.
1	The pressure/pressure limiting increase value resulting from the profile has been limited to the maximum pressure/pressure limiting increase value.

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT
2	DINT

Remedy

Increase the dynamic response parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40027 Programmed command abort cannot be executed (reason: /1/%d)**Cause**

The programmed command abort could not be executed.

Meaning of alarm parameters

Reason:	
0	An abort is no longer possible in the current command status.
1	The '_stopEmergency' function can only be aborted during a standstill.

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40110 Error triggered on slave during Synchronous operation (error number: /1/%d, slave stopped: /2/%d)

Additional references

Further information is provided in the Function Manual:

- Technology Objects Synchronous Operation, Cam and
- in the online help.

Cause

An error was triggered on a slave during Synchronous operation and reported to the master.

Meaning of alarm parameters

Error number:	Error reported by slave:
1	Synchronous operation setpoint tolerance exceeded.
2	Synchronous operation actual-value tolerance exceeded.
3	General slave axis error.

Slave stopped:	Indicates whether the slave axis has switched to Stop mode:
0	The slave axis has not switched to Stop mode.
1	The slave axis has switched to Stop mode.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT

Remedy

Check the following:

- Configuration data for Synchronous operation monitoring on the slave
- Programming (dynamic parameters, Synchronous operation connection)
- System variables

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_ABORT

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE NONE

Diagnostics buffer entry

No

50002 Limiting frequency of measuring system exceeded

Cause

The limiting frequency of the encoder has been exceeded.

Remedy

- Check the encoder connection.
- Check the parameterized encoder limit frequency in the encoder configuration data ('FrequencyLimit.EncoderFrequencyLimit') and, if necessary, adjust the value entered there to match the manufacturer documentation for the encoder being used.
- Reduce the traversing velocity of your drive to a value adapted to the encoder limit frequency. If necessary, amend the maximum velocity ('MaxVelocity') parameterized in the configuration data as well.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50003 Limitation of speed set acceleration is active**Cause**

The speed set acceleration is being limited.

Remedy

Check the following:

- Mechanical configuration
- Encoder connection
- Configuration of the speed setpoint interface
- Maximum permissible acceleration rates in the configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50005 Speed setpoint monitoring active (Parameter1: /1/%d)

Cause

The speed setpoint is being limited.

Meaning of alarm parameters

Parameter 1:	Specification of the limitation
0	Manipulated variable (speed setpoint) limit reached.
1	Velocity-related definition range limit (in front of cam in the case of hydraulic axes) reached.
2	Value range limit (for hydraulic axes only) reached.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Check the following:

- Mechanical configuration
- Encoder connection
- Configuration of the speed setpoint interface
- Maximum permissible velocity rates in the configuration data
- The maximum velocity of the axis (configuration data: `TypeOfAxis.MaxVelocity`).

To find faults faster: Trace the `motionStateData.actualVelocity` and `actorData.totalSetPoint` system variables.

Acknowledgement/reaction

Reset fault memory / `START TechnologicalFaultTask`

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

50006 Zero mark monitoring**Cause**

Zero mark monitoring has been activated.

Remedy

Check the following:

- Mechanical configuration and the encoder configuration
- Error messages of the encoder

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

OPEN_POSITION_CONTROL

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50007 Hardware limit switch (Parameter1: /1/%d, Parameter2: /2/%d)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

Hardware limit switch has been violated.

Meaning of alarm parameters

Parameter 1:	
1	Limit switch reached
2	Polarity reversal on limit switch (can only be deleted by reconfiguring the technology object or Power On)
3	Illegal retraction direction
4	Both limit switches are active

Parameter 2:	
0	Not relevant
1	Limit switch in positive traversing direction
2	Limit switch in negative traversing direction

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT

Remedy

- Check the mechanical configuration.
- Check the limit switches.
- If an error has occurred in the program, change the program or use the software limit switches.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50008 Timeout while waiting for standstill signal

Cause

Timeout occurred while waiting for standstill signal.

Remedy

Check the following:

- Configuration of 'Axis.TypeOfAxis.StandStillSignal'
- Correct operation of the control loop

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50009 Position limit switch active: (Parameter1: /1/%d) only one traversing direction possible**Additional references**

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

A positive (Parameter 1 = 1) or negative (Parameter 1 = 2) hardware limit switch is active or has been crossed. Motion is possible in the positive or negative traversing direction only.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

- Check the mechanical configuration.
- Check the limit switches.
- If an error has occurred in the program, change the program or use the software limit switches.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50010 **Error occurred while reading or writing data set (category: /1/%d, error number: /2/%d)**

Cause

An error occurred while reading or writing.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system

Error number:	Specification of the error
1000	General configuration error
1001	Communication error during data transmission
2000	Error in actuator system configuration.
2001	Outside of manipulated variable limits.
2003	Error in load gear factors.
2004	Error in maximum velocity.
2005	Maximum velocity greater than maximum attainable velocity.
2006	Drive not suitable for torque-controlled or torque-limited operation
2007	Linear stepper motor not implemented
2008	Right-justified format for direct output not implemented
2009	Illegal value in resolution for direct output
2010	Missing configuration data for actuator system
2011	Missing configuration data for additional actuator system
2012	The backstop range (min to max) does not contain a zero point
2014	Drive or telegram not suitable for torque superimposition
2015	Gear ratios less than or equal to 0.
2016	Resolution for stepper motor is 0.
2017	Illegal value for configuration data maxSpeed.
2018	Illegal value for configuration data maxVelocity.
2019	Range limits of configuration data exceeded.
2020	Range limits for maximum acceleration exceeded.
2021	Illegal values for dead zone compensation.
2022	Illegal values for sliding friction compensation.
2023	Illegal values for backstop.
2024	Error in friction compensation parameter
2025	DIRECT output: Analog and bit driver of a shared output are parameterized in different ways on the various axes
2026	Illegal value for pulsesEnable
2027	Illegal value for maxSpeed ($\text{maxSpeed} \geq 2 * \text{nominalSpeed}$)
2028	Illegal value for maxSpeed ($\text{maxSpeed} \leq 10 \text{ V} / \text{maxSetPointVoltage} * \text{nominalSpeed}$)
2029	Illegal value in TypeOfAxis.SetPointDriverInfo
2030	A parameter in DriveData is not correct.
2031	A parameter in LinearMotorDriveData is not correct.
2032	A parameter in StepMotorDriveData is not correct.
2033	A parameter in QOutput.EnableBit is not correct.
2034	A parameter of the technological data block is not correct.
2035	A parameter of the safety data block is not correct.
2036	A parameter of the operating characteristics data block is not correct.
2037	Cannot change the configuration during the drive adaptation.
2038	Illegal value for the manipulated variable filter
3000	Error in encoder system.

3001	Illegal value in Simulation.simulationMode
3002	The set axis type is invalid - illegal value in TypeOfAxis.typeOfAxis
3003	The set drive leadscrew pitch is invalid - illegal value in Leadscrew.pitchVal
3004	The set modulo activation is invalid - illegal value in Modulo.state
3005	Illegal specification(s) in the encoder data (incremental, absolute, etc.).
3006	The set number of encoders is invalid - illegal value in .NumberOfEncoders.numberOfEncoders
3007	Illegal incremental encoder number.
3008	Illegal data combination for homing with incremental encoder.
3009	The configuration of the 'Backlash compensation' encoder function is faulty - illegal value in .Encoder_N.IncBacklash or .Encoder_N.AbsBacklash
3010	Illegal data on SSI encoder.
3011	The configuration of the 'Absolute encoder adjustment' encoder function is faulty - illegal value in .Encoder_N.AbsHoming
3012	The configuration of the 'Counting direction of the raw actual encoder value' encoder function is faulty - illegal value in .Encoder_N.InversCountDirection.encoderFeedbackPolarity
3013	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptDrive
3014	The configuration of the 'Encoder limit frequency monitoring' encoder function is faulty - illegal value in .Encoder_N.FrequencyLimit.encoderFrequencyLimit
3015	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptLoad
3016	The load gear ratio configuration of a data set is faulty - illegal value in .DataSet_N.Gear
3017	Encoder data sequence and number of encoders do not match.
3018	The configuration of an encoder is incomplete
3019	The set mounting location of the encoder is invalid - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3020	The encoder simulation is either not supported or it is not activated simultaneously on the actuator and the sensor - illegal value in .Encoder_N.encoderIdentification or .SetPointDriverInfo.mode
3021	The number of configured data sets or the number of the active data set after the startup is invalid - illegal value in DataSet_N.numberOfDatasets or in DataSet_N.initDataSet
3022	The number of the encoder assigned to a data set is invalid - illegal value in DataSet_N.EncoderNumber.encoderNumber
3023	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptExtern
3024	The configuration of the encoder measuring wheel circumference is faulty - illegal value in .Encoder_N.pathPerRevolution.length
3025	The configuration of the 'Actual velocity monitoring' function is faulty - illegal value in .ActualVelocityMonitoring
3026	Illegal encoder number in absolute encoder configuration.
3027	The set message format of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absMessageFormat
3028	The set baud rate of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.baudRate

3029	The set protocol format of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absState
3030	The number of the encoder assigned to a data set is invalid - illegal value in DataSet_N.EncoderNumber.encoderNumber
3031	The encoder assigned to a data set does not exist - illegal value in DataSet_N.EncoderNumber.encoderNumber
3032	The load gear ratio numerator configuration of a data set is faulty - illegal value in .DataSet_N.Gear.numFactor
3033	The load gear ratio denominator configuration of a data set is faulty - illegal value in .DataSet_N.Gear.denFactor
3034	An encoder references a data set that does not exist
3035	An encoder references a data set that does not exist
3036	Encoder not configured.
3037	Homing with encoder zero mark and ENDAT encoder is not possible - illegal value in .Encoder_N.IncHomingEncoder.homingMode
3038	Homing to the falling edge of an external zero mark on an onboard input is not possible - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3039	Flying homing with encoder zero mark and ENDAT encoder is not possible - illegal value in .Encoder_N.IncHomingEncoder.passiveHomingMode
3040	Flying homing to the falling edge of an external zero mark on an onboard input is not possible - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3041	The (modified) encoder configuration does not permit any determination of the factors for converting the encoder raw actual values into actual position and velocity values or for converting the position and velocity setpoints into DSC encoder raw actual values, taking account of the mechanical relationships.
3042	Illegal data combination for homing with external encoder.
3043	The incremental position of the encoder is outside the permissible value range.
3044	The incremental position of the encoder is outside the permissible value range.
3045	The configuration of the linear encoder resolution is faulty - illegal value in .Encoder_N.Resolution
3046	The configuration of the encoder actual velocity values filter is faulty - illegal value in .Encoder_N.Filter
3047	The configuration of the encoder actual velocity values filter for the interpolator is faulty - illegal value in .SmoothingFilter
3048	The configuration of the encoder actual velocity values filter for the actual value coupling (Synchronous operation) is faulty - illegal value in .Extrapolation.Filter
3049	The set number of the DSC encoder is invalid - illegal value in .NumberOfEncoder.dscEncoderNumber
3050	The configuration of the encoder system has not been completed correctly.
3051	The configuration of the stepper motor encoder data is faulty - illegal value in .Encoder_N.StepMotorMonitoring
3052	The set encoder actual value type does not match its configuration or the technology object type - illegal value in .Encoder_N.encoderValueType
3053	Homing on a stepper motor is only possible with an external zero mark - illegal value in .Encoder_N.incHomingEncoder.homingMode
3054	Flying homing on a stepper motor is only possible with an external zero mark - illegal value in .Encoder_N.incHomingEncoder.passiveHomingMode

3055	The configuration of a stepper motor with encoder is only possible on a real axis - illegal value in <code>.Encoder_N.encoderMode</code>
3056	Only one encoder may be configured on a stepper motor - illegal value in <code>.NumberOfEncoders.numberOfEncoders</code>
3057	The DSC encoder is not a PROFIBUS encoder - illegal value in <code>.NumberOfEncoders.dscEncoderNumber</code> or <code>.Encoder_N.encoderIdentification</code>
3058	The DSC encoder telegram does not support DSC - illegal value in <code>.Encoder_N.DriverInfo.telegramType</code>
3059	Set modulo value in <code>Modulo.length</code> is smaller than an increment.
3060	The encoder configuration for the position difference measurement is faulty - illegal value in <code>.Encoder_N.PositionDifferenceMeasurement</code>
3061	The set limits for the position difference supplied by the encoder are invalid - illegal value in <code>.Encoder_N.PositionDifferenceMeasurement.Range</code>
3062	The activation of the 'Backlash compensation' encoder function is only possible for motor encoders - illegal value in <code>.Encoder_N.AssemblyBase.assemblyBase</code>
3063	The configuration of a TO externalEncoder for the operation as encoder on a stepper motor is not possible - illegal value in <code>.Encoder_N.encoderMode</code>
3064	The set resolution of the encoder is invalid - illegal value in <code>.Encoder_N.IncEncoder.incResolution</code>
3065	The set resolution of the encoder is invalid - illegal value in <code>.Encoder_N.AbsEncoder.absResolution</code>
3066	The set multiplication factor for the cyclic actual value of the encoder is invalid - illegal value in <code>.Encoder_N.IncEncoder.incResolutionMultiplierCyclic</code>
3067	The set multiplication factor for the cyclic actual value of the encoder is invalid - illegal value in <code>.Encoder_N.AbsEncoder.absResolutionMultiplierCyclic</code>
3068	The assignment of a velocity encoder to a data set on a positioning axis is not permitted - illegal value in <code>DataSet_N.EncoderNumber.encoderNumber</code>
3069	The configuration of the 'Tolerance of an encoder error' encoder function is invalid - illegal value in <code>.Encoder_N.SensorControlConfig.tolerateSensorDefect</code>
3070	The configuration of the 'Direct reading of the actual speed value (Nact) from the PROFIDrive telegram' encoder function is faulty - illegal value in <code>.Encoder_N.NistDriverConfig</code>
3071	The configuration of the reference cam is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.referenceCamType</code>
3072	The configuration of the negative reversing cam is faulty - illegal value in <code>.Homing.ReverseCamNegative</code>
3073	The configuration of the positive reversing cam is faulty - illegal value in <code>.Homing.ReverseCamPositive</code>
3074	The set edge of the external zero mark does not match the set homing approach direction - illegal value in <code>.Encoder_N.incHomingEncoder.approachDirection</code> or <code>.Homing.direction</code>
3075	The use of reversing cams in the selection of <code>.Homing.direction = 'POSITIVE_ALL_HOMING'</code> or <code>.Homing.direction = 'NEGATIVE_ALL_HOMING'</code> as homing approach direction is not permitted - illegal configuration in <code>.Homing.ReverseCamNegative._type</code> or <code>.Homing.ReverseCamPositive._type</code>
3076	The set approach direction of the zero mark or edge of the external zero mark does not match the set homing approach direction - illegal value in <code>.Encoder_N.IncHomingEncoder.approachDirection</code> or <code>.Homing.direction</code>

3077	The use of hardware limit switches as reference cams in the selection of .Homing.direction = 'POSITIVE_ALL_HOMING' or .Homing.direction = 'NEGATIVE_ALL_HOMING' as homing approach direction is not permitted - illegal value in .Encoder_N.IncHomingEncoder.referenceCamType
3078	The configuration of the 'Ready bit' encoder function is faulty - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring
3079	The configuration of the 'Error bit' encoder function is faulty - illegal value in .Encoder_N.AnalogSensor.ErrorStateMonitoring
3080	The encoder Ready bit is in the range of the actual encoder value data bit - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress and/or .Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber
3081	The encoder Error bit is in the range of the actual encoder value data bit - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress and/or .Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber
3082	The configuration of the external zero mark interface is faulty - illegal value in .Encoder_N.IncHomingEncoder.StateDriveExternalZeroMark
3083	The configuration of the 'Update counter' encoder function is faulty - illegal value in .Encoder_N.AnalogSensor.UpdateCounter
3084	The encoder Update counter bits are in the range of the actual encoder value data bits - illegal value in .Encoder_N.AnalogSensor.UpdateCounter.logAddress and/or .Encoder_N.AnalogSensor.UpdateCounter.bitNumber
3085	The encoder Update counter bits and the Read bit overlap - illegal value in .Encoder_N.AnalogSensor.UpdateCounter.logAddress and/or .Encoder_N.AnalogSensor.UpdateCounter.bitNumber
3086	The encoder Update counter bits and the Error bit overlap - illegal value in .Encoder_N.AnalogSensor.UpdateCounter.logAddress and/or .Encoder_N.AnalogSensor.UpdateCounter.bitNumber
3087	The configuration of the 'Direct reading of the actual speed value (Nact) from the PROFIDrive telegram' encoder function is faulty - illegal value in .Encoder_N.SensorNist
3088	The configuration of the encoder with the identification 'SET_ACTUAL_VALUE' is faulty - illegal value in .Encoder_N.SensorSetActualValue
3089	The configuration of the encoder actual position values filter is faulty - illegal value in .Encoder_N.PositionFilter
3090	The configuration of the encoder actual position values filter for the actual value coupling (Synchronous operation) is faulty - illegal value in .Extrapolation.ExtrapolationPositionFilter
3091	The set multiplication factor for the cyclic actual value is not consistent with the known value on the drive encoder - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic or .Encoder_N.absEncoder.absResolutionMultiplierCyclic or .Encoder_N.Resolution.multiplierCyclic
3092	The set modulo length is invalid - illegal value in Modulo.length
3093	The set modulo start value is invalid - illegal value in Modulo.startValue
3094	Homing with deactivated hardware limit switches as reversing cams is not possible - illegal value in .Homing.ReverseCamNegative._type and/or .Homing.ReverseCamPosition._type
3095	The set encoder identification is invalid - illegal value in .Encoder_N.encoderIdentification
3096	The set encoder mode is invalid - illegal value in .Encoder_N.encoderMode
3097	The set encoder type is invalid - illegal value in .Encoder_N.encoderType

3098	The set encoder system is invalid - illegal value in .Encoder_N.encoderSystem
3099	The set actual value type is invalid - illegal value in .Encoder_N.encoderValueType
3100	The set utilization status of the actual value interface is invalid - illegal value in .Encoder_N.interfaceAllocation
3101	The set encoder mode is not supported by the TO externalEncoder - illegal value in .Encoder_N.encoderMode
3102	The set actual value type is not supported by the TO externalEncoder - illegal value in .Encoder_N.encoderValueType
3103	Only the 'VELOCITY' actual value type is permitted on a drive axis - illegal value in .Encoder_N.encoderValueType
3104	The set encoder mode does not match the set combination of encoder type and encoder identification - illegal value in .Encoder_N.encoderMode
3105	The set encoder type is not supported for encoders with the set encoder identification - illegal value in .Encoder_N.encoderType
3106	The encoder configuration does not match the set combination of encoder type and encoder identification - illegal value in .Encoder_N.encoderMode or .Encoder_N.encoderSystem or .Encoder_N.encoderValueType
3107	The configuration of the encoder for the position difference measurement requires the setting of the 'POSITION' actual value type - illegal value in .Encoder_N.encoderValueType
3108	Only encoders of the 'SENSOR_INCREMENTAL' type are supported on an axis of the 'REAL_AXIS_WITH_SIGNAL_OUTPUT' type - illegal value in .Encoder_N.encoderType
3109	Only the 'SENSOR_ABSOLUTE' encoder type is supported on an encoder with the 'SET_ACTUAL_VALUE' encoder identification - illegal value in .Encoder_N.encoderType
3110	The set combination of encoder type and encoder mode is not supported within the context of a linear encoder - illegal value in .Encoder_N.encoderType and .Encoder_N.encoderMode
3111	The configuration of a linear encoder on a rotary axis is not possible - illegal value in .Encoder_N.encoderSystem
3112	The configuration of the reference cam zero mark distance monitoring is faulty - illegal value in .Encoder_N.IncHomingEncoder.beroDistance or .Encoder_N.IncHomingEncoder.enableZeroMarkDistance
3113	The set home position offset is invalid - illegal value in .Encoder_N.IncHomingEncoder.proceedShiftPos
3114	The configuration of the reference cam interface is faulty - illegal value in .Encoder_N.incHomingEncoder.bitNumberBero or .Encoder_N.incHomingEncoder.logAddressBero
3115	The set zero mark approach direction is invalid - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3116	Homing setting faulty: Zero mark approach direction is invalid - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3117	The configuration of the reference cam interface is faulty - illegal value in .Encoder_N.incHomingEncoder.passiveBitNumberBero or .Encoder_N.incHomingEncoder.passiveLogAddressBero
3118	The set homing mode is invalid - illegal value in .Encoder_N.IncHomingEncoder.homingMode

3119	The set homing mode is invalid - illegal value in .Encoder_N.IncHomingEncoder.passiveHomingMode
3120	The set zero mark approach direction does not match the set homing mode - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3121	The set external zero mark approach direction does not match the set homing mode - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3122	The set zero mark approach direction does not match the set homing mode - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3123	The set external zero mark approach direction does not match the homing mode - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3124	The set type of the reference cam is invalid - illegal value in .Encoder_N.IncHomingEncoder.referenceCamType
3125	The set reference cam type does not match the set zero mark approach direction - illegal value in .Encoder_N.IncHomingEncoder.referenceCamType
3126	The resource required for the reference cam cannot be requested - illegal value in .Encoder_N.IncHomingEncoder.logAddress and/ or .Encoder_N.IncHomingEncoder.bitNumber or no memory available
3127	The resource required for the reference cam cannot be requested - illegal value in .Encoder_N.IncHomingEncoder.passiveLogAddress and/ or .Encoder_N.IncHomingEncoder.passiveBitNumber or no memory available
3128	The resource required for the external zero mark cannot be requested - illegal value in .Encoder_N.IncHomingEncoder.StateDriveExternalZeroMark.logAddress and/ or .Encoder_N.IncHomingEncoder.StateDriveExternalZeroMark.bitNumber or no memory available
3129	The resource required for the positive reversing cam cannot be requested - illegal value in .Homing.ReverseCamPositive.logAddress and/ or .Homing.ReverseCamPositive.bitNumber or no memory available
3130	The resource required for the negative reversing cam cannot be requested - illegal value in .Homing.ReverseCamNegative.logAddress and/ or .Homing.ReverseCamNegative.bitNumber or no memory available
3131	The resource required for the 'Update counter' of the analog encoder cannot be requested - illegal value in .Encoder_N.AnalogSensor.UpdateCounter.logAddress and/ or .Encoder_N.AnalogSensor.UpdateCounter.bitNumber or no memory available
3132	The resource required for the 'Read state bit' of the analog encoder cannot be requested - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress and/ or .Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber or no memory available
3133	The resource required for the 'Error state bit' of the analog encoder cannot be requested - illegal value in .Encoder_N.AnalogSensor.ErrorStateMonitoring.logAddress and/ or .Encoder_N.AnalogSensor.ErrorStateMonitoring.bitNumber or no memory available
3134	The configuration of the actual value interface is faulty - illegal value in .EncoderN.DriverInfo
3135	The configuration of the encoder actual value interface is faulty - illegal value in .EncoderN.DriverInfoDirectIncremental
3136	The configuration of the sensor measuring gear ratio is faulty - illegal value in .Sensor.ConversionDataAdapt

3137	Only an encoder with the 'DRIVE' encoder mounting type is permitted as DSC encoder - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3138	An encoder with the encoder value type 'POSITION_AND_PROFIDRIVE_ENCODER_NIST_B' is supported only on a TO positioning axis or as TO external encoder in conjunction with the encoder identification 'DPMASTER' or 'SIMULATION' and the encoder telegram type 'DP_TEL83_STANDARD' - illegal TO type or illegal value in .Encoder_n.encoderIdentification or in .Encoder.DriverInfo.telegramType
3139	The number assigned to an encoder lies outside the number of the last configured encoder 'NumberOfEncoders.numberOfEncoders'
3140	The configuration of the encoder configuration data adaptation is faulty - illegal value in .Encoder_N.dataAdaption
3141	Both the adapted and the configured encoder configuration are invalid
3143	The multiplication factor for the cyclic actual value and/or the multiplication factor for the absolute value in conjunction with the configured encoder mode (Encoder_N.encoderMode) is invalid - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic or .Encoder_N.absEncoder.absResolutionMultiplierCyclic and/ or .Encoder_N.Resolution.multiplierCyclic or Encoder_N.Resolution.multiplierCyclic
4000	Error in controller.
4001	Negative acceleration specified.
4002	Unknown 'FipoType' requested.
4003	Error in runtime system, ratio of controller cycle clock to interpolator cycle clock is incorrect.
4004	Requested filter order not possible.
4005	Reserve for later use.
4006	Maximum limit is lower than minimum.
4007	Reserve for later use.
4008	Error in configuration data for controller.
4009	Reserve for later use.
4010	Reserve for later use.
4011	Reserve for later use.
4012	Reserve for later use.
4013	Requested controller type is not available.
4014	Error in controller factors.
4015	Precontrol activated, kpc less than 0 or kpc greater than 150.
4016	Reserve for later use.
4017	Reserve for later use.
4018	Reserve for later use.
4019	Reserve for later use.
4020	Reserve for later use.
4021	Reserve for later use.
4022	Reserve for later use.
4023	Precontrol activated, kpc less than or equal to 0.
4024	Reference model monitoring: Error in value of tolerance window.
4025	Error in limit value for standstill signal.

4026	Error in parameter for positioning monitoring.
4027	Simultaneous activation of reference model and dynamic following error monitoring not allowed.
4028	Sampling time parameter calculated incorrectly.
4029	Too many data sets requested.
4030	Error in runtime system, ratio of controller cycle clock to interpolator cycle clock is incorrect.
4031	Error in time constant for emergency ramp generator (positionTimeConstant).
4032	Precontrol active, but fine interpolator type is DIRECT.
4033	Default data set outside limits.
4034	Maximum number of data sets not possible.
4035	Unknown data set change mode.
4036	Following error monitoring not activated/deactivated in all data sets.
4037	Reference model monitoring not activated/deactivated in all data sets.
4038	Different controller type in data sets.
4039	Precontrol activated/deactivated differently in data sets.
4040	Time constant is 0.
4041	Error in dynamic adaptation parameter.
4042	System variable initialization could not be read.
4043	Driver simulation not implemented.
4044	Connection for stepper motors not implemented.
4045	Maximum velocity cannot be attained; maximum drive speed or normalization factor is incorrect.
4046	DSC requires motor encoder data to be specified.
4047	Drive or telegram type not suitable for DSC.
4048	Error in clamping monitoring parameter. 'No detection' is not permitted for the fixed endstop detection
4049	A sensor is required to monitor actual velocity using 'DynamicControl'.
4050	Inconsistent PROFIBUS parameterization; the sum of Ti and To is greater than a DP cycle
4051	Error in manipulated variable limitation parameter of force/pressure controller
4052	Error in force/pressure entry monitoring parameter
4053	Error in force/pressure end value monitoring parameter
4054	Force/pressure entry monitoring tolerance less than pressure end value monitoring tolerance
4055	Error in force/pressure control deviation monitoring parameter
4056	Different activation/deactivation of control deviation monitoring of force/pressure controller in data sets not permitted
4057	Different manipulated variable inversion of force/pressure controller in data sets not permitted
4058	Different force/pressure sensor types in data sets not permitted
4059	Different activation/deactivation of anti-windup in data sets not permitted
4060	Kd factor of PID_ACTUAL controller is greater than 1
4061	Time constant of process model T1 less than or equal to T2
4062	Illegal actuator type selection
4063	Error in sliding friction compensation parameter

4064	Error in offset injection parameter
4065	Precontrol for force/pressure control not implemented
4066	Error in standstill monitoring parameter
4067	Following error monitoring: minVelocity cannot be greater than or equal to maxVelocity
4068	Maximum buffer length of balancing filter (Mode_2) is reached or exceeded. As the servo cycle is included in the calculation of the equivalent time constant of the speed control loop (=velocityTimeConstant), the maximum value of this time constant is limited to 16 servo cycles. The buffer length of the lag element is maximum 16.
4069	System-related dead times are less than 0 after allowing for additionalTime
4070	Controller types other than DIRECT require configuration of an encoder.
4071	Illegal values for delayTimeToActivate of standstill signal
4072	The I/O device for the positive HW limit switch is not available
4073	The I/O device for the negative HW limit switch is not available
4074	Range limits of controller parameter exceeded.
4075	Range limit of brake deceleration of emergency ramp exceeded.
4076	Range limit of equivalent time constant exceeded.
4077	Range limit for velocityTimeConstant exceeded.
4078	Error in value for QFDynamicData configuration.
4079	Error in value for reference model monitoring.
4080	Error in following error monitoring parameter
4081	Error in clamping monitoring parameter
4082	Error in value for DynamicData configuration.
4083	Error in value for PV controller configuration.
4084	Configuration data missing for controller.
4085	Error in value for SystemDeadTimeData configuration.
4086	Pressure control only possible with closed-loop speed controller
4087	DSC and compensation of valve curve not possible
4088	DSC not possible on hydraulic axes
4089	Time constants of dynamic response compensation must not be equal
4090	Incorrect value for system dead time correction
4091	Different activation of manipulated variable filter of pressure controller in data sets
4092	Different activation of dynamic response compensation in data sets
4093	Activation of DSC is not the same in all data sets
4127	enableDSCSpline is not the same in all data sets
4094	Balancing filter type is not the same in all data sets
4096	Activation of anti-windup is not the same in all data sets
4097	Activation of setpoint quantization is not the same in all data sets
4098	Activation of the reference model monitoring is not the same in all data sets
4099	Fixed endstop detection mode is not the same in all data sets
4100	Force controller is not the same in all data sets
4101	Force sensor type UNI_DIRECTION is not implemented
4102	Error in the time constant for smoothing controller parameters

4103	If encoderNumber = 0, ControllerStruct.conType must be DIRECT.
4104	The travel to fixed stop function is not possible on a QF axis.
4105	The integratorFeedbackTimeConstant cannot be less than 0
4106	Illegal value for CommandValueQuantization.value
4107	An electrical drive axis (typeOfAxis = REAL_KIND_OF_AXIS) may only have DIRECT as controller type (conType = DIRECT)
4108	Dead time of dynamic response compensation must not be zero.
4109	Time constant for smoothing manipulated variable jumps during data set changeover must not be less than zero.
4110	The parameters of the manipulated variable filter in the pressure controller are illegal.
4111	Range limit for positionTimeConstante exceeded.
4112	Force/pressure controller type not possible.
4113	Time constant for smoothing manipulated variable jumps outside the limits.
4114	The speed/velocityReference parameter must be set to NOMINAL_SPEED with active adaptation.
4115	The torque/forceReference parameter must be set to NOMINAL_TORQUE/ FORCE with active adaptation.
4116	The parameters in HWEndPos are not consistent.
4117	The setting disableModeSpecification = OFF1_AND_OFF3_MODE is only possible with a digital drive coupling.
5000	Encoder data sequence and number of encoders do not match.
5001	The set number of force/pressure sensors is invalid - illegal value in .NumberOfAdditionalSensors.number
5002	The set type of the force/pressure sensor is invalid - illegal value in .AdditionalSensor_N.additionalSensorType
5003	The actual value interface configuration of the force/pressure sensor is faulty - illegal value in .AdditionalSensor_N.DriverInfo
5004	The raw actual value weighting factors configuration of the force/pressure sensor is faulty - illegal value in .AdditionalSensor_N.ConversionData
5006	The value range limits configuration of the actual force/pressure value is faulty - illegal value in .AdditionalSensor_N.Range
5007	The configuration of the actual force/pressure value filter is faulty - illegal value in .AdditionalSensor.Filter
5008	Configuration of the force/pressure sensor not completed correctly.
5009	The number of the force/pressure sensor assigned to the data set is invalid - illegal value in .NumberOfDataSets.DataSet_N.AdditionalSensorNumber.number
5010	The sensor configuration for the force/pressure difference measurement is faulty - illegal value in .AdditionalSensor.PositionDifferenceMeasurement
5011	The number of the force/pressure sensor set as sensor A for the difference measurement is invalid - illegal value in .AdditionalSensor.PositionDifferenceMeasurement.numberSensorA
5012	The number of the force/pressure sensor set as sensor B for the difference measurement is invalid - illegal value in .AdditionalSensor.PositionDifferenceMeasurement.numberSensorB
5013	Illegal data in extrapolation configuration.

5014	The set execution cycle clock of the sensor is invalid - illegal value in Execution.executionlevel
5015	The set substitute value strategy for a technological alarm on the sensor is invalid - illegal value in .ValueOut.outputValueErrorBehaviorMode
5020	The configuration of the analog encoder actual value interface is faulty - illegal value in .Encoder_N.AnalogSensor.DriverInfo
5021	The configuration of the analog encoder actual position values filter is faulty - illegal value in .Encoder_N.AnalogSensor.PositionFilter
5022	The raw actual value weighting factors configuration of the analog encoder is faulty - illegal value in .Encoder_N.AnalogSensor.ConversionData
5023	The measuring input interface configuration for the analog encoder is faulty - illegal value in .Encoder_N.AnalogSensor.LogAddress
5030	The count value weighting factors configuration of the interval counter speed encoder is faulty - illegal value in .Encoder_N.IntervalCounterConversionData
5031	The set logical address for the count value interface of the interval counter speed encoder is faulty - illegal value in .Encoder_N.IntervalCounterConversionData.DriverInfo.logAddress
6000	The traversing distance monitoring up to the reference point switch is configured in the configuration data, but the configured maximum distance to be traversed is zero.
6001	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfMaxBufferedCommandId
6002	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfQueueCommands
6003	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfImmediateCommands
6004	Configuration of behaviourAtTheEndOfProfile not implemented
6005	Illegal value for configuration data for maximum acceleration
6006	Illegal value for configuration data for maximum jerk
6007	Illegal value for configuration data for maximum force/pressure setpoint
6008	Illegal value for configuration data for maximum force/pressure setpoint increase
6009	Illegal value for configuration data for Synchronous operation tolerance based on setpoint
6010	Illegal value for configuration data for Synchronous operation tolerance based on actual value
6011	Illegal value for configuration data for Synchronous operation tolerance activation based on setpoint
6012	Illegal value for configuration data for Synchronous operation tolerance activation based on actual value
6013	Illegal value for configuration data for profile end identification tolerance window
6014	Illegal value for configuration data for actual value extrapolation time
6015	Illegal value for configuration data for actual value coupling tolerance window
6016	Illegal value for the injection tolerance configuration (relieveWindow) at software limit switch
6017	Illegal value for the type specification configuration (monitoringAtMotionStart) at software limit switch
6018	Illegal value for configuration data for axis-specific path tolerance activation based on setpoint

6019	Illegal value for configuration data for axis-specific path tolerance based on setpoint
6020	Illegal value for configuration data for axis-specific path synchronization tolerance activation based on setpoint
6021	Illegal value for configuration data for axis-specific path synchronization tolerance based on setpoint
6022	Illegal value for configuration data driveControlConfig.releaseDisableMode (RELEASE_DISABLE drive behavior error response)
6023	Illegal value for configuration data of velocity type with master value extrapolation of actual values
6024	Illegal value for configuration data TypeOfAxis.Homing.direction, 'Approach direction during homing'
6025	Illegal value for configuration data TypeOfAxis.Homing.beroDistance, 'Maximum distance to the homing output cam'
6026	Illegal value for configuration data for Synchronous operation error message at master value
6027	Illegal value for the configuration data TypeOfAxis.DecodingConfig.directionDynamic
6028	Illegal value for the configuration data TypeOfAxis.DecodingConfig.behaviourAtTheEndOfProfile
6029	Illegal value for the configuration data TypeOfAxis.DecodingConfig.decodeSequentialMotionCommand
6030	Illegal value for the configuration data TypeOfAxis.DecodingConfig.transferSuperimposedPosition
6031	Illegal value for the configuration data TypeOfAxis.DecodingConfig.speedModeSetPointZero
6032	Illegal value for the configuration data TypeOfAxis.DecodingConfig.stopWithJerk
6033	Illegal value for the configuration data TypeOfAxis.DecodingConfig.disableMotionOperation
6034	Illegal value for the configuration data TypeOfAxis.DecodingConfig.profileDynamicsLimiting
6035	Illegal value for the configuration data TypeOfAxis.DecodingConfig.cyclicSetUpInForceLimiting
6036	Illegal value for the configuration data TypeOfAxis.Homing.enableBeroDistance
6037	Illegal value for the configuration data TypeOfAxis.Homing.referencingNecessary
6038	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableLifeSignMonitoring
6039	Illegal value for the configuration data TypeOfAxis.DistributedMotion.numberOfLifeSignFailures
6040	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableDelayOfCommandValueOutput
6041	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableOffsetCompensation
6042	Illegal value for configuration data driveControlConfig.pulsesEnabledEvaluation (axis behavior for drive-independent stop response)
6050	Illegal value for the configuration data driveControlConfig.dataAdaption
6051	Illegal value for the configuration data driveControlConfig.disableModeSpecification

6043	Illegal value for the configuration data TypeOfAxis.ControllerSwitchData.NumberOfDigitalInputs.number
6044	Illegal logical address of the digital input in the configuration data structure TypeOfAxis.ControllerSwitchData.NumberOfDigitalInputs.DigitalInput_x
6045	Illegal value for configuration data for maximum deceleration
7000	Illegal data in process model configuration
8000	General error when reading or writing data set.
8001	The selected data set number is not available.
8002	Cannot write the active data set.
8003	Cannot change the controller structure (by writing a data set).
4120	Error in following error monitoring parameter. Illegal value in DynamicFollowong.minPositionTolerance
4121	Error in following error monitoring parameter. Illegal value in DynamicFollowong.maxPositionTolerance
4122	Error in following error monitoring parameter. Illegal value in DynamicFollowong.minVelocity
4123	Error in following error monitoring parameter. Illegal value in DynamicFollowong.warningLevel
4124	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.posWinToITime
4125	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.posWinToIDelayTime
4126	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.tolerance
2042	The numerator of the load gear is incorrect.
2043	The nominal factor of the load gear is incorrect.
2044	The value for the reference velocity is incorrect.
2045	Evaluation of the PulsesEnabled bit (pulsesEnabledEvaluation = YES) is not possible in telegram 1 (telegramType = DP_TEL1_STANDARD).
6046	Illegal value for the configuration data TypeOfAxis.DecodingConfig.maximalBufferedMotionCommands
6047	Illegal value for the configuration data TypeOfAxis.DecodingConfig.lengthOfBufferForSuperimposedCommands
6048	Illegal value for the configuration data TypeOfAxis.DecodingConfig.blendingAcceleration
6049	Illegal value for the configuration data TypeOfAxis.DecodingConfig.commandsForAxisDynamics
4128	enableDSCSpline requires telegram 125 or 126
2046	Evaluation of the PulsesEnabled bit (pulsesEnabledEvaluation) is not carried out when using DSDB.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT

Remedy

Change the data set parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50011 Limit range of the incremental actual value exceeded (Parameter1: /1/%d)

Cause

The value of the current position or the internal incremental position has exceeded the system-internal upper or lower limit.

Meaning of alarm parameters

Parameter 1:	
1	Range exceeded in positive direction
2	Range exceeded in negative direction
4	The modified actual position is greater than the modulo length in one position control cycle clock.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

For parameter 1: 1 and parameter 1: 2

General

Ensure that the Modulo characteristic is activated on the TO (TO.Modulo.state = ACTIVE) if the encoder on the TO is to record the position of an infinite motion in one direction. If this is not possible, the traversing range must be taken into consideration during the configuration of the TO.

Leaving the error state for non-modulo encoders as of V4.3:

Absolute encoder

(TO.TypeOfAxis.NumberOfEncoders.Encoder_N.encoderType = SENSOR_ABSOLUTE/
SENSOR_CYCLIC_ABSOLUTE)

- Acknowledgement of the alarm 50011 and correction of the position in the direction opposite to the direction of crossing the limit value by absolute encoder adjustment. The offset to be calculated must be at least one millimeter. This value increases by the position changes of the absolute encoder, which are not recorded after the 50011 alarm.

Non-cyclic absolute encoders only:

- Restart of the TO with the prerequisite that the sum of the total absolute encoder adjustment and the position calculated from the current encoder incremental position is less than the internal upper or lower position limit.

For axes only:

- Acknowledgment of the 50011 alarm, speed-controlled enabling of the axis and then speed-controlled traversing of the axis in the direction opposite to the direction of crossing the limit value. The traversing distance must be at least one millimeter. The traversing distance increases by the position changes of the absolute encoder, which are not recorded after the 50011 alarm.

If the encoder returns to a valid range, then the position of the absolute encoder is reinitialized with the current absolute encoder adjustment and the current encoder incremental position (sensordata[N].state = NOT_VALID -> VALID).

Incremental encoder

(TO.TypeOfAxis.NumberOfEncoders.Encoder_N.encoderType = SENSOR_INCREMENTAL) (cause of error 1 and 2):

- Restart

For axes only:

- Acknowledgment of the 50011 alarm, enabling of the axis and then traversing of the axis in the direction opposite to the direction of crossing the limit value.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50012 Drive/encoder does not support the selected function (reason: /1/%d)**Cause**

The homing function cannot be performed.

Meaning of alarm parameters

Reason:	
1	The homing function is not possible with the type of zero mark configured.
2	The homing function is not supported by the device or has been aborted by it.
3	The homing function is not active on the device despite the homing job running on the technology object.
4	The device could not be configured for the homing function because of a measuring or homing job that was already active.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Check the following:

- The support for the homing function provided by the drive or encoder
- The availability of the zero mark configured
- The encoder's configuration data and the drive's settings. Please also consider, if necessary, any troubleshooting tips in the device documentation.
- The encoder
- Encoder connection
- Check the wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50013 The permissible range limits have been violated (logical address: /1/%d, reason: /2/%d)

Cause

Range violation for additional sensor.

Meaning of alarm parameters

Logical address:	Address configured on the technology object.
-------------------------	--

Reason:	
1	Value greater than maximum permissible value.
2	Value less than minimum permissible value.
3	Positive overflow of sensor range.
4	Negative overflow of sensor range.
5	Error in accessing hardware address.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	DINT

Remedy

Check the following:

- Check the sensor connection.
- Check the wiring.
- Adjust the configuration data, if necessary.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

50014 **Permissible control deviation of the pressure controller has been exceeded**

Cause

Permissible control deviation of pressure controller exceeded.

Remedy

Check for correct functioning of the pressure control loop.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50015 Level overflow of the IPO not detected

Cause

The system could not intercept a level overflow.

Remedy

Please contact Siemens Support with the error number indicated above.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50016 Limitation of the backstop active**Cause**

The speed setpoint is limited by the backstop.

Remedy

Check the following:

- Mechanical configuration
- Encoder connection
- Configuration of the speed setpoint interface
- Maximum permissible backstop values in the configuration data

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50017 Manipulated variable monitoring on the Q-/F-output active (Parameter1: /1/%d)

Cause

The manipulated variable is limited.

Meaning of alarm parameters

Parameter 1:	Specification of the limitation
1	Monitoring active on Q-output.
2	Monitoring active on F-output.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Check the following:

- Configuration of the valve characteristic
- Maximum permissible velocity or the maximum permissible force/pressure setpoint in the configuration data
- Encoder connection
- Configuration of the setpoint interface

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

50018 The permissible range limits of the differential measurement have been violated (additional sensor number: /1/%d, reason: /2/%d)

Cause

Range violation for differential measurement of additional sensor.

Meaning of alarm parameters

Additional sensor number:	Specifies the additional sensor number.
----------------------------------	---

Reason:	
1	Value greater than maximum permissible value.
2	Value less than minimum permissible value.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	DINT

Remedy

Check and adjust the configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50019 **The permissible range limits of the input value via system variable have been violated (additional sensor number: /1/%d, reason: /2/%d)**

Cause

Range violation of input value via system variable for additional sensor.

Meaning of alarm parameters

Additional sensor number:	Specifies the additional sensor number.
----------------------------------	---

Reason:	
1	Value greater than maximum permissible value.
2	Value less than minimum permissible value.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	DINT

Remedy

Check and, if required, adjust the configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

50020 System variable ServoSettings (element /1/%d) is reset (reason /2/%d)**Cause**

The ServoSettings system variable structure is reset due to a stop response.

Meaning of alarm parameters

Element:	
1	Axis_n.servoSettings.additionalCommandValueSwitch
2	Axis_n.servoSettings.additionalSetpointValueSwitch
3	Axis_n.servoSettings.additionalQOutputValueSwitch

Reason:	
1	_stopemergency command or alarm response FEED_BACK_EMERGENCY_STOP
2	Transition to follow-up in closed-loop control mode
3	Enables were canceled

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT
2	DINT

Remedy

Check the stop response.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50021 **The writing of system variable ServoSettings (element /1/%d) is rejected because of a stop response**

Cause

System variable ServoSettings (element /1/%d) cannot be write-accessed due to a stop response.

Meaning of alarm parameters

Element:	
1	Axis_n.servoSettings.additionalCommandValueSwitch
2	Axis_n.servoSettings.additionalSetpointValueSwitch
3	Axis_n.servoSettings.additionalQOutputValueSwitch

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT

Remedy

Check the stop response.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

50022 maxVelocity cannot be attained with the set drive and axis parameters**Cause**

The maximum velocity set in TypeOfAxis.MaxVelocity.maximum cannot be attained with the selected drive and axis parameters.

Remedy

Check the following:

- The mechanical configuration (leadscrew pitch, load gears, etc.).
- The drive parameters, in particular, the maximum speeds and velocities
- Configuration of the speed setpoint interface
- Maximum permissible velocity rates in the configuration data
- The maximum velocity of the axis (configuration data: TypeOfAxis.MaxVelocity).

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50023 Drive performs transition to independent state

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

The drive enters an independent state (e.g.:

- Drive-independent deceleration along the OFF3 ramp (typical scenario: selection of SS1 or SS2 / STOP B or STOP C)
- While the motor brake is closed.

Remedy

Check the following:

- The machine for safety-relevant events
- The parameterization of the safety components
- The drive for an OFF3 command
- The motor brake for full opening

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

OPEN_POSITION_CONTROL

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50024 Long-term stability of the actual values is not guaranteed (encoder number /1/%d, data set number /2/%d)

Cause

Taking account of the mechanical relationships, the current encoder configuration does not permit the determination of long-term stable factors for the sensor-side conversion of the encoder raw actual values into (modulo) position and velocity actual values and/or for the actuator-side conversion of the position and velocity setpoints into encoder raw actual value equivalents. To evaluate the quantities to be converted, equivalent but non-long-term stable factors are used as replacement. The long-term stability of the actual values is not guaranteed!

Meaning of alarm parameters

Encoder number:	Number of the encoder at which the problem was detected
Data set number:	The number of the data set whose configuration in conjunction with the configuration of the specified encoder caused the problem (>0: Error during the calculation of the sensor-side factors, =0 error during the calculation of the actuator-side factors)

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT

Remedy

Check the following:

- The leadscrew pitch configured on the technology object
- The load gear configured at the specified data set
- At the encoder, for example, the configured resolution, fine resolution of the cyclical actual value and the measuring gear ratio

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50101 Window for reference model monitoring exceeded

Cause

- The dynamic demands on the control loop are too high.
- The speed error monitoring is activated and the maximum speed deviation - i.e. the value in the configuration date "TypeOfAxis.NumberOfDataSets_1.ControllerDynamic.maxVeloTolerance" - was exceeded.

Remedy

- Check the encoder count direction.
- Check the control loop parameter assignment.
- Change the parameter assignment for following error monitoring.
- Check the rated speed of the motor specified on the axis against the setting on the drive, and adjust the speeds.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50109 Force entry window monitoring error**Cause**

The axis could not reach the starting force window in the specified time.

Remedy

Check the following:

- Control loop parameter assignment
- Parameter assignment for monitoring

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50110 Force end value monitoring error

Cause

The axis has left the full-scale force window or could not reach the window in the specified time.

Remedy

Check the following:

- Control loop operation
- Parameter assignment for monitoring

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50111 Pressure controller is working at the limit**Cause**

The manipulated variable required by the force controller cannot be implemented and is limited.

Remedy

Check that the control loop is operating correctly.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50112 **Incorrect polynomial parameters when extrapolating pressure (reason: /1/%d, command type: /4/%X)**

Cause

The polynomial parameters entered do not define any continuously increasing, uniquely invertible polynomial.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as an integer value.
----------------------	---

Reason:	
0x1	The time entered is negative.
0x2	P0 is greater than P1.
0x4	The derivative in point P1 is 0.
0x10	The derivative in point P0 is 0.
0x20	The derivative in point P0 is greater than in point P1.
0x40	The polynomial is not unique.
0x80	The polynomial has a point of inflexion.
0x100	The polynomial is not uniquely invertible.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Change the parameter(s).

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

50114 Error for the _enableForceControl-/LimitedByCondition command**Cause**

The selection of a force/pressure encoder not in the closed-loop control is not permitted in conjunction with the use of the force/pressure criterion for _enableForceControl-/LimitedByCondition.

Remedy

Check the following:

- The parameterization of the command.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50201 Safety alarm in the drive

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

When using SIDB, a result appears in the SINAMICS Safety Integrated Message Buffer (r9747).

When using DSDB, either a result in the SINAMICS Safety Integrated Message Buffer (r9747) appears, or a STOP reaction is active in the drive.

Remedy

Program a specific alarm response.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50202 SINAMICS Safety Integrated Extended Function is selected**Additional references**

For additional information, refer to the function manuals:

- TO Axis Electric / Hydraulic, External Encoder,
- Technology Objects Synchronous Operation, Cam and
- in the online help.

Cause

The drive starts a Safety Integrated Extended Function.

Remedy

Program a specific alarm response.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50203 SINAMICS Safety Integrated Extended Function is deselected

Additional references

For additional information, refer to the function manuals:

- TO Axis Electric / Hydraulic, External Encoder,
- Technology Objects Synchronous Operation, Cam and
- in the online help.

Cause

The drive completes a Safety Integrated Extended Function.

Remedy

Program the specific alarm response.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50209 Error on safe brake test. (Reason /1/%d)**Cause**

An error has occurred during the safe brake test.

Reason:	Specification
0	no reason specified.
1	Requirements for SBT incorrect.
2	Error establishing the load torque.
3	Error on brake 1 and positive direction brake test.
4	Error on brake 1 and negative direction brake test.
5	Error on brake 2 and positive direction brake test.
6	Error on brake 2 and negative direction brake test.
7	The maximum duration of the brake test has been exceeded.
8	The drive has unexpectedly returned the control priority.
9	The drive has finished the brake test with errors.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Check drive error message

Check your brake management in the case of an external brake

For reason 1: Ensure that the correct axis status is set on the TO before starting the brake test. The axis must be enabled with the `_enableAxis()` command in mode 'enableMode=POWER' with 'servoControlMode=INACTIVE'.

For reasons 7-9: Read the Safety Warn buffer, correct the error and, if necessary, acknowledge the corresponding message.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

2.2 ExternalEncoderType

20001 Internal error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Error source
Parameters 2 to 4:	Fault number

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

ENCODER_DISABLE

Settable local reactions

ENCODER_DISABLE

Diagnostics buffer entry

Yes

20002 Insufficient memory (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

The memory required by the system is no longer available.

This alarm can occur both during ramp-up and after program calls.

Meaning of alarm parameters

Parameter 1:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Parameters 2 to 4 are area-specific.

They are not fully utilized by all areas.

Command decoding area:

Parameters 2 and 4	refer to the command in which the error occurred.
Parameter 2:	Command return value
Parameter 4:	Command type

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

- Reduce the size of the ST code.
- Reduce the number of technology objects.
- Reduce the number of interpolation points for cams, if present.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

ENCODER_DISABLE

Settable local reactions

ENCODER_DISABLE

Diagnostics buffer entry

Yes

20003 Internal configuration error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system

Parameters 2 to 4 are area-specific.

These parameters are not fully utilized by all areas.

Command decoding area:

Parameters 2 and 4	refer to the command in which the error occurred.
Parameter 2:	Command return value
Parameter 4:	Command type

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP SIMULATION_STOP SIMULATION_ABORT ENCODER_DISABLE

Diagnostics buffer entry

Yes

20004 Under logical address: /1/%d (bit number, if required: /2/%d) no driver (type: /3/%d) could be requested (error number: /4/%d)

Cause

The driver of a physical device or the device itself is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT

Remedy

- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

ENCODER_DISABLE

Settable local reactions

ENCODER_DISABLE

Diagnostics buffer entry

Yes

20005 Device type:/3/%d, log. address:/1/%d faulted. (Bit:/2/%d, encoder number:/5/%d, reason: 0x/4/%Xh)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

The driver of a physical device or the device itself has failed or is faulty.

If this alarm occurs, the cause of the error must be evaluated in the external device (drive or encoder).

Meaning of alarm parameters

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver
12	Safety data block driver
13	Update counter
14	Operating characteristics data block driver

Logical address:	This is the logical input address configured on the technology object.
Bit number:	For bit driver type = 3 or 4 only; number of the bit
Encoder number:	Number of the encoder in case of telegrams with multiple encoders. Applies only when type = 2.
Reason:	0 - only defined when type = 2

Note

Addition of error messages

The codings for the reason of the failure specified below for the individual alarm types can also occur in combination. A group coding is indicated as the sum of several individual codings (e.g. 0x0005 = 0x0001 + 0x0004).

A failure reason labeled with DP can occur only for PROFIBUS devices.

Type = 1	
0x0001h	Fault message from the drive (note: for PROFIBUS drives, which support acyclic communication in accordance with PROFIdrive V3, the error number(s) of the drive are displayed in the diagnostic buffer, e.g. for Masterdrives MC)
0x0002h	DP: Drive signal "control requested" failed
0x0004h	DP: Drive disconnected itself
0x0008h	Slot for drive data is not available in the project
0x0010h	Actuator driver does not have a connection to the drive data
0x0020h	Actuator driver was not initialized during ramp-up
0x0080h	DP: Difference between configuration data and drive parameters (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	DP: Control signals to the PROFIdrive state machine were incorrectly specified
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
0x8000h	DP: Life-sign of drive has malfunctioned or failed
0x80000000h	The drive interface has been deactivated for the pending enables.
Type = 2	
0x0000h	The actual value changes exceed the limit value derived from the maximum velocity (configuration data TypeOfAxis.MaxVelocity.maximum) over multiple cycles. This monitoring can be activated or deactivated with configuration data TypeOfAxis.NumberOfEncoders.Encoder_x.AbsEncoder.enableAbsMonitoring.
0x0001h	Alarm message from encoder (note: the encoder error number(s) are displayed in the diagnostic buffer)
0x0002h	General hardware error of encoder
0x0004h	Encoder is dirty
0x0008h	Slot for encoder data is not available in the project
0x0010h	Encoder driver does not have a connection to the encoder data
0x0020h	Encoder driver was not initialized during ramp-up
0x0040h	Error when reading the absolute value of the encoder
0x0080h	DP: Difference between the configuration data and the encoder parameters Onboard C2xx: Inconsistency of the configuration data (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	Zero mark monitoring of encoder
0x0200h	DP: Encoder has gone to Parked state
0x4000h	DP: Encoder on bus failed (station failure)

0x8000h	DP: Life-sign of encoder has malfunctioned or failed. (note: for an encoder whose data are transferred in a drive telegram together with actuator data, the actuator life-sign applies to the encoder, e.g. for standard telegram 3 in accordance with PROFIdrive)
0x80000000h	The sensor interface has been deactivated for the pending enables.
Type = 3...6	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 7	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 8	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 9	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 10	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 11	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 12	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 13	
0x1h	The actual value was specified via a system variable and the permissible number of failure cycles was exceeded
0x2h	The actual value was updated with an update counter in the I/O area and the permissible number of failure cycles was exceeded

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

The remedy for the respective type and cause is described below.

Type 1

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- A system fault may be present. Call the hotline.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- When sign-of-life monitoring is set: Ensure that in HW Config for drive under DP slave properties - isochronous operation - drive, the "synchronize to equidistant DP cycle" field is activated.
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
- Up to SIMOTION RT V4.3: If the alarm occurs after the download on a drive with telegram 999: Compare the parameterized bit position for the "Pulses enabled" status signal in drive parameter p924 with the configuration data 'DriveControlConfig.PulsesEnabled' of the TO axis. In this case, there is not necessarily an incorrect parameterization and therefore a check cannot be performed by the system because of the BICO interconnection. Therefore, make sure that the Pulses enabled bit is in the correct position.

For reason 0x0100

- Correct your user program with regard to PROFIdrive-compliant specification of control bits in the _enable/disableAxis commands, e.g. control signal OFF (STW1.0 = false) must precede a drive connection.

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 2For reason 0x0000

- Check the absolute encoder functions, connections and configuration. Take note of this when monitoring is deactivated (not with Alarm 20015).

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- Make sure that the user program does not reference a technology object containing an encoder (Axis, External Encoder) with an '_enableaxis' or '_enableexternalencoder' command while system variable 'sensordata.sensordata[n].state' is signaling invalid.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0040

- Compare the encoder type in the drive or encoder parameter P979 with the configuration data of the technology object.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
 - Compare the encoder type, resolution, shift factor, and, in the case of absolute encoders, the number of rotations in the drive or encoder parameter P979 to the encoder type, resolution, fine resolution, and, in the case of absolute encoders, the data length in the configuration data of the technology object.
- When using telegram 999, this message always appears, as the bit position is not checked by the system in this case, but has to be performed by the user.

For reason 0x0100

- Check the device functions, connections and wiring.

For reason 0x0200

- Find the cause of the error in the connected drive or encoder. Check whether the alarm was triggered due to a commissioning operation on the drive or encoder.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 3 - Type 6

For reason 0x0000

- Check the configuration and the signal paths of the connection.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 7

For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 8

For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 9

For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 10

For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 11 - Type 12

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring. If the error cannot be acknowledged when the axis is in simulation mode, check whether the technology data block is activated, and if this is the case, deactivate it.

Type 13

For reason 0x1

- Check the specification of the actual value with regard to function, configuration, and task configuration.

For reason 0x2

- Check the device functions, configuration, connections and wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

ENCODER_DISABLE

Settable local reactions

ENCODER_DISABLE

Diagnostics buffer entry

Yes

20006 Configuration error (category: /1/%d, error number: /2/%d, additional information: /3/%d)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

This alarm indicates error states caused by a faulty or inconsistent configuration. The technology objects perform a plausibility check on the configuration. Errors are identified by the error codes below.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of the error
500	Illegal technology object configuration state.
501	More configuration data expected than received.
502	Invalid configuration data.
503	Version conflict in configuration.
504	The configured task level is not supported by this TO.
505	The value range of the maximum number of command IDs has been violated.
506	The configured task level is not supported by the used hardware.
1000	General configuration error
1001	Communication error during data transmission
2000	Error in actuator system configuration.
2001	Outside of manipulated variable limits.
2003	Error in load gear factors.
2004	Error in maximum velocity.
2005	Maximum velocity greater than maximum attainable velocity.
2006	Drive not suitable for torque-controlled or torque-limited operation
2007	Linear stepper motor not implemented
2008	Right-justified format for direct output not implemented
2009	Illegal value in resolution for direct output
2010	Missing configuration data for actuator system
2011	Missing configuration data for additional actuator system
2012	The backstop range (min to max) does not contain a zero point
2014	Drive or telegram not suitable for torque superimposition
2015	Gear ratios less than or equal to 0.
2016	Resolution for stepper motor is 0.
2017	Illegal value for configuration data maxSpeed.
2018	Illegal value for configuration data maxVelocity.
2019	Range limits of configuration data exceeded.
2020	Range limits for maximum acceleration exceeded.
2021	Illegal values for dead zone compensation.
2022	Illegal values for sliding friction compensation.
2023	Illegal values for backstop.
2024	Error in friction compensation parameter
2025	DIRECT output: Analog and bit driver of a shared output are parameterized in different ways on the various axes
2026	Illegal value for pulsesEnable
2027	Illegal value for maxSpeed ($\text{maxSpeed} \geq 2 \cdot \text{nominalSpeed}$)
2028	Illegal value for maxSpeed ($\text{maxSpeed} \leq 10 \text{ V} / \text{maxSetPointVoltage} \cdot \text{nominalSpeed}$)
2029	Illegal value in TypeOfAxis.SetPointDriverInfo
2030	A parameter in DriveData is not correct.
2031	A parameter in LinearMotorDriveData is not correct.
2032	A parameter in StepMotorDriveData is not correct.

2033	A parameter in QOutput.EnableBit is not correct.
2034	A parameter of the technological data block is not correct.
2035	A parameter of the safety data block is not correct.
2036	A parameter of the operating characteristics data block is not correct.
2037	Cannot change the configuration during the drive adaptation.
2038	Illegal value for the manipulated variable filter
2040	No driver could be requested under the logical input address.
2041	No driver could be requested under the logical output address.
2042	The numerator of the load gear is incorrect.
2043	The nominal factor of the load gear is incorrect.
2044	The value for the reference velocity is incorrect.
3000	Error in encoder system.
3001	Illegal value in Simulation.simulationMode
3002	The set axis type is invalid - illegal value in TypeOfAxis.typeOfAxis
3003	The set drive leadscrew pitch is invalid - illegal value in Leadscrew.pitchVal
3004	The set modulo activation is invalid - illegal value in Modulo.state
3005	Illegal specification(s) in the encoder data (incremental, absolute, etc.).
3006	The set number of encoders is invalid - illegal value in .NumberOfEncoders.numberOfEncoders
3007	Illegal incremental encoder number.
3008	Illegal data combination for homing with incremental encoder.
3009	The configuration of the 'Backlash compensation' encoder function is faulty - illegal value in .Encoder_N.IncBacklash or .Encoder_N.AbsBacklash
3010	Illegal data on SSI encoder.
3011	The configuration of the 'Absolute encoder adjustment' encoder function is faulty - illegal value in .Encoder_N.AbsHoming
3012	The configuration of the 'Counting direction of the raw actual encoder value' encoder function is faulty - illegal value in .Encoder_N.InversCountDirection.encoderFeedbackPolarity
3013	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptDrive
3014	The configuration of the 'Encoder limit frequency monitoring' encoder function is faulty - illegal value in .Encoder_N.FrequencyLimit.encoderFrequencyLimit
3015	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptLoad
3016	The load gear ratio configuration of a data set is faulty - illegal value in .DataSet_N.Gear
3017	Encoder data sequence and number of encoders do not match.
3018	The configuration of an encoder is incomplete
3019	The set mounting location of the encoder is invalid - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3020	The encoder simulation is either not supported or it is not activated simultaneously on the actuator and the sensor - illegal value in .Encoder_N.encoderIdentification or .SetPointDriverInfo.mode
3021	The number of configured data sets or the number of the active data set after the startup is invalid - illegal value in DataSet_N.numberOfDatasets or in DataSet_N.initDataSet

3022	The number of the encoder assigned to a data set is invalid - illegal value in DataSet_N.EncoderNumber.encoderNumber
3023	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptExtern
3024	The configuration of the encoder measuring wheel circumference is faulty - illegal value in .Encoder_N.pathPerRevolution.length
3025	The configuration of the 'Actual velocity monitoring' function is faulty - illegal value in .ActualVelocityMonitoring
3026	Illegal encoder number in absolute encoder configuration.
3027	The set message format of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absMessageFormat
3028	The set baud rate of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.baudRate
3029	The set protocol format of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absState
3030	The number of the encoder assigned to a data set is invalid - illegal value in DataSet_N.EncoderNumber.encoderNumber
3031	The encoder assigned to a data set does not exist - illegal value in DataSet_N.EncoderNumber.encoderNumber
3032	The load gear ratio numerator configuration of a data set is faulty - illegal value in .DataSet_N.Gear.numFactor
3033	The load gear ratio denominator configuration of a data set is faulty - illegal value in .DataSet_N.Gear.denFactor
3034	An encoder references a data set that does not exist
3035	An encoder references a data set that does not exist
3036	Encoder not configured.
3037	Homing with encoder zero mark and ENDAT encoder is not possible - illegal value in .Encoder_N.IncHomingEncoder.homingMode
3038	Homing to the falling edge of an external zero mark on an onboard input is not possible - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3039	Flying homing with encoder zero mark and ENDAT encoder is not possible - illegal value in .Encoder_N.IncHomingEncoder.passiveHomingMode
3040	Flying homing to the falling edge of an external zero mark on an onboard input is not possible - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3041	The (modified) encoder configuration does not permit any determination of the factors for converting the encoder raw actual values into actual position and velocity values or for converting the position and velocity setpoints into DSC encoder raw actual values, taking account of the mechanical relationships.
3042	Illegal data combination for homing with external encoder.
3043	The incremental position of the encoder is outside the permissible value range.
3044	The incremental position of the encoder is outside the permissible value range.
3045	The configuration of the linear encoder resolution is faulty - illegal value in .Encoder_N.Resolution
3046	The configuration of the encoder actual velocity values filter is faulty - illegal value in .Encoder_N.Filter
3047	The configuration of the encoder actual velocity values filter for the interpolator is faulty - illegal value in .SmoothingFilter

3048	The configuration of the encoder actual velocity values filter for the actual value coupling (Synchronous operation) is faulty - illegal value in .Extrapolation.Filter
3049	The set number of the DSC encoder is invalid - illegal value in .NumberOfEncoder.dscEncoderNumber
3050	The configuration of the encoder system has not been completed correctly.
3051	The configuration of the stepper motor encoder data is faulty - illegal value in .Encoder_N.StepMotorMonitoring
3052	The set encoder actual value type does not match its configuration or the technology object type - illegal value in .Encoder_N.encoderValueType
3053	Homing on a stepper motor is only possible with an external zero mark - illegal value in .Encoder_N.incHomingEncoder.homingMode
3054	Flying homing on a stepper motor is only possible with an external zero mark - illegal value in .Encoder_N.incHomingEncoder.passiveHomingMode
3055	The configuration of a stepper motor with encoder is only possible on a real axis - illegal value in .Encoder_N.encoderMode
3056	Only one encoder may be configured on a stepper motor - illegal value in .NumberOfEncoders.numberOfEncoders
3057	The DSC encoder is not a PROFIBUS encoder - illegal value in .NumberOfEncoders.dscEncoderNumber or .Encoder_N.encoderIdentification
3058	The DSC encoder telegram does not support DSC - illegal value in .Encoder_N.DriverInfo.telegramType
3059	Set modulo value in Modulo.length is smaller than an increment.
3060	The encoder configuration for the position difference measurement is faulty - illegal value in .Encoder_N.PositionDifferenceMeasurement
3061	The set limits for the position difference supplied by the encoder are invalid - illegal value in .Encoder_N.PositionDifferenceMeasurement.Range
3062	The activation of the 'Backlash compensation' encoder function is only possible for motor encoders - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3063	The configuration of a TO externalEncoder for the operation as encoder on a stepper motor is not possible - illegal value in .Encoder_N.encoderMode
3064	The set resolution of the encoder is invalid - illegal value in .Encoder_N.IncEncoder.incResolution
3065	The set resolution of the encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absResolution
3066	The set multiplication factor for the cyclic actual value of the encoder is invalid - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic
3067	The set multiplication factor for the cyclic actual value of the encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absResolutionMultiplierCyclic
3068	The assignment of a velocity encoder to a data set on a positioning axis is not permitted - illegal value in DataSet_N.EncoderNumber.encoderNumber
3069	The configuration of the 'Tolerance of an encoder error' encoder function is invalid - illegal value in .Encoder_N.SensorControlConfig.tolerateSensorDefect
3070	The configuration of the 'Direct reading of the actual speed value (Nact) from the PROFIDrive telegram' encoder function is faulty - illegal value in .Encoder_N.NistDriverConfig
3071	The configuration of the reference cam is invalid - illegal value in .Encoder_N.IncHomingEncoder.referenceCamType
3072	The configuration of the negative reversing cam is faulty - illegal value in .Homing.ReverseCamNegative

3073	The configuration of the positive reversing cam is faulty - illegal value in .Homing.ReverseCamPositive
3074	The set edge of the external zero mark does not match the set homing approach direction - illegal value in .Encoder_N.IncHomingEncoder.approachDirection or .Homing.direction
3075	The use of reversing cams in the selection of .Homing.direction = 'POSITIVE_ALL_HOMING' or .Homing.direction = 'NEGATIVE_ALL_HOMING' as homing approach direction is not permitted - illegal configuration in .Homing.ReverseCamNegative._type or .Homing.ReverseCamPositive._type
3076	The set approach direction of the zero mark or edge of the external zero mark does not match the set homing approach direction - illegal value in .Encoder_N.IncHomingEncoder.approachDirection or .Homing.direction
3077	The use of hardware limit switches as reference cams in the selection of .Homing.direction = 'POSITIVE_ALL_HOMING' or .Homing.direction = 'NEGATIVE_ALL_HOMING' as homing approach direction is not permitted - illegal value in .Encoder_N.IncHomingEncoder.referenceCamType
3078	The configuration of the 'Ready bit' encoder function is faulty - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring
3079	The configuration of the 'Error bit' encoder function is faulty - illegal value in .Encoder_N.AnalogSensor.ErrorStateMonitoring
3080	The encoder Ready bit is in the range of the actual encoder value data bit - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress and/or .Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber
3081	The encoder Error bit is in the range of the actual encoder value data bit - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress and/or .Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber
3082	The configuration of the external zero mark interface is faulty - illegal value in .Encoder_N.IncHomingEncoder.StateDriveExternalZeroMark
3083	The configuration of the 'Update counter' encoder function is faulty - illegal value in .Encoder_N.AnalogSensor.UpdateCounter
3084	The encoder Update counter bits are in the range of the actual encoder value data bits - illegal value in .Encoder_N.AnalogSensor.UpdateCounter.logAddress and/or .Encoder_N.AnalogSensor.UpdateCounter.bitNumber
3085	The encoder Update counter bits and the Read bit overlap - illegal value in .Encoder_N.AnalogSensor.UpdateCounter.logAddress and/or .Encoder_N.AnalogSensor.UpdateCounter.bitNumber
3086	The encoder Update counter bits and the Error bit overlap - illegal value in .Encoder_N.AnalogSensor.UpdateCounter.logAddress and/or .Encoder_N.AnalogSensor.UpdateCounter.bitNumber
3087	The configuration of the 'Direct reading of the actual speed value (Nact) from the PROFIDrive telegram' encoder function is faulty - illegal value in .Encoder_N.SensorNist
3088	The configuration of the encoder with the identification 'SET_ACTUAL_VALUE' is faulty - illegal value in .Encoder_N.SensorSetActualValue
3089	The configuration of the encoder actual position values filter is faulty - illegal value in .Encoder_N.PositionFilter
3090	The configuration of the encoder actual position values filter for the actual value coupling (Synchronous operation) is faulty - illegal value in .Extrapolation.ExtrapolationPositionFilter

3091	The set multiplication factor for the cyclic actual value is not consistent with the known value on the drive encoder - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic or .Encoder_N.absEncoder.absResolutionMultiplierCyclic or .Encoder_N.Resolution.multiplierCyclic
3092	The set modulo length is invalid - illegal value in Modulo.length
3093	The set modulo start value is invalid - illegal value in Modulo.startValue
3094	Homing with deactivated hardware limit switches as reversing cams is not possible - illegal value in .Homing.ReverseCamNegative._type and/ or .Homing.ReverseCamPosition._type
3095	The set encoder identification is invalid - illegal value in .Encoder_N.encoderIdentification
3096	The set encoder mode is invalid - illegal value in .Encoder_N.encoderMode
3097	The set encoder type is invalid - illegal value in .Encoder_N.encoderType
3098	The set encoder system is invalid - illegal value in .Encoder_N.encoderSystem
3099	The set actual value type is invalid - illegal value in .Encoder_N.encoderValueType
3100	The set utilization status of the actual value interface is invalid - illegal value in .Encoder_N.interfaceAllocation
3101	The set encoder mode is not supported by the TO externalEncoder - illegal value in .Encoder_N.encoderMode
3102	The set actual value type is not supported by the TO externalEncoder - illegal value in .Encoder_N.encoderValueType
3103	Only the 'VELOCITY' actual value type is permitted on a drive axis - illegal value in .Encoder_N.encoderValueType
3104	The set encoder mode does not match the set combination of encoder type and encoder identification - illegal value in .Encoder_N.encoderMode
3105	The set encoder type is not supported for encoders with the set encoder identification - illegal value in .Encoder_N.encoderType
3106	The encoder configuration does not match the set combination of encoder type and encoder identification - illegal value in .Encoder_N.encoderMode or .Encoder_N.encoderSystem or .Encoder_N.encoderValueType
3107	The configuration of the encoder for the position difference measurement requires the setting of the 'POSITION' actual value type - illegal value in .Encoder_N.encoderValueType
3108	Only encoders of the 'SENSOR_INCREMENTAL' type are supported on an axis of the 'REAL_AXIS_WITH_SIGNAL_OUTPUT' type - illegal value in .Encoder_N.encoderType
3109	Only the 'SENSOR_ABSOLUTE' encoder type is supported on an encoder with the 'SET_ACTUAL_VALUE' encoder identification - illegal value in .Encoder_N.encoderType
3110	The set combination of encoder type and encoder mode is not supported within the context of a linear encoder - illegal value in .Encoder_N.encoderType and .Encoder_N.encoderMode
3111	The configuration of a linear encoder on a rotary axis is not possible - illegal value in .Encoder_N.encoderSystem
3112	The configuration of the reference cam zero mark distance monitoring is faulty - illegal value in .Encoder_N.IncHomingEncoder.beroDistance or .Encoder_N.IncHomingEncoder.enableZeroMarkDistance

3113	The set home position offset is invalid - illegal value in .Encoder_N.IncHomingEncoder.proceedShiftPos
3114	The configuration of the reference cam interface is faulty - illegal value in .Encoder_N.incHomingEncoder.bitNumberBero or .Encoder_N.incHomingEncoder.logAddressBero
3115	The set zero mark approach direction is invalid - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3116	Homing setting faulty: Zero mark approach direction is invalid - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3117	The configuration of the reference cam interface is faulty - illegal value in .Encoder_N.incHomingEncoder.passiveBitNumberBero or .Encoder_N.incHomingEncoder.passiveLogAddressBero
3118	The set homing mode is invalid - illegal value in .Encoder_N.IncHomingEncoder.homingMode
3119	The set homing mode is invalid - illegal value in .Encoder_N.IncHomingEncoder.passiveHomingMode
3120	The set zero mark approach direction does not match the set homing mode - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3121	The set external zero mark approach direction does not match the set homing mode - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3122	The set zero mark approach direction does not match the set homing mode - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3123	The set external zero mark approach direction does not match the homing mode - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3124	The set type of the reference cam is invalid - illegal value in .Encoder_N.IncHomingEncoder.referenceCamType
3125	The set reference cam type does not match the set zero mark approach direction - illegal value in .Encoder_N.IncHomingEncoder.referenceCamType
3126	The resource required for the reference cam cannot be requested - illegal value in .Encoder_N.IncHomingEncoder.logAddress and/ or .Encoder_N.IncHomingEncoder.bitNumber or no memory available
3127	The resource required for the reference cam cannot be requested - illegal value in .Encoder_N.IncHomingEncoder.passiveLogAddress and/ or .Encoder_N.IncHomingEncoder.passiveBitNumber or no memory available
3128	The resource required for the external zero mark cannot be requested - illegal value in .Encoder_N.incHomingEncoder.StateDriveExternalZeroMark.logAddress and/ or .Encoder_N.incHomingEncoder.StateDriveExternalZeroMark.bitNumber or no memory available
3129	The resource required for the positive reversing cam cannot be requested - illegal value in .Homing.ReverseCamPositive.logAddress and/ or .Homing.ReverseCamPositive.bitNumber or no memory available
3130	The resource required for the negative reversing cam cannot be requested - illegal value in .Homing.ReverseCamNegative.logAddress and/ or .Homing.ReverseCamNegative.bitNumber or no memory available
3131	The resource required for the 'Update counter' of the analog encoder cannot be requested - illegal value in .Encoder_N.AnalogSensor.UpdateCounter.logAddress and/ or .Encoder_N.AnalogSensor.UpdateCounter.bitNumber or no memory available

3132	The resource required for the 'Read state bit' of the analog encoder cannot be requested - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress and/ or .Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber or no memory available
3133	The resource required for the 'Error state bit' of the analog encoder cannot be requested - illegal value in .Encoder_N.AnalogSensor.ErrorStateMonitoring.logAddress and/ or .Encoder_N.AnalogSensor.ErrorStateMonitoring.bitNumber or no memory available
3134	The configuration of the actual value interface is faulty - illegal value in .EncoderN.DriverInfo
3135	The configuration of the encoder actual value interface is faulty - illegal value in .EncoderN.DriverInfoDirectIncremental
3136	The configuration of the sensor measuring gear ratio is faulty - illegal value in .Sensor.ConversionDataAdapt
3137	Only an encoder with the 'DRIVE' encoder mounting type is permitted as DSC encoder - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3138	An encoder with the encoder value type 'POSITION_AND_PROFIDRIVE_ENCODER_NIST_B' is supported only on a TO positioning axis or as TO external encoder in conjunction with the encoder identification 'DPMASTER' or 'SIMULATION' and the encoder telegram type 'DP_TEL83_STANDARD' - illegal TO type or illegal value in .Encoder_n.encoderIdentification or in .Encoder.DriverInfo.telegramType
3139	The number assigned to an encoder lies outside the number of the last configured encoder 'NumberOfEncoders.numberOfEncoders'
3140	The configuration of the encoder configuration data adaptation is faulty - illegal value in .Encoder_N.dataAdaption
3141	Both the adapted and the configured encoder configuration are invalid
3143	The multiplication factor for the cyclic actual value and/or the multiplication factor for the absolute value in conjunction with the configured encoder mode (Encoder_N.encoderMode) is invalid - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic or .Encoder_N.absEncoder.absResolutionMultiplierCyclic and/ or .Encoder_N.Resolution.multiplierCyclic or Encoder_N.Resolution.multiplierCyclic
3144	The set fine resolution for the cyclic absolute value (Gn_XIST2) is invalid - illegal value in .Encoder_N.AbsEncoder.absResolutionMultiplierAbsolute
4000	Error in controller.
4001	Negative acceleration specified.
4002	Unknown 'FipoType' requested.
4003	Error in runtime system, ratio of controller cycle clock to interpolator cycle clock is incorrect.
4004	Requested filter order not possible.
4005	Reserve for later use.
4006	Maximum limit is lower than minimum.
4007	Reserve for later use.
4008	Error in configuration data for controller.
4009	Reserve for later use.
4010	Reserve for later use.

4011	Reserve for later use.
4012	Reserve for later use.
4013	Requested controller type is not available.
4014	Error in controller factors.
4015	Precontrol activated, kpc less than 0 or kpc greater than 150.
4016	Reserve for later use.
4017	Reserve for later use.
4018	Reserve for later use.
4019	Reserve for later use.
4020	Reserve for later use.
4021	Reserve for later use.
4022	Reserve for later use.
4023	Precontrol activated, kpc less than or equal to 0.
4024	Reference model monitoring: Error in value of tolerance window.
4025	Error in limit value for standstill signal.
4026	Error in parameter for positioning monitoring.
4027	Simultaneous activation of reference model and dynamic following error monitoring not allowed.
4028	Sampling time parameter calculated incorrectly.
4029	Too many data sets requested.
4030	Error in runtime system, ratio of controller cycle clock to interpolator cycle clock is incorrect.
4031	Error in time constant for emergency ramp generator (positionTimeConstant).
4032	Precontrol active, but fine interpolator type is DIRECT.
4033	Default data set outside limits.
4034	Maximum number of data sets not possible.
4035	Unknown data set change mode.
4036	Following error monitoring not activated/deactivated in all data sets.
4037	Reference model monitoring not activated/deactivated in all data sets.
4038	Different controller type in data sets.
4039	Precontrol activated/deactivated differently in data sets.
4040	Time constant is 0.
4041	Error in dynamic adaptation parameter.
4042	System variable initialization could not be read.
4043	Driver simulation not implemented.
4044	Connection for stepper motors not implemented.
4045	Maximum velocity cannot be attained; maximum drive speed or normalization factor is incorrect.
4046	DSC requires motor encoder data to be specified.
4047	Drive or telegram type not suitable for DSC.
4048	Error in clamping monitoring parameter. 'No detection' is not permitted for the fixed endstop detection
4049	A sensor is required to monitor actual velocity using 'DynamicControl'.
4050	Inconsistent PROFIBUS parameterization; the sum of Ti and To is greater than a DP cycle

4051	Error in manipulated variable limitation parameter of force/pressure controller
4052	Error in force/pressure entry monitoring parameter
4053	Error in force/pressure end value monitoring parameter
4054	Force/pressure entry monitoring tolerance less than pressure end value monitoring tolerance
4055	Error in force/pressure control deviation monitoring parameter
4056	Different activation/deactivation of control deviation monitoring of force/pressure controller in data sets not permitted
4057	Different manipulated variable inversion of force/pressure controller in data sets not permitted
4058	Different force/pressure sensor types in data sets not permitted
4059	Different activation/deactivation of anti-windup in data sets not permitted
4060	Kd factor of PID_ACTUAL controller is greater than 1
4061	Time constant of process model T1 less than or equal to T2
4062	Illegal actuator type selection
4063	Error in sliding friction compensation parameter
4064	Error in offset injection parameter
4065	Precontrol for force/pressure control not implemented
4066	Error in standstill monitoring parameter
4067	Following error monitoring: minVelocity cannot be greater than or equal to maxVelocity
4068	Maximum buffer length of balancing filter (Mode_2) is reached or exceeded. As the servo cycle is included in the calculation of the equivalent time constant of the speed control loop (=velocityTimeConstant), the maximum value of this time constant is limited to 16 servo cycles. The buffer length of the lag element is maximum 16.
4069	System-related dead times are less than 0 after allowing for additionalTime
4070	Controller types other than DIRECT require configuration of an encoder.
4071	Illegal values for delayTimeToActivate of standstill signal
4072	The I/O device for the positive HW limit switch is not available
4073	The I/O device for the negative HW limit switch is not available
4074	Range limits of controller parameter exceeded.
4075	Range limit of brake deceleration of emergency ramp exceeded.
4076	Range limit of equivalent time constant exceeded.
4077	Range limit for velocityTimeConstant exceeded.
4078	Error in value for QFDynamicData configuration.
4079	Error in value for reference model monitoring.
4080	Error in following error monitoring parameter
4081	Error in clamping monitoring parameter
4082	Error in value for DynamicData configuration.
4083	Error in value for PV controller configuration.
4084	Configuration data missing for controller.
4085	Error in value for SystemDeadTimeData configuration.
4086	Pressure control only possible with closed-loop speed controller
4087	DSC and compensation of valve curve not possible
4088	DSC not possible on hydraulic axes

4089	Time constants of dynamic response compensation must not be equal
4090	Incorrect value for system dead time correction
4091	Different activation of manipulated variable filter of pressure controller in data sets
4092	Different activation of dynamic response compensation in data sets
4093	Activation of DSC is not the same in all data sets
4094	Balancing filter type is not the same in all data sets
4095	Illegal value for balanceFilterMode. For a drive axis, only MODE_1 is permitted (PV_Controller.balanceFilterMode).
4096	Activation of anti-windup is not the same in all data sets
4097	Activation of setpoint quantization is not the same in all data sets
4098	Activation of the reference model monitoring is not the same in all data sets
4099	Fixed endstop detection mode is not the same in all data sets
4100	Force controller is not the same in all data sets
4101	Force sensor type UNI_DIRECTION is not implemented
4102	Error in the time constant for smoothing controller parameters
4103	If encoderNumber = 0, ControllerStruct.conType must be DIRECT.
4104	The travel to fixed stop function is not possible on a QF axis.
4105	The integratorFeedbackTimeConstant cannot be less than 0
4106	Illegal value for CommandValueQuantization.value
4107	An electrical drive axis (typeOfAxis = REAL_KIND_OF_AXIS) may only have DIRECT as controller type (conType = DIRECT)
4108	Dead time of dynamic response compensation must not be zero.
4109	Time constant for smoothing manipulated variable jumps during data set changeover must not be less than zero.
4110	The parameters of the manipulated variable filter in the pressure controller are illegal.
4111	Range limit for positionTimeConstante exceeded.
4112	Force/pressure controller type not possible.
4113	Time constant for smoothing manipulated variable jumps outside the limits.
4114	The speed/velocityReference parameter must be set to NOMINAL_SPEED with active adaptation.
4115	The torque/forceReference parameter must be set to NOMINAL_TORQUE/FORCE with active adaptation.
4116	The parameters in HWEndPos are not consistent.
4117	The setting disableModeSpecification = OFF1_AND_OFF3_MODE is only possible with a digital drive coupling.
4120	Error in following error monitoring parameter. Illegal value in DynamicFollwong.minPositionTolerance
4121	Error in following error monitoring parameter. Illegal value in DynamicFollwong.maxPositionTolerance
4122	Error in following error monitoring parameter. Illegal value in DynamicFollwong.minVelocity
4123	Error in following error monitoring parameter. Illegal value in DynamicFollwong.warningLevel
4124	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.posWinTolTime

4125	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.posWinTolDelayTime
4126	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.tolerance
5000	Encoder data sequence and number of encoders do not match.
5001	The set number of force/pressure sensors is invalid - illegal value in .NumberOfAdditionalSensors.number
5002	The set type of the force/pressure sensor is invalid - illegal value in .AdditionalSensor_N.additionalSensorType
5003	The actual value interface configuration of the force/pressure sensor is faulty - illegal value in .AdditionalSensor_N.DriverInfo
5004	The raw actual value weighting factors configuration of the force/pressure sensor is faulty - illegal value in .AdditionalSensor_N.ConversionData
5006	The value range limits configuration of the actual force/pressure value is faulty - illegal value in .AdditionalSensor_N.Range
5007	The configuration of the actual force/pressure value filter is faulty - illegal value in .AdditionalSensor.Filter
5008	Configuration of the force/pressure sensor not completed correctly.
5009	The number of the force/pressure sensor assigned to the data set is invalid - illegal value in .NumberOfDataSets.DataSet_N.AdditionalSensorNumber.number
5010	The sensor configuration for the force/pressure difference measurement is faulty - illegal value in .AdditionalSensor.PositionDifferenceMeasurement
5011	The number of the force/pressure sensor set as sensor A for the difference measurement is invalid - illegal value in .AdditionalSensor.PositionDifferenceMeasurement.numberSensorA
5012	The number of the force/pressure sensor set as sensor B for the difference measurement is invalid - illegal value in .AdditionalSensor.PositionDifferenceMeasurement.numberSensorB
5013	Illegal data in extrapolation configuration.
5014	The set execution cycle clock of the sensor is invalid - illegal value in Execution.executionlevel
5015	The set substitute value strategy for a technological alarm on the sensor is invalid - illegal value in .ValueOut.outputValueErrorBehaviorMode
5020	The configuration of the analog encoder actual value interface is faulty - illegal value in .Encoder_N.AnalogSensor.DriverInfo
5021	The configuration of the analog encoder actual position values filter is faulty - illegal value in .Encoder_N.AnalogSensor.PositionFilter
5022	The raw actual value weighting factors configuration of the analog encoder is faulty - illegal value in .Encoder_N.AnalogSensor.ConversionData
5023	The measuring input interface configuration for the analog encoder is faulty - illegal value in .Encoder_N.AnalogSensor.LogAddress
5030	The count value weighting factors configuration of the interval counter speed encoder is faulty - illegal value in .Encoder_N.IntervalCounterConversionData
5031	The set logical address for the count value interface of the interval counter speed encoder is faulty - illegal value in .Encoder_N.IntervalCounterConversionData.DriverInfo.logAddress
6000	The traversing distance monitoring up to the reference point switch is configured in the configuration data, but the configured maximum distance to be traversed is zero.

6001	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfMaxBufferedCommandId
6002	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfQueueCommands
6003	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfImmediateCommands
6004	Configuration of behaviourAtTheEndOfProfile not implemented
6005	Illegal value for configuration data for maximum acceleration
6006	Illegal value for configuration data for maximum jerk
6007	Illegal value for configuration data for maximum force/pressure setpoint
6008	Illegal value for configuration data for maximum force/pressure setpoint increase
6009	Illegal value for configuration data for Synchronous operation tolerance based on setpoint
6010	Illegal value for configuration data for Synchronous operation tolerance based on actual value
6011	Illegal value for configuration data for Synchronous operation tolerance activation based on setpoint
6012	Illegal value for configuration data for Synchronous operation tolerance activation based on actual value
6013	Illegal value for configuration data for profile end identification tolerance window
6014	Illegal value for configuration data for actual value extrapolation time
6015	Illegal value for configuration data for actual value coupling tolerance window
6016	Illegal value for the injection tolerance configuration (relieveWindow) at software limit switch
6017	Illegal value for the type specification configuration (monitoringAtMotionStart) at software limit switch
6052	Illegal value for the configuration mode (modeSpecificMonitoring) at software limit switch
6053	Illegal value for the profile type configuration (stopJerk) on software limit switch
6018	Illegal value for configuration data for axis-specific path tolerance activation based on setpoint
6019	Illegal value for configuration data for axis-specific path tolerance based on setpoint
6020	Illegal value for configuration data for axis-specific path synchronization tolerance activation based on setpoint
6021	Illegal value for configuration data for axis-specific path synchronization tolerance based on setpoint
6022	Illegal value for configuration data driveControlConfig.releaseDisableMode (RELEASE_DISABLE drive behavior error response)
6023	Illegal value for configuration data of velocity type with master value extrapolation of actual values
6024	Illegal value for configuration data TypeOfAxis.Homing.direction, 'Approach direction during homing'
6025	Illegal value for configuration data TypeOfAxis.Homing.beroDistance, 'Maximum distance to the homing output cam'
6026	Illegal value for configuration data for Synchronous operation error message at master value

6027	Illegal value for the configuration data TypeOfAxis.DecodingConfig.directionDynamic
6028	Illegal value for the configuration data TypeOfAxis.DecodingConfig.behaviourAtTheEndOfProfile
6029	Illegal value for the configuration data TypeOfAxis.DecodingConfig.decodeSequentialMotionCommand
6030	Illegal value for the configuration data TypeOfAxis.DecodingConfig.transferSuperimposedPosition
6031	Illegal value for the configuration data TypeOfAxis.DecodingConfig.speedModeSetPointZero
6032	Illegal value for the configuration data TypeOfAxis.DecodingConfig.stopWithJerk
6033	Illegal value for the configuration data TypeOfAxis.DecodingConfig.disableMotionOperation
6034	Illegal value for the configuration data TypeOfAxis.DecodingConfig.profileDynamicsLimiting
6035	Illegal value for the configuration data TypeOfAxis.DecodingConfig.cyclicSetUpInForceLimiting
6036	Illegal value for the configuration data TypeOfAxis.Homing.enableBeroDistance
6037	Illegal value for the configuration data TypeOfAxis.Homing.referencingNecessary
6038	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableLifeSignMonitoring
6039	Illegal value for the configuration data TypeOfAxis.DistributedMotion.numberOfLifeSignFailures
6040	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableDelayOfCommandValueOutput
6041	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableOffsetCompensation
6042	Illegal value for configuration data driveControlConfig.pulsesEnabledEvaluation (axis behavior for drive-independent stop response)
6050	Illegal value for the configuration data driveControlConfig.dataAdaption
6051	Illegal value for the configuration data driveControlConfig.disableModeSpecification
6043	Illegal value for the configuration data TypeOfAxis.ControllerSwitchData.NumberOfDigitalInputs.number
6044	Illegal logical address of the digital input in the configuration data structure TypeOfAxis.ControllerSwitchData.NumberOfDigitalInputs.DigitalInput_x
6045	Illegal value for configuration data for maximum deceleration
7000	Illegal data in process model configuration
2045	Evaluation of the PulsesEnabled bit (pulsesEnabledEvaluation = YES) is not possible in telegram 1 (telegramType = DP_TEL1_STANDARD).
2046	Evaluation of the PulsesEnabled bit (pulsesEnabledEvaluation) is not carried out when using DSDB.

Additional information:	More detailed description of the error origin
Meaning for category 5	Number of the encoder on the technology object that issued the alarm

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT

Remedy

Change the configuration data.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

ENCODER_DISABLE

Settable local reactions

ENCODER_DISABLE

Diagnostics buffer entry

Yes

20007 Interconnection error (category: /1/%d, context: /2/%d, context parameter1: /3/%d, context parameter2: /4/%d)

Cause

This alarm indicates errors in the interconnection of technology objects. When the interconnection is established, the technology object verifies it on the basis of the interface properties. Errors are classified by category.

Additional information for a more detailed description of the error can be output from the context. An error context is output for selected error categories. Additional context parameters can be output for a context, if necessary. Context and context parameters are output as an integer value.

Meaning of alarm parameters

Category:	
1	Technology object compatibility error An interconnection is to be established with a technology object that has been configured with another reference system (e.g. output cams with rotary reference system and linear axis).
2	Exclusive interface An interface on a technology object that can only be connected to another technology object using one coupling type should be interconnected using different, mutually exclusive couplings. For example, the master value interface on a positioning axis for an interconnected synchronous object can only be operated as a setpoint or an actual value coupling.
3	Interconnection request The technology object awaits the interconnection to another technology object (necessary interconnection) in order to provide its functionality. Thus, for example, the interconnection to a gear axis is a required interconnection on a synchronous object.
4	Error during interface initialization The alarm is output in the event of initialization errors when connecting interfaces on the technology object.
5	Interface not available on technology object An interface required in the interconnection is not available on the technology object.
6	Recursion The interconnection on the technology object results in a recursion in the execution system of the technology package. The technology object does not support recursive execution.
7	Execution level compatibility error An interconnection is to be established with a technology object that is classified in a different execution level (e.g. output cam in execution level IPO and axis in execution level IPO_2). The technology object does not support interconnection to technology objects of other execution levels.
8	Initialization distribution In the case of interconnected technology objects that are distributed among different devices, an error occurred during initialization of the communication.

9	<p>Illegal TO state</p> <p>The technology object cannot be interconnected in the current state. A technology object can be interconnected only after the configuration has been successfully completed. Refer to the diagnostic buffer to determine the exact cause of the error. The cause of the illegal TO state is entered there (e.g. a level overflow during the configuration phase) and can then be corrected (in the example, by allowing level overflows in the task configuration).</p>
10	<p>Interface assignment</p> <p>The configured interface via which the technology object communicates cannot be used from the processing cycle clock of the technology object.</p>
11	<p>Active command in recursive TO interconnection</p> <p>The interconnection of the technology object and the enable state at its inputs result in an active recursive interconnection (positive feedback).</p>

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

Context / context parameter:

Contact the hotline and provide the name of the context parameter.

Category:

1 - Technology object compatibility error

Check the configuration and set a common reference system for the technology objects to be interconnected.

2 - Exclusive interface

Ensure that the project is consistent. Contact the hotline, if necessary.

3 - Interconnection request

Ensure that the project is consistent. The missing interconnection on the technology object is specified in the context:

Context

TO type

Interface

4 - Error during interface initialization

Contact the hotline and provide the name of the context parameter.

5 - Interface not available on technology object

Contact the hotline and provide the name of the context parameter.

6 - Recursion

Check the interconnection topology of your project. Remove unnecessary interconnections.

7 - Execution level compatibility error

Select a common execution level in the configuration for the technology objects to be interconnected (e.g. output cam and axis in IPO_2).

8 - Initialization distribution

- Ensure that your project is consistent. For proper configuration of communication, all devices must be compiled ('Project/Save and compile all' or "Save and compile all new").
- Determine whether all devices are selected for loading the project ('Target system/Select target devices...').
- Check whether the configured bus topology matches the actual bus topology.
- Ensure that the devices are linked in the bus configuration (PROFIBUS).
- Check whether isochronous operation was selected.
- In addition, the address areas that are used by the devices for communication must be set up. The address areas are automatically set up when the project is compiled; only afterwards is the valid hardware configuration available for downloading. Do not change automatically generated address areas afterwards.
- Contact the hotline and provide the name of the context parameter.

9 - Illegal technology object state

- Correct the configuration of the technology object.
- Eliminate the execution error.

10 - Interface assignment

- Configure the bus interface to match the processing cycle clock (e.g. fast bus system and axis in FastIPO).

11 - Active command in recursive TO interconnection

- Inputs of technology objects can already be enabled during the download (e.g. TO AdditionObjectType). Remove or change the relevant interconnection on the technology object or switch a technology object, whose input is enabled by the user program and not already by the download, into the positive feedback branch.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

ENCODER_DISABLE

Settable local reactions

ENCODER_DISABLE

Diagnostics buffer entry

Yes

20008 Assignment of USER_DEFAULT to system variables is not possible

Cause

It is not appropriate to assign USER_DEFAULT to a UserDefault system variable, because the variable references itself in this case.

As a result, a meaningful value cannot be generated on readout. When this error occurs, the new Enum value is not assigned. The variable retains the old value.

Remedy

USER_DEFAULT is intended for use in technology commands. Avoid assigning it to system variables.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE

Diagnostics buffer entry

No

20009 Reserved error

Cause

This error is not currently in use.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

ENCODER_DISABLE

Settable local reactions

ENCODER_DISABLE

Diagnostics buffer entry

Yes

20010 A restart is required to activate the configuration data

Cause

The configuration cannot be activated, since data has been modified preventing the activation. The technology object must be restarted to activate the data.

Remedy

- Execute the technology object reset command, and set the 'activateRestart' parameter to 'ACTIVATE_RESTART'.
- Set the 'restartActivation' system variable to 'ACTIVATE_RESTART'.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP SIMULATION_STOP SIMULATION_ABORT ENCODER_DISABLE

Diagnostics buffer entry

No

20011 Error occurred while activating the configuration (category: /1/%d, error number: /2/%d, additional information: /3/%d)

Cause

This alarm indicates error conditions when activating the configuration. The error conditions can be traced back to an incorrect or inconsistent configuration. The technology objects perform a plausibility check on the configuration. Errors are identified by the error codes below. The configuration is not activated when this alarm occurs.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of the error
500	Illegal technology object configuration state.
501	More configuration data expected than received.
502	Invalid configuration data.
503	Version conflict in configuration.
504	The configured task level is not supported by this TO.
505	The value range of the maximum number of command IDs has been violated.
506	The configured task level is not supported by the used hardware.
1000	General configuration error
1001	Communication error during data transmission
2000	Error in actuator system configuration.
2001	Outside of manipulated variable limits.
2003	Error in load gear factors.
2004	Error in maximum velocity.
2005	Maximum velocity greater than maximum attainable velocity.
2006	Drive not suitable for torque-controlled or torque-limited operation
2007	Linear stepper motor not implemented
2008	Right-justified format for direct output not implemented
2009	Illegal value in resolution for direct output
2010	Missing configuration data for actuator system
2011	Missing configuration data for additional actuator system
2012	The backstop range (min to max) does not contain a zero point
2014	Drive or telegram not suitable for torque superimposition
2015	Gear ratios less than or equal to 0.
2016	Resolution for stepper motor is 0.
2017	Illegal value for configuration data maxSpeed.
2018	Illegal value for configuration data maxVelocity.
2019	Range limits of configuration data exceeded.
2020	Range limits for maximum acceleration exceeded.
2021	Illegal values for dead zone compensation.
2022	Illegal values for sliding friction compensation.
2023	Illegal values for backstop.
2024	Error in friction compensation parameter
2025	DIRECT output: Analog and bit driver of a shared output are parameterized in different ways on the various axes
2026	Illegal value for pulsesEnable
2027	Illegal value for maxSpeed ($\text{maxSpeed} \geq 2 * \text{nominalSpeed}$)
2028	Illegal value for maxSpeed ($\text{maxSpeed} \leq 10 \text{ V} / \text{maxSetPointVoltage} * \text{nominalSpeed}$)
2029	Illegal value in TypeOfAxis.SetPointDriverInfo
2030	A parameter in DriveData is not correct.
2031	A parameter in LinearMotorDriveData is not correct.
2032	A parameter in StepMotorDriveData is not correct.

2033	A parameter in QOutput.EnableBit is not correct.
2034	A parameter of the technological data block is not correct.
2035	A parameter of the safety data block is not correct.
2036	A parameter of the operating characteristics data block is not correct.
2037	Cannot change the configuration during the drive adaptation.
2038	Illegal value for the manipulated variable filter
2040	No driver could be requested under the logical input address.
2041	No driver could be requested under the logical output address.
2042	The numerator of the load gear is incorrect.
2043	The nominal factor of the load gear is incorrect.
2044	The value for the reference velocity is incorrect.
3000	Error in encoder system.
3001	Illegal value in Simulation.simulationMode
3002	The set axis type is invalid - illegal value in TypeOfAxis.typeOfAxis
3003	The set drive leadscrew pitch is invalid - illegal value in Leadscrew.pitchVal
3004	The set modulo activation is invalid - illegal value in Modulo.state
3005	Illegal specification(s) in the encoder data (incremental, absolute, etc.).
3006	The set number of encoders is invalid - illegal value in .NumberOfEncoders.numberOfEncoders
3007	Illegal incremental encoder number.
3008	Illegal data combination for homing with incremental encoder.
3009	The configuration of the 'Backlash compensation' encoder function is faulty - illegal value in .Encoder_N.IncBacklash or .Encoder_N.AbsBacklash
3010	Illegal data on SSI encoder.
3011	The configuration of the 'Absolute encoder adjustment' encoder function is faulty - illegal value in .Encoder_N.AbsHoming
3012	The configuration of the 'Counting direction of the raw actual encoder value' encoder function is faulty - illegal value in .Encoder_N.InversCountDirection.encoderFeedbackPolarity
3013	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptDrive
3014	The configuration of the 'Encoder limit frequency monitoring' encoder function is faulty - illegal value in .Encoder_N.FrequencyLimit.encoderFrequencyLimit
3015	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptLoad
3016	The load gear ratio configuration of a data set is faulty - illegal value in .DataSet_N.Gear
3017	Encoder data sequence and number of encoders do not match.
3018	The configuration of an encoder is incomplete
3019	The set mounting location of the encoder is invalid - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3020	The encoder simulation is either not supported or it is not activated simultaneously on the actuator and the sensor - illegal value in .Encoder_N.encoderIdentification or .SetPointDriverInfo.mode
3021	The number of configured data sets or the number of the active data set after the startup is invalid - illegal value in DataSet_N.numberOfDatasets or in DataSet_N.initDataSet

3022	The number of the encoder assigned to a data set is invalid - illegal value in DataSet_N.EncoderNumber.encoderNumber
3023	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptExtern
3024	The configuration of the encoder measuring wheel circumference is faulty - illegal value in .Encoder_N.pathPerRevolution.length
3025	The configuration of the 'Actual velocity monitoring' function is faulty - illegal value in .ActualVelocityMonitoring
3026	Illegal encoder number in absolute encoder configuration.
3027	The set message format of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absMessageFormat
3028	The set baud rate of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.baudRate
3029	The set protocol format of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absState
3030	The number of the encoder assigned to a data set is invalid - illegal value in DataSet_N.EncoderNumber.encoderNumber
3031	The encoder assigned to a data set does not exist - illegal value in DataSet_N.EncoderNumber.encoderNumber
3032	The load gear ratio numerator configuration of a data set is faulty - illegal value in .DataSet_N.Gear.numFactor
3033	The load gear ratio denominator configuration of a data set is faulty - illegal value in .DataSet_N.Gear.denFactor
3034	An encoder references a data set that does not exist
3035	An encoder references a data set that does not exist
3036	Encoder not configured.
3037	Homing with encoder zero mark and ENDAT encoder is not possible - illegal value in .Encoder_N.IncHomingEncoder.homingMode
3038	Homing to the falling edge of an external zero mark on an onboard input is not possible - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3039	Flying homing with encoder zero mark and ENDAT encoder is not possible - illegal value in .Encoder_N.IncHomingEncoder.passiveHomingMode
3040	Flying homing to the falling edge of an external zero mark on an onboard input is not possible - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3041	The (modified) encoder configuration does not permit any determination of the factors for converting the encoder raw actual values into actual position and velocity values or for converting the position and velocity setpoints into DSC encoder raw actual values, taking account of the mechanical relationships.
3042	Illegal data combination for homing with external encoder.
3043	The incremental position of the encoder is outside the permissible value range.
3044	The incremental position of the encoder is outside the permissible value range.
3045	The configuration of the linear encoder resolution is faulty - illegal value in .Encoder_N.Resolution
3046	The configuration of the encoder actual velocity values filter is faulty - illegal value in .Encoder_N.Filter
3047	The configuration of the encoder actual velocity values filter for the interpolator is faulty - illegal value in .SmoothingFilter

3048	The configuration of the encoder actual velocity values filter for the actual value coupling (Synchronous operation) is faulty - illegal value in .Extrapolation.Filter
3049	The set number of the DSC encoder is invalid - illegal value in .NumberOfEncoder.dscEncoderNumber
3050	The configuration of the encoder system has not been completed correctly.
3051	The configuration of the stepper motor encoder data is faulty - illegal value in .Encoder_N.StepMotorMonitoring
3052	The set encoder actual value type does not match its configuration or the technology object type - illegal value in .Encoder_N.encoderValueType
3053	Homing on a stepper motor is only possible with an external zero mark - illegal value in .Encoder_N.incHomingEncoder.homingMode
3054	Flying homing on a stepper motor is only possible with an external zero mark - illegal value in .Encoder_N.incHomingEncoder.passiveHomingMode
3055	The configuration of a stepper motor with encoder is only possible on a real axis - illegal value in .Encoder_N.encoderMode
3056	Only one encoder may be configured on a stepper motor - illegal value in .NumberOfEncoders.numberOfEncoders
3057	The DSC encoder is not a PROFIBUS encoder - illegal value in .NumberOfEncoders.dscEncoderNumber or .Encoder_N.encoderIdentification
3058	The DSC encoder telegram does not support DSC - illegal value in .Encoder_N.DriverInfo.telegramType
3059	Set modulo value in Modulo.length is smaller than an increment.
3060	The encoder configuration for the position difference measurement is faulty - illegal value in .Encoder_N.PositionDifferenceMeasurement
3061	The set limits for the position difference supplied by the encoder are invalid - illegal value in .Encoder_N.PositionDifferenceMeasurement.Range
3062	The activation of the 'Backlash compensation' encoder function is only possible for motor encoders - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3063	The configuration of a TO externalEncoder for the operation as encoder on a stepper motor is not possible - illegal value in .Encoder_N.encoderMode
3064	The set resolution of the encoder is invalid - illegal value in .Encoder_N.IncEncoder.incResolution
3065	The set resolution of the encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absResolution
3066	The set multiplication factor for the cyclic actual value of the encoder is invalid - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic
3067	The set multiplication factor for the cyclic actual value of the encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absResolutionMultiplierCyclic
3068	The assignment of a velocity encoder to a data set on a positioning axis is not permitted - illegal value in DataSet_N.EncoderNumber.encoderNumber
3069	The configuration of the 'Tolerance of an encoder error' encoder function is invalid - illegal value in .Encoder_N.SensorControlConfig.tolerateSensorDefect
3070	The configuration of the 'Direct reading of the actual speed value (Nact) from the PROFIDrive telegram' encoder function is faulty - illegal value in .Encoder_N.NistDriverConfig
3071	The configuration of the reference cam is invalid - illegal value in .Encoder_N.IncHomingEncoder.referenceCamType
3072	The configuration of the negative reversing cam is faulty - illegal value in .Homing.ReverseCamNegative

3073	The configuration of the positive reversing cam is faulty - illegal value in .Homing.ReverseCamPositive
3074	The set edge of the external zero mark does not match the set homing approach direction - illegal value in .Encoder_N.IncHomingEncoder.approachDirection or .Homing.direction
3075	The use of reversing cams in the selection of .Homing.direction = 'POSITIVE_ALL_HOMING' or .Homing.direction = 'NEGATIVE_ALL_HOMING' as homing approach direction is not permitted - illegal configuration in .Homing.ReverseCamNegative._type or .Homing.ReverseCamPositive._type
3076	The set approach direction of the zero mark or edge of the external zero mark does not match the set homing approach direction - illegal value in .Encoder_N.IncHomingEncoder.approachDirection or .Homing.direction
3077	The use of hardware limit switches as reference cams in the selection of .Homing.direction = 'POSITIVE_ALL_HOMING' or .Homing.direction = 'NEGATIVE_ALL_HOMING' as homing approach direction is not permitted - illegal value in .Encoder_N.IncHomingEncoder.referenceCamType
3078	The configuration of the 'Ready bit' encoder function is faulty - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring
3079	The configuration of the 'Error bit' encoder function is faulty - illegal value in .Encoder_N.AnalogSensor.ErrorStateMonitoring
3080	The encoder Ready bit is in the range of the actual encoder value data bit - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress and/or .Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber
3081	The encoder Error bit is in the range of the actual encoder value data bit - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress and/or .Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber
3082	The configuration of the external zero mark interface is faulty - illegal value in .Encoder_N.IncHomingEncoder.StateDriveExternalZeroMark
3083	The configuration of the 'Update counter' encoder function is faulty - illegal value in .Encoder_N.AnalogSensor.UpdateCounter
3084	The encoder Update counter bits are in the range of the actual encoder value data bits - illegal value in .Encoder_N.AnalogSensor.UpdateCounter.logAddress and/or .Encoder_N.AnalogSensor.UpdateCounter.bitNumber
3085	The encoder Update counter bits and the Read bit overlap - illegal value in .Encoder_N.AnalogSensor.UpdateCounter.logAddress and/or .Encoder_N.AnalogSensor.UpdateCounter.bitNumber
3086	The encoder Update counter bits and the Error bit overlap - illegal value in .Encoder_N.AnalogSensor.UpdateCounter.logAddress and/or .Encoder_N.AnalogSensor.UpdateCounter.bitNumber
3087	The configuration of the 'Direct reading of the actual speed value (Nact) from the PROFIDrive telegram' encoder function is faulty - illegal value in .Encoder_N.SensorNist
3088	The configuration of the encoder with the identification 'SET_ACTUAL_VALUE' is faulty - illegal value in .Encoder_N.SensorSetActualValue
3089	The configuration of the encoder actual position values filter is faulty - illegal value in .Encoder_N.PositionFilter
3090	The configuration of the encoder actual position values filter for the actual value coupling (Synchronous operation) is faulty - illegal value in .Extrapolation.ExtrapolationPositionFilter

3091	The set multiplication factor for the cyclic actual value is not consistent with the known value on the drive encoder - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic or .Encoder_N.absEncoder.absResolutionMultiplierCyclic or .Encoder_N.Resolution.multiplierCyclic
3092	The set modulo length is invalid - illegal value in Modulo.length
3093	The set modulo start value is invalid - illegal value in Modulo.startValue
3094	Homing with deactivated hardware limit switches as reversing cams is not possible - illegal value in .Homing.ReverseCamNegative._type and/ or .Homing.ReverseCamPosition._type
3095	The set encoder identification is invalid - illegal value in .Encoder_N.encoderIdentification
3096	The set encoder mode is invalid - illegal value in .Encoder_N.encoderMode
3097	The set encoder type is invalid - illegal value in .Encoder_N.encoderType
3098	The set encoder system is invalid - illegal value in .Encoder_N.encoderSystem
3099	The set actual value type is invalid - illegal value in .Encoder_N.encoderValueType
3100	The set utilization status of the actual value interface is invalid - illegal value in .Encoder_N.interfaceAllocation
3101	The set encoder mode is not supported by the TO externalEncoder - illegal value in .Encoder_N.encoderMode
3102	The set actual value type is not supported by the TO externalEncoder - illegal value in .Encoder_N.encoderValueType
3103	Only the 'VELOCITY' actual value type is permitted on a drive axis - illegal value in .Encoder_N.encoderValueType
3104	The set encoder mode does not match the set combination of encoder type and encoder identification - illegal value in .Encoder_N.encoderMode
3105	The set encoder type is not supported for encoders with the set encoder identification - illegal value in .Encoder_N.encoderType
3106	The encoder configuration does not match the set combination of encoder type and encoder identification - illegal value in .Encoder_N.encoderMode or .Encoder_N.encoderSystem or .Encoder_N.encoderValueType
3107	The configuration of the encoder for the position difference measurement requires the setting of the 'POSITION' actual value type - illegal value in .Encoder_N.encoderValueType
3108	Only encoders of the 'SENSOR_INCREMENTAL' type are supported on an axis of the 'REAL_AXIS_WITH_SIGNAL_OUTPUT' type - illegal value in .Encoder_N.encoderType
3109	Only the 'SENSOR_ABSOLUTE' encoder type is supported on an encoder with the 'SET_ACTUAL_VALUE' encoder identification - illegal value in .Encoder_N.encoderType
3110	The set combination of encoder type and encoder mode is not supported within the context of a linear encoder - illegal value in .Encoder_N.encoderType and .Encoder_N.encoderMode
3111	The configuration of a linear encoder on a rotary axis is not possible - illegal value in .Encoder_N.encoderSystem
3112	The configuration of the reference cam zero mark distance monitoring is faulty - illegal value in .Encoder_N.IncHomingEncoder.beroDistance or .Encoder_N.IncHomingEncoder.enableZeroMarkDistance

3113	The set home position offset is invalid - illegal value in .Encoder_N.IncHomingEncoder.proceedShiftPos
3114	The configuration of the reference cam interface is faulty - illegal value in .Encoder_N.incHomingEncoder.bitNumberBero or .Encoder_N.incHomingEncoder.logAddressBero
3115	The set zero mark approach direction is invalid - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3116	Homing setting faulty: Zero mark approach direction is invalid - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3117	The configuration of the reference cam interface is faulty - illegal value in .Encoder_N.incHomingEncoder.passiveBitNumberBero or .Encoder_N.incHomingEncoder.passiveLogAddressBero
3118	The set homing mode is invalid - illegal value in .Encoder_N.IncHomingEncoder.homingMode
3119	The set homing mode is invalid - illegal value in .Encoder_N.IncHomingEncoder.passiveHomingMode
3120	The set zero mark approach direction does not match the set homing mode - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3121	The set external zero mark approach direction does not match the set homing mode - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3122	The set zero mark approach direction does not match the set homing mode - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3123	The set external zero mark approach direction does not match the homing mode - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3124	The set type of the reference cam is invalid - illegal value in .Encoder_N.IncHomingEncoder.referenceCamType
3125	The set reference cam type does not match the set zero mark approach direction - illegal value in .Encoder_N.IncHomingEncoder.referenceCamType
3126	The resource required for the reference cam cannot be requested - illegal value in .Encoder_N.IncHomingEncoder.logAddress and/ or .Encoder_N.IncHomingEncoder.bitNumber or no memory available
3127	The resource required for the reference cam cannot be requested - illegal value in .Encoder_N.IncHomingEncoder.passiveLogAddress and/ or .Encoder_N.IncHomingEncoder.passiveBitNumber or no memory available
3128	The resource required for the external zero mark cannot be requested - illegal value in .Encoder_N.incHomingEncoder.StateDriveExternalZeroMark.logAddress and/ or .Encoder_N.incHomingEncoder.StateDriveExternalZeroMark.bitNumber or no memory available
3129	The resource required for the positive reversing cam cannot be requested - illegal value in .Homing.ReverseCamPositive.logAddress and/ or .Homing.ReverseCamPositive.bitNumber or no memory available
3130	The resource required for the negative reversing cam cannot be requested - illegal value in .Homing.ReverseCamNegative.logAddress and/ or .Homing.ReverseCamNegative.bitNumber or no memory available
3131	The resource required for the 'Update counter' of the analog encoder cannot be requested - illegal value in .Encoder_N.AnalogSensor.UpdateCounter.logAddress and/ or .Encoder_N.AnalogSensor.UpdateCounter.bitNumber or no memory available

3132	The resource required for the 'Read state bit' of the analog encoder cannot be requested - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress and/ or .Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber or no memory available
3133	The resource required for the 'Error state bit' of the analog encoder cannot be requested - illegal value in .Encoder_N.AnalogSensor.ErrorStateMonitoring.logAddress and/ or .Encoder_N.AnalogSensor.ErrorStateMonitoring.bitNumber or no memory available
3134	The configuration of the actual value interface is faulty - illegal value in .EncoderN.DriverInfo
3135	The configuration of the encoder actual value interface is faulty - illegal value in .EncoderN.DriverInfoDirectIncremental
3136	The configuration of the sensor measuring gear ratio is faulty - illegal value in .Sensor.ConversionDataAdapt
3137	Only an encoder with the 'DRIVE' encoder mounting type is permitted as DSC encoder - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3138	An encoder with the encoder value type 'POSITION_AND_PROFIDRIVE_ENCODER_NIST_B' is supported only on a TO positioning axis or as TO external encoder in conjunction with the encoder identification 'DPMMASTER' or 'SIMULATION' and the encoder telegram type 'DP_TEL83_STANDARD' - illegal TO type or illegal value in .Encoder_n.encoderIdentification or in .Encoder.DriverInfo.telegramType
3139	The number assigned to an encoder lies outside the number of the last configured encoder 'NumberOfEncoders.numberOfEncoders'
3140	The configuration of the encoder configuration data adaptation is faulty - illegal value in .Encoder_N.dataAdaption
3141	Both the adapted and the configured encoder configuration are invalid
3143	The multiplication factor for the cyclic actual value and/or the multiplication factor for the absolute value in conjunction with the configured encoder mode (Encoder_N.encoderMode) is invalid - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic or .Encoder_N.absEncoder.absResolutionMultiplierCyclic and/ or .Encoder_N.Resolution.multiplierCyclic or Encoder_N.Resolution.multiplierCyclic
3144	The set fine resolution for the cyclic absolute value (Gn_XIST2) is invalid - illegal value in .Encoder_N.AbsEncoder.absResolutionMultiplierAbsolute
4000	Error in controller.
4001	Negative acceleration specified.
4002	Unknown 'FipoType' requested.
4003	Error in runtime system, ratio of controller cycle clock to interpolator cycle clock is incorrect.
4004	Requested filter order not possible.
4005	Reserve for later use.
4006	Maximum limit is lower than minimum.
4007	Reserve for later use.
4008	Error in configuration data for controller.
4009	Reserve for later use.
4010	Reserve for later use.

4011	Reserve for later use.
4012	Reserve for later use.
4013	Requested controller type is not available.
4014	Error in controller factors.
4015	Precontrol activated, kpc less than 0 or kpc greater than 150.
4016	Reserve for later use.
4017	Reserve for later use.
4018	Reserve for later use.
4019	Reserve for later use.
4020	Reserve for later use.
4021	Reserve for later use.
4022	Reserve for later use.
4023	Precontrol activated, kpc less than or equal to 0.
4024	Reference model monitoring: Error in value of tolerance window.
4025	Error in limit value for standstill signal.
4026	Error in parameter for positioning monitoring.
4027	Simultaneous activation of reference model and dynamic following error monitoring not allowed.
4028	Sampling time parameter calculated incorrectly.
4029	Too many data sets requested.
4030	Error in runtime system, ratio of controller cycle clock to interpolator cycle clock is incorrect.
4031	Error in time constant for emergency ramp generator (positionTimeConstant).
4032	Precontrol active, but fine interpolator type is DIRECT.
4033	Default data set outside limits.
4034	Maximum number of data sets not possible.
4035	Unknown data set change mode.
4036	Following error monitoring not activated/deactivated in all data sets.
4037	Reference model monitoring not activated/deactivated in all data sets.
4038	Different controller type in data sets.
4039	Precontrol activated/deactivated differently in data sets.
4040	Time constant is 0.
4041	Error in dynamic adaptation parameter.
4042	System variable initialization could not be read.
4043	Driver simulation not implemented.
4044	Connection for stepper motors not implemented.
4045	Maximum velocity cannot be attained; maximum drive speed or normalization factor is incorrect.
4046	DSC requires motor encoder data to be specified.
4047	Drive or telegram type not suitable for DSC.
4048	Error in clamping monitoring parameter. 'No detection' is not permitted for the fixed endstop detection
4049	A sensor is required to monitor actual velocity using 'DynamicControl'.
4050	Inconsistent PROFIBUS parameterization; the sum of Ti and To is greater than a DP cycle

4051	Error in manipulated variable limitation parameter of force/pressure controller
4052	Error in force/pressure entry monitoring parameter
4053	Error in force/pressure end value monitoring parameter
4054	Force/pressure entry monitoring tolerance less than pressure end value monitoring tolerance
4055	Error in force/pressure control deviation monitoring parameter
4056	Different activation/deactivation of control deviation monitoring of force/pressure controller in data sets not permitted
4057	Different manipulated variable inversion of force/pressure controller in data sets not permitted
4058	Different force/pressure sensor types in data sets not permitted
4059	Different activation/deactivation of anti-windup in data sets not permitted
4060	Kd factor of PID_ACTUAL controller is greater than 1
4061	Time constant of process model T1 less than or equal to T2
4062	Illegal actuator type selection
4063	Error in sliding friction compensation parameter
4064	Error in offset injection parameter
4065	Precontrol for force/pressure control not implemented
4066	Error in standstill monitoring parameter
4067	Following error monitoring: minVelocity cannot be greater than or equal to maxVelocity
4068	Maximum buffer length of balancing filter (Mode_2) is reached or exceeded. As the servo cycle is included in the calculation of the equivalent time constant of the speed control loop (=velocityTimeConstant), the maximum value of this time constant is limited to 16 servo cycles. The buffer length of the lag element is maximum 16.
4069	System-related dead times are less than 0 after allowing for additionalTime
4070	Controller types other than DIRECT require configuration of an encoder.
4071	Illegal values for delayTimeToActivate of standstill signal
4072	The I/O device for the positive HW limit switch is not available
4073	The I/O device for the negative HW limit switch is not available
4074	Range limits of controller parameter exceeded.
4075	Range limit of brake deceleration of emergency ramp exceeded.
4076	Range limit of equivalent time constant exceeded.
4077	Range limit for velocityTimeConstant exceeded.
4078	Error in value for QFDynamicData configuration.
4079	Error in value for reference model monitoring.
4080	Error in following error monitoring parameter
4081	Error in clamping monitoring parameter
4082	Error in value for DynamicData configuration.
4083	Error in value for PV controller configuration.
4084	Configuration data missing for controller.
4085	Error in value for SystemDeadTimeData configuration.
4086	Pressure control only possible with closed-loop speed controller
4087	DSC and compensation of valve curve not possible
4088	DSC not possible on hydraulic axes

4089	Time constants of dynamic response compensation must not be equal
4090	Incorrect value for system dead time correction
4091	Different activation of manipulated variable filter of pressure controller in data sets
4092	Different activation of dynamic response compensation in data sets
4093	Activation of DSC is not the same in all data sets
4094	Balancing filter type is not the same in all data sets
4095	Illegal value for balanceFilterMode. For a drive axis, only MODE_1 is permitted (PV_Controller.balanceFilterMode).
4096	Activation of anti-windup is not the same in all data sets
4097	Activation of setpoint quantization is not the same in all data sets
4098	Activation of the reference model monitoring is not the same in all data sets
4099	Fixed endstop detection mode is not the same in all data sets
4100	Force controller is not the same in all data sets
4101	Force sensor type UNI_DIRECTION is not implemented
4102	Error in the time constant for smoothing controller parameters
4103	If encoderNumber = 0, ControllerStruct.conType must be DIRECT.
4104	The travel to fixed stop function is not possible on a QF axis.
4105	The integratorFeedbackTimeConstant cannot be less than 0
4106	Illegal value for CommandValueQuantization.value
4107	An electrical drive axis (typeOfAxis = REAL_KIND_OF_AXIS) may only have DIRECT as controller type (conType = DIRECT)
4108	Dead time of dynamic response compensation must not be zero.
4109	Time constant for smoothing manipulated variable jumps during data set changeover must not be less than zero.
4110	The parameters of the manipulated variable filter in the pressure controller are illegal.
4111	Range limit for positionTimeConstante exceeded.
4112	Force/pressure controller type not possible.
4113	Time constant for smoothing manipulated variable jumps outside the limits.
4114	The speed/velocityReference parameter must be set to NOMINAL_SPEED with active adaptation.
4115	The torque/forceReference parameter must be set to NOMINAL_TORQUE/ FORCE with active adaptation.
4116	The parameters in HWEndPos are not consistent.
4117	The setting disableModeSpecification = OFF1_AND_OFF3_MODE is only possible with a digital drive coupling.
4120	Error in following error monitoring parameter. Illegal value in DynamicFollwong.minPositionTolerance
4121	Error in following error monitoring parameter. Illegal value in DynamicFollwong.maxPositionTolerance
4122	Error in following error monitoring parameter. Illegal value in DynamicFollwong.minVelocity
4123	Error in following error monitoring parameter. Illegal value in DynamicFollwong.warningLevel
4124	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.posWinToTime

4125	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.posWinToIDelayTime
4126	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.tolerance
5000	Encoder data sequence and number of encoders do not match.
5001	The set number of force/pressure sensors is invalid - illegal value in .NumberOfAdditionalSensors.number
5002	The set type of the force/pressure sensor is invalid - illegal value in .AdditionalSensor_N.additionalSensorType
5003	The actual value interface configuration of the force/pressure sensor is faulty - illegal value in .AdditionalSensor_N.DriverInfo
5004	The raw actual value weighting factors configuration of the force/pressure sensor is faulty - illegal value in .AdditionalSensor_N.ConversionData
5006	The value range limits configuration of the actual force/pressure value is faulty - illegal value in .AdditionalSensor_N.Range
5007	The configuration of the actual force/pressure value filter is faulty - illegal value in .AdditionalSensor.Filter
5008	Configuration of the force/pressure sensor not completed correctly.
5009	The number of the force/pressure sensor assigned to the data set is invalid - illegal value in .NumberOfDataSets.DataSet_N.AdditionalSensorNumber.number
5010	The sensor configuration for the force/pressure difference measurement is faulty - illegal value in .AdditionalSensor.PositionDifferenceMeasurement
5011	The number of the force/pressure sensor set as sensor A for the difference measurement is invalid - illegal value in .AdditionalSensor.PositionDifferenceMeasurement.numberSensorA
5012	The number of the force/pressure sensor set as sensor B for the difference measurement is invalid - illegal value in .AdditionalSensor.PositionDifferenceMeasurement.numberSensorB
5013	Illegal data in extrapolation configuration.
5014	The set execution cycle clock of the sensor is invalid - illegal value in Execution.executionlevel
5015	The set substitute value strategy for a technological alarm on the sensor is invalid - illegal value in .ValueOut.outputValueErrorBehaviorMode
5020	The configuration of the analog encoder actual value interface is faulty - illegal value in .Encoder_N.AnalogSensor.DriverInfo
5021	The configuration of the analog encoder actual position values filter is faulty - illegal value in .Encoder_N.AnalogSensor.PositionFilter
5022	The raw actual value weighting factors configuration of the analog encoder is faulty - illegal value in .Encoder_N.AnalogSensor.ConversionData
5023	The measuring input interface configuration for the analog encoder is faulty - illegal value in .Encoder_N.AnalogSensor.LogAddress
5030	The count value weighting factors configuration of the interval counter speed encoder is faulty - illegal value in .Encoder_N.IntervalCounterConversionData
5031	The set logical address for the count value interface of the interval counter speed encoder is faulty - illegal value in .Encoder_N.IntervalCounterConversionData.DriverInfo.logAddress
6000	The traversing distance monitoring up to the reference point switch is configured in the configuration data, but the configured maximum distance to be traversed is zero.

6001	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfMaxBufferedCommandId
6002	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfQueueCommands
6003	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfImmediateCommands
6004	Configuration of behaviourAtTheEndOfProfile not implemented
6005	Illegal value for configuration data for maximum acceleration
6006	Illegal value for configuration data for maximum jerk
6007	Illegal value for configuration data for maximum force/pressure setpoint
6008	Illegal value for configuration data for maximum force/pressure setpoint increase
6009	Illegal value for configuration data for Synchronous operation tolerance based on setpoint
6010	Illegal value for configuration data for Synchronous operation tolerance based on actual value
6011	Illegal value for configuration data for Synchronous operation tolerance activation based on setpoint
6012	Illegal value for configuration data for Synchronous operation tolerance activation based on actual value
6013	Illegal value for configuration data for profile end identification tolerance window
6014	Illegal value for configuration data for actual value extrapolation time
6015	Illegal value for configuration data for actual value coupling tolerance window
6016	Illegal value for the injection tolerance configuration (relieveWindow) at software limit switch
6017	Illegal value for the type specification configuration (monitoringAtMotionStart) at software limit switch
6052	Illegal value for the configuration mode (modeSpecificMonitoring) at software limit switch
6053	Illegal value for the profile type configuration (stopJerk) on software limit switch
6018	Illegal value for configuration data for axis-specific path tolerance activation based on setpoint
6019	Illegal value for configuration data for axis-specific path tolerance based on setpoint
6020	Illegal value for configuration data for axis-specific path synchronization tolerance activation based on setpoint
6021	Illegal value for configuration data for axis-specific path synchronization tolerance based on setpoint
6022	Illegal value for configuration data driveControlConfig.releaseDisableMode (RELEASE_DISABLE drive behavior error response)
6023	Illegal value for configuration data of velocity type with master value extrapolation of actual values
6024	Illegal value for configuration data TypeOfAxis.Homing.direction, 'Approach direction during homing'
6025	Illegal value for configuration data TypeOfAxis.Homing.beroDistance, 'Maximum distance to the homing output cam'
6026	Illegal value for configuration data for Synchronous operation error message at master value

6027	Illegal value for the configuration data TypeOfAxis.DecodingConfig.directionDynamic
6028	Illegal value for the configuration data TypeOfAxis.DecodingConfig.behaviourAtTheEndOfProfile
6029	Illegal value for the configuration data TypeOfAxis.DecodingConfig.decodeSequentialMotionCommand
6030	Illegal value for the configuration data TypeOfAxis.DecodingConfig.transferSuperimposedPosition
6031	Illegal value for the configuration data TypeOfAxis.DecodingConfig.speedModeSetPointZero
6032	Illegal value for the configuration data TypeOfAxis.DecodingConfig.stopWithJerk
6033	Illegal value for the configuration data TypeOfAxis.DecodingConfig.disableMotionOperation
6034	Illegal value for the configuration data TypeOfAxis.DecodingConfig.profileDynamicsLimiting
6035	Illegal value for the configuration data TypeOfAxis.DecodingConfig.cyclicSetUpInForceLimiting
6036	Illegal value for the configuration data TypeOfAxis.Homing.enableBeroDistance
6037	Illegal value for the configuration data TypeOfAxis.Homing.referencingNecessary
6038	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableLifeSignMonitoring
6039	Illegal value for the configuration data TypeOfAxis.DistributedMotion.numberOfLifeSignFailures
6040	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableDelayOfCommandValueOutput
6041	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableOffsetCompensation
6042	Illegal value for configuration data driveControlConfig.pulsesEnabledEvaluation (axis behavior for drive-independent stop response)
6050	Illegal value for the configuration data driveControlConfig.dataAdaption
6051	Illegal value for the configuration data driveControlConfig.disableModeSpecification
6043	Illegal value for the configuration data TypeOfAxis.ControllerSwitchData.NumberOfDigitalInputs.number
6044	Illegal logical address of the digital input in the configuration data structure TypeOfAxis.ControllerSwitchData.NumberOfDigitalInputs.DigitalInput_x
6045	Illegal value for configuration data for maximum deceleration
7000	Illegal data in process model configuration
2045	Evaluation of the PulsesEnabled bit (pulsesEnabledEvaluation = YES) is not possible in telegram 1 (telegramType = DP_TEL1_STANDARD).
2046	Evaluation of the PulsesEnabled bit (pulsesEnabledEvaluation) is not carried out when using DSDB.

Additional information:	More detailed description of the error origin
Meaning for category 5	Number of the encoder on the technology object that issued the alarm

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT

Remedy

Change the configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP SIMULATION_STOP SIMULATION_ABORT ENCODER_DISABLE

Diagnostics buffer entry

No

20012 Restart not carried out (reason: /1/%d)**Cause**

Technology object could not be restarted.

Meaning of alarm parameters

Reason:	
1	The technology object configuration does not allow a restart with the restart system variable.
2	The technology object is not ready to be restarted.
3	A configured condition for restarting the technology object is not met (e.g. technology object must be 'disabled').
4	Restart was not performed with the last programmed configuration of the technology object because this is faulty
5	The configuration of the technology object does not permit any restart.

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	DINT

Remedy

Reason:	
1	Initiate the restart using the reset command.
2	Reload the project.
3	Work around the cause stated in the Reason parameter, or reload the project.
4	Determine whether technological alarms were reported or error entries were made in the device diagnostics and, if necessary, remedy the cause.
5	Change the configuration to activate the appropriate restart capability.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP SIMULATION_STOP SIMULATION_ABORT ENCODER_DISABLE

Diagnostics buffer entry

No

20014 Under logical address: /1/%d (optional log. address: /2/%d and bit no.: /3/%d of the enable output), a driver (type: /4/%d) could not be requested

Cause

The driver of a physical device is not available or is being used by another technology object.

The enable command for the technology object has been issued more than once with the 'immediately' stepping condition.

Meaning of alarm parameters

Logical address:	This is the address of the actuator driver configured on the technology object.
Logical address and bit number:	This specifies the address and bit number of the output enable bit.

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	DINT

Remedy

- Do not call the enable command cyclically "call the enable command only once for the axis enable".
- Check that the logical device was available at the time of the request or whether it was being used by another technology object.
- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

ENCODER_DISABLE

Settable local reactions

ENCODER_DISABLE

Diagnostics buffer entry

Yes

20015 **Device type:/3/%d, log. address:/1/%d faulted. (Bit:/2/%d, encoder number:/5/%d, reason: 0x/4/%Xh)**

Cause

The driver of a physical device or the device itself has failed or is faulty.
 If this alarm occurs, the cause of the error must be evaluated in the external device (drive or encoder).

Meaning of alarm parameters

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver
12	Safety data block driver
13	Update counter
14	Operating characteristics data block driver

Logical address:	This is the logical input address configured on the technology object.
Bit number:	For bit driver type = 3 or 4 only; number of the bit
Encoder number:	Number of the encoder in case of telegrams with multiple encoders. Applies only when type = 2.
Reason:	0 - only defined when type = 2

Note

Addition of error messages

The codings for the reason of the failure specified below for the individual alarm types can also occur in combination. A group coding is indicated as the sum of several individual codings (e.g. 0x0005 = 0x0001 + 0x0004).

A failure reason labeled with DP can occur only for PROFIBUS devices.

Type = 1	
0x0001h	Fault message from the drive (note: for PROFIBUS drives, which support acyclic communication in accordance with PROFIdrive V3, the error number(s) of the drive are displayed in the diagnostic buffer, e.g. for Masterdrives MC)
0x0002h	DP: Drive signal "control requested" failed
0x0004h	DP: Drive disconnected itself
0x0008h	Slot for drive data is not available in the project
0x0010h	Actuator driver does not have a connection to the drive data
0x0020h	Actuator driver was not initialized during ramp-up
0x0080h	DP: Difference between configuration data and drive parameters (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	DP: Control signals to the PROFIdrive state machine were incorrectly specified
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
0x8000h	DP: Life-sign of drive has malfunctioned or failed
0x80000000h	The drive interface has been deactivated for the pending enables.
Type = 2	
0x0000h	The actual value changes exceed the limit value derived from the maximum velocity (configuration data TypeOfAxis.MaxVelocity.maximum) over multiple cycles. This monitoring can be activated or deactivated with configuration data TypeOfAxis.NumberOfEncoders.Encoder_x.AbsEncoder.enableAbsMonitoring.
0x0001h	Alarm message from encoder (note: the encoder error number(s) are displayed in the diagnostic buffer)
0x0002h	General hardware error of encoder
0x0004h	Encoder is dirty
0x0008h	Slot for encoder data is not available in the project
0x0010h	Encoder driver does not have a connection to the encoder data
0x0020h	Encoder driver was not initialized during ramp-up
0x0040h	Error when reading the absolute value of the encoder
0x0080h	DP: Difference between the configuration data and the encoder parameters Onboard C2xx: Inconsistency of the configuration data (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	Zero mark monitoring of encoder
0x0200h	DP: Encoder has gone to Parked state
0x4000h	DP: Encoder on bus failed (station failure)

0x8000h	DP: Life-sign of encoder has malfunctioned or failed. (note: for an encoder whose data are transferred in a drive telegram together with actuator data, the actuator life-sign applies to the encoder, e.g. for standard telegram 3 in accordance with PROFIdrive)
0x80000000h	The sensor interface has been deactivated for the pending enables.
Type = 3...6	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 7	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 8	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 9	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 10	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 11	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 12	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 13	
0x1h	The actual value was specified via a system variable and the permissible number of failure cycles was exceeded
0x2h	The actual value was updated with an update counter in the I/O area and the permissible number of failure cycles was exceeded

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

The remedy for the respective type and cause is described below.

Type 1

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- A system fault may be present. Call the hotline.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- When sign-of-life monitoring is set: Ensure that in HW Config for drive under DP slave properties - isochronous operation - drive, the "synchronize to equidistant DP cycle" field is activated.
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
- Up to SIMOTION RT V4.3: If the alarm occurs after the download on a drive with telegram 999: Compare the parameterized bit position for the "Pulses enabled" status signal in drive parameter p924 with the configuration data 'DriveControlConfig.PulsesEnabled' of the TO axis. In this case, there is not necessarily an incorrect parameterization and therefore a check cannot be performed by the system because of the BICO interconnection. Therefore, make sure that the Pulses enabled bit is in the correct position.

For reason 0x0100

- Correct your user program with regard to PROFIdrive-compliant specification of control bits in the _enable/disableAxis commands, e.g. control signal OFF (STW1.0 = false) must precede a drive connection.

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 2

For reason 0x0000

- Check the absolute encoder functions, connections and configuration. Take note of this when monitoring is deactivated (not with Alarm 20015).

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- Make sure that the user program does not reference a technology object containing an encoder (Axis, External Encoder) with an '_enableaxis' or '_enableexternalencoder' command while system variable 'sensordata.sensordata[n].state' is signaling invalid.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0040

- Compare the encoder type in the drive or encoder parameter P979 with the configuration data of the technology object.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
 - Compare the encoder type, resolution, shift factor, and, in the case of absolute encoders, the number of rotations in the drive or encoder parameter P979 to the encoder type, resolution, fine resolution, and, in the case of absolute encoders, the data length in the configuration data of the technology object.
- When using telegram 999, this message always appears, as the bit position is not checked by the system in this case, but has to be performed by the user.

For reason 0x0100

- Check the device functions, connections and wiring.

For reason 0x0200

- Find the cause of the error in the connected drive or encoder. Check whether the alarm was triggered due to a commissioning operation on the drive or encoder.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 3 - Type 6For reason 0x0000

- Check the configuration and the signal paths of the connection.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 7For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 8For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 9For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 10For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 11 - Type 12For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring. If the error cannot be acknowledged when the axis is in simulation mode, check whether the technology data block is activated, and if this is the case, deactivate it.

Type 13

For reason 0x1

- Check the specification of the actual value with regard to function, configuration, and task configuration.

For reason 0x2

- Check the device functions, configuration, connections and wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP SIMULATION_STOP SIMULATION_ABORT ENCODER_DISABLE

Diagnostics buffer entry

Yes

20016 Under logical address: /1/%d (bit number, if required: /2/%d) no driver (type: /3/%d) activated (error number: /4/%d)

Cause

The driver of a physical device or the device itself is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT

Remedy

- Check the activation/deactivation sequence for the interface.
- Note the runtimes of the commands and use the provided command control mechanisms (e.g. `nextCommand := WHEN_COMMAND_DONE`).
- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE ENCODER_DISABLE

Diagnostics buffer entry

Yes

20017 Internal algorithm error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Error source
Parameters 2 to 4:	Fault number

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact:

SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

ENCODER_DISABLE

Settable local reactions

ENCODER_DISABLE

Diagnostics buffer entry

Yes

20018 **Attempt to write the bit(s): 0x/1/%Xh in control word1 or the bit(s): 0x/2/%Xh in control word2 under the log. address: /3/%d has been rejected.**

Cause

An attempt to write certain bits in control word 1 or 2 has been rejected.

Meaning of alarm parameters

Bits:	Display of bits which could not be written
Log. address:	Logical address of the device driver

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT

Remedy

- Check the order of commands, particularly in relation to `_enableAxis(...)`.
- Check the command parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE

Diagnostics buffer entry

Yes

20019 Error for the commissioning, reason: /1/%d (Parameter1: /2/%d, Parameter2: /3/%d)

Cause

A commissioning function could not be executed.

Meaning of alarm parameters

Reason:	
1	Failure of the life-sign between controller and SIMOTION SCOUT
2	Protocol error
3	Command decoding error

Description of the alarm parameters in the _getExternalEncoderErrorState command:

No.	Data type
1	DINT
2	UDINT
3	UDINT

Remedy

Reason:	
1	Check the connection properties. If required, increase the monitoring time.
2	Should a system error of this type occur, note the alarm number, the alarm text and the specified alarm parameters, and contact: SIEMENS AG I DT MC, Hotline.
3	Should a system error of this type occur, note the alarm number, the alarm text and the specified alarm parameters, and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / NONE

Preassignment for local reactions

NONE

Settable local reactions

NONE ENCODER_DISABLE

Diagnostics buffer entry

Yes

20020 Output deactivated

Cause

One or more outputs of the technology object have been deactivated. This is caused by the output-disable device status.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

ENCODER_DISABLE

Settable local reactions

NONE DECODE_STOP SIMULATION_STOP SIMULATION_ABORT ENCODER_DISABLE

Diagnostics buffer entry

No

20021 Configuration will be adapted internally (category: /1/%d, reason: /2/%d, limited value: /3/%f, additional information: /4/%d)

Cause

This alarm shows the implicit setting of configuration data to the maximum possible values. The technology objects perform a plausibility check on the configuration. Errors/manipulations are identified by the error codes below.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of configuration data
2001	Illegal value for maxSpeed (maxSpeed less than or equal to 2*nominalSpeed; maxSpeed will be set to 2*nominalSpeed)
2002	Illegal value for maxTorque/Force (maxTorque/Force less than or equal to 2*nominalTorque/Force; maxTorque/Force will be set to 2*nominalTorque/Force)
2003	Error during the adaptation of the Torque-/ForceReductionGranularity. p1544 is ignored and the default value used.
3001	The length of the backlash on reversal is limited to a permitted value (Encoder_N.incBacklash.length or Encoder_N.absBacklash.length).
3002	The compensation velocity of the backlash on reversal is limited to a permitted value (Encoder_N.incBacklash.velocity or Encoder_N.absBacklash.velocity).
3003	The value of the configuration data for the encoder system (.Encoder_N.encoderSystem) is limited to a permitted value.
3004	The value of the configuration data for the encoder resolution (rotary: .Encoder_N.incEncoder.incResolution, Encoder_N.absEncoder.absResolution; linear: Encoder_N.Resolution.distance) is limited to a permitted value.
3005	The value of the configuration data for the multiplication factor of the cyclical actual value (.Encoder_N.incEncoder.incResolutionMultiplierCyclic, Encoder_N.absEncoder.absResolutionMultiplierCyclic, Encoder_N.Resolution.multiplierCyclic) is limited to a permitted value.
3006	The value of the configuration data for the multiplication factor of the absolute value (Encoder_N.absEncoder.absResolutionMultiplierAbsolute) is limited to a permitted value.
3007	The value of the configuration data for the data length of the absolute value (Encoder_N.absEncoder.absDataLength) is limited to a permitted value.
3008	The value of the configuration data for the reference value of the Nact speed in the PROFIdrive telegram (Encoder_N.sensorNist.referenceValue) is limited to a permitted value.
3009	The load gear factor of the first data set is leading for the encoder simulation. The simulation with different load gear factors is not supported. The value of the configuration data for the load gear (DataSet_N.gear) is limited to the load gear ratio of the first data set.
4001	The delay time for the triggering of the standstill signal (StandStillSignal.delayTimeToActivate) is limited.
4002	The delay time until the position monitoring tolerance window is reached (PositionMonitoring.posWinTolTime) is limited.
4003	The delay time until the activation of the position monitoring message (PositionMonitoring.posWinTolDelayTime) is limited.
4004	The delay time for the activation of the standstill monitoring message (StandStillMonitoring.delayTimeToActivate) is limited.
4005	The delay time of the actual value of the force/pressure entry monitoring (ForceControlRunningInWindowMonitoring.winTolTime) is limited.
4006	The delay time until activation of the force/pressure entry monitoring (ForceControlRunningInWindowMonitoring.maxDelayTime) is limited.
4007	The delay time until activation of the force/pressure end value monitoring (ForceControlHeldValueMonitoring.delayTimeToActivate) is limited.

4008	The delay of the emergency ramp generator (EmergencyRampGenerator.maxDeceleration) is too small and set to the minimum possible value.
4009	The decay time constant of the friction compensation (Friction.decayTime) is limited.
4068	The maximum buffer length of the lag element in the balancing filter (Mode_2) is reached or exceeded. The lag element (maximum buffer length: 16 servo-cycles) is augmented by a PT1 element.
4069	The maximum buffer length of the lag component of the dynamic response compensation is reached or exceeded. The maximum value of this time constant is limited to 16 servo cycles. The buffer length of the lag element is maximum 16.

Additional information:	More detailed description of the error origin
Meaning for category 5	Number of the encoder on the technology object that issued the alarm

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	DINT
2	DINT
3	LREAL
4	UDINT

Remedy

2001	Correct the reference value in the drive to $\text{maxSpeed(Velocity)} / 2$.
2002	Correct the reference value in the drive to $\text{maxTorque(Force)} / 2$.
2003	Set the reference value in the drive to 0x64 or 0x4000.
3001	Change the configuration data
3002	Change the configuration data
3003	Change the configuration data
3004	Change the configuration data
3005	Change the configuration data
3006	Change the configuration data
3007	Change the configuration data
3008	Change the configuration data
3009	Change the configuration data
4001	Change the configuration data
4002	Change the configuration data
4003	Change the configuration data
4004	Change the configuration data
4005	Change the configuration data
4006	Change the configuration data
4007	Change the configuration data
4008	Change the configuration data
4009	Change the configuration data
4068	Change the configuration data
4069	Change the configuration data

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE ENCODER_DISABLE

Diagnostics buffer entry

No

20022 Error occurred while modifying the configuration (category: /1/%d, reason: /2/%d, additional information: /3/%d, parameter: /4/%d)

Cause

This alarm indicates error conditions when modifying the configuration on the device.

The configuration on the device is not modified when this alarm is issued.

Meaning of alarm parameters

Category:	Area in which the error occurred
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Reason:	Specification of the error
1	Adaptation of the configuration of the actuator or encoder without active drive interface is not possible
2	The actuator or the encoder is not assigned to any SINAMICS drive device
3	A parameter does not exist or its value either cannot be read or lies outside the permitted limits.
4	The adaptation of the actuator or encoder has not been activated
5	The reading of the parameters has been aborted because of a fault reported by the hardware
6	The adaptation is already active on the actuator or encoder
7	The modified configuration is activated only for reset TO enables.
8	The adaptation requires speedReference = NOMINAL_VALUE.
9	The adaptation requires torque/forceReference = NOMINAL_VALUE.
10	The enables are deleted by means of the adaptation
11	The adaptation is aborted due to a lack of resources.

Additional information:	More detailed description of the error origin
Meaning for category 5	Number of the encoder on the technology object that issued the alarm.

Parameters:	parameter affected when parameter error detected (reason = 3)
0	The read parameters are valid, but it was not possible to derive a consistent configuration.
5	Rated speed/velocity, reference velocity (p2000)
7	Encoder system (r0979[1/11].0)
8	Encoder resolution (r0979[2/12])
9	Encoder fine resolution Gx_XIST1 (r0979[3/13])
10	Encoder fine resolution Gx_XIST2 (r0979[4/14])
11	Number of resolvable encoder revolutions (r0979[5/15])

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT
4	UDINT

Remedy

- For reason 4: Activate the adaptation of the configuration on the technology object using 'Encoder_1.encoderMode = PROFIDRIVE'
- For reason 6: Wait until completion of the active adaptation of the configuration. Consider the current status of the adaptation in the 'sensorData.dataAdaption' system variable on the technology object.
- For reason 10: The enables must be deleted before calling the adaptation command.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

ENCODER_DISABLE

Settable local reactions

NONE ENCODER_DISABLE

Diagnostics buffer entry

No

20023 Under logical address: /1/%d (bit number, if required: /2/%d) no I/O (type: /3/%d) are available (error number: /4/%d)

Cause

A physical device is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

ENCODER_DISABLE

Settable local reactions

ENCODER_DISABLE

Diagnostics buffer entry

Yes

20024 Under logical address: /1/%d (bit number, if required: /2/%d) no I/O (type: /3/%d) are available (error number: /4/%d)

Cause

A physical device is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

ENCODER_DISABLE

Settable local reactions

ENCODER_DISABLE

Diagnostics buffer entry

Yes

20025 Inconsistency between the TO and the drive/encoder configuration (category: /1/%d, additional information: /2/%d, reason: /3/%d)

Cause

An inconsistency has been detected between the drive/encoder configuration and the configuration of the technology object.

Meaning of alarm parameters

Category:	Area in which the error occurred.
4	Manipulated variable output
5	Encoder system

Additional information:	More detailed description of the error origin
Category 4	Not relevant
Category 5	Number of the encoder at which the inconsistency was detected

Reason:	Description of reason for error
91	The message length configured for the SSI encoder (Encoder_N.absEncoder.absMessageLength) is invalid.
92	The message format configured for the SSI encoder (Encoder_N.absEncoder.absMessageFormat) is invalid.
93	The encoder resolution configured for the SSI encoder (Encoder_N.absEncoder.absResolution) is invalid. The encoder resolution must be greater than one increment per encoder revolution.
94	The configured data width (Encoder_N.absEncoder.absDataLength) for the RIGHT_MARGIN message format configured on the SSI encoder (Encoder_N.absEncoder.absMessageFormat) is too large for the configured message length Encoder_N.absEncoder.absMessageLength).
95	The configured encoder resolution (Encoder_N.absEncoder.absResolution) for the RIGHT_MARGIN message format configured on the SSI encoder (Encoder_N.absEncoder.absMessageFormat) is larger than the encoder resolution which can be displayed by the configured data width (Encoder_N.absEncoder.absDataLength).
96	The configured encoder resolution (Encoder_N.absEncoder.absResolution) for the PINETREE message format configured on the SSI encoder (Encoder_N.absEncoder.absMessageFormat) is larger than the encoder resolution which can be displayed by the configured message length (Encoder_N.absEncoder.absMessageLength).
97	The encoder resolution which can be displayed by the configured data width (Encoder_N.absEncoder.absDataLength) for the PINETREE message format configured on the SSI encoder (Encoder_N.absEncoder.absMessageFormat) is larger than the configured data resolution (Encoder_N.absEncoder.absResolution).
100	The cycle clock period of the master application cycle (HW Config) is not identical to that of the servo cycle.
101	The processing cycle clock of the technology object is not identical to the application cycle of the drive.
110	The configured telegram type (SetPointDriverInfo.telegramType) is not compatible with the telegram type at the drive (P922).
111	The configured PZD number for the pulse enable signal (DriveControlConfig.pulsesEnabled.pzdNumber) is not consistent with the PZD number configured at the drive (P924).
112	The configured bit number for the pulse enable signal (DriveControlConfig.pulsesEnabled.bitNumber) is not consistent with the bit number configured at the drive (P924).
200	The cycle clock period of the master application cycle (HW Config) is not identical to that of the servo cycle.
201	The processing cycle clock of the technology object is not identical to the application cycle of the drive.
210	The configured telegram type (Encoder_N.driverInfo.telegramType) is not compatible with the telegram type at the drive (P922).
211	The encoder at the drive is not an absolute encoder (P979).
212	The configured encoder resolution (Encoder_N.absEncoder.absResolution, Encoder_N.incEncoder.incResolution) is not consistent with the encoder resolution configured at the drive encoder (P979).

213	The configured fine resolution for Gx_XIST1 (Encoder_N.absEncoder.absResolutionMultiplierCyclic, Encoder_N.incEncoder.incResolutionMultiplierCyclic, Encoder_N.Resolution.multiplierCyclic) is not consistent with the fine resolution configured at the drive encoder (P979).
214	The configured fine resolution for Gx_XIST2 (Encoder_N.absEncoder.absResolutionMultiplierAbsolute) is not consistent with the fine resolution configured at the drive encoder (P979).
215	The configured number of resolvable revolutions of the absolute encoder (Encoder_N.absEncoder.absDataLength minus Encoder_N.absEncoder.absResolution) is not consistent with the number of resolvable revolutions configured at the drive encoder (P979).
216	The configured format of the actual speed value is not supported (P65001).

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	DINT

Remedy

General	Check whether the false setting in the parameterization of the I/O device or in the configuration of the SIMOTION technology object is warranted. For PROFIBUS drives or encoders, compare the hardware configuration, the configuration of the technology object, and the drive parameter assignment.
Reason 91 ff.	Use the axis wizard or the expert list to adapt the configuration of the encoder at the technology object to the parameter assignment of the encoder connected to the drive and reload the project. Note the information on the onboard encoder interface on the SIMOTION C2xx in the Axis Function Manual.
Reason 100, 200	Compare the cycle clock parameters in the hardware configuration (PROFIBUS line, Slave OM for drive or encoder) and the execution system. The master application cycle and the servo must be set to the same cycle clock period.
Reason 101, 201	Compare the processing cycle clock of the technology object and the application cycle of the drive or encoder. Drives or encoders in the "Servo" application cycle can only run in the "Servo", "Ipo", or "Ipo2" processing cycle clock. The "FastServo" and "FastIPO" processing cycle clocks can only be used for drives or encoders with the "FastServo" application cycle.
Reason 110, 210	Compare the telegram type in the drive or encoder parameter p922 with the telegram type configured at the actuator or sensor of the technology object.
Reason 111, 112	The setting for the pulses enabled signal at the 'Axis' technology object (TypeOfAxis.DriveControlConfig.pulsesEnabled) does not match drive parameter p924. The position of the pulses enabled signal in the drive telegram is configured in both places. Note that in the configuration data of the TO, the number of the PZD is indicated in the telegram, but parameter r924 contains the signal number according to PROFIdrive. If the signal number is set to '0' in parameter p924, an entry is made in the diagnostics buffer regardless of the setting at the technology object.
Reason 211 ff.	Use the axis wizard or the expert list to adapt the configuration of the encoder at the technology object to the parameter assignment of the encoder connected to the drive and reload the project. Note the encoder parameter assignment in drive parameter P979.
Reason 216	Convert the format for N-act in the connected external encoder.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE ENCODER_DISABLE

Diagnostics buffer entry

Yes

30001 **Illegal parameter (parameter index according to standard sequence in the system functions: /1/%d, command type: /4/%X)**

Cause

Illegal parameter transfer to a system function. The command is not executed. This alarm occurs when the permissible parameter value range is violated. The permissible value range of the parameter is a function of its data type and the technological meaning of the parameter.

The parameter index indicates the position of the illegal parameter. The standard sequence of parameters in the system functions is apparent from the reference list associated with the command. The command type indicates the type of the faulty system function.

Meaning of alarm parameters

Parameter index:	Index of the system function parameter that triggered this error (listed according to the standard sequence in the system functions).
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the value range of the parameter data type.
- Check the technological meaning of the parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP SIMULATION_STOP SIMULATION_ABORT ENCODER_DISABLE

Diagnostics buffer entry

No

30002 Command aborted (reason: /1/%d, command type: /4/%X)

Additional references

Further information is provided in the Function Manual:

- Basic Functions and
- in the online help.

Cause

The command was aborted before or during execution.

This can be caused by:

- A substituted command
- Command buffer reset
- Error state

Note

This alarm is always output, e.g. for jogging (_move aborted with _stop) or for the retraction of the reference BERO for homing or when Synchronous operation (explicitly) deactivated.

Meaning of alarm parameters

Reason:	
1	Reset of the command buffer
2	Abort by another command
3	Abort by a stop
4	Abort by a higher-order stop
5	Abort by a pending error response
6	Abort due to ambiguous commandId
7	Acknowledgement delay
8	No actual value for axis/external encoder (e.g. encoder or data bus not ready)
9	Abort due to abort of a dependent command
10	Abort due to active Synchronous operation
11	Abort due to active superimposed motion
12	Abort due to active speed-controlled controller mode
13	Abort due to active position-controlled controller mode
14	Abort due to active travel to fixed end stop
15	Axis is not in pressure-limiting operation
16	Abort due to active pressure-controlled operation
17	Abort due to inactive pressure-controlled operation
18	Superimposed command is not permitted
19	Abort due to error during cam access
30	Axis is in pressure-limiting operation
31	Maximum number of active commands exceeded

33	Action only permissible in standstill
41	Command parameter became invalid during processing
42	No interconnection to a technology object
43	Abort due to a Cancel command in the user program
44	Abort because of a pending command with identical command parameters
52	Abort because enables are set
53	Abort because of running adaptation of drive data
55	Abort on the basis of internal limits.
56	Abort on the basis of active Safety Function.
57	Abort on the basis of active motion.

Command type:	Outputs the aborted command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Set up the command again via program.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP SIMULATION_STOP SIMULATION_ABORT ENCODER_DISABLE

Diagnostics buffer entry

No

30003 Command aborted because of full command buffer (command type: /4/%X)

Cause

The command is not entered in the command buffer because the buffer is already full.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the program flow.
- Typical cause: The 'nextCommand' parameter is passed with the value 'IMMEDIATELY', and the 'mergeMode' parameter is passed with the value 'SEQUENTIAL'.
 - Synchronize the command execution in the user program so that the command buffer is not occupied when the command is issued.
 - Use other values for the 'nextCommand' or 'mergeMode' parameters. Setting the "nextCommand" to a value other than 'IMMEDIATELY' causes the program to wait for the command buffer to become available. In addition, setting a different 'mergeMode' means that the command buffer can be overwritten.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP SIMULATION_STOP SIMULATION_ABORT ENCODER_DISABLE

Diagnostics buffer entry

No

30004 Command is not defined for this technology object type (command type: /4/%X)

Cause

Command was programmed on a technology object type not supporting processing of this command.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Issue the command on the correct technology object type.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP SIMULATION_STOP SIMULATION_ABORT ENCODER_DISABLE

Diagnostics buffer entry

No

30005 **Ambiguous commandId (number of commands with the specified ID: /1/%d, command type: /4/%X)**

Cause

The specified commandId refers to more than one command. The specified action is performed for the command matching the specified ID that has been in the interpolator for the longest time.

If no corresponding command is found in the interpolator, the action refers to the next command loaded in the interpolator.

Meaning of alarm parameters

Id:	Number of commands referenced by the specified command ID.
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Use a different 'commandId' for commands that are active simultaneously.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP SIMULATION_STOP SIMULATION_ABORT ENCODER_DISABLE

Diagnostics buffer entry

No

30006 Command cannot be executed because of the current object state (command type: /4/%X)

Cause

A reset command is active at the object or the object is deactivated.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the following:

- Check the object status.
- Check the possible execution sequence of the programmed commands.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP SIMULATION_STOP SIMULATION_ABORT ENCODER_DISABLE

Diagnostics buffer entry

No

30007 The error cannot be reset because of its configuration

Cause

The 30007 alarm will be output when an alarm is reset that can only be acknowledged with PowerOn.

Example:

The internal 20001 error can only be acknowledged with PowerOn.

If an attempt is made to reset the alarm with a `_reset...Error` command, the 30007 alarm will be output.

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

Check whether the errors present on the technology object can be acknowledged.

Correct the cause of the error and switch the CPU off/on or load the project again.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP SIMULATION_STOP SIMULATION_ABORT ENCODER_DISABLE

Diagnostics buffer entry

No

30008 **Link to a technology object necessary for this operation does not exist (command type: /4/%X)**

Cause

The object connection required for this operation has not been configured or the connected technology object has been deactivated.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the project configuration.
- Change the object connection in the command.
- Activate the connected technology object.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP SIMULATION_STOP SIMULATION_ABORT ENCODER_DISABLE

Diagnostics buffer entry

No

30009 **Command rejected as the decoding of the command of the technology object addressed has been deactivated/stopped (reason: /1/%d, command type: /4/%X)**

Cause

Command was rejected due to suspension of command decoding on the addressed technology object. The command decoding can be stopped by the DECODE_STOP alarm response, by deactivating or restarting the technology object, by starting the axis control panel in exclusive mode or by the absence of necessary interconnections.

Meaning of alarm parameters

Reason:	
1	Restart of the technology object
2	Technology object is deactivated
3	Technology object is in RUN mode.
4	Control panel active

Command type:	Outputs the type of the rejected command. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check why the command was rejected.
- If necessary, acknowledge any active errors once you have corrected the cause of the error.
- If the technology object is deactivated, you must activate it.
- Do not issue any commands while the technology object is restarting.
- Do not issue any commands while a connected technology object is restarting.
- Stop the axis control panel.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP SIMULATION_STOP SIMULATION_ABORT ENCODER_DISABLE

Diagnostics buffer entry

No

30010 Command not available (command type: /4/%X)

Cause

The command is not available in this version of the runtime software.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the version of the runtime software.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP SIMULATION_STOP SIMULATION_ABORT ENCODER_DISABLE

Diagnostics buffer entry

No

30011 **Parameter not available (parameter index according to the standard sequence in the system functions: /1/%d, command type: /4/%X)**

Cause

The parameter is not available in this version of the runtime software, the command is therefore rejected. The parameters indicate the position according to the standard sequence in the system functions and the command type of an incorrectly entered parameter.

Meaning of alarm parameters

Parameter index:	Index of the command parameter triggering this error according to the standard sequence in the system functions.
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the version of the runtime software.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP SIMULATION_STOP SIMULATION_ABORT ENCODER_DISABLE

Diagnostics buffer entry

No

30012 Command cannot be started synchronously (command type: /4/%X)

Cause

The command cannot be used within a 'BEGIN_SYNC' or 'END_SYNC' sequence. The command has only one return value in the user program, or the command is not capable of starting synchronously.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getExternalEncoderErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Do not use this command type during a BEGIN_SYNC, END_SYNC sequence.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP SIMULATION_STOP SIMULATION_ABORT ENCODER_DISABLE

Diagnostics buffer entry

No

30013 Synchronous start of the command is carried out with mergeMode IMMEDIATELY (command type: /4/%X)

Cause

With synchronous command start, only merge modes that immediately override the current command (IMMEDIATELY) and superimpose the current command (SUPERIMPOSED_MOTION_MERGE) can be used.

If an illegal merge mode is programmed (e.g. SEQUENTIAL or NEXT_MOTION), the system automatically changes the merge mode to IMMEDIATELY and outputs this warning.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Program the command which is to be started synchronously to immediately override the current command. To do this, enter the value IMMEDIATELY in the 'mergeMode' command parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP SIMULATION_STOP SIMULATION_ABORT ENCODER_DISABLE

Diagnostics buffer entry

No

30014 **Coordinate system has not been offset because the internal traversing range limit was exceeded (Parameter1: /1/%d, command type: /2/%X)**

Cause

The programmed coordinate system offset causes the internal traversing range limit to be exceeded. The coordinate system is not offset.

Meaning of alarm parameters

Parameter 1:	
0	Negative internal traversing range limit
1	Positive internal traversing range limit

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	DINT
2	UDINT

Remedy

Check the programming for the coordinate system offset.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP SIMULATION_STOP SIMULATION_ABORT ENCODER_DISABLE

Diagnostics buffer entry

No

30015 A technology required for this command has not been configured (technology: /1/%d, command type: /4/%X)

Cause

The command cannot be selected in this technology object configuration.

Meaning of alarm parameters

Technology:	
1	Axis with force/pressure control without flow/force specification
2	Axis with force/pressure control and flow/force specification
3	Axis without flow/force specification
4	Axis with flow/force specification
5	Axis with force specification
6	Axis with pressure setpoint specification
7	Axis with pressure limiting
8	Axis with speed limiting parallel to force/pressure control
9	Axis with flow specification
10	Do not use encoder simulation
11	Do not use a hydraulic axis

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Activate the technology needed for the command.

Technology:	
1	Select the 'REAL_AXIS_WITH_PRESSURE_CONTROL' mode in the 'TypeOfAxis' configuration data.
2	Select the 'REAL_QP_AXIS_WITH_CLOSED_LOOP_FORCE_CONTROL' mode in the 'TypeOfAxis' configuration data.
3	Select the 'VIRTUAL_AXIS', 'REAL_AXIS', or 'REAL_AXIS_WITH_FORCE_CONTROL' mode in the 'TypeOfAxis' configuration data.
4	Select the 'REAL_QPAXIS', 'REAL_QP_AXIS_WITH_OPEN_LOOP_FORCE_CONTROL', or 'REAL_QP_AXIS_WITH_CLOSED_LOOP_FORCE_CONTROL' mode in the 'TypeOfAxis' configuration data.
5	Select the 'REAL_QP_AXIS_WITH_OPEN_LOOP_FORCE_CONTROL' mode in the 'TypeOfAxis' configuration data.
6	Select the 'REAL_AXIS_WITH_PRESSURE_CONTROL' or 'REAL_QP_AXIS_WITH_CLOSED_LOOP_FORCE_CONTROL' mode in the 'TypeOfAxis' configuration data.
7	Select the 'REAL_AXIS_WITH_PRESSURE_CONTROL', 'REAL_QP_AXIS_WITH_OPEN_LOOP_FORCE_CONTROL', or 'REAL_QP_AXIS_WITH_CLOSED_LOOP_FORCE_CONTROL' mode in the 'TypeofAxis' configuration data.
8	Select the 'REAL_QP_AXIS_WITH_CLOSED_LOOP_FORCE_CONTROL' mode in the 'TypeOfAxis' configuration data.
9	Select a mode with flow specification in the 'TypeOfAxis' configuration data.
10	Select a mode that is not used for simulation of an encoder (TM41) in the 'TypeOfAxis' configuration data.
11	Select a mode without hydraulics in the 'TypeOfAxis' configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP SIMULATION_STOP SIMULATION_ABORT ENCODER_DISABLE

Diagnostics buffer entry

No

40005 Missing enable(s) (Parameter1: /1/%X) and/or incorrect mode (Parameter2: /2/%d)**Cause**

The enables are missing for a pending motion command and/or the axis follow-up mode is active.

Meaning of alarm parameters

Parameter1:	
Bit 1 =	0: POWER enable is available
	1: POWER enable is missing
Bit 2 =	0: DRIVE enable is available
	1: DRIVE enable is missing
Bit 3 =	0: Position controller enable is available
	1: Position controller enable is missing
Bit 4 =	0: Force/pressure controller enable is available
	1: Force/pressure controller enable is missing
Bit 5 =	0: Separate P-output enable is available
	1: Separate P-output enable is missing
Bit 7 =	For the output of bit 7, the enables are missing for: - Bit 1 POWER - Bit 2 DRIVE and - Bit 3 position controller.

Parameter2:	
0	Follow-up mode is deselected
1	Follow-up mode is selected

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	UDINT
2	DINT

Remedy

Activate the enables before issuing a motion command.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

ENCODER_DISABLE

Settable local reactions

ENCODER_DISABLE

Diagnostics buffer entry

No

40027 Programmed command abort cannot be executed (reason: /1/%d)

Cause

The programmed command abort could not be executed.

Meaning of alarm parameters

Reason:	
0	An abort is no longer possible in the current command status.
1	The '_stopEmergency' function can only be aborted during a standstill.

Description of the alarm parameters in the _getExternalEncoderErrorState command:

No.	Data type
1	DINT

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP SIMULATION_STOP SIMULATION_ABORT ENCODER_DISABLE

Diagnostics buffer entry

No

40102 Encoder zero mark not found during homing**Cause**

The encoder zero mark was not found because:

- The difference between the reference output cam and the encoder zero mark is outside the permissible range
- Limit switch monitoring system has responded
- The reference deceleration velocity is too high
- Homing with encoder zero mark or external zero mark for drive simulation (.Encoder_N.encoderIdentification = SIMULATION) is not possible

Remedy

Check the following:

- Permissible range
- Hardware configuration
- And reduce the deceleration velocity.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

ENCODER_DISABLE

Settable local reactions

ENCODER_DISABLE

Diagnostics buffer entry

No

40103 Reference data incorrect (Parameter1: /1/%d)

Cause

The configured data of the external encoder and the selected parameters in the synchronization command are inconsistent with one another.

Meaning of alarm parameters

Parameter 1	
1	ENABLE_OFFSET_OF_ABSOLUTE_ENCODER has been selected in the synchronization command but an incremental encoder is configured.
2	PASSIVE_HOMING has been selected in the synchronization command, but an SSI encoder is configured.
4	PASSIVE_HOMING or ENABLE_OFFSET_OF_ABSOLUTE_ENCODER has been selected in the synchronization command, but NO_SENSOR has been selected under encoderType in the configuration data for the encoder.
10	Homing is not possible when the actual value is specified using the 'sensorSettings.actualValue' system variable.
11	The resulting home position offset is outside the displayable sensor position.

Description of the alarm parameters in the _getExternalEncoderErrorState command:

No.	Data type
1	DINT

Remedy

Check the configuration data and the command parameters for homing.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

ENCODER_DISABLE

Settable local reactions

ENCODER_DISABLE

Diagnostics buffer entry

No

40104 Home position offset violates the internal traversing range limit (reason: /1/%d)

Cause

Homing have been canceled because the offset is greater than the internal traversing range limit.

Meaning of alarm parameters

Reason:	
0	The offset is too great.
1	The axis value is too great.

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	DINT

Remedy

Check the set offset of the reference point and the current position value of the axis.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP SIMULATION_STOP SIMULATION_ABORT ENCODER_DISABLE

Diagnostics buffer entry

No

40110 Error triggered on slave during Synchronous operation (error number: /1/%d, slave stopped: /2/%d)

Additional references

Further information is provided in the Function Manual:

- Technology Objects Synchronous Operation, Cam and
- in the online help.

Cause

An error was triggered on a slave during Synchronous operation and reported to the master.

Meaning of alarm parameters

Error number:	Error reported by slave:
1	Synchronous operation setpoint tolerance exceeded.
2	Synchronous operation actual-value tolerance exceeded.
3	General slave axis error.

Slave stopped:	Indicates whether the slave axis has switched to Stop mode:
0	The slave axis has not switched to Stop mode.
1	The slave axis has switched to Stop mode.

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	DINT
2	DINT

Remedy

Check the following:

- Configuration data for Synchronous operation monitoring on the slave
- Programming (dynamic parameters, Synchronous operation connection)
- System variables

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

ENCODER_DISABLE

Settable local reactions

ENCODER_DISABLE

Diagnostics buffer entry

No

40124 Offset cannot be fully compensated (reason: /1/%d)**Cause**

The cycle clock offset for a Synchronous operation group cannot be compensated completely on the master side.

Meaning of alarm parameters

Reason	
1	The determined cycle clock offset is greater than the maximum permissible setpoint output delay.
2	An already active offset compensation cannot be reduced to a smaller offset as a result of reconfiguring a slave interconnection.
3	A setpoint output delay can only be configured when the axis is at a standstill.

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	DINT

Remedy

For reason:	
= 1:	Not necessary, for information only.
= 2:	Restart this axis.
= 3:	Stop the motion of this axis.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP ENCODER_DISABLE

Diagnostics buffer entry

No

40125 Master setpoint output delay deactivated

Cause

This master value source operates without a master-side setpoint output delay.
The setpoint output delay on the master side was activated for at least one interconnected slave axis.
The Synchronous operation relationship between the master value source and the slave axis is not operating synchronously.

Remedy

Activate the master-side setpoint output delay of the master value source.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP ENCODER_DISABLE

Diagnostics buffer entry

No

40301 Loss of connection to slave (assignment: /1/%d)**Cause**

- The connection to an interconnected slave failed.
- The slave is located on a distributed controller or has been assigned to a different execution level than the master.
- Master values of the master cannot be communicated to the slave for the duration of the connection failure. During the communication malfunction, a Synchronous operation monitoring response on the slave cannot be communicated to the master.

Meaning of alarm parameters

Assignment	
1	The failed slave is located on an assigned controller.
2	The failed slave has been assigned to a different execution level than the master.

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	DINT

Remedy

Assignment 1:

- Ensure that the associated controller is activated, the slave is configured as distributed, and communication is permitted by the operating mode of the associated controller.
- Check the connection for mechanical damage, equivalence of configured network topology, firm contact by the plug connector, and, if necessary, correct electrical cable terminations.

Assignment 1 and 2:

- Make sure that the failed slave was not being reloaded at the time the error was detected.
- Monitoring of the connection is set in the technology object configuration. The master and slave must have the same settings selected.

Assignment 2:

- Check whether an overflow was diagnosed for the execution level of the assigned slave.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE ENCODER_DISABLE

Diagnostics buffer entry

No

40302 Sign-of-life monitoring to the slave in the distributed Synchronous operation switched off

Cause

- The sign-of-life monitoring for the slave connection to an assigned controller has been deactivated.
- Monitoring is configured differently on the master and slave. As a result, the connection is established without sign-of-life monitoring.

Remedy

Use identical configuration settings in the master and slave for sign-of-life monitoring of the connection.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE ENCODER_DISABLE

Diagnostics buffer entry

No

40303 Different local and slave interpolation cycle clock

Cause

The master and slave are required to have a common interpolation cycle clock for distributed Synchronous operation. However, when establishing the connection between technology objects, different cycle clock settings were defined for interpolation.

Remedy

Use identical cycle clock settings for interpolation on the master and slave sides.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE ENCODER_DISABLE

Diagnostics buffer entry

No

40304 Offset cannot be determined**Cause**

The offset for the slave cannot be determined. This can be caused by configuring the PROFIBUS DP without equidistance or a ratio of interpolator cycle clock to PROFIBUS DP cycle clock greater than 64.

Remedy

- Select equidistant mode on the PROFIBUS DP.
- Select a suitable IPO / DP cycle clock ratio setting.
- Deactivate offset compensation on the technology objects involved. Deactivate compensation only if other remedies do not eliminate the malfunction. Deactivating the offset compensation limits the accuracy of motion control.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE ENCODER_DISABLE

Diagnostics buffer entry

No

40305 Synchronism loss to slave(s) on assigned controller in distributed Synchronous operation

Cause

There is no isochronous operation between the local and distributed controller. The local master and the assigned synchronous object thus have no common time reference system.

When clock synchronism is lost, the parameters determined for this connection are no longer valid and further operation is not permissible.

Remedy

- Select isochronous mode for PROFIBUS DP.
- Select a suitable IPO / DP cycle clock ratio setting (not to exceed 64).
- Make sure that the bus cycle clock is an integer multiple of the internal DP cycle clock.
- Make sure that the interpolation cycle clock on the connected controllers is an integer multiple of the bus cycle clock.
- Deactivate offset compensation on the technology objects involved. Deactivate compensation only if other remedies do not eliminate the malfunction. Deactivating the offset compensation limits the accuracy of motion control.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE ENCODER_DISABLE

Diagnostics buffer entry

No

50002 Limiting frequency of measuring system exceeded**Cause**

The limiting frequency of the encoder has been exceeded.

Remedy

- Check the encoder connection.
- Check the parameterized encoder limit frequency in the encoder configuration data ('FrequencyLimit.EncoderFrequencyLimit') and, if necessary, adjust the value entered there to match the manufacturer documentation for the encoder being used.
- Reduce the traversing velocity of your drive to a value adapted to the encoder limit frequency. If necessary, amend the maximum velocity ('MaxVelocity') parameterized in the configuration data as well.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP SIMULATION_STOP SIMULATION_ABORT ENCODER_DISABLE

Diagnostics buffer entry

No

50006 Zero mark monitoring

Cause

Zero mark monitoring has been activated.

Remedy

Check the following:

- Mechanical configuration and the encoder configuration
- Error messages of the encoder

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

ENCODER_DISABLE

Settable local reactions

NONE DECODE_STOP SIMULATION_STOP SIMULATION_ABORT ENCODER_DISABLE

Diagnostics buffer entry

No

50008 Timeout while waiting for standstill signal

Cause

Timeout occurred while waiting for standstill signal.

Remedy

Check the following:

- Configuration of 'Axis.TypeOfAxis.StandStillSignal'
- Correct operation of the control loop

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

ENCODER_DISABLE

Settable local reactions

ENCODER_DISABLE

Diagnostics buffer entry

No

50011 Limit range of the incremental actual value exceeded (Parameter1: /1/%d)

Cause

The value of the current position or the internal incremental position has exceeded the system-internal upper or lower limit.

Meaning of alarm parameters

Parameter 1:	
1	Range exceeded in positive direction
2	Range exceeded in negative direction
4	The modified actual position is greater than the modulo length in one position control cycle clock.

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	DINT

Remedy

For parameter 1: 1 and parameter 1: 2

General

Ensure that the Modulo characteristic is activated on the TO (TO.Modulo.state = ACTIVE) if the encoder on the TO is to record the position of an infinite motion in one direction. If this is not possible, the traversing range must be taken into consideration during the configuration of the TO.

Leaving the error state for non-modulo encoders as of V4.3:

Absolute encoder

(TO.TypeOfAxis.NumberOfEncoders.Encoder_N.encoderType = SENSOR_ABSOLUTE/
SENSOR_CYCLIC_ABSOLUTE)

- Acknowledgement of the alarm 50011 and correction of the position in the direction opposite to the direction of crossing the limit value by absolute encoder adjustment. The offset to be calculated must be at least one millimeter. This value increases by the position changes of the absolute encoder, which are not recorded after the 50011 alarm.

Non-cyclic absolute encoders only:

- Restart of the TO with the prerequisite that the sum of the total absolute encoder adjustment and the position calculated from the current encoder incremental position is less than the internal upper or lower position limit.

For axes only:

- Acknowledgment of the 50011 alarm, speed-controlled enabling of the axis and then speed-controlled traversing of the axis in the direction opposite to the direction of crossing the limit value. The traversing distance must be at least one millimeter. The traversing distance increases by the position changes of the absolute encoder, which are not recorded after the 50011 alarm.

If the encoder returns to a valid range, then the position of the absolute encoder is reinitialized with the current absolute encoder adjustment and the current encoder incremental position (sensordata[N].state = NOT_VALID -> VALID).

Incremental encoder

(TO.TypeOfAxis.NumberOfEncoders.Encoder_N.encoderType = SENSOR_INCREMENTAL) (cause of error 1 and 2):

- Restart

For axes only:

- Acknowledgment of the 50011 alarm, enabling of the axis and then traversing of the axis in the direction opposite to the direction of crossing the limit value.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

ENCODER_DISABLE

Settable local reactions

ENCODER_DISABLE

Diagnostics buffer entry

No

50012 Drive/encoder does not support the selected function (reason: /1/%d)**Cause**

The homing function cannot be performed.

Meaning of alarm parameters

Reason:	
1	The homing function is not possible with the type of zero mark configured.
2	The homing function is not supported by the device or has been aborted by it.
3	The homing function is not active on the device despite the homing job running on the technology object.
4	The device could not be configured for the homing function because of a measuring or homing job that was already active.

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	DINT

Remedy

Check the following:

- The support for the homing function provided by the drive or encoder
- The availability of the zero mark configured
- The encoder's configuration data and the drive's settings. Please also consider, if necessary, any troubleshooting tips in the device documentation.
- The encoder
- Encoder connection
- Check the wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

ENCODER_DISABLE

Settable local reactions

NONE DECODE_STOP SIMULATION_STOP SIMULATION_ABORT ENCODER_DISABLE

Diagnostics buffer entry

No

50013 The permissible range limits have been violated (logical address: /1/%d, reason: /2/%d)

Cause

Range violation for analog sensor.

Meaning of alarm parameters

Logical address:	Address configured on the technology object.
-------------------------	--

Reason:	
1	Value greater than maximum permissible value.
2	Value less than minimum permissible value.
3	Positive overflow of sensor range.
4	Negative overflow of sensor range.
5	Error in accessing hardware address.

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	UDINT
2	DINT

Remedy

Check the following:

- Check the sensor connection.
- Check the wiring.
- Adjust the configuration data, if necessary.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

ENCODER_DISABLE

Settable local reactions

NONE DECODE_STOP ENCODER_DISABLE

Diagnostics buffer entry

No

50015 Level overflow of the IPO not detected

Cause

The system could not intercept a level overflow.

Remedy

Please contact Siemens Support with the error number indicated above.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

ENCODER_DISABLE

Settable local reactions

ENCODER_DISABLE

Diagnostics buffer entry

No

50112 **Incorrect polynomial parameters when extrapolating pressure (reason: /1/%d, command type: /4/%X)**

Cause

The polynomial parameters entered do not define any continuously increasing, uniquely invertible polynomial.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as an integer value.
----------------------	---

Reason:	
0x1	The time entered is negative.
0x2	P0 is greater than P1.
0x4	The derivative in point P1 is 0.
0x10	The derivative in point P0 is 0.
0x20	The derivative in point P0 is greater than in point P1.
0x40	The polynomial is not unique.
0x80	The polynomial has a point of inflexion.
0x100	The polynomial is not uniquely invertible.

Description of the alarm parameters in the `_getExternalEncoderErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Change the parameter(s).

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

ENCODER_DISABLE

Settable local reactions

ENCODER_DISABLE

Diagnostics buffer entry

No

2.3 PosAxis

20001 Internal error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Error source
Parameters 2 to 4:	Fault number

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

RELEASE_DISABLE

Diagnostics buffer entry

Yes

20002 **Insufficient memory (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)**

Cause

The memory required by the system is no longer available.

This alarm can occur both during ramp-up and after program calls.

Meaning of alarm parameters

Parameter 1:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Parameters 2 to 4 are area-specific.

They are not fully utilized by all areas.

Command decoding area:

Parameters 2 and 4	refer to the command in which the error occurred.
Parameter 2:	Command return value
Parameter 4:	Command type

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

- Reduce the size of the ST code.
- Reduce the number of technology objects.
- Reduce the number of interpolation points for cams, if present.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

Yes

20003 Internal configuration error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system

Parameters 2 to 4 are area-specific.

These parameters are not fully utilized by all areas.

Command decoding area:

Parameters 2 and 4	refer to the command in which the error occurred.
Parameter 2:	Command return value
Parameter 4:	Command type

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

Yes

20004 Under logical address: /1/%d (bit number, if required: /2/%d) no driver (type: /3/%d) could be requested (error number: /4/%d)

Cause

The driver of a physical device or the device itself is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT

Remedy

- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

RELEASE_DISABLE

Diagnostics buffer entry

Yes

20005 Device type:/3/%d, log. address:/1/%d faulted. (Bit:/2/%d, encoder number:/5/%d, reason: 0x/4/%Xh)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

The driver of a physical device or the device itself has failed or is faulty.

If this alarm occurs, the cause of the error must be evaluated in the external device (drive or encoder).

Meaning of alarm parameters

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver
12	Safety data block driver
13	Update counter
14	Operating characteristics data block driver

Logical address:	This is the logical input address configured on the technology object.
Bit number:	For bit driver type = 3 or 4 only; number of the bit
Encoder number:	Number of the encoder in case of telegrams with multiple encoders. Applies only when type = 2.
Reason:	0 - only defined when type = 2

Note

Addition of error messages

The codings for the reason of the failure specified below for the individual alarm types can also occur in combination. A group coding is indicated as the sum of several individual codings (e.g. 0x0005 = 0x0001 + 0x0004).

A failure reason labeled with DP can occur only for PROFIBUS devices.

Type = 1	
0x0001h	Fault message from the drive (note: for PROFIBUS drives, which support acyclic communication in accordance with PROFIdrive V3, the error number(s) of the drive are displayed in the diagnostic buffer, e.g. for Masterdrives MC)
0x0002h	DP: Drive signal "control requested" failed
0x0004h	DP: Drive disconnected itself
0x0008h	Slot for drive data is not available in the project
0x0010h	Actuator driver does not have a connection to the drive data
0x0020h	Actuator driver was not initialized during ramp-up
0x0080h	DP: Difference between configuration data and drive parameters (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	DP: Control signals to the PROFIdrive state machine were incorrectly specified
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
0x8000h	DP: Life-sign of drive has malfunctioned or failed
0x80000000h	The drive interface has been deactivated for the pending enables.
Type = 2	
0x0000h	The actual value changes exceed the limit value derived from the maximum velocity (configuration data TypeOfAxis.MaxVelocity.maximum) over multiple cycles. This monitoring can be activated or deactivated with configuration data TypeOfAxis.NumberOfEncoders.Encoder_x.AbsEncoder.enableAbsMonitoring.
0x0001h	Alarm message from encoder (note: the encoder error number(s) are displayed in the diagnostic buffer)
0x0002h	General hardware error of encoder
0x0004h	Encoder is dirty
0x0008h	Slot for encoder data is not available in the project
0x0010h	Encoder driver does not have a connection to the encoder data
0x0020h	Encoder driver was not initialized during ramp-up
0x0040h	Error when reading the absolute value of the encoder
0x0080h	DP: Difference between the configuration data and the encoder parameters Onboard C2xx: Inconsistency of the configuration data (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	Zero mark monitoring of encoder
0x0200h	DP: Encoder has gone to Parked state
0x4000h	DP: Encoder on bus failed (station failure)

0x8000h	DP: Life-sign of encoder has malfunctioned or failed. (note: for an encoder whose data are transferred in a drive telegram together with actuator data, the actuator life-sign applies to the encoder, e.g. for standard telegram 3 in accordance with PROFIdrive)
0x80000000h	The sensor interface has been deactivated for the pending enables.
Type = 3...6	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 7	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 8	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 9	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 10	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 11	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 12	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 13	
0x1h	The actual value was specified via a system variable and the permissible number of failure cycles was exceeded
0x2h	The actual value was updated with an update counter in the I/O area and the permissible number of failure cycles was exceeded

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

The remedy for the respective type and cause is described below.

Type 1

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- A system fault may be present. Call the hotline.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- When sign-of-life monitoring is set: Ensure that in HW Config for drive under DP slave properties - isochronous operation - drive, the "synchronize to equidistant DP cycle" field is activated.
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
- Up to SIMOTION RT V4.3: If the alarm occurs after the download on a drive with telegram 999: Compare the parameterized bit position for the "Pulses enabled" status signal in drive parameter p924 with the configuration data 'DriveControlConfig.PulsesEnabled' of the TO axis. In this case, there is not necessarily an incorrect parameterization and therefore a check cannot be performed by the system because of the BICO interconnection. Therefore, make sure that the Pulses enabled bit is in the correct position.

For reason 0x0100

- Correct your user program with regard to PROFIdrive-compliant specification of control bits in the _enable/disableAxis commands, e.g. control signal OFF (STW1.0 = false) must precede a drive connection.

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 2For reason 0x0000

- Check the absolute encoder functions, connections and configuration. Take note of this when monitoring is deactivated (not with Alarm 20015).

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- Make sure that the user program does not reference a technology object containing an encoder (Axis, External Encoder) with an '_enableaxis' or '_enableexternalencoder' command while system variable 'sensordata.sensordata[n].state' is signaling invalid.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0040

- Compare the encoder type in the drive or encoder parameter P979 with the configuration data of the technology object.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
 - Compare the encoder type, resolution, shift factor, and, in the case of absolute encoders, the number of rotations in the drive or encoder parameter P979 to the encoder type, resolution, fine resolution, and, in the case of absolute encoders, the data length in the configuration data of the technology object.
- When using telegram 999, this message always appears, as the bit position is not checked by the system in this case, but has to be performed by the user.

For reason 0x0100

- Check the device functions, connections and wiring.

For reason 0x0200

- Find the cause of the error in the connected drive or encoder. Check whether the alarm was triggered due to a commissioning operation on the drive or encoder.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 3 - Type 6For reason 0x0000

- Check the configuration and the signal paths of the connection.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 7For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 8For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 9For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 10For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 11 - Type 12For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring. If the error cannot be acknowledged when the axis is in simulation mode, check whether the technology data block is activated, and if this is the case, deactivate it.

Type 13

For reason 0x1

- Check the specification of the actual value with regard to function, configuration, and task configuration.

For reason 0x2

- Check the device functions, configuration, connections and wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

RELEASE_DISABLE

Diagnostics buffer entry

Yes

20006 Configuration error (category: /1/%d, error number: /2/%d, additional information: /3/%d)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

This alarm indicates error states caused by a faulty or inconsistent configuration. The technology objects perform a plausibility check on the configuration. Errors are identified by the error codes below.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of the error
500	Illegal technology object configuration state.
501	More configuration data expected than received.
502	Invalid configuration data.
503	Version conflict in configuration.
504	The configured task level is not supported by this TO.
505	The value range of the maximum number of command IDs has been violated.
506	The configured task level is not supported by the used hardware.
1000	General configuration error
1001	Communication error during data transmission
2000	Error in actuator system configuration.
2001	Outside of manipulated variable limits.
2003	Error in load gear factors.
2004	Error in maximum velocity.
2005	Maximum velocity greater than maximum attainable velocity.
2006	Drive not suitable for torque-controlled or torque-limited operation
2007	Linear stepper motor not implemented
2008	Right-justified format for direct output not implemented
2009	Illegal value in resolution for direct output
2010	Missing configuration data for actuator system
2011	Missing configuration data for additional actuator system
2012	The backstop range (min to max) does not contain a zero point
2014	Drive or telegram not suitable for torque superimposition
2015	Gear ratios less than or equal to 0.
2016	Resolution for stepper motor is 0.
2017	Illegal value for configuration data maxSpeed.
2018	Illegal value for configuration data maxVelocity.
2019	Range limits of configuration data exceeded.
2020	Range limits for maximum acceleration exceeded.
2021	Illegal values for dead zone compensation.
2022	Illegal values for sliding friction compensation.
2023	Illegal values for backstop.
2024	Error in friction compensation parameter
2025	DIRECT output: Analog and bit driver of a shared output are parameterized in different ways on the various axes
2026	Illegal value for pulsesEnable
2027	Illegal value for maxSpeed ($\text{maxSpeed} \geq 2 * \text{nominalSpeed}$)
2028	Illegal value for maxSpeed ($\text{maxSpeed} \leq 10 \text{ V} / \text{maxSetPointVoltage} * \text{nominalSpeed}$)
2029	Illegal value in TypeOfAxis.SetPointDriverInfo
2030	A parameter in DriveData is not correct.
2031	A parameter in LinearMotorDriveData is not correct.
2032	A parameter in StepMotorDriveData is not correct.

2033	A parameter in QOutput.EnableBit is not correct.
2034	A parameter of the technological data block is not correct.
2035	A parameter of the safety data block is not correct.
2036	A parameter of the operating characteristics data block is not correct.
2037	Cannot change the configuration during the drive adaptation.
2038	Illegal value for the manipulated variable filter
2040	No driver could be requested under the logical input address.
2041	No driver could be requested under the logical output address.
2042	The numerator of the load gear is incorrect.
2043	The nominal factor of the load gear is incorrect.
2044	The value for the reference velocity is incorrect.
3000	Error in encoder system.
3001	Illegal value in Simulation.simulationMode
3002	The set axis type is invalid - illegal value in TypeOfAxis.typeOfAxis
3003	The set drive leadscrew pitch is invalid - illegal value in Leadscrew.pitchVal
3004	The set modulo activation is invalid - illegal value in Modulo.state
3005	Illegal specification(s) in the encoder data (incremental, absolute, etc.).
3006	The set number of encoders is invalid - illegal value in .NumberOfEncoders.numberOfEncoders
3007	Illegal incremental encoder number.
3008	Illegal data combination for homing with incremental encoder.
3009	The configuration of the 'Backlash compensation' encoder function is faulty - illegal value in .Encoder_N.IncBacklash or .Encoder_N.AbsBacklash
3010	Illegal data on SSI encoder.
3011	The configuration of the 'Absolute encoder adjustment' encoder function is faulty - illegal value in .Encoder_N.AbsHoming
3012	The configuration of the 'Counting direction of the raw actual encoder value' encoder function is faulty - illegal value in .Encoder_N.InversCountDirection.encoderFeedbackPolarity
3013	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptDrive
3014	The configuration of the 'Encoder limit frequency monitoring' encoder function is faulty - illegal value in .Encoder_N.FrequencyLimit.encoderFrequencyLimit
3015	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptLoad
3016	The load gear ratio configuration of a data set is faulty - illegal value in .DataSet_N.Gear
3017	Encoder data sequence and number of encoders do not match.
3018	The configuration of an encoder is incomplete
3019	The set mounting location of the encoder is invalid - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3020	The encoder simulation is either not supported or it is not activated simultaneously on the actuator and the sensor - illegal value in .Encoder_N.encoderIdentification or .SetPointDriverInfo.mode
3021	The number of configured data sets or the number of the active data set after the startup is invalid - illegal value in DataSet_N.numberOfDatasets or in DataSet_N.initDataSet

3022	The number of the encoder assigned to a data set is invalid - illegal value in DataSet_N.EncoderNumber.encoderNumber
3023	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptExtern
3024	The configuration of the encoder measuring wheel circumference is faulty - illegal value in .Encoder_N.pathPerRevolution.length
3025	The configuration of the 'Actual velocity monitoring' function is faulty - illegal value in .ActualVelocityMonitoring
3026	Illegal encoder number in absolute encoder configuration.
3027	The set message format of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absMessageFormat
3028	The set baud rate of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.baudRate
3029	The set protocol format of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absState
3030	The number of the encoder assigned to a data set is invalid - illegal value in DataSet_N.EncoderNumber.encoderNumber
3031	The encoder assigned to a data set does not exist - illegal value in DataSet_N.EncoderNumber.encoderNumber
3032	The load gear ratio numerator configuration of a data set is faulty - illegal value in .DataSet_N.Gear.numFactor
3033	The load gear ratio denominator configuration of a data set is faulty - illegal value in .DataSet_N.Gear.denFactor
3034	An encoder references a data set that does not exist
3035	An encoder references a data set that does not exist
3036	Encoder not configured.
3037	Homing with encoder zero mark and ENDAT encoder is not possible - illegal value in .Encoder_N.IncHomingEncoder.homingMode
3038	Homing to the falling edge of an external zero mark on an onboard input is not possible - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3039	Flying homing with encoder zero mark and ENDAT encoder is not possible - illegal value in .Encoder_N.IncHomingEncoder.passiveHomingMode
3040	Flying homing to the falling edge of an external zero mark on an onboard input is not possible - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3041	The (modified) encoder configuration does not permit any determination of the factors for converting the encoder raw actual values into actual position and velocity values or for converting the position and velocity setpoints into DSC encoder raw actual values, taking account of the mechanical relationships.
3042	Illegal data combination for homing with external encoder.
3043	The incremental position of the encoder is outside the permissible value range.
3044	The incremental position of the encoder is outside the permissible value range.
3045	The configuration of the linear encoder resolution is faulty - illegal value in .Encoder_N.Resolution
3046	The configuration of the encoder actual velocity values filter is faulty - illegal value in .Encoder_N.Filter
3047	The configuration of the encoder actual velocity values filter for the interpolator is faulty - illegal value in .SmoothingFilter

3048	The configuration of the encoder actual velocity values filter for the actual value coupling (Synchronous operation) is faulty - illegal value in .Extrapolation.Filter
3049	The set number of the DSC encoder is invalid - illegal value in .NumberOfEncoder.dscEncoderNumber
3050	The configuration of the encoder system has not been completed correctly.
3051	The configuration of the stepper motor encoder data is faulty - illegal value in .Encoder_N.StepMotorMonitoring
3052	The set encoder actual value type does not match its configuration or the technology object type - illegal value in .Encoder_N.encoderValueType
3053	Homing on a stepper motor is only possible with an external zero mark - illegal value in .Encoder_N.incHomingEncoder.homingMode
3054	Flying homing on a stepper motor is only possible with an external zero mark - illegal value in .Encoder_N.incHomingEncoder.passiveHomingMode
3055	The configuration of a stepper motor with encoder is only possible on a real axis - illegal value in .Encoder_N.encoderMode
3056	Only one encoder may be configured on a stepper motor - illegal value in .NumberOfEncoders.numberOfEncoders
3057	The DSC encoder is not a PROFIBUS encoder - illegal value in .NumberOfEncoders.dscEncoderNumber or .Encoder_N.encoderIdentification
3058	The DSC encoder telegram does not support DSC - illegal value in .Encoder_N.DriverInfo.telegramType
3059	Set modulo value in Modulo.length is smaller than an increment.
3060	The encoder configuration for the position difference measurement is faulty - illegal value in .Encoder_N.PositionDifferenceMeasurement
3061	The set limits for the position difference supplied by the encoder are invalid - illegal value in .Encoder_N.PositionDifferenceMeasurement.Range
3062	The activation of the 'Backlash compensation' encoder function is only possible for motor encoders - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3063	The configuration of a TO externalEncoder for the operation as encoder on a stepper motor is not possible - illegal value in .Encoder_N.encoderMode
3064	The set resolution of the encoder is invalid - illegal value in .Encoder_N.IncEncoder.incResolution
3065	The set resolution of the encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absResolution
3066	The set multiplication factor for the cyclic actual value of the encoder is invalid - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic
3067	The set multiplication factor for the cyclic actual value of the encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absResolutionMultiplierCyclic
3068	The assignment of a velocity encoder to a data set on a positioning axis is not permitted - illegal value in DataSet_N.EncoderNumber.encoderNumber
3069	The configuration of the 'Tolerance of an encoder error' encoder function is invalid - illegal value in .Encoder_N.SensorControlConfig.tolerateSensorDefect
3070	The configuration of the 'Direct reading of the actual speed value (Nact) from the PROFIDrive telegram' encoder function is faulty - illegal value in .Encoder_N.NistDriverConfig
3071	The configuration of the reference cam is invalid - illegal value in .Encoder_N.IncHomingEncoder.referenceCamType
3072	The configuration of the negative reversing cam is faulty - illegal value in .Homing.ReverseCamNegative

3073	The configuration of the positive reversing cam is faulty - illegal value in <code>.Homing.ReverseCamPositive</code>
3074	The set edge of the external zero mark does not match the set homing approach direction - illegal value in <code>.Encoder_N.IncHomingEncoder.approachDirection</code> or <code>.Homing.direction</code>
3075	The use of reversing cams in the selection of <code>.Homing.direction = 'POSITIVE_ALL_HOMING'</code> or <code>.Homing.direction = 'NEGATIVE_ALL_HOMING'</code> as homing approach direction is not permitted - illegal configuration in <code>.Homing.ReverseCamNegative._type</code> or <code>.Homing.ReverseCamPositive._type</code>
3076	The set approach direction of the zero mark or edge of the external zero mark does not match the set homing approach direction - illegal value in <code>.Encoder_N.IncHomingEncoder.approachDirection</code> or <code>.Homing.direction</code>
3077	The use of hardware limit switches as reference cams in the selection of <code>.Homing.direction = 'POSITIVE_ALL_HOMING'</code> or <code>.Homing.direction = 'NEGATIVE_ALL_HOMING'</code> as homing approach direction is not permitted - illegal value in <code>.Encoder_N.IncHomingEncoder.referenceCamType</code>
3078	The configuration of the 'Ready bit' encoder function is faulty - illegal value in <code>.Encoder_N.AnalogSensor.ReadyStateMonitoring</code>
3079	The configuration of the 'Error bit' encoder function is faulty - illegal value in <code>.Encoder_N.AnalogSensor.ErrorStateMonitoring</code>
3080	The encoder Ready bit is in the range of the actual encoder value data bit - illegal value in <code>.Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress</code> and/or <code>.Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber</code>
3081	The encoder Error bit is in the range of the actual encoder value data bit - illegal value in <code>.Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress</code> and/or <code>.Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber</code>
3082	The configuration of the external zero mark interface is faulty - illegal value in <code>.Encoder_N.IncHomingEncoder.StateDriveExternalZeroMark</code>
3083	The configuration of the 'Update counter' encoder function is faulty - illegal value in <code>.Encoder_N.AnalogSensor.UpdateCounter</code>
3084	The encoder Update counter bits are in the range of the actual encoder value data bits - illegal value in <code>.Encoder_N.AnalogSensor.UpdateCounter.logAddress</code> and/or <code>.Encoder_N.AnalogSensor.UpdateCounter.bitNumber</code>
3085	The encoder Update counter bits and the Read bit overlap - illegal value in <code>.Encoder_N.AnalogSensor.UpdateCounter.logAddress</code> and/or <code>.Encoder_N.AnalogSensor.UpdateCounter.bitNumber</code>
3086	The encoder Update counter bits and the Error bit overlap - illegal value in <code>.Encoder_N.AnalogSensor.UpdateCounter.logAddress</code> and/or <code>.Encoder_N.AnalogSensor.UpdateCounter.bitNumber</code>
3087	The configuration of the 'Direct reading of the actual speed value (Nact) from the PROFIDrive telegram' encoder function is faulty - illegal value in <code>.Encoder_N.SensorNist</code>
3088	The configuration of the encoder with the identification 'SET_ACTUAL_VALUE' is faulty - illegal value in <code>.Encoder_N.SensorSetActualValue</code>
3089	The configuration of the encoder actual position values filter is faulty - illegal value in <code>.Encoder_N.PositionFilter</code>
3090	The configuration of the encoder actual position values filter for the actual value coupling (Synchronous operation) is faulty - illegal value in <code>.Extrapolation.ExtrapolationPositionFilter</code>

3091	The set multiplication factor for the cyclic actual value is not consistent with the known value on the drive encoder - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic or .Encoder_N.absEncoder.absResolutionMultiplierCyclic or .Encoder_N.Resolution.multiplierCyclic
3092	The set modulo length is invalid - illegal value in Modulo.length
3093	The set modulo start value is invalid - illegal value in Modulo.startValue
3094	Homing with deactivated hardware limit switches as reversing cams is not possible - illegal value in .Homing.ReverseCamNegative._type and/ or .Homing.ReverseCamPosition._type
3095	The set encoder identification is invalid - illegal value in .Encoder_N.encoderIdentification
3096	The set encoder mode is invalid - illegal value in .Encoder_N.encoderMode
3097	The set encoder type is invalid - illegal value in .Encoder_N.encoderType
3098	The set encoder system is invalid - illegal value in .Encoder_N.encoderSystem
3099	The set actual value type is invalid - illegal value in .Encoder_N.encoderValueType
3100	The set utilization status of the actual value interface is invalid - illegal value in .Encoder_N.interfaceAllocation
3101	The set encoder mode is not supported by the TO externalEncoder - illegal value in .Encoder_N.encoderMode
3102	The set actual value type is not supported by the TO externalEncoder - illegal value in .Encoder_N.encoderValueType
3103	Only the 'VELOCITY' actual value type is permitted on a drive axis - illegal value in .Encoder_N.encoderValueType
3104	The set encoder mode does not match the set combination of encoder type and encoder identification - illegal value in .Encoder_N.encoderMode
3105	The set encoder type is not supported for encoders with the set encoder identification - illegal value in .Encoder_N.encoderType
3106	The encoder configuration does not match the set combination of encoder type and encoder identification - illegal value in .Encoder_N.encoderMode or .Encoder_N.encoderSystem or .Encoder_N.encoderValueType
3107	The configuration of the encoder for the position difference measurement requires the setting of the 'POSITION' actual value type - illegal value in .Encoder_N.encoderValueType
3108	Only encoders of the 'SENSOR_INCREMENTAL' type are supported on an axis of the 'REAL_AXIS_WITH_SIGNAL_OUTPUT' type - illegal value in .Encoder_N.encoderType
3109	Only the 'SENSOR_ABSOLUTE' encoder type is supported on an encoder with the 'SET_ACTUAL_VALUE' encoder identification - illegal value in .Encoder_N.encoderType
3110	The set combination of encoder type and encoder mode is not supported within the context of a linear encoder - illegal value in .Encoder_N.encoderType and .Encoder_N.encoderMode
3111	The configuration of a linear encoder on a rotary axis is not possible - illegal value in .Encoder_N.encoderSystem
3112	The configuration of the reference cam zero mark distance monitoring is faulty - illegal value in .Encoder_N.IncHomingEncoder.beroDistance or .Encoder_N.IncHomingEncoder.enableZeroMarkDistance

3113	The set home position offset is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.proceedShiftPos</code>
3114	The configuration of the reference cam interface is faulty - illegal value in <code>.Encoder_N.incHomingEncoder.bitNumberBero</code> or <code>.Encoder_N.incHomingEncoder.logAddressBero</code>
3115	The set zero mark approach direction is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.approachDirection</code>
3116	Homing setting faulty: Zero mark approach direction is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveApproachDirection</code>
3117	The configuration of the reference cam interface is faulty - illegal value in <code>.Encoder_N.incHomingEncoder.passiveBitNumberBero</code> or <code>.Encoder_N.incHomingEncoder.passiveLogAddressBero</code>
3118	The set homing mode is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.homingMode</code>
3119	The set homing mode is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveHomingMode</code>
3120	The set zero mark approach direction does not match the set homing mode - illegal value in <code>.Encoder_N.IncHomingEncoder.approachDirection</code>
3121	The set external zero mark approach direction does not match the set homing mode - illegal value in <code>.Encoder_N.IncHomingEncoder.approachDirection</code>
3122	The set zero mark approach direction does not match the set homing mode - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveApproachDirection</code>
3123	The set external zero mark approach direction does not match the homing mode - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveApproachDirection</code>
3124	The set type of the reference cam is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.referenceCamType</code>
3125	The set reference cam type does not match the set zero mark approach direction - illegal value in <code>.Encoder_N.IncHomingEncoder.referenceCamType</code>
3126	The resource required for the reference cam cannot be requested - illegal value in <code>.Encoder_N.IncHomingEncoder.logAddress</code> and/ or <code>.Encoder_N.IncHomingEncoder.bitNumber</code> or no memory available
3127	The resource required for the reference cam cannot be requested - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveLogAddress</code> and/ or <code>.Encoder_N.IncHomingEncoder.passiveBitNumber</code> or no memory available
3128	The resource required for the external zero mark cannot be requested - illegal value in <code>.Encoder_N.incHomingEncoder.StateDriveExternalZeroMark.logAddress</code> and/ or <code>.Encoder_N.incHomingEncoder.StateDriveExternalZeroMark.bitNumber</code> or no memory available
3129	The resource required for the positive reversing cam cannot be requested - illegal value in <code>.Homing.ReverseCamPositive.logAddress</code> and/ or <code>.Homing.ReverseCamPositive.bitNumber</code> or no memory available
3130	The resource required for the negative reversing cam cannot be requested - illegal value in <code>.Homing.ReverseCamNegative.logAddress</code> and/ or <code>.Homing.ReverseCamNegative.bitNumber</code> or no memory available
3131	The resource required for the 'Update counter' of the analog encoder cannot be requested - illegal value in <code>.Encoder_N.AnalogSensor.UpdateCounter.logAddress</code> and/ or <code>.Encoder_N.AnalogSensor.UpdateCounter.bitNumber</code> or no memory available

3132	The resource required for the 'Read state bit' of the analog encoder cannot be requested - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress and/ or .Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber or no memory available
3133	The resource required for the 'Error state bit' of the analog encoder cannot be requested - illegal value in .Encoder_N.AnalogSensor.ErrorStateMonitoring.logAddress and/ or .Encoder_N.AnalogSensor.ErrorStateMonitoring.bitNumber or no memory available
3134	The configuration of the actual value interface is faulty - illegal value in .EncoderN.DriverInfo
3135	The configuration of the encoder actual value interface is faulty - illegal value in .EncoderN.DriverInfoDirectIncremental
3136	The configuration of the sensor measuring gear ratio is faulty - illegal value in .Sensor.ConversionDataAdapt
3137	Only an encoder with the 'DRIVE' encoder mounting type is permitted as DSC encoder - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3138	An encoder with the encoder value type 'POSITION_AND_PROFIDRIVE_ENCODER_NIST_B' is supported only on a TO positioning axis or as TO external encoder in conjunction with the encoder identification 'DPMaster' or 'SIMULATION' and the encoder telegram type 'DP_TEL83_STANDARD' - illegal TO type or illegal value in .Encoder_n.encoderIdentification or in .Encoder.DriverInfo.telegramType
3139	The number assigned to an encoder lies outside the number of the last configured encoder 'NumberOfEncoders.numberOfEncoders'
3140	The configuration of the encoder configuration data adaptation is faulty - illegal value in .Encoder_N.dataAdaption
3141	Both the adapted and the configured encoder configuration are invalid
3143	The multiplication factor for the cyclic actual value and/or the multiplication factor for the absolute value in conjunction with the configured encoder mode (Encoder_N.encoderMode) is invalid - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic or .Encoder_N.absEncoder.absResolutionMultiplierCyclic and/ or .Encoder_N.Resolution.multiplierCyclic or Encoder_N.Resolution.multiplierCyclic
3144	The set fine resolution for the cyclic absolute value (Gn_XIST2) is invalid - illegal value in .Encoder_N.AbsEncoder.absResolutionMultiplierAbsolute
4000	Error in controller.
4001	Negative acceleration specified.
4002	Unknown 'FipoType' requested.
4003	Error in runtime system, ratio of controller cycle clock to interpolator cycle clock is incorrect.
4004	Requested filter order not possible.
4005	Reserve for later use.
4006	Maximum limit is lower than minimum.
4007	Reserve for later use.
4008	Error in configuration data for controller.
4009	Reserve for later use.
4010	Reserve for later use.

4011	Reserve for later use.
4012	Reserve for later use.
4013	Requested controller type is not available.
4014	Error in controller factors.
4015	Precontrol activated, kpc less than 0 or kpc greater than 150.
4016	Reserve for later use.
4017	Reserve for later use.
4018	Reserve for later use.
4019	Reserve for later use.
4020	Reserve for later use.
4021	Reserve for later use.
4022	Reserve for later use.
4023	Precontrol activated, kpc less than or equal to 0.
4024	Reference model monitoring: Error in value of tolerance window.
4025	Error in limit value for standstill signal.
4026	Error in parameter for positioning monitoring.
4027	Simultaneous activation of reference model and dynamic following error monitoring not allowed.
4028	Sampling time parameter calculated incorrectly.
4029	Too many data sets requested.
4030	Error in runtime system, ratio of controller cycle clock to interpolator cycle clock is incorrect.
4031	Error in time constant for emergency ramp generator (positionTimeConstant).
4032	Precontrol active, but fine interpolator type is DIRECT.
4033	Default data set outside limits.
4034	Maximum number of data sets not possible.
4035	Unknown data set change mode.
4036	Following error monitoring not activated/deactivated in all data sets.
4037	Reference model monitoring not activated/deactivated in all data sets.
4038	Different controller type in data sets.
4039	Precontrol activated/deactivated differently in data sets.
4040	Time constant is 0.
4041	Error in dynamic adaptation parameter.
4042	System variable initialization could not be read.
4043	Driver simulation not implemented.
4044	Connection for stepper motors not implemented.
4045	Maximum velocity cannot be attained; maximum drive speed or normalization factor is incorrect.
4046	DSC requires motor encoder data to be specified.
4047	Drive or telegram type not suitable for DSC.
4048	Error in clamping monitoring parameter. 'No detection' is not permitted for the fixed endstop detection
4049	A sensor is required to monitor actual velocity using 'DynamicControl'.
4050	Inconsistent PROFIBUS parameterization; the sum of Ti and To is greater than a DP cycle

4051	Error in manipulated variable limitation parameter of force/pressure controller
4052	Error in force/pressure entry monitoring parameter
4053	Error in force/pressure end value monitoring parameter
4054	Force/pressure entry monitoring tolerance less than pressure end value monitoring tolerance
4055	Error in force/pressure control deviation monitoring parameter
4056	Different activation/deactivation of control deviation monitoring of force/pressure controller in data sets not permitted
4057	Different manipulated variable inversion of force/pressure controller in data sets not permitted
4058	Different force/pressure sensor types in data sets not permitted
4059	Different activation/deactivation of anti-windup in data sets not permitted
4060	Kd factor of PID_ACTUAL controller is greater than 1
4061	Time constant of process model T1 less than or equal to T2
4062	Illegal actuator type selection
4063	Error in sliding friction compensation parameter
4064	Error in offset injection parameter
4065	Precontrol for force/pressure control not implemented
4066	Error in standstill monitoring parameter
4067	Following error monitoring: minVelocity cannot be greater than or equal to maxVelocity
4068	Maximum buffer length of balancing filter (Mode_2) is reached or exceeded. As the servo cycle is included in the calculation of the equivalent time constant of the speed control loop (=velocityTimeConstant), the maximum value of this time constant is limited to 16 servo cycles. The buffer length of the lag element is maximum 16.
4069	System-related dead times are less than 0 after allowing for additionalTime
4070	Controller types other than DIRECT require configuration of an encoder.
4071	Illegal values for delayTimeToActivate of standstill signal
4072	The I/O device for the positive HW limit switch is not available
4073	The I/O device for the negative HW limit switch is not available
4074	Range limits of controller parameter exceeded.
4075	Range limit of brake deceleration of emergency ramp exceeded.
4076	Range limit of equivalent time constant exceeded.
4077	Range limit for velocityTimeConstant exceeded.
4078	Error in value for QFDynamicData configuration.
4079	Error in value for reference model monitoring.
4080	Error in following error monitoring parameter
4081	Error in clamping monitoring parameter
4082	Error in value for DynamicData configuration.
4083	Error in value for PV controller configuration.
4084	Configuration data missing for controller.
4085	Error in value for SystemDeadTimeData configuration.
4086	Pressure control only possible with closed-loop speed controller
4087	DSC and compensation of valve curve not possible
4088	DSC not possible on hydraulic axes

4089	Time constants of dynamic response compensation must not be equal
4090	Incorrect value for system dead time correction
4091	Different activation of manipulated variable filter of pressure controller in data sets
4092	Different activation of dynamic response compensation in data sets
4093	Activation of DSC is not the same in all data sets
4094	Balancing filter type is not the same in all data sets
4095	Illegal value for balanceFilterMode. For a drive axis, only MODE_1 is permitted (PV_Controller.balanceFilterMode).
4096	Activation of anti-windup is not the same in all data sets
4097	Activation of setpoint quantization is not the same in all data sets
4098	Activation of the reference model monitoring is not the same in all data sets
4099	Fixed endstop detection mode is not the same in all data sets
4100	Force controller is not the same in all data sets
4101	Force sensor type UNI_DIRECTION is not implemented
4102	Error in the time constant for smoothing controller parameters
4103	If encoderNumber = 0, ControllerStruct.conType must be DIRECT.
4104	The travel to fixed stop function is not possible on a QF axis.
4105	The integratorFeedbackTimeConstant cannot be less than 0
4106	Illegal value for CommandValueQuantization.value
4107	An electrical drive axis (typeOfAxis = REAL_KIND_OF_AXIS) may only have DIRECT as controller type (conType = DIRECT)
4108	Dead time of dynamic response compensation must not be zero.
4109	Time constant for smoothing manipulated variable jumps during data set changeover must not be less than zero.
4110	The parameters of the manipulated variable filter in the pressure controller are illegal.
4111	Range limit for positionTimeConstante exceeded.
4112	Force/pressure controller type not possible.
4113	Time constant for smoothing manipulated variable jumps outside the limits.
4114	The speed/velocityReference parameter must be set to NOMINAL_SPEED with active adaptation.
4115	The torque/forceReference parameter must be set to NOMINAL_TORQUE/ FORCE with active adaptation.
4116	The parameters in HWEndPos are not consistent.
4117	The setting disableModeSpecification = OFF1_AND_OFF3_MODE is only possible with a digital drive coupling.
4120	Error in following error monitoring parameter. Illegal value in DynamicFollwong.minPositionTolerance
4121	Error in following error monitoring parameter. Illegal value in DynamicFollwong.maxPositionTolerance
4122	Error in following error monitoring parameter. Illegal value in DynamicFollwong.minVelocity
4123	Error in following error monitoring parameter. Illegal value in DynamicFollwong.warningLevel
4124	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.posWinToTime

4125	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.posWinToIDelayTime
4126	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.tolerance
5000	Encoder data sequence and number of encoders do not match.
5001	The set number of force/pressure sensors is invalid - illegal value in .NumberOfAdditionalSensors.number
5002	The set type of the force/pressure sensor is invalid - illegal value in .AdditionalSensor_N.additionalSensorType
5003	The actual value interface configuration of the force/pressure sensor is faulty - illegal value in .AdditionalSensor_N.DriverInfo
5004	The raw actual value weighting factors configuration of the force/pressure sensor is faulty - illegal value in .AdditionalSensor_N.ConversionData
5006	The value range limits configuration of the actual force/pressure value is faulty - illegal value in .AdditionalSensor_N.Range
5007	The configuration of the actual force/pressure value filter is faulty - illegal value in .AdditionalSensor.Filter
5008	Configuration of the force/pressure sensor not completed correctly.
5009	The number of the force/pressure sensor assigned to the data set is invalid - illegal value in .NumberOfDataSets.DataSet_N.AdditionalSensorNumber.number
5010	The sensor configuration for the force/pressure difference measurement is faulty - illegal value in .AdditionalSensor.PositionDifferenceMeasurement
5011	The number of the force/pressure sensor set as sensor A for the difference measurement is invalid - illegal value in .AdditionalSensor.PositionDifferenceMeasurement.numberSensorA
5012	The number of the force/pressure sensor set as sensor B for the difference measurement is invalid - illegal value in .AdditionalSensor.PositionDifferenceMeasurement.numberSensorB
5013	Illegal data in extrapolation configuration.
5014	The set execution cycle clock of the sensor is invalid - illegal value in Execution.executionlevel
5015	The set substitute value strategy for a technological alarm on the sensor is invalid - illegal value in .ValueOut.outputValueErrorBehaviorMode
5020	The configuration of the analog encoder actual value interface is faulty - illegal value in .Encoder_N.AnalogSensor.DriverInfo
5021	The configuration of the analog encoder actual position values filter is faulty - illegal value in .Encoder_N.AnalogSensor.PositionFilter
5022	The raw actual value weighting factors configuration of the analog encoder is faulty - illegal value in .Encoder_N.AnalogSensor.ConversionData
5023	The measuring input interface configuration for the analog encoder is faulty - illegal value in .Encoder_N.AnalogSensor.LogAddress
5030	The count value weighting factors configuration of the interval counter speed encoder is faulty - illegal value in .Encoder_N.IntervalCounterConversionData
5031	The set logical address for the count value interface of the interval counter speed encoder is faulty - illegal value in .Encoder_N.IntervalCounterConversionData.DriverInfo.logAddress
6000	The traversing distance monitoring up to the reference point switch is configured in the configuration data, but the configured maximum distance to be traversed is zero.

6001	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfMaxBufferedCommandId
6002	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfQueueCommands
6003	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfImmediateCommands
6004	Configuration of behaviourAtTheEndOfProfile not implemented
6005	Illegal value for configuration data for maximum acceleration
6006	Illegal value for configuration data for maximum jerk
6007	Illegal value for configuration data for maximum force/pressure setpoint
6008	Illegal value for configuration data for maximum force/pressure setpoint increase
6009	Illegal value for configuration data for Synchronous operation tolerance based on setpoint
6010	Illegal value for configuration data for Synchronous operation tolerance based on actual value
6011	Illegal value for configuration data for Synchronous operation tolerance activation based on setpoint
6012	Illegal value for configuration data for Synchronous operation tolerance activation based on actual value
6013	Illegal value for configuration data for profile end identification tolerance window
6014	Illegal value for configuration data for actual value extrapolation time
6015	Illegal value for configuration data for actual value coupling tolerance window
6016	Illegal value for the injection tolerance configuration (relieveWindow) at software limit switch
6017	Illegal value for the type specification configuration (monitoringAtMotionStart) at software limit switch
6052	Illegal value for the configuration mode (modeSpecificMonitoring) at software limit switch
6053	Illegal value for the profile type configuration (stopJerk) on software limit switch
6018	Illegal value for configuration data for axis-specific path tolerance activation based on setpoint
6019	Illegal value for configuration data for axis-specific path tolerance based on setpoint
6020	Illegal value for configuration data for axis-specific path synchronization tolerance activation based on setpoint
6021	Illegal value for configuration data for axis-specific path synchronization tolerance based on setpoint
6022	Illegal value for configuration data driveControlConfig.releaseDisableMode (RELEASE_DISABLE drive behavior error response)
6023	Illegal value for configuration data of velocity type with master value extrapolation of actual values
6024	Illegal value for configuration data TypeOfAxis.Homing.direction, 'Approach direction during homing'
6025	Illegal value for configuration data TypeOfAxis.Homing.beroDistance, 'Maximum distance to the homing output cam'
6026	Illegal value for configuration data for Synchronous operation error message at master value

6027	Illegal value for the configuration data TypeOfAxis.DecodingConfig.directionDynamic
6028	Illegal value for the configuration data TypeOfAxis.DecodingConfig.behaviourAtTheEndOfProfile
6029	Illegal value for the configuration data TypeOfAxis.DecodingConfig.decodeSequentialMotionCommand
6030	Illegal value for the configuration data TypeOfAxis.DecodingConfig.transferSuperimposedPosition
6031	Illegal value for the configuration data TypeOfAxis.DecodingConfig.speedModeSetPointZero
6032	Illegal value for the configuration data TypeOfAxis.DecodingConfig.stopWithJerk
6033	Illegal value for the configuration data TypeOfAxis.DecodingConfig.disableMotionOperation
6034	Illegal value for the configuration data TypeOfAxis.DecodingConfig.profileDynamicsLimiting
6035	Illegal value for the configuration data TypeOfAxis.DecodingConfig.cyclicSetUpInForceLimiting
6036	Illegal value for the configuration data TypeOfAxis.Homing.enableBeroDistance
6037	Illegal value for the configuration data TypeOfAxis.Homing.referencingNecessary
6038	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableLifeSignMonitoring
6039	Illegal value for the configuration data TypeOfAxis.DistributedMotion.numberOfLifeSignFailures
6040	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableDelayOfCommandValueOutput
6041	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableOffsetCompensation
6042	Illegal value for configuration data driveControlConfig.pulsesEnabledEvaluation (axis behavior for drive-independent stop response)
6050	Illegal value for the configuration data driveControlConfig.dataAdaption
6051	Illegal value for the configuration data driveControlConfig.disableModeSpecification
6043	Illegal value for the configuration data TypeOfAxis.ControllerSwitchData.NumberOfDigitalInputs.number
6044	Illegal logical address of the digital input in the configuration data structure TypeOfAxis.ControllerSwitchData.NumberOfDigitalInputs.DigitalInput_x
6045	Illegal value for configuration data for maximum deceleration
7000	Illegal data in process model configuration
2045	Evaluation of the PulsesEnabled bit (pulsesEnabledEvaluation = YES) is not possible in telegram 1 (telegramType = DP_TEL1_STANDARD).
2046	Evaluation of the PulsesEnabled bit (pulsesEnabledEvaluation) is not carried out when using DSDB.

Additional information:	More detailed description of the error origin
Meaning for category 3	Number of the data set on the technology object for which the alarm was issued
Meaning for category 4	Not relevant
Meaning for category 5	Number of the encoder on the technology object that issued the alarm

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT

Remedy

Change the configuration data.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

Yes

20007 Interconnection error (category: /1/%d, context: /2/%d, context parameter1: /3/%d, context parameter2: /4/%d)

Cause

This alarm indicates errors in the interconnection of technology objects. When the interconnection is established, the technology object verifies it on the basis of the interface properties. Errors are classified by category.

Additional information for a more detailed description of the error can be output from the context. An error context is output for selected error categories. Additional context parameters can be output for a context, if necessary. Context and context parameters are output as an integer value.

Meaning of alarm parameters

Category:	
1	Technology object compatibility error An interconnection is to be established with a technology object that has been configured with another reference system (e.g. output cams with rotary reference system and linear axis).
2	Exclusive interface An interface on a technology object that can only be connected to another technology object using one coupling type should be interconnected using different, mutually exclusive couplings. For example, the master value interface on a positioning axis for an interconnected synchronous object can only be operated as a setpoint or an actual value coupling.
3	Interconnection request The technology object awaits the interconnection to another technology object (necessary interconnection) in order to provide its functionality. Thus, for example, the interconnection to a gear axis is a required interconnection on a synchronous object.
4	Error during interface initialization The alarm is output in the event of initialization errors when connecting interfaces on the technology object.
5	Interface not available on technology object An interface required in the interconnection is not available on the technology object.
6	Recursion The interconnection on the technology object results in a recursion in the execution system of the technology package. The technology object does not support recursive execution.
7	Execution level compatibility error An interconnection is to be established with a technology object that is classified in a different execution level (e.g. output cam in execution level IPO and axis in execution level IPO_2). The technology object does not support interconnection to technology objects of other execution levels.
8	Initialization distribution In the case of interconnected technology objects that are distributed among different devices, an error occurred during initialization of the communication.

9	<p>Illegal TO state The technology object cannot be interconnected in the current state. A technology object can be interconnected only after the configuration has been successfully completed. Refer to the diagnostic buffer to determine the exact cause of the error. The cause of the illegal TO state is entered there (e.g. a level overflow during the configuration phase) and can then be corrected (in the example, by allowing level overflows in the task configuration).</p>
10	<p>Interface assignment The configured interface via which the technology object communicates cannot be used from the processing cycle clock of the technology object.</p>
11	<p>Active command in recursive TO interconnection The interconnection of the technology object and the enable state at its inputs result in an active recursive interconnection (positive feedback).</p>

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

Context / context parameter:

Contact the hotline and provide the name of the context parameter.

Category:

1 - Technology object compatibility error

Check the configuration and set a common reference system for the technology objects to be interconnected.

2 - Exclusive interface

Ensure that the project is consistent. Contact the hotline, if necessary.

3 - Interconnection request

Ensure that the project is consistent. The missing interconnection on the technology object is specified in the context:

Context

TO type

Interface

4 - Error during interface initialization

Contact the hotline and provide the name of the context parameter.

5 - Interface not available on technology object

Contact the hotline and provide the name of the context parameter.

6 - Recursion

Check the interconnection topology of your project. Remove unnecessary interconnections.

7 - Execution level compatibility error

Select a common execution level in the configuration for the technology objects to be interconnected (e.g. output cam and axis in IPO_2).

8 - Initialization distribution

- Ensure that your project is consistent. For proper configuration of communication, all devices must be compiled ('Project/Save and compile all' or "Save and compile all new').
- Determine whether all devices are selected for loading the project ('Target system/Select target devices...').
- Check whether the configured bus topology matches the actual bus topology.
- Ensure that the devices are linked in the bus configuration (PROFIBUS).
- Check whether isochronous operation was selected.
- In addition, the address areas that are used by the devices for communication must be set up. The address areas are automatically set up when the project is compiled; only afterwards is the valid hardware configuration available for downloading. Do not change automatically generated address areas afterwards.
- Contact the hotline and provide the name of the context parameter.

9 - Illegal technology object state

- Correct the configuration of the technology object.
- Eliminate the execution error.

10 - Interface assignment

- Configure the bus interface to match the processing cycle clock (e.g. fast bus system and axis in FastIPO).

11 - Active command in recursive TO interconnection

- Inputs of technology objects can already be enabled during the download (e.g. TO AdditionObjectType). Remove or change the relevant interconnection on the technology object or switch a technology object, whose input is enabled by the user program and not already by the download, into the positive feedback branch.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

Yes

20008 Assignment of USER_DEFAULT to system variables is not possible**Cause**

It is not appropriate to assign USER_DEFAULT to a UserDefault system variable, because the variable references itself in this case.

As a result, a meaningful value cannot be generated on readout. When this error occurs, the new Enum value is not assigned. The variable retains the old value.

Remedy

USER_DEFAULT is intended for use in technology commands. Avoid assigning it to system variables.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

20009 The permissible difference between encoders (/1/%d) and (/2/%d) has been exceeded

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

The permissible difference between two encoders (slip monitoring) has been exceeded.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT

Remedy

1. Check the mechanical configuration.
2. Check the settings of the dynamic limit values (acceleration, jerk).

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

Yes

20010 A restart is required to activate the configuration data**Cause**

The configuration cannot be activated, since data has been modified preventing the activation. The technology object must be restarted to activate the data.

Remedy

- Execute the technology object reset command, and set the 'activateRestart' parameter to 'ACTIVATE_RESTART'.
- Set the 'restartActivation' system variable to 'ACTIVATE_RESTART'.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

20011 **Error occurred while activating the configuration (category: /1/%d, error number: /2/%d, additional information: /3/%d)**

Cause

This alarm indicates error conditions when activating the configuration. The error conditions can be traced back to an incorrect or inconsistent configuration. The technology objects perform a plausibility check on the configuration. Errors are identified by the error codes below. The configuration is not activated when this alarm occurs.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of the error
500	Illegal technology object configuration state.
501	More configuration data expected than received.
502	Invalid configuration data.
503	Version conflict in configuration.
504	The configured task level is not supported by this TO.
505	The value range of the maximum number of command IDs has been violated.
506	The configured task level is not supported by the used hardware.
1000	General configuration error
1001	Communication error during data transmission
2000	Error in actuator system configuration.
2001	Outside of manipulated variable limits.
2003	Error in load gear factors.
2004	Error in maximum velocity.
2005	Maximum velocity greater than maximum attainable velocity.
2006	Drive not suitable for torque-controlled or torque-limited operation
2007	Linear stepper motor not implemented
2008	Right-justified format for direct output not implemented
2009	Illegal value in resolution for direct output
2010	Missing configuration data for actuator system
2011	Missing configuration data for additional actuator system
2012	The backstop range (min to max) does not contain a zero point
2014	Drive or telegram not suitable for torque superimposition
2015	Gear ratios less than or equal to 0.
2016	Resolution for stepper motor is 0.
2017	Illegal value for configuration data maxSpeed.
2018	Illegal value for configuration data maxVelocity.
2019	Range limits of configuration data exceeded.
2020	Range limits for maximum acceleration exceeded.
2021	Illegal values for dead zone compensation.
2022	Illegal values for sliding friction compensation.
2023	Illegal values for backstop.
2024	Error in friction compensation parameter
2025	DIRECT output: Analog and bit driver of a shared output are parameterized in different ways on the various axes
2026	Illegal value for pulsesEnable
2027	Illegal value for maxSpeed ($\text{maxSpeed} \geq 2 \cdot \text{nominalSpeed}$)
2028	Illegal value for maxSpeed ($\text{maxSpeed} \leq 10 \text{ V} / \text{maxSetPointVoltage} \cdot \text{nominalSpeed}$)
2029	Illegal value in TypeOfAxis.SetPointDriverInfo
2030	A parameter in DriveData is not correct.
2031	A parameter in LinearMotorDriveData is not correct.
2032	A parameter in StepMotorDriveData is not correct.

2033	A parameter in QOutput.EnableBit is not correct.
2034	A parameter of the technological data block is not correct.
2035	A parameter of the safety data block is not correct.
2036	A parameter of the operating characteristics data block is not correct.
2037	Cannot change the configuration during the drive adaptation.
2038	Illegal value for the manipulated variable filter
2040	No driver could be requested under the logical input address.
2041	No driver could be requested under the logical output address.
2042	The numerator of the load gear is incorrect.
2043	The nominal factor of the load gear is incorrect.
2044	The value for the reference velocity is incorrect.
3000	Error in encoder system.
3001	Illegal value in Simulation.simulationMode
3002	The set axis type is invalid - illegal value in TypeOfAxis.typeOfAxis
3003	The set drive leadscrew pitch is invalid - illegal value in Leadscrew.pitchVal
3004	The set modulo activation is invalid - illegal value in Modulo.state
3005	Illegal specification(s) in the encoder data (incremental, absolute, etc.).
3006	The set number of encoders is invalid - illegal value in .NumberOfEncoders.numberOfEncoders
3007	Illegal incremental encoder number.
3008	Illegal data combination for homing with incremental encoder.
3009	The configuration of the 'Backlash compensation' encoder function is faulty - illegal value in .Encoder_N.IncBacklash or .Encoder_N.AbsBacklash
3010	Illegal data on SSI encoder.
3011	The configuration of the 'Absolute encoder adjustment' encoder function is faulty - illegal value in .Encoder_N.AbsHoming
3012	The configuration of the 'Counting direction of the raw actual encoder value' encoder function is faulty - illegal value in .Encoder_N.InversCountDirection.encoderFeedbackPolarity
3013	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptDrive
3014	The configuration of the 'Encoder limit frequency monitoring' encoder function is faulty - illegal value in .Encoder_N.FrequencyLimit.encoderFrequencyLimit
3015	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptLoad
3016	The load gear ratio configuration of a data set is faulty - illegal value in .DataSet_N.Gear
3017	Encoder data sequence and number of encoders do not match.
3018	The configuration of an encoder is incomplete
3019	The set mounting location of the encoder is invalid - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3020	The encoder simulation is either not supported or it is not activated simultaneously on the actuator and the sensor - illegal value in .Encoder_N.encoderIdentification or .SetPointDriverInfo.mode
3021	The number of configured data sets or the number of the active data set after the startup is invalid - illegal value in DataSet_N.numberOfDatasets or in DataSet_N.initDataSet

3022	The number of the encoder assigned to a data set is invalid - illegal value in DataSet_N.EncoderNumber.encoderNumber
3023	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptExtern
3024	The configuration of the encoder measuring wheel circumference is faulty - illegal value in .Encoder_N.pathPerRevolution.length
3025	The configuration of the 'Actual velocity monitoring' function is faulty - illegal value in .ActualVelocityMonitoring
3026	Illegal encoder number in absolute encoder configuration.
3027	The set message format of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absMessageFormat
3028	The set baud rate of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.baudRate
3029	The set protocol format of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absState
3030	The number of the encoder assigned to a data set is invalid - illegal value in DataSet_N.EncoderNumber.encoderNumber
3031	The encoder assigned to a data set does not exist - illegal value in DataSet_N.EncoderNumber.encoderNumber
3032	The load gear ratio numerator configuration of a data set is faulty - illegal value in .DataSet_N.Gear.numFactor
3033	The load gear ratio denominator configuration of a data set is faulty - illegal value in .DataSet_N.Gear.denFactor
3034	An encoder references a data set that does not exist
3035	An encoder references a data set that does not exist
3036	Encoder not configured.
3037	Homing with encoder zero mark and ENDAT encoder is not possible - illegal value in .Encoder_N.IncHomingEncoder.homingMode
3038	Homing to the falling edge of an external zero mark on an onboard input is not possible - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3039	Flying homing with encoder zero mark and ENDAT encoder is not possible - illegal value in .Encoder_N.IncHomingEncoder.passiveHomingMode
3040	Flying homing to the falling edge of an external zero mark on an onboard input is not possible - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3041	The (modified) encoder configuration does not permit any determination of the factors for converting the encoder raw actual values into actual position and velocity values or for converting the position and velocity setpoints into DSC encoder raw actual values, taking account of the mechanical relationships.
3042	Illegal data combination for homing with external encoder.
3043	The incremental position of the encoder is outside the permissible value range.
3044	The incremental position of the encoder is outside the permissible value range.
3045	The configuration of the linear encoder resolution is faulty - illegal value in .Encoder_N.Resolution
3046	The configuration of the encoder actual velocity values filter is faulty - illegal value in .Encoder_N.Filter
3047	The configuration of the encoder actual velocity values filter for the interpolator is faulty - illegal value in .SmoothingFilter

3048	The configuration of the encoder actual velocity values filter for the actual value coupling (Synchronous operation) is faulty - illegal value in .Extrapolation.Filter
3049	The set number of the DSC encoder is invalid - illegal value in .NumberOfEncoder.dscEncoderNumber
3050	The configuration of the encoder system has not been completed correctly.
3051	The configuration of the stepper motor encoder data is faulty - illegal value in .Encoder_N.StepMotorMonitoring
3052	The set encoder actual value type does not match its configuration or the technology object type - illegal value in .Encoder_N.encoderValueType
3053	Homing on a stepper motor is only possible with an external zero mark - illegal value in .Encoder_N.incHomingEncoder.homingMode
3054	Flying homing on a stepper motor is only possible with an external zero mark - illegal value in .Encoder_N.incHomingEncoder.passiveHomingMode
3055	The configuration of a stepper motor with encoder is only possible on a real axis - illegal value in .Encoder_N.encoderMode
3056	Only one encoder may be configured on a stepper motor - illegal value in .NumberOfEncoders.numberOfEncoders
3057	The DSC encoder is not a PROFIBUS encoder - illegal value in .NumberOfEncoders.dscEncoderNumber or .Encoder_N.encoderIdentification
3058	The DSC encoder telegram does not support DSC - illegal value in .Encoder_N.DriverInfo.telegramType
3059	Set modulo value in Modulo.length is smaller than an increment.
3060	The encoder configuration for the position difference measurement is faulty - illegal value in .Encoder_N.PositionDifferenceMeasurement
3061	The set limits for the position difference supplied by the encoder are invalid - illegal value in .Encoder_N.PositionDifferenceMeasurement.Range
3062	The activation of the 'Backlash compensation' encoder function is only possible for motor encoders - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3063	The configuration of a TO externalEncoder for the operation as encoder on a stepper motor is not possible - illegal value in .Encoder_N.encoderMode
3064	The set resolution of the encoder is invalid - illegal value in .Encoder_N.IncEncoder.incResolution
3065	The set resolution of the encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absResolution
3066	The set multiplication factor for the cyclic actual value of the encoder is invalid - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic
3067	The set multiplication factor for the cyclic actual value of the encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absResolutionMultiplierCyclic
3068	The assignment of a velocity encoder to a data set on a positioning axis is not permitted - illegal value in DataSet_N.EncoderNumber.encoderNumber
3069	The configuration of the 'Tolerance of an encoder error' encoder function is invalid - illegal value in .Encoder_N.SensorControlConfig.tolerateSensorDefect
3070	The configuration of the 'Direct reading of the actual speed value (Nact) from the PROFIDrive telegram' encoder function is faulty - illegal value in .Encoder_N.NistDriverConfig
3071	The configuration of the reference cam is invalid - illegal value in .Encoder_N.IncHomingEncoder.referenceCamType
3072	The configuration of the negative reversing cam is faulty - illegal value in .Homing.ReverseCamNegative

3073	The configuration of the positive reversing cam is faulty - illegal value in .Homing.ReverseCamPositive
3074	The set edge of the external zero mark does not match the set homing approach direction - illegal value in .Encoder_N.IncHomingEncoder.approachDirection or .Homing.direction
3075	The use of reversing cams in the selection of .Homing.direction = 'POSITIVE_ALL_HOMING' or .Homing.direction = 'NEGATIVE_ALL_HOMING' as homing approach direction is not permitted - illegal configuration in .Homing.ReverseCamNegative._type or .Homing.ReverseCamPositive._type
3076	The set approach direction of the zero mark or edge of the external zero mark does not match the set homing approach direction - illegal value in .Encoder_N.IncHomingEncoder.approachDirection or .Homing.direction
3077	The use of hardware limit switches as reference cams in the selection of .Homing.direction = 'POSITIVE_ALL_HOMING' or .Homing.direction = 'NEGATIVE_ALL_HOMING' as homing approach direction is not permitted - illegal value in .Encoder_N.IncHomingEncoder.referenceCamType
3078	The configuration of the 'Ready bit' encoder function is faulty - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring
3079	The configuration of the 'Error bit' encoder function is faulty - illegal value in .Encoder_N.AnalogSensor.ErrorStateMonitoring
3080	The encoder Ready bit is in the range of the actual encoder value data bit - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress and/or .Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber
3081	The encoder Error bit is in the range of the actual encoder value data bit - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress and/or .Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber
3082	The configuration of the external zero mark interface is faulty - illegal value in .Encoder_N.IncHomingEncoder.StateDriveExternalZeroMark
3083	The configuration of the 'Update counter' encoder function is faulty - illegal value in .Encoder_N.AnalogSensor.UpdateCounter
3084	The encoder Update counter bits are in the range of the actual encoder value data bits - illegal value in .Encoder_N.AnalogSensor.UpdateCounter.logAddress and/or .Encoder_N.AnalogSensor.UpdateCounter.bitNumber
3085	The encoder Update counter bits and the Read bit overlap - illegal value in .Encoder_N.AnalogSensor.UpdateCounter.logAddress and/or .Encoder_N.AnalogSensor.UpdateCounter.bitNumber
3086	The encoder Update counter bits and the Error bit overlap - illegal value in .Encoder_N.AnalogSensor.UpdateCounter.logAddress and/or .Encoder_N.AnalogSensor.UpdateCounter.bitNumber
3087	The configuration of the 'Direct reading of the actual speed value (Nact) from the PROFIDrive telegram' encoder function is faulty - illegal value in .Encoder_N.SensorNist
3088	The configuration of the encoder with the identification 'SET_ACTUAL_VALUE' is faulty - illegal value in .Encoder_N.SensorSetActualValue
3089	The configuration of the encoder actual position values filter is faulty - illegal value in .Encoder_N.PositionFilter
3090	The configuration of the encoder actual position values filter for the actual value coupling (Synchronous operation) is faulty - illegal value in .Extrapolation.ExtrapolationPositionFilter

3091	The set multiplication factor for the cyclic actual value is not consistent with the known value on the drive encoder - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic or .Encoder_N.absEncoder.absResolutionMultiplierCyclic or .Encoder_N.Resolution.multiplierCyclic
3092	The set modulo length is invalid - illegal value in Modulo.length
3093	The set modulo start value is invalid - illegal value in Modulo.startValue
3094	Homing with deactivated hardware limit switches as reversing cams is not possible - illegal value in .Homing.ReverseCamNegative._type and/ or .Homing.ReverseCamPosition._type
3095	The set encoder identification is invalid - illegal value in .Encoder_N.encoderIdentification
3096	The set encoder mode is invalid - illegal value in .Encoder_N.encoderMode
3097	The set encoder type is invalid - illegal value in .Encoder_N.encoderType
3098	The set encoder system is invalid - illegal value in .Encoder_N.encoderSystem
3099	The set actual value type is invalid - illegal value in .Encoder_N.encoderValueType
3100	The set utilization status of the actual value interface is invalid - illegal value in .Encoder_N.interfaceAllocation
3101	The set encoder mode is not supported by the TO externalEncoder - illegal value in .Encoder_N.encoderMode
3102	The set actual value type is not supported by the TO externalEncoder - illegal value in .Encoder_N.encoderValueType
3103	Only the 'VELOCITY' actual value type is permitted on a drive axis - illegal value in .Encoder_N.encoderValueType
3104	The set encoder mode does not match the set combination of encoder type and encoder identification - illegal value in .Encoder_N.encoderMode
3105	The set encoder type is not supported for encoders with the set encoder identification - illegal value in .Encoder_N.encoderType
3106	The encoder configuration does not match the set combination of encoder type and encoder identification - illegal value in .Encoder_N.encoderMode or .Encoder_N.encoderSystem or .Encoder_N.encoderValueType
3107	The configuration of the encoder for the position difference measurement requires the setting of the 'POSITION' actual value type - illegal value in .Encoder_N.encoderValueType
3108	Only encoders of the 'SENSOR_INCREMENTAL' type are supported on an axis of the 'REAL_AXIS_WITH_SIGNAL_OUTPUT' type - illegal value in .Encoder_N.encoderType
3109	Only the 'SENSOR_ABSOLUTE' encoder type is supported on an encoder with the 'SET_ACTUAL_VALUE' encoder identification - illegal value in .Encoder_N.encoderType
3110	The set combination of encoder type and encoder mode is not supported within the context of a linear encoder - illegal value in .Encoder_N.encoderType and .Encoder_N.encoderMode
3111	The configuration of a linear encoder on a rotary axis is not possible - illegal value in .Encoder_N.encoderSystem
3112	The configuration of the reference cam zero mark distance monitoring is faulty - illegal value in .Encoder_N.IncHomingEncoder.beroDistance or .Encoder_N.IncHomingEncoder.enableZeroMarkDistance

3113	The set home position offset is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.proceedShiftPos</code>
3114	The configuration of the reference cam interface is faulty - illegal value in <code>.Encoder_N.incHomingEncoder.bitNumberBero</code> or <code>.Encoder_N.incHomingEncoder.logAddressBero</code>
3115	The set zero mark approach direction is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.approachDirection</code>
3116	Homing setting faulty: Zero mark approach direction is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveApproachDirection</code>
3117	The configuration of the reference cam interface is faulty - illegal value in <code>.Encoder_N.incHomingEncoder.passiveBitNumberBero</code> or <code>.Encoder_N.incHomingEncoder.passiveLogAddressBero</code>
3118	The set homing mode is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.homingMode</code>
3119	The set homing mode is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveHomingMode</code>
3120	The set zero mark approach direction does not match the set homing mode - illegal value in <code>.Encoder_N.IncHomingEncoder.approachDirection</code>
3121	The set external zero mark approach direction does not match the set homing mode - illegal value in <code>.Encoder_N.IncHomingEncoder.approachDirection</code>
3122	The set zero mark approach direction does not match the set homing mode - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveApproachDirection</code>
3123	The set external zero mark approach direction does not match the homing mode - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveApproachDirection</code>
3124	The set type of the reference cam is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.referenceCamType</code>
3125	The set reference cam type does not match the set zero mark approach direction - illegal value in <code>.Encoder_N.IncHomingEncoder.referenceCamType</code>
3126	The resource required for the reference cam cannot be requested - illegal value in <code>.Encoder_N.IncHomingEncoder.logAddress</code> and/ or <code>.Encoder_N.IncHomingEncoder.bitNumber</code> or no memory available
3127	The resource required for the reference cam cannot be requested - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveLogAddress</code> and/ or <code>.Encoder_N.IncHomingEncoder.passiveBitNumber</code> or no memory available
3128	The resource required for the external zero mark cannot be requested - illegal value in <code>.Encoder_N.incHomingEncoder.StateDriveExternalZeroMark.logAddress</code> and/ or <code>.Encoder_N.incHomingEncoder.StateDriveExternalZeroMark.bitNumber</code> or no memory available
3129	The resource required for the positive reversing cam cannot be requested - illegal value in <code>.Homing.ReverseCamPositive.logAddress</code> and/ or <code>.Homing.ReverseCamPositive.bitNumber</code> or no memory available
3130	The resource required for the negative reversing cam cannot be requested - illegal value in <code>.Homing.ReverseCamNegative.logAddress</code> and/ or <code>.Homing.ReverseCamNegative.bitNumber</code> or no memory available
3131	The resource required for the 'Update counter' of the analog encoder cannot be requested - illegal value in <code>.Encoder_N.AnalogSensor.UpdateCounter.logAddress</code> and/ or <code>.Encoder_N.AnalogSensor.UpdateCounter.bitNumber</code> or no memory available

3132	The resource required for the 'Read state bit' of the analog encoder cannot be requested - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress and/ or .Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber or no memory available
3133	The resource required for the 'Error state bit' of the analog encoder cannot be requested - illegal value in .Encoder_N.AnalogSensor.ErrorStateMonitoring.logAddress and/ or .Encoder_N.AnalogSensor.ErrorStateMonitoring.bitNumber or no memory available
3134	The configuration of the actual value interface is faulty - illegal value in .EncoderN.DriverInfo
3135	The configuration of the encoder actual value interface is faulty - illegal value in .EncoderN.DriverInfoDirectIncremental
3136	The configuration of the sensor measuring gear ratio is faulty - illegal value in .Sensor.ConversionDataAdapt
3137	Only an encoder with the 'DRIVE' encoder mounting type is permitted as DSC encoder - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3138	An encoder with the encoder value type 'POSITION_AND_PROFIDRIVE_ENCODER_NIST_B' is supported only on a TO positioning axis or as TO external encoder in conjunction with the encoder identification 'DPMaster' or 'SIMULATION' and the encoder telegram type 'DP_TEL83_STANDARD' - illegal TO type or illegal value in .Encoder_n.encoderIdentification or in .Encoder.DriverInfo.telegramType
3139	The number assigned to an encoder lies outside the number of the last configured encoder 'NumberOfEncoders.numberOfEncoders'
3140	The configuration of the encoder configuration data adaptation is faulty - illegal value in .Encoder_N.dataAdaption
3141	Both the adapted and the configured encoder configuration are invalid
3143	The multiplication factor for the cyclic actual value and/or the multiplication factor for the absolute value in conjunction with the configured encoder mode (Encoder_N.encoderMode) is invalid - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic or .Encoder_N.absEncoder.absResolutionMultiplierCyclic and/ or .Encoder_N.Resolution.multiplierCyclic or Encoder_N.Resolution.multiplierCyclic
3144	The set fine resolution for the cyclic absolute value (Gn_XIST2) is invalid - illegal value in .Encoder_N.AbsEncoder.absResolutionMultiplierAbsolute
4000	Error in controller.
4001	Negative acceleration specified.
4002	Unknown 'FipoType' requested.
4003	Error in runtime system, ratio of controller cycle clock to interpolator cycle clock is incorrect.
4004	Requested filter order not possible.
4005	Reserve for later use.
4006	Maximum limit is lower than minimum.
4007	Reserve for later use.
4008	Error in configuration data for controller.
4009	Reserve for later use.
4010	Reserve for later use.

4011	Reserve for later use.
4012	Reserve for later use.
4013	Requested controller type is not available.
4014	Error in controller factors.
4015	Precontrol activated, kpc less than 0 or kpc greater than 150.
4016	Reserve for later use.
4017	Reserve for later use.
4018	Reserve for later use.
4019	Reserve for later use.
4020	Reserve for later use.
4021	Reserve for later use.
4022	Reserve for later use.
4023	Precontrol activated, kpc less than or equal to 0.
4024	Reference model monitoring: Error in value of tolerance window.
4025	Error in limit value for standstill signal.
4026	Error in parameter for positioning monitoring.
4027	Simultaneous activation of reference model and dynamic following error monitoring not allowed.
4028	Sampling time parameter calculated incorrectly.
4029	Too many data sets requested.
4030	Error in runtime system, ratio of controller cycle clock to interpolator cycle clock is incorrect.
4031	Error in time constant for emergency ramp generator (positionTimeConstant).
4032	Precontrol active, but fine interpolator type is DIRECT.
4033	Default data set outside limits.
4034	Maximum number of data sets not possible.
4035	Unknown data set change mode.
4036	Following error monitoring not activated/deactivated in all data sets.
4037	Reference model monitoring not activated/deactivated in all data sets.
4038	Different controller type in data sets.
4039	Precontrol activated/deactivated differently in data sets.
4040	Time constant is 0.
4041	Error in dynamic adaptation parameter.
4042	System variable initialization could not be read.
4043	Driver simulation not implemented.
4044	Connection for stepper motors not implemented.
4045	Maximum velocity cannot be attained; maximum drive speed or normalization factor is incorrect.
4046	DSC requires motor encoder data to be specified.
4047	Drive or telegram type not suitable for DSC.
4048	Error in clamping monitoring parameter. 'No detection' is not permitted for the fixed endstop detection
4049	A sensor is required to monitor actual velocity using 'DynamicControl'.
4050	Inconsistent PROFIBUS parameterization; the sum of Ti and To is greater than a DP cycle

4051	Error in manipulated variable limitation parameter of force/pressure controller
4052	Error in force/pressure entry monitoring parameter
4053	Error in force/pressure end value monitoring parameter
4054	Force/pressure entry monitoring tolerance less than pressure end value monitoring tolerance
4055	Error in force/pressure control deviation monitoring parameter
4056	Different activation/deactivation of control deviation monitoring of force/pressure controller in data sets not permitted
4057	Different manipulated variable inversion of force/pressure controller in data sets not permitted
4058	Different force/pressure sensor types in data sets not permitted
4059	Different activation/deactivation of anti-windup in data sets not permitted
4060	Kd factor of PID_ACTUAL controller is greater than 1
4061	Time constant of process model T1 less than or equal to T2
4062	Illegal actuator type selection
4063	Error in sliding friction compensation parameter
4064	Error in offset injection parameter
4065	Precontrol for force/pressure control not implemented
4066	Error in standstill monitoring parameter
4067	Following error monitoring: minVelocity cannot be greater than or equal to maxVelocity
4068	Maximum buffer length of balancing filter (Mode_2) is reached or exceeded. As the servo cycle is included in the calculation of the equivalent time constant of the speed control loop (=velocityTimeConstant), the maximum value of this time constant is limited to 16 servo cycles. The buffer length of the lag element is maximum 16.
4069	System-related dead times are less than 0 after allowing for additionalTime
4070	Controller types other than DIRECT require configuration of an encoder.
4071	Illegal values for delayTimeToActivate of standstill signal
4072	The I/O device for the positive HW limit switch is not available
4073	The I/O device for the negative HW limit switch is not available
4074	Range limits of controller parameter exceeded.
4075	Range limit of brake deceleration of emergency ramp exceeded.
4076	Range limit of equivalent time constant exceeded.
4077	Range limit for velocityTimeConstant exceeded.
4078	Error in value for QFDynamicData configuration.
4079	Error in value for reference model monitoring.
4080	Error in following error monitoring parameter
4081	Error in clamping monitoring parameter
4082	Error in value for DynamicData configuration.
4083	Error in value for PV controller configuration.
4084	Configuration data missing for controller.
4085	Error in value for SystemDeadTimeData configuration.
4086	Pressure control only possible with closed-loop speed controller
4087	DSC and compensation of valve curve not possible
4088	DSC not possible on hydraulic axes

4089	Time constants of dynamic response compensation must not be equal
4090	Incorrect value for system dead time correction
4091	Different activation of manipulated variable filter of pressure controller in data sets
4092	Different activation of dynamic response compensation in data sets
4093	Activation of DSC is not the same in all data sets
4094	Balancing filter type is not the same in all data sets
4095	Illegal value for balanceFilterMode. For a drive axis, only MODE_1 is permitted (PV_Controller.balanceFilterMode).
4096	Activation of anti-windup is not the same in all data sets
4097	Activation of setpoint quantization is not the same in all data sets
4098	Activation of the reference model monitoring is not the same in all data sets
4099	Fixed endstop detection mode is not the same in all data sets
4100	Force controller is not the same in all data sets
4101	Force sensor type UNI_DIRECTION is not implemented
4102	Error in the time constant for smoothing controller parameters
4103	If encoderNumber = 0, ControllerStruct.conType must be DIRECT.
4104	The travel to fixed stop function is not possible on a QF axis.
4105	The integratorFeedbackTimeConstant cannot be less than 0
4106	Illegal value for CommandValueQuantization.value
4107	An electrical drive axis (typeOfAxis = REAL_KIND_OF_AXIS) may only have DIRECT as controller type (conType = DIRECT)
4108	Dead time of dynamic response compensation must not be zero.
4109	Time constant for smoothing manipulated variable jumps during data set changeover must not be less than zero.
4110	The parameters of the manipulated variable filter in the pressure controller are illegal.
4111	Range limit for positionTimeConstante exceeded.
4112	Force/pressure controller type not possible.
4113	Time constant for smoothing manipulated variable jumps outside the limits.
4114	The speed/velocityReference parameter must be set to NOMINAL_SPEED with active adaptation.
4115	The torque/forceReference parameter must be set to NOMINAL_TORQUE/ FORCE with active adaptation.
4116	The parameters in HWEndPos are not consistent.
4117	The setting disableModeSpecification = OFF1_AND_OFF3_MODE is only possible with a digital drive coupling.
4120	Error in following error monitoring parameter. Illegal value in DynamicFollwong.minPositionTolerance
4121	Error in following error monitoring parameter. Illegal value in DynamicFollwong.maxPositionTolerance
4122	Error in following error monitoring parameter. Illegal value in DynamicFollwong.minVelocity
4123	Error in following error monitoring parameter. Illegal value in DynamicFollwong.warningLevel
4124	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.posWinTolTime

4125	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.posWinTolDelayTime
4126	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.tolerance
5000	Encoder data sequence and number of encoders do not match.
5001	The set number of force/pressure sensors is invalid - illegal value in .NumberOfAdditionalSensors.number
5002	The set type of the force/pressure sensor is invalid - illegal value in .AdditionalSensor_N.additionalSensorType
5003	The actual value interface configuration of the force/pressure sensor is faulty - illegal value in .AdditionalSensor_N.DriverInfo
5004	The raw actual value weighting factors configuration of the force/pressure sensor is faulty - illegal value in .AdditionalSensor_N.ConversionData
5006	The value range limits configuration of the actual force/pressure value is faulty - illegal value in .AdditionalSensor_N.Range
5007	The configuration of the actual force/pressure value filter is faulty - illegal value in .AdditionalSensor.Filter
5008	Configuration of the force/pressure sensor not completed correctly.
5009	The number of the force/pressure sensor assigned to the data set is invalid - illegal value in .NumberOfDataSets.DataSet_N.AdditionalSensorNumber.number
5010	The sensor configuration for the force/pressure difference measurement is faulty - illegal value in .AdditionalSensor.PositionDifferenceMeasurement
5011	The number of the force/pressure sensor set as sensor A for the difference measurement is invalid - illegal value in .AdditionalSensor.PositionDifferenceMeasurement.numberSensorA
5012	The number of the force/pressure sensor set as sensor B for the difference measurement is invalid - illegal value in .AdditionalSensor.PositionDifferenceMeasurement.numberSensorB
5013	Illegal data in extrapolation configuration.
5014	The set execution cycle clock of the sensor is invalid - illegal value in Execution.executionlevel
5015	The set substitute value strategy for a technological alarm on the sensor is invalid - illegal value in .ValueOut.outputValueErrorBehaviorMode
5020	The configuration of the analog encoder actual value interface is faulty - illegal value in .Encoder_N.AnalogSensor.DriverInfo
5021	The configuration of the analog encoder actual position values filter is faulty - illegal value in .Encoder_N.AnalogSensor.PositionFilter
5022	The raw actual value weighting factors configuration of the analog encoder is faulty - illegal value in .Encoder_N.AnalogSensor.ConversionData
5023	The measuring input interface configuration for the analog encoder is faulty - illegal value in .Encoder_N.AnalogSensor.LogAddress
5030	The count value weighting factors configuration of the interval counter speed encoder is faulty - illegal value in .Encoder_N.IntervalCounterConversionData
5031	The set logical address for the count value interface of the interval counter speed encoder is faulty - illegal value in .Encoder_N.IntervalCounterConversionData.DriverInfo.logAddress
6000	The traversing distance monitoring up to the reference point switch is configured in the configuration data, but the configured maximum distance to be traversed is zero.

6001	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfMaxBufferedCommandId
6002	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfQueueCommands
6003	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfImmediateCommands
6004	Configuration of behaviourAtTheEndOfProfile not implemented
6005	Illegal value for configuration data for maximum acceleration
6006	Illegal value for configuration data for maximum jerk
6007	Illegal value for configuration data for maximum force/pressure setpoint
6008	Illegal value for configuration data for maximum force/pressure setpoint increase
6009	Illegal value for configuration data for Synchronous operation tolerance based on setpoint
6010	Illegal value for configuration data for Synchronous operation tolerance based on actual value
6011	Illegal value for configuration data for Synchronous operation tolerance activation based on setpoint
6012	Illegal value for configuration data for Synchronous operation tolerance activation based on actual value
6013	Illegal value for configuration data for profile end identification tolerance window
6014	Illegal value for configuration data for actual value extrapolation time
6015	Illegal value for configuration data for actual value coupling tolerance window
6016	Illegal value for the injection tolerance configuration (relieveWindow) at software limit switch
6017	Illegal value for the type specification configuration (monitoringAtMotionStart) at software limit switch
6052	Illegal value for the configuration mode (modeSpecificMonitoring) at software limit switch
6053	Illegal value for the profile type configuration (stopJerk) on software limit switch
6018	Illegal value for configuration data for axis-specific path tolerance activation based on setpoint
6019	Illegal value for configuration data for axis-specific path tolerance based on setpoint
6020	Illegal value for configuration data for axis-specific path synchronization tolerance activation based on setpoint
6021	Illegal value for configuration data for axis-specific path synchronization tolerance based on setpoint
6022	Illegal value for configuration data driveControlConfig.releaseDisableMode (RELEASE_DISABLE drive behavior error response)
6023	Illegal value for configuration data of velocity type with master value extrapolation of actual values
6024	Illegal value for configuration data TypeOfAxis.Homing.direction, 'Approach direction during homing'
6025	Illegal value for configuration data TypeOfAxis.Homing.beroDistance, 'Maximum distance to the homing output cam'
6026	Illegal value for configuration data for Synchronous operation error message at master value

6027	Illegal value for the configuration data TypeOfAxis.DecodingConfig.directionDynamic
6028	Illegal value for the configuration data TypeOfAxis.DecodingConfig.behaviourAtTheEndOfProfile
6029	Illegal value for the configuration data TypeOfAxis.DecodingConfig.decodeSequentialMotionCommand
6030	Illegal value for the configuration data TypeOfAxis.DecodingConfig.transferSuperimposedPosition
6031	Illegal value for the configuration data TypeOfAxis.DecodingConfig.speedModeSetPointZero
6032	Illegal value for the configuration data TypeOfAxis.DecodingConfig.stopWithJerk
6033	Illegal value for the configuration data TypeOfAxis.DecodingConfig.disableMotionOperation
6034	Illegal value for the configuration data TypeOfAxis.DecodingConfig.profileDynamicsLimiting
6035	Illegal value for the configuration data TypeOfAxis.DecodingConfig.cyclicSetUpInForceLimiting
6036	Illegal value for the configuration data TypeOfAxis.Homing.enableBeroDistance
6037	Illegal value for the configuration data TypeOfAxis.Homing.referencingNecessary
6038	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableLifeSignMonitoring
6039	Illegal value for the configuration data TypeOfAxis.DistributedMotion.numberOfLifeSignFailures
6040	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableDelayOfCommandValueOutput
6041	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableOffsetCompensation
6042	Illegal value for configuration data driveControlConfig.pulsesEnabledEvaluation (axis behavior for drive-independent stop response)
6050	Illegal value for the configuration data driveControlConfig.dataAdaption
6051	Illegal value for the configuration data driveControlConfig.disableModeSpecification
6043	Illegal value for the configuration data TypeOfAxis.ControllerSwitchData.NumberOfDigitalInputs.number
6044	Illegal logical address of the digital input in the configuration data structure TypeOfAxis.ControllerSwitchData.NumberOfDigitalInputs.DigitalInput_x
6045	Illegal value for configuration data for maximum deceleration
7000	Illegal data in process model configuration
2045	Evaluation of the PulsesEnabled bit (pulsesEnabledEvaluation = YES) is not possible in telegram 1 (telegramType = DP_TEL1_STANDARD).
2046	Evaluation of the PulsesEnabled bit (pulsesEnabledEvaluation) is not carried out when using DSDB.

Additional information:	More detailed description of the error origin
Meaning for category 3	Number of the data set on the technology object for which the alarm was issued
Meaning for category 4	Not relevant
Meaning for category 5	Number of the encoder on the technology object that did not issue the alarm

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT

Remedy

Change the configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

20012 Restart not carried out (reason: /1/%d)

Cause

Technology object could not be restarted.

Meaning of alarm parameters

Reason:	
1	The technology object configuration does not allow a restart with the restart system variable.
2	The technology object is not ready to be restarted.
3	A configured condition for restarting the technology object is not met (e.g. technology object must be 'disabled').
4	Restart was not performed with the last programmed configuration of the technology object because this is faulty
5	The configuration of the technology object does not permit any restart.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Reason:	
1	Initiate the restart using the reset command.
2	Reload the project.
3	Work around the cause stated in the Reason parameter, or reload the project.
4	Determine whether technological alarms were reported or error entries were made in the device diagnostics and, if necessary, remedy the cause.
5	Change the configuration to activate the appropriate restart capability.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

20014 Under logical address: /1/%d (optional log. address: /2/%d and bit no.: /3/%d of the enable output), a driver (type: /4/%d) could not be requested

Cause

The driver of a physical device is not available or is being used by another technology object.

The enable command for the technology object has been issued more than once with the 'immediately' stepping condition.

Meaning of alarm parameters

Logical address:	This is the address of the actuator driver configured on the technology object.
Logical address and bit number:	This specifies the address and bit number of the output enable bit.

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	DINT

Remedy

- Do not call the enable command cyclically "call the enable command only once for the axis enable".
- Check that the logical device was available at the time of the request or whether it was being used by another technology object.
- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

RELEASE_DISABLE

Diagnostics buffer entry

Yes

20015 Device type:/3/%d, log. address:/1/%d faulted. (Bit:/2/%d, encoder number:/5/%d, reason: 0x/4/%Xh)

Cause

The driver of a physical device or the device itself has failed or is faulty.

If this alarm occurs, the cause of the error must be evaluated in the external device (drive or encoder).

Meaning of alarm parameters

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver
12	Safety data block driver
13	Update counter
14	Operating characteristics data block driver

Logical address:	This is the logical input address configured on the technology object.
Bit number:	For bit driver type = 3 or 4 only; number of the bit
Encoder number:	Number of the encoder in case of telegrams with multiple encoders. Applies only when type = 2.
Reason:	0 - only defined when type = 2

Note

Addition of error messages

The codings for the reason of the failure specified below for the individual alarm types can also occur in combination. A group coding is indicated as the sum of several individual codings (e.g. 0x0005 = 0x0001 + 0x0004).

A failure reason labeled with DP can occur only for PROFIBUS devices.

Type = 1	
0x0001h	Fault message from the drive (note: for PROFIBUS drives, which support acyclic communication in accordance with PROFIdrive V3, the error number(s) of the drive are displayed in the diagnostic buffer, e.g. for Masterdrives MC)
0x0002h	DP: Drive signal "control requested" failed
0x0004h	DP: Drive disconnected itself
0x0008h	Slot for drive data is not available in the project
0x0010h	Actuator driver does not have a connection to the drive data
0x0020h	Actuator driver was not initialized during ramp-up
0x0080h	DP: Difference between configuration data and drive parameters (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	DP: Control signals to the PROFIdrive state machine were incorrectly specified
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
0x8000h	DP: Life-sign of drive has malfunctioned or failed
0x80000000h	The drive interface has been deactivated for the pending enables.
Type = 2	
0x0000h	The actual value changes exceed the limit value derived from the maximum velocity (configuration data TypeOfAxis.MaxVelocity.maximum) over multiple cycles. This monitoring can be activated or deactivated with configuration data TypeOfAxis.NumberOfEncoders.Encoder_x.AbsEncoder.enableAbsMonitoring.
0x0001h	Alarm message from encoder (note: the encoder error number(s) are displayed in the diagnostic buffer)
0x0002h	General hardware error of encoder
0x0004h	Encoder is dirty
0x0008h	Slot for encoder data is not available in the project
0x0010h	Encoder driver does not have a connection to the encoder data
0x0020h	Encoder driver was not initialized during ramp-up
0x0040h	Error when reading the absolute value of the encoder
0x0080h	DP: Difference between the configuration data and the encoder parameters Onboard C2xx: Inconsistency of the configuration data (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	Zero mark monitoring of encoder
0x0200h	DP: Encoder has gone to Parked state
0x4000h	DP: Encoder on bus failed (station failure)

0x8000h	DP: Life-sign of encoder has malfunctioned or failed. (note: for an encoder whose data are transferred in a drive telegram together with actuator data, the actuator life-sign applies to the encoder, e.g. for standard telegram 3 in accordance with PROFIdrive)
0x80000000h	The sensor interface has been deactivated for the pending enables.
Type = 3...6	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 7	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 8	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 9	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 10	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 11	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 12	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 13	
0x1h	The actual value was specified via a system variable and the permissible number of failure cycles was exceeded
0x2h	The actual value was updated with an update counter in the I/O area and the permissible number of failure cycles was exceeded

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

The remedy for the respective type and cause is described below.

Type 1

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- A system fault may be present. Call the hotline.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- When sign-of-life monitoring is set: Ensure that in HW Config for drive under DP slave properties - isochronous operation - drive, the "synchronize to equidistant DP cycle" field is activated.
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
- Up to SIMOTION RT V4.3: If the alarm occurs after the download on a drive with telegram 999: Compare the parameterized bit position for the "Pulses enabled" status signal in drive parameter p924 with the configuration data 'DriveControlConfig.PulsesEnabled' of the TO axis. In this case, there is not necessarily an incorrect parameterization and therefore a check cannot be performed by the system because of the BICO interconnection. Therefore, make sure that the Pulses enabled bit is in the correct position.

For reason 0x0100

- Correct your user program with regard to PROFIdrive-compliant specification of control bits in the `_enable/disableAxis` commands, e.g. control signal OFF (STW1.0 = false) must precede a drive connection.

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 2For reason 0x0000

- Check the absolute encoder functions, connections and configuration. Take note of this when monitoring is deactivated (not with Alarm 20015).

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- Make sure that the user program does not reference a technology object containing an encoder (Axis, External Encoder) with an '_enableaxis' or '_enableexternalencoder' command while system variable 'sensordata.sensordata[n].state' is signaling invalid.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0040

- Compare the encoder type in the drive or encoder parameter P979 with the configuration data of the technology object.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
 - Compare the encoder type, resolution, shift factor, and, in the case of absolute encoders, the number of rotations in the drive or encoder parameter P979 to the encoder type, resolution, fine resolution, and, in the case of absolute encoders, the data length in the configuration data of the technology object.
- When using telegram 999, this message always appears, as the bit position is not checked by the system in this case, but has to be performed by the user.

For reason 0x0100

- Check the device functions, connections and wiring.

For reason 0x0200

- Find the cause of the error in the connected drive or encoder. Check whether the alarm was triggered due to a commissioning operation on the drive or encoder.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 3 - Type 6

For reason 0x0000

- Check the configuration and the signal paths of the connection.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 7

For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 8

For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 9

For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 10

For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 11 - Type 12

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring. If the error cannot be acknowledged when the axis is in simulation mode, check whether the technology data block is activated, and if this is the case, deactivate it.

Type 13For reason 0x1

- Check the specification of the actual value with regard to function, configuration, and task configuration.

For reason 0x2

- Check the device functions, configuration, connections and wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

Yes

20016 Under logical address: /1/%d (bit number, if required: /2/%d) no driver (type: /3/%d) activated (error number: /4/%d)

Cause

The driver of a physical device or the device itself is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT

Remedy

- Check the activation/deactivation sequence for the interface.
- Note the runtimes of the commands and use the provided command control mechanisms (e.g. `nextCommand := WHEN_COMMAND_DONE`).
- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP
OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

Yes

20017 Internal algorithm error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Error source
Parameters 2 to 4:	Fault number

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact:

SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

RELEASE_DISABLE

Diagnostics buffer entry

Yes

20018 Attempt to write the bit(s): 0x/1/%Xh in control word1 or the bit(s): 0x/2/%Xh in control word2 under the log. address: /3/%d has been rejected.

Cause

An attempt to write certain bits in control word 1 or 2 has been rejected.

Meaning of alarm parameters

Bits:	Display of bits which could not be written
Log. address:	Logical address of the device driver

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT

Remedy

- Check the order of commands, particularly in relation to `_enableAxis(...)`.
- Check the command parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP
OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

Yes

20019 Error for the commissioning, reason: /1/%d (Parameter1: /2/%d, Parameter2: /3/%d)

Cause

A commissioning function could not be executed.

Meaning of alarm parameters

Reason:	
1	Failure of the life-sign between controller and SIMOTION SCOUT
2	Protocol error
3	Command decoding error

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT
2	UDINT
3	UDINT

Remedy

Reason:	
1	Check the connection properties. If required, increase the monitoring time.
2	Should a system error of this type occur, note the alarm number, the alarm text and the specified alarm parameters, and contact: SIEMENS AG I DT MC, Hotline.
3	Should a system error of this type occur, note the alarm number, the alarm text and the specified alarm parameters, and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / NONE

Preassignment for local reactions

NONE

Settable local reactions

NONE MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP
OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

Yes

20020 Output deactivated**Cause**

One or more outputs of the technology object have been deactivated. This is caused by the output-disable device status.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

20021 Configuration will be adapted internally (category: /1/%d, reason: /2/%d, limited value: /3/%f, additional information: /4/%d)

Cause

This alarm shows the implicit setting of configuration data to the maximum possible values. The technology objects perform a plausibility check on the configuration. Errors/manipulations are identified by the error codes below.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of configuration data
2001	Illegal value for maxSpeed (maxSpeed less than or equal to 2*nominalSpeed; maxSpeed will be set to 2*nominalSpeed)
2002	Illegal value for maxTorque/Force (maxTorque/Force less than or equal to 2*nominalTorque/Force; maxTorque/Force will be set to 2*nominalTorque/Force)
2003	Error during the adaptation of the Torque-/ForceReductionGranularity. p1544 is ignored and the default value used.
3001	The length of the backlash on reversal is limited to a permitted value (Encoder_N.incBacklash.length or Encoder_N.absBacklash.length).
3002	The compensation velocity of the backlash on reversal is limited to a permitted value (Encoder_N.incBacklash.velocity or Encoder_N.absBacklash.velocity).
3003	The value of the configuration data for the encoder system (.Encoder_N.encoderSystem) is limited to a permitted value.
3004	The value of the configuration data for the encoder resolution (rotary: .Encoder_N.incEncoder.incResolution, Encoder_N.absEncoder.absResolution; linear: Encoder_N.Resolution.distance) is limited to a permitted value.
3005	The value of the configuration data for the multiplication factor of the cyclical actual value (.Encoder_N.incEncoder.incResolutionMultiplierCyclic, Encoder_N.absEncoder.absResolutionMultiplierCyclic, Encoder_N.Resolution.multiplierCyclic) is limited to a permitted value.
3006	The value of the configuration data for the multiplication factor of the absolute value (Encoder_N.absEncoder.absResolutionMultiplierAbsolute) is limited to a permitted value.
3007	The value of the configuration data for the data length of the absolute value (Encoder_N.absEncoder.absDataLength) is limited to a permitted value.
3008	The value of the configuration data for the reference value of the Nact speed in the PROFIdrive telegram (Encoder_N.sensorNist.referenceValue) is limited to a permitted value.
3009	The load gear factor of the first data set is leading for the encoder simulation. The simulation with different load gear factors is not supported. The value of the configuration data for the load gear (DataSet_N.gear) is limited to the load gear ratio of the first data set.
4001	The delay time for the triggering of the standstill signal (StandStillSignal.delayTimeToActivate) is limited.
4002	The delay time until the position monitoring tolerance window is reached (PositionMonitoring.posWinToITime) is limited.
4003	The delay time until the activation of the position monitoring message (PositionMonitoring.posWinToIDelayTime) is limited.
4004	The delay time for the activation of the standstill monitoring message (StandStillMonitoring.delayTimeToActivate) is limited.
4005	The delay time of the actual value of the force/pressure entry monitoring (ForceControlRunningInWindowMonitoring.winToITime) is limited.
4006	The delay time until activation of the force/pressure entry monitoring (ForceControlRunningInWindowMonitoring.maxDelayTime) is limited.
4007	The delay time until activation of the force/pressure end value monitoring (ForceControlHeldValueMonitoring.delayTimeToActivate) is limited.

4008	The delay of the emergency ramp generator (EmergencyRampGenerator.maxDeceleration) is too small and set to the minimum possible value.
4009	The decay time constant of the friction compensation (Friction.decayTime) is limited.
4068	The maximum buffer length of the lag element in the balancing filter (Mode_2) is reached or exceeded. The lag element (maximum buffer length: 16 servo-cycles) is augmented by a PT1 element.
4069	The maximum buffer length of the lag component of the dynamic response compensation is reached or exceeded. The maximum value of this time constant is limited to 16 servo cycles. The buffer length of the lag element is maximum 16.

Additional information:	More detailed description of the error origin
Meaning for category 4	Not relevant
Meaning for category 5	Number of the encoder on the technology object that issued the alarm

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	LREAL
4	UDINT

Remedy

2001	Correct the reference value in the drive to $\text{maxSpeed(Velocity)} / 2$.
2002	Correct the reference value in the drive to $\text{maxTorque(Force)} / 2$.
2003	Set the reference value in the drive to 0x64 or 0x4000.
3001	Change the configuration data
3002	Change the configuration data
3003	Change the configuration data
3004	Change the configuration data
3005	Change the configuration data
3006	Change the configuration data
3007	Change the configuration data
3008	Change the configuration data
3009	Change the configuration data
4001	Change the configuration data
4002	Change the configuration data
4003	Change the configuration data
4004	Change the configuration data
4005	Change the configuration data
4006	Change the configuration data
4007	Change the configuration data
4008	Change the configuration data
4009	Change the configuration data
4068	Change the configuration data
4069	Change the configuration data

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP
OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

20022 **Error occurred while modifying the configuration (category: /1/%d, reason: /2/%d, additional information: /3/%d, parameter: /4/%d)**

Cause

This alarm indicates error conditions when modifying the configuration on the device.
 The configuration on the device is not modified when this alarm is issued.

Meaning of alarm parameters

Category:	Area in which the error occurred
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Reason:	Specification of the error
1	Adaptation of the configuration of the actuator or encoder without active drive interface is not possible
2	The actuator or the encoder is not assigned to any SINAMICS drive device
3	A parameter does not exist or its value either cannot be read or lies outside the permitted limits.
4	The adaptation of the actuator or encoder has not been activated
5	The reading of the parameters has been aborted because of a fault reported by the hardware
6	The adaptation is already active on the actuator or encoder
7	The modified configuration is activated only for reset TO enables.
8	The adaptation requires speedReference = NOMINAL_VALUE.
9	The adaptation requires torque/forceReference = NOMINAL_VALUE.
10	The enables are deleted by means of the adaptation
11	The adaptation is aborted due to a lack of resources.

Additional information:	More detailed description of the error origin
Meaning for category 4	Not relevant
Meaning for category 5	Number of the encoder on the technology object that issued the alarm

Parameters:	parameter affected when parameter error detected (reason = 3)
0	The read parameters are valid, but it was not possible to derive a consistent configuration.
1	Maximum speed/velocity (p1082)
2	Maximum torque/force (p1520)
3	Maximum torque/force (p1521)
4	Fine resolution of torque/force reduction (p1544)
5	Rated speed/velocity, reference velocity (p2000)
6	Rated torque/force (p2003)
7	Encoder system (r0979[1/11].0)
8	Encoder resolution (r0979[2/12])
9	Encoder fine resolution Gx_XIST1 (r0979[3/13])
10	Encoder fine resolution Gx_XIST2 (r0979[4/14])
11	Number of resolvable encoder revolutions (r0979[5/15])

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT
4	UDINT

Remedy

- For reason 1: Activate the drive interface of the actuator or affected device with `_enableAxisInterface()`.
- For reason 4: Activate the adaptation of the configuration for the actuator using `'TypeofAxis.Drivecontrolconfig.dataAdaption = YES'` or for an encoder using `'Encoder_N.encoderMode = PROFIDRIVE'`.
- For reason 6: Wait until completion of the active adaptation of the configuration for the actuator or encoder. Consider the current status of the adaptation in the `'actorData.dataAdaption'` or `'sensorData[N].dataAdaption'` system variable on the technology object.
- For reason 10: The enables must be deleted before calling the adaptation command.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP
OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

20023 Under logical address: /1/%d (bit number, if required: /2/%d) no I/O (type: /3/%d) are available (error number: /4/%d)

Cause

A physical device is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

RELEASE_DISABLE

Diagnostics buffer entry

Yes

20024 Under logical address: /1/%d (bit number, if required: /2/%d) no I/O (type: /3/%d) are available (error number: /4/%d)

Cause

A physical device is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

RELEASE_DISABLE

Diagnostics buffer entry

Yes

20025 Inconsistency between the TO and the drive/encoder configuration (category: /1/%d, additional information: /2/%d, reason: /3/%d)

Cause

An inconsistency has been detected between the drive/encoder configuration and the configuration of the technology object.

Meaning of alarm parameters

Category:	Area in which the error occurred.
4	Manipulated variable output
5	Encoder system

Additional information:	More detailed description of the error origin
Category 4	Not relevant
Category 5	Number of the encoder at which the inconsistency was detected

Reason:	Description of reason for error
91	The message length configured for the SSI encoder (Encoder_N.absEncoder.absMessageLength) is invalid.
92	The message format configured for the SSI encoder (Encoder_N.absEncoder.absMessageFormat) is invalid.
93	The encoder resolution configured for the SSI encoder (Encoder_N.absEncoder.absResolution) is invalid. The encoder resolution must be greater than one increment per encoder revolution.
94	The configured data width (Encoder_N.absEncoder.absDataLength) for the RIGHT_MARGIN message format configured on the SSI encoder (Encoder_N.absEncoder.absMessageFormat) is too large for the configured message length Encoder_N.absEncoder.absMessageLength).
95	The configured encoder resolution (Encoder_N.absEncoder.absResolution) for the RIGHT_MARGIN message format configured on the SSI encoder (Encoder_N.absEncoder.absMessageFormat) is larger than the encoder resolution which can be displayed by the configured data width (Encoder_N.absEncoder.absDataLength).
96	The configured encoder resolution (Encoder_N.absEncoder.absResolution) for the PINETREE message format configured on the SSI encoder (Encoder_N.absEncoder.absMessageFormat) is larger than the encoder resolution which can be displayed by the configured message length (Encoder_N.absEncoder.absMessageLength).
97	The encoder resolution which can be displayed by the configured data width (Encoder_N.absEncoder.absDataLength) for the PINETREE message format configured on the SSI encoder (Encoder_N.absEncoder.absMessageFormat) is larger than the configured data resolution (Encoder_N.absEncoder.absResolution).
100	The cycle clock period of the master application cycle (HW Config) is not identical to that of the servo cycle.
101	The processing cycle clock of the technology object is not identical to the application cycle of the drive.
110	The configured telegram type (SetPointDriverInfo.telegramType) is not compatible with the telegram type at the drive (P922).
111	The configured PZD number for the pulse enable signal (DriveControlConfig.pulsesEnabled.pzdNumber) is not consistent with the PZD number configured at the drive (P924).
112	The configured bit number for the pulse enable signal (DriveControlConfig.pulsesEnabled.bitNumber) is not consistent with the bit number configured at the drive (P924).
200	The cycle clock period of the master application cycle (HW Config) is not identical to that of the servo cycle.
201	The processing cycle clock of the technology object is not identical to the application cycle of the drive.
210	The configured telegram type (Encoder_N.driverInfo.telegramType) is not compatible with the telegram type at the drive (P922).
211	The encoder at the drive is not an absolute encoder (P979).
212	The configured encoder resolution (Encoder_N.absEncoder.absResolution, Encoder_N.incEncoder.incResolution) is not consistent with the encoder resolution configured at the drive encoder (P979).

213	The configured fine resolution for Gx_XIST1 (Encoder_N.absEncoder.absResolutionMultiplierCyclic, Encoder_N.incEncoder.incResolutionMultiplierCyclic, Encoder_N.Resolution.multiplierCyclic) is not consistent with the fine resolution configured at the drive encoder (P979).
214	The configured fine resolution for Gx_XIST2 (Encoder_N.absEncoder.absResolutionMultiplierAbsolute) is not consistent with the fine resolution configured at the drive encoder (P979).
215	The configured number of resolvable revolutions of the absolute encoder (Encoder_N.absEncoder.absDataLength minus Encoder_N.absEncoder.absResolution) is not consistent with the number of resolvable revolutions configured at the drive encoder (P979).
216	The configured format of the actual speed value is not supported (P65001).

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	DINT

Remedy

General	Check whether the false setting in the parameterization of the I/O device or in the configuration of the SIMOTION technology object is warranted. For PROFIBUS drives or encoders, compare the hardware configuration, the configuration of the technology object, and the drive parameter assignment.
Reason 91 ff.	Use the axis wizard or the expert list to adapt the configuration of the encoder at the technology object to the parameter assignment of the encoder connected to the drive and reload the project. Note the information on the onboard encoder interface on the SIMOTION C2xx in the Axis Function Manual.
Reason 100, 200	Compare the cycle clock parameters in the hardware configuration (PROFIBUS line, Slave OM for drive or encoder) and the execution system. The master application cycle and the servo must be set to the same cycle clock period.
Reason 101, 201	Compare the processing cycle clock of the technology object and the application cycle of the drive or encoder. Drives or encoders in the "Servo" application cycle can only run in the "Servo", "Ipo", or "Ipo2" processing cycle clock. The "FastServo" and "FastIPO" processing cycle clocks can only be used for drives or encoders with the "FastServo" application cycle.
Reason 110, 210	Compare the telegram type in the drive or encoder parameter p922 with the telegram type configured at the actuator or sensor of the technology object.
Reason 111, 112	The setting for the pulses enabled signal at the 'Axis' technology object (TypeOfAxis.DriveControlConfig.pulsesEnabled) does not match drive parameter p924. The position of the pulses enabled signal in the drive telegram is configured in both places. Note that in the configuration data of the TO, the number of the PZD is indicated in the telegram, but parameter r924 contains the signal number according to PROFIdrive. If the signal number is set to '0' in parameter p924, an entry is made in the diagnostics buffer regardless of the setting at the technology object.
Reason 211 ff.	Use the axis wizard or the expert list to adapt the configuration of the encoder at the technology object to the parameter assignment of the encoder connected to the drive and reload the project. Note the encoder parameter assignment in drive parameter P979.
Reason 216	Convert the format for N-act in the connected external encoder.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP
OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

Yes

30001 **Illegal parameter (parameter index according to standard sequence in the system functions: /1/%d, command type: /4/%X)**

Cause

Illegal parameter transfer to a system function. The command is not executed. This alarm occurs when the permissible parameter value range is violated. The permissible value range of the parameter is a function of its data type and the technological meaning of the parameter.

The parameter index indicates the position of the illegal parameter. The standard sequence of parameters in the system functions is apparent from the reference list associated with the command. The command type indicates the type of the faulty system function.

Meaning of alarm parameters

Parameter index:	Index of the system function parameter that triggered this error (listed according to the standard sequence in the system functions).
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the value range of the parameter data type.
- Check the technological meaning of the parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30002 Command aborted (reason: /1/%d, command type: /4/%X)**Additional references**

Further information is provided in the Function Manual:

- Basic Functions and
- in the online help.

Cause

The command was aborted before or during execution.

This can be caused by:

- A substituted command
- Command buffer reset
- Error state

Note

This alarm is always output, e.g. for jogging (`_move` aborted with `_stop`) or for the retraction of the reference BERO for homing or when Synchronous operation (explicitly) deactivated.

Meaning of alarm parameters

Reason:	
1	Reset of the command buffer
2	Abort by another command
3	Abort by a stop
4	Abort by a higher-order stop
5	Abort by a pending error response
6	Abort due to ambiguous commandId
7	Acknowledgement delay
8	No actual value for axis/external encoder (e.g. encoder or data bus not ready)
9	Abort due to abort of a dependent command
10	Abort due to active Synchronous operation
11	Abort due to active superimposed motion
12	Abort due to active speed-controlled controller mode
13	Abort due to active position-controlled controller mode
14	Abort due to active travel to fixed end stop
15	Axis is not in pressure-limiting operation
16	Abort due to active pressure-controlled operation
17	Abort due to inactive pressure-controlled operation
18	Superimposed command is not permitted
19	Abort due to error during cam access
30	Axis is in pressure-limiting operation
31	Maximum number of active commands exceeded

33	Action only permissible in standstill
41	Command parameter became invalid during processing
42	No interconnection to a technology object
43	Abort due to a Cancel command in the user program
44	Abort because of a pending command with identical command parameters
52	Abort because enables are set
53	Abort because of running adaptation of drive data
55	Abort on the basis of internal limits.
56	Abort on the basis of active Safety Function.
57	Abort on the basis of active motion.

Command type:	Outputs the aborted command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Set up the command again via program.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30003 Command aborted because of full command buffer (command type: /4/%X)

Cause

The command is not entered in the command buffer because the buffer is already full.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the program flow.
- Typical cause: The 'nextCommand' parameter is passed with the value 'IMMEDIATELY', and the 'mergeMode' parameter is passed with the value 'SEQUENTIAL'.
 - Synchronize the command execution in the user program so that the command buffer is not occupied when the command is issued.
 - Use other values for the 'nextCommand' or 'mergeMode' parameters. Setting the "nextCommand" to a value other than 'IMMEDIATELY' causes the program to wait for the command buffer to become available. In addition, setting a different 'mergeMode' means that the command buffer can be overwritten.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

30004 Command is not defined for this technology object type (command type: /4/%X)

Cause

Command was programmed on a technology object type not supporting processing of this command.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Issue the command on the correct technology object type.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30005 Ambiguous commandId (number of commands with the specified ID: /1/%d, command type: /4/%X)

Cause

The specified commandId refers to more than one command. The specified action is performed for the command matching the specified ID that has been in the interpolator for the longest time.

If no corresponding command is found in the interpolator, the action refers to the next command loaded in the interpolator.

Meaning of alarm parameters

Id:	Number of commands referenced by the specified command ID.
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Use a different 'commandId' for commands that are active simultaneously.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

30006 Command cannot be executed because of the current object state (command type: /4/%X)**Cause**

A reset command is active at the object or the object is deactivated.

For axes only:

A `_stopEmergency` command is active at the object and a `_stopEmergency` command is sent with a different parameter assignment which will thus not take effect.

For axes with force control or force limitation only:

Superimposed force control is not possible in the current object state.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the following:

- Check the object status.
- Check the possible execution sequence of the programmed commands.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30007 The error cannot be reset because of its configuration

Cause

The 30007 alarm will be output when an alarm is reset that can only be acknowledged with PowerOn.

Example:

The internal 20001 error can only be acknowledged with PowerOn.

If an attempt is made to reset the alarm with a `_reset...Error` command, the 30007 alarm will be output.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check whether the errors present on the technology object can be acknowledged.

Correct the cause of the error and switch the CPU off/on or load the project again.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

30008 **Link to a technology object necessary for this operation does not exist (command type: /4/%X)**

Cause

The object connection required for this operation has not been configured or the connected technology object has been deactivated.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the project configuration.
- Change the object connection in the command.
- Activate the connected technology object.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30009 **Command rejected as the decoding of the command of the technology object addressed has been deactivated/stopped (reason: /1/%d, command type: /4/%X)**

Cause

Command was rejected due to suspension of command decoding on the addressed technology object. The command decoding can be stopped by the DECODE_STOP alarm response, by deactivating or restarting the technology object, by starting the axis control panel in exclusive mode or by the absence of necessary interconnections.

Meaning of alarm parameters

Reason:	
1	Restart of the technology object
2	Technology object is deactivated
3	Technology object is in RUN mode.
4	Control panel active

Command type:	Outputs the type of the rejected command. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check why the command was rejected.
- If necessary, acknowledge any active errors once you have corrected the cause of the error.
- If the technology object is deactivated, you must activate it.
- Do not issue any commands while the technology object is restarting.
- Do not issue any commands while a connected technology object is restarting.
- Stop the axis control panel.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30010 Command not available (command type: /4/%X)

Cause

The command is not available in this version of the runtime software.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the version of the runtime software.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30011 **Parameter not available (parameter index according to the standard sequence in the system functions: /1/%d, command type: /4/%X)**

Cause

The parameter is not available in this version of the runtime software, the command is therefore rejected. The parameters indicate the position according to the standard sequence in the system functions and the command type of an incorrectly entered parameter.

Meaning of alarm parameters

Parameter index:	Index of the command parameter triggering this error according to the standard sequence in the system functions.
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the version of the runtime software.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30012 Command cannot be started synchronously (command type: /4/%X)

Cause

The command cannot be used within a 'BEGIN_SYNC' or 'END_SYNC' sequence. The command has only one return value in the user program, or the command is not capable of starting synchronously.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Do not use this command type during a BEGIN_SYNC, END_SYNC sequence.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

30013 Synchronous start of the command is carried out with mergeMode IMMEDIATELY (command type: /4/%X)

Cause

With synchronous command start, only merge modes that immediately override the current command (IMMEDIATELY) and superimpose the current command (SUPERIMPOSED_MOTION_MERGE) can be used.

If an illegal merge mode is programmed (e.g. SEQUENTIAL or NEXT_MOTION), the system automatically changes the merge mode to IMMEDIATELY and outputs this warning.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Program the command which is to be started synchronously to immediately override the current command. To do this, enter the value IMMEDIATELY in the 'mergeMode' command parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30014 **Coordinate system has not been offset because the internal traversing range limit was exceeded (Parameter1: /1/%d, command type: /2/%X)**

Cause

The programmed coordinate system offset causes the internal traversing range limit to be exceeded. The coordinate system is not offset.

Meaning of alarm parameters

Parameter 1:	
0	Negative internal traversing range limit
1	Positive internal traversing range limit

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	UDINT

Remedy

Check the programming for the coordinate system offset.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

30015 A technology required for this command has not been configured (technology: /1/%d, command type: /4/%X)

Cause

The command cannot be selected in this technology object configuration.

Meaning of alarm parameters

Technology:	
1	Axis with force/pressure control without flow/force specification
2	Axis with force/pressure control and flow/force specification
3	Axis without flow/force specification
4	Axis with flow/force specification
5	Axis with force specification
6	Axis with pressure setpoint specification
7	Axis with pressure limiting
8	Axis with speed limiting parallel to force/pressure control
9	Axis with flow specification
10	Do not use encoder simulation
11	Do not use a hydraulic axis

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Activate the technology needed for the command.

Technology:	
1	Select the 'REAL_AXIS_WITH_PRESSURE_CONTROL' mode in the 'TypeOfAxis' configuration data.
2	Select the 'REAL_QP_AXIS_WITH_CLOSED_LOOP_FORCE_CONTROL' mode in the 'TypeOfAxis' configuration data.
3	Select the 'VIRTUAL_AXIS', 'REAL_AXIS', or 'REAL_AXIS_WITH_FORCE_CONTROL' mode in the 'TypeOfAxis' configuration data.
4	Select the 'REAL_QPAXIS', 'REAL_QP_AXIS_WITH_OPEN_LOOP_FORCE_CONTROL', or 'REAL_QP_AXIS_WITH_CLOSED_LOOP_FORCE_CONTROL' mode in the 'TypeOfAxis' configuration data.
5	Select the 'REAL_QP_AXIS_WITH_OPEN_LOOP_FORCE_CONTROL' mode in the 'TypeOfAxis' configuration data.
6	Select the 'REAL_AXIS_WITH_PRESSURE_CONTROL' or 'REAL_QP_AXIS_WITH_CLOSED_LOOP_FORCE_CONTROL' mode in the 'TypeOfAxis' configuration data.
7	Select the 'REAL_AXIS_WITH_PRESSURE_CONTROL', 'REAL_QP_AXIS_WITH_OPEN_LOOP_FORCE_CONTROL', or 'REAL_QP_AXIS_WITH_CLOSED_LOOP_FORCE_CONTROL' mode in the 'TypeofAxis' configuration data.
8	Select the 'REAL_QP_AXIS_WITH_CLOSED_LOOP_FORCE_CONTROL' mode in the 'TypeOfAxis' configuration data.
9	Select a mode with flow specification in the 'TypeOfAxis' configuration data.
10	Select a mode that is not used for simulation of an encoder (TM41) in the 'TypeOfAxis' configuration data.
11	Select a mode without hydraulics in the 'TypeOfAxis' configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

40001 Illegal state change of axis**Cause**

The command for the axis state change could not be executed because:

- The operating mode phase is not yet complete
- The operating transition is not possible

Remedy

The operating mode phase is not yet complete	Repeat the command.
Operating transition not possible	Reset the system first.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

Yes

40002 Programmed velocity is limited

Cause

- The system is limiting the programmed velocity to the maximum permissible velocity.
- For a master axis with modulo range, the velocity is limited to a value which allows certain detection of the direction within an IPO cycle (half the modulo length).

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40003 Programmed acceleration (type: /1/%d) is limited**Cause**

The system is limiting the programmed acceleration to the maximum permissible acceleration.

Meaning of alarm parameters

Type:	
0	Positive acceleration
1	Negative acceleration/deceleration

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40004 Programmed jerk (type: /1/%d) is limited

Cause

The system is limiting the programmed jerk to the maximum permissible jerk.

Meaning of alarm parameters

Type:	
0	Increase in positive acceleration
1	Reduction in positive acceleration
2	Increase in negative acceleration/deceleration
3	Reduction in negative acceleration/deceleration

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

40005 Missing enable(s) (Parameter1: /1/%X) and/or incorrect mode (Parameter2: /2/%d)**Cause**

The enables are missing for a pending motion command and/or the axis follow-up mode is active.

Meaning of alarm parameters

Parameter1:	
Bit 1 =	0: POWER enable is available
	1: POWER enable is missing
Bit 2 =	0: DRIVE enable is available
	1: DRIVE enable is missing
Bit 3 =	0: Position controller enable is available
	1: Position controller enable is missing
Bit 4 =	0: Force/pressure controller enable is available
	1: Force/pressure controller enable is missing
Bit 5 =	0: Separate P-output enable is available
	1: Separate P-output enable is missing
Bit 7 =	For the output of bit 7, the enables are missing for: - Bit 1 POWER - Bit 2 DRIVE and - Bit 3 position controller.

Parameter2:	
0	Follow-up mode is deselected
1	Follow-up mode is selected

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	DINT

Remedy

Activate the enables before issuing a motion command.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

40006 Programmed velocity is zero

Cause

The programmed velocity is zero. The specified motion cannot be executed.

Remedy

Program a value other than zero. If USER_DEFAULT is referenced, a value not equal to zero must be programmed in the assigned system variable.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40007 Programmed acceleration (type: /1/%d) is zero**Cause**

The programmed acceleration is zero. The specified motion cannot be executed.

Meaning of alarm parameters

Type:	
0	Positive acceleration
1	Negative acceleration/deceleration

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Program a value other than zero. If USER_DEFAULT is referenced, a value not equal to zero must be programmed in the assigned system variable.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40008 Programmed jerk (type: /1/%d) is zero

Cause

The programmed jerk is zero. The specified motion cannot be executed.

Meaning of alarm parameters

Type:	
0	Increase in positive acceleration
1	Reduction in positive acceleration
2	Increase in negative acceleration/deceleration
3	Reduction in negative acceleration/deceleration

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Program a value other than zero. If USER_DEFAULT is referenced, a value not equal to zero must be programmed in the assigned system variable.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40009 Velocity limit is zero**Cause**

The programmed velocity limit is zero. The specified motion cannot be executed.

Remedy

Program a value other than zero in the dynamic limit values.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

40010 Acceleration limit (type: /1/%d) is zero

Cause

The programmed acceleration limit is zero. The specified motion cannot be executed.

Meaning of alarm parameters

Type:	
0	Positive acceleration
1	Negative acceleration/deceleration

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT

Remedy

Program a value other than zero.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

40011 Programmed jerk limit (type: /1/%d) is zero**Cause**

The programmed jerk limit is zero. The specified motion cannot be executed.

Meaning of alarm parameters

Type:	
0	Increase in positive acceleration
1	Reduction in positive acceleration
2	Increase in negative acceleration/deceleration
3	Reduction in negative acceleration/deceleration

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Program a value other than zero.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

40012 Dynamic limitations (type: /1/%d) are being violated**Cause**

The specified dynamic limitations are being violated. This can occur due to:

- Programming of substituted jerk-controlled motions with extremely divergent dynamic parameters, which would lead to an additional reversing motion, reducing the current acceleration.
- Programming of superimposed motions exceeding the resulting dynamic parameters, which would lead to overshoot or to a reversing motion when limited to the maximum velocity or when entering final velocity.

One or more physical variables (velocity, acceleration, jerk) may be affected. The violations have only a temporary effect.

Meaning of alarm parameters

Type:	
0	The jerk is changed; jerk limitation is exceeded.
1	Programmed jerk limitation is disabled during jerk-controlled motion.
2	The programmed acceleration is changed. The effective acceleration limitation is exceeded.
3	The programmed acceleration is changed, and the programmed jerk limitation is disabled. The effective acceleration limitation is exceeded.
4	The programmed dynamic values are limited during motion. The direction of motion is reversed.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

- For substituted motion:
Increase the dynamic response parameters.
- For superimposed motion:
Allow for the current active (resulting) limitations when programming the dynamic response parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40013 Programmed stop time is limited by acceleration limits

Cause

The specified stop time cannot be achieved. It is violated due to the maximum acceleration limits. Deceleration is performed with the maximum values.

Remedy

- Increase the programmed time.
- Check the maximum acceleration and the active programmed limits.
- Increase the limits, if necessary.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40014 Command not possible on virtual axis (command type: /4/%X)**Cause**

The command is not supported by virtual axes.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Use a real axis.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40015 Error occurred while accessing the specified curve profile (reason: /1/%d)

Cause

An error occurred while processing the curve profile.

Meaning of alarm parameters

Reason:	
1	The curve profile does not exist or is not linked with the object.
2	The curve profile is not interpolated.
3	The curve profile is already used.
4	Parameters and values of the curve profile in conjunction with the current values relative to the specified motion parameters contradict.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

- Check the programmed curve profile.
- Check the object connection with the curve profile.
- Check the program sequence.
- Check the parameterization of the profile with regard to the current reference values.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

40016 The specified curve profile has not been interpolated**Cause**

The system only accepts verified and interpolated curve profiles for this operation. The specified curve profile has not yet been interpolated.

Remedy

Check whether the specified curve profile has been interpolated.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40017 Curve profile starting point is outside the definition range

Cause

The addressed curve profile start point is outside the definition range of the curve profile.

Remedy

- Check the definition range of the curve profile.
- Check the curve profile start point.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40018 Dynamic response of the motion profiles (type: /1/%d) cannot be achieved (reason: /2/%d)

Cause

Specified dynamic response cannot be adhered to.

If this alarm occurs while the profile is being traversed, the currently programmed set position of the cam may be exceeded.

Meaning of alarm parameters

Type:	
1	Velocity-time profile
2	Position-time profile
3	Velocity-position profile
4	Velocity-interface position profile
5	Velocity-time limit profile
6	Velocity-position limit profile
7	Velocity-interface position limit profile

Reason:	
0	The velocity resulting from the profile has been limited to the programmed value.
1	The acceleration/deceleration resulting from the profile has been limited to the programmed value.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT

Remedy

- For superimposed motion:
Allow for the current active (resulting) limitations when programming the dynamic response parameters.
- Increase the dynamic response parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40019 Error occurred while accessing the specified motion interface**Cause**

The specified reference object for the motion interface does not exist or is not connected to the axis.

Remedy

- Check the programmed input interconnection.
- Check the program sequence.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40020 Dynamic response of the setpoints on the motion interface (type: /1/%d) cannot be achieved (reason: /2/%d)

Cause

Specified dynamic response cannot be adhered to.

Meaning of alarm parameters

Type:	
1	Velocity-based setpoints
2	Position-based setpoints

Reason:	
0	The velocity resulting from the interface has been limited to the programmed value.
1	The acceleration/deceleration resulting from the interface has been limited to the programmed value.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT

Remedy

- For superimposed motion:
Allow for the current active (resulting) limitations when programming the dynamic response parameters.
- Increase the dynamic response parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

40021 StopEmergency command abort because of a pending stop response with the same or higher priority

Cause

The axis StopEmergency command was aborted when called or while the command was running due to a stop response of the same or higher priority as a result of an error.

This alarm is generated to assist you in developing emergency stop strategies. For example, safe program execution can be ensured by changing the stop response.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40022 Programmed pressure limitation is limited

Cause

The system is limiting the programmed pressure limitation value to the maximum permissible pressure value.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40023 Programmed increase of the pressure limitation is limited**Cause**

The system is limiting the programmed pressure limitation increase to the maximum permissible pressure increase value.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40024 Programmed increase of the pressure limitation is zero

Cause

The programmed increase of the pressure limiting is zero. The specified pressure limiting characteristic cannot be calculated.

Remedy

Program a value other than zero. If USER_DEFAULT is referenced, a value not equal to zero must be programmed in the assigned system variable.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_ABORT

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40025 Maximum increase of the pressure limitation is zero**Cause**

The limit value for the pressure limitation increase is zero. The specified pressure limiting characteristic cannot be calculated.

Remedy

Program a value other than zero in the dynamic limit values.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_ABORT

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40026 Dynamic response of the pressure/pressure-limitation profiles (type: /1/%d) cannot be achieved (reason: /2/%d)

Cause

Specified dynamic response cannot be adhered to.

Meaning of alarm parameters

Type:	
1	Pressure-time limit profile
2	Pressure-position limit profile
3	Pressure-interface position limit profile
4	Pressure-time profile
5	Pressure-position profile
6	Pressure-interface position profile

Reason:	
0	The pressure/pressure limiting value resulting from the profile has been limited to the maximum pressure/pressure limiting value.
1	The pressure/pressure limiting increase value resulting from the profile has been limited to the maximum pressure/pressure limiting increase value.

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT
2	DINT

Remedy

Increase the dynamic response parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

40027 Programmed command abort cannot be executed (reason: /1/%d)**Cause**

The programmed command abort could not be executed.

Meaning of alarm parameters

Reason:	
0	An abort is no longer possible in the current command status.
1	The '_stopEmergency' function can only be aborted during a standstill.

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40101 Homing output cam not found

Cause

The homing output cam was not found because:

- It is outside the permissible range.
- Limit switch monitoring system has responded

Remedy

- Check the permissible range for homing.
- Check the hardware configuration.
- Check the home position and, if the approach direction is incorrect, change the start position of the axis for homing.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_ABORT

Settable local reactions

MOTION_STOP MOTION_EMERGENCY_STOP MOTION_EMERGENCY_ABORT
FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

40102 Encoder zero mark not found during homing**Cause**

The encoder zero mark was not found because:

- The difference between the reference output cam and the encoder zero mark is outside the permissible range
- Limit switch monitoring system has responded
- The reference deceleration velocity is too high
- Homing with encoder zero mark or external zero mark for drive simulation (.Encoder_N.encoderIdentification = SIMULATION) is not possible

Remedy

Check the following:

- Permissible range
- Hardware configuration
- And reduce the deceleration velocity.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40103 Reference data incorrect (Parameter1: /1/%d)**Cause**

The configured axis data and the selected parameters in the homing command are inconsistent with one another.

Meaning of alarm parameters

Parameter 1	
1	'ENABLE_OFFSET_OF_ABSOLUTE_ENCODER' has been selected in the homing command but an incremental encoder is configured.
2	'ACTIVE_HOMING' or 'PASSIVE_HOMING' has been selected in the homing command, but an SSI encoder is configured.
3	'ACTIVE_HOMING' has been selected in the homing command, but 'NO_REFERENCE' was configured for 'homingMode' in the configuration data for the encoder.
4	'ACTIVE_HOMING', 'PASSIVE_HOMING' or 'ENABLE_OFFSET_OF_ABSOLUTE_ENCODER' has been selected in the homing command, but 'NO_SENSOR' was selected for 'encoderType' in the configuration data for the encoder.
5	Traversing distance monitoring up to the reference point switch is configured in the configuration data, but the configured maximum distance to be traversed is zero.
6	The homing approach velocity is zero.
7	The homing entry velocity is zero.
8	The homing reduced velocity is zero.
9	'SENSOR_POSITION_DIFFERENCE_MEASUREMENT' has been selected for 'encoderType' in the configuration data for the encoder. Homing is not possible in this encoder mode.
10	Homing is not possible when the actual value is specified using the 'sensorSettings.actualValue' system variable.
11	The resulting home position offset is outside the displayable axis position.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Check the configuration data and the command parameters for homing.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40104 Error occurred while setting the software limit switches (Parameter1: /1/%d)

Cause

The software limit switches are programmed incorrectly.

Meaning of alarm parameters

Parameter 1:	
0	Negative switch is greater than positive switch when the axis is not a modulo axis.
1	Current set position is not in programmed range. The software limit switch was deactivated.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Reprogram the software limit switches.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_STOP

Settable local reactions

MOTION_EMERGENCY_STOP MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP
OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

40105 Position limited to software limit switch (Parameter1: /1/%d)**Additional references**

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

The programmed position has been limited to the software limit switch.

Meaning of alarm parameters

Parameter 1:	
0	Negative switch
1	Positive switch

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Check the program code for the motion.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

END_OF_MOTION_STOP

Settable local reactions

END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40106 Software limit switch (Parameter1: /1/%d) reached

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

The software limit switch has been approached during a motion sequence. If valid actual values are present for a speed-controlled procedure, these serve as limits for the software end position monitoring.

Meaning of alarm parameters

Parameter 1:	
0	Negative switch
1	Positive switch

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Check the program code for the motion.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_ABORT

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40107 Software limit switch (Parameter1: /1/%d) will be crossed**Additional references**

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

The software limit switch has been crossed. If valid actual values are present for a speed-controlled procedure, these serve as limits for the software end position monitoring.

Meaning of alarm parameters

Parameter 1:	
0	Negative switch
1	Positive switch

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Check the program code for the motion.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40108 Axis is not homed

Cause

A command requiring a homed axis was passed to an axis that is not homed.

Remedy

Home the axis.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40109 Error occurred while synchronizing two encoders (reason: /1/%d)**Cause**

An attempt to synchronize two encoders has failed.

Meaning of alarm parameters

Reason	
0	The reference encoder is not configured or is defective.
1	The encoder to be synchronized is not configured or is defective.
2	Function not possible as only one encoder has been configured.
3	Illegal correction of the active encoder.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

- Check the command parameters.
- Configure the encoder.
- Remedy the fault on the encoder.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40110 Error triggered on slave during Synchronous operation (error number: /1/%d, slave stopped: /2/%d)

Additional references

Further information is provided in the Function Manual:

- Technology Objects Synchronous Operation, Cam and
- in the online help.

Cause

An error was triggered on a slave during Synchronous operation and reported to the master.

Meaning of alarm parameters

Error number:	Error reported by slave:
1	Synchronous operation setpoint tolerance exceeded.
2	Synchronous operation actual-value tolerance exceeded.
3	General slave axis error.

Slave stopped:	Indicates whether the slave axis has switched to Stop mode:
0	The slave axis has not switched to Stop mode.
1	The slave axis has switched to Stop mode.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT

Remedy

Check the following:

- Configuration data for Synchronous operation monitoring on the slave
- Programming (dynamic parameters, Synchronous operation connection)
- System variables

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_ABORT

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE NONE

Diagnostics buffer entry

No

40111 Internal traversing range limit (Parameter1: /1/%d) reached

Cause

The internal traversing range limit has been approached during a motion sequence.

Meaning of alarm parameters

Parameter 1:	
0	Negative internal traversing range limit
1	Positive internal traversing range limit

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Check the program code for the motion.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_ABORT

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40112 Internal traversing range limit (Parameter1: /1/%d) will be crossed**Cause**

The internal traversing range limit has been crossed.

Meaning of alarm parameters

Parameter 1:	
0	Negative internal traversing range limit
1	Positive internal traversing range limit

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT

Remedy

Check the program code for the motion.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40120 Programmed pressure is being limited

Cause

The system is limiting the programmed pressure to the maximum permissible pressure.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40121 Programmed pressure increase is being limited**Cause**

The system is limiting the programmed pressure increase to the maximum permissible pressure increase.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40122 Programmed pressure increase is zero

Cause

- The programmed pressure increase is zero.
- The specified pressure characteristic cannot be calculated.

Remedy

- Program a value other than zero.
- If USER_DEFAULT is referenced, a value not equal to zero must be programmed in the assigned system variable.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_ABORT

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40123 Maximum pressure increase is zero**Cause**

- The limit value for the pressure increase is zero.
- The specified pressure characteristic cannot be calculated.

Remedy

Program a value other than zero in the dynamic limit values.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_ABORT

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40124 Offset cannot be fully compensated (reason: /1/%d)

Cause

The cycle clock offset for a Synchronous operation group cannot be compensated completely on the master side.

Meaning of alarm parameters

Reason	
1	The determined cycle clock offset is greater than the maximum permissible setpoint output delay.
2	An already active offset compensation cannot be reduced to a smaller offset as a result of reconfiguring a slave interconnection.
3	A setpoint output delay can only be configured when the axis is at a standstill.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

For reason:	
= 1:	Not necessary, for information only.
= 2:	Restart this axis.
= 3:	Stop the motion of this axis.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

40125 Master setpoint output delay deactivated**Cause**

This master value source operates without a master-side setpoint output delay.

The setpoint output delay on the master side was activated for at least one interconnected slave axis. The Synchronous operation relationship between the master value source and the slave axis is not operating synchronously.

Remedy

Activate the master-side setpoint output delay of the master value source.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40126 Tolerance of the axis-specific synchronous setpoints exceeded

Cause

The configured axis-specific synchronization setpoint tolerance has been exceeded while maintaining the dynamic limit values.

Remedy

Check the dynamic conditions for the path/synchronous motion. This involves:

- Check the dynamic parameters
- Check the configured units and the internal representation accuracy. Increase the configured tolerance.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_ABORT

Settable local reactions

NONE MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP
OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

40127 **Dynamic response of the axis-specific synchronous setpoints cannot be attained (reason: /1/%d)**

Cause

Specified dynamic response cannot be adhered to.

Meaning of alarm parameters

Reason:	
0	The resulting axis-specific synchronized velocity setpoint has been reduced to the current valid limit value.
1	The resulting axis-specific synchronized acceleration setpoint has been reduced to the current valid limit value.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

- For substituted motion: For information only
- Allow for the current active (resulting) limitations when programming the dynamic response parameters.
- Increase the dynamic response parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40128 Home position offset cannot be retracted

Cause

The home position offset cannot be retracted because 'homing only in positive direction' or 'homing only in negative direction' is set. The retraction of the home position offset, however, must be made in the opposite direction to the set direction.

Remedy

- Check whether the retraction of the home position offset is made in the configured homing direction.
- Check whether the required braking distance after transferring the homing signal is larger than the home position offset.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40129 Home position offset violates the internal traversing range limit (reason: /1/%d)

Cause

Homing have been canceled because the offset is greater than the internal traversing range limit.

Meaning of alarm parameters

Reason:	
0	The offset is too great.
1	The axis value is too great.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Check the set offset of the reference point and the current position value of the axis.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40301 Loss of connection to slave (assignment: /1/%d)

Cause

- The connection to an interconnected slave failed.
- The slave is located on a distributed controller or has been assigned to a different execution level than the master.
- Master values of the master cannot be communicated to the slave for the duration of the connection failure. During the communication malfunction, a Synchronous operation monitoring response on the slave cannot be communicated to the master.

Meaning of alarm parameters

Assignment	
1	The failed slave is located on an assigned controller.
2	The failed slave has been assigned to a different execution level than the master.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Assignment 1:

- Ensure that the associated controller is activated, the slave is configured as distributed, and communication is permitted by the operating mode of the associated controller.
- Check the connection for mechanical damage, equivalence of configured network topology, firm contact by the plug connector, and, if necessary, correct electrical cable terminations.

Assignment 1 and 2:

- Make sure that the failed slave was not being reloaded at the time the error was detected.
- Monitoring of the connection is set in the technology object configuration. The master and slave must have the same settings selected.

Assignment 2:

- Check whether an overflow was diagnosed for the execution level of the assigned slave.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40302 Sign-of-life monitoring to the slave in the distributed Synchronous operation switched off

Cause

- The sign-of-life monitoring for the slave connection to an assigned controller has been deactivated.
- Monitoring is configured differently on the master and slave. As a result, the connection is established without sign-of-life monitoring.

Remedy

Use identical configuration settings in the master and slave for sign-of-life monitoring of the connection.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40303 Different local and slave interpolation cycle clock**Cause**

The master and slave are required to have a common interpolation cycle clock for distributed Synchronous operation. However, when establishing the connection between technology objects, different cycle clock settings were defined for interpolation.

Remedy

Use identical cycle clock settings for interpolation on the master and slave sides.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40304 Offset cannot be determined

Cause

The offset for the slave cannot be determined. This can be caused by configuring the PROFIBUS DP without equidistance or a ratio of interpolator cycle clock to PROFIBUS DP cycle clock greater than 64.

Remedy

- Select equidistant mode on the PROFIBUS DP.
- Select a suitable IPO / DP cycle clock ratio setting.
- Deactivate offset compensation on the technology objects involved. Deactivate compensation only if other remedies do not eliminate the malfunction. Deactivating the offset compensation limits the accuracy of motion control.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40305 Synchronism loss to slave(s) on assigned controller in distributed Synchronous operation**Cause**

There is no isochronous operation between the local and distributed controller. The local master and the assigned synchronous object thus have no common time reference system.

When clock synchronism is lost, the parameters determined for this connection are no longer valid and further operation is not permissible.

Remedy

- Select isochronous mode for PROFIBUS DP.
- Select a suitable IPO / DP cycle clock ratio setting (not to exceed 64).
- Make sure that the bus cycle clock is an integer multiple of the internal DP cycle clock.
- Make sure that the interpolation cycle clock on the connected controllers is an integer multiple of the bus cycle clock.
- Deactivate offset compensation on the technology objects involved. Deactivate compensation only if other remedies do not eliminate the malfunction. Deactivating the offset compensation limits the accuracy of motion control.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50002 Limiting frequency of measuring system exceeded

Cause

The limiting frequency of the encoder has been exceeded.

Remedy

- Check the encoder connection.
- Check the parameterized encoder limit frequency in the encoder configuration data ('FrequencyLimit.EncoderFrequencyLimit') and, if necessary, adjust the value entered there to match the manufacturer documentation for the encoder being used.
- Reduce the traversing velocity of your drive to a value adapted to the encoder limit frequency. If necessary, amend the maximum velocity ('MaxVelocity') parameterized in the configuration data as well.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50003 Limitation of speed set acceleration is active**Cause**

The speed set acceleration is being limited.

Remedy

Check the following:

- Mechanical configuration
- Encoder connection
- Configuration of the speed setpoint interface
- Maximum permissible acceleration rates in the configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50005 Speed setpoint monitoring active (Parameter1: /1/%d)

Cause

The speed setpoint is being limited.

Meaning of alarm parameters

Parameter 1:	Specification of the limitation
0	Manipulated variable (speed setpoint) limit reached.
1	Velocity-related definition range limit (in front of cam in the case of hydraulic axes) reached.
2	Value range limit (for hydraulic axes only) reached.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Check the following:

- Mechanical configuration
- Encoder connection
- Configuration of the speed setpoint interface
- Maximum permissible velocity rates in the configuration data
- The maximum velocity of the axis (configuration data: `TypeOfAxis.MaxVelocity`).

To find faults faster: Trace the `motionStateData.actualVelocity` and `actorData.totalSetPoint` system variables.

Acknowledgement/reaction

Reset fault memory / `START TechnologicalFaultTask`

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

50006 Zero mark monitoring**Cause**

Zero mark monitoring has been activated.

Remedy

Check the following:

- Mechanical configuration and the encoder configuration
- Error messages of the encoder

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

OPEN_POSITION_CONTROL

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50007 Hardware limit switch (Parameter1: /1/%d, Parameter2: /2/%d)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

Hardware limit switch has been violated.

Meaning of alarm parameters

Parameter 1:	
1	Limit switch reached
2	Polarity reversal on limit switch (can only be deleted by reconfiguring the technology object or Power On)
3	Illegal retraction direction
4	Both limit switches are active

Parameter 2:	
0	Not relevant
1	Limit switch in positive traversing direction
2	Limit switch in negative traversing direction

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT

Remedy

- Check the mechanical configuration.
- Check the limit switches.
- If an error has occurred in the program, change the program or use the software limit switches.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50008 Timeout while waiting for standstill signal

Cause

Timeout occurred while waiting for standstill signal.

Remedy

Check the following:

- Configuration of 'Axis.TypeOfAxis.StandStillSignal'
- Correct operation of the control loop

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50009 Position limit switch active: (Parameter1: /1/%d) only one traversing direction possible**Additional references**

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

A positive (Parameter 1 = 1) or negative (Parameter 1 = 2) hardware limit switch is active or has been crossed. Motion is possible in the positive or negative traversing direction only.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

- Check the mechanical configuration.
- Check the limit switches.
- If an error has occurred in the program, change the program or use the software limit switches.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50010 **Error occurred while reading or writing data set (category: /1/%d, error number: /2/%d)**

Cause

An error occurred while reading or writing.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system

Error number:	Specification of the error
1000	General configuration error
1001	Communication error during data transmission
2000	Error in actuator system configuration.
2001	Outside of manipulated variable limits.
2003	Error in load gear factors.
2004	Error in maximum velocity.
2005	Maximum velocity greater than maximum attainable velocity.
2006	Drive not suitable for torque-controlled or torque-limited operation
2007	Linear stepper motor not implemented
2008	Right-justified format for direct output not implemented
2009	Illegal value in resolution for direct output
2010	Missing configuration data for actuator system
2011	Missing configuration data for additional actuator system
2012	The backstop range (min to max) does not contain a zero point
2014	Drive or telegram not suitable for torque superimposition
2015	Gear ratios less than or equal to 0.
2016	Resolution for stepper motor is 0.
2017	Illegal value for configuration data maxSpeed.
2018	Illegal value for configuration data maxVelocity.
2019	Range limits of configuration data exceeded.
2020	Range limits for maximum acceleration exceeded.
2021	Illegal values for dead zone compensation.
2022	Illegal values for sliding friction compensation.
2023	Illegal values for backstop.
2024	Error in friction compensation parameter
2025	DIRECT output: Analog and bit driver of a shared output are parameterized in different ways on the various axes
2026	Illegal value for pulsesEnable
2027	Illegal value for maxSpeed ($\text{maxSpeed} \geq 2 * \text{nominalSpeed}$)
2028	Illegal value for maxSpeed ($\text{maxSpeed} \leq 10 \text{ V} / \text{maxSetPointVoltage} * \text{nominalSpeed}$)
2029	Illegal value in TypeOfAxis.SetPointDriverInfo
2030	A parameter in DriveData is not correct.
2031	A parameter in LinearMotorDriveData is not correct.
2032	A parameter in StepMotorDriveData is not correct.
2033	A parameter in QOutput.EnableBit is not correct.
2034	A parameter of the technological data block is not correct.
2035	A parameter of the safety data block is not correct.
2036	A parameter of the operating characteristics data block is not correct.
2037	Cannot change the configuration during the drive adaptation.
2038	Illegal value for the manipulated variable filter
3000	Error in encoder system.

3001	Illegal value in Simulation.simulationMode
3002	The set axis type is invalid - illegal value in TypeOfAxis.typeOfAxis
3003	The set drive leadscrew pitch is invalid - illegal value in Leadscrew.pitchVal
3004	The set modulo activation is invalid - illegal value in Modulo.state
3005	Illegal specification(s) in the encoder data (incremental, absolute, etc.).
3006	The set number of encoders is invalid - illegal value in .NumberOfEncoders.numberOfEncoders
3007	Illegal incremental encoder number.
3008	Illegal data combination for homing with incremental encoder.
3009	The configuration of the 'Backlash compensation' encoder function is faulty - illegal value in .Encoder_N.IncBacklash or .Encoder_N.AbsBacklash
3010	Illegal data on SSI encoder.
3011	The configuration of the 'Absolute encoder adjustment' encoder function is faulty - illegal value in .Encoder_N.AbsHoming
3012	The configuration of the 'Counting direction of the raw actual encoder value' encoder function is faulty - illegal value in .Encoder_N.InversCountDirection.encoderFeedbackPolarity
3013	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptDrive
3014	The configuration of the 'Encoder limit frequency monitoring' encoder function is faulty - illegal value in .Encoder_N.FrequencyLimit.encoderFrequencyLimit
3015	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptLoad
3016	The load gear ratio configuration of a data set is faulty - illegal value in .DataSet_N.Gear
3017	Encoder data sequence and number of encoders do not match.
3018	The configuration of an encoder is incomplete
3019	The set mounting location of the encoder is invalid - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3020	The encoder simulation is either not supported or it is not activated simultaneously on the actuator and the sensor - illegal value in .Encoder_N.encoderIdentification or .SetPointDriverInfo.mode
3021	The number of configured data sets or the number of the active data set after the startup is invalid - illegal value in DataSet_N.numberOfDatasets or in DataSet_N.initDataSet
3022	The number of the encoder assigned to a data set is invalid - illegal value in DataSet_N.EncoderNumber.encoderNumber
3023	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptExtern
3024	The configuration of the encoder measuring wheel circumference is faulty - illegal value in .Encoder_N.pathPerRevolution.length
3025	The configuration of the 'Actual velocity monitoring' function is faulty - illegal value in .ActualVelocityMonitoring
3026	Illegal encoder number in absolute encoder configuration.
3027	The set message format of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absMessageFormat
3028	The set baud rate of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.baudRate

3029	The set protocol format of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absState
3030	The number of the encoder assigned to a data set is invalid - illegal value in DataSet_N.EncoderNumber.encoderNumber
3031	The encoder assigned to a data set does not exist - illegal value in DataSet_N.EncoderNumber.encoderNumber
3032	The load gear ratio numerator configuration of a data set is faulty - illegal value in .DataSet_N.Gear.numFactor
3033	The load gear ratio denominator configuration of a data set is faulty - illegal value in .DataSet_N.Gear.denFactor
3034	An encoder references a data set that does not exist
3035	An encoder references a data set that does not exist
3036	Encoder not configured.
3037	Homing with encoder zero mark and ENDAT encoder is not possible - illegal value in .Encoder_N.IncHomingEncoder.homingMode
3038	Homing to the falling edge of an external zero mark on an onboard input is not possible - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3039	Flying homing with encoder zero mark and ENDAT encoder is not possible - illegal value in .Encoder_N.IncHomingEncoder.passiveHomingMode
3040	Flying homing to the falling edge of an external zero mark on an onboard input is not possible - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3041	The (modified) encoder configuration does not permit any determination of the factors for converting the encoder raw actual values into actual position and velocity values or for converting the position and velocity setpoints into DSC encoder raw actual values, taking account of the mechanical relationships.
3042	Illegal data combination for homing with external encoder.
3043	The incremental position of the encoder is outside the permissible value range.
3044	The incremental position of the encoder is outside the permissible value range.
3045	The configuration of the linear encoder resolution is faulty - illegal value in .Encoder_N.Resolution
3046	The configuration of the encoder actual velocity values filter is faulty - illegal value in .Encoder_N.Filter
3047	The configuration of the encoder actual velocity values filter for the interpolator is faulty - illegal value in .SmoothingFilter
3048	The configuration of the encoder actual velocity values filter for the actual value coupling (Synchronous operation) is faulty - illegal value in .Extrapolation.Filter
3049	The set number of the DSC encoder is invalid - illegal value in .NumberOfEncoder.dscEncoderNumber
3050	The configuration of the encoder system has not been completed correctly.
3051	The configuration of the stepper motor encoder data is faulty - illegal value in .Encoder_N.StepMotorMonitoring
3052	The set encoder actual value type does not match its configuration or the technology object type - illegal value in .Encoder_N.encoderValueType
3053	Homing on a stepper motor is only possible with an external zero mark - illegal value in .Encoder_N.incHomingEncoder.homingMode
3054	Flying homing on a stepper motor is only possible with an external zero mark - illegal value in .Encoder_N.incHomingEncoder.passiveHomingMode

3055	The configuration of a stepper motor with encoder is only possible on a real axis - illegal value in <code>.Encoder_N.encoderMode</code>
3056	Only one encoder may be configured on a stepper motor - illegal value in <code>.NumberOfEncoders.numberOfEncoders</code>
3057	The DSC encoder is not a PROFIBUS encoder - illegal value in <code>.NumberOfEncoders.dscEncoderNumber</code> or <code>.Encoder_N.encoderIdentification</code>
3058	The DSC encoder telegram does not support DSC - illegal value in <code>.Encoder_N.DriverInfo.telegramType</code>
3059	Set modulo value in <code>Modulo.length</code> is smaller than an increment.
3060	The encoder configuration for the position difference measurement is faulty - illegal value in <code>.Encoder_N.PositionDifferenceMeasurement</code>
3061	The set limits for the position difference supplied by the encoder are invalid - illegal value in <code>.Encoder_N.PositionDifferenceMeasurement.Range</code>
3062	The activation of the 'Backlash compensation' encoder function is only possible for motor encoders - illegal value in <code>.Encoder_N.AssemblyBase.assemblyBase</code>
3063	The configuration of a TO externalEncoder for the operation as encoder on a stepper motor is not possible - illegal value in <code>.Encoder_N.encoderMode</code>
3064	The set resolution of the encoder is invalid - illegal value in <code>.Encoder_N.IncEncoder.incResolution</code>
3065	The set resolution of the encoder is invalid - illegal value in <code>.Encoder_N.AbsEncoder.absResolution</code>
3066	The set multiplication factor for the cyclic actual value of the encoder is invalid - illegal value in <code>.Encoder_N.IncEncoder.incResolutionMultiplierCyclic</code>
3067	The set multiplication factor for the cyclic actual value of the encoder is invalid - illegal value in <code>.Encoder_N.AbsEncoder.absResolutionMultiplierCyclic</code>
3068	The assignment of a velocity encoder to a data set on a positioning axis is not permitted - illegal value in <code>DataSet_N.EncoderNumber.encoderNumber</code>
3069	The configuration of the 'Tolerance of an encoder error' encoder function is invalid - illegal value in <code>.Encoder_N.SensorControlConfig.tolerateSensorDefect</code>
3070	The configuration of the 'Direct reading of the actual speed value (Nact) from the PROFIDrive telegram' encoder function is faulty - illegal value in <code>.Encoder_N.NistDriverConfig</code>
3071	The configuration of the reference cam is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.referenceCamType</code>
3072	The configuration of the negative reversing cam is faulty - illegal value in <code>.Homing.ReverseCamNegative</code>
3073	The configuration of the positive reversing cam is faulty - illegal value in <code>.Homing.ReverseCamPositive</code>
3074	The set edge of the external zero mark does not match the set homing approach direction - illegal value in <code>.Encoder_N.incHomingEncoder.approachDirection</code> or <code>.Homing.direction</code>
3075	The use of reversing cams in the selection of <code>.Homing.direction = 'POSITIVE_ALL_HOMING'</code> or <code>.Homing.direction = 'NEGATIVE_ALL_HOMING'</code> as homing approach direction is not permitted - illegal configuration in <code>.Homing.ReverseCamNegative._type</code> or <code>.Homing.ReverseCamPositive._type</code>
3076	The set approach direction of the zero mark or edge of the external zero mark does not match the set homing approach direction - illegal value in <code>.Encoder_N.IncHomingEncoder.approachDirection</code> or <code>.Homing.direction</code>

3077	The use of hardware limit switches as reference cams in the selection of .Homing.direction = 'POSITIVE_ALL_HOMING' or .Homing.direction = 'NEGATIVE_ALL_HOMING' as homing approach direction is not permitted - illegal value in .Encoder_N.IncHomingEncoder.referenceCamType
3078	The configuration of the 'Ready bit' encoder function is faulty - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring
3079	The configuration of the 'Error bit' encoder function is faulty - illegal value in .Encoder_N.AnalogSensor.ErrorStateMonitoring
3080	The encoder Ready bit is in the range of the actual encoder value data bit - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress and/or .Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber
3081	The encoder Error bit is in the range of the actual encoder value data bit - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress and/or .Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber
3082	The configuration of the external zero mark interface is faulty - illegal value in .Encoder_N.incHomingEncoder.StateDriveExternalZeroMark
3083	The configuration of the 'Update counter' encoder function is faulty - illegal value in .Encoder_N.AnalogSensor.UpdateCounter
3084	The encoder Update counter bits are in the range of the actual encoder value data bits - illegal value in .Encoder_N.AnalogSensor.UpdateCounter.logAddress and/or .Encoder_N.AnalogSensor.UpdateCounter.bitNumber
3085	The encoder Update counter bits and the Read bit overlap - illegal value in .Encoder_N.AnalogSensor.UpdateCounter.logAddress and/or .Encoder_N.AnalogSensor.UpdateCounter.bitNumber
3086	The encoder Update counter bits and the Error bit overlap - illegal value in .Encoder_N.AnalogSensor.UpdateCounter.logAddress and/or .Encoder_N.AnalogSensor.UpdateCounter.bitNumber
3087	The configuration of the 'Direct reading of the actual speed value (Nact) from the PROFIDrive telegram' encoder function is faulty - illegal value in .Encoder_N.SensorNist
3088	The configuration of the encoder with the identification 'SET_ACTUAL_VALUE' is faulty - illegal value in .Encoder_N.SensorSetActualValue
3089	The configuration of the encoder actual position values filter is faulty - illegal value in .Encoder_N.PositionFilter
3090	The configuration of the encoder actual position values filter for the actual value coupling (Synchronous operation) is faulty - illegal value in .Extrapolation.ExtrapolationPositionFilter
3091	The set multiplication factor for the cyclic actual value is not consistent with the known value on the drive encoder - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic or .Encoder_N.absEncoder.absResolutionMultiplierCyclic or .Encoder_N.Resolution.multiplierCyclic
3092	The set modulo length is invalid - illegal value in Modulo.length
3093	The set modulo start value is invalid - illegal value in Modulo.startValue
3094	Homing with deactivated hardware limit switches as reversing cams is not possible - illegal value in .Homing.ReverseCamNegative._type and/or .Homing.ReverseCamPosition._type
3095	The set encoder identification is invalid - illegal value in .Encoder_N.encoderIdentification
3096	The set encoder mode is invalid - illegal value in .Encoder_N.encoderMode
3097	The set encoder type is invalid - illegal value in .Encoder_N.encoderType

3098	The set encoder system is invalid - illegal value in .Encoder_N.encoderSystem
3099	The set actual value type is invalid - illegal value in .Encoder_N.encoderValueType
3100	The set utilization status of the actual value interface is invalid - illegal value in .Encoder_N.interfaceAllocation
3101	The set encoder mode is not supported by the TO externalEncoder - illegal value in .Encoder_N.encoderMode
3102	The set actual value type is not supported by the TO externalEncoder - illegal value in .Encoder_N.encoderValueType
3103	Only the 'VELOCITY' actual value type is permitted on a drive axis - illegal value in .Encoder_N.encoderValueType
3104	The set encoder mode does not match the set combination of encoder type and encoder identification - illegal value in .Encoder_N.encoderMode
3105	The set encoder type is not supported for encoders with the set encoder identification - illegal value in .Encoder_N.encoderType
3106	The encoder configuration does not match the set combination of encoder type and encoder identification - illegal value in .Encoder_N.encoderMode or .Encoder_N.encoderSystem or .Encoder_N.encoderValueType
3107	The configuration of the encoder for the position difference measurement requires the setting of the 'POSITION' actual value type - illegal value in .Encoder_N.encoderValueType
3108	Only encoders of the 'SENSOR_INCREMENTAL' type are supported on an axis of the 'REAL_AXIS_WITH_SIGNAL_OUTPUT' type - illegal value in .Encoder_N.encoderType
3109	Only the 'SENSOR_ABSOLUTE' encoder type is supported on an encoder with the 'SET_ACTUAL_VALUE' encoder identification - illegal value in .Encoder_N.encoderType
3110	The set combination of encoder type and encoder mode is not supported within the context of a linear encoder - illegal value in .Encoder_N.encoderType and .Encoder_N.encoderMode
3111	The configuration of a linear encoder on a rotary axis is not possible - illegal value in .Encoder_N.encoderSystem
3112	The configuration of the reference cam zero mark distance monitoring is faulty - illegal value in .Encoder_N.IncHomingEncoder.beroDistance or .Encoder_N.IncHomingEncoder.enableZeroMarkDistance
3113	The set home position offset is invalid - illegal value in .Encoder_N.IncHomingEncoder.proceedShiftPos
3114	The configuration of the reference cam interface is faulty - illegal value in .Encoder_N.incHomingEncoder.bitNumberBero or .Encoder_N.incHomingEncoder.logAddressBero
3115	The set zero mark approach direction is invalid - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3116	Homing setting faulty: Zero mark approach direction is invalid - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3117	The configuration of the reference cam interface is faulty - illegal value in .Encoder_N.incHomingEncoder.passiveBitNumberBero or .Encoder_N.incHomingEncoder.passiveLogAddressBero
3118	The set homing mode is invalid - illegal value in .Encoder_N.IncHomingEncoder.homingMode

3119	The set homing mode is invalid - illegal value in .Encoder_N.IncHomingEncoder.passiveHomingMode
3120	The set zero mark approach direction does not match the set homing mode - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3121	The set external zero mark approach direction does not match the set homing mode - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3122	The set zero mark approach direction does not match the set homing mode - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3123	The set external zero mark approach direction does not match the homing mode - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3124	The set type of the reference cam is invalid - illegal value in .Encoder_N.IncHomingEncoder.referenceCamType
3125	The set reference cam type does not match the set zero mark approach direction - illegal value in .Encoder_N.IncHomingEncoder.referenceCamType
3126	The resource required for the reference cam cannot be requested - illegal value in .Encoder_N.IncHomingEncoder.logAddress and/ or .Encoder_N.IncHomingEncoder.bitNumber or no memory available
3127	The resource required for the reference cam cannot be requested - illegal value in .Encoder_N.IncHomingEncoder.passiveLogAddress and/ or .Encoder_N.IncHomingEncoder.passiveBitNumber or no memory available
3128	The resource required for the external zero mark cannot be requested - illegal value in .Encoder_N.IncHomingEncoder.StateDriveExternalZeroMark.logAddress and/ or .Encoder_N.IncHomingEncoder.StateDriveExternalZeroMark.bitNumber or no memory available
3129	The resource required for the positive reversing cam cannot be requested - illegal value in .Homing.ReverseCamPositive.logAddress and/ or .Homing.ReverseCamPositive.bitNumber or no memory available
3130	The resource required for the negative reversing cam cannot be requested - illegal value in .Homing.ReverseCamNegative.logAddress and/ or .Homing.ReverseCamNegative.bitNumber or no memory available
3131	The resource required for the 'Update counter' of the analog encoder cannot be requested - illegal value in .Encoder_N.AnalogSensor.UpdateCounter.logAddress and/ or .Encoder_N.AnalogSensor.UpdateCounter.bitNumber or no memory available
3132	The resource required for the 'Read state bit' of the analog encoder cannot be requested - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress and/ or .Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber or no memory available
3133	The resource required for the 'Error state bit' of the analog encoder cannot be requested - illegal value in .Encoder_N.AnalogSensor.ErrorStateMonitoring.logAddress and/ or .Encoder_N.AnalogSensor.ErrorStateMonitoring.bitNumber or no memory available
3134	The configuration of the actual value interface is faulty - illegal value in .EncoderN.DriverInfo
3135	The configuration of the encoder actual value interface is faulty - illegal value in .EncoderN.DriverInfoDirectIncremental
3136	The configuration of the sensor measuring gear ratio is faulty - illegal value in .Sensor.ConversionDataAdapt

3137	Only an encoder with the 'DRIVE' encoder mounting type is permitted as DSC encoder - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3138	An encoder with the encoder value type 'POSITION_AND_PROFIDRIVE_ENCODER_NIST_B' is supported only on a TO positioning axis or as TO external encoder in conjunction with the encoder identification 'DPMASTER' or 'SIMULATION' and the encoder telegram type 'DP_TEL83_STANDARD' - illegal TO type or illegal value in .Encoder_n.encoderIdentification or in .Encoder.DriverInfo.telegramType
3139	The number assigned to an encoder lies outside the number of the last configured encoder 'NumberOfEncoders.numberOfEncoders'
3140	The configuration of the encoder configuration data adaptation is faulty - illegal value in .Encoder_N.dataAdaption
3141	Both the adapted and the configured encoder configuration are invalid
3143	The multiplication factor for the cyclic actual value and/or the multiplication factor for the absolute value in conjunction with the configured encoder mode (Encoder_N.encoderMode) is invalid - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic or .Encoder_N.absEncoder.absResolutionMultiplierCyclic and/ or .Encoder_N.Resolution.multiplierCyclic or Encoder_N.Resolution.multiplierCyclic
4000	Error in controller.
4001	Negative acceleration specified.
4002	Unknown 'FipoType' requested.
4003	Error in runtime system, ratio of controller cycle clock to interpolator cycle clock is incorrect.
4004	Requested filter order not possible.
4005	Reserve for later use.
4006	Maximum limit is lower than minimum.
4007	Reserve for later use.
4008	Error in configuration data for controller.
4009	Reserve for later use.
4010	Reserve for later use.
4011	Reserve for later use.
4012	Reserve for later use.
4013	Requested controller type is not available.
4014	Error in controller factors.
4015	Precontrol activated, kpc less than 0 or kpc greater than 150.
4016	Reserve for later use.
4017	Reserve for later use.
4018	Reserve for later use.
4019	Reserve for later use.
4020	Reserve for later use.
4021	Reserve for later use.
4022	Reserve for later use.
4023	Precontrol activated, kpc less than or equal to 0.
4024	Reference model monitoring: Error in value of tolerance window.
4025	Error in limit value for standstill signal.

4026	Error in parameter for positioning monitoring.
4027	Simultaneous activation of reference model and dynamic following error monitoring not allowed.
4028	Sampling time parameter calculated incorrectly.
4029	Too many data sets requested.
4030	Error in runtime system, ratio of controller cycle clock to interpolator cycle clock is incorrect.
4031	Error in time constant for emergency ramp generator (positionTimeConstant).
4032	Precontrol active, but fine interpolator type is DIRECT.
4033	Default data set outside limits.
4034	Maximum number of data sets not possible.
4035	Unknown data set change mode.
4036	Following error monitoring not activated/deactivated in all data sets.
4037	Reference model monitoring not activated/deactivated in all data sets.
4038	Different controller type in data sets.
4039	Precontrol activated/deactivated differently in data sets.
4040	Time constant is 0.
4041	Error in dynamic adaptation parameter.
4042	System variable initialization could not be read.
4043	Driver simulation not implemented.
4044	Connection for stepper motors not implemented.
4045	Maximum velocity cannot be attained; maximum drive speed or normalization factor is incorrect.
4046	DSC requires motor encoder data to be specified.
4047	Drive or telegram type not suitable for DSC.
4048	Error in clamping monitoring parameter. 'No detection' is not permitted for the fixed endstop detection
4049	A sensor is required to monitor actual velocity using 'DynamicControl'.
4050	Inconsistent PROFIBUS parameterization; the sum of Ti and To is greater than a DP cycle
4051	Error in manipulated variable limitation parameter of force/pressure controller
4052	Error in force/pressure entry monitoring parameter
4053	Error in force/pressure end value monitoring parameter
4054	Force/pressure entry monitoring tolerance less than pressure end value monitoring tolerance
4055	Error in force/pressure control deviation monitoring parameter
4056	Different activation/deactivation of control deviation monitoring of force/pressure controller in data sets not permitted
4057	Different manipulated variable inversion of force/pressure controller in data sets not permitted
4058	Different force/pressure sensor types in data sets not permitted
4059	Different activation/deactivation of anti-windup in data sets not permitted
4060	Kd factor of PID_ACTUAL controller is greater than 1
4061	Time constant of process model T1 less than or equal to T2
4062	Illegal actuator type selection
4063	Error in sliding friction compensation parameter

4064	Error in offset injection parameter
4065	Precontrol for force/pressure control not implemented
4066	Error in standstill monitoring parameter
4067	Following error monitoring: minVelocity cannot be greater than or equal to maxVelocity
4068	Maximum buffer length of balancing filter (Mode_2) is reached or exceeded. As the servo cycle is included in the calculation of the equivalent time constant of the speed control loop (=velocityTimeConstant), the maximum value of this time constant is limited to 16 servo cycles. The buffer length of the lag element is maximum 16.
4069	System-related dead times are less than 0 after allowing for additionalTime
4070	Controller types other than DIRECT require configuration of an encoder.
4071	Illegal values for delayTimeToActivate of standstill signal
4072	The I/O device for the positive HW limit switch is not available
4073	The I/O device for the negative HW limit switch is not available
4074	Range limits of controller parameter exceeded.
4075	Range limit of brake deceleration of emergency ramp exceeded.
4076	Range limit of equivalent time constant exceeded.
4077	Range limit for velocityTimeConstant exceeded.
4078	Error in value for QFDynamicData configuration.
4079	Error in value for reference model monitoring.
4080	Error in following error monitoring parameter
4081	Error in clamping monitoring parameter
4082	Error in value for DynamicData configuration.
4083	Error in value for PV controller configuration.
4084	Configuration data missing for controller.
4085	Error in value for SystemDeadTimeData configuration.
4086	Pressure control only possible with closed-loop speed controller
4087	DSC and compensation of valve curve not possible
4088	DSC not possible on hydraulic axes
4089	Time constants of dynamic response compensation must not be equal
4090	Incorrect value for system dead time correction
4091	Different activation of manipulated variable filter of pressure controller in data sets
4092	Different activation of dynamic response compensation in data sets
4093	Activation of DSC is not the same in all data sets
4127	enableDSCSpline is not the same in all data sets
4094	Balancing filter type is not the same in all data sets
4096	Activation of anti-windup is not the same in all data sets
4097	Activation of setpoint quantization is not the same in all data sets
4098	Activation of the reference model monitoring is not the same in all data sets
4099	Fixed endstop detection mode is not the same in all data sets
4100	Force controller is not the same in all data sets
4101	Force sensor type UNI_DIRECTION is not implemented
4102	Error in the time constant for smoothing controller parameters

4103	If encoderNumber = 0, ControllerStruct.conType must be DIRECT.
4104	The travel to fixed stop function is not possible on a QF axis.
4105	The integratorFeedbackTimeConstant cannot be less than 0
4106	Illegal value for CommandValueQuantization.value
4107	An electrical drive axis (typeOfAxis = REAL_KIND_OF_AXIS) may only have DIRECT as controller type (conType = DIRECT)
4108	Dead time of dynamic response compensation must not be zero.
4109	Time constant for smoothing manipulated variable jumps during data set changeover must not be less than zero.
4110	The parameters of the manipulated variable filter in the pressure controller are illegal.
4111	Range limit for positionTimeConstante exceeded.
4112	Force/pressure controller type not possible.
4113	Time constant for smoothing manipulated variable jumps outside the limits.
4114	The speed/velocityReference parameter must be set to NOMINAL_SPEED with active adaptation.
4115	The torque/forceReference parameter must be set to NOMINAL_TORQUE/ FORCE with active adaptation.
4116	The parameters in HWEndPos are not consistent.
4117	The setting disableModeSpecification = OFF1_AND_OFF3_MODE is only possible with a digital drive coupling.
5000	Encoder data sequence and number of encoders do not match.
5001	The set number of force/pressure sensors is invalid - illegal value in .NumberOfAdditionalSensors.number
5002	The set type of the force/pressure sensor is invalid - illegal value in .AdditionalSensor_N.additionalSensorType
5003	The actual value interface configuration of the force/pressure sensor is faulty - illegal value in .AdditionalSensor_N.DriverInfo
5004	The raw actual value weighting factors configuration of the force/pressure sensor is faulty - illegal value in .AdditionalSensor_N.ConversionData
5006	The value range limits configuration of the actual force/pressure value is faulty - illegal value in .AdditionalSensor_N.Range
5007	The configuration of the actual force/pressure value filter is faulty - illegal value in .AdditionalSensor.Filter
5008	Configuration of the force/pressure sensor not completed correctly.
5009	The number of the force/pressure sensor assigned to the data set is invalid - illegal value in .NumberOfDataSets.DataSet_N.AdditionalSensorNumber.number
5010	The sensor configuration for the force/pressure difference measurement is faulty - illegal value in .AdditionalSensor.PositionDifferenceMeasurement
5011	The number of the force/pressure sensor set as sensor A for the difference measurement is invalid - illegal value in .AdditionalSensor.PositionDifferenceMeasurement.numberSensorA
5012	The number of the force/pressure sensor set as sensor B for the difference measurement is invalid - illegal value in .AdditionalSensor.PositionDifferenceMeasurement.numberSensorB
5013	Illegal data in extrapolation configuration.

5014	The set execution cycle clock of the sensor is invalid - illegal value in Execution.executionlevel
5015	The set substitute value strategy for a technological alarm on the sensor is invalid - illegal value in .ValueOut.outputValueErrorBehaviorMode
5020	The configuration of the analog encoder actual value interface is faulty - illegal value in .Encoder_N.AnalogSensor.DriverInfo
5021	The configuration of the analog encoder actual position values filter is faulty - illegal value in .Encoder_N.AnalogSensor.PositionFilter
5022	The raw actual value weighting factors configuration of the analog encoder is faulty - illegal value in .Encoder_N.AnalogSensor.ConversionData
5023	The measuring input interface configuration for the analog encoder is faulty - illegal value in .Encoder_N.AnalogSensor.LogAddress
5030	The count value weighting factors configuration of the interval counter speed encoder is faulty - illegal value in .Encoder_N.IntervalCounterConversionData
5031	The set logical address for the count value interface of the interval counter speed encoder is faulty - illegal value in .Encoder_N.IntervalCounterConversionData.DriverInfo.logAddress
6000	The traversing distance monitoring up to the reference point switch is configured in the configuration data, but the configured maximum distance to be traversed is zero.
6001	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfMaxBufferedCommandId
6002	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfQueueCommands
6003	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfImmediateCommands
6004	Configuration of behaviourAtTheEndOfProfile not implemented
6005	Illegal value for configuration data for maximum acceleration
6006	Illegal value for configuration data for maximum jerk
6007	Illegal value for configuration data for maximum force/pressure setpoint
6008	Illegal value for configuration data for maximum force/pressure setpoint increase
6009	Illegal value for configuration data for Synchronous operation tolerance based on setpoint
6010	Illegal value for configuration data for Synchronous operation tolerance based on actual value
6011	Illegal value for configuration data for Synchronous operation tolerance activation based on setpoint
6012	Illegal value for configuration data for Synchronous operation tolerance activation based on actual value
6013	Illegal value for configuration data for profile end identification tolerance window
6014	Illegal value for configuration data for actual value extrapolation time
6015	Illegal value for configuration data for actual value coupling tolerance window
6016	Illegal value for the injection tolerance configuration (relieveWindow) at software limit switch
6017	Illegal value for the type specification configuration (monitoringAtMotionStart) at software limit switch
6018	Illegal value for configuration data for axis-specific path tolerance activation based on setpoint

6019	Illegal value for configuration data for axis-specific path tolerance based on setpoint
6020	Illegal value for configuration data for axis-specific path synchronization tolerance activation based on setpoint
6021	Illegal value for configuration data for axis-specific path synchronization tolerance based on setpoint
6022	Illegal value for configuration data driveControlConfig.releaseDisableMode (RELEASE_DISABLE drive behavior error response)
6023	Illegal value for configuration data of velocity type with master value extrapolation of actual values
6024	Illegal value for configuration data TypeOfAxis.Homing.direction, 'Approach direction during homing'
6025	Illegal value for configuration data TypeOfAxis.Homing.beroDistance, 'Maximum distance to the homing output cam'
6026	Illegal value for configuration data for Synchronous operation error message at master value
6027	Illegal value for the configuration data TypeOfAxis.DecodingConfig.directionDynamic
6028	Illegal value for the configuration data TypeOfAxis.DecodingConfig.behaviourAtTheEndOfProfile
6029	Illegal value for the configuration data TypeOfAxis.DecodingConfig.decodeSequentialMotionCommand
6030	Illegal value for the configuration data TypeOfAxis.DecodingConfig.transferSuperimposedPosition
6031	Illegal value for the configuration data TypeOfAxis.DecodingConfig.speedModeSetPointZero
6032	Illegal value for the configuration data TypeOfAxis.DecodingConfig.stopWithJerk
6033	Illegal value for the configuration data TypeOfAxis.DecodingConfig.disableMotionOperation
6034	Illegal value for the configuration data TypeOfAxis.DecodingConfig.profileDynamicsLimiting
6035	Illegal value for the configuration data TypeOfAxis.DecodingConfig.cyclicSetUpInForceLimiting
6036	Illegal value for the configuration data TypeOfAxis.Homing.enableBeroDistance
6037	Illegal value for the configuration data TypeOfAxis.Homing.referencingNecessary
6038	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableLifeSignMonitoring
6039	Illegal value for the configuration data TypeOfAxis.DistributedMotion.numberOfLifeSignFailures
6040	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableDelayOfCommandValueOutput
6041	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableOffsetCompensation
6042	Illegal value for configuration data driveControlConfig.pulsesEnabledEvaluation (axis behavior for drive-independent stop response)
6050	Illegal value for the configuration data driveControlConfig.dataAdaption
6051	Illegal value for the configuration data driveControlConfig.disableModeSpecification

6043	Illegal value for the configuration data TypeOfAxis.ControllerSwitchData.NumberOfDigitalInputs.number
6044	Illegal logical address of the digital input in the configuration data structure TypeOfAxis.ControllerSwitchData.NumberOfDigitalInputs.DigitalInput_x
6045	Illegal value for configuration data for maximum deceleration
7000	Illegal data in process model configuration
8000	General error when reading or writing data set.
8001	The selected data set number is not available.
8002	Cannot write the active data set.
8003	Cannot change the controller structure (by writing a data set).
4120	Error in following error monitoring parameter. Illegal value in DynamicFollowong.minPositionTolerance
4121	Error in following error monitoring parameter. Illegal value in DynamicFollowong.maxPositionTolerance
4122	Error in following error monitoring parameter. Illegal value in DynamicFollowong.minVelocity
4123	Error in following error monitoring parameter. Illegal value in DynamicFollowong.warningLevel
4124	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.posWinToITime
4125	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.posWinToIDelayTime
4126	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.tolerance
2042	The numerator of the load gear is incorrect.
2043	The nominal factor of the load gear is incorrect.
2044	The value for the reference velocity is incorrect.
2045	Evaluation of the PulsesEnabled bit (pulsesEnabledEvaluation = YES) is not possible in telegram 1 (telegramType = DP_TEL1_STANDARD).
6046	Illegal value for the configuration data TypeOfAxis.DecodingConfig.maximalBufferedMotionCommands
6047	Illegal value for the configuration data TypeOfAxis.DecodingConfig.lengthOfBufferForSuperimposedCommands
6048	Illegal value for the configuration data TypeOfAxis.DecodingConfig.blendingAcceleration
6049	Illegal value for the configuration data TypeOfAxis.DecodingConfig.commandsForAxisDynamics
4128	enableDSCSpline requires telegram 125 or 126
2046	Evaluation of the PulsesEnabled bit (pulsesEnabledEvaluation) is not carried out when using DSDB.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT

Remedy

Change the data set parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50011 Limit range of the incremental actual value exceeded (Parameter1: /1/%d)

Cause

The value of the current position or the internal incremental position has exceeded the system-internal upper or lower limit.

Meaning of alarm parameters

Parameter 1:	
1	Range exceeded in positive direction
2	Range exceeded in negative direction
4	The modified actual position is greater than the modulo length in one position control cycle clock.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

For parameter 1: 1 and parameter 1: 2

General

Ensure that the Modulo characteristic is activated on the TO (TO.Modulo.state = ACTIVE) if the encoder on the TO is to record the position of an infinite motion in one direction. If this is not possible, the traversing range must be taken into consideration during the configuration of the TO.

Leaving the error state for non-modulo encoders as of V4.3:

Absolute encoder

(TO.TypeOfAxis.NumberOfEncoders.Encoder_N.encoderType = SENSOR_ABSOLUTE/
SENSOR_CYCLIC_ABSOLUTE)

- Acknowledgement of the alarm 50011 and correction of the position in the direction opposite to the direction of crossing the limit value by absolute encoder adjustment. The offset to be calculated must be at least one millimeter. This value increases by the position changes of the absolute encoder, which are not recorded after the 50011 alarm.

Non-cyclic absolute encoders only:

- Restart of the TO with the prerequisite that the sum of the total absolute encoder adjustment and the position calculated from the current encoder incremental position is less than the internal upper or lower position limit.

For axes only:

- Acknowledgment of the 50011 alarm, speed-controlled enabling of the axis and then speed-controlled traversing of the axis in the direction opposite to the direction of crossing the limit value. The traversing distance must be at least one millimeter. The traversing distance increases by the position changes of the absolute encoder, which are not recorded after the 50011 alarm.

If the encoder returns to a valid range, then the position of the absolute encoder is reinitialized with the current absolute encoder adjustment and the current encoder incremental position (sensordata[N].state = NOT_VALID -> VALID).

Incremental encoder

(TO.TypeOfAxis.NumberOfEncoders.Encoder_N.encoderType = SENSOR_INCREMENTAL) (cause of error 1 and 2):

- Restart

For axes only:

- Acknowledgment of the 50011 alarm, enabling of the axis and then traversing of the axis in the direction opposite to the direction of crossing the limit value.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50012 Drive/encoder does not support the selected function (reason: /1/%d)**Cause**

The homing function cannot be performed.

Meaning of alarm parameters

Reason:	
1	The homing function is not possible with the type of zero mark configured.
2	The homing function is not supported by the device or has been aborted by it.
3	The homing function is not active on the device despite the homing job running on the technology object.
4	The device could not be configured for the homing function because of a measuring or homing job that was already active.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Check the following:

- The support for the homing function provided by the drive or encoder
- The availability of the zero mark configured
- The encoder's configuration data and the drive's settings. Please also consider, if necessary, any troubleshooting tips in the device documentation.
- The encoder
- Encoder connection
- Check the wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50013 The permissible range limits have been violated (logical address: /1/%d, reason: /2/%d)

Cause

Range violation for additional sensor.

Meaning of alarm parameters

Logical address:	Address configured on the technology object.
-------------------------	--

Reason:	
1	Value greater than maximum permissible value.
2	Value less than minimum permissible value.
3	Positive overflow of sensor range.
4	Negative overflow of sensor range.
5	Error in accessing hardware address.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	DINT

Remedy

Check the following:

- Check the sensor connection.
- Check the wiring.
- Adjust the configuration data, if necessary.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

50014 Permissible control deviation of the pressure controller has been exceeded

Cause

Permissible control deviation of pressure controller exceeded.

Remedy

Check for correct functioning of the pressure control loop.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50015 Level overflow of the IPO not detected

Cause

The system could not intercept a level overflow.

Remedy

Please contact Siemens Support with the error number indicated above.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50016 Limitation of the backstop active**Cause**

The speed setpoint is limited by the backstop.

Remedy

Check the following:

- Mechanical configuration
- Encoder connection
- Configuration of the speed setpoint interface
- Maximum permissible backstop values in the configuration data

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50017 Manipulated variable monitoring on the Q-/F-output active (Parameter1: /1/%d)

Cause

The manipulated variable is limited.

Meaning of alarm parameters

Parameter 1:	Specification of the limitation
1	Monitoring active on Q-output.
2	Monitoring active on F-output.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Check the following:

- Configuration of the valve characteristic
- Maximum permissible velocity or the maximum permissible force/pressure setpoint in the configuration data
- Encoder connection
- Configuration of the setpoint interface

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

50018 The permissible range limits of the differential measurement have been violated (additional sensor number: /1/%d, reason: /2/%d)

Cause

Range violation for differential measurement of additional sensor.

Meaning of alarm parameters

Additional sensor number:	Specifies the additional sensor number.
----------------------------------	---

Reason:	
1	Value greater than maximum permissible value.
2	Value less than minimum permissible value.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	DINT

Remedy

Check and adjust the configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50019 **The permissible range limits of the input value via system variable have been violated (additional sensor number: /1/%d, reason: /2/%d)**

Cause

Range violation of input value via system variable for additional sensor.

Meaning of alarm parameters

Additional sensor number:	Specifies the additional sensor number.
----------------------------------	---

Reason:	
1	Value greater than maximum permissible value.
2	Value less than minimum permissible value.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	DINT

Remedy

Check and, if required, adjust the configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

50020 System variable ServoSettings (element /1/%d) is reset (reason /2/%d)

Cause

The ServoSettings system variable structure is reset due to a stop response.

Meaning of alarm parameters

Element:	
1	Axis_n.servoSettings.additionalCommandValueSwitch
2	Axis_n.servoSettings.additionalSetpointValueSwitch
3	Axis_n.servoSettings.additionalQOutputValueSwitch

Reason:	
1	_stopemergency command or alarm response FEED_BACK_EMERGENCY_STOP
2	Transition to follow-up in closed-loop control mode
3	Enables were canceled

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT
2	DINT

Remedy

Check the stop response.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50021 The writing of system variable ServoSettings (element /1/%d) is rejected because of a stop response

Cause

System variable ServoSettings (element /1/%d) cannot be write-accessed due to a stop response.

Meaning of alarm parameters

Element:	
1	Axis_n.servoSettings.additionalCommandValueSwitch
2	Axis_n.servoSettings.additionalSetpointValueSwitch
3	Axis_n.servoSettings.additionalQOutputValueSwitch

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT

Remedy

Check the stop response.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

50022 maxVelocity cannot be attained with the set drive and axis parameters**Cause**

The maximum velocity set in TypeOfAxis.MaxVelocity.maximum cannot be attained with the selected drive and axis parameters.

Remedy

Check the following:

- The mechanical configuration (leadscrew pitch, load gears, etc.).
- The drive parameters, in particular, the maximum speeds and velocities
- Configuration of the speed setpoint interface
- Maximum permissible velocity rates in the configuration data
- The maximum velocity of the axis (configuration data: TypeOfAxis.MaxVelocity).

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50023 Drive performs transition to independent state

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

The drive enters an independent state (e.g.:

- Drive-independent deceleration along the OFF3 ramp (typical scenario: selection of SS1 or SS2 / STOP B or STOP C)
- While the motor brake is closed.

Remedy

Check the following:

- The machine for safety-relevant events
- The parameterization of the safety components
- The drive for an OFF3 command
- The motor brake for full opening

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

OPEN_POSITION_CONTROL

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50024 Long-term stability of the actual values is not guaranteed (encoder number /1/%d, data set number /2/%d)

Cause

Taking account of the mechanical relationships, the current encoder configuration does not permit the determination of long-term stable factors for the sensor-side conversion of the encoder raw actual values into (modulo) position and velocity actual values and/or for the actuator-side conversion of the position and velocity setpoints into encoder raw actual value equivalents. To evaluate the quantities to be converted, equivalent but non-long-term stable factors are used as replacement. The long-term stability of the actual values is not guaranteed!

Meaning of alarm parameters

Encoder number:	Number of the encoder at which the problem was detected
Data set number:	The number of the data set whose configuration in conjunction with the configuration of the specified encoder caused the problem (>0: Error during the calculation of the sensor-side factors, =0 error during the calculation of the actuator-side factors)

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT

Remedy

Check the following:

- The leadscrew pitch configured on the technology object
- The load gear configured at the specified data set
- At the encoder, for example, the configured resolution, fine resolution of the cyclical actual value and the measuring gear ratio

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50101 Window for reference model monitoring exceeded

Cause

- The dynamic demands on the control loop are too high.
- The speed error monitoring is activated and the maximum speed deviation - i.e. the value in the configuration date "TypeOfAxis.NumberOfDataSets_1.ControllerDynamic.maxVeloTolerance" - was exceeded.

Remedy

- Check the encoder count direction.
- Check the control loop parameter assignment.
- Change the parameter assignment for following error monitoring.
- Check the rated speed of the motor specified on the axis against the setting on the drive, and adjust the speeds.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50102 Window for dynamic following error monitoring exceeded**Cause**

The dynamic demands on the control loop are too high, or the control system is overloaded.

Remedy

- Check the encoder count direction.
- Check the control loop parameter assignment.
- Change the parameter assignment for following error monitoring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50103 Warning limit of dynamic following error monitoring reached

Cause

The dynamic demands on the control loop are too high or the control system is overloaded, the warning stage has been reached.

Remedy

- Check the encoder count direction.
- Check the control loop parameter assignment.
- Change the parameter assignment for following error monitoring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50106 Position monitoring error**Cause**

The axis could not reach the positioning window in the specified time.

Remedy

- Check the control loop parameter assignment.
- Check the parameter assignment for position monitoring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50107 Standstill monitoring error

Cause

The axis has left the standstill window or could not reach the standstill window in the specified time.

Remedy

- Check that the control loop is operating correctly.
- Check the parameter assignment for standstill monitoring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50108 Clamping monitoring error**Cause**

The axis has left the clamping tolerance window.

Remedy

- Check the mechanical end stop.
- Check that the control loop is operating correctly.
- Check the parameter assignment for clamping monitoring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50109 Force entry window monitoring error

Cause

The axis could not reach the starting force window in the specified time.

Remedy

Check the following:

- Control loop parameter assignment
- Parameter assignment for monitoring

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50110 Force end value monitoring error**Cause**

The axis has left the full-scale force window or could not reach the window in the specified time.

Remedy

Check the following:

- Control loop operation
- Parameter assignment for monitoring

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50111 Pressure controller is working at the limit

Cause

The manipulated variable required by the force controller cannot be implemented and is limited.

Remedy

Check that the control loop is operating correctly.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50112 **Incorrect polynomial parameters when extrapolating pressure (reason: /1/%d, command type: /4/%X)**

Cause

The polynomial parameters entered do not define any continuously increasing, uniquely invertible polynomial.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as an integer value.
----------------------	---

Reason:	
0x1	The time entered is negative.
0x2	P0 is greater than P1.
0x4	The derivative in point P1 is 0.
0x10	The derivative in point P0 is 0.
0x20	The derivative in point P0 is greater than in point P1.
0x40	The polynomial is not unique.
0x80	The polynomial has a point of inflexion.
0x100	The polynomial is not uniquely invertible.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Change the parameter(s).

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50114 Error for the _enableForceControl-/LimitedByCondition command

Cause

The selection of a force/pressure encoder not in the closed-loop control is not permitted in conjunction with the use of the force/pressure criterion for _enableForceControl-/LimitedByCondition.

Remedy

Check the following:

- The parameterization of the command.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50201 Safety alarm in the drive**Additional references**

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

When using SIDB, a result appears in the SINAMICS Safety Integrated Message Buffer (r9747).

When using DSDB, either a result in the SINAMICS Safety Integrated Message Buffer (r9747) appears, or a STOP reaction is active in the drive.

Remedy

Program a specific alarm response.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50202 SINAMICS Safety Integrated Extended Function is selected

Additional references

For additional information, refer to the function manuals:

- TO Axis Electric / Hydraulic, External Encoder,
- Technology Objects Synchronous Operation, Cam and
- in the online help.

Cause

The drive starts a Safety Integrated Extended Function.

Remedy

Program a specific alarm response.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50203 SINAMICS Safety Integrated Extended Function is deselected**Additional references**

For additional information, refer to the function manuals:

- TO Axis Electric / Hydraulic, External Encoder,
- Technology Objects Synchronous Operation, Cam and
- in the online help.

Cause

The drive completes a Safety Integrated Extended Function.

Remedy

Program the specific alarm response.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50209 Error on safe brake test. (Reason /1/%d)

Cause

An error has occurred during the safe brake test.

Reason:	Specification
0	no reason specified.
1	Requirements for SBT incorrect.
2	Error establishing the load torque.
3	Error on brake 1 and positive direction brake test.
4	Error on brake 1 and negative direction brake test.
5	Error on brake 2 and positive direction brake test.
6	Error on brake 2 and negative direction brake test.
7	The maximum duration of the brake test has been exceeded.
8	The drive has unexpectedly returned the control priority.
9	The drive has finished the brake test with errors.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Check drive error message

Check your brake management in the case of an external brake

For reason 1: Ensure that the correct axis status is set on the TO before starting the brake test. The axis must be enabled with the `_enableAxis()` command in mode 'enableMode=POWER' with 'servoControlMode=INACTIVE'.

For reasons 7-9: Read the Safety Warn buffer, correct the error and, if necessary, acknowledge the corresponding message.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

2.4 MeasuringInputType

20001 Internal error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Error source
Parameters 2 to 4:	Fault number

Description of the alarm parameters in the `_getMeasuringInputErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

MEASURING_INPUT_DISABLE

Settable local reactions

MEASURING_INPUT_DISABLE

Diagnostics buffer entry

Yes

20002 **Insufficient memory (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)**

Cause

The memory required by the system is no longer available.
 This alarm can occur both during ramp-up and after program calls.

Meaning of alarm parameters

Parameter 1:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Parameters 2 to 4 are area-specific.
 They are not fully utilized by all areas.

Command decoding area:

Parameters 2 and 4	refer to the command in which the error occurred.
Parameter 2:	Command return value
Parameter 4:	Command type

Description of the alarm parameters in the `_getMeasuringInputErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

- Reduce the size of the ST code.
- Reduce the number of technology objects.
- Reduce the number of interpolation points for cams, if present.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

MEASURING_INPUT_DISABLE

Settable local reactions

MEASURING_INPUT_DISABLE

Diagnostics buffer entry

Yes

20003 Internal configuration error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system

Parameters 2 to 4 are area-specific.

These parameters are not fully utilized by all areas.

Command decoding area:

Parameters 2 and 4	refer to the command in which the error occurred.
Parameter 2:	Command return value
Parameter 4:	Command type

Description of the alarm parameters in the `_getMeasuringInputErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP MEASURING_INPUT_DISABLE

Diagnostics buffer entry

Yes

20004 Under logical address: /1/%d (bit number, if required: /2/%d) no driver (type: /3/%d) could be requested (error number: /4/%d)

Cause

The driver of a physical device or the device itself is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getMeasuringInputErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT

Remedy

- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

MEASURING_INPUT_DISABLE

Settable local reactions

MEASURING_INPUT_DISABLE

Diagnostics buffer entry

Yes

20005 Device type:/3/%d, log. address:/1/%d faulted. (Bit:/2/%d, encoder number:/5/%d, reason: 0x/4/%Xh)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

The driver of a physical device or the device itself has failed or is faulty.

If this alarm occurs, the cause of the error must be evaluated in the external device (drive or encoder).

Meaning of alarm parameters

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver
12	Safety data block driver
13	Update counter
14	Operating characteristics data block driver

Logical address:	This is the logical input address configured on the technology object.
Bit number:	For bit driver type = 3 or 4 only; number of the bit
Encoder number:	Number of the encoder in case of telegrams with multiple encoders. Applies only when type = 2.
Reason:	0 - only defined when type = 2

Note

Addition of error messages

The codings for the reason of the failure specified below for the individual alarm types can also occur in combination. A group coding is indicated as the sum of several individual codings (e.g. 0x0005 = 0x0001 + 0x0004).

A failure reason labeled with DP can occur only for PROFIBUS devices.

Type = 1	
0x0001h	Fault message from the drive (note: for PROFIBUS drives, which support acyclic communication in accordance with PROFIdrive V3, the error number(s) of the drive are displayed in the diagnostic buffer, e.g. for Masterdrives MC)
0x0002h	DP: Drive signal "control requested" failed
0x0004h	DP: Drive disconnected itself
0x0008h	Slot for drive data is not available in the project
0x0010h	Actuator driver does not have a connection to the drive data
0x0020h	Actuator driver was not initialized during ramp-up
0x0080h	DP: Difference between configuration data and drive parameters (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	DP: Control signals to the PROFIdrive state machine were incorrectly specified
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
0x8000h	DP: Life-sign of drive has malfunctioned or failed
0x80000000h	The drive interface has been deactivated for the pending enables.
Type = 2	
0x0000h	The actual value changes exceed the limit value derived from the maximum velocity (configuration data TypeOfAxis.MaxVelocity.maximum) over multiple cycles. This monitoring can be activated or deactivated with configuration data TypeOfAxis.NumberOfEncoders.Encoder_x.AbsEncoder.enableAbsMonitoring.
0x0001h	Alarm message from encoder (note: the encoder error number(s) are displayed in the diagnostic buffer)
0x0002h	General hardware error of encoder
0x0004h	Encoder is dirty
0x0008h	Slot for encoder data is not available in the project
0x0010h	Encoder driver does not have a connection to the encoder data
0x0020h	Encoder driver was not initialized during ramp-up
0x0040h	Error when reading the absolute value of the encoder
0x0080h	DP: Difference between the configuration data and the encoder parameters Onboard C2xx: Inconsistency of the configuration data (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	Zero mark monitoring of encoder
0x0200h	DP: Encoder has gone to Parked state
0x4000h	DP: Encoder on bus failed (station failure)

0x8000h	DP: Life-sign of encoder has malfunctioned or failed. (note: for an encoder whose data are transferred in a drive telegram together with actuator data, the actuator life-sign applies to the encoder, e.g. for standard telegram 3 in accordance with PROFIdrive)
0x80000000h	The sensor interface has been deactivated for the pending enables.
Type = 3...6	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 7	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 8	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 9	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 10	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 11	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 12	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 13	
0x1h	The actual value was specified via a system variable and the permissible number of failure cycles was exceeded
0x2h	The actual value was updated with an update counter in the I/O area and the permissible number of failure cycles was exceeded

Description of the alarm parameters in the `_getMeasuringInputErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

The remedy for the respective type and cause is described below.

Type 1

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- A system fault may be present. Call the hotline.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- When sign-of-life monitoring is set: Ensure that in HW Config for drive under DP slave properties - isochronous operation - drive, the "synchronize to equidistant DP cycle" field is activated.
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
- Up to SIMOTION RT V4.3: If the alarm occurs after the download on a drive with telegram 999: Compare the parameterized bit position for the "Pulses enabled" status signal in drive parameter p924 with the configuration data 'DriveControlConfig.PulsesEnabled' of the TO axis. In this case, there is not necessarily an incorrect parameterization and therefore a check cannot be performed by the system because of the BICO interconnection. Therefore, make sure that the Pulses enabled bit is in the correct position.

For reason 0x0100

- Correct your user program with regard to PROFIdrive-compliant specification of control bits in the _enable/disableAxis commands, e.g. control signal OFF (STW1.0 = false) must precede a drive connection.

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 2

For reason 0x0000

- Check the absolute encoder functions, connections and configuration. Take note of this when monitoring is deactivated (not with Alarm 20015).

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- Make sure that the user program does not reference a technology object containing an encoder (Axis, External Encoder) with an '_enableaxis' or '_enableexternalencoder' command while system variable 'sensordata.sensordata[n].state' is signaling invalid.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0040

- Compare the encoder type in the drive or encoder parameter P979 with the configuration data of the technology object.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
 - Compare the encoder type, resolution, shift factor, and, in the case of absolute encoders, the number of rotations in the drive or encoder parameter P979 to the encoder type, resolution, fine resolution, and, in the case of absolute encoders, the data length in the configuration data of the technology object.
- When using telegram 999, this message always appears, as the bit position is not checked by the system in this case, but has to be performed by the user.

For reason 0x0100

- Check the device functions, connections and wiring.

For reason 0x0200

- Find the cause of the error in the connected drive or encoder. Check whether the alarm was triggered due to a commissioning operation on the drive or encoder.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 3 - Type 6For reason 0x0000

- Check the configuration and the signal paths of the connection.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 7For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 8For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 9For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 10For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 11 - Type 12For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring. If the error cannot be acknowledged when the axis is in simulation mode, check whether the technology data block is activated, and if this is the case, deactivate it.

Type 13

For reason 0x1

- Check the specification of the actual value with regard to function, configuration, and task configuration.

For reason 0x2

- Check the device functions, configuration, connections and wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MEASURING_INPUT_DISABLE

Settable local reactions

MEASURING_INPUT_DISABLE

Diagnostics buffer entry

Yes

20006 Configuration error (category: /1/%d, error number: /2/%d, additional information: /3/%d)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

This alarm indicates error states caused by a faulty or inconsistent configuration. The technology objects perform a plausibility check on the configuration. Errors are identified by the error codes below.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of the error
500	Illegal technology object configuration state.
501	More configuration data expected than received.
502	Invalid configuration data.
503	Version conflict in configuration.
504	The configured task level is not supported by this TO.
505	The value range of the maximum number of command IDs has been violated.
506	The configured task level is not supported by the used hardware.
1001	Illegal measuring input number in the configuration data MipInputCfg.measurinInputNumber
1002	Illegal sensor system number in the configuration data MipInputCfg.sensorSystemNumber
1003	Illegal logical address of input of the measuring input in the configuration data structure LogAddress
1004	Error in configuration data DecodingConfig.numberOfMaxBufferedCommandId
1005	Error in configuration data MeasuringRange.activationTime
1006	Error in configuration data TimeStampConfig.correctionTime
1007	Error in configuration data MipInputCfg.checkProbeState
1008	Error in configuration data MipBaseCfg.taskLevel
1009	Error in configuration data MipBaseCfg.inputType
1010	Error in configuration data MipBaseCfg.inputAccess
1011	Error in configuration data MipBaseCfg.referenceValue

Additional information:	More detailed description of the error origin
	Not relevant

Description of the alarm parameters in the `_getMeasuringInputErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT

Remedy

Change the configuration data.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

MEASURING_INPUT_DISABLE

Settable local reactions

MEASURING_INPUT_DISABLE

Diagnostics buffer entry

Yes

20007 Interconnection error (category: /1/%d, context: /2/%d, context parameter1: /3/%d, context parameter2: /4/%d)

Cause

This alarm indicates errors in the interconnection of technology objects. When the interconnection is established, the technology object verifies it on the basis of the interface properties. Errors are classified by category.

Additional information for a more detailed description of the error can be output from the context. An error context is output for selected error categories. Additional context parameters can be output for a context, if necessary. Context and context parameters are output as an integer value.

Meaning of alarm parameters

Category:	
1	Technology object compatibility error An interconnection is to be established with a technology object that has been configured with another reference system (e.g. output cams with rotary reference system and linear axis).
2	Exclusive interface An interface on a technology object that can only be connected to another technology object using one coupling type should be interconnected using different, mutually exclusive couplings. For example, the master value interface on a positioning axis for an interconnected synchronous object can only be operated as a setpoint or an actual value coupling.
3	Interconnection request The technology object awaits the interconnection to another technology object (necessary interconnection) in order to provide its functionality. Thus, for example, the interconnection to a gear axis is a required interconnection on a synchronous object.
4	Error during interface initialization The alarm is output in the event of initialization errors when connecting interfaces on the technology object.
5	Interface not available on technology object An interface required in the interconnection is not available on the technology object.
6	Recursion The interconnection on the technology object results in a recursion in the execution system of the technology package. The technology object does not support recursive execution.
7	Execution level compatibility error An interconnection is to be established with a technology object that is classified in a different execution level (e.g. output cam in execution level IPO and axis in execution level IPO_2). The technology object does not support interconnection to technology objects of other execution levels.
8	Initialization distribution In the case of interconnected technology objects that are distributed among different devices, an error occurred during initialization of the communication.

9	<p>Illegal TO state The technology object cannot be interconnected in the current state. A technology object can be interconnected only after the configuration has been successfully completed. Refer to the diagnostic buffer to determine the exact cause of the error. The cause of the illegal TO state is entered there (e.g. a level overflow during the configuration phase) and can then be corrected (in the example, by allowing level overflows in the task configuration).</p>
10	<p>Interface assignment The configured interface via which the technology object communicates cannot be used from the processing cycle clock of the technology object.</p>
11	<p>Active command in recursive TO interconnection The interconnection of the technology object and the enable state at its inputs result in an active recursive interconnection (positive feedback).</p>

Description of the alarm parameters in the `_getMeasuringInputErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

Context / context parameter:

Contact the hotline and provide the name of the context parameter.

Category:

1 - Technology object compatibility error

Check the configuration and set a common reference system for the technology objects to be interconnected.

2 - Exclusive interface

Ensure that the project is consistent. Contact the hotline, if necessary.

3 - Interconnection request

Ensure that the project is consistent. The missing interconnection on the technology object is specified in the context:

Context

TO type

Interface

4

Measuring input

Measuring input / master value source

4 - Error during interface initialization

Contact the hotline and provide the name of the context parameter.

5 - Interface not available on technology object

Contact the hotline and provide the name of the context parameter.

6 - Recursion

Check the interconnection topology of your project. Remove unnecessary interconnections.

7 - Execution level compatibility error

Select a common execution level in the configuration for the technology objects to be interconnected (e.g. output cam and axis in IPO_2).

8 - Initialization distribution

- Ensure that your project is consistent. For proper configuration of communication, all devices must be compiled ('Project/Save and compile all' or "Save and compile all new').
- Determine whether all devices are selected for loading the project ('Target system/Select target devices...').
- Check whether the configured bus topology matches the actual bus topology.
- Ensure that the devices are linked in the bus configuration (PROFIBUS).
- Check whether isochronous operation was selected.
- In addition, the address areas that are used by the devices for communication must be set up. The address areas are automatically set up when the project is compiled; only afterwards is the valid hardware configuration available for downloading. Do not change automatically generated address areas afterwards.
- Contact the hotline and provide the name of the context parameter.

9 - Illegal technology object state

- Correct the configuration of the technology object.
- Eliminate the execution error.

10 - Interface assignment

- Configure the bus interface to match the processing cycle clock (e.g. fast bus system and axis in FastIPO).

11 - Active command in recursive TO interconnection

- Inputs of technology objects can already be enabled during the download (e.g. TO AdditionObjectType). Remove or change the relevant interconnection on the technology object or switch a technology object, whose input is enabled by the user program and not already by the download, into the positive feedback branch.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MEASURING_INPUT_DISABLE

Settable local reactions

MEASURING_INPUT_DISABLE

Diagnostics buffer entry

Yes

20008 Assignment of USER_DEFAULT to system variables is not possible

Cause

It is not appropriate to assign USER_DEFAULT to a UserDefault system variable, because the variable references itself in this case.

As a result, a meaningful value cannot be generated on readout. When this error occurs, the new Enum value is not assigned. The variable retains the old value.

Remedy

USER_DEFAULT is intended for use in technology commands. Avoid assigning it to system variables.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE

Diagnostics buffer entry

No

20009 **Reserved error**

Cause

This error is not currently in use.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MEASURING_INPUT_DISABLE

Settable local reactions

MEASURING_INPUT_DISABLE

Diagnostics buffer entry

Yes

20010 A restart is required to activate the configuration data

Cause

The configuration cannot be activated, since data has been modified preventing the activation. The technology object must be restarted to activate the data.

Remedy

- Execute the technology object reset command, and set the 'activateRestart' parameter to 'ACTIVATE_RESTART'.
- Set the 'restartActivation' system variable to 'ACTIVATE_RESTART'.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

20011 **Error occurred while activating the configuration (category: /1/%d, error number: /2/%d, additional information: /3/%d)**

Cause

This alarm indicates error conditions when activating the configuration. The error conditions can be traced back to an incorrect or inconsistent configuration. The technology objects perform a plausibility check on the configuration. Errors are identified by the error codes below. The configuration is not activated when this alarm occurs.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of the error
500	Illegal technology object configuration state.
501	More configuration data expected than received.
502	Invalid configuration data.
503	Version conflict in configuration.
504	The configured task level is not supported by this TO.
505	The value range of the maximum number of command IDs has been violated.
506	The configured task level is not supported by the used hardware.
1001	Illegal measuring input number in the configuration data MipInputCfg.measurinInputNumber
1002	Illegal sensor system number in the configuration data MipInputCfg.sensorSystemNumber
1003	Illegal logical address of input of the measuring input in the configuration data structure LogAddress
1004	Error in configuration data DecodingConfig.numberOfMaxBufferedCommandId
1005	Error in configuration data MeasuringRange.activationTime
1006	Error in configuration data TimeStampConfig.correctionTime
1007	Error in configuration data MipInputCfg.checkProbeState
1008	Error in configuration data MipBaseCfg.taskLevel
1009	Error in configuration data MipBaseCfg.inputType
1010	Error in configuration data MipBaseCfg.inputAccess
1011	Error in configuration data MipBaseCfg.referenceValue

Additional information:	More detailed description of the error origin
	Not relevant

Description of the alarm parameters in the `_getMeasuringInputErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT

Remedy

Change the configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

20012 Restart not carried out (reason: /1/%d)

Cause

Technology object could not be restarted.

Meaning of alarm parameters

Reason:	
1	The technology object configuration does not allow a restart with the restart system variable.
2	The technology object is not ready to be restarted.
3	A configured condition for restarting the technology object is not met (e.g. technology object must be 'disabled').
4	Restart was not performed with the last programmed configuration of the technology object because this is faulty
5	The configuration of the technology object does not permit any restart.

Description of the alarm parameters in the `_getMeasuringInputErrorState` command:

No.	Data type
1	DINT

Remedy

Reason:	
1	Initiate the restart using the reset command.
2	Reload the project.
3	Work around the cause stated in the Reason parameter, or reload the project.
4	Determine whether technological alarms were reported or error entries were made in the device diagnostics and, if necessary, remedy the cause.
5	Change the configuration to activate the appropriate restart capability.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

20014 Under logical address: /1/%d (optional log. address: /2/%d and bit no.: /3/%d of the enable output), a driver (type: /4/%d) could not be requested

Cause

The driver of a physical device is not available or is being used by another technology object.

The enable command for the technology object has been issued more than once with the 'immediately' stepping condition.

Meaning of alarm parameters

Logical address:	This is the address of the actuator driver configured on the technology object.
Logical address and bit number:	This specifies the address and bit number of the output enable bit.

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver

Description of the alarm parameters in the `_getMeasuringInputErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	DINT

Remedy

- Do not call the enable command cyclically "call the enable command only once for the axis enable".
- Check that the logical device was available at the time of the request or whether it was being used by another technology object.
- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MEASURING_INPUT_DISABLE

Settable local reactions

MEASURING_INPUT_DISABLE

Diagnostics buffer entry

Yes

20015 Device type:/3/%d, log. address:/1/%d faulted. (Bit:/2/%d, encoder number:/5/%d, reason: 0x/4/%Xh)

Cause

The driver of a physical device or the device itself has failed or is faulty.

If this alarm occurs, the cause of the error must be evaluated in the external device (drive or encoder).

Meaning of alarm parameters

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver
12	Safety data block driver
13	Update counter
14	Operating characteristics data block driver

Logical address:	This is the logical input address configured on the technology object.
Bit number:	For bit driver type = 3 or 4 only; number of the bit
Encoder number:	Number of the encoder in case of telegrams with multiple encoders. Applies only when type = 2.
Reason:	0 - only defined when type = 2

Note

Addition of error messages

The codings for the reason of the failure specified below for the individual alarm types can also occur in combination. A group coding is indicated as the sum of several individual codings (e.g. 0x0005 = 0x0001 + 0x0004).

A failure reason labeled with DP can occur only for PROFIBUS devices.

Type = 1	
0x0001h	Fault message from the drive (note: for PROFIBUS drives, which support acyclic communication in accordance with PROFIdrive V3, the error number(s) of the drive are displayed in the diagnostic buffer, e.g. for Masterdrives MC)
0x0002h	DP: Drive signal "control requested" failed
0x0004h	DP: Drive disconnected itself
0x0008h	Slot for drive data is not available in the project
0x0010h	Actuator driver does not have a connection to the drive data
0x0020h	Actuator driver was not initialized during ramp-up
0x0080h	DP: Difference between configuration data and drive parameters (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	DP: Control signals to the PROFIdrive state machine were incorrectly specified
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
0x8000h	DP: Life-sign of drive has malfunctioned or failed
0x80000000h	The drive interface has been deactivated for the pending enables.
Type = 2	
0x0000h	The actual value changes exceed the limit value derived from the maximum velocity (configuration data TypeOfAxis.MaxVelocity.maximum) over multiple cycles. This monitoring can be activated or deactivated with configuration data TypeOfAxis.NumberOfEncoders.Encoder_x.AbsEncoder.enableAbsMonitoring.
0x0001h	Alarm message from encoder (note: the encoder error number(s) are displayed in the diagnostic buffer)
0x0002h	General hardware error of encoder
0x0004h	Encoder is dirty
0x0008h	Slot for encoder data is not available in the project
0x0010h	Encoder driver does not have a connection to the encoder data
0x0020h	Encoder driver was not initialized during ramp-up
0x0040h	Error when reading the absolute value of the encoder
0x0080h	DP: Difference between the configuration data and the encoder parameters Onboard C2xx: Inconsistency of the configuration data (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	Zero mark monitoring of encoder
0x0200h	DP: Encoder has gone to Parked state
0x4000h	DP: Encoder on bus failed (station failure)

0x8000h	DP: Life-sign of encoder has malfunctioned or failed. (note: for an encoder whose data are transferred in a drive telegram together with actuator data, the actuator life-sign applies to the encoder, e.g. for standard telegram 3 in accordance with PROFIdrive)
0x80000000h	The sensor interface has been deactivated for the pending enables.
Type = 3...6	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 7	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 8	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 9	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 10	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 11	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 12	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 13	
0x1h	The actual value was specified via a system variable and the permissible number of failure cycles was exceeded
0x2h	The actual value was updated with an update counter in the I/O area and the permissible number of failure cycles was exceeded

Description of the alarm parameters in the `_getMeasuringInputErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

The remedy for the respective type and cause is described below.

Type 1

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- A system fault may be present. Call the hotline.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- When sign-of-life monitoring is set: Ensure that in HW Config for drive under DP slave properties - isochronous operation - drive, the "synchronize to equidistant DP cycle" field is activated.
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
- Up to SIMOTION RT V4.3: If the alarm occurs after the download on a drive with telegram 999: Compare the parameterized bit position for the "Pulses enabled" status signal in drive parameter p924 with the configuration data 'DriveControlConfig.PulsesEnabled' of the TO axis. In this case, there is not necessarily an incorrect parameterization and therefore a check cannot be performed by the system because of the BICO interconnection. Therefore, make sure that the Pulses enabled bit is in the correct position.

For reason 0x0100

- Correct your user program with regard to PROFIdrive-compliant specification of control bits in the _enable/disableAxis commands, e.g. control signal OFF (STW1.0 = false) must precede a drive connection.

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 2For reason 0x0000

- Check the absolute encoder functions, connections and configuration. Take note of this when monitoring is deactivated (not with Alarm 20015).

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- Make sure that the user program does not reference a technology object containing an encoder (Axis, External Encoder) with an '_enableaxis' or '_enableexternalencoder' command while system variable 'sensordata.sensordata[n].state' is signaling invalid.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0040

- Compare the encoder type in the drive or encoder parameter P979 with the configuration data of the technology object.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
 - Compare the encoder type, resolution, shift factor, and, in the case of absolute encoders, the number of rotations in the drive or encoder parameter P979 to the encoder type, resolution, fine resolution, and, in the case of absolute encoders, the data length in the configuration data of the technology object.
- When using telegram 999, this message always appears, as the bit position is not checked by the system in this case, but has to be performed by the user.

For reason 0x0100

- Check the device functions, connections and wiring.

For reason 0x0200

- Find the cause of the error in the connected drive or encoder. Check whether the alarm was triggered due to a commissioning operation on the drive or encoder.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 3 - Type 6

For reason 0x0000

- Check the configuration and the signal paths of the connection.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 7

For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 8

For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 9

For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 10

For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 11 - Type 12

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring. If the error cannot be acknowledged when the axis is in simulation mode, check whether the technology data block is activated, and if this is the case, deactivate it.

Type 13

For reason 0x1

- Check the specification of the actual value with regard to function, configuration, and task configuration.

For reason 0x2

- Check the device functions, configuration, connections and wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP MEASURING_INPUT_DISABLE

Diagnostics buffer entry

Yes

20016 Under logical address: /1/%d (bit number, if required: /2/%d) no driver (type: /3/%d) activated (error number: /4/%d)

Cause

The driver of a physical device or the device itself is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getMeasuringInputErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT

Remedy

- Check the activation/deactivation sequence for the interface.
- Note the runtimes of the commands and use the provided command control mechanisms (e.g. `nextCommand := WHEN_COMMAND_DONE`).
- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE MEASURING_INPUT_DISABLE

Diagnostics buffer entry

Yes

20017 Internal algorithm error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Error source
Parameters 2 to 4:	Fault number

Description of the alarm parameters in the `_getMeasuringInputErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact:

SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MEASURING_INPUT_DISABLE

Settable local reactions

MEASURING_INPUT_DISABLE

Diagnostics buffer entry

Yes

20018 Attempt to write the bit(s): 0x/1/%Xh in control word1 or the bit(s): 0x/2/%Xh in control word2 under the log. address: /3/%d has been rejected.

Cause

An attempt to write certain bits in control word 1 or 2 has been rejected.

Meaning of alarm parameters

Bits:	Display of bits which could not be written
Log. address:	Logical address of the device driver

Description of the alarm parameters in the `_getMeasuringInputErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT

Remedy

- Check the order of commands, particularly in relation to `_enableAxis(...)`.
- Check the command parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE

Diagnostics buffer entry

Yes

20019 Error for the commissioning, reason: /1/%d (Parameter1: /2/%d, Parameter2: /3/%d)

Cause

A commissioning function could not be executed.

Meaning of alarm parameters

Reason:	
1	Failure of the life-sign between controller and SIMOTION SCOUT
2	Protocol error
3	Command decoding error

Description of the alarm parameters in the _getMeasuringInputErrorState command:

No.	Data type
1	DINT
2	UDINT
3	UDINT

Remedy

Reason:	
1	Check the connection properties. If required, increase the monitoring time.
2	Should a system error of this type occur, note the alarm number, the alarm text and the specified alarm parameters, and contact: SIEMENS AG I DT MC, Hotline.
3	Should a system error of this type occur, note the alarm number, the alarm text and the specified alarm parameters, and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / NONE

Preassignment for local reactions

NONE

Settable local reactions

NONE MEASURING_INPUT_DISABLE

Diagnostics buffer entry

Yes

20020 Output deactivated

Cause

One or more outputs of the technology object have been deactivated. This is caused by the output-disable device status.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MEASURING_INPUT_DISABLE

Settable local reactions

NONE DECODE_STOP MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

20021 Configuration will be adapted internally (category: /1/%d, reason: /2/%d, limited value: /3/%f, additional information: /4/%d)

Cause

This alarm shows the implicit setting of configuration data to the maximum possible values. The technology objects perform a plausibility check on the configuration. Errors/manipulations are identified by the error codes below.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of configuration data
2001	Illegal value for maxSpeed (maxSpeed less than or equal to 2*nominalSpeed; maxSpeed will be set to 2*nominalSpeed)
2002	Illegal value for maxTorque/Force (maxTorque/Force less than or equal to 2*nominalTorque/Force; maxTorque/Force will be set to 2*nominalTorque/Force)
2003	Error during the adaptation of the Torque-/ForceReductionGranularity. p1544 is ignored and the default value used.
3001	The length of the backlash on reversal is limited to a permitted value (Encoder_N.incBacklash.length or Encoder_N.absBacklash.length).
3002	The compensation velocity of the backlash on reversal is limited to a permitted value (Encoder_N.incBacklash.velocity or Encoder_N.absBacklash.velocity).
3003	The value of the configuration data for the encoder system (.Encoder_N.encoderSystem) is limited to a permitted value.
3004	The value of the configuration data for the encoder resolution (rotary: .Encoder_N.incEncoder.incResolution, Encoder_N.absEncoder.absResolution; linear: Encoder_N.Resolution.distance) is limited to a permitted value.
3005	The value of the configuration data for the multiplication factor of the cyclical actual value (.Encoder_N.incEncoder.incResolutionMultiplierCyclic, Encoder_N.absEncoder.absResolutionMultiplierCyclic, Encoder_N.Resolution.multiplierCyclic) is limited to a permitted value.
3006	The value of the configuration data for the multiplication factor of the absolute value (Encoder_N.absEncoder.absResolutionMultiplierAbsolute) is limited to a permitted value.
3007	The value of the configuration data for the data length of the absolute value (Encoder_N.absEncoder.absDataLength) is limited to a permitted value.
3008	The value of the configuration data for the reference value of the Nact speed in the PROFIdrive telegram (Encoder_N.sensorNist.referenceValue) is limited to a permitted value.
3009	The load gear factor of the first data set is leading for the encoder simulation. The simulation with different load gear factors is not supported. The value of the configuration data for the load gear (DataSet_N.gear) is limited to the load gear ratio of the first data set.
4001	The delay time for the triggering of the standstill signal (StandStillSignal.delayTimeToActivate) is limited.
4002	The delay time until the position monitoring tolerance window is reached (PositionMonitoring.posWinToITime) is limited.
4003	The delay time until the activation of the position monitoring message (PositionMonitoring.posWinToIDelayTime) is limited.
4004	The delay time for the activation of the standstill monitoring message (StandStillMonitoring.delayTimeToActivate) is limited.
4005	The delay time of the actual value of the force/pressure entry monitoring (ForceControlRunningInWindowMonitoring.winToITime) is limited.
4006	The delay time until activation of the force/pressure entry monitoring (ForceControlRunningInWindowMonitoring.maxDelayTime) is limited.
4007	The delay time until activation of the force/pressure end value monitoring (ForceControlHeldValueMonitoring.delayTimeToActivate) is limited.

4008	The delay of the emergency ramp generator (EmergencyRampGenerator.maxDeceleration) is too small and set to the minimum possible value.
4009	The decay time constant of the friction compensation (Friction.decayTime) is limited.
4068	The maximum buffer length of the lag element in the balancing filter (Mode_2) is reached or exceeded. The lag element (maximum buffer length: 16 servo-cycles) is augmented by a PT1 element.
4069	The maximum buffer length of the lag component of the dynamic response compensation is reached or exceeded. The maximum value of this time constant is limited to 16 servo cycles. The buffer length of the lag element is maximum 16.

Additional information:	More detailed description of the error origin
Not relevant	

Description of the alarm parameters in the `_getMeasuringInputErrorState` command:

No.	Data type
1	DINT
2	DINT
3	LREAL
4	UDINT

Remedy

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

20023 Under logical address: /1/%d (bit number, if required: /2/%d) no I/O (type: /3/%d) are available (error number: /4/%d)

Cause

A physical device is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getMeasuringInputErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

MEASURING_INPUT_DISABLE

Settable local reactions

MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

20024 Under logical address: /1/%d (bit number, if required: /2/%d) no I/O (type: /3/%d) are available (error number: /4/%d)

Cause

A physical device is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getMeasuringInputErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MEASURING_INPUT_DISABLE

Settable local reactions

MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

30001 **Illegal parameter (parameter index according to standard sequence in the system functions: /1/%d, command type: /4/%X)**

Cause

Illegal parameter transfer to a system function. The command is not executed. This alarm occurs when the permissible parameter value range is violated. The permissible value range of the parameter is a function of its data type and the technological meaning of the parameter.

The parameter index indicates the position of the illegal parameter. The standard sequence of parameters in the system functions is apparent from the reference list associated with the command. The command type indicates the type of the faulty system function.

Meaning of alarm parameters

Parameter index:	Index of the system function parameter that triggered this error (listed according to the standard sequence in the system functions).
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getMeasuringInputErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the value range of the parameter data type.
- Check the technological meaning of the parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

30002 Command aborted (reason: /1/%d, command type: /4/%X)

Additional references

Further information is provided in the Function Manual:

- Basic Functions and
- in the online help.

Cause

The command was aborted before or during execution.

This can be caused by:

- A substituted command
- Command buffer reset
- Error state

Note

This alarm is always output, e.g. for jogging (`_move` aborted with `_stop`) or for the retraction of the reference BERO for homing or when Synchronous operation (explicitly) deactivated.

Meaning of alarm parameters

Reason:	
1	Reset of the command buffer
2	Abort by another command
5	Abort by a pending error response
6	Abort due to ambiguous commandId
8	No actual value for axis/external encoder (e.g. encoder or data bus not ready)
9	Abort due to abort of a dependent command
31	Maximum number of active commands exceeded
42	No interconnection to a technology object
44	Abort because of a pending command with identical command parameters
49	Abort due to measuring input error

Command type:	Outputs the aborted command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getMeasuringInputErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Set up the command again via program.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

30003 Command aborted because of full command buffer (command type: /4/%X)

Cause

The command is not entered in the command buffer because the buffer is already full.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getMeasuringInputErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the program flow.
- Typical cause: The 'nextCommand' parameter is passed with the value 'IMMEDIATELY', and the 'mergeMode' parameter is passed with the value 'SEQUENTIAL'.
 - Synchronize the command execution in the user program so that the command buffer is not occupied when the command is issued.
 - Use other values for the 'nextCommand' or 'mergeMode' parameters. Setting the 'nextCommand' to a value other than 'IMMEDIATELY' causes the program to wait for the command buffer to become available. In addition, setting a different 'mergeMode' means that the command buffer can be overwritten.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

30004 **Command is not defined for this technology object type (command type: /4/%X)**

Cause

Command was programmed on a technology object type not supporting processing of this command.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getMeasuringInputErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Issue the command on the correct technology object type.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

30005 **Ambiguous commandId (number of commands with the specified ID: /1/%d, command type: /4/%X)**

Cause

The specified commandId refers to more than one command. The specified action is performed for the command matching the specified ID that has been in the interpolator for the longest time.

If no corresponding command is found in the interpolator, the action refers to the next command loaded in the interpolator.

Meaning of alarm parameters

Id:	Number of commands referenced by the specified command ID.
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getMeasuringInputErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Use a different 'commandId' for commands that are active simultaneously.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

30006 Command cannot be executed because of the current object state (command type: /4/%X)

Cause

A reset command is active at the object or the object is deactivated.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getMeasuringInputErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the following:

- Check the object status.
- Check the possible execution sequence of the programmed commands.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

30007 The error cannot be reset because of its configuration

Cause

The 30007 alarm will be output when an alarm is reset that can only be acknowledged with PowerOn.

Example:

The internal 20001 error can only be acknowledged with PowerOn.

If an attempt is made to reset the alarm with a `_reset...Error` command, the 30007 alarm will be output.

Description of the alarm parameters in the `_getMeasuringInputErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

Check whether the errors present on the technology object can be acknowledged.

Correct the cause of the error and switch the CPU off/on or load the project again.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

30008 **Link to a technology object necessary for this operation does not exist (command type: /4/%X)**

Cause

The object connection required for this operation has not been configured or the connected technology object has been deactivated.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getMeasuringInputErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the project configuration.
- Change the object connection in the command.
- Activate the connected technology object.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

30009 **Command rejected as the decoding of the command of the technology object addressed has been deactivated/stopped (reason: /1/%d, command type: /4/%X)**

Cause

Command was rejected due to suspension of command decoding on the addressed technology object. The command decoding can be stopped by the DECODE_STOP alarm response, by deactivating or restarting the technology object, by starting the axis control panel in exclusive mode or by the absence of necessary interconnections.

Meaning of alarm parameters

Reason:	
1	Restart of the technology object
2	Technology object is deactivated
3	Technology object is in RUN mode.
4	Control panel active

Command type:	Outputs the type of the rejected command. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getMeasuringInputErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check why the command was rejected.
- If necessary, acknowledge any active errors once you have corrected the cause of the error.
- If the technology object is deactivated, you must activate it.
- Do not issue any commands while the technology object is restarting.
- Do not issue any commands while a connected technology object is restarting.
- Stop the axis control panel.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

30010 Command not available (command type: /4/%X)

Cause

The command is not available in this version of the runtime software.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getMeasuringInputErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the version of the runtime software.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

30011 **Parameter not available (parameter index according to the standard sequence in the system functions: /1/%d, command type: /4/%X)**

Cause

The parameter is not available in this version of the runtime software, the command is therefore rejected. The parameters indicate the position according to the standard sequence in the system functions and the command type of an incorrectly entered parameter.

Meaning of alarm parameters

Parameter index:	Index of the command parameter triggering this error according to the standard sequence in the system functions.
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getMeasuringInputErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the version of the runtime software.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

30012 Command cannot be started synchronously (command type: /4/%X)

Cause

The command cannot be used within a 'BEGIN_SYNC' or 'END_SYNC' sequence. The command has only one return value in the user program, or the command is not capable of starting synchronously.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getMeasuringInputErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Do not use this command type during a BEGIN_SYNC, END_SYNC sequence.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

30013 Synchronous start of the command is carried out with mergeMode IMMEDIATELY (command type: /4/%X)

Cause

With synchronous command start, only merge modes that immediately override the current command (IMMEDIATELY) and superimpose the current command (SUPERIMPOSED_MOTION_MERGE) can be used.

If an illegal merge mode is programmed (e.g. SEQUENTIAL or NEXT_MOTION), the system automatically changes the merge mode to IMMEDIATELY and outputs this warning.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getMeasuringInputErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Program the command which is to be started synchronously to immediately override the current command. To do this, enter the value IMMEDIATELY in the 'mergeMode' command parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

30015 **A technology required for this command has not been configured (technology: /1/%d, command type: /4/%X)**

Cause

The command cannot be selected in this technology object configuration.

Meaning of alarm parameters

Technology:	Not relevant
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the _getMeasuringInputErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Activate the technology needed for the command.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

40001 Measurement not possible on virtual axis

Cause

Measurement is not supported by virtual axes.

Remedy

Use a real axis.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

40002 Measuring job not possible when homing the assigned axis

Cause

No measuring job is executed while the axis assigned to the measuring input is being homed.

Remedy

Finish the homing operation before the measurement.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

40003 **Measuring input did not switch in the validity range of measuring job (reason: /1/%d, measured value: /2/%f)**

Cause

Measuring input did not switch in or switched outside the validity range of measuring job:

Meaning of alarm parameters

Reason	
1	The measuring input left the validity range of the measuring job without being deflected.
2	The measured value of the measuring input lies outside the validity range of the measuring input.

Description of the alarm parameters in the `_getMeasuringInputErrorState` command:

No.	Data type
1	DINT
2	UDINT

Remedy

- Check the validity range.
- Check the measuring input.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

40004 Validity range of the measuring job not recognized

Cause

The validity range of the measuring job has been skipped.

Remedy

- Increase the validity range.
- Adjust the ratio between the validity range and the axis velocity.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

40005 Simultaneous access of several measuring inputs to one encoder is not possible

Cause

Simultaneous access of several measuring inputs to one encoder is not supported by the hardware.

Remedy

Do not access one encoder simultaneously with several measuring inputs.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

40006 Configuration of the measurement inputs in an external device is not correct

Cause

The configuration of the measurement inputs in an external device is not correct.

Remedy

Check the configuration of the external device that is to be used for measurement.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MEASURING_INPUT_DISABLE

Settable local reactions

MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

40007 Measuring job was aborted or affected by an external device (reason: /1/%d)**Cause**

Measuring is impossible or is affected due to an error message from an external device.

Meaning of alarm parameters

Reason	
1	Time-out or error message from the measuring device or encoder. Measuring process is aborted.
2	The number of measured values per cycle exceeds the specification of the measuring device. Measuring process is aborted.
3	Cyclic or non-cyclic measurement was selected during IO configuration. Measuring job (_enableMeasuringInput, _enableMeasuringInputCyclic) is not, however, suitable for this configuration. Measuring process is aborted.
4	Access error at measuring input. Measuring input is operating with the substitute value strategy that has been set (last value or substitute value). Measuring process is not aborted.
5	The module is not ready yet. Measuring process is aborted.
6	Protocol error. Measuring process is aborted.
7	The measuring input is not enabled (deactivated). Measuring process is aborted.
>= 100:	Internal error. If such a system error occurs, please note the alarm number and alarm reason and contact: SIEMENS AG I DT MC, Hotline.

Description of the alarm parameters in the _getMeasuringInputErrorState command:

No.	Data type
1	DINT

Remedy

This error message is a group message that concerns the communication between SIMOTION and SINAMICS (TM17). Known causes of this error are:

- Communication failure with an external device (e.g. power failure, loss of a cable connection)
- Different configuring of the measuring input on SIMOTION and SINAMICS (e.g. cyclical or simple sampling)

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

40008 Position value is not valid

Cause

The technology object assigned to the measuring input is supplying invalid position values.

Remedy

Check the accuracy of the position values of the technology object from which the measuring input takes its position values.

These position values can become invalid if the connected technology object is restarted or if its encoder values drop out.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MEASURING_INPUT_DISABLE

Settable local reactions

NONE DECODE_STOP MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

40009 Measuring results cannot be completely displayed

Cause

In cyclic measurement, more than two measurements were performed in a measuring input cycle. The results of the first two measurements are output in the system variables. The subsequent results up to the next cycle are discarded. The 'counterMeasuredValue1' and 'counterMeasuredValue2' variables are incremented by the amount of all measurements (output and discarded).

Remedy

Adjust the measuring input cycle to correspond to your measuring results.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

40010 Cyclic measurement not possible with measuring range

Cause

During cyclic measurement, the "Measure with measuring range" setting is selected.
This combination is not supported by the configured measuring input.

Remedy

- Check the external device that is to be used for measurement.
- Do not use the described settings in combination.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

40011 Measuring job on passive measuring input not possible

Cause

- The issuing of measuring jobs is not possible on a passive measuring input.
- On a passive measuring input, measurement is started and stopped by activating and deactivating the measurement on the connected active measuring input.

Remedy

Activate or deactivate the measurement on the assigned active measuring input.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

40012 The measurement result from an external device has failed (effect: /1/%d)

Cause

Because of the failure of an edge on an external device, a measurement could either not be performed or only inaccurately.

Meaning of alarm parameters

Reason	
0	The measurement result was not output.
1	The measuring input has generated a substitute edge. This substitute edge is not exact.

Description of the alarm parameters in the `_getMeasuringInputErrorState` command:

No.	Data type
1	DINT

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

40013 Measuring edge of external device not detected (reason: /1/%d)**Cause**

A measuring edge could not be measured due to runtime delays when activating measurement in the external device.

Meaning of alarm parameters

Reason	
0	A runtime elapses between the moment when the measuring job is issued and the moment when measurement is activated in the measuring device. The runtime length depends on the configuration. If a signal level change corresponding to the programmed measuring method (FALLING_EDGE, RISING_EDGE, BOTH_EDGES) is recorded during this time at the measuring input, this alarm is output. Measuring takes place at the next edge to be correctly detected by the hardware.
1	During measurement with BOTH_EDGES_FIRST_RISING or BOTH_EDGES_FIRST_FALLING, the first edge was not detected correctly. The next two edges are output in the measurement result.

Description of the alarm parameters in the `_getMeasuringInputErrorState` command:

No.	Data type
1	DINT

Remedy

The runtime up to the evaluation of the measured edge at the HW input is dependent on the configuration. To be certain to detect the measuring edge, you must ensure that execution of `_enableMeasuringInput` or `_enableMeasuringInputCyclic` is brought forward by this amount of runtime in the user program. The Utilities and Applications CD includes a tool for estimating the time between the moment when the `_enableMeasuringInput` or `_enableMeasuringInputCyclic` command is issued and the moment when the measuring input job taking effect in the measuring device.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

40014 **Measurement results can be lost for the cyclical measurement with locale measuring inputs.**

Cause

The cyclic measurement for local measuring inputs is realized with repeated one-off measuring tasks. For the one-off measurement, larger delay times result than for cyclic measurement, so that fast successive measuring results can be lost.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

40015 Output delay specified incorrectly

Cause

The internal value for taking the output delay into account in the TM17 parameter p4099 is incorrect. This can cause inaccuracies when processing the measured values.

Remedy

Symbolic assignment activated: Perform an upload of the drive and compile, download, and restart the control project.

Symbolic assignment not activated: Perform an upload of the drive, go offline with the project, regenerate the FastIO configuration, compile, download, and restart the control project.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP MEASURING_INPUT_DISABLE

Diagnostics buffer entry

No

2.5 OutputCamType

20001 Internal error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Error source
Parameters 2 to 4:	Fault number

Description of the alarm parameters in the `_getOutputCamErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

OUTPUT_CAM_DISABLE

Settable local reactions

OUTPUT_CAM_DISABLE

Diagnostics buffer entry

Yes

20002 Insufficient memory (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

The memory required by the system is no longer available.

This alarm can occur both during ramp-up and after program calls.

Meaning of alarm parameters

Parameter 1:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Parameters 2 to 4 are area-specific.

They are not fully utilized by all areas.

Command decoding area:

Parameters 2 and 4	refer to the command in which the error occurred.
Parameter 2:	Command return value
Parameter 4:	Command type

Description of the alarm parameters in the `_getOutputCamErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

- Reduce the size of the ST code.
- Reduce the number of technology objects.
- Reduce the number of interpolation points for cams, if present.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

OUTPUT_CAM_DISABLE

Settable local reactions

OUTPUT_CAM_DISABLE

Diagnostics buffer entry

Yes

20003 Internal configuration error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system

Parameters 2 to 4 are area-specific.

These parameters are not fully utilized by all areas.

Command decoding area:

Parameters 2 and 4	refer to the command in which the error occurred.
Parameter 2:	Command return value
Parameter 4:	Command type

Description of the alarm parameters in the `_getOutputCamErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP OUTPUT_CAM_DISABLE

Diagnostics buffer entry

Yes

20004 Under logical address: /1/%d (bit number, if required: /2/%d) no driver (type: /3/%d) could be requested (error number: /4/%d)

Cause

The driver of a physical device or the device itself is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getOutputCamErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT

Remedy

- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

OUTPUT_CAM_DISABLE

Settable local reactions

OUTPUT_CAM_DISABLE

Diagnostics buffer entry

Yes

20005 Device type:/3/%d, log. address:/1/%d faulted. (Bit:/2/%d, encoder number:/5/%d, reason: 0x/4/%Xh)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

The driver of a physical device or the device itself has failed or is faulty. If this alarm occurs, the cause of the error must be evaluated in the external device (drive or encoder).

Meaning of alarm parameters

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver
12	Safety data block driver
13	Update counter
14	Operating characteristics data block driver

Logical address:	This is the logical input address configured on the technology object.
Bit number:	For bit driver type = 3 or 4 only; number of the bit
Encoder number:	Number of the encoder in case of telegrams with multiple encoders. Applies only when type = 2.
Reason:	0 - only defined when type = 2

Note

Addition of error messages

The codings for the reason of the failure specified below for the individual alarm types can also occur in combination. A group coding is indicated as the sum of several individual codings (e.g. 0x0005 = 0x0001 + 0x0004).

A failure reason labeled with DP can occur only for PROFIBUS devices.

Type = 1	
0x0001h	Fault message from the drive (note: for PROFIBUS drives, which support acyclic communication in accordance with PROFIdrive V3, the error number(s) of the drive are displayed in the diagnostic buffer, e.g. for Masterdrives MC)
0x0002h	DP: Drive signal "control requested" failed
0x0004h	DP: Drive disconnected itself
0x0008h	Slot for drive data is not available in the project
0x0010h	Actuator driver does not have a connection to the drive data
0x0020h	Actuator driver was not initialized during ramp-up
0x0080h	DP: Difference between configuration data and drive parameters (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	DP: Control signals to the PROFIdrive state machine were incorrectly specified
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
0x8000h	DP: Life-sign of drive has malfunctioned or failed
0x80000000h	The drive interface has been deactivated for the pending enables.
Type = 2	
0x0000h	The actual value changes exceed the limit value derived from the maximum velocity (configuration data TypeOfAxis.MaxVelocity.maximum) over multiple cycles. This monitoring can be activated or deactivated with configuration data TypeOfAxis.NumberOfEncoders.Encoder_x.AbsEncoder.enableAbsMonitoring.
0x0001h	Alarm message from encoder (note: the encoder error number(s) are displayed in the diagnostic buffer)
0x0002h	General hardware error of encoder
0x0004h	Encoder is dirty
0x0008h	Slot for encoder data is not available in the project
0x0010h	Encoder driver does not have a connection to the encoder data
0x0020h	Encoder driver was not initialized during ramp-up
0x0040h	Error when reading the absolute value of the encoder
0x0080h	DP: Difference between the configuration data and the encoder parameters Onboard C2xx: Inconsistency of the configuration data (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	Zero mark monitoring of encoder
0x0200h	DP: Encoder has gone to Parked state
0x4000h	DP: Encoder on bus failed (station failure)

0x8000h	DP: Life-sign of encoder has malfunctioned or failed. (note: for an encoder whose data are transferred in a drive telegram together with actuator data, the actuator life-sign applies to the encoder, e.g. for standard telegram 3 in accordance with PROFIdrive)
0x80000000h	The sensor interface has been deactivated for the pending enables.
Type = 3...6	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 7	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 8	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 9	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 10	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 11	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 12	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 13	
0x1h	The actual value was specified via a system variable and the permissible number of failure cycles was exceeded
0x2h	The actual value was updated with an update counter in the I/O area and the permissible number of failure cycles was exceeded

Description of the alarm parameters in the `_getOutputCamErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

The remedy for the respective type and cause is described below.

Type 1

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- A system fault may be present. Call the hotline.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- When sign-of-life monitoring is set: Ensure that in HW Config for drive under DP slave properties - isochronous operation - drive, the "synchronize to equidistant DP cycle" field is activated.
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
- Up to SIMOTION RT V4.3: If the alarm occurs after the download on a drive with telegram 999: Compare the parameterized bit position for the "Pulses enabled" status signal in drive parameter p924 with the configuration data 'DriveControlConfig.PulsesEnabled' of the TO axis. In this case, there is not necessarily an incorrect parameterization and therefore a check cannot be performed by the system because of the BICO interconnection. Therefore, make sure that the Pulses enabled bit is in the correct position.

For reason 0x0100

- Correct your user program with regard to PROFIdrive-compliant specification of control bits in the _enable/disableAxis commands, e.g. control signal OFF (STW1.0 = false) must precede a drive connection.

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 2For reason 0x0000

- Check the absolute encoder functions, connections and configuration. Take note of this when monitoring is deactivated (not with Alarm 20015).

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- Make sure that the user program does not reference a technology object containing an encoder (Axis, External Encoder) with an '_enableaxis' or '_enableexternalencoder' command while system variable 'sensordata.sensordata[n].state' is signaling invalid.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0040

- Compare the encoder type in the drive or encoder parameter P979 with the configuration data of the technology object.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
 - Compare the encoder type, resolution, shift factor, and, in the case of absolute encoders, the number of rotations in the drive or encoder parameter P979 to the encoder type, resolution, fine resolution, and, in the case of absolute encoders, the data length in the configuration data of the technology object.
- When using telegram 999, this message always appears, as the bit position is not checked by the system in this case, but has to be performed by the user.

For reason 0x0100

- Check the device functions, connections and wiring.

For reason 0x0200

- Find the cause of the error in the connected drive or encoder. Check whether the alarm was triggered due to a commissioning operation on the drive or encoder.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 3 - Type 6

For reason 0x0000

- Check the configuration and the signal paths of the connection.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 7

For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 8

For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 9

For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 10

For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 11 - Type 12

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring. If the error cannot be acknowledged when the axis is in simulation mode, check whether the technology data block is activated, and if this is the case, deactivate it.

Type 13

For reason 0x1

- Check the specification of the actual value with regard to function, configuration, and task configuration.

For reason 0x2

- Check the device functions, configuration, connections and wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

OUTPUT_CAM_DISABLE

Settable local reactions

OUTPUT_CAM_DISABLE

Diagnostics buffer entry

Yes

20006 Configuration error (category: /1/%d, error number: /2/%d, additional information: /3/%d)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

This alarm indicates error states caused by a faulty or inconsistent configuration. The technology objects perform a plausibility check on the configuration. Errors are identified by the error codes below.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of the error
500	Illegal technology object configuration state.
501	More configuration data expected than received.
502	Invalid configuration data.
503	Version conflict in configuration.
504	The configured task level is not supported by this TO.
505	The value range of the maximum number of command IDs has been violated.
506	The configured task level is not supported by the used hardware.
1001	Fast and normal output cams cannot be connected to the same output
1002	Interconnection of output cams to a technology object without a measuring system is not permissible when taskLevel:= SERVO' and 'posvaluetype:= ACTUAL'
1003	Error in configuration data OcaBaseCfg.taskLevel
1004	Error in configuration data OcaBaseCfg.posValueType
1005	Illegal logical address of the output cam output in the configuration data structure LogAddress
1006	Error in configuration of IPO/servo cycle clock ratio
1007	Interconnection of output cam with 'posvaluetype:=RATED' and an axis with a faster TaskLevel results in accuracy problems and is therefore not permissible
1008	Error in configuration data DecodingConfig.numberOfMaxBufferedCommandId
1009	Error in configuration data DecodingConfig.timeCamDeactivationTime
1010	Error in configuration data OcaType._type
1011	Error in configuration data OcaBaseCfg.hwTimer
1012	Error in configuration data OcaBaseCfg.outputType
1013	Error in configuration data LogAddress.enableOutput
1014	Error in configuration data LogAddress.logicOperation
1015	Error in configuration data OcaBaseCfg.actualValueReference
1016	Error in configuration data OcaBaseCfg.commandValueReference

Additional information:	More detailed description of the error origin
	Not relevant

Description of the alarm parameters in the _getOutputCamErrorState command:

No.	Data type
1	DINT
2	DINT
3	UDINT

Remedy

Change the configuration data.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

OUTPUT_CAM_DISABLE

Settable local reactions

OUTPUT_CAM_DISABLE

Diagnostics buffer entry

Yes

20007 Interconnection error (category: /1/%d, context: /2/%d, context parameter1: /3/%d, context parameter2: /4/%d)

Cause

This alarm indicates errors in the interconnection of technology objects. When the interconnection is established, the technology object verifies it on the basis of the interface properties. Errors are classified by category.

Additional information for a more detailed description of the error can be output from the context. An error context is output for selected error categories. Additional context parameters can be output for a context, if necessary. Context and context parameters are output as an integer value.

Meaning of alarm parameters

Category:	
1	Technology object compatibility error An interconnection is to be established with a technology object that has been configured with another reference system (e.g. output cams with rotary reference system and linear axis).
2	Exclusive interface An interface on a technology object that can only be connected to another technology object using one coupling type should be interconnected using different, mutually exclusive couplings. For example, the master value interface on a positioning axis for an interconnected synchronous object can only be operated as a setpoint or an actual value coupling.
3	Interconnection request The technology object awaits the interconnection to another technology object (necessary interconnection) in order to provide its functionality. Thus, for example, the interconnection to a gear axis is a required interconnection on a synchronous object.
4	Error during interface initialization The alarm is output in the event of initialization errors when connecting interfaces on the technology object.
5	Interface not available on technology object An interface required in the interconnection is not available on the technology object.
6	Recursion The interconnection on the technology object results in a recursion in the execution system of the technology package. The technology object does not support recursive execution.
7	Execution level compatibility error An interconnection is to be established with a technology object that is classified in a different execution level (e.g. output cam in execution level IPO and axis in execution level IPO_2). The technology object does not support interconnection to technology objects of other execution levels.
8	Initialization distribution In the case of interconnected technology objects that are distributed among different devices, an error occurred during initialization of the communication.

9	<p>Illegal TO state The technology object cannot be interconnected in the current state. A technology object can be interconnected only after the configuration has been successfully completed. Refer to the diagnostic buffer to determine the exact cause of the error. The cause of the illegal TO state is entered there (e.g. a level overflow during the configuration phase) and can then be corrected (in the example, by allowing level overflows in the task configuration).</p>
10	<p>Interface assignment The configured interface via which the technology object communicates cannot be used from the processing cycle clock of the technology object.</p>
11	<p>Active command in recursive TO interconnection The interconnection of the technology object and the enable state at its inputs result in an active recursive interconnection (positive feedback).</p>

Description of the alarm parameters in the `_getOutputCamErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

Context / context parameter:

Contact the hotline and provide the name of the context parameter.

Category:

1 - Technology object compatibility error

Check the configuration and set a common reference system for the technology objects to be interconnected.

2 - Exclusive interface

Ensure that the project is consistent. Contact the hotline, if necessary.

3 - Interconnection request

Ensure that the project is consistent. The missing interconnection on the technology object is specified in the context:

- Context
- TO type
- Interface
- 2
- Output cam
- Output cam/master value source

4 - Error during interface initialization

Contact the hotline and provide the name of the context parameter.

5 - Interface not available on technology object

Contact the hotline and provide the name of the context parameter.

6 - Recursion

Check the interconnection topology of your project. Remove unnecessary interconnections.

7 - Execution level compatibility error

Select a common execution level in the configuration for the technology objects to be interconnected (e.g. output cam and axis in IPO_2).

8 - Initialization distribution

- Ensure that your project is consistent. For proper configuration of communication, all devices must be compiled ('Project/Save and compile all' or "Save and compile all new').
- Determine whether all devices are selected for loading the project ('Target system/Select target devices...').
- Check whether the configured bus topology matches the actual bus topology.
- Ensure that the devices are linked in the bus configuration (PROFIBUS).
- Check whether isochronous operation was selected.
- In addition, the address areas that are used by the devices for communication must be set up. The address areas are automatically set up when the project is compiled; only afterwards is the valid hardware configuration available for downloading. Do not change automatically generated address areas afterwards.
- Contact the hotline and provide the name of the context parameter.

9 - Illegal technology object state

- Correct the configuration of the technology object.
- Eliminate the execution error.

10 - Interface assignment

- Configure the bus interface to match the processing cycle clock (e.g. fast bus system and axis in FastIPO).

11 - Active command in recursive TO interconnection

- Inputs of technology objects can already be enabled during the download (e.g. TO AdditionObjectType). Remove or change the relevant interconnection on the technology object or switch a technology object, whose input is enabled by the user program and not already by the download, into the positive feedback branch.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

OUTPUT_CAM_DISABLE

Settable local reactions

OUTPUT_CAM_DISABLE

Diagnostics buffer entry

Yes

20008 Assignment of USER_DEFAULT to system variables is not possible

Cause

It is not appropriate to assign USER_DEFAULT to a UserDefault system variable, because the variable references itself in this case.

As a result, a meaningful value cannot be generated on readout. When this error occurs, the new Enum value is not assigned. The variable retains the old value.

Remedy

USER_DEFAULT is intended for use in technology commands. Avoid assigning it to system variables.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE

Diagnostics buffer entry

No

20009 **Reserved error**

Cause

This error is not currently in use.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

OUTPUT_CAM_DISABLE

Settable local reactions

OUTPUT_CAM_DISABLE

Diagnostics buffer entry

Yes

20010 A restart is required to activate the configuration data

Cause

The configuration cannot be activated, since data has been modified preventing the activation. The technology object must be restarted to activate the data.

Remedy

- Execute the technology object reset command, and set the 'activateRestart' parameter to 'ACTIVATE_RESTART'.
- Set the 'restartActivation' system variable to 'ACTIVATE_RESTART'.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP OUTPUT_CAM_DISABLE

Diagnostics buffer entry

No

20011 **Error occurred while activating the configuration (category: /1/%d, error number: /2/%d, additional information: /3/%d)**

Cause

This alarm indicates error conditions when activating the configuration. The error conditions can be traced back to an incorrect or inconsistent configuration. The technology objects perform a plausibility check on the configuration. Errors are identified by the error codes below. The configuration is not activated when this alarm occurs.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of the error
500	Illegal technology object configuration state.
501	More configuration data expected than received.
502	Invalid configuration data.
503	Version conflict in configuration.
504	The configured task level is not supported by this TO.
505	The value range of the maximum number of command IDs has been violated.
506	The configured task level is not supported by the used hardware.
1001	Fast and normal output cams cannot be connected to the same output
1002	Interconnection of output cams to a technology object without a measuring system is not permissible when taskLevel:= SERVO' and 'posvaluetype:= ACTUAL'
1003	Error in configuration data OcaBaseCfg.taskLevel
1004	Error in configuration data OcaBaseCfg.posValueType
1005	Illegal logical address of the output cam output in the configuration data structure LogAddress
1006	Error in configuration of IPO/servo cycle clock ratio
1007	Interconnection of output cam with 'posvaluetype:=RATED' and an axis with a faster TaskLevel results in accuracy problems and is therefore not permissible
1008	Error in configuration data DecodingConfig.numberOfMaxBufferedCommandId
1009	Error in configuration data DecodingConfig.timeCamDeactivationTime
1010	Error in configuration data OcaType._type
1011	Error in configuration data OcaBaseCfg.hwTimer
1012	Error in configuration data OcaBaseCfg.outputType
1013	Error in configuration data LogAddress.enableOutput
1014	Error in configuration data LogAddress.logicOperation
1015	Error in configuration data OcaBaseCfg.actualValueReference
1016	Error in configuration data OcaBaseCfg.commandValueReference

Additional information:	More detailed description of the error origin
	Not relevant

Description of the alarm parameters in the _getOutputCamErrorState command:

No.	Data type
1	DINT
2	DINT
3	UDINT

Remedy

Change the configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP OUTPUT_CAM_DISABLE

Diagnostics buffer entry

No

20012 Restart not carried out (reason: /1/%d)

Cause

Technology object could not be restarted.

Meaning of alarm parameters

Reason:	
1	The technology object configuration does not allow a restart with the restart system variable.
2	The technology object is not ready to be restarted.
3	A configured condition for restarting the technology object is not met (e.g. technology object must be 'disabled').
4	Restart was not performed with the last programmed configuration of the technology object because this is faulty
5	The configuration of the technology object does not permit any restart.

Description of the alarm parameters in the _getOutputCamErrorState command:

No.	Data type
1	DINT

Remedy

Reason:	
1	Initiate the restart using the reset command.
2	Reload the project.
3	Work around the cause stated in the Reason parameter, or reload the project.
4	Determine whether technological alarms were reported or error entries were made in the device diagnostics and, if necessary, remedy the cause.
5	Change the configuration to activate the appropriate restart capability.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP OUTPUT_CAM_DISABLE

Diagnostics buffer entry

No

20014 Under logical address: /1/%d (optional log. address: /2/%d and bit no.: /3/%d of the enable output), a driver (type: /4/%d) could not be requested

Cause

The driver of a physical device is not available or is being used by another technology object.

The enable command for the technology object has been issued more than once with the 'immediately' stepping condition.

Meaning of alarm parameters

Logical address:	This is the address of the actuator driver configured on the technology object.
Logical address and bit number:	This specifies the address and bit number of the output enable bit.

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver

Description of the alarm parameters in the _getOutputCamErrorState command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	DINT

Remedy

- Do not call the enable command cyclically "call the enable command only once for the axis enable".
- Check that the logical device was available at the time of the request or whether it was being used by another technology object.
- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

OUTPUT_CAM_DISABLE

Settable local reactions

OUTPUT_CAM_DISABLE

Diagnostics buffer entry

Yes

20015 **Device type:/3/%d, log. address:/1/%d faulted. (Bit:/2/%d, encoder number:/5/%d, reason: 0x/4/%Xh)**

Cause

The driver of a physical device or the device itself has failed or is faulty.

If this alarm occurs, the cause of the error must be evaluated in the external device (drive or encoder).

Meaning of alarm parameters

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver
12	Safety data block driver
13	Update counter
14	Operating characteristics data block driver

Logical address:	This is the logical input address configured on the technology object.
Bit number:	For bit driver type = 3 or 4 only; number of the bit
Encoder number:	Number of the encoder in case of telegrams with multiple encoders. Applies only when type = 2.
Reason:	0 - only defined when type = 2

Note

Addition of error messages

The codings for the reason of the failure specified below for the individual alarm types can also occur in combination. A group coding is indicated as the sum of several individual codings (e.g. 0x0005 = 0x0001 + 0x0004).

A failure reason labeled with DP can occur only for PROFIBUS devices.

Type = 1	
0x0001h	Fault message from the drive (note: for PROFIBUS drives, which support acyclic communication in accordance with PROFIdrive V3, the error number(s) of the drive are displayed in the diagnostic buffer, e.g. for Masterdrives MC)
0x0002h	DP: Drive signal "control requested" failed
0x0004h	DP: Drive disconnected itself
0x0008h	Slot for drive data is not available in the project
0x0010h	Actuator driver does not have a connection to the drive data
0x0020h	Actuator driver was not initialized during ramp-up
0x0080h	DP: Difference between configuration data and drive parameters (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	DP: Control signals to the PROFIdrive state machine were incorrectly specified
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
0x8000h	DP: Life-sign of drive has malfunctioned or failed
0x80000000h	The drive interface has been deactivated for the pending enables.
Type = 2	
0x0000h	The actual value changes exceed the limit value derived from the maximum velocity (configuration data TypeOfAxis.MaxVelocity.maximum) over multiple cycles. This monitoring can be activated or deactivated with configuration data TypeOfAxis.NumberOfEncoders.Encoder_x.AbsEncoder.enableAbsMonitoring.
0x0001h	Alarm message from encoder (note: the encoder error number(s) are displayed in the diagnostic buffer)
0x0002h	General hardware error of encoder
0x0004h	Encoder is dirty
0x0008h	Slot for encoder data is not available in the project
0x0010h	Encoder driver does not have a connection to the encoder data
0x0020h	Encoder driver was not initialized during ramp-up
0x0040h	Error when reading the absolute value of the encoder
0x0080h	DP: Difference between the configuration data and the encoder parameters Onboard C2xx: Inconsistency of the configuration data (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	Zero mark monitoring of encoder
0x0200h	DP: Encoder has gone to Parked state
0x4000h	DP: Encoder on bus failed (station failure)

0x8000h	DP: Life-sign of encoder has malfunctioned or failed. (note: for an encoder whose data are transferred in a drive telegram together with actuator data, the actuator life-sign applies to the encoder, e.g. for standard telegram 3 in accordance with PROFIdrive)
0x80000000h	The sensor interface has been deactivated for the pending enables.
Type = 3...6	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 7	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 8	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 9	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 10	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 11	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 12	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 13	
0x1h	The actual value was specified via a system variable and the permissible number of failure cycles was exceeded
0x2h	The actual value was updated with an update counter in the I/O area and the permissible number of failure cycles was exceeded

Description of the alarm parameters in the `_getOutputCamErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

The remedy for the respective type and cause is described below.

Type 1

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- A system fault may be present. Call the hotline.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- When sign-of-life monitoring is set: Ensure that in HW Config for drive under DP slave properties - isochronous operation - drive, the "synchronize to equidistant DP cycle" field is activated.
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
- Up to SIMOTION RT V4.3: If the alarm occurs after the download on a drive with telegram 999: Compare the parameterized bit position for the "Pulses enabled" status signal in drive parameter p924 with the configuration data 'DriveControlConfig.PulsesEnabled' of the TO axis. In this case, there is not necessarily an incorrect parameterization and therefore a check cannot be performed by the system because of the BICO interconnection. Therefore, make sure that the Pulses enabled bit is in the correct position.

For reason 0x0100

- Correct your user program with regard to PROFIdrive-compliant specification of control bits in the _enable/disableAxis commands, e.g. control signal OFF (STW1.0 = false) must precede a drive connection.

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 2

For reason 0x0000

- Check the absolute encoder functions, connections and configuration. Take note of this when monitoring is deactivated (not with Alarm 20015).

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- Make sure that the user program does not reference a technology object containing an encoder (Axis, External Encoder) with an '_enableaxis' or '_enableexternalencoder' command while system variable 'sensordata.sensordata[n].state' is signaling invalid.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0040

- Compare the encoder type in the drive or encoder parameter P979 with the configuration data of the technology object.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
 - Compare the encoder type, resolution, shift factor, and, in the case of absolute encoders, the number of rotations in the drive or encoder parameter P979 to the encoder type, resolution, fine resolution, and, in the case of absolute encoders, the data length in the configuration data of the technology object.
- When using telegram 999, this message always appears, as the bit position is not checked by the system in this case, but has to be performed by the user.

For reason 0x0100

- Check the device functions, connections and wiring.

For reason 0x0200

- Find the cause of the error in the connected drive or encoder. Check whether the alarm was triggered due to a commissioning operation on the drive or encoder.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 3 - Type 6For reason 0x0000

- Check the configuration and the signal paths of the connection.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 7For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 8For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 9For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 10For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 11 - Type 12For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring. If the error cannot be acknowledged when the axis is in simulation mode, check whether the technology data block is activated, and if this is the case, deactivate it.

Type 13

For reason 0x1

- Check the specification of the actual value with regard to function, configuration, and task configuration.

For reason 0x2

- Check the device functions, configuration, connections and wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP OUTPUT_CAM_DISABLE

Diagnostics buffer entry

Yes

20016 Under logical address: /1/%d (bit number, if required: /2/%d) no driver (type: /3/%d) activated (error number: /4/%d)

Cause

The driver of a physical device or the device itself is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getOutputCamErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT

Remedy

- Check the activation/deactivation sequence for the interface.
- Note the runtimes of the commands and use the provided command control mechanisms (e.g. `nextCommand := WHEN_COMMAND_DONE`).
- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE OUTPUT_CAM_DISABLE

Diagnostics buffer entry

Yes

20017 Internal algorithm error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Error source
Parameters 2 to 4:	Fault number

Description of the alarm parameters in the _getOutputCamErrorState command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.
Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact:
SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

OUTPUT_CAM_DISABLE

Settable local reactions

OUTPUT_CAM_DISABLE

Diagnostics buffer entry

Yes

20018 **Attempt to write the bit(s): 0x/1/%Xh in control word1 or the bit(s): 0x/2/%Xh in control word2 under the log. address: /3/%d has been rejected.**

Cause

An attempt to write certain bits in control word 1 or 2 has been rejected.

Meaning of alarm parameters

Bits:	Display of bits which could not be written
Log. address:	Logical address of the device driver

Description of the alarm parameters in the `_getOutputCamErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT

Remedy

- Check the order of commands, particularly in relation to `_enableAxis(...)`.
- Check the command parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE

Diagnostics buffer entry

Yes

20019 Error for the commissioning, reason: /1/%d (Parameter1: /2/%d, Parameter2: /3/%d)

Cause

A commissioning function could not be executed.

Meaning of alarm parameters

Reason:	
1	Failure of the life-sign between controller and SIMOTION SCOUT
2	Protocol error
3	Command decoding error

Description of the alarm parameters in the _getOutputCamErrorState command:

No.	Data type
1	DINT
2	UDINT
3	UDINT

Remedy

Reason:	
1	Check the connection properties. If required, increase the monitoring time.
2	Should a system error of this type occur, note the alarm number, the alarm text and the specified alarm parameters, and contact: SIEMENS AG I DT MC, Hotline.
3	Should a system error of this type occur, note the alarm number, the alarm text and the specified alarm parameters, and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / NONE

Preassignment for local reactions

NONE

Settable local reactions

NONE OUTPUT_CAM_DISABLE

Diagnostics buffer entry

Yes

20020 Output deactivated

Cause

One or more outputs of the technology object have been deactivated. This is caused by the output-disable device status.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

OUTPUT_CAM_DISABLE

Settable local reactions

NONE DECODE_STOP OUTPUT_CAM_DISABLE

Diagnostics buffer entry

No

20021 Configuration will be adapted internally (category: /1/%d, reason: /2/%d, limited value: /3/%f, additional information: /4/%d)

Cause

This alarm shows the implicit setting of configuration data to the maximum possible values. The technology objects perform a plausibility check on the configuration. Errors/manipulations are identified by the error codes below.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of configuration data
2001	Illegal value for maxSpeed (maxSpeed less than or equal to 2*nominalSpeed; maxSpeed will be set to 2*nominalSpeed)
2002	Illegal value for maxTorque/Force (maxTorque/Force less than or equal to 2*nominalTorque/Force; maxTorque/Force will be set to 2*nominalTorque/Force)
2003	Error during the adaptation of the Torque-/ForceReductionGranularity. p1544 is ignored and the default value used.
3001	The length of the backlash on reversal is limited to a permitted value (Encoder_N.incBacklash.length or Encoder_N.absBacklash.length).
3002	The compensation velocity of the backlash on reversal is limited to a permitted value (Encoder_N.incBacklash.velocity or Encoder_N.absBacklash.velocity).
3003	The value of the configuration data for the encoder system (.Encoder_N.encoderSystem) is limited to a permitted value.
3004	The value of the configuration data for the encoder resolution (rotary: .Encoder_N.incEncoder.incResolution, Encoder_N.absEncoder.absResolution; linear: Encoder_N.Resolution.distance) is limited to a permitted value.
3005	The value of the configuration data for the multiplication factor of the cyclical actual value (.Encoder_N.incEncoder.incResolutionMultiplierCyclic, Encoder_N.absEncoder.absResolutionMultiplierCyclic, Encoder_N.Resolution.multiplierCyclic) is limited to a permitted value.
3006	The value of the configuration data for the multiplication factor of the absolute value (Encoder_N.absEncoder.absResolutionMultiplierAbsolute) is limited to a permitted value.
3007	The value of the configuration data for the data length of the absolute value (Encoder_N.absEncoder.absDataLength) is limited to a permitted value.
3008	The value of the configuration data for the reference value of the Nact speed in the PROFIdrive telegram (Encoder_N.sensorNist.referenceValue) is limited to a permitted value.
3009	The load gear factor of the first data set is leading for the encoder simulation. The simulation with different load gear factors is not supported. The value of the configuration data for the load gear (DataSet_N.gear) is limited to the load gear ratio of the first data set.
4001	The delay time for the triggering of the standstill signal (StandStillSignal.delayTimeToActivate) is limited.
4002	The delay time until the position monitoring tolerance window is reached (PositionMonitoring.posWinTolTime) is limited.
4003	The delay time until the activation of the position monitoring message (PositionMonitoring.posWinTolDelayTime) is limited.
4004	The delay time for the activation of the standstill monitoring message (StandStillMonitoring.delayTimeToActivate) is limited.
4005	The delay time of the actual value of the force/pressure entry monitoring (ForceControlRunningInWindowMonitoring.winTolTime) is limited.
4006	The delay time until activation of the force/pressure entry monitoring (ForceControlRunningInWindowMonitoring.maxDelayTime) is limited.
4007	The delay time until activation of the force/pressure end value monitoring (ForceControlHeldValueMonitoring.delayTimeToActivate) is limited.

4008	The delay of the emergency ramp generator (EmergencyRampGenerator.maxDeceleration) is too small and set to the minimum possible value.
4009	The decay time constant of the friction compensation (Friction.decayTime) is limited.
4068	The maximum buffer length of the lag element in the balancing filter (Mode_2) is reached or exceeded. The lag element (maximum buffer length: 16 servo-cycles) is augmented by a PT1 element.
4069	The maximum buffer length of the lag component of the dynamic response compensation is reached or exceeded. The maximum value of this time constant is limited to 16 servo cycles. The buffer length of the lag element is maximum 16.

Additional information:	More detailed description of the error origin
Not relevant	

Description of the alarm parameters in the `_getOutputCamErrorState` command:

No.	Data type
1	DINT
2	DINT
3	LREAL
4	UDINT

Remedy

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE OUTPUT_CAM_DISABLE

Diagnostics buffer entry

No

20023 Under logical address: /1/%d (bit number, if required: /2/%d) no I/O (type: /3/%d) are available (error number: /4/%d)

Cause

A physical device is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getOutputCamErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

OUTPUT_CAM_DISABLE

Settable local reactions

OUTPUT_CAM_DISABLE

Diagnostics buffer entry

No

20024 Under logical address: /1/%d (bit number, if required: /2/%d) no I/O (type: /3/%d) are available (error number: /4/%d)

Cause

A physical device is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getOutputCamErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

OUTPUT_CAM_DISABLE

Settable local reactions

OUTPUT_CAM_DISABLE

Diagnostics buffer entry

No

30001 **Illegal parameter (parameter index according to standard sequence in the system functions: /1/%d, command type: /4/%X)**

Cause

Illegal parameter transfer to a system function. The command is not executed. This alarm occurs when the permissible parameter value range is violated. The permissible value range of the parameter is a function of its data type and the technological meaning of the parameter.

The parameter index indicates the position of the illegal parameter. The standard sequence of parameters in the system functions is apparent from the reference list associated with the command. The command type indicates the type of the faulty system function.

Meaning of alarm parameters

Parameter index:	Index of the system function parameter that triggered this error (listed according to the standard sequence in the system functions).
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the _getOutputCamErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the value range of the parameter data type.
- Check the technological meaning of the parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP OUTPUT_CAM_DISABLE

Diagnostics buffer entry

No

30002 Command aborted (reason: /1/%d, command type: /4/%X)**Additional references**

Further information is provided in the Function Manual:

- Basic Functions and
- in the online help.

Cause

The command was aborted before or during execution.

This can be caused by:

- A substituted command
- Command buffer reset
- Error state

Note

This alarm is always output, e.g. for jogging (_move aborted with _stop) or for the retraction of the reference BERO for homing or when Synchronous operation (explicitly) deactivated.

Meaning of alarm parameters

Reason:	
1	Reset of the command buffer
2	Abort by another command
5	Abort by a pending error response
6	Abort due to ambiguous commandId
9	Abort due to abort of a dependent command
31	Maximum number of active commands exceeded
42	No interconnection to a technology object
44	Abort because of a pending command with identical command parameters

Command type:	Outputs the aborted command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getOutputCamErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Set up the command again via program.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP OUTPUT_CAM_DISABLE

Diagnostics buffer entry

No

30003 Command aborted because of full command buffer (command type: /4/%X)

Cause

The command is not entered in the command buffer because the buffer is already full.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getOutputCamErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the program flow.
- Typical cause: The 'nextCommand' parameter is passed with the value 'IMMEDIATELY', and the 'mergeMode' parameter is passed with the value 'SEQUENTIAL'.
 - Synchronize the command execution in the user program so that the command buffer is not occupied when the command is issued.
 - Use other values for the 'nextCommand' or 'mergeMode' parameters. Setting the 'nextCommand' to a value other than 'IMMEDIATELY' causes the program to wait for the command buffer to become available. In addition, setting a different 'mergeMode' means that the command buffer can be overwritten.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP OUTPUT_CAM_DISABLE

Diagnostics buffer entry

No

30004 **Command is not defined for this technology object type (command type: /4/%X)**

Cause

Command was programmed on a technology object type not supporting processing of this command.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getOutputCamErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Issue the command on the correct technology object type.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP OUTPUT_CAM_DISABLE

Diagnostics buffer entry

No

30005 Ambiguous commandId (number of commands with the specified ID: /1/%d, command type: /4/%X)

Cause

The specified commandId refers to more than one command. The specified action is performed for the command matching the specified ID that has been in the interpolator for the longest time.
If no corresponding command is found in the interpolator, the action refers to the next command loaded in the interpolator.

Meaning of alarm parameters

Id:	Number of commands referenced by the specified command ID.
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the _getOutputCamErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Use a different 'commandId' for commands that are active simultaneously.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP OUTPUT_CAM_DISABLE

Diagnostics buffer entry

No

30006 **Command cannot be executed because of the current object state (command type: /4/%X)**

Cause

A reset command is active at the object or the object is deactivated.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getOutputCamErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the following:

- Check the object status.
- Check the possible execution sequence of the programmed commands.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP OUTPUT_CAM_DISABLE

Diagnostics buffer entry

No

30007 The error cannot be reset because of its configuration

Cause

The 30007 alarm will be output when an alarm is reset that can only be acknowledged with PowerOn.

Example:

The internal 20001 error can only be acknowledged with PowerOn.

If an attempt is made to reset the alarm with a `_reset...Error` command, the 30007 alarm will be output.

Description of the alarm parameters in the `_getOutputCamErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

Check whether the errors present on the technology object can be acknowledged.

Correct the cause of the error and switch the CPU off/on or load the project again.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP OUTPUT_CAM_DISABLE

Diagnostics buffer entry

No

30008 **Link to a technology object necessary for this operation does not exist (command type: /4/%X)**

Cause

The object connection required for this operation has not been configured or the connected technology object has been deactivated.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getOutputCamErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the project configuration.
- Change the object connection in the command.
- Activate the connected technology object.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP OUTPUT_CAM_DISABLE

Diagnostics buffer entry

No

30009 **Command rejected as the decoding of the command of the technology object addressed has been deactivated/stopped (reason: /1/%d, command type: /4/%X)**

Cause

Command was rejected due to suspension of command decoding on the addressed technology object. The command decoding can be stopped by the DECODE_STOP alarm response, by deactivating or restarting the technology object, by starting the axis control panel in exclusive mode or by the absence of necessary interconnections.

Meaning of alarm parameters

Reason:	
1	Restart of the technology object
2	Technology object is deactivated
3	Technology object is in RUN mode.
4	Control panel active

Command type:	Outputs the type of the rejected command. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getOutputCamErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check why the command was rejected.
- If necessary, acknowledge any active errors once you have corrected the cause of the error.
- If the technology object is deactivated, you must activate it.
- Do not issue any commands while the technology object is restarting.
- Do not issue any commands while a connected technology object is restarting.
- Stop the axis control panel.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP OUTPUT_CAM_DISABLE

Diagnostics buffer entry

No

30010 Command not available (command type: /4/%X)

Cause

The command is not available in this version of the runtime software.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getOutputCamErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the version of the runtime software.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP OUTPUT_CAM_DISABLE

Diagnostics buffer entry

No

30011 **Parameter not available (parameter index according to the standard sequence in the system functions: /1/%d, command type: /4/%X)**

Cause

The parameter is not available in this version of the runtime software, the command is therefore rejected. The parameters indicate the position according to the standard sequence in the system functions and the command type of an incorrectly entered parameter.

Meaning of alarm parameters

Parameter index:	Index of the command parameter triggering this error according to the standard sequence in the system functions.
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getOutputCamErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the version of the runtime software.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP OUTPUT_CAM_DISABLE

Diagnostics buffer entry

No

30012 Command cannot be started synchronously (command type: /4/%X)

Cause

The command cannot be used within a 'BEGIN_SYNC' or 'END_SYNC' sequence. The command has only one return value in the user program, or the command is not capable of starting synchronously.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getOutputCamErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Do not use this command type during a BEGIN_SYNC, END_SYNC sequence.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP OUTPUT_CAM_DISABLE

Diagnostics buffer entry

No

30013 Synchronous start of the command is carried out with mergeMode IMMEDIATELY (command type: /4/%X)

Cause

With synchronous command start, only merge modes that immediately override the current command (IMMEDIATELY) and superimpose the current command (SUPERIMPOSED_MOTION_MERGE) can be used.

If an illegal merge mode is programmed (e.g. SEQUENTIAL or NEXT_MOTION), the system automatically changes the merge mode to IMMEDIATELY and outputs this warning.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getOutputCamErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Program the command which is to be started synchronously to immediately override the current command. To do this, enter the value IMMEDIATELY in the 'mergeMode' command parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP OUTPUT_CAM_DISABLE

Diagnostics buffer entry

No

30015 A technology required for this command has not been configured (technology: /1/%d, command type: /4/%X)

Cause

The command cannot be selected in this technology object configuration.

Meaning of alarm parameters

Technology:	Not relevant
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the _getOutputCamErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Activate the technology needed for the command.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP OUTPUT_CAM_DISABLE

Diagnostics buffer entry

No

40001 Output cam limitation error (output cam position: /1/%d)

Cause

At least one output cam position is invalid. The output cam was moved beyond the limits of the operating range.

Meaning of alarm parameters

Parameters:	
3	switchOnPosition
5	switchOffPosition
15	Inverted

Description of the alarm parameters in the _getOutputCamErrorState command:

No.	Data type
1	DINT

Remedy

Check the assigned actuation or delay time (depending on the traversing direction of the axis):
Reduce the time setting, if necessary.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

OUTPUT_CAM_DISABLE

Settable local reactions

NONE DECODE_STOP OUTPUT_CAM_DISABLE

Diagnostics buffer entry

No

40003 Illegal range specification in the parameters (parameter: /1/%d)

Cause

Illegal value has been entered for a parameter.

Meaning of alarm parameters

Parameters:	
3	switchOnPosition
5	switchOffPosition
12	noSwitchingRange

Description of the alarm parameters in the _getOutputCamErrorState command:

No.	Data type
1	DINT

Remedy

For parameters 3 and 5:

- Only switch positions within the operating range are permissible.

For parameter 12:

- The maximum permissible switching hysteresis is equivalent to one-fourth of the operating range.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP OUTPUT_CAM_DISABLE

Diagnostics buffer entry

No

40004 I/O output error

Cause

A connected I/O device cannot process the transferred values.

Remedy

- Check the hardware configuration.
- Check the time ratio settings and increase the clock-pulse rates, if necessary.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

OUTPUT_CAM_DISABLE

Settable local reactions

OUTPUT_CAM_DISABLE

Diagnostics buffer entry

No

40005 Position value is not valid

Cause

The technology object assigned to the output cam is supplying invalid position values.

Remedy

Check the accuracy of the position values of the technology object from which the output cam takes its position values.

These position values can become invalid if the connected technology object is restarted or if its encoder values drop out.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

OUTPUT_CAM_DISABLE

Settable local reactions

OUTPUT_CAM_DISABLE

Diagnostics buffer entry

No

40006 Output delay specified incorrectly

Cause

The internal value for taking the output delay into account in the TM17 parameter p4099 is incorrect. This can cause inaccuracies in the cam output.

Remedy

Symbolic assignment activated: Perform an upload of the drive and compile, download, and restart the control project.

Symbolic assignment not activated: Perform an upload of the drive, go offline with the project, regenerate the FastIO configuration, compile, download, and restart the control project.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP OUTPUT_CAM_DISABLE

Diagnostics buffer entry

No

2.6 CamTrackType

20001 Internal error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Error source
Parameters 2 to 4:	Fault number

Description of the alarm parameters in the `_getCamTrackErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

CAMTRACK_DISABLE

Settable local reactions

CAMTRACK_DISABLE

Diagnostics buffer entry

Yes

20002 **Insufficient memory (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)**

Cause

The memory required by the system is no longer available.

This alarm can occur both during ramp-up and after program calls.

Meaning of alarm parameters

Parameter 1:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Parameters 2 to 4 are area-specific.

They are not fully utilized by all areas.

Command decoding area:

Parameters 2 and 4	refer to the command in which the error occurred.
Parameter 2:	Command return value
Parameter 4:	Command type

Description of the alarm parameters in the `_getCamTrackErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

- Reduce the size of the ST code.
- Reduce the number of technology objects.
- Reduce the number of interpolation points for cams, if present.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

CAMTRACK_DISABLE

Settable local reactions

CAMTRACK_DISABLE

Diagnostics buffer entry

Yes

20003 Internal configuration error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system

Parameters 2 to 4 are area-specific.

These parameters are not fully utilized by all areas.

Command decoding area:

Parameters 2 and 4	refer to the command in which the error occurred.
Parameter 2:	Command return value
Parameter 4:	Command type

Description of the alarm parameters in the `_getCamTrackErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP CAMTRACK_DISABLE

Diagnostics buffer entry

Yes

20004 Under logical address: /1/%d (bit number, if required: /2/%d) no driver (type: /3/%d) could be requested (error number: /4/%d)

Cause

The driver of a physical device or the device itself is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getCamTrackErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT

Remedy

- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

CAMTRACK_DISABLE

Settable local reactions

CAMTRACK_DISABLE

Diagnostics buffer entry

Yes

20005 Device type:/3/%d, log. address:/1/%d faulted. (Bit:/2/%d, encoder number:/5/%d, reason: 0x/4/%Xh)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

The driver of a physical device or the device itself has failed or is faulty.

If this alarm occurs, the cause of the error must be evaluated in the external device (drive or encoder).

Meaning of alarm parameters

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver
12	Safety data block driver
13	Update counter
14	Operating characteristics data block driver

Logical address:	This is the logical input address configured on the technology object.
Bit number:	For bit driver type = 3 or 4 only; number of the bit
Encoder number:	Number of the encoder in case of telegrams with multiple encoders. Applies only when type = 2.
Reason:	0 - only defined when type = 2

Note

Addition of error messages

The codings for the reason of the failure specified below for the individual alarm types can also occur in combination. A group coding is indicated as the sum of several individual codings (e.g. 0x0005 = 0x0001 + 0x0004).

A failure reason labeled with DP can occur only for PROFIBUS devices.

Type = 1	
0x0001h	Fault message from the drive (note: for PROFIBUS drives, which support acyclic communication in accordance with PROFIdrive V3, the error number(s) of the drive are displayed in the diagnostic buffer, e.g. for Masterdrives MC)
0x0002h	DP: Drive signal "control requested" failed
0x0004h	DP: Drive disconnected itself
0x0008h	Slot for drive data is not available in the project
0x0010h	Actuator driver does not have a connection to the drive data
0x0020h	Actuator driver was not initialized during ramp-up
0x0080h	DP: Difference between configuration data and drive parameters (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	DP: Control signals to the PROFIdrive state machine were incorrectly specified
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
0x8000h	DP: Life-sign of drive has malfunctioned or failed
0x80000000h	The drive interface has been deactivated for the pending enables.
Type = 2	
0x0000h	The actual value changes exceed the limit value derived from the maximum velocity (configuration data TypeOfAxis.MaxVelocity.maximum) over multiple cycles. This monitoring can be activated or deactivated with configuration data TypeOfAxis.NumberOfEncoders.Encoder_x.AbsEncoder.enableAbsMonitoring.
0x0001h	Alarm message from encoder (note: the encoder error number(s) are displayed in the diagnostic buffer)
0x0002h	General hardware error of encoder
0x0004h	Encoder is dirty
0x0008h	Slot for encoder data is not available in the project
0x0010h	Encoder driver does not have a connection to the encoder data
0x0020h	Encoder driver was not initialized during ramp-up
0x0040h	Error when reading the absolute value of the encoder
0x0080h	DP: Difference between the configuration data and the encoder parameters Onboard C2xx: Inconsistency of the configuration data (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	Zero mark monitoring of encoder
0x0200h	DP: Encoder has gone to Parked state
0x4000h	DP: Encoder on bus failed (station failure)

0x8000h	DP: Life-sign of encoder has malfunctioned or failed. (note: for an encoder whose data are transferred in a drive telegram together with actuator data, the actuator life-sign applies to the encoder, e.g. for standard telegram 3 in accordance with PROFIdrive)
0x80000000h	The sensor interface has been deactivated for the pending enables.
Type = 3...6	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 7	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 8	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 9	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 10	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 11	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 12	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 13	
0x1h	The actual value was specified via a system variable and the permissible number of failure cycles was exceeded
0x2h	The actual value was updated with an update counter in the I/O area and the permissible number of failure cycles was exceeded

Description of the alarm parameters in the `_getCamTrackErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

The remedy for the respective type and cause is described below.

Type 1

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- A system fault may be present. Call the hotline.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- When sign-of-life monitoring is set: Ensure that in HW Config for drive under DP slave properties - isochronous operation - drive, the "synchronize to equidistant DP cycle" field is activated.
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
- Up to SIMOTION RT V4.3: If the alarm occurs after the download on a drive with telegram 999: Compare the parameterized bit position for the "Pulses enabled" status signal in drive parameter p924 with the configuration data 'DriveControlConfig.PulsesEnabled' of the TO axis. In this case, there is not necessarily an incorrect parameterization and therefore a check cannot be performed by the system because of the BICO interconnection. Therefore, make sure that the Pulses enabled bit is in the correct position.

For reason 0x0100

- Correct your user program with regard to PROFIdrive-compliant specification of control bits in the _enable/disableAxis commands, e.g. control signal OFF (STW1.0 = false) must precede a drive connection.

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 2

For reason 0x0000

- Check the absolute encoder functions, connections and configuration. Take note of this when monitoring is deactivated (not with Alarm 20015).

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- Make sure that the user program does not reference a technology object containing an encoder (Axis, External Encoder) with an '_enableaxis' or '_enableexternalencoder' command while system variable 'sensordata.sensordata[n].state' is signaling invalid.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0040

- Compare the encoder type in the drive or encoder parameter P979 with the configuration data of the technology object.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
 - Compare the encoder type, resolution, shift factor, and, in the case of absolute encoders, the number of rotations in the drive or encoder parameter P979 to the encoder type, resolution, fine resolution, and, in the case of absolute encoders, the data length in the configuration data of the technology object.
- When using telegram 999, this message always appears, as the bit position is not checked by the system in this case, but has to be performed by the user.

For reason 0x0100

- Check the device functions, connections and wiring.

For reason 0x0200

- Find the cause of the error in the connected drive or encoder. Check whether the alarm was triggered due to a commissioning operation on the drive or encoder.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 3 - Type 6For reason 0x0000

- Check the configuration and the signal paths of the connection.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 7For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 8For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 9For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 10For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 11 - Type 12For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring. If the error cannot be acknowledged when the axis is in simulation mode, check whether the technology data block is activated, and if this is the case, deactivate it.

Type 13

For reason 0x1

- Check the specification of the actual value with regard to function, configuration, and task configuration.

For reason 0x2

- Check the device functions, configuration, connections and wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

CAMTRACK_DISABLE

Settable local reactions

CAMTRACK_DISABLE

Diagnostics buffer entry

Yes

20006 Configuration error (category: /1/%d, error number: /2/%d, additional information: /3/%d)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

This alarm indicates error states caused by a faulty or inconsistent configuration. The technology objects perform a plausibility check on the configuration. Errors are identified by the error codes below.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of the error
500	Illegal technology object configuration state.
501	More configuration data expected than received.
502	Invalid configuration data.
503	Version conflict in configuration.
504	The configured task level is not supported by this TO.
505	The value range of the maximum number of command IDs has been violated.
506	The configured task level is not supported by the used hardware.
1001	Fast and normal output cams cannot be connected to the same output
1002	Interconnection of output cam to a technology object without a measuring system is not permissible when 'taskLevel:= SERVO' and 'positionReference:= ACTUAL_VALUE'
1003	Error in configuration data OctBaseCfg.taskLevel
1004	Error in configuration data OctBaseCfg.posValueType
1005	Illegal logical address of the output cam track output in the configuration data structure LogAddress
1006	Error in configuration of IPO/servo cycle clock ratio
1007	Interconnection of output cam with 'positionReference:=COMMAND_VALUE' and an axis with a faster TaskLevel results in accuracy problems and is therefore not permissible
1008	Error in configuration data DecodingConfig.numberOfMaxBufferedCommandId
1009	Error in configuration data OctType.camTrackType
1010	Error in configuration data OctBaseCfg.hwTimer
1011	Error in configuration data OctBaseCfg.outputType
1012	Error in configuration data OctBaseCfg.keepEnabledOutOfTrackRange
1013	Error in configuration data LogAddress.enableOutput
1014	Error in configuration data OctTechnologicalCfg.invertOutput
1015	Error in configuration data OctBaseCfg.actualValueReference
1016	Error in configuration data OctBaseCfg.commandValueReference

Additional information:	More detailed description of the error origin
	Not relevant

Description of the alarm parameters in the `_getCamTrackErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT

Remedy

Change the configuration data.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

CAMTRACK_DISABLE

Settable local reactions

CAMTRACK_DISABLE

Diagnostics buffer entry

Yes

20007 Interconnection error (category: /1/%d, context: /2/%d, context parameter1: /3/%d, context parameter2: /4/%d)

Cause

This alarm indicates errors in the interconnection of technology objects. When the interconnection is established, the technology object verifies it on the basis of the interface properties. Errors are classified by category.

Additional information for a more detailed description of the error can be output from the context. An error context is output for selected error categories. Additional context parameters can be output for a context, if necessary. Context and context parameters are output as an integer value.

Meaning of alarm parameters

Category:	
1	Technology object compatibility error An interconnection is to be established with a technology object that has been configured with another reference system (e.g. output cams with rotary reference system and linear axis).
2	Exclusive interface An interface on a technology object that can only be connected to another technology object using one coupling type should be interconnected using different, mutually exclusive couplings. For example, the master value interface on a positioning axis for an interconnected synchronous object can only be operated as a setpoint or an actual value coupling.
3	Interconnection request The technology object awaits the interconnection to another technology object (necessary interconnection) in order to provide its functionality. Thus, for example, the interconnection to a gear axis is a required interconnection on a synchronous object.
4	Error during interface initialization The alarm is output in the event of initialization errors when connecting interfaces on the technology object.
5	Interface not available on technology object An interface required in the interconnection is not available on the technology object.
6	Recursion The interconnection on the technology object results in a recursion in the execution system of the technology package. The technology object does not support recursive execution.
7	Execution level compatibility error An interconnection is to be established with a technology object that is classified in a different execution level (e.g. output cam in execution level IPO and axis in execution level IPO_2). The technology object does not support interconnection to technology objects of other execution levels.
8	Initialization distribution In the case of interconnected technology objects that are distributed among different devices, an error occurred during initialization of the communication.

9	<p>Illegal TO state</p> <p>The technology object cannot be interconnected in the current state. A technology object can be interconnected only after the configuration has been successfully completed. Refer to the diagnostic buffer to determine the exact cause of the error. The cause of the illegal TO state is entered there (e.g. a level overflow during the configuration phase) and can then be corrected (in the example, by allowing level overflows in the task configuration).</p>
10	<p>Interface assignment</p> <p>The configured interface via which the technology object communicates cannot be used from the processing cycle clock of the technology object.</p>
11	<p>Active command in recursive TO interconnection</p> <p>The interconnection of the technology object and the enable state at its inputs result in an active recursive interconnection (positive feedback).</p>

Description of the alarm parameters in the `_getCamTrackErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

Context / context parameter:

Contact the hotline and provide the name of the context parameter.

Category:

1 - Technology object compatibility error

Check the configuration and set a common reference system for the technology objects to be interconnected.

2 - Exclusive interface

Ensure that the project is consistent. Contact the hotline, if necessary.

3 - Interconnection request

Ensure that the project is consistent. The missing interconnection on the technology object is specified in the context:

Context

TO type

Interface

2

Cam track

Cam track/master value source

4 - Error during interface initialization

Contact the hotline and provide the name of the context parameter.

5 - Interface not available on technology object

Contact the hotline and provide the name of the context parameter.

6 - Recursion

Check the interconnection topology of your project. Remove unnecessary interconnections.

7 - Execution level compatibility error

Select a common execution level in the configuration for the technology objects to be interconnected (e.g. output cam and axis in IPO_2).

8 - Initialization distribution

- Ensure that your project is consistent. For proper configuration of communication, all devices must be compiled ('Project/Save and compile all' or "Save and compile all new').
- Determine whether all devices are selected for loading the project ('Target system/Select target devices...').
- Check whether the configured bus topology matches the actual bus topology.
- Ensure that the devices are linked in the bus configuration (PROFIBUS).
- Check whether isochronous operation was selected.
- In addition, the address areas that are used by the devices for communication must be set up. The address areas are automatically set up when the project is compiled; only afterwards is the valid hardware configuration available for downloading. Do not change automatically generated address areas afterwards.
- Contact the hotline and provide the name of the context parameter.

9 - Illegal technology object state

- Correct the configuration of the technology object.
- Eliminate the execution error.

10 - Interface assignment

- Configure the bus interface to match the processing cycle clock (e.g. fast bus system and axis in FastIPO).

11 - Active command in recursive TO interconnection

- Inputs of technology objects can already be enabled during the download (e.g. TO AdditionObjectType). Remove or change the relevant interconnection on the technology object or switch a technology object, whose input is enabled by the user program and not already by the download, into the positive feedback branch.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

CAMTRACK_DISABLE

Settable local reactions

CAMTRACK_DISABLE

Diagnostics buffer entry

Yes

20008 Assignment of USER_DEFAULT to system variables is not possible

Cause

It is not appropriate to assign USER_DEFAULT to a UserDefault system variable, because the variable references itself in this case.

As a result, a meaningful value cannot be generated on readout. When this error occurs, the new Enum value is not assigned. The variable retains the old value.

Remedy

USER_DEFAULT is intended for use in technology commands. Avoid assigning it to system variables.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE

Diagnostics buffer entry

No

20009 **Reserved error**

Cause

This error is not currently in use.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

CAMTRACK_DISABLE

Settable local reactions

CAMTRACK_DISABLE

Diagnostics buffer entry

Yes

20010 A restart is required to activate the configuration data

Cause

The configuration cannot be activated, since data has been modified preventing the activation. The technology object must be restarted to activate the data.

Remedy

- Execute the technology object reset command, and set the 'activateRestart' parameter to 'ACTIVATE_RESTART'.
- Set the 'restartActivation' system variable to 'ACTIVATE_RESTART'.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP CAMTRACK_DISABLE

Diagnostics buffer entry

No

20011 Error occurred while activating the configuration (category: /1/%d, error number: /2/%d, additional information: /3/%d)

Cause

This alarm indicates error conditions when activating the configuration. The error conditions can be traced back to an incorrect or inconsistent configuration. The technology objects perform a plausibility check on the configuration. Errors are identified by the error codes below. The configuration is not activated when this alarm occurs.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of the error
500	Illegal technology object configuration state.
501	More configuration data expected than received.
502	Invalid configuration data.
503	Version conflict in configuration.
504	The configured task level is not supported by this TO.
505	The value range of the maximum number of command IDs has been violated.
506	The configured task level is not supported by the used hardware.
1001	Fast and normal output cams cannot be connected to the same output
1002	Interconnection of output cam to a technology object without a measuring system is not permissible when 'taskLevel:= SERVO' and 'positionReference:= ACTUAL_VALUE'
1003	Error in configuration data OctBaseCfg.taskLevel
1004	Error in configuration data OctBaseCfg.posValueType
1005	Illegal logical address of the output cam track output in the configuration data structure LogAddress
1006	Error in configuration of IPO/servo cycle clock ratio
1007	Interconnection of output cam with 'positionReference:=COMMAND_VALUE' and an axis with a faster TaskLevel results in accuracy problems and is therefore not permissible
1008	Error in configuration data DecodingConfig.numberOfMaxBufferedCommandId
1009	Error in configuration data OctType.camTrackType
1010	Error in configuration data OctBaseCfg.hwTimer
1011	Error in configuration data OctBaseCfg.outputType
1012	Error in configuration data OctBaseCfg.keepEnabledOutOfTrackRange
1013	Error in configuration data LogAddress.enableOutput
1014	Error in configuration data OctTechnologicalCfg.invertOutput
1015	Error in configuration data OctBaseCfg.actualValueReference
1016	Error in configuration data OctBaseCfg.commandValueReference

Additional information:	More detailed description of the error origin
	Not relevant

Description of the alarm parameters in the `_getCamTrackErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT

Remedy

Change the configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP CAMTRACK_DISABLE

Diagnostics buffer entry

No

20012 Restart not carried out (reason: /1/%d)

Cause

Technology object could not be restarted.

Meaning of alarm parameters

Reason:	
1	The technology object configuration does not allow a restart with the restart system variable.
2	The technology object is not ready to be restarted.
3	A configured condition for restarting the technology object is not met (e.g. technology object must be 'disabled').
4	Restart was not performed with the last programmed configuration of the technology object because this is faulty
5	The configuration of the technology object does not permit any restart.

Description of the alarm parameters in the `_getCamTrackErrorState` command:

No.	Data type
1	DINT

Remedy

Reason:	
1	Initiate the restart using the reset command.
2	Reload the project.
3	Work around the cause stated in the Reason parameter, or reload the project.
4	Determine whether technological alarms were reported or error entries were made in the device diagnostics and, if necessary, remedy the cause.
5	Change the configuration to activate the appropriate restart capability.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP CAMTRACK_DISABLE

Diagnostics buffer entry

No

20014 Under logical address: /1/%d (optional log. address: /2/%d and bit no.: /3/%d of the enable output), a driver (type: /4/%d) could not be requested

Cause

The driver of a physical device is not available or is being used by another technology object.

The enable command for the technology object has been issued more than once with the 'immediately' stepping condition.

Meaning of alarm parameters

Logical address:	This is the address of the actuator driver configured on the technology object.
Logical address and bit number:	This specifies the address and bit number of the output enable bit.

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver

Description of the alarm parameters in the `_getCamTrackErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	DINT

Remedy

- Do not call the enable command cyclically "call the enable command only once for the axis enable".
- Check that the logical device was available at the time of the request or whether it was being used by another technology object.
- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

CAMTRACK_DISABLE

Settable local reactions

CAMTRACK_DISABLE

Diagnostics buffer entry

Yes

20015 Device type:/3/%d, log. address:/1/%d faulted. (Bit:/2/%d, encoder number:/5/%d, reason: 0x/4/%Xh)

Cause

The driver of a physical device or the device itself has failed or is faulty.

If this alarm occurs, the cause of the error must be evaluated in the external device (drive or encoder).

Meaning of alarm parameters

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver
12	Safety data block driver
13	Update counter
14	Operating characteristics data block driver

Logical address:	This is the logical input address configured on the technology object.
Bit number:	For bit driver type = 3 or 4 only; number of the bit
Encoder number:	Number of the encoder in case of telegrams with multiple encoders. Applies only when type = 2.
Reason:	0 - only defined when type = 2

Note

Addition of error messages

The codings for the reason of the failure specified below for the individual alarm types can also occur in combination. A group coding is indicated as the sum of several individual codings (e.g. 0x0005 = 0x0001 + 0x0004).

A failure reason labeled with DP can occur only for PROFIBUS devices.

Type = 1	
0x0001h	Fault message from the drive (note: for PROFIBUS drives, which support acyclic communication in accordance with PROFIdrive V3, the error number(s) of the drive are displayed in the diagnostic buffer, e.g. for Masterdrives MC)
0x0002h	DP: Drive signal "control requested" failed
0x0004h	DP: Drive disconnected itself
0x0008h	Slot for drive data is not available in the project
0x0010h	Actuator driver does not have a connection to the drive data
0x0020h	Actuator driver was not initialized during ramp-up
0x0080h	DP: Difference between configuration data and drive parameters (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	DP: Control signals to the PROFIdrive state machine were incorrectly specified
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
0x8000h	DP: Life-sign of drive has malfunctioned or failed
0x80000000h	The drive interface has been deactivated for the pending enables.
Type = 2	
0x0000h	The actual value changes exceed the limit value derived from the maximum velocity (configuration data TypeOfAxis.MaxVelocity.maximum) over multiple cycles. This monitoring can be activated or deactivated with configuration data TypeOfAxis.NumberOfEncoders.Encoder_x.AbsEncoder.enableAbsMonitoring.
0x0001h	Alarm message from encoder (note: the encoder error number(s) are displayed in the diagnostic buffer)
0x0002h	General hardware error of encoder
0x0004h	Encoder is dirty
0x0008h	Slot for encoder data is not available in the project
0x0010h	Encoder driver does not have a connection to the encoder data
0x0020h	Encoder driver was not initialized during ramp-up
0x0040h	Error when reading the absolute value of the encoder
0x0080h	DP: Difference between the configuration data and the encoder parameters Onboard C2xx: Inconsistency of the configuration data (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	Zero mark monitoring of encoder
0x0200h	DP: Encoder has gone to Parked state
0x4000h	DP: Encoder on bus failed (station failure)

0x8000h	DP: Life-sign of encoder has malfunctioned or failed. (note: for an encoder whose data are transferred in a drive telegram together with actuator data, the actuator life-sign applies to the encoder, e.g. for standard telegram 3 in accordance with PROFIdrive)
0x80000000h	The sensor interface has been deactivated for the pending enables.
Type = 3...6	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 7	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 8	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 9	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 10	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 11	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 12	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 13	
0x1h	The actual value was specified via a system variable and the permissible number of failure cycles was exceeded
0x2h	The actual value was updated with an update counter in the I/O area and the permissible number of failure cycles was exceeded

Description of the alarm parameters in the `_getCamTrackErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

The remedy for the respective type and cause is described below.

Type 1

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- A system fault may be present. Call the hotline.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- When sign-of-life monitoring is set: Ensure that in HW Config for drive under DP slave properties - isochronous operation - drive, the "synchronize to equidistant DP cycle" field is activated.
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
- Up to SIMOTION RT V4.3: If the alarm occurs after the download on a drive with telegram 999: Compare the parameterized bit position for the "Pulses enabled" status signal in drive parameter p924 with the configuration data 'DriveControlConfig.PulsesEnabled' of the TO axis. In this case, there is not necessarily an incorrect parameterization and therefore a check cannot be performed by the system because of the BICO interconnection. Therefore, make sure that the Pulses enabled bit is in the correct position.

For reason 0x0100

- Correct your user program with regard to PROFIdrive-compliant specification of control bits in the `_enable/disableAxis` commands, e.g. control signal OFF (STW1.0 = false) must precede a drive connection.

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 2For reason 0x0000

- Check the absolute encoder functions, connections and configuration. Take note of this when monitoring is deactivated (not with Alarm 20015).

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- Make sure that the user program does not reference a technology object containing an encoder (Axis, External Encoder) with an '_enableaxis' or '_enableexternalencoder' command while system variable 'sensordata.sensordata[n].state' is signaling invalid.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0040

- Compare the encoder type in the drive or encoder parameter P979 with the configuration data of the technology object.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
 - Compare the encoder type, resolution, shift factor, and, in the case of absolute encoders, the number of rotations in the drive or encoder parameter P979 to the encoder type, resolution, fine resolution, and, in the case of absolute encoders, the data length in the configuration data of the technology object.
- When using telegram 999, this message always appears, as the bit position is not checked by the system in this case, but has to be performed by the user.

For reason 0x0100

- Check the device functions, connections and wiring.

For reason 0x0200

- Find the cause of the error in the connected drive or encoder. Check whether the alarm was triggered due to a commissioning operation on the drive or encoder.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 3 - Type 6

For reason 0x0000

- Check the configuration and the signal paths of the connection.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 7

For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 8

For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 9

For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 10

For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 11 - Type 12

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring. If the error cannot be acknowledged when the axis is in simulation mode, check whether the technology data block is activated, and if this is the case, deactivate it.

Type 13For reason 0x1

- Check the specification of the actual value with regard to function, configuration, and task configuration.

For reason 0x2

- Check the device functions, configuration, connections and wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP CAMTRACK_DISABLE

Diagnostics buffer entry

Yes

20016 Under logical address: /1/%d (bit number, if required: /2/%d) no driver (type: /3/%d) activated (error number: /4/%d)

Cause

The driver of a physical device or the device itself is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getCamTrackErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT

Remedy

- Check the activation/deactivation sequence for the interface.
- Note the runtimes of the commands and use the provided command control mechanisms (e.g. `nextCommand := WHEN_COMMAND_DONE`).
- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE CAMTRACK_DISABLE

Diagnostics buffer entry

Yes

20017 Internal algorithm error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Error source
Parameters 2 to 4:	Fault number

Description of the alarm parameters in the `_getCamTrackErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact:

SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

CAMTRACK_DISABLE

Settable local reactions

CAMTRACK_DISABLE

Diagnostics buffer entry

Yes

20018 **Attempt to write the bit(s): 0x/1/%Xh in control word1 or the bit(s): 0x/2/%Xh in control word2 under the log. address: /3/%d has been rejected.**

Cause

An attempt to write certain bits in control word 1 or 2 has been rejected.

Meaning of alarm parameters

Bits:	Display of bits which could not be written
Log. address:	Logical address of the device driver

Description of the alarm parameters in the `_getCamTrackErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT

Remedy

- Check the order of commands, particularly in relation to `_enableAxis(...)`.
- Check the command parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE

Diagnostics buffer entry

Yes

20019 Error for the commissioning, reason: /1/%d (Parameter1: /2/%d, Parameter2: /3/%d)

Cause

A commissioning function could not be executed.

Meaning of alarm parameters

Reason:	
1	Failure of the life-sign between controller and SIMOTION SCOUT
2	Protocol error
3	Command decoding error

Description of the alarm parameters in the _getCamTrackErrorState command:

No.	Data type
1	DINT
2	UDINT
3	UDINT

Remedy

Reason:	
1	Check the connection properties. If required, increase the monitoring time.
2	Should a system error of this type occur, note the alarm number, the alarm text and the specified alarm parameters, and contact: SIEMENS AG I DT MC, Hotline.
3	Should a system error of this type occur, note the alarm number, the alarm text and the specified alarm parameters, and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / NONE

Preassignment for local reactions

NONE

Settable local reactions

NONE CAMTRACK_DISABLE

Diagnostics buffer entry

Yes

20020 Output deactivated

Cause

One or more outputs of the technology object have been deactivated. This is caused by the output-disable device status.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

CAMTRACK_DISABLE

Settable local reactions

NONE DECODE_STOP CAMTRACK_DISABLE

Diagnostics buffer entry

No

20021 Configuration will be adapted internally (category: /1/%d, reason: /2/%d, limited value: /3/%f, additional information: /4/%d)

Cause

This alarm shows the implicit setting of configuration data to the maximum possible values. The technology objects perform a plausibility check on the configuration. Errors/manipulations are identified by the error codes below.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of configuration data
2001	Illegal value for maxSpeed (maxSpeed less than or equal to 2*nominalSpeed; maxSpeed will be set to 2*nominalSpeed)
2002	Illegal value for maxTorque/Force (maxTorque/Force less than or equal to 2*nominalTorque/Force; maxTorque/Force will be set to 2*nominalTorque/Force)
2003	Error during the adaptation of the Torque-/ForceReductionGranularity. p1544 is ignored and the default value used.
3001	The length of the backlash on reversal is limited to a permitted value (Encoder_N.incBacklash.length or Encoder_N.absBacklash.length).
3002	The compensation velocity of the backlash on reversal is limited to a permitted value (Encoder_N.incBacklash.velocity or Encoder_N.absBacklash.velocity).
3003	The value of the configuration data for the encoder system (.Encoder_N.encoderSystem) is limited to a permitted value.
3004	The value of the configuration data for the encoder resolution (rotary: .Encoder_N.incEncoder.incResolution, Encoder_N.absEncoder.absResolution; linear: Encoder_N.Resolution.distance) is limited to a permitted value.
3005	The value of the configuration data for the multiplication factor of the cyclical actual value (.Encoder_N.incEncoder.incResolutionMultiplierCyclic, Encoder_N.absEncoder.absResolutionMultiplierCyclic, Encoder_N.Resolution.multiplierCyclic) is limited to a permitted value.
3006	The value of the configuration data for the multiplication factor of the absolute value (Encoder_N.absEncoder.absResolutionMultiplierAbsolute) is limited to a permitted value.
3007	The value of the configuration data for the data length of the absolute value (Encoder_N.absEncoder.absDataLength) is limited to a permitted value.
3008	The value of the configuration data for the reference value of the Nact speed in the PROFIdrive telegram (Encoder_N.sensorNist.referenceValue) is limited to a permitted value.
3009	The load gear factor of the first data set is leading for the encoder simulation. The simulation with different load gear factors is not supported. The value of the configuration data for the load gear (DataSet_N.gear) is limited to the load gear ratio of the first data set.
4001	The delay time for the triggering of the standstill signal (StandStillSignal.delayTimeToActivate) is limited.
4002	The delay time until the position monitoring tolerance window is reached (PositionMonitoring.posWinToITime) is limited.
4003	The delay time until the activation of the position monitoring message (PositionMonitoring.posWinToIDelayTime) is limited.
4004	The delay time for the activation of the standstill monitoring message (StandStillMonitoring.delayTimeToActivate) is limited.
4005	The delay time of the actual value of the force/pressure entry monitoring (ForceControlRunningInWindowMonitoring.winToITime) is limited.
4006	The delay time until activation of the force/pressure entry monitoring (ForceControlRunningInWindowMonitoring.maxDelayTime) is limited.
4007	The delay time until activation of the force/pressure end value monitoring (ForceControlHeldValueMonitoring.delayTimeToActivate) is limited.

4008	The delay of the emergency ramp generator (EmergencyRampGenerator.maxDeceleration) is too small and set to the minimum possible value.
4009	The decay time constant of the friction compensation (Friction.decayTime) is limited.
4068	The maximum buffer length of the lag element in the balancing filter (Mode_2) is reached or exceeded. The lag element (maximum buffer length: 16 servo-cycles) is augmented by a PT1 element.
4069	The maximum buffer length of the lag component of the dynamic response compensation is reached or exceeded. The maximum value of this time constant is limited to 16 servo cycles. The buffer length of the lag element is maximum 16.

Additional information:	More detailed description of the error origin
Not relevant	

Description of the alarm parameters in the `_getCamTrackErrorState` command:

No.	Data type
1	DINT
2	DINT
3	LREAL
4	UDINT

Remedy

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE CAMTRACK_DISABLE

Diagnostics buffer entry

No

20023 Under logical address: /1/%d (bit number, if required: /2/%d) no I/O (type: /3/%d) are available (error number: /4/%d)

Cause

A physical device is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getCamTrackErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

CAMTRACK_DISABLE

Settable local reactions

CAMTRACK_DISABLE

Diagnostics buffer entry

No

20024 Under logical address: /1/%d (bit number, if required: /2/%d) no I/O (type: /3/%d) are available (error number: /4/%d)

Cause

A physical device is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getCamTrackErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

CAMTRACK_DISABLE

Settable local reactions

CAMTRACK_DISABLE

Diagnostics buffer entry

No

30001 **Illegal parameter (parameter index according to standard sequence in the system functions: /1/%d, command type: /4/%X)**

Cause

Illegal parameter transfer to a system function. The command is not executed. This alarm occurs when the permissible parameter value range is violated. The permissible value range of the parameter is a function of its data type and the technological meaning of the parameter.

The parameter index indicates the position of the illegal parameter. The standard sequence of parameters in the system functions is apparent from the reference list associated with the command. The command type indicates the type of the faulty system function.

Meaning of alarm parameters

Parameter index:	Index of the system function parameter that triggered this error (listed according to the standard sequence in the system functions).
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getCamTrackErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the value range of the parameter data type.
- Check the technological meaning of the parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP CAMTRACK_DISABLE

Diagnostics buffer entry

No

30002 Command aborted (reason: /1/%d, command type: /4/%X)

Additional references

Further information is provided in the Function Manual:

- Basic Functions and
- in the online help.

Cause

The command was aborted before or during execution.

This can be caused by:

- A substituted command
- Command buffer reset
- Error state

Note

This alarm is always output, e.g. for jogging (_move aborted with _stop) or for the retraction of the reference BERO for homing or when Synchronous operation (explicitly) deactivated.

Meaning of alarm parameters

Reason:	
1	Reset of the command buffer
2	Abort by another command
5	Abort by a pending error response
6	Abort due to ambiguous commandId
9	Abort due to abort of a dependent command
31	Maximum number of active commands exceeded
42	No interconnection to a technology object
44	Abort because of a pending command with identical command parameters

Command type:	Outputs the aborted command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getCamTrackErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Set up the command again via program.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP CAMTRACK_DISABLE

Diagnostics buffer entry

No

30003 Command aborted because of full command buffer (command type: /4/%X)

Cause

The command is not entered in the command buffer because the buffer is already full.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getCamTrackErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the program flow.
- Typical cause: The 'nextCommand' parameter is passed with the value 'IMMEDIATELY', and the 'mergeMode' parameter is passed with the value 'SEQUENTIAL'.
 - Synchronize the command execution in the user program so that the command buffer is not occupied when the command is issued.
 - Use other values for the 'nextCommand' or 'mergeMode' parameters. Setting the "nextCommand" to a value other than 'IMMEDIATELY' causes the program to wait for the command buffer to become available. In addition, setting a different 'mergeMode' means that the command buffer can be overwritten.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP CAMTRACK_DISABLE

Diagnostics buffer entry

No

30004 Command is not defined for this technology object type (command type: /4/%X)

Cause

Command was programmed on a technology object type not supporting processing of this command.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getCamTrackErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Issue the command on the correct technology object type.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP CAMTRACK_DISABLE

Diagnostics buffer entry

No

30005 **Ambiguous commandId (number of commands with the specified ID: /1/%d, command type: /4/%X)**

Cause

The specified commandId refers to more than one command. The specified action is performed for the command matching the specified ID that has been in the interpolator for the longest time.

If no corresponding command is found in the interpolator, the action refers to the next command loaded in the interpolator.

Meaning of alarm parameters

Id:	Number of commands referenced by the specified command ID.
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getCamTrackErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Use a different 'commandId' for commands that are active simultaneously.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP CAMTRACK_DISABLE

Diagnostics buffer entry

No

30006 Command cannot be executed because of the current object state (command type: /4/%X)

Cause

A reset command is active at the object or the object is deactivated.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getCamTrackErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the following:

- Check the object status.
- Check the possible execution sequence of the programmed commands.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP CAMTRACK_DISABLE

Diagnostics buffer entry

No

30007 The error cannot be reset because of its configuration

Cause

The 30007 alarm will be output when an alarm is reset that can only be acknowledged with PowerOn.

Example:

The internal 20001 error can only be acknowledged with PowerOn.

If an attempt is made to reset the alarm with a `_reset...Error` command, the 30007 alarm will be output.

Description of the alarm parameters in the `_getCamTrackErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

Check whether the errors present on the technology object can be acknowledged.

Correct the cause of the error and switch the CPU off/on or load the project again.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP CAMTRACK_DISABLE

Diagnostics buffer entry

No

30008 **Link to a technology object necessary for this operation does not exist (command type: /4/%X)**

Cause

The object connection required for this operation has not been configured or the connected technology object has been deactivated.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getCamTrackErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the project configuration.
- Change the object connection in the command.
- Activate the connected technology object.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP CAMTRACK_DISABLE

Diagnostics buffer entry

No

30009 Command rejected as the decoding of the command of the technology object addressed has been deactivated/stopped (reason: /1/%d, command type: /4/%X)

Cause

Command was rejected due to suspension of command decoding on the addressed technology object. The command decoding can be stopped by the DECODE_STOP alarm response, by deactivating or restarting the technology object, by starting the axis control panel in exclusive mode or by the absence of necessary interconnections.

Meaning of alarm parameters

Reason:	
1	Restart of the technology object
2	Technology object is deactivated
3	Technology object is in RUN mode.
4	Control panel active

Command type:	Outputs the type of the rejected command. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getCamTrackErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check why the command was rejected.
- If necessary, acknowledge any active errors once you have corrected the cause of the error.
- If the technology object is deactivated, you must activate it.
- Do not issue any commands while the technology object is restarting.
- Do not issue any commands while a connected technology object is restarting.
- Stop the axis control panel.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP CAMTRACK_DISABLE

Diagnostics buffer entry

No

30010 Command not available (command type: /4/%X)

Cause

The command is not available in this version of the runtime software.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getCamTrackErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the version of the runtime software.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP CAMTRACK_DISABLE

Diagnostics buffer entry

No

30011 **Parameter not available (parameter index according to the standard sequence in the system functions: /1/%d, command type: /4/%X)**

Cause

The parameter is not available in this version of the runtime software, the command is therefore rejected. The parameters indicate the position according to the standard sequence in the system functions and the command type of an incorrectly entered parameter.

Meaning of alarm parameters

Parameter index:	Index of the command parameter triggering this error according to the standard sequence in the system functions.
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getCamTrackErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the version of the runtime software.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP CAMTRACK_DISABLE

Diagnostics buffer entry

No

30012 Command cannot be started synchronously (command type: /4/%X)

Cause

The command cannot be used within a 'BEGIN_SYNC' or 'END_SYNC' sequence. The command has only one return value in the user program, or the command is not capable of starting synchronously.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getCamTrackErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Do not use this command type during a BEGIN_SYNC, END_SYNC sequence.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP CAMTRACK_DISABLE

Diagnostics buffer entry

No

30013 Synchronous start of the command is carried out with mergeMode IMMEDIATELY (command type: /4/%X)

Cause

With synchronous command start, only merge modes that immediately override the current command (IMMEDIATELY) and superimpose the current command (SUPERIMPOSED_MOTION_MERGE) can be used.

If an illegal merge mode is programmed (e.g. SEQUENTIAL or NEXT_MOTION), the system automatically changes the merge mode to IMMEDIATELY and outputs this warning.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getCamTrackErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Program the command which is to be started synchronously to immediately override the current command. To do this, enter the value IMMEDIATELY in the 'mergeMode' command parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP CAMTRACK_DISABLE

Diagnostics buffer entry

No

30015 **A technology required for this command has not been configured (technology: /1/%d, command type: /4/%X)**

Cause

The command cannot be selected in this technology object configuration.

Meaning of alarm parameters

Technology:	Not relevant
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the _getCamTrackErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Activate the technology needed for the command.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP CAMTRACK_DISABLE

Diagnostics buffer entry

No

40001 Output cam limitation error (output cam position: /1/%d)**Cause**

- At least one output cam position is invalid.
- The output cam was moved beyond the limits of the operating range.

Meaning of alarm parameters

Parameters:	
1	startPosition
2	endPosition
7	Inverted

Description of the alarm parameters in the _getCamTrackErrorState command:

No.	Data type
1	DINT

Remedy

Check the assigned actuation or delay time (depending on the traversing direction of the axis): If it is too long, it must be reduced.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

CAMTRACK_DISABLE

Settable local reactions

NONE DECODE_STOP CAMTRACK_DISABLE

Diagnostics buffer entry

No

40003 Illegal range specification in the parameters (reason: /1/%d)

Cause

Illegal value has been entered for a parameter.

Meaning of alarm parameters

Reason	
1	Start position is outside the valid range.
2	End position is outside the valid range. Note that the end position cannot be same as the start position.
3	No valid individual output cam specified.
8	The hysteresis is outside the valid range.
12	The cam track length is outside the valid range.

Description of the alarm parameters in the _getCamTrackErrorState command:

No.	Data type
1	DINT

Remedy

For reasons 1 and 2	Only switch positions within the operating range are permissible. The end position cannot be the same as the start position.
For reason 3	At least one valid individual output cam must be specified.
For reason 8	The maximum permissible switching hysteresis is equivalent to one-fourth of the operating range.
For reason 12	The cam track length must be positive. With cam tracks on modulo axes, the ratio of cam track length / axis modulo length must not exceed 2147483647.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP CAMTRACK_DISABLE

Diagnostics buffer entry

No

40004 I/O output error

Cause

A connected I/O device cannot process the transferred values.

Remedy

- Check the hardware configuration.
- Check the time ratio settings and increase the clock-pulse rates, if necessary.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

CAMTRACK_DISABLE

Settable local reactions

CAMTRACK_DISABLE

Diagnostics buffer entry

No

40005 Position value is not valid

Cause

The technology object assigned to the cam track is supplying invalid position values.

Remedy

Check the accuracy of the position values of the technology object from which the cam track takes its position values.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

CAMTRACK_DISABLE

Settable local reactions

CAMTRACK_DISABLE

Diagnostics buffer entry

No

40006 Output delay specified incorrectly**Cause**

The internal value for taking the output delay into account in the TM17 parameter p4099 is incorrect. This can cause inaccuracies in the cam output.

Remedy

Symbolic assignment activated: Perform an upload of the drive and compile, download, and restart the control project.

Symbolic assignment not activated: Perform an upload of the drive, go offline with the project, regenerate the FastIO configuration, compile, download, and restart the control project.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP CAMTRACK_DISABLE

Diagnostics buffer entry

No

2.7 FollowingAxis

20001 Internal error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Error source
Parameters 2 to 4:	Fault number

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

RELEASE_DISABLE

Diagnostics buffer entry

Yes

20002 Insufficient memory (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

The memory required by the system is no longer available.

This alarm can occur both during ramp-up and after program calls.

Meaning of alarm parameters

Parameter 1:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Parameters 2 to 4 are area-specific.

They are not fully utilized by all areas.

Command decoding area:

Parameters 2 and 4	refer to the command in which the error occurred.
Parameter 2:	Command return value
Parameter 4:	Command type

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

- Reduce the size of the ST code.
- Reduce the number of technology objects.
- Reduce the number of interpolation points for cams, if present.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

Yes

20003 Internal configuration error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system

Parameters 2 to 4 are area-specific.

These parameters are not fully utilized by all areas.

Command decoding area:

Parameters 2 and 4	refer to the command in which the error occurred.
Parameter 2:	Command return value
Parameter 4:	Command type

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

Yes

20004 Under logical address: /1/%d (bit number, if required: /2/%d) no driver (type: /3/%d) could be requested (error number: /4/%d)

Cause

The driver of a physical device or the device itself is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT

Remedy

- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

RELEASE_DISABLE

Diagnostics buffer entry

Yes

20005 Device type:/3/%d, log. address:/1/%d faulted. (Bit:/2/%d, encoder number:/5/%d, reason: 0x/4/%Xh)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

The driver of a physical device or the device itself has failed or is faulty.

If this alarm occurs, the cause of the error must be evaluated in the external device (drive or encoder).

Meaning of alarm parameters

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver
12	Safety data block driver
13	Update counter
14	Operating characteristics data block driver

Logical address:	This is the logical input address configured on the technology object.
Bit number:	For bit driver type = 3 or 4 only; number of the bit
Encoder number:	Number of the encoder in case of telegrams with multiple encoders. Applies only when type = 2.
Reason:	0 - only defined when type = 2

Note

Addition of error messages

The codings for the reason of the failure specified below for the individual alarm types can also occur in combination. A group coding is indicated as the sum of several individual codings (e.g. 0x0005 = 0x0001 + 0x0004).

A failure reason labeled with DP can occur only for PROFIBUS devices.

Type = 1	
0x0001h	Fault message from the drive (note: for PROFIBUS drives, which support acyclic communication in accordance with PROFIdrive V3, the error number(s) of the drive are displayed in the diagnostic buffer, e.g. for Masterdrives MC)
0x0002h	DP: Drive signal "control requested" failed
0x0004h	DP: Drive disconnected itself
0x0008h	Slot for drive data is not available in the project
0x0010h	Actuator driver does not have a connection to the drive data
0x0020h	Actuator driver was not initialized during ramp-up
0x0080h	DP: Difference between configuration data and drive parameters (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	DP: Control signals to the PROFIdrive state machine were incorrectly specified
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
0x8000h	DP: Life-sign of drive has malfunctioned or failed
0x80000000h	The drive interface has been deactivated for the pending enables.
Type = 2	
0x0000h	The actual value changes exceed the limit value derived from the maximum velocity (configuration data TypeOfAxis.MaxVelocity.maximum) over multiple cycles. This monitoring can be activated or deactivated with configuration data TypeOfAxis.NumberOfEncoders.Encoder_x.AbsEncoder.enableAbsMonitoring.
0x0001h	Alarm message from encoder (note: the encoder error number(s) are displayed in the diagnostic buffer)
0x0002h	General hardware error of encoder
0x0004h	Encoder is dirty
0x0008h	Slot for encoder data is not available in the project
0x0010h	Encoder driver does not have a connection to the encoder data
0x0020h	Encoder driver was not initialized during ramp-up
0x0040h	Error when reading the absolute value of the encoder
0x0080h	DP: Difference between the configuration data and the encoder parameters Onboard C2xx: Inconsistency of the configuration data (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	Zero mark monitoring of encoder
0x0200h	DP: Encoder has gone to Parked state
0x4000h	DP: Encoder on bus failed (station failure)

0x8000h	DP: Life-sign of encoder has malfunctioned or failed. (note: for an encoder whose data are transferred in a drive telegram together with actuator data, the actuator life-sign applies to the encoder, e.g. for standard telegram 3 in accordance with PROFIdrive)
0x80000000h	The sensor interface has been deactivated for the pending enables.
Type = 3...6	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 7	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 8	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 9	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 10	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 11	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 12	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 13	
0x1h	The actual value was specified via a system variable and the permissible number of failure cycles was exceeded
0x2h	The actual value was updated with an update counter in the I/O area and the permissible number of failure cycles was exceeded

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

The remedy for the respective type and cause is described below.

Type 1

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- A system fault may be present. Call the hotline.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- When sign-of-life monitoring is set: Ensure that in HW Config for drive under DP slave properties - isochronous operation - drive, the "synchronize to equidistant DP cycle" field is activated.
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
- Up to SIMOTION RT V4.3: If the alarm occurs after the download on a drive with telegram 999: Compare the parameterized bit position for the "Pulses enabled" status signal in drive parameter p924 with the configuration data 'DriveControlConfig.PulsesEnabled' of the TO axis. In this case, there is not necessarily an incorrect parameterization and therefore a check cannot be performed by the system because of the BICO interconnection. Therefore, make sure that the Pulses enabled bit is in the correct position.

For reason 0x0100

- Correct your user program with regard to PROFIdrive-compliant specification of control bits in the _enable/disableAxis commands, e.g. control signal OFF (STW1.0 = false) must precede a drive connection.

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 2For reason 0x0000

- Check the absolute encoder functions, connections and configuration. Take note of this when monitoring is deactivated (not with Alarm 20015).

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- Make sure that the user program does not reference a technology object containing an encoder (Axis, External Encoder) with an '_enableaxis' or '_enableexternalencoder' command while system variable 'sensordata.sensordata[n].state' is signaling invalid.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0040

- Compare the encoder type in the drive or encoder parameter P979 with the configuration data of the technology object.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
 - Compare the encoder type, resolution, shift factor, and, in the case of absolute encoders, the number of rotations in the drive or encoder parameter P979 to the encoder type, resolution, fine resolution, and, in the case of absolute encoders, the data length in the configuration data of the technology object.
- When using telegram 999, this message always appears, as the bit position is not checked by the system in this case, but has to be performed by the user.

For reason 0x0100

- Check the device functions, connections and wiring.

For reason 0x0200

- Find the cause of the error in the connected drive or encoder. Check whether the alarm was triggered due to a commissioning operation on the drive or encoder.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 3 - Type 6

For reason 0x0000

- Check the configuration and the signal paths of the connection.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 7

For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 8

For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 9

For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 10

For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 11 - Type 12

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring. If the error cannot be acknowledged when the axis is in simulation mode, check whether the technology data block is activated, and if this is the case, deactivate it.

Type 13For reason 0x1

- Check the specification of the actual value with regard to function, configuration, and task configuration.

For reason 0x2

- Check the device functions, configuration, connections and wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

RELEASE_DISABLE

Diagnostics buffer entry

Yes

20006 Configuration error (category: /1/%d, error number: /2/%d, additional information: /3/%d)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

This alarm indicates error states caused by a faulty or inconsistent configuration. The technology objects perform a plausibility check on the configuration. Errors are identified by the error codes below.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of the error
500	Illegal technology object configuration state.
501	More configuration data expected than received.
502	Invalid configuration data.
503	Version conflict in configuration.
504	The configured task level is not supported by this TO.
505	The value range of the maximum number of command IDs has been violated.
506	The configured task level is not supported by the used hardware.
1000	General configuration error
1001	Communication error during data transmission
2000	Error in actuator system configuration.
2001	Outside of manipulated variable limits.
2003	Error in load gear factors.
2004	Error in maximum velocity.
2005	Maximum velocity greater than maximum attainable velocity.
2006	Drive not suitable for torque-controlled or torque-limited operation
2007	Linear stepper motor not implemented
2008	Right-justified format for direct output not implemented
2009	Illegal value in resolution for direct output
2010	Missing configuration data for actuator system
2011	Missing configuration data for additional actuator system
2012	The backstop range (min to max) does not contain a zero point
2014	Drive or telegram not suitable for torque superimposition
2015	Gear ratios less than or equal to 0.
2016	Resolution for stepper motor is 0.
2017	Illegal value for configuration data maxSpeed.
2018	Illegal value for configuration data maxVelocity.
2019	Range limits of configuration data exceeded.
2020	Range limits for maximum acceleration exceeded.
2021	Illegal values for dead zone compensation.
2022	Illegal values for sliding friction compensation.
2023	Illegal values for backstop.
2024	Error in friction compensation parameter
2025	DIRECT output: Analog and bit driver of a shared output are parameterized in different ways on the various axes
2026	Illegal value for pulsesEnable
2027	Illegal value for maxSpeed ($\text{maxSpeed} \geq 2 \cdot \text{nominalSpeed}$)
2028	Illegal value for maxSpeed ($\text{maxSpeed} \leq 10 \text{ V} / \text{maxSetPointVoltage} \cdot \text{nominalSpeed}$)
2029	Illegal value in TypeOfAxis.SetPointDriverInfo
2030	A parameter in DriveData is not correct.
2031	A parameter in LinearMotorDriveData is not correct.
2032	A parameter in StepMotorDriveData is not correct.

2033	A parameter in QOutput.EnableBit is not correct.
2034	A parameter of the technological data block is not correct.
2035	A parameter of the safety data block is not correct.
2036	A parameter of the operating characteristics data block is not correct.
2037	Cannot change the configuration during the drive adaptation.
2038	Illegal value for the manipulated variable filter
2040	No driver could be requested under the logical input address.
2041	No driver could be requested under the logical output address.
2042	The numerator of the load gear is incorrect.
2043	The nominal factor of the load gear is incorrect.
2044	The value for the reference velocity is incorrect.
3000	Error in encoder system.
3001	Illegal value in Simulation.simulationMode
3002	The set axis type is invalid - illegal value in TypeOfAxis.typeOfAxis
3003	The set drive leadscrew pitch is invalid - illegal value in Leadscrew.pitchVal
3004	The set modulo activation is invalid - illegal value in Modulo.state
3005	Illegal specification(s) in the encoder data (incremental, absolute, etc.).
3006	The set number of encoders is invalid - illegal value in .NumberOfEncoders.numberOfEncoders
3007	Illegal incremental encoder number.
3008	Illegal data combination for homing with incremental encoder.
3009	The configuration of the 'Backlash compensation' encoder function is faulty - illegal value in .Encoder_N.IncBacklash or .Encoder_N.AbsBacklash
3010	Illegal data on SSI encoder.
3011	The configuration of the 'Absolute encoder adjustment' encoder function is faulty - illegal value in .Encoder_N.AbsHoming
3012	The configuration of the 'Counting direction of the raw actual encoder value' encoder function is faulty - illegal value in .Encoder_N.InversCountDirection.encoderFeedbackPolarity
3013	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptDrive
3014	The configuration of the 'Encoder limit frequency monitoring' encoder function is faulty - illegal value in .Encoder_N.FrequencyLimit.encoderFrequencyLimit
3015	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptLoad
3016	The load gear ratio configuration of a data set is faulty - illegal value in .DataSet_N.Gear
3017	Encoder data sequence and number of encoders do not match.
3018	The configuration of an encoder is incomplete
3019	The set mounting location of the encoder is invalid - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3020	The encoder simulation is either not supported or it is not activated simultaneously on the actuator and the sensor - illegal value in .Encoder_N.encoderIdentification or .SetPointDriverInfo.mode
3021	The number of configured data sets or the number of the active data set after the startup is invalid - illegal value in DataSet_N.numberOfDatasets or in DataSet_N.initDataSet

3022	The number of the encoder assigned to a data set is invalid - illegal value in DataSet_N.EncoderNumber.encoderNumber
3023	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptExtern
3024	The configuration of the encoder measuring wheel circumference is faulty - illegal value in .Encoder_N.pathPerRevolution.length
3025	The configuration of the 'Actual velocity monitoring' function is faulty - illegal value in .ActualVelocityMonitoring
3026	Illegal encoder number in absolute encoder configuration.
3027	The set message format of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absMessageFormat
3028	The set baud rate of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.baudRate
3029	The set protocol format of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absState
3030	The number of the encoder assigned to a data set is invalid - illegal value in DataSet_N.EncoderNumber.encoderNumber
3031	The encoder assigned to a data set does not exist - illegal value in DataSet_N.EncoderNumber.encoderNumber
3032	The load gear ratio numerator configuration of a data set is faulty - illegal value in .DataSet_N.Gear.numFactor
3033	The load gear ratio denominator configuration of a data set is faulty - illegal value in .DataSet_N.Gear.denFactor
3034	An encoder references a data set that does not exist
3035	An encoder references a data set that does not exist
3036	Encoder not configured.
3037	Homing with encoder zero mark and ENDAT encoder is not possible - illegal value in .Encoder_N.IncHomingEncoder.homingMode
3038	Homing to the falling edge of an external zero mark on an onboard input is not possible - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3039	Flying homing with encoder zero mark and ENDAT encoder is not possible - illegal value in .Encoder_N.IncHomingEncoder.passiveHomingMode
3040	Flying homing to the falling edge of an external zero mark on an onboard input is not possible - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3041	The (modified) encoder configuration does not permit any determination of the factors for converting the encoder raw actual values into actual position and velocity values or for converting the position and velocity setpoints into DSC encoder raw actual values, taking account of the mechanical relationships.
3042	Illegal data combination for homing with external encoder.
3043	The incremental position of the encoder is outside the permissible value range.
3044	The incremental position of the encoder is outside the permissible value range.
3045	The configuration of the linear encoder resolution is faulty - illegal value in .Encoder_N.Resolution
3046	The configuration of the encoder actual velocity values filter is faulty - illegal value in .Encoder_N.Filter
3047	The configuration of the encoder actual velocity values filter for the interpolator is faulty - illegal value in .SmoothingFilter

3048	The configuration of the encoder actual velocity values filter for the actual value coupling (Synchronous operation) is faulty - illegal value in .Extrapolation.Filter
3049	The set number of the DSC encoder is invalid - illegal value in .NumberOfEncoder.dscEncoderNumber
3050	The configuration of the encoder system has not been completed correctly.
3051	The configuration of the stepper motor encoder data is faulty - illegal value in .Encoder_N.StepMotorMonitoring
3052	The set encoder actual value type does not match its configuration or the technology object type - illegal value in .Encoder_N.encoderValueType
3053	Homing on a stepper motor is only possible with an external zero mark - illegal value in .Encoder_N.incHomingEncoder.homingMode
3054	Flying homing on a stepper motor is only possible with an external zero mark - illegal value in .Encoder_N.incHomingEncoder.passiveHomingMode
3055	The configuration of a stepper motor with encoder is only possible on a real axis - illegal value in .Encoder_N.encoderMode
3056	Only one encoder may be configured on a stepper motor - illegal value in .NumberOfEncoders.numberOfEncoders
3057	The DSC encoder is not a PROFIBUS encoder - illegal value in .NumberOfEncoders.dscEncoderNumber or .Encoder_N.encoderIdentification
3058	The DSC encoder telegram does not support DSC - illegal value in .Encoder_N.DriverInfo.telegramType
3059	Set modulo value in Modulo.length is smaller than an increment.
3060	The encoder configuration for the position difference measurement is faulty - illegal value in .Encoder_N.PositionDifferenceMeasurement
3061	The set limits for the position difference supplied by the encoder are invalid - illegal value in .Encoder_N.PositionDifferenceMeasurement.Range
3062	The activation of the 'Backlash compensation' encoder function is only possible for motor encoders - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3063	The configuration of a TO externalEncoder for the operation as encoder on a stepper motor is not possible - illegal value in .Encoder_N.encoderMode
3064	The set resolution of the encoder is invalid - illegal value in .Encoder_N.IncEncoder.incResolution
3065	The set resolution of the encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absResolution
3066	The set multiplication factor for the cyclic actual value of the encoder is invalid - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic
3067	The set multiplication factor for the cyclic actual value of the encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absResolutionMultiplierCyclic
3068	The assignment of a velocity encoder to a data set on a positioning axis is not permitted - illegal value in DataSet_N.EncoderNumber.encoderNumber
3069	The configuration of the 'Tolerance of an encoder error' encoder function is invalid - illegal value in .Encoder_N.SensorControlConfig.tolerateSensorDefect
3070	The configuration of the 'Direct reading of the actual speed value (Nact) from the PROFIDrive telegram' encoder function is faulty - illegal value in .Encoder_N.NistDriverConfig
3071	The configuration of the reference cam is invalid - illegal value in .Encoder_N.IncHomingEncoder.referenceCamType
3072	The configuration of the negative reversing cam is faulty - illegal value in .Homing.ReverseCamNegative

3073	The configuration of the positive reversing cam is faulty - illegal value in .Homing.ReverseCamPositive
3074	The set edge of the external zero mark does not match the set homing approach direction - illegal value in .Encoder_N.IncHomingEncoder.approachDirection or .Homing.direction
3075	The use of reversing cams in the selection of .Homing.direction = 'POSITIVE_ALL_HOMING' or .Homing.direction = 'NEGATIVE_ALL_HOMING' as homing approach direction is not permitted - illegal configuration in .Homing.ReverseCamNegative._type or .Homing.ReverseCamPositive._type
3076	The set approach direction of the zero mark or edge of the external zero mark does not match the set homing approach direction - illegal value in .Encoder_N.IncHomingEncoder.approachDirection or .Homing.direction
3077	The use of hardware limit switches as reference cams in the selection of .Homing.direction = 'POSITIVE_ALL_HOMING' or .Homing.direction = 'NEGATIVE_ALL_HOMING' as homing approach direction is not permitted - illegal value in .Encoder_N.IncHomingEncoder.referenceCamType
3078	The configuration of the 'Ready bit' encoder function is faulty - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring
3079	The configuration of the 'Error bit' encoder function is faulty - illegal value in .Encoder_N.AnalogSensor.ErrorStateMonitoring
3080	The encoder Ready bit is in the range of the actual encoder value data bit - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress and/or .Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber
3081	The encoder Error bit is in the range of the actual encoder value data bit - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress and/or .Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber
3082	The configuration of the external zero mark interface is faulty - illegal value in .Encoder_N.IncHomingEncoder.StateDriveExternalZeroMark
3083	The configuration of the 'Update counter' encoder function is faulty - illegal value in .Encoder_N.AnalogSensor.UpdateCounter
3084	The encoder Update counter bits are in the range of the actual encoder value data bits - illegal value in .Encoder_N.AnalogSensor.UpdateCounter.logAddress and/or .Encoder_N.AnalogSensor.UpdateCounter.bitNumber
3085	The encoder Update counter bits and the Read bit overlap - illegal value in .Encoder_N.AnalogSensor.UpdateCounter.logAddress and/or .Encoder_N.AnalogSensor.UpdateCounter.bitNumber
3086	The encoder Update counter bits and the Error bit overlap - illegal value in .Encoder_N.AnalogSensor.UpdateCounter.logAddress and/or .Encoder_N.AnalogSensor.UpdateCounter.bitNumber
3087	The configuration of the 'Direct reading of the actual speed value (Nact) from the PROFIDrive telegram' encoder function is faulty - illegal value in .Encoder_N.SensorNist
3088	The configuration of the encoder with the identification 'SET_ACTUAL_VALUE' is faulty - illegal value in .Encoder_N.SensorSetActualValue
3089	The configuration of the encoder actual position values filter is faulty - illegal value in .Encoder_N.PositionFilter
3090	The configuration of the encoder actual position values filter for the actual value coupling (Synchronous operation) is faulty - illegal value in .Extrapolation.ExtrapolationPositionFilter

3091	The set multiplication factor for the cyclic actual value is not consistent with the known value on the drive encoder - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic or .Encoder_N.absEncoder.absResolutionMultiplierCyclic or .Encoder_N.Resolution.multiplierCyclic
3092	The set modulo length is invalid - illegal value in Modulo.length
3093	The set modulo start value is invalid - illegal value in Modulo.startValue
3094	Homing with deactivated hardware limit switches as reversing cams is not possible - illegal value in .Homing.ReverseCamNegative._type and/ or .Homing.ReverseCamPosition._type
3095	The set encoder identification is invalid - illegal value in .Encoder_N.encoderIdentification
3096	The set encoder mode is invalid - illegal value in .Encoder_N.encoderMode
3097	The set encoder type is invalid - illegal value in .Encoder_N.encoderType
3098	The set encoder system is invalid - illegal value in .Encoder_N.encoderSystem
3099	The set actual value type is invalid - illegal value in .Encoder_N.encoderValueType
3100	The set utilization status of the actual value interface is invalid - illegal value in .Encoder_N.interfaceAllocation
3101	The set encoder mode is not supported by the TO externalEncoder - illegal value in .Encoder_N.encoderMode
3102	The set actual value type is not supported by the TO externalEncoder - illegal value in .Encoder_N.encoderValueType
3103	Only the 'VELOCITY' actual value type is permitted on a drive axis - illegal value in .Encoder_N.encoderValueType
3104	The set encoder mode does not match the set combination of encoder type and encoder identification - illegal value in .Encoder_N.encoderMode
3105	The set encoder type is not supported for encoders with the set encoder identification - illegal value in .Encoder_N.encoderType
3106	The encoder configuration does not match the set combination of encoder type and encoder identification - illegal value in .Encoder_N.encoderMode or .Encoder_N.encoderSystem or .Encoder_N.encoderValueType
3107	The configuration of the encoder for the position difference measurement requires the setting of the 'POSITION' actual value type - illegal value in .Encoder_N.encoderValueType
3108	Only encoders of the 'SENSOR_INCREMENTAL' type are supported on an axis of the 'REAL_AXIS_WITH_SIGNAL_OUTPUT' type - illegal value in .Encoder_N.encoderType
3109	Only the 'SENSOR_ABSOLUTE' encoder type is supported on an encoder with the 'SET_ACTUAL_VALUE' encoder identification - illegal value in .Encoder_N.encoderType
3110	The set combination of encoder type and encoder mode is not supported within the context of a linear encoder - illegal value in .Encoder_N.encoderType and .Encoder_N.encoderMode
3111	The configuration of a linear encoder on a rotary axis is not possible - illegal value in .Encoder_N.encoderSystem
3112	The configuration of the reference cam zero mark distance monitoring is faulty - illegal value in .Encoder_N.IncHomingEncoder.beroDistance or .Encoder_N.IncHomingEncoder.enableZeroMarkDistance

3113	The set home position offset is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.proceedShiftPos</code>
3114	The configuration of the reference cam interface is faulty - illegal value in <code>.Encoder_N.incHomingEncoder.bitNumberBero</code> or <code>.Encoder_N.incHomingEncoder.logAddressBero</code>
3115	The set zero mark approach direction is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.approachDirection</code>
3116	Homing setting faulty: Zero mark approach direction is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveApproachDirection</code>
3117	The configuration of the reference cam interface is faulty - illegal value in <code>.Encoder_N.incHomingEncoder.passiveBitNumberBero</code> or <code>.Encoder_N.incHomingEncoder.passiveLogAddressBero</code>
3118	The set homing mode is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.homingMode</code>
3119	The set homing mode is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveHomingMode</code>
3120	The set zero mark approach direction does not match the set homing mode - illegal value in <code>.Encoder_N.IncHomingEncoder.approachDirection</code>
3121	The set external zero mark approach direction does not match the set homing mode - illegal value in <code>.Encoder_N.IncHomingEncoder.approachDirection</code>
3122	The set zero mark approach direction does not match the set homing mode - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveApproachDirection</code>
3123	The set external zero mark approach direction does not match the homing mode - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveApproachDirection</code>
3124	The set type of the reference cam is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.referenceCamType</code>
3125	The set reference cam type does not match the set zero mark approach direction - illegal value in <code>.Encoder_N.IncHomingEncoder.referenceCamType</code>
3126	The resource required for the reference cam cannot be requested - illegal value in <code>.Encoder_N.IncHomingEncoder.logAddress</code> and/ or <code>.Encoder_N.IncHomingEncoder.bitNumber</code> or no memory available
3127	The resource required for the reference cam cannot be requested - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveLogAddress</code> and/ or <code>.Encoder_N.IncHomingEncoder.passiveBitNumber</code> or no memory available
3128	The resource required for the external zero mark cannot be requested - illegal value in <code>.Encoder_N.incHomingEncoder.StateDriveExternalZeroMark.logAddress</code> and/ or <code>.Encoder_N.incHomingEncoder.StateDriveExternalZeroMark.bitNumber</code> or no memory available
3129	The resource required for the positive reversing cam cannot be requested - illegal value in <code>.Homing.ReverseCamPositive.logAddress</code> and/ or <code>.Homing.ReverseCamPositive.bitNumber</code> or no memory available
3130	The resource required for the negative reversing cam cannot be requested - illegal value in <code>.Homing.ReverseCamNegative.logAddress</code> and/ or <code>.Homing.ReverseCamNegative.bitNumber</code> or no memory available
3131	The resource required for the 'Update counter' of the analog encoder cannot be requested - illegal value in <code>.Encoder_N.AnalogSensor.UpdateCounter.logAddress</code> and/ or <code>.Encoder_N.AnalogSensor.UpdateCounter.bitNumber</code> or no memory available

3132	The resource required for the 'Read state bit' of the analog encoder cannot be requested - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress and/ or .Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber or no memory available
3133	The resource required for the 'Error state bit' of the analog encoder cannot be requested - illegal value in .Encoder_N.AnalogSensor.ErrorStateMonitoring.logAddress and/ or .Encoder_N.AnalogSensor.ErrorStateMonitoring.bitNumber or no memory available
3134	The configuration of the actual value interface is faulty - illegal value in .EncoderN.DriverInfo
3135	The configuration of the encoder actual value interface is faulty - illegal value in .EncoderN.DriverInfoDirectIncremental
3136	The configuration of the sensor measuring gear ratio is faulty - illegal value in .Sensor.ConversionDataAdapt
3137	Only an encoder with the 'DRIVE' encoder mounting type is permitted as DSC encoder - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3138	An encoder with the encoder value type 'POSITION_AND_PROFIDRIVE_ENCODER_NIST_B' is supported only on a TO positioning axis or as TO external encoder in conjunction with the encoder identification 'DPMASTER' or 'SIMULATION' and the encoder telegram type 'DP_TEL83_STANDARD' - illegal TO type or illegal value in .Encoder_n.encoderIdentification or in .Encoder.DriverInfo.telegramType
3139	The number assigned to an encoder lies outside the number of the last configured encoder 'NumberOfEncoders.numberOfEncoders'
3140	The configuration of the encoder configuration data adaptation is faulty - illegal value in .Encoder_N.dataAdaption
3141	Both the adapted and the configured encoder configuration are invalid
3143	The multiplication factor for the cyclic actual value and/or the multiplication factor for the absolute value in conjunction with the configured encoder mode (Encoder_N.encoderMode) is invalid - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic or .Encoder_N.absEncoder.absResolutionMultiplierCyclic and/ or .Encoder_N.Resolution.multiplierCyclic or Encoder_N.Resolution.multiplierCyclic
3144	The set fine resolution for the cyclic absolute value (Gn_XIST2) is invalid - illegal value in .Encoder_N.AbsEncoder.absResolutionMultiplierAbsolute
4000	Error in controller.
4001	Negative acceleration specified.
4002	Unknown 'FipoType' requested.
4003	Error in runtime system, ratio of controller cycle clock to interpolator cycle clock is incorrect.
4004	Requested filter order not possible.
4005	Reserve for later use.
4006	Maximum limit is lower than minimum.
4007	Reserve for later use.
4008	Error in configuration data for controller.
4009	Reserve for later use.
4010	Reserve for later use.

4011	Reserve for later use.
4012	Reserve for later use.
4013	Requested controller type is not available.
4014	Error in controller factors.
4015	Precontrol activated, kpc less than 0 or kpc greater than 150.
4016	Reserve for later use.
4017	Reserve for later use.
4018	Reserve for later use.
4019	Reserve for later use.
4020	Reserve for later use.
4021	Reserve for later use.
4022	Reserve for later use.
4023	Precontrol activated, kpc less than or equal to 0.
4024	Reference model monitoring: Error in value of tolerance window.
4025	Error in limit value for standstill signal.
4026	Error in parameter for positioning monitoring.
4027	Simultaneous activation of reference model and dynamic following error monitoring not allowed.
4028	Sampling time parameter calculated incorrectly.
4029	Too many data sets requested.
4030	Error in runtime system, ratio of controller cycle clock to interpolator cycle clock is incorrect.
4031	Error in time constant for emergency ramp generator (positionTimeConstant).
4032	Precontrol active, but fine interpolator type is DIRECT.
4033	Default data set outside limits.
4034	Maximum number of data sets not possible.
4035	Unknown data set change mode.
4036	Following error monitoring not activated/deactivated in all data sets.
4037	Reference model monitoring not activated/deactivated in all data sets.
4038	Different controller type in data sets.
4039	Precontrol activated/deactivated differently in data sets.
4040	Time constant is 0.
4041	Error in dynamic adaptation parameter.
4042	System variable initialization could not be read.
4043	Driver simulation not implemented.
4044	Connection for stepper motors not implemented.
4045	Maximum velocity cannot be attained; maximum drive speed or normalization factor is incorrect.
4046	DSC requires motor encoder data to be specified.
4047	Drive or telegram type not suitable for DSC.
4048	Error in clamping monitoring parameter. 'No detection' is not permitted for the fixed endstop detection
4049	A sensor is required to monitor actual velocity using 'DynamicControl'.
4050	Inconsistent PROFIBUS parameterization; the sum of Ti and To is greater than a DP cycle

4051	Error in manipulated variable limitation parameter of force/pressure controller
4052	Error in force/pressure entry monitoring parameter
4053	Error in force/pressure end value monitoring parameter
4054	Force/pressure entry monitoring tolerance less than pressure end value monitoring tolerance
4055	Error in force/pressure control deviation monitoring parameter
4056	Different activation/deactivation of control deviation monitoring of force/pressure controller in data sets not permitted
4057	Different manipulated variable inversion of force/pressure controller in data sets not permitted
4058	Different force/pressure sensor types in data sets not permitted
4059	Different activation/deactivation of anti-windup in data sets not permitted
4060	Kd factor of PID_ACTUAL controller is greater than 1
4061	Time constant of process model T1 less than or equal to T2
4062	Illegal actuator type selection
4063	Error in sliding friction compensation parameter
4064	Error in offset injection parameter
4065	Precontrol for force/pressure control not implemented
4066	Error in standstill monitoring parameter
4067	Following error monitoring: minVelocity cannot be greater than or equal to maxVelocity
4068	Maximum buffer length of balancing filter (Mode_2) is reached or exceeded. As the servo cycle is included in the calculation of the equivalent time constant of the speed control loop (=velocityTimeConstant), the maximum value of this time constant is limited to 16 servo cycles. The buffer length of the lag element is maximum 16.
4069	System-related dead times are less than 0 after allowing for additionalTime
4070	Controller types other than DIRECT require configuration of an encoder.
4071	Illegal values for delayTimeToActivate of standstill signal
4072	The I/O device for the positive HW limit switch is not available
4073	The I/O device for the negative HW limit switch is not available
4074	Range limits of controller parameter exceeded.
4075	Range limit of brake deceleration of emergency ramp exceeded.
4076	Range limit of equivalent time constant exceeded.
4077	Range limit for velocityTimeConstant exceeded.
4078	Error in value for QFDynamicData configuration.
4079	Error in value for reference model monitoring.
4080	Error in following error monitoring parameter
4081	Error in clamping monitoring parameter
4082	Error in value for DynamicData configuration.
4083	Error in value for PV controller configuration.
4084	Configuration data missing for controller.
4085	Error in value for SystemDeadTimeData configuration.
4086	Pressure control only possible with closed-loop speed controller
4087	DSC and compensation of valve curve not possible
4088	DSC not possible on hydraulic axes

4089	Time constants of dynamic response compensation must not be equal
4090	Incorrect value for system dead time correction
4091	Different activation of manipulated variable filter of pressure controller in data sets
4092	Different activation of dynamic response compensation in data sets
4093	Activation of DSC is not the same in all data sets
4094	Balancing filter type is not the same in all data sets
4095	Illegal value for balanceFilterMode. For a drive axis, only MODE_1 is permitted (PV_Controller.balanceFilterMode).
4096	Activation of anti-windup is not the same in all data sets
4097	Activation of setpoint quantization is not the same in all data sets
4098	Activation of the reference model monitoring is not the same in all data sets
4099	Fixed endstop detection mode is not the same in all data sets
4100	Force controller is not the same in all data sets
4101	Force sensor type UNI_DIRECTION is not implemented
4102	Error in the time constant for smoothing controller parameters
4103	If encoderNumber = 0, ControllerStruct.conType must be DIRECT.
4104	The travel to fixed stop function is not possible on a QF axis.
4105	The integratorFeedbackTimeConstant cannot be less than 0
4106	Illegal value for CommandValueQuantization.value
4107	An electrical drive axis (typeOfAxis = REAL_KIND_OF_AXIS) may only have DIRECT as controller type (conType = DIRECT)
4108	Dead time of dynamic response compensation must not be zero.
4109	Time constant for smoothing manipulated variable jumps during data set changeover must not be less than zero.
4110	The parameters of the manipulated variable filter in the pressure controller are illegal.
4111	Range limit for positionTimeConstante exceeded.
4112	Force/pressure controller type not possible.
4113	Time constant for smoothing manipulated variable jumps outside the limits.
4114	The speed/velocityReference parameter must be set to NOMINAL_SPEED with active adaptation.
4115	The torque/forceReference parameter must be set to NOMINAL_TORQUE/FORCE with active adaptation.
4116	The parameters in HWEndPos are not consistent.
4117	The setting disableModeSpecification = OFF1_AND_OFF3_MODE is only possible with a digital drive coupling.
4120	Error in following error monitoring parameter. Illegal value in DynamicFollwong.minPositionTolerance
4121	Error in following error monitoring parameter. Illegal value in DynamicFollwong.maxPositionTolerance
4122	Error in following error monitoring parameter. Illegal value in DynamicFollwong.minVelocity
4123	Error in following error monitoring parameter. Illegal value in DynamicFollwong.warningLevel
4124	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.posWinTolTime

4125	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.posWinTolDelayTime
4126	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.tolerance
5000	Encoder data sequence and number of encoders do not match.
5001	The set number of force/pressure sensors is invalid - illegal value in .NumberOfAdditionalSensors.number
5002	The set type of the force/pressure sensor is invalid - illegal value in .AdditionalSensor_N.additionalSensorType
5003	The actual value interface configuration of the force/pressure sensor is faulty - illegal value in .AdditionalSensor_N.DriverInfo
5004	The raw actual value weighting factors configuration of the force/pressure sensor is faulty - illegal value in .AdditionalSensor_N.ConversionData
5006	The value range limits configuration of the actual force/pressure value is faulty - illegal value in .AdditionalSensor_N.Range
5007	The configuration of the actual force/pressure value filter is faulty - illegal value in .AdditionalSensor.Filter
5008	Configuration of the force/pressure sensor not completed correctly.
5009	The number of the force/pressure sensor assigned to the data set is invalid - illegal value in .NumberOfDataSets.DataSet_N.AdditionalSensorNumber.number
5010	The sensor configuration for the force/pressure difference measurement is faulty - illegal value in .AdditionalSensor.PositionDifferenceMeasurement
5011	The number of the force/pressure sensor set as sensor A for the difference measurement is invalid - illegal value in .AdditionalSensor.PositionDifferenceMeasurement.numberSensorA
5012	The number of the force/pressure sensor set as sensor B for the difference measurement is invalid - illegal value in .AdditionalSensor.PositionDifferenceMeasurement.numberSensorB
5013	Illegal data in extrapolation configuration.
5014	The set execution cycle clock of the sensor is invalid - illegal value in Execution.executionlevel
5015	The set substitute value strategy for a technological alarm on the sensor is invalid - illegal value in .ValueOut.outputValueErrorBehaviorMode
5020	The configuration of the analog encoder actual value interface is faulty - illegal value in .Encoder_N.AnalogSensor.DriverInfo
5021	The configuration of the analog encoder actual position values filter is faulty - illegal value in .Encoder_N.AnalogSensor.PositionFilter
5022	The raw actual value weighting factors configuration of the analog encoder is faulty - illegal value in .Encoder_N.AnalogSensor.ConversionData
5023	The measuring input interface configuration for the analog encoder is faulty - illegal value in .Encoder_N.AnalogSensor.LogAddress
5030	The count value weighting factors configuration of the interval counter speed encoder is faulty - illegal value in .Encoder_N.IntervalCounterConversionData
5031	The set logical address for the count value interface of the interval counter speed encoder is faulty - illegal value in .Encoder_N.IntervalCounterConversionData.DriverInfo.logAddress
6000	The traversing distance monitoring up to the reference point switch is configured in the configuration data, but the configured maximum distance to be traversed is zero.

6001	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfMaxBufferedCommandId
6002	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfQueueCommands
6003	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfImmediateCommands
6004	Configuration of behaviourAtTheEndOfProfile not implemented
6005	Illegal value for configuration data for maximum acceleration
6006	Illegal value for configuration data for maximum jerk
6007	Illegal value for configuration data for maximum force/pressure setpoint
6008	Illegal value for configuration data for maximum force/pressure setpoint increase
6009	Illegal value for configuration data for Synchronous operation tolerance based on setpoint
6010	Illegal value for configuration data for Synchronous operation tolerance based on actual value
6011	Illegal value for configuration data for Synchronous operation tolerance activation based on setpoint
6012	Illegal value for configuration data for Synchronous operation tolerance activation based on actual value
6013	Illegal value for configuration data for profile end identification tolerance window
6014	Illegal value for configuration data for actual value extrapolation time
6015	Illegal value for configuration data for actual value coupling tolerance window
6016	Illegal value for the injection tolerance configuration (relieveWindow) at software limit switch
6017	Illegal value for the type specification configuration (monitoringAtMotionStart) at software limit switch
6052	Illegal value for the configuration mode (modeSpecificMonitoring) at software limit switch
6053	Illegal value for the profile type configuration (stopJerk) on software limit switch
6018	Illegal value for configuration data for axis-specific path tolerance activation based on setpoint
6019	Illegal value for configuration data for axis-specific path tolerance based on setpoint
6020	Illegal value for configuration data for axis-specific path synchronization tolerance activation based on setpoint
6021	Illegal value for configuration data for axis-specific path synchronization tolerance based on setpoint
6022	Illegal value for configuration data driveControlConfig.releaseDisableMode (RELEASE_DISABLE drive behavior error response)
6023	Illegal value for configuration data of velocity type with master value extrapolation of actual values
6024	Illegal value for configuration data TypeOfAxis.Homing.direction, 'Approach direction during homing'
6025	Illegal value for configuration data TypeOfAxis.Homing.beroDistance, 'Maximum distance to the homing output cam'
6026	Illegal value for configuration data for Synchronous operation error message at master value

6027	Illegal value for the configuration data TypeOfAxis.DecodingConfig.directionDynamic
6028	Illegal value for the configuration data TypeOfAxis.DecodingConfig.behaviourAtTheEndOfProfile
6029	Illegal value for the configuration data TypeOfAxis.DecodingConfig.decodeSequentialMotionCommand
6030	Illegal value for the configuration data TypeOfAxis.DecodingConfig.transferSuperimposedPosition
6031	Illegal value for the configuration data TypeOfAxis.DecodingConfig.speedModeSetPointZero
6032	Illegal value for the configuration data TypeOfAxis.DecodingConfig.stopWithJerk
6033	Illegal value for the configuration data TypeOfAxis.DecodingConfig.disableMotionOperation
6034	Illegal value for the configuration data TypeOfAxis.DecodingConfig.profileDynamicsLimiting
6035	Illegal value for the configuration data TypeOfAxis.DecodingConfig.cyclicSetUpInForceLimiting
6036	Illegal value for the configuration data TypeOfAxis.Homing.enableBeroDistance
6037	Illegal value for the configuration data TypeOfAxis.Homing.referencingNecessary
6038	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableLifeSignMonitoring
6039	Illegal value for the configuration data TypeOfAxis.DistributedMotion.numberOfLifeSignFailures
6040	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableDelayOfCommandValueOutput
6041	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableOffsetCompensation
6042	Illegal value for configuration data driveControlConfig.pulsesEnabledEvaluation (axis behavior for drive-independent stop response)
6050	Illegal value for the configuration data driveControlConfig.dataAdaption
6051	Illegal value for the configuration data driveControlConfig.disableModeSpecification
6043	Illegal value for the configuration data TypeOfAxis.ControllerSwitchData.NumberOfDigitalInputs.number
6044	Illegal logical address of the digital input in the configuration data structure TypeOfAxis.ControllerSwitchData.NumberOfDigitalInputs.DigitalInput_x
6045	Illegal value for configuration data for maximum deceleration
7000	Illegal data in process model configuration
2045	Evaluation of the PulsesEnabled bit (pulsesEnabledEvaluation = YES) is not possible in telegram 1 (telegramType = DP_TEL1_STANDARD).
2046	Evaluation of the PulsesEnabled bit (pulsesEnabledEvaluation) is not carried out when using DSDB.

Additional information:	More detailed description of the error origin
Meaning for category 3	Number of the data set on the technology object for which the alarm was issued
Meaning for category 4	Not relevant
Meaning for category 5	Number of the encoder on the technology object that issued the alarm

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT

Remedy

Change the configuration data.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

Yes

20007 Interconnection error (category: /1/%d, context: /2/%d, context parameter1: /3/%d, context parameter2: /4/%d)

Cause

This alarm indicates errors in the interconnection of technology objects. When the interconnection is established, the technology object verifies it on the basis of the interface properties. Errors are classified by category.

Additional information for a more detailed description of the error can be output from the context. An error context is output for selected error categories. Additional context parameters can be output for a context, if necessary. Context and context parameters are output as an integer value.

Meaning of alarm parameters

Category:	
1	Technology object compatibility error An interconnection is to be established with a technology object that has been configured with another reference system (e.g. output cams with rotary reference system and linear axis).
2	Exclusive interface An interface on a technology object that can only be connected to another technology object using one coupling type should be interconnected using different, mutually exclusive couplings. For example, the master value interface on a positioning axis for an interconnected synchronous object can only be operated as a setpoint or an actual value coupling.
3	Interconnection request The technology object awaits the interconnection to another technology object (necessary interconnection) in order to provide its functionality. Thus, for example, the interconnection to a gear axis is a required interconnection on a synchronous object.
4	Error during interface initialization The alarm is output in the event of initialization errors when connecting interfaces on the technology object.
5	Interface not available on technology object An interface required in the interconnection is not available on the technology object.
6	Recursion The interconnection on the technology object results in a recursion in the execution system of the technology package. The technology object does not support recursive execution.
7	Execution level compatibility error An interconnection is to be established with a technology object that is classified in a different execution level (e.g. output cam in execution level IPO and axis in execution level IPO_2). The technology object does not support interconnection to technology objects of other execution levels.
8	Initialization distribution In the case of interconnected technology objects that are distributed among different devices, an error occurred during initialization of the communication.

9	<p>Illegal TO state The technology object cannot be interconnected in the current state. A technology object can be interconnected only after the configuration has been successfully completed. Refer to the diagnostic buffer to determine the exact cause of the error. The cause of the illegal TO state is entered there (e.g. a level overflow during the configuration phase) and can then be corrected (in the example, by allowing level overflows in the task configuration).</p>
10	<p>Interface assignment The configured interface via which the technology object communicates cannot be used from the processing cycle clock of the technology object.</p>
11	<p>Active command in recursive TO interconnection The interconnection of the technology object and the enable state at its inputs result in an active recursive interconnection (positive feedback).</p>

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

Context / context parameter:

Contact the hotline and provide the name of the context parameter.

Category:

1 - Technology object compatibility error

Check the configuration and set a common reference system for the technology objects to be interconnected.

2 - Exclusive interface

Ensure that the project is consistent. Contact the hotline, if necessary.

3 - Interconnection request

Ensure that the project is consistent. The missing interconnection on the technology object is specified in the context:

Context

TO type

Interface

4 - Error during interface initialization

Contact the hotline and provide the name of the context parameter.

5 - Interface not available on technology object

Contact the hotline and provide the name of the context parameter.

6 - Recursion

Check the interconnection topology of your project. Remove unnecessary interconnections.

7 - Execution level compatibility error

Select a common execution level in the configuration for the technology objects to be interconnected (e.g. output cam and axis in IPO_2).

8 - Initialization distribution

- Ensure that your project is consistent. For proper configuration of communication, all devices must be compiled ('Project/Save and compile all' or "Save and compile all new').
- Determine whether all devices are selected for loading the project ('Target system/Select target devices...').
- Check whether the configured bus topology matches the actual bus topology.
- Ensure that the devices are linked in the bus configuration (PROFIBUS).
- Check whether isochronous operation was selected.
- In addition, the address areas that are used by the devices for communication must be set up. The address areas are automatically set up when the project is compiled; only afterwards is the valid hardware configuration available for downloading. Do not change automatically generated address areas afterwards.
- Contact the hotline and provide the name of the context parameter.

9 - Illegal technology object state

- Correct the configuration of the technology object.
- Eliminate the execution error.

10 - Interface assignment

- Configure the bus interface to match the processing cycle clock (e.g. fast bus system and axis in FastIPO).

11 - Active command in recursive TO interconnection

- Inputs of technology objects can already be enabled during the download (e.g. TO AdditionObjectType). Remove or change the relevant interconnection on the technology object or switch a technology object, whose input is enabled by the user program and not already by the download, into the positive feedback branch.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

Yes

20008 Assignment of USER_DEFAULT to system variables is not possible

Cause

It is not appropriate to assign USER_DEFAULT to a UserDefault system variable, because the variable references itself in this case.

As a result, a meaningful value cannot be generated on readout. When this error occurs, the new Enum value is not assigned. The variable retains the old value.

Remedy

USER_DEFAULT is intended for use in technology commands. Avoid assigning it to system variables.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

20009 The permissible difference between encoders (/1/%d) and (/2/%d) has been exceeded

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

The permissible difference between two encoders (slip monitoring) has been exceeded.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT

Remedy

1. Check the mechanical configuration.
2. Check the settings of the dynamic limit values (acceleration, jerk).

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

Yes

20010 A restart is required to activate the configuration data

Cause

The configuration cannot be activated, since data has been modified preventing the activation. The technology object must be restarted to activate the data.

Remedy

- Execute the technology object reset command, and set the 'activateRestart' parameter to 'ACTIVATE_RESTART'.
- Set the 'restartActivation' system variable to 'ACTIVATE_RESTART'.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

20011 Error occurred while activating the configuration (category: /1/%d, error number: /2/%d, additional information: /3/%d)

Cause

This alarm indicates error conditions when activating the configuration. The error conditions can be traced back to an incorrect or inconsistent configuration. The technology objects perform a plausibility check on the configuration. Errors are identified by the error codes below. The configuration is not activated when this alarm occurs.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of the error
500	Illegal technology object configuration state.
501	More configuration data expected than received.
502	Invalid configuration data.
503	Version conflict in configuration.
504	The configured task level is not supported by this TO.
505	The value range of the maximum number of command IDs has been violated.
506	The configured task level is not supported by the used hardware.
1000	General configuration error
1001	Communication error during data transmission
2000	Error in actuator system configuration.
2001	Outside of manipulated variable limits.
2003	Error in load gear factors.
2004	Error in maximum velocity.
2005	Maximum velocity greater than maximum attainable velocity.
2006	Drive not suitable for torque-controlled or torque-limited operation
2007	Linear stepper motor not implemented
2008	Right-justified format for direct output not implemented
2009	Illegal value in resolution for direct output
2010	Missing configuration data for actuator system
2011	Missing configuration data for additional actuator system
2012	The backstop range (min to max) does not contain a zero point
2014	Drive or telegram not suitable for torque superimposition
2015	Gear ratios less than or equal to 0.
2016	Resolution for stepper motor is 0.
2017	Illegal value for configuration data maxSpeed.
2018	Illegal value for configuration data maxVelocity.
2019	Range limits of configuration data exceeded.
2020	Range limits for maximum acceleration exceeded.
2021	Illegal values for dead zone compensation.
2022	Illegal values for sliding friction compensation.
2023	Illegal values for backstop.
2024	Error in friction compensation parameter
2025	DIRECT output: Analog and bit driver of a shared output are parameterized in different ways on the various axes
2026	Illegal value for pulsesEnable
2027	Illegal value for maxSpeed ($\text{maxSpeed} \geq 2 * \text{nominalSpeed}$)
2028	Illegal value for maxSpeed ($\text{maxSpeed} \leq 10 \text{ V} / \text{maxSetPointVoltage} * \text{nominalSpeed}$)
2029	Illegal value in TypeOfAxis.SetPointDriverInfo
2030	A parameter in DriveData is not correct.
2031	A parameter in LinearMotorDriveData is not correct.
2032	A parameter in StepMotorDriveData is not correct.

2033	A parameter in QOutput.EnableBit is not correct.
2034	A parameter of the technological data block is not correct.
2035	A parameter of the safety data block is not correct.
2036	A parameter of the operating characteristics data block is not correct.
2037	Cannot change the configuration during the drive adaptation.
2038	Illegal value for the manipulated variable filter
2040	No driver could be requested under the logical input address.
2041	No driver could be requested under the logical output address.
2042	The numerator of the load gear is incorrect.
2043	The nominal factor of the load gear is incorrect.
2044	The value for the reference velocity is incorrect.
3000	Error in encoder system.
3001	Illegal value in Simulation.simulationMode
3002	The set axis type is invalid - illegal value in TypeOfAxis.typeOfAxis
3003	The set drive leadscrew pitch is invalid - illegal value in Leadscrew.pitchVal
3004	The set modulo activation is invalid - illegal value in Modulo.state
3005	Illegal specification(s) in the encoder data (incremental, absolute, etc.).
3006	The set number of encoders is invalid - illegal value in .NumberOfEncoders.numberOfEncoders
3007	Illegal incremental encoder number.
3008	Illegal data combination for homing with incremental encoder.
3009	The configuration of the 'Backlash compensation' encoder function is faulty - illegal value in .Encoder_N.IncBacklash or .Encoder_N.AbsBacklash
3010	Illegal data on SSI encoder.
3011	The configuration of the 'Absolute encoder adjustment' encoder function is faulty - illegal value in .Encoder_N.AbsHoming
3012	The configuration of the 'Counting direction of the raw actual encoder value' encoder function is faulty - illegal value in .Encoder_N.InversCountDirection.encoderFeedbackPolarity
3013	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptDrive
3014	The configuration of the 'Encoder limit frequency monitoring' encoder function is faulty - illegal value in .Encoder_N.FrequencyLimit.encoderFrequencyLimit
3015	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptLoad
3016	The load gear ratio configuration of a data set is faulty - illegal value in .DataSet_N.Gear
3017	Encoder data sequence and number of encoders do not match.
3018	The configuration of an encoder is incomplete
3019	The set mounting location of the encoder is invalid - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3020	The encoder simulation is either not supported or it is not activated simultaneously on the actuator and the sensor - illegal value in .Encoder_N.encoderIdentification or .SetPointDriverInfo.mode
3021	The number of configured data sets or the number of the active data set after the startup is invalid - illegal value in DataSet_N.numberOfDatasets or in DataSet_N.initDataSet

3022	The number of the encoder assigned to a data set is invalid - illegal value in DataSet_N.EncoderNumber.encoderNumber
3023	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptExtern
3024	The configuration of the encoder measuring wheel circumference is faulty - illegal value in .Encoder_N.pathPerRevolution.length
3025	The configuration of the 'Actual velocity monitoring' function is faulty - illegal value in .ActualVelocityMonitoring
3026	Illegal encoder number in absolute encoder configuration.
3027	The set message format of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absMessageFormat
3028	The set baud rate of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.baudRate
3029	The set protocol format of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absState
3030	The number of the encoder assigned to a data set is invalid - illegal value in DataSet_N.EncoderNumber.encoderNumber
3031	The encoder assigned to a data set does not exist - illegal value in DataSet_N.EncoderNumber.encoderNumber
3032	The load gear ratio numerator configuration of a data set is faulty - illegal value in .DataSet_N.Gear.numFactor
3033	The load gear ratio denominator configuration of a data set is faulty - illegal value in .DataSet_N.Gear.denFactor
3034	An encoder references a data set that does not exist
3035	An encoder references a data set that does not exist
3036	Encoder not configured.
3037	Homing with encoder zero mark and ENDAT encoder is not possible - illegal value in .Encoder_N.IncHomingEncoder.homingMode
3038	Homing to the falling edge of an external zero mark on an onboard input is not possible - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3039	Flying homing with encoder zero mark and ENDAT encoder is not possible - illegal value in .Encoder_N.IncHomingEncoder.passiveHomingMode
3040	Flying homing to the falling edge of an external zero mark on an onboard input is not possible - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3041	The (modified) encoder configuration does not permit any determination of the factors for converting the encoder raw actual values into actual position and velocity values or for converting the position and velocity setpoints into DSC encoder raw actual values, taking account of the mechanical relationships.
3042	Illegal data combination for homing with external encoder.
3043	The incremental position of the encoder is outside the permissible value range.
3044	The incremental position of the encoder is outside the permissible value range.
3045	The configuration of the linear encoder resolution is faulty - illegal value in .Encoder_N.Resolution
3046	The configuration of the encoder actual velocity values filter is faulty - illegal value in .Encoder_N.Filter
3047	The configuration of the encoder actual velocity values filter for the interpolator is faulty - illegal value in .SmoothingFilter

3048	The configuration of the encoder actual velocity values filter for the actual value coupling (Synchronous operation) is faulty - illegal value in .Extrapolation.Filter
3049	The set number of the DSC encoder is invalid - illegal value in .NumberOfEncoder.dscEncoderNumber
3050	The configuration of the encoder system has not been completed correctly.
3051	The configuration of the stepper motor encoder data is faulty - illegal value in .Encoder_N.StepMotorMonitoring
3052	The set encoder actual value type does not match its configuration or the technology object type - illegal value in .Encoder_N.encoderValueType
3053	Homing on a stepper motor is only possible with an external zero mark - illegal value in .Encoder_N.incHomingEncoder.homingMode
3054	Flying homing on a stepper motor is only possible with an external zero mark - illegal value in .Encoder_N.incHomingEncoder.passiveHomingMode
3055	The configuration of a stepper motor with encoder is only possible on a real axis - illegal value in .Encoder_N.encoderMode
3056	Only one encoder may be configured on a stepper motor - illegal value in .NumberOfEncoders.numberOfEncoders
3057	The DSC encoder is not a PROFIBUS encoder - illegal value in .NumberOfEncoders.dscEncoderNumber or .Encoder_N.encoderIdentification
3058	The DSC encoder telegram does not support DSC - illegal value in .Encoder_N.DriverInfo.telegramType
3059	Set modulo value in Modulo.length is smaller than an increment.
3060	The encoder configuration for the position difference measurement is faulty - illegal value in .Encoder_N.PositionDifferenceMeasurement
3061	The set limits for the position difference supplied by the encoder are invalid - illegal value in .Encoder_N.PositionDifferenceMeasurement.Range
3062	The activation of the 'Backlash compensation' encoder function is only possible for motor encoders - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3063	The configuration of a TO externalEncoder for the operation as encoder on a stepper motor is not possible - illegal value in .Encoder_N.encoderMode
3064	The set resolution of the encoder is invalid - illegal value in .Encoder_N.IncEncoder.incResolution
3065	The set resolution of the encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absResolution
3066	The set multiplication factor for the cyclic actual value of the encoder is invalid - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic
3067	The set multiplication factor for the cyclic actual value of the encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absResolutionMultiplierCyclic
3068	The assignment of a velocity encoder to a data set on a positioning axis is not permitted - illegal value in DataSet_N.EncoderNumber.encoderNumber
3069	The configuration of the 'Tolerance of an encoder error' encoder function is invalid - illegal value in .Encoder_N.SensorControlConfig.tolerateSensorDefect
3070	The configuration of the 'Direct reading of the actual speed value (Nact) from the PROFIDrive telegram' encoder function is faulty - illegal value in .Encoder_N.NistDriverConfig
3071	The configuration of the reference cam is invalid - illegal value in .Encoder_N.IncHomingEncoder.referenceCamType
3072	The configuration of the negative reversing cam is faulty - illegal value in .Homing.ReverseCamNegative

3073	The configuration of the positive reversing cam is faulty - illegal value in .Homing.ReverseCamPositive
3074	The set edge of the external zero mark does not match the set homing approach direction - illegal value in .Encoder_N.IncHomingEncoder.approachDirection or .Homing.direction
3075	The use of reversing cams in the selection of .Homing.direction = 'POSITIVE_ALL_HOMING' or .Homing.direction = 'NEGATIVE_ALL_HOMING' as homing approach direction is not permitted - illegal configuration in .Homing.ReverseCamNegative._type or .Homing.ReverseCamPositive._type
3076	The set approach direction of the zero mark or edge of the external zero mark does not match the set homing approach direction - illegal value in .Encoder_N.IncHomingEncoder.approachDirection or .Homing.direction
3077	The use of hardware limit switches as reference cams in the selection of .Homing.direction = 'POSITIVE_ALL_HOMING' or .Homing.direction = 'NEGATIVE_ALL_HOMING' as homing approach direction is not permitted - illegal value in .Encoder_N.IncHomingEncoder.referenceCamType
3078	The configuration of the 'Ready bit' encoder function is faulty - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring
3079	The configuration of the 'Error bit' encoder function is faulty - illegal value in .Encoder_N.AnalogSensor.ErrorStateMonitoring
3080	The encoder Ready bit is in the range of the actual encoder value data bit - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress and/or .Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber
3081	The encoder Error bit is in the range of the actual encoder value data bit - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress and/or .Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber
3082	The configuration of the external zero mark interface is faulty - illegal value in .Encoder_N.IncHomingEncoder.StateDriveExternalZeroMark
3083	The configuration of the 'Update counter' encoder function is faulty - illegal value in .Encoder_N.AnalogSensor.UpdateCounter
3084	The encoder Update counter bits are in the range of the actual encoder value data bits - illegal value in .Encoder_N.AnalogSensor.UpdateCounter.logAddress and/or .Encoder_N.AnalogSensor.UpdateCounter.bitNumber
3085	The encoder Update counter bits and the Read bit overlap - illegal value in .Encoder_N.AnalogSensor.UpdateCounter.logAddress and/or .Encoder_N.AnalogSensor.UpdateCounter.bitNumber
3086	The encoder Update counter bits and the Error bit overlap - illegal value in .Encoder_N.AnalogSensor.UpdateCounter.logAddress and/or .Encoder_N.AnalogSensor.UpdateCounter.bitNumber
3087	The configuration of the 'Direct reading of the actual speed value (Nact) from the PROFIDrive telegram' encoder function is faulty - illegal value in .Encoder_N.SensorNist
3088	The configuration of the encoder with the identification 'SET_ACTUAL_VALUE' is faulty - illegal value in .Encoder_N.SensorSetActualValue
3089	The configuration of the encoder actual position values filter is faulty - illegal value in .Encoder_N.PositionFilter
3090	The configuration of the encoder actual position values filter for the actual value coupling (Synchronous operation) is faulty - illegal value in .Extrapolation.ExtrapolationPositionFilter

3091	The set multiplication factor for the cyclic actual value is not consistent with the known value on the drive encoder - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic or .Encoder_N.absEncoder.absResolutionMultiplierCyclic or .Encoder_N.Resolution.multiplierCyclic
3092	The set modulo length is invalid - illegal value in Modulo.length
3093	The set modulo start value is invalid - illegal value in Modulo.startValue
3094	Homing with deactivated hardware limit switches as reversing cams is not possible - illegal value in .Homing.ReverseCamNegative._type and/ or .Homing.ReverseCamPosition._type
3095	The set encoder identification is invalid - illegal value in .Encoder_N.encoderIdentification
3096	The set encoder mode is invalid - illegal value in .Encoder_N.encoderMode
3097	The set encoder type is invalid - illegal value in .Encoder_N.encoderType
3098	The set encoder system is invalid - illegal value in .Encoder_N.encoderSystem
3099	The set actual value type is invalid - illegal value in .Encoder_N.encoderValueType
3100	The set utilization status of the actual value interface is invalid - illegal value in .Encoder_N.interfaceAllocation
3101	The set encoder mode is not supported by the TO externalEncoder - illegal value in .Encoder_N.encoderMode
3102	The set actual value type is not supported by the TO externalEncoder - illegal value in .Encoder_N.encoderValueType
3103	Only the 'VELOCITY' actual value type is permitted on a drive axis - illegal value in .Encoder_N.encoderValueType
3104	The set encoder mode does not match the set combination of encoder type and encoder identification - illegal value in .Encoder_N.encoderMode
3105	The set encoder type is not supported for encoders with the set encoder identification - illegal value in .Encoder_N.encoderType
3106	The encoder configuration does not match the set combination of encoder type and encoder identification - illegal value in .Encoder_N.encoderMode or .Encoder_N.encoderSystem or .Encoder_N.encoderValueType
3107	The configuration of the encoder for the position difference measurement requires the setting of the 'POSITION' actual value type - illegal value in .Encoder_N.encoderValueType
3108	Only encoders of the 'SENSOR_INCREMENTAL' type are supported on an axis of the 'REAL_AXIS_WITH_SIGNAL_OUTPUT' type - illegal value in .Encoder_N.encoderType
3109	Only the 'SENSOR_ABSOLUTE' encoder type is supported on an encoder with the 'SET_ACTUAL_VALUE' encoder identification - illegal value in .Encoder_N.encoderType
3110	The set combination of encoder type and encoder mode is not supported within the context of a linear encoder - illegal value in .Encoder_N.encoderType and .Encoder_N.encoderMode
3111	The configuration of a linear encoder on a rotary axis is not possible - illegal value in .Encoder_N.encoderSystem
3112	The configuration of the reference cam zero mark distance monitoring is faulty - illegal value in .Encoder_N.IncHomingEncoder.beroDistance or .Encoder_N.IncHomingEncoder.enableZeroMarkDistance

3113	The set home position offset is invalid - illegal value in .Encoder_N.IncHomingEncoder.proceedShiftPos
3114	The configuration of the reference cam interface is faulty - illegal value in .Encoder_N.incHomingEncoder.bitNumberBero or .Encoder_N.incHomingEncoder.logAddressBero
3115	The set zero mark approach direction is invalid - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3116	Homing setting faulty: Zero mark approach direction is invalid - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3117	The configuration of the reference cam interface is faulty - illegal value in .Encoder_N.incHomingEncoder.passiveBitNumberBero or .Encoder_N.incHomingEncoder.passiveLogAddressBero
3118	The set homing mode is invalid - illegal value in .Encoder_N.IncHomingEncoder.homingMode
3119	The set homing mode is invalid - illegal value in .Encoder_N.IncHomingEncoder.passiveHomingMode
3120	The set zero mark approach direction does not match the set homing mode - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3121	The set external zero mark approach direction does not match the set homing mode - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3122	The set zero mark approach direction does not match the set homing mode - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3123	The set external zero mark approach direction does not match the homing mode - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3124	The set type of the reference cam is invalid - illegal value in .Encoder_N.IncHomingEncoder.referenceCamType
3125	The set reference cam type does not match the set zero mark approach direction - illegal value in .Encoder_N.IncHomingEncoder.referenceCamType
3126	The resource required for the reference cam cannot be requested - illegal value in .Encoder_N.IncHomingEncoder.logAddress and/ or .Encoder_N.IncHomingEncoder.bitNumber or no memory available
3127	The resource required for the reference cam cannot be requested - illegal value in .Encoder_N.IncHomingEncoder.passiveLogAddress and/ or .Encoder_N.IncHomingEncoder.passiveBitNumber or no memory available
3128	The resource required for the external zero mark cannot be requested - illegal value in .Encoder_N.incHomingEncoder.StateDriveExternalZeroMark.logAddress and/ or .Encoder_N.incHomingEncoder.StateDriveExternalZeroMark.bitNumber or no memory available
3129	The resource required for the positive reversing cam cannot be requested - illegal value in .Homing.ReverseCamPositive.logAddress and/ or .Homing.ReverseCamPositive.bitNumber or no memory available
3130	The resource required for the negative reversing cam cannot be requested - illegal value in .Homing.ReverseCamNegative.logAddress and/ or .Homing.ReverseCamNegative.bitNumber or no memory available
3131	The resource required for the 'Update counter' of the analog encoder cannot be requested - illegal value in .Encoder_N.AnalogSensor.UpdateCounter.logAddress and/ or .Encoder_N.AnalogSensor.UpdateCounter.bitNumber or no memory available

3132	The resource required for the 'Read state bit' of the analog encoder cannot be requested - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress and/ or .Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber or no memory available
3133	The resource required for the 'Error state bit' of the analog encoder cannot be requested - illegal value in .Encoder_N.AnalogSensor.ErrorStateMonitoring.logAddress and/ or .Encoder_N.AnalogSensor.ErrorStateMonitoring.bitNumber or no memory available
3134	The configuration of the actual value interface is faulty - illegal value in .EncoderN.DriverInfo
3135	The configuration of the encoder actual value interface is faulty - illegal value in .EncoderN.DriverInfoDirectIncremental
3136	The configuration of the sensor measuring gear ratio is faulty - illegal value in .Sensor.ConversionDataAdapt
3137	Only an encoder with the 'DRIVE' encoder mounting type is permitted as DSC encoder - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3138	An encoder with the encoder value type 'POSITION_AND_PROFIDRIVE_ENCODER_NIST_B' is supported only on a TO positioning axis or as TO external encoder in conjunction with the encoder identification 'DPMMASTER' or 'SIMULATION' and the encoder telegram type 'DP_TEL83_STANDARD' - illegal TO type or illegal value in .Encoder_n.encoderIdentification or in .Encoder.DriverInfo.telegramType
3139	The number assigned to an encoder lies outside the number of the last configured encoder 'NumberOfEncoders.numberOfEncoders'
3140	The configuration of the encoder configuration data adaptation is faulty - illegal value in .Encoder_N.dataAdaption
3141	Both the adapted and the configured encoder configuration are invalid
3143	The multiplication factor for the cyclic actual value and/or the multiplication factor for the absolute value in conjunction with the configured encoder mode (Encoder_N.encoderMode) is invalid - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic or .Encoder_N.absEncoder.absResolutionMultiplierCyclic and/ or .Encoder_N.Resolution.multiplierCyclic or Encoder_N.Resolution.multiplierCyclic
3144	The set fine resolution for the cyclic absolute value (Gn_XIST2) is invalid - illegal value in .Encoder_N.AbsEncoder.absResolutionMultiplierAbsolute
4000	Error in controller.
4001	Negative acceleration specified.
4002	Unknown 'FipoType' requested.
4003	Error in runtime system, ratio of controller cycle clock to interpolator cycle clock is incorrect.
4004	Requested filter order not possible.
4005	Reserve for later use.
4006	Maximum limit is lower than minimum.
4007	Reserve for later use.
4008	Error in configuration data for controller.
4009	Reserve for later use.
4010	Reserve for later use.

4011	Reserve for later use.
4012	Reserve for later use.
4013	Requested controller type is not available.
4014	Error in controller factors.
4015	Precontrol activated, kpc less than 0 or kpc greater than 150.
4016	Reserve for later use.
4017	Reserve for later use.
4018	Reserve for later use.
4019	Reserve for later use.
4020	Reserve for later use.
4021	Reserve for later use.
4022	Reserve for later use.
4023	Precontrol activated, kpc less than or equal to 0.
4024	Reference model monitoring: Error in value of tolerance window.
4025	Error in limit value for standstill signal.
4026	Error in parameter for positioning monitoring.
4027	Simultaneous activation of reference model and dynamic following error monitoring not allowed.
4028	Sampling time parameter calculated incorrectly.
4029	Too many data sets requested.
4030	Error in runtime system, ratio of controller cycle clock to interpolator cycle clock is incorrect.
4031	Error in time constant for emergency ramp generator (positionTimeConstant).
4032	Precontrol active, but fine interpolator type is DIRECT.
4033	Default data set outside limits.
4034	Maximum number of data sets not possible.
4035	Unknown data set change mode.
4036	Following error monitoring not activated/deactivated in all data sets.
4037	Reference model monitoring not activated/deactivated in all data sets.
4038	Different controller type in data sets.
4039	Precontrol activated/deactivated differently in data sets.
4040	Time constant is 0.
4041	Error in dynamic adaptation parameter.
4042	System variable initialization could not be read.
4043	Driver simulation not implemented.
4044	Connection for stepper motors not implemented.
4045	Maximum velocity cannot be attained; maximum drive speed or normalization factor is incorrect.
4046	DSC requires motor encoder data to be specified.
4047	Drive or telegram type not suitable for DSC.
4048	Error in clamping monitoring parameter. 'No detection' is not permitted for the fixed endstop detection
4049	A sensor is required to monitor actual velocity using 'DynamicControl'.
4050	Inconsistent PROFIBUS parameterization; the sum of Ti and To is greater than a DP cycle

4051	Error in manipulated variable limitation parameter of force/pressure controller
4052	Error in force/pressure entry monitoring parameter
4053	Error in force/pressure end value monitoring parameter
4054	Force/pressure entry monitoring tolerance less than pressure end value monitoring tolerance
4055	Error in force/pressure control deviation monitoring parameter
4056	Different activation/deactivation of control deviation monitoring of force/pressure controller in data sets not permitted
4057	Different manipulated variable inversion of force/pressure controller in data sets not permitted
4058	Different force/pressure sensor types in data sets not permitted
4059	Different activation/deactivation of anti-windup in data sets not permitted
4060	Kd factor of PID_ACTUAL controller is greater than 1
4061	Time constant of process model T1 less than or equal to T2
4062	Illegal actuator type selection
4063	Error in sliding friction compensation parameter
4064	Error in offset injection parameter
4065	Precontrol for force/pressure control not implemented
4066	Error in standstill monitoring parameter
4067	Following error monitoring: minVelocity cannot be greater than or equal to maxVelocity
4068	Maximum buffer length of balancing filter (Mode_2) is reached or exceeded. As the servo cycle is included in the calculation of the equivalent time constant of the speed control loop (=velocityTimeConstant), the maximum value of this time constant is limited to 16 servo cycles. The buffer length of the lag element is maximum 16.
4069	System-related dead times are less than 0 after allowing for additionalTime
4070	Controller types other than DIRECT require configuration of an encoder.
4071	Illegal values for delayTimeToActivate of standstill signal
4072	The I/O device for the positive HW limit switch is not available
4073	The I/O device for the negative HW limit switch is not available
4074	Range limits of controller parameter exceeded.
4075	Range limit of brake deceleration of emergency ramp exceeded.
4076	Range limit of equivalent time constant exceeded.
4077	Range limit for velocityTimeConstant exceeded.
4078	Error in value for QFDynamicData configuration.
4079	Error in value for reference model monitoring.
4080	Error in following error monitoring parameter
4081	Error in clamping monitoring parameter
4082	Error in value for DynamicData configuration.
4083	Error in value for PV controller configuration.
4084	Configuration data missing for controller.
4085	Error in value for SystemDeadTimeData configuration.
4086	Pressure control only possible with closed-loop speed controller
4087	DSC and compensation of valve curve not possible
4088	DSC not possible on hydraulic axes

4089	Time constants of dynamic response compensation must not be equal
4090	Incorrect value for system dead time correction
4091	Different activation of manipulated variable filter of pressure controller in data sets
4092	Different activation of dynamic response compensation in data sets
4093	Activation of DSC is not the same in all data sets
4094	Balancing filter type is not the same in all data sets
4095	Illegal value for balanceFilterMode. For a drive axis, only MODE_1 is permitted (PV_Controller.balanceFilterMode).
4096	Activation of anti-windup is not the same in all data sets
4097	Activation of setpoint quantization is not the same in all data sets
4098	Activation of the reference model monitoring is not the same in all data sets
4099	Fixed endstop detection mode is not the same in all data sets
4100	Force controller is not the same in all data sets
4101	Force sensor type UNI_DIRECTION is not implemented
4102	Error in the time constant for smoothing controller parameters
4103	If encoderNumber = 0, ControllerStruct.conType must be DIRECT.
4104	The travel to fixed stop function is not possible on a QF axis.
4105	The integratorFeedbackTimeConstant cannot be less than 0
4106	Illegal value for CommandValueQuantization.value
4107	An electrical drive axis (typeOfAxis = REAL_KIND_OF_AXIS) may only have DIRECT as controller type (conType = DIRECT)
4108	Dead time of dynamic response compensation must not be zero.
4109	Time constant for smoothing manipulated variable jumps during data set changeover must not be less than zero.
4110	The parameters of the manipulated variable filter in the pressure controller are illegal.
4111	Range limit for positionTimeConstante exceeded.
4112	Force/pressure controller type not possible.
4113	Time constant for smoothing manipulated variable jumps outside the limits.
4114	The speed/velocityReference parameter must be set to NOMINAL_SPEED with active adaptation.
4115	The torque/forceReference parameter must be set to NOMINAL_TORQUE/ FORCE with active adaptation.
4116	The parameters in HWEndPos are not consistent.
4117	The setting disableModeSpecification = OFF1_AND_OFF3_MODE is only possible with a digital drive coupling.
4120	Error in following error monitoring parameter. Illegal value in DynamicFollwong.minPositionTolerance
4121	Error in following error monitoring parameter. Illegal value in DynamicFollwong.maxPositionTolerance
4122	Error in following error monitoring parameter. Illegal value in DynamicFollwong.minVelocity
4123	Error in following error monitoring parameter. Illegal value in DynamicFollwong.warningLevel
4124	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.posWinToTime

4125	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.posWinToIDelayTime
4126	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.tolerance
5000	Encoder data sequence and number of encoders do not match.
5001	The set number of force/pressure sensors is invalid - illegal value in .NumberOfAdditionalSensors.number
5002	The set type of the force/pressure sensor is invalid - illegal value in .AdditionalSensor_N.additionalSensorType
5003	The actual value interface configuration of the force/pressure sensor is faulty - illegal value in .AdditionalSensor_N.DriverInfo
5004	The raw actual value weighting factors configuration of the force/pressure sensor is faulty - illegal value in .AdditionalSensor_N.ConversionData
5006	The value range limits configuration of the actual force/pressure value is faulty - illegal value in .AdditionalSensor_N.Range
5007	The configuration of the actual force/pressure value filter is faulty - illegal value in .AdditionalSensor.Filter
5008	Configuration of the force/pressure sensor not completed correctly.
5009	The number of the force/pressure sensor assigned to the data set is invalid - illegal value in .NumberOfDataSets.DataSet_N.AdditionalSensorNumber.number
5010	The sensor configuration for the force/pressure difference measurement is faulty - illegal value in .AdditionalSensor.PositionDifferenceMeasurement
5011	The number of the force/pressure sensor set as sensor A for the difference measurement is invalid - illegal value in .AdditionalSensor.PositionDifferenceMeasurement.numberSensorA
5012	The number of the force/pressure sensor set as sensor B for the difference measurement is invalid - illegal value in .AdditionalSensor.PositionDifferenceMeasurement.numberSensorB
5013	Illegal data in extrapolation configuration.
5014	The set execution cycle clock of the sensor is invalid - illegal value in Execution.executionlevel
5015	The set substitute value strategy for a technological alarm on the sensor is invalid - illegal value in .ValueOut.outputValueErrorBehaviorMode
5020	The configuration of the analog encoder actual value interface is faulty - illegal value in .Encoder_N.AnalogSensor.DriverInfo
5021	The configuration of the analog encoder actual position values filter is faulty - illegal value in .Encoder_N.AnalogSensor.PositionFilter
5022	The raw actual value weighting factors configuration of the analog encoder is faulty - illegal value in .Encoder_N.AnalogSensor.ConversionData
5023	The measuring input interface configuration for the analog encoder is faulty - illegal value in .Encoder_N.AnalogSensor.LogAddress
5030	The count value weighting factors configuration of the interval counter speed encoder is faulty - illegal value in .Encoder_N.IntervalCounterConversionData
5031	The set logical address for the count value interface of the interval counter speed encoder is faulty - illegal value in .Encoder_N.IntervalCounterConversionData.DriverInfo.logAddress
6000	The traversing distance monitoring up to the reference point switch is configured in the configuration data, but the configured maximum distance to be traversed is zero.

6001	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfMaxBufferedCommandId
6002	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfQueueCommands
6003	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfImmediateCommands
6004	Configuration of behaviourAtTheEndOfProfile not implemented
6005	Illegal value for configuration data for maximum acceleration
6006	Illegal value for configuration data for maximum jerk
6007	Illegal value for configuration data for maximum force/pressure setpoint
6008	Illegal value for configuration data for maximum force/pressure setpoint increase
6009	Illegal value for configuration data for Synchronous operation tolerance based on setpoint
6010	Illegal value for configuration data for Synchronous operation tolerance based on actual value
6011	Illegal value for configuration data for Synchronous operation tolerance activation based on setpoint
6012	Illegal value for configuration data for Synchronous operation tolerance activation based on actual value
6013	Illegal value for configuration data for profile end identification tolerance window
6014	Illegal value for configuration data for actual value extrapolation time
6015	Illegal value for configuration data for actual value coupling tolerance window
6016	Illegal value for the injection tolerance configuration (relieveWindow) at software limit switch
6017	Illegal value for the type specification configuration (monitoringAtMotionStart) at software limit switch
6052	Illegal value for the configuration mode (modeSpecificMonitoring) at software limit switch
6053	Illegal value for the profile type configuration (stopJerk) on software limit switch
6018	Illegal value for configuration data for axis-specific path tolerance activation based on setpoint
6019	Illegal value for configuration data for axis-specific path tolerance based on setpoint
6020	Illegal value for configuration data for axis-specific path synchronization tolerance activation based on setpoint
6021	Illegal value for configuration data for axis-specific path synchronization tolerance based on setpoint
6022	Illegal value for configuration data driveControlConfig.releaseDisableMode (RELEASE_DISABLE drive behavior error response)
6023	Illegal value for configuration data of velocity type with master value extrapolation of actual values
6024	Illegal value for configuration data TypeOfAxis.Homing.direction, 'Approach direction during homing'
6025	Illegal value for configuration data TypeOfAxis.Homing.beroDistance, 'Maximum distance to the homing output cam'
6026	Illegal value for configuration data for Synchronous operation error message at master value

6027	Illegal value for the configuration data TypeOfAxis.DecodingConfig.directionDynamic
6028	Illegal value for the configuration data TypeOfAxis.DecodingConfig.behaviourAtTheEndOfProfile
6029	Illegal value for the configuration data TypeOfAxis.DecodingConfig.decodeSequentialMotionCommand
6030	Illegal value for the configuration data TypeOfAxis.DecodingConfig.transferSuperimposedPosition
6031	Illegal value for the configuration data TypeOfAxis.DecodingConfig.speedModeSetPointZero
6032	Illegal value for the configuration data TypeOfAxis.DecodingConfig.stopWithJerk
6033	Illegal value for the configuration data TypeOfAxis.DecodingConfig.disableMotionOperation
6034	Illegal value for the configuration data TypeOfAxis.DecodingConfig.profileDynamicsLimiting
6035	Illegal value for the configuration data TypeOfAxis.DecodingConfig.cyclicSetUpInForceLimiting
6036	Illegal value for the configuration data TypeOfAxis.Homing.enableBeroDistance
6037	Illegal value for the configuration data TypeOfAxis.Homing.referencingNecessary
6038	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableLifeSignMonitoring
6039	Illegal value for the configuration data TypeOfAxis.DistributedMotion.numberOfLifeSignFailures
6040	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableDelayOfCommandValueOutput
6041	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableOffsetCompensation
6042	Illegal value for configuration data driveControlConfig.pulsesEnabledEvaluation (axis behavior for drive-independent stop response)
6050	Illegal value for the configuration data driveControlConfig.dataAdaption
6051	Illegal value for the configuration data driveControlConfig.disableModeSpecification
6043	Illegal value for the configuration data TypeOfAxis.ControllerSwitchData.NumberOfDigitalInputs.number
6044	Illegal logical address of the digital input in the configuration data structure TypeOfAxis.ControllerSwitchData.NumberOfDigitalInputs.DigitalInput_x
6045	Illegal value for configuration data for maximum deceleration
7000	Illegal data in process model configuration
2045	Evaluation of the PulsesEnabled bit (pulsesEnabledEvaluation = YES) is not possible in telegram 1 (telegramType = DP_TEL1_STANDARD).
2046	Evaluation of the PulsesEnabled bit (pulsesEnabledEvaluation) is not carried out when using DSDB.

Additional information:	More detailed description of the error origin
Meaning for category 3	Number of the data set on the technology object for which the alarm was issued
Meaning for category 4	Not relevant
Meaning for category 5	Number of the encoder on the technology object that did not issue the alarm

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT

Remedy

Change the configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

20012 Restart not carried out (reason: /1/%d)**Cause**

Technology object could not be restarted.

Meaning of alarm parameters

Reason:	
1	The technology object configuration does not allow a restart with the restart system variable.
2	The technology object is not ready to be restarted.
3	A configured condition for restarting the technology object is not met (e.g. technology object must be 'disabled').
4	Restart was not performed with the last programmed configuration of the technology object because this is faulty
5	The configuration of the technology object does not permit any restart.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Reason:	
1	Initiate the restart using the reset command.
2	Reload the project.
3	Work around the cause stated in the Reason parameter, or reload the project.
4	Determine whether technological alarms were reported or error entries were made in the device diagnostics and, if necessary, remedy the cause.
5	Change the configuration to activate the appropriate restart capability.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

20014 Under logical address: /1/%d (optional log. address: /2/%d and bit no.: /3/%d of the enable output), a driver (type: /4/%d) could not be requested

Cause

The driver of a physical device is not available or is being used by another technology object.

The enable command for the technology object has been issued more than once with the 'immediately' stepping condition.

Meaning of alarm parameters

Logical address:	This is the address of the actuator driver configured on the technology object.
Logical address and bit number:	This specifies the address and bit number of the output enable bit.

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	DINT

Remedy

- Do not call the enable command cyclically "call the enable command only once for the axis enable".
- Check that the logical device was available at the time of the request or whether it was being used by another technology object.
- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

RELEASE_DISABLE

Diagnostics buffer entry

Yes

20015 **Device type:/3/%d, log. address:/1/%d faulted. (Bit:/2/%d, encoder number:/5/%d, reason: 0x/4/%Xh)**

Cause

The driver of a physical device or the device itself has failed or is faulty.

If this alarm occurs, the cause of the error must be evaluated in the external device (drive or encoder).

Meaning of alarm parameters

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver
12	Safety data block driver
13	Update counter
14	Operating characteristics data block driver

Logical address:	This is the logical input address configured on the technology object.
Bit number:	For bit driver type = 3 or 4 only; number of the bit
Encoder number:	Number of the encoder in case of telegrams with multiple encoders. Applies only when type = 2.
Reason:	0 - only defined when type = 2

Note

Addition of error messages

The codings for the reason of the failure specified below for the individual alarm types can also occur in combination. A group coding is indicated as the sum of several individual codings (e.g. 0x0005 = 0x0001 + 0x0004).

A failure reason labeled with DP can occur only for PROFIBUS devices.

Type = 1	
0x0001h	Fault message from the drive (note: for PROFIBUS drives, which support acyclic communication in accordance with PROFIdrive V3, the error number(s) of the drive are displayed in the diagnostic buffer, e.g. for Masterdrives MC)
0x0002h	DP: Drive signal "control requested" failed
0x0004h	DP: Drive disconnected itself
0x0008h	Slot for drive data is not available in the project
0x0010h	Actuator driver does not have a connection to the drive data
0x0020h	Actuator driver was not initialized during ramp-up
0x0080h	DP: Difference between configuration data and drive parameters (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	DP: Control signals to the PROFIdrive state machine were incorrectly specified
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
0x8000h	DP: Life-sign of drive has malfunctioned or failed
0x80000000h	The drive interface has been deactivated for the pending enables.
Type = 2	
0x0000h	The actual value changes exceed the limit value derived from the maximum velocity (configuration data TypeOfAxis.MaxVelocity.maximum) over multiple cycles. This monitoring can be activated or deactivated with configuration data TypeOfAxis.NumberOfEncoders.Encoder_x.AbsEncoder.enableAbsMonitoring.
0x0001h	Alarm message from encoder (note: the encoder error number(s) are displayed in the diagnostic buffer)
0x0002h	General hardware error of encoder
0x0004h	Encoder is dirty
0x0008h	Slot for encoder data is not available in the project
0x0010h	Encoder driver does not have a connection to the encoder data
0x0020h	Encoder driver was not initialized during ramp-up
0x0040h	Error when reading the absolute value of the encoder
0x0080h	DP: Difference between the configuration data and the encoder parameters Onboard C2xx: Inconsistency of the configuration data (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	Zero mark monitoring of encoder
0x0200h	DP: Encoder has gone to Parked state
0x4000h	DP: Encoder on bus failed (station failure)

0x8000h	DP: Life-sign of encoder has malfunctioned or failed. (note: for an encoder whose data are transferred in a drive telegram together with actuator data, the actuator life-sign applies to the encoder, e.g. for standard telegram 3 in accordance with PROFIdrive)
0x80000000h	The sensor interface has been deactivated for the pending enables.
Type = 3...6	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 7	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 8	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 9	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 10	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 11	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 12	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 13	
0x1h	The actual value was specified via a system variable and the permissible number of failure cycles was exceeded
0x2h	The actual value was updated with an update counter in the I/O area and the permissible number of failure cycles was exceeded

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

The remedy for the respective type and cause is described below.

Type 1

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- A system fault may be present. Call the hotline.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- When sign-of-life monitoring is set: Ensure that in HW Config for drive under DP slave properties - isochronous operation - drive, the "synchronize to equidistant DP cycle" field is activated.
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
- Up to SIMOTION RT V4.3: If the alarm occurs after the download on a drive with telegram 999: Compare the parameterized bit position for the "Pulses enabled" status signal in drive parameter p924 with the configuration data 'DriveControlConfig.PulsesEnabled' of the TO axis. In this case, there is not necessarily an incorrect parameterization and therefore a check cannot be performed by the system because of the BICO interconnection. Therefore, make sure that the Pulses enabled bit is in the correct position.

For reason 0x0100

- Correct your user program with regard to PROFIdrive-compliant specification of control bits in the _enable/disableAxis commands, e.g. control signal OFF (STW1.0 = false) must precede a drive connection.

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 2

For reason 0x0000

- Check the absolute encoder functions, connections and configuration. Take note of this when monitoring is deactivated (not with Alarm 20015).

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- Make sure that the user program does not reference a technology object containing an encoder (Axis, External Encoder) with an '_enableaxis' or '_enableexternalencoder' command while system variable 'sensordata.sensordata[n].state' is signaling invalid.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0040

- Compare the encoder type in the drive or encoder parameter P979 with the configuration data of the technology object.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
 - Compare the encoder type, resolution, shift factor, and, in the case of absolute encoders, the number of rotations in the drive or encoder parameter P979 to the encoder type, resolution, fine resolution, and, in the case of absolute encoders, the data length in the configuration data of the technology object.
- When using telegram 999, this message always appears, as the bit position is not checked by the system in this case, but has to be performed by the user.

For reason 0x0100

- Check the device functions, connections and wiring.

For reason 0x0200

- Find the cause of the error in the connected drive or encoder. Check whether the alarm was triggered due to a commissioning operation on the drive or encoder.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 3 - Type 6For reason 0x0000

- Check the configuration and the signal paths of the connection.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 7For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 8For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 9For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 10For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 11 - Type 12For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring. If the error cannot be acknowledged when the axis is in simulation mode, check whether the technology data block is activated, and if this is the case, deactivate it.

Type 13

For reason 0x1

- Check the specification of the actual value with regard to function, configuration, and task configuration.

For reason 0x2

- Check the device functions, configuration, connections and wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

Yes

20016 Under logical address: /1/%d (bit number, if required: /2/%d) no driver (type: /3/%d) activated (error number: /4/%d)

Cause

The driver of a physical device or the device itself is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT

Remedy

- Check the activation/deactivation sequence for the interface.
- Note the runtimes of the commands and use the provided command control mechanisms (e.g. `nextCommand := WHEN_COMMAND_DONE`).
- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP
OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

Yes

20017 Internal algorithm error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Error source
Parameters 2 to 4:	Fault number

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact:

SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

RELEASE_DISABLE

Diagnostics buffer entry

Yes

20018 **Attempt to write the bit(s): 0x/1/%Xh in control word1 or the bit(s): 0x/2/%Xh in control word2 under the log. address: /3/%d has been rejected.**

Cause

An attempt to write certain bits in control word 1 or 2 has been rejected.

Meaning of alarm parameters

Bits:	Display of bits which could not be written
Log. address:	Logical address of the device driver

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT

Remedy

- Check the order of commands, particularly in relation to `_enableAxis(...)`.
- Check the command parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP
OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

Yes

20019 Error for the commissioning, reason: /1/%d (Parameter1: /2/%d, Parameter2: /3/%d)

Cause

A commissioning function could not be executed.

Meaning of alarm parameters

Reason:	
1	Failure of the life-sign between controller and SIMOTION SCOUT
2	Protocol error
3	Command decoding error

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT

Remedy

Reason:	
1	Check the connection properties. If required, increase the monitoring time.
2	Should a system error of this type occur, note the alarm number, the alarm text and the specified alarm parameters, and contact: SIEMENS AG I DT MC, Hotline.
3	Should a system error of this type occur, note the alarm number, the alarm text and the specified alarm parameters, and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / NONE

Preassignment for local reactions

NONE

Settable local reactions

NONE MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP
OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

Yes

20020 Output deactivated

Cause

One or more outputs of the technology object have been deactivated. This is caused by the output-disable device status.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

20021 Configuration will be adapted internally (category: /1/%d, reason: /2/%d, limited value: /3/%f, additional information: /4/%d)

Cause

This alarm shows the implicit setting of configuration data to the maximum possible values. The technology objects perform a plausibility check on the configuration. Errors/manipulations are identified by the error codes below.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of configuration data
2001	Illegal value for maxSpeed (maxSpeed less than or equal to 2*nominalSpeed; maxSpeed will be set to 2*nominalSpeed)
2002	Illegal value for maxTorque/Force (maxTorque/Force less than or equal to 2*nominalTorque/Force; maxTorque/Force will be set to 2*nominalTorque/Force)
2003	Error during the adaptation of the Torque-/ForceReductionGranularity. p1544 is ignored and the default value used.
3001	The length of the backlash on reversal is limited to a permitted value (Encoder_N.incBacklash.length or Encoder_N.absBacklash.length).
3002	The compensation velocity of the backlash on reversal is limited to a permitted value (Encoder_N.incBacklash.velocity or Encoder_N.absBacklash.velocity).
3003	The value of the configuration data for the encoder system (.Encoder_N.encoderSystem) is limited to a permitted value.
3004	The value of the configuration data for the encoder resolution (rotary: .Encoder_N.incEncoder.incResolution, Encoder_N.absEncoder.absResolution; linear: Encoder_N.Resolution.distance) is limited to a permitted value.
3005	The value of the configuration data for the multiplication factor of the cyclical actual value (.Encoder_N.incEncoder.incResolutionMultiplierCyclic, Encoder_N.absEncoder.absResolutionMultiplierCyclic, Encoder_N.Resolution.multiplierCyclic) is limited to a permitted value.
3006	The value of the configuration data for the multiplication factor of the absolute value (Encoder_N.absEncoder.absResolutionMultiplierAbsolute) is limited to a permitted value.
3007	The value of the configuration data for the data length of the absolute value (Encoder_N.absEncoder.absDataLength) is limited to a permitted value.
3008	The value of the configuration data for the reference value of the Nact speed in the PROFIdrive telegram (Encoder_N.sensorNist.referenceValue) is limited to a permitted value.
3009	The load gear factor of the first data set is leading for the encoder simulation. The simulation with different load gear factors is not supported. The value of the configuration data for the load gear (DataSet_N.gear) is limited to the load gear ratio of the first data set.
4001	The delay time for the triggering of the standstill signal (StandStillSignal.delayTimeToActivate) is limited.
4002	The delay time until the position monitoring tolerance window is reached (PositionMonitoring.posWinTolTime) is limited.
4003	The delay time until the activation of the position monitoring message (PositionMonitoring.posWinTolDelayTime) is limited.
4004	The delay time for the activation of the standstill monitoring message (StandStillMonitoring.delayTimeToActivate) is limited.
4005	The delay time of the actual value of the force/pressure entry monitoring (ForceControlRunningInWindowMonitoring.winTolTime) is limited.
4006	The delay time until activation of the force/pressure entry monitoring (ForceControlRunningInWindowMonitoring.maxDelayTime) is limited.
4007	The delay time until activation of the force/pressure end value monitoring (ForceControlHeldValueMonitoring.delayTimeToActivate) is limited.

4008	The delay of the emergency ramp generator (EmergencyRampGenerator.maxDeceleration) is too small and set to the minimum possible value.
4009	The decay time constant of the friction compensation (Friction.decayTime) is limited.
4068	The maximum buffer length of the lag element in the balancing filter (Mode_2) is reached or exceeded. The lag element (maximum buffer length: 16 servo-cycles) is augmented by a PT1 element.
4069	The maximum buffer length of the lag component of the dynamic response compensation is reached or exceeded. The maximum value of this time constant is limited to 16 servo cycles. The buffer length of the lag element is maximum 16.

Additional information:	More detailed description of the error origin
Meaning for category 4	Not relevant
Meaning for category 5	Number of the encoder on the technology object that issued the alarm

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	LREAL
4	UDINT

Remedy

2001	Correct the reference value in the drive to $\text{maxSpeed(Velocity)} / 2$.
2002	Correct the reference value in the drive to $\text{maxTorque(Force)} / 2$.
2003	Set the reference value in the drive to 0x64 or 0x4000.
3001	Change the configuration data
3002	Change the configuration data
3003	Change the configuration data
3004	Change the configuration data
3005	Change the configuration data
3006	Change the configuration data
3007	Change the configuration data
3008	Change the configuration data
3009	Change the configuration data
4001	Change the configuration data
4002	Change the configuration data
4003	Change the configuration data
4004	Change the configuration data
4005	Change the configuration data
4006	Change the configuration data
4007	Change the configuration data
4008	Change the configuration data
4009	Change the configuration data
4068	Change the configuration data
4069	Change the configuration data

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP
OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

20022 Error occurred while modifying the configuration (category: /1/%d, reason: /2/%d, additional information: /3/%d, parameter: /4/%d)

Cause

This alarm indicates error conditions when modifying the configuration on the device.

The configuration on the device is not modified when this alarm is issued.

Meaning of alarm parameters

Category:	Area in which the error occurred
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Reason:	Specification of the error
1	Adaptation of the configuration of the actuator or encoder without active drive interface is not possible
2	The actuator or the encoder is not assigned to any SINAMICS drive device
3	A parameter does not exist or its value either cannot be read or lies outside the permitted limits.
4	The adaptation of the actuator or encoder has not been activated
5	The reading of the parameters has been aborted because of a fault reported by the hardware
6	The adaptation is already active on the actuator or encoder
7	The modified configuration is activated only for reset TO enables.
8	The adaptation requires speedReference = NOMINAL_VALUE.
9	The adaptation requires torque/forceReference = NOMINAL_VALUE.
10	The enables are deleted by means of the adaptation
11	The adaptation is aborted due to a lack of resources.

Additional information:	More detailed description of the error origin
Meaning for category 4	Not relevant
Meaning for category 5	Number of the encoder on the technology object that issued the alarm

Parameters:	parameter affected when parameter error detected (reason = 3)
0	The read parameters are valid, but it was not possible to derive a consistent configuration.
1	Maximum speed/velocity (p1082)
2	Maximum torque/force (p1520)
3	Maximum torque/force (p1521)
4	Fine resolution of torque/force reduction (p1544)
5	Rated speed/velocity, reference velocity (p2000)
6	Rated torque/force (p2003)
7	Encoder system (r0979[1/11].0)
8	Encoder resolution (r0979[2/12])
9	Encoder fine resolution Gx_XIST1 (r0979[3/13])
10	Encoder fine resolution Gx_XIST2 (r0979[4/14])
11	Number of resolvable encoder revolutions (r0979[5/15])

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT
4	UDINT

Remedy

- For reason 1: Activate the drive interface of the actuator or affected device with `_enableAxisInterface()`.
- For reason 4: Activate the adaptation of the configuration for the actuator using `'TypeofAxis.Drivecontrolconfig.dataAdaption = YES'` or for an encoder using `'Encoder_N.encoderMode = PROFIDRIVE'`.
- For reason 6: Wait until completion of the active adaptation of the configuration for the actuator or encoder. Consider the current status of the adaptation in the `'actorData.dataAdaption'` or `'sensorData[N].dataAdaption'` system variable on the technology object.
- For reason 10: The enables must be deleted before calling the adaptation command.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP
OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

20023 Under logical address: /1/%d (bit number, if required: /2/%d) no I/O (type: /3/%d) are available (error number: /4/%d)

Cause

A physical device is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

RELEASE_DISABLE

Diagnostics buffer entry

Yes

20024 Under logical address: /1/%d (bit number, if required: /2/%d) no I/O (type: /3/%d) are available (error number: /4/%d)

Cause

A physical device is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

RELEASE_DISABLE

Diagnostics buffer entry

Yes

20025 **Inconsistency between the TO and the drive/encoder configuration (category: /1/%d, additional information: /2/%d, reason: /3/%d)**

Cause

An inconsistency has been detected between the drive/encoder configuration and the configuration of the technology object.

Meaning of alarm parameters

Category:	Area in which the error occurred.
4	Manipulated variable output
5	Encoder system

Additional information:	More detailed description of the error origin
Category 4	Not relevant
Category 5	Number of the encoder at which the inconsistency was detected

Reason:	Description of reason for error
91	The message length configured for the SSI encoder (Encoder_N.absEncoder.absMessageLength) is invalid.
92	The message format configured for the SSI encoder (Encoder_N.absEncoder.absMessageFormat) is invalid.
93	The encoder resolution configured for the SSI encoder (Encoder_N.absEncoder.absResolution) is invalid. The encoder resolution must be greater than one increment per encoder revolution.
94	The configured data width (Encoder_N.absEncoder.absDataLength) for the RIGHT_MARGIN message format configured on the SSI encoder (Encoder_N.absEncoder.absMessageFormat) is too large for the configured message length Encoder_N.absEncoder.absMessageLength).
95	The configured encoder resolution (Encoder_N.absEncoder.absResolution) for the RIGHT_MARGIN message format configured on the SSI encoder (Encoder_N.absEncoder.absMessageFormat) is larger than the encoder resolution which can be displayed by the configured data width (Encoder_N.absEncoder.absDataLength).
96	The configured encoder resolution (Encoder_N.absEncoder.absResolution) for the PINETREE message format configured on the SSI encoder (Encoder_N.absEncoder.absMessageFormat) is larger than the encoder resolution which can be displayed by the configured message length (Encoder_N.absEncoder.absMessageLength).
97	The encoder resolution which can be displayed by the configured data width (Encoder_N.absEncoder.absDataLength) for the PINETREE message format configured on the SSI encoder (Encoder_N.absEncoder.absMessageFormat) is larger than the configured data resolution (Encoder_N.absEncoder.absResolution).
100	The cycle clock period of the master application cycle (HW Config) is not identical to that of the servo cycle.
101	The processing cycle clock of the technology object is not identical to the application cycle of the drive.
110	The configured telegram type (SetPointDriverInfo.telegramType) is not compatible with the telegram type at the drive (P922).
111	The configured PZD number for the pulse enable signal (DriveControlConfig.pulsesEnabled.pzdNumber) is not consistent with the PZD number configured at the drive (P924).
112	The configured bit number for the pulse enable signal (DriveControlConfig.pulsesEnabled.bitNumber) is not consistent with the bit number configured at the drive (P924).
200	The cycle clock period of the master application cycle (HW Config) is not identical to that of the servo cycle.
201	The processing cycle clock of the technology object is not identical to the application cycle of the drive.
210	The configured telegram type (Encoder_N.driverInfo.telegramType) is not compatible with the telegram type at the drive (P922).
211	The encoder at the drive is not an absolute encoder (P979).
212	The configured encoder resolution (Encoder_N.absEncoder.absResolution, Encoder_N.incEncoder.incResolution) is not consistent with the encoder resolution configured at the drive encoder (P979).

213	The configured fine resolution for Gx_XIST1 (Encoder_N.absEncoder.absResolutionMultiplierCyclic, Encoder_N.incEncoder.incResolutionMultiplierCyclic, Encoder_N.Resolution.multiplierCyclic) is not consistent with the fine resolution configured at the drive encoder (P979).
214	The configured fine resolution for Gx_XIST2 (Encoder_N.absEncoder.absResolutionMultiplierAbsolute) is not consistent with the fine resolution configured at the drive encoder (P979).
215	The configured number of resolvable revolutions of the absolute encoder (Encoder_N.absEncoder.absDataLength minus Encoder_N.absEncoder.absResolution) is not consistent with the number of resolvable revolutions configured at the drive encoder (P979).
216	The configured format of the actual speed value is not supported (P65001).

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	DINT

Remedy

General	Check whether the false setting in the parameterization of the I/O device or in the configuration of the SIMOTION technology object is warranted. For PROFIBUS drives or encoders, compare the hardware configuration, the configuration of the technology object, and the drive parameter assignment.
Reason 91 ff.	Use the axis wizard or the expert list to adapt the configuration of the encoder at the technology object to the parameter assignment of the encoder connected to the drive and reload the project. Note the information on the onboard encoder interface on the SIMOTION C2xx in the Axis Function Manual.
Reason 100, 200	Compare the cycle clock parameters in the hardware configuration (PROFIBUS line, Slave OM for drive or encoder) and the execution system. The master application cycle and the servo must be set to the same cycle clock period.
Reason 101, 201	Compare the processing cycle clock of the technology object and the application cycle of the drive or encoder. Drives or encoders in the "Servo" application cycle can only run in the "Servo", "Ipo", or "Ipo2" processing cycle clock. The "FastServo" and "FastIPO" processing cycle clocks can only be used for drives or encoders with the "FastServo" application cycle.
Reason 110, 210	Compare the telegram type in the drive or encoder parameter p922 with the telegram type configured at the actuator or sensor of the technology object.
Reason 111, 112	The setting for the pulses enabled signal at the 'Axis' technology object (TypeOfAxis.DriveControlConfig.pulsesEnabled) does not match drive parameter p924. The position of the pulses enabled signal in the drive telegram is configured in both places. Note that in the configuration data of the TO, the number of the PZD is indicated in the telegram, but parameter r924 contains the signal number according to PROFIdrive. If the signal number is set to '0' in parameter p924, an entry is made in the diagnostics buffer regardless of the setting at the technology object.
Reason 211 ff.	Use the axis wizard or the expert list to adapt the configuration of the encoder at the technology object to the parameter assignment of the encoder connected to the drive and reload the project. Note the encoder parameter assignment in drive parameter P979.
Reason 216	Convert the format for N-act in the connected external encoder.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP
OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

Yes

30001 **Illegal parameter (parameter index according to standard sequence in the system functions: /1/%d, command type: /4/%X)**

Cause

Illegal parameter transfer to a system function. The command is not executed. This alarm occurs when the permissible parameter value range is violated. The permissible value range of the parameter is a function of its data type and the technological meaning of the parameter.

The parameter index indicates the position of the illegal parameter. The standard sequence of parameters in the system functions is apparent from the reference list associated with the command. The command type indicates the type of the faulty system function.

Meaning of alarm parameters

Parameter index:	Index of the system function parameter that triggered this error (listed according to the standard sequence in the system functions).
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the value range of the parameter data type.
- Check the technological meaning of the parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

30002 Command aborted (reason: /1/%d, command type: /4/%X)**Additional references**

Further information is provided in the Function Manual:

- Basic Functions and
- in the online help.

Cause

The command was aborted before or during execution.

This can be caused by:

- A substituted command
- Command buffer reset
- Error state

Note

This alarm is always output, e.g. for jogging (_move aborted with _stop) or for the retraction of the reference BERO for homing or when Synchronous operation (explicitly) deactivated.

Meaning of alarm parameters

Reason:	
1	Reset of the command buffer
2	Abort by another command
3	Abort by a stop
4	Abort by a higher-order stop
5	Abort by a pending error response
6	Abort due to ambiguous commandId
7	Acknowledgement delay
8	No actual value for axis/external encoder (e.g. encoder or data bus not ready)
9	Abort due to abort of a dependent command
10	Abort due to active Synchronous operation
11	Abort due to active superimposed motion
12	Abort due to active speed-controlled controller mode
13	Abort due to active position-controlled controller mode
14	Abort due to active travel to fixed end stop
15	Axis is not in pressure-limiting operation
16	Abort due to active pressure-controlled operation
17	Abort due to inactive pressure-controlled operation
18	Superimposed command is not permitted
19	Abort due to error during cam access
30	Axis is in pressure-limiting operation
31	Maximum number of active commands exceeded

33	Action only permissible in standstill
41	Command parameter became invalid during processing
42	No interconnection to a technology object
43	Abort due to a Cancel command in the user program
44	Abort because of a pending command with identical command parameters
52	Abort because enables are set
53	Abort because of running adaptation of drive data
55	Abort on the basis of internal limits.
56	Abort on the basis of active Safety Function.
57	Abort on the basis of active motion.

Command type:	Outputs the aborted command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Set up the command again via program.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

30003 Command aborted because of full command buffer (command type: /4/%X)**Cause**

The command is not entered in the command buffer because the buffer is already full.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the program flow.
- Typical cause: The 'nextCommand' parameter is passed with the value 'IMMEDIATELY', and the 'mergeMode' parameter is passed with the value 'SEQUENTIAL'.
 - Synchronize the command execution in the user program so that the command buffer is not occupied when the command is issued.
 - Use other values for the 'nextCommand' or 'mergeMode' parameters. Setting the 'nextCommand' to a value other than 'IMMEDIATELY' causes the program to wait for the command buffer to become available. In addition, setting a different 'mergeMode' means that the command buffer can be overwritten.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30004 Command is not defined for this technology object type (command type: /4/%X)

Cause

Command was programmed on a technology object type not supporting processing of this command.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Issue the command on the correct technology object type.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30005 Ambiguous commandId (number of commands with the specified ID: /1/%d, command type: /4/%X)**Cause**

The specified commandId refers to more than one command. The specified action is performed for the command matching the specified ID that has been in the interpolator for the longest time.

If no corresponding command is found in the interpolator, the action refers to the next command loaded in the interpolator.

Meaning of alarm parameters

Id:	Number of commands referenced by the specified command ID.
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Use a different 'commandId' for commands that are active simultaneously.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30006 Command cannot be executed because of the current object state (command type: /4/%X)

Cause

A reset command is active at the object or the object is deactivated.

For axes only:

A `_stopEmergency` command is active at the object and a `_stopEmergency` command is sent with a different parameter assignment which will thus not take effect.

For axes with force control or force limitation only:

Superimposed force control is not possible in the current object state.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the following:

- Check the object status.
- Check the possible execution sequence of the programmed commands.

Acknowledgement/reaction

Reset fault memory / `START TechnologicalFaultTask`

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

30007 The error cannot be reset because of its configuration**Cause**

The 30007 alarm will be output when an alarm is reset that can only be acknowledged with PowerOn.

Example:

The internal 20001 error can only be acknowledged with PowerOn.

If an attempt is made to reset the alarm with a `_reset...Error` command, the 30007 alarm will be output.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check whether the errors present on the technology object can be acknowledged.

Correct the cause of the error and switch the CPU off/on or load the project again.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30008 **Link to a technology object necessary for this operation does not exist (command type: /4/%X)**

Cause

The object connection required for this operation has not been configured or the connected technology object has been deactivated.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the project configuration.
- Change the object connection in the command.
- Activate the connected technology object.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

30009 Command rejected as the decoding of the command of the technology object addressed has been deactivated/stopped (reason: /1/%d, command type: /4/%X)

Cause

Command was rejected due to suspension of command decoding on the addressed technology object. The command decoding can be stopped by the DECODE_STOP alarm response, by deactivating or restarting the technology object, by starting the axis control panel in exclusive mode or by the absence of necessary interconnections.

Meaning of alarm parameters

Reason:	
1	Restart of the technology object
2	Technology object is deactivated
3	Technology object is in RUN mode.
4	Control panel active

Command type:	Outputs the type of the rejected command. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check why the command was rejected.
- If necessary, acknowledge any active errors once you have corrected the cause of the error.
- If the technology object is deactivated, you must activate it.
- Do not issue any commands while the technology object is restarting.
- Do not issue any commands while a connected technology object is restarting.
- Stop the axis control panel.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30010 Command not available (command type: /4/%X)**Cause**

The command is not available in this version of the runtime software.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the version of the runtime software.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30011 **Parameter not available (parameter index according to the standard sequence in the system functions: /1/%d, command type: /4/%X)**

Cause

The parameter is not available in this version of the runtime software, the command is therefore rejected. The parameters indicate the position according to the standard sequence in the system functions and the command type of an incorrectly entered parameter.

Meaning of alarm parameters

Parameter index:	Index of the command parameter triggering this error according to the standard sequence in the system functions.
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the version of the runtime software.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

30012 Command cannot be started synchronously (command type: /4/%X)**Cause**

The command cannot be used within a 'BEGIN_SYNC' or 'END_SYNC' sequence. The command has only one return value in the user program, or the command is not capable of starting synchronously.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Do not use this command type during a BEGIN_SYNC, END_SYNC sequence.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30013 Synchronous start of the command is carried out with mergeMode IMMEDIATELY (command type: /4/%X)

Cause

With synchronous command start, only merge modes that immediately override the current command (IMMEDIATELY) and superimpose the current command (SUPERIMPOSED_MOTION_MERGE) can be used.

If an illegal merge mode is programmed (e.g. SEQUENTIAL or NEXT_MOTION), the system automatically changes the merge mode to IMMEDIATELY and outputs this warning.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Program the command which is to be started synchronously to immediately override the current command. To do this, enter the value IMMEDIATELY in the 'mergeMode' command parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

30014 **Coordinate system has not been offset because the internal traversing range limit was exceeded (Parameter1: /1/%d, command type: /2/%X)**

Cause

The programmed coordinate system offset causes the internal traversing range limit to be exceeded. The coordinate system is not offset.

Meaning of alarm parameters

Parameter 1:	
0	Negative internal traversing range limit
1	Positive internal traversing range limit

Command type:	
	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	UDINT

Remedy

Check the programming for the coordinate system offset.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30015 A technology required for this command has not been configured (technology: /1/%d, command type: /4/%X)

Cause

The command cannot be selected in this technology object configuration.

Meaning of alarm parameters

Technology:	
1	Axis with force/pressure control without flow/force specification
2	Axis with force/pressure control and flow/force specification
3	Axis without flow/force specification
4	Axis with flow/force specification
5	Axis with force specification
6	Axis with pressure setpoint specification
7	Axis with pressure limiting
8	Axis with speed limiting parallel to force/pressure control
9	Axis with flow specification
10	Do not use encoder simulation
11	Do not use a hydraulic axis

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Activate the technology needed for the command.

Technology:	
1	Select the 'REAL_AXIS_WITH_PRESSURE_CONTROL' mode in the 'TypeOfAxis' configuration data.
2	Select the 'REAL_QP_AXIS_WITH_CLOSED_LOOP_FORCE_CONTROL' mode in the 'TypeOfAxis' configuration data.
3	Select the 'VIRTUAL_AXIS', 'REAL_AXIS', or 'REAL_AXIS_WITH_FORCE_CONTROL' mode in the 'TypeOfAxis' configuration data.
4	Select the 'REAL_QPAXIS', 'REAL_QP_AXIS_WITH_OPEN_LOOP_FORCE_CONTROL', or 'REAL_QP_AXIS_WITH_CLOSED_LOOP_FORCE_CONTROL' mode in the 'TypeOfAxis' configuration data.
5	Select the 'REAL_QP_AXIS_WITH_OPEN_LOOP_FORCE_CONTROL' mode in the 'TypeOfAxis' configuration data.
6	Select the 'REAL_AXIS_WITH_PRESSURE_CONTROL' or 'REAL_QP_AXIS_WITH_CLOSED_LOOP_FORCE_CONTROL' mode in the 'TypeOfAxis' configuration data.
7	Select the 'REAL_AXIS_WITH_PRESSURE_CONTROL', 'REAL_QP_AXIS_WITH_OPEN_LOOP_FORCE_CONTROL', or 'REAL_QP_AXIS_WITH_CLOSED_LOOP_FORCE_CONTROL' mode in the 'TypeofAxis' configuration data.
8	Select the 'REAL_QP_AXIS_WITH_CLOSED_LOOP_FORCE_CONTROL' mode in the 'TypeOfAxis' configuration data.
9	Select a mode with flow specification in the 'TypeOfAxis' configuration data.
10	Select a mode that is not used for simulation of an encoder (TM41) in the 'TypeOfAxis' configuration data.
11	Select a mode without hydraulics in the 'TypeOfAxis' configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40001 Illegal state change of axis

Cause

The command for the axis state change could not be executed because:

- The operating mode phase is not yet complete
- The operating transition is not possible

Remedy

The operating mode phase is not yet complete	Repeat the command.
Operating transition not possible	Reset the system first.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

Yes

40002 Programmed velocity is limited**Cause**

- The system is limiting the programmed velocity to the maximum permissible velocity.
- For a master axis with modulo range, the velocity is limited to a value which allows certain detection of the direction within an IPO cycle (half the modulo length).

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40003 Programmed acceleration (type: /1/%d) is limited

Cause

The system is limiting the programmed acceleration to the maximum permissible acceleration.

Meaning of alarm parameters

Type:	
0	Positive acceleration
1	Negative acceleration/deceleration

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40004 Programmed jerk (type: /1/%d) is limited**Cause**

The system is limiting the programmed jerk to the maximum permissible jerk.

Meaning of alarm parameters

Type:	
0	Increase in positive acceleration
1	Reduction in positive acceleration
2	Increase in negative acceleration/deceleration
3	Reduction in negative acceleration/deceleration

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40005 Missing enable(s) (Parameter1: /1/%X) and/or incorrect mode (Parameter2: /2/%d)

Cause

The enables are missing for a pending motion command and/or the axis follow-up mode is active.

Meaning of alarm parameters

Parameter1:	
Bit 1 =	0: POWER enable is available 1: POWER enable is missing
Bit 2 =	0: DRIVE enable is available 1: DRIVE enable is missing
Bit 3 =	0: Position controller enable is available 1: Position controller enable is missing
Bit 4 =	0: Force/pressure controller enable is available 1: Force/pressure controller enable is missing
Bit 5 =	0: Separate P-output enable is available 1: Separate P-output enable is missing
Bit 7 =	For the output of bit 7, the enables are missing for: - Bit 1 POWER - Bit 2 DRIVE and - Bit 3 position controller.

Parameter2:	
0	Follow-up mode is deselected
1	Follow-up mode is selected

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	DINT

Remedy

Activate the enables before issuing a motion command.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

40006 Programmed velocity is zero

Cause

The programmed velocity is zero. The specified motion cannot be executed.

Remedy

Program a value other than zero. If USER_DEFAULT is referenced, a value not equal to zero must be programmed in the assigned system variable.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40007 Programmed acceleration (type: /1/%d) is zero

Cause

The programmed acceleration is zero. The specified motion cannot be executed.

Meaning of alarm parameters

Type:	
0	Positive acceleration
1	Negative acceleration/deceleration

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Program a value other than zero. If USER_DEFAULT is referenced, a value not equal to zero must be programmed in the assigned system variable.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40008 Programmed jerk (type: /1/%d) is zero**Cause**

The programmed jerk is zero. The specified motion cannot be executed.

Meaning of alarm parameters

Type:	
0	Increase in positive acceleration
1	Reduction in positive acceleration
2	Increase in negative acceleration/deceleration
3	Reduction in negative acceleration/deceleration

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Program a value other than zero. If USER_DEFAULT is referenced, a value not equal to zero must be programmed in the assigned system variable.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40009 Velocity limit is zero

Cause

The programmed velocity limit is zero. The specified motion cannot be executed.

Remedy

Program a value other than zero in the dynamic limit values.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

40010 Acceleration limit (type: /1/%d) is zero**Cause**

The programmed acceleration limit is zero. The specified motion cannot be executed.

Meaning of alarm parameters

Type:	
0	Positive acceleration
1	Negative acceleration/deceleration

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT

Remedy

Program a value other than zero.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

40011 Programmed jerk limit (type: /1/%d) is zero

Cause

The programmed jerk limit is zero. The specified motion cannot be executed.

Meaning of alarm parameters

Type:	
0	Increase in positive acceleration
1	Reduction in positive acceleration
2	Increase in negative acceleration/deceleration
3	Reduction in negative acceleration/deceleration

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Program a value other than zero.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

40012 Dynamic limitations (type: /1/%d) are being violated**Cause**

The specified dynamic limitations are being violated. This can occur due to:

- Programming of substituted jerk-controlled motions with extremely divergent dynamic parameters, which would lead to an additional reversing motion, reducing the current acceleration.
- Programming of superimposed motions exceeding the resulting dynamic parameters, which would lead to overshoot or to a reversing motion when limited to the maximum velocity or when entering final velocity.

One or more physical variables (velocity, acceleration, jerk) may be affected. The violations have only a temporary effect.

Meaning of alarm parameters

Type:	
0	The jerk is changed; jerk limitation is exceeded.
1	Programmed jerk limitation is disabled during jerk-controlled motion.
2	The programmed acceleration is changed. The effective acceleration limitation is exceeded.
3	The programmed acceleration is changed, and the programmed jerk limitation is disabled. The effective acceleration limitation is exceeded.
4	The programmed dynamic values are limited during motion. The direction of motion is reversed.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

- For substituted motion:
Increase the dynamic response parameters.
- For superimposed motion:
Allow for the current active (resulting) limitations when programming the dynamic response parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40013 Programmed stop time is limited by acceleration limits**Cause**

The specified stop time cannot be achieved. It is violated due to the maximum acceleration limits. Deceleration is performed with the maximum values.

Remedy

- Increase the programmed time.
- Check the maximum acceleration and the active programmed limits.
- Increase the limits, if necessary.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40014 **Command not possible on virtual axis (command type: /4/%X)**

Cause

The command is not supported by virtual axes.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Use a real axis.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40015 Error occurred while accessing the specified curve profile (reason: /1/%d)**Cause**

An error occurred while processing the curve profile.

Meaning of alarm parameters

Reason:	
1	The curve profile does not exist or is not linked with the object.
2	The curve profile is not interpolated.
3	The curve profile is already used.
4	Parameters and values of the curve profile in conjunction with the current values relative to the specified motion parameters contradict.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

- Check the programmed curve profile.
- Check the object connection with the curve profile.
- Check the program sequence.
- Check the parameterization of the profile with regard to the current reference values.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40016 The specified curve profile has not been interpolated

Cause

The system only accepts verified and interpolated curve profiles for this operation. The specified curve profile has not yet been interpolated.

Remedy

Check whether the specified curve profile has been interpolated.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40017 Curve profile starting point is outside the definition range

Cause

The addressed curve profile start point is outside the definition range of the curve profile.

Remedy

- Check the definition range of the curve profile.
- Check the curve profile start point.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40018 Dynamic response of the motion profiles (type: /1/%d) cannot be achieved (reason: /2/%d)

Cause

Specified dynamic response cannot be adhered to.

If this alarm occurs while the profile is being traversed, the currently programmed set position of the cam may be exceeded.

Meaning of alarm parameters

Type:	
1	Velocity-time profile
2	Position-time profile
3	Velocity-position profile
4	Velocity-interface position profile
5	Velocity-time limit profile
6	Velocity-position limit profile
7	Velocity-interface position limit profile

Reason:	
0	The velocity resulting from the profile has been limited to the programmed value.
1	The acceleration/deceleration resulting from the profile has been limited to the programmed value.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT

Remedy

- For superimposed motion:
Allow for the current active (resulting) limitations when programming the dynamic response parameters.
- Increase the dynamic response parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40019 Error occurred while accessing the specified motion interface

Cause

The specified reference object for the motion interface does not exist or is not connected to the axis.

Remedy

- Check the programmed input interconnection.
- Check the program sequence.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40020 Dynamic response of the setpoints on the motion interface (type: /1/%d) cannot be achieved (reason: /2/%d)

Cause

Specified dynamic response cannot be adhered to.

Meaning of alarm parameters

Type:	
1	Velocity-based setpoints
2	Position-based setpoints

Reason:	
0	The velocity resulting from the interface has been limited to the programmed value.
1	The acceleration/deceleration resulting from the interface has been limited to the programmed value.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT

Remedy

- For superimposed motion:
Allow for the current active (resulting) limitations when programming the dynamic response parameters.
- Increase the dynamic response parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40021 StopEmergency command abort because of a pending stop response with the same or higher priority

Cause

The axis StopEmergency command was aborted when called or while the command was running due to a stop response of the same or higher priority as a result of an error.

This alarm is generated to assist you in developing emergency stop strategies. For example, safe program execution can be ensured by changing the stop response.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40022 Programmed pressure limitation is limited

Cause

The system is limiting the programmed pressure limitation value to the maximum permissible pressure value.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40023 Programmed increase of the pressure limitation is limited

Cause

The system is limiting the programmed pressure limitation increase to the maximum permissible pressure increase value.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40024 Programmed increase of the pressure limitation is zero**Cause**

The programmed increase of the pressure limiting is zero. The specified pressure limiting characteristic cannot be calculated.

Remedy

Program a value other than zero. If USER_DEFAULT is referenced, a value not equal to zero must be programmed in the assigned system variable.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_ABORT

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40025 Maximum increase of the pressure limitation is zero

Cause

The limit value for the pressure limitation increase is zero. The specified pressure limiting characteristic cannot be calculated.

Remedy

Program a value other than zero in the dynamic limit values.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_ABORT

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40026 Dynamic response of the pressure/pressure-limitation profiles (type: /1/%d) cannot be achieved (reason: /2/%d)

Cause

Specified dynamic response cannot be adhered to.

Meaning of alarm parameters

Type:	
1	Pressure-time limit profile
2	Pressure-position limit profile
3	Pressure-interface position limit profile
4	Pressure-time profile
5	Pressure-position profile
6	Pressure-interface position profile

Reason:	
0	The pressure/pressure limiting value resulting from the profile has been limited to the maximum pressure/pressure limiting value.
1	The pressure/pressure limiting increase value resulting from the profile has been limited to the maximum pressure/pressure limiting increase value.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT

Remedy

Increase the dynamic response parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40027 Programmed command abort cannot be executed (reason: /1/%d)

Cause

The programmed command abort could not be executed.

Meaning of alarm parameters

Reason:	
0	An abort is no longer possible in the current command status.
1	The '_stopEmergency' function can only be aborted during a standstill.

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40101 Homing output cam not found**Cause**

The homing output cam was not found because:

- It is outside the permissible range.
- Limit switch monitoring system has responded

Remedy

- Check the permissible range for homing.
- Check the hardware configuration.
- Check the home position and, if the approach direction is incorrect, change the start position of the axis for homing.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_ABORT

Settable local reactions

MOTION_STOP MOTION_EMERGENCY_STOP MOTION_EMERGENCY_ABORT
FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

40102 Encoder zero mark not found during homing

Cause

The encoder zero mark was not found because:

- The difference between the reference output cam and the encoder zero mark is outside the permissible range
- Limit switch monitoring system has responded
- The reference deceleration velocity is too high
- Homing with encoder zero mark or external zero mark for drive simulation (.Encoder_N.encoderIdentification = SIMULATION) is not possible

Remedy

Check the following:

- Permissible range
- Hardware configuration
- And reduce the deceleration velocity.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40103 Reference data incorrect (Parameter1: /1/%d)**Cause**

The configured axis data and the selected parameters in the homing command are inconsistent with one another.

Meaning of alarm parameters

Parameter 1	
1	'ENABLE_OFFSET_OF_ABSOLUTE_ENCODER' has been selected in the homing command but an incremental encoder is configured.
2	'ACTIVE_HOMING' or 'PASSIVE_HOMING' has been selected in the homing command, but an SSI encoder is configured.
3	'ACTIVE_HOMING' has been selected in the homing command, but 'NO_REFERENCE' was configured for 'homingMode' in the configuration data for the encoder.
4	'ACTIVE_HOMING', 'PASSIVE_HOMING' or 'ENABLE_OFFSET_OF_ABSOLUTE_ENCODER' has been selected in the homing command, but 'NO_SENSOR' was selected for 'encoderType' in the configuration data for the encoder.
5	Traversing distance monitoring up to the reference point switch is configured in the configuration data, but the configured maximum distance to be traversed is zero.
6	The homing approach velocity is zero.
7	The homing entry velocity is zero.
8	The homing reduced velocity is zero.
9	'SENSOR_POSITION_DIFFERENCE_MEASUREMENT' has been selected for 'encoderType' in the configuration data for the encoder. Homing is not possible in this encoder mode.
10	Homing is not possible when the actual value is specified using the 'sensorSettings.actualValue' system variable.
11	The resulting home position offset is outside the displayable axis position.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Check the configuration data and the command parameters for homing.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40104 Error occurred while setting the software limit switches (Parameter1: /1/%d)**Cause**

The software limit switches are programmed incorrectly.

Meaning of alarm parameters

Parameter 1:	
0	Negative switch is greater than positive switch when the axis is not a modulo axis.
1	Current set position is not in programmed range. The software limit switch was deactivated.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Reprogram the software limit switches.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_STOP

Settable local reactions

MOTION_EMERGENCY_STOP MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP
OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

40105 Position limited to software limit switch (Parameter1: /1/%d)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

The programmed position has been limited to the software limit switch.

Meaning of alarm parameters

Parameter 1:	
0	Negative switch
1	Positive switch

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Check the program code for the motion.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

END_OF_MOTION_STOP

Settable local reactions

END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40106 Software limit switch (Parameter1: /1/%d) reached**Additional references**

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

The software limit switch has been approached during a motion sequence. If valid actual values are present for a speed-controlled procedure, these serve as limits for the software end position monitoring.

Meaning of alarm parameters

Parameter 1:	
0	Negative switch
1	Positive switch

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Check the program code for the motion.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_ABORT

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40107 Software limit switch (Parameter1: /1/%d) will be crossed

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

The software limit switch has been crossed. If valid actual values are present for a speed-controlled procedure, these serve as limits for the software end position monitoring.

Meaning of alarm parameters

Parameter 1:	
0	Negative switch
1	Positive switch

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Check the program code for the motion.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40108 Axis is not homed

Cause

A command requiring a homed axis was passed to an axis that is not homed.

Remedy

Home the axis.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40109 Error occurred while synchronizing two encoders (reason: /1/%d)

Cause

An attempt to synchronize two encoders has failed.

Meaning of alarm parameters

Reason	
0	The reference encoder is not configured or is defective.
1	The encoder to be synchronized is not configured or is defective.
2	Function not possible as only one encoder has been configured.
3	Illegal correction of the active encoder.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

- Check the command parameters.
- Configure the encoder.
- Remedy the fault on the encoder.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40110 Error triggered on slave during synchronous operation (error number: /1/%d, slave stopped: /2/%d)

Additional references

Further information is provided in the Function Manual:

- Technology Objects Synchronous Operation, Cam and
- in the online help.

Cause

An error was triggered on a slave during synchronous operation and reported to the master.

Meaning of alarm parameters

Error number:	Error reported by slave:
1	Synchronous operation setpoint tolerance exceeded.
2	Synchronous operation actual-value tolerance exceeded.
3	General slave axis error.

Slave stopped:	Indicates whether the slave axis has switched to Stop mode:
0	The slave axis has not switched to Stop mode.
1	The slave axis has switched to Stop mode.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT

Remedy

Check the following:

- Configuration data for synchronous operation monitoring on the slave
- Programming (dynamic parameters, synchronous operation connection)
- System variables

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_ABORT

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE NONE

Diagnostics buffer entry

No

40111 Internal traversing range limit (Parameter1: /1/%d) reached**Cause**

The internal traversing range limit has been approached during a motion sequence.

Meaning of alarm parameters

Parameter 1:	
0	Negative internal traversing range limit
1	Positive internal traversing range limit

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT

Remedy

Check the program code for the motion.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_ABORT

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40112 Internal traversing range limit (Parameter1: /1/%d) will be crossed

Cause

The internal traversing range limit has been crossed.

Meaning of alarm parameters

Parameter 1:	
0	Negative internal traversing range limit
1	Positive internal traversing range limit

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT

Remedy

Check the program code for the motion.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40120 Programmed pressure is being limited

Cause

The system is limiting the programmed pressure to the maximum permissible pressure.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40121 Programmed pressure increase is being limited

Cause

The system is limiting the programmed pressure increase to the maximum permissible pressure increase.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40122 Programmed pressure increase is zero

Cause

- The programmed pressure increase is zero.
- The specified pressure characteristic cannot be calculated.

Remedy

- Program a value other than zero.
- If USER_DEFAULT is referenced, a value not equal to zero must be programmed in the assigned system variable.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_ABORT

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40123 Maximum pressure increase is zero

Cause

- The limit value for the pressure increase is zero.
- The specified pressure characteristic cannot be calculated.

Remedy

Program a value other than zero in the dynamic limit values.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_ABORT

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40124 Offset cannot be fully compensated (reason: /1/%d)**Cause**

The cycle clock offset for a synchronous operation group cannot be compensated completely on the master side.

Meaning of alarm parameters

Reason	
1	The determined cycle clock offset is greater than the maximum permissible setpoint output delay.
2	An already active offset compensation cannot be reduced to a smaller offset as a result of reconfiguring a slave interconnection.
3	A setpoint output delay can only be configured when the axis is at a standstill.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

For reason:	
= 1:	Not necessary, for information only.
= 2:	Restart this axis.
= 3:	Stop the motion of this axis.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40125 Master setpoint output delay deactivated

Cause

This master value source operates without a master-side setpoint output delay.
The setpoint output delay on the master side was activated for at least one interconnected slave axis.
The synchronous operation relationship between the master value source and the slave axis is not operating synchronously.

Remedy

Activate the master-side setpoint output delay of the master value source.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40126 Tolerance of the axis-specific synchronous setpoints exceeded**Cause**

The configured axis-specific synchronization setpoint tolerance has been exceeded while maintaining the dynamic limit values.

Remedy

Check the dynamic conditions for the path/synchronous motion. This involves:

- Check the dynamic parameters
- Check the configured units and the internal representation accuracy. Increase the configured tolerance.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_ABORT

Settable local reactions

NONE MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP
OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

40127 Dynamic response of the axis-specific synchronous setpoints cannot be attained (reason: /1/%d)

Cause

Specified dynamic response cannot be adhered to.

Meaning of alarm parameters

Reason:	
0	The resulting axis-specific synchronized velocity setpoint has been reduced to the current valid limit value.
1	The resulting axis-specific synchronized acceleration setpoint has been reduced to the current valid limit value.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

- For substituted motion: For information only
- Allow for the current active (resulting) limitations when programming the dynamic response parameters.
- Increase the dynamic response parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

40128 Home position offset cannot be retracted**Cause**

The home position offset cannot be retracted because 'homing only in positive direction' or 'homing only in negative direction' is set. The retraction of the home position offset, however, must be made in the opposite direction to the set direction.

Remedy

- Check whether the retraction of the home position offset is made in the configured homing direction.
- Check whether the required braking distance after transferring the homing signal is larger than the home position offset.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40129 Home position offset violates the internal traversing range limit (reason: /1/%d)

Cause

Homing have been canceled because the offset is greater than the internal traversing range limit.

Meaning of alarm parameters

Reason:	
0	The offset is too great.
1	The axis value is too great.

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT

Remedy

Check the set offset of the reference point and the current position value of the axis.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40201 Synchronous operation tolerance exceeded on gear axis (active monitoring: /1/%d)**Additional references**

Further information is provided in the Function Manual:

- Technology Objects Synchronous Operation, Cam and
- in the online help.

Cause

The configured synchronous operation tolerance has been exceeded while maintaining the dynamic limit values.

Meaning of alarm parameters

Active monitoring:	Indicates which synchronous operation monitoring is active.
1	Setpoint monitoring
2	Actual value monitoring

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Check the dynamic conditions for synchronous operation. This involves:

- Checking the synchronous operation connections, ratios, and cam mechanism
- Checking the dynamic parameters for synchronization and desynchronization
- Checking the configured units and the internal representation accuracy
- Increase the configured tolerance.
- Set the `syncingMotion.masterReversionTolerance` to the value 0.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_ABORT

Settable local reactions

NONE MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP
OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

40202 **Dynamic response of the synchronous operation setpoints (type: /1/%d) cannot be achieved (reason: /2/%d)**

Cause

Specified dynamic response cannot be adhered to.

Meaning of alarm parameters

Type	
1	Synchronous operation position
2	Synchronous operation velocity

Reason	
0	The resulting synchronous-operation setpoint velocity has been reduced to the limit that is currently valid.
1	The resulting synchronous-operation acceleration setpoint has been reduced to the current valid limit.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT

Remedy

- For superimposed motion:
Allow for the current active (resulting) limitations when programming the dynamic response parameters.
- Increase the dynamic response parameters.
- For time-based synchronization, the dynamic response parameters on the synchronous object must be decreased or the dynamic response parameters on the slave axis (mechanical limits) must be increased.
- For master-value-based synchronization, the synchronization length must be increased or the master velocity must be decreased.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40301 Loss of connection to slave (assignment: /1/%d)

Cause

- The connection to an interconnected slave failed.
- The slave is located on a distributed controller or has been assigned to a different execution level than the master.
- Master values of the master cannot be communicated to the slave for the duration of the connection failure. During the communication malfunction, a Synchronous operation monitoring response on the slave cannot be communicated to the master.

Meaning of alarm parameters

Assignment	
1	The failed slave is located on an assigned controller.
2	The failed slave has been assigned to a different execution level than the master.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Assignment 1:

- Ensure that the associated controller is activated, the slave is configured as distributed, and communication is permitted by the operating mode of the associated controller.
- Check the connection for mechanical damage, equivalence of configured network topology, firm contact by the plug connector, and, if necessary, correct electrical cable terminations.

Assignment 1 and 2:

- Make sure that the failed slave was not being reloaded at the time the error was detected.
- Monitoring of the connection is set in the technology object configuration. The master and slave must have the same settings selected.

Assignment 2:

- Check whether an overflow was diagnosed for the execution level of the assigned slave.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40302 Sign-of-life monitoring to the slave in the distributed Synchronous operation switched off

Cause

- The sign-of-life monitoring for the slave connection to an assigned controller has been deactivated.
- Monitoring is configured differently on the master and slave. As a result, the connection is established without sign-of-life monitoring.

Remedy

Use identical configuration settings in the master and slave for sign-of-life monitoring of the connection.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40303 Different local and slave interpolation cycle clock**Cause**

The master and slave are required to have a common interpolation cycle clock for distributed Synchronous operation. However, when establishing the connection between technology objects, different cycle clock settings were defined for interpolation.

Remedy

Use identical cycle clock settings for interpolation on the master and slave sides.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40304 Offset cannot be determined

Cause

The offset for the slave cannot be determined. This can be caused by configuring the PROFIBUS DP without equidistance or a ratio of interpolator cycle clock to PROFIBUS DP cycle clock greater than 64.

Remedy

- Select equidistant mode on the PROFIBUS DP.
- Select a suitable IPO / DP cycle clock ratio setting.
- Deactivate offset compensation on the technology objects involved. Deactivate compensation only if other remedies do not eliminate the malfunction. Deactivating the offset compensation limits the accuracy of motion control.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40305 Synchronism loss to slave(s) on assigned controller in distributed Synchronous operation**Cause**

There is no isochronous operation between the local and distributed controller. The local master and the assigned synchronous object thus have no common time reference system.

When clock synchronism is lost, the parameters determined for this connection are no longer valid and further operation is not permissible.

Remedy

- Select isochronous mode for PROFIBUS DP.
- Select a suitable IPO / DP cycle clock ratio setting (not to exceed 64).
- Make sure that the bus cycle clock is an integer multiple of the internal DP cycle clock.
- Make sure that the interpolation cycle clock on the connected controllers is an integer multiple of the bus cycle clock.
- Deactivate offset compensation on the technology objects involved. Deactivate compensation only if other remedies do not eliminate the malfunction. Deactivating the offset compensation limits the accuracy of motion control.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50002 Limiting frequency of measuring system exceeded

Cause

The limiting frequency of the encoder has been exceeded.

Remedy

- Check the encoder connection.
- Check the parameterized encoder limit frequency in the encoder configuration data ('FrequencyLimit.EncoderFrequencyLimit') and, if necessary, adjust the value entered there to match the manufacturer documentation for the encoder being used.
- Reduce the traversing velocity of your drive to a value adapted to the encoder limit frequency. If necessary, amend the maximum velocity ('MaxVelocity') parameterized in the configuration data as well.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50003 Limitation of speed set acceleration is active**Cause**

The speed set acceleration is being limited.

Remedy

Check the following:

- Mechanical configuration
- Encoder connection
- Configuration of the speed setpoint interface
- Maximum permissible acceleration rates in the configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50005 Speed setpoint monitoring active (Parameter1: /1/%d)

Cause

The speed setpoint is being limited.

Meaning of alarm parameters

Parameter 1:	Specification of the limitation
0	Manipulated variable (speed setpoint) limit reached.
1	Velocity-related definition range limit (in front of cam in the case of hydraulic axes) reached.
2	Value range limit (for hydraulic axes only) reached.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Check the following:

- Mechanical configuration
- Encoder connection
- Configuration of the speed setpoint interface
- Maximum permissible velocity rates in the configuration data
- The maximum velocity of the axis (configuration data: `TypeOfAxis.MaxVelocity`).

To find faults faster: Trace the `motionStateData.actualVelocity` and `actorData.totalSetPoint` system variables.

Acknowledgement/reaction

Reset fault memory / `START TechnologicalFaultTask`

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

50006 Zero mark monitoring

Cause

Zero mark monitoring has been activated.

Remedy

Check the following:

- Mechanical configuration and the encoder configuration
- Error messages of the encoder

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

OPEN_POSITION_CONTROL

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50007 Hardware limit switch (Parameter1: /1/%d, Parameter2: /2/%d)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

Hardware limit switch has been violated.

Meaning of alarm parameters

Parameter 1:	
1	Limit switch reached
2	Polarity reversal on limit switch (can only be deleted by reconfiguring the technology object or Power On)
3	Illegal retraction direction
4	Both limit switches are active

Parameter 2:	
0	Not relevant
1	Limit switch in positive traversing direction
2	Limit switch in negative traversing direction

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT

Remedy

- Check the mechanical configuration.
- Check the limit switches.
- If an error has occurred in the program, change the program or use the software limit switches.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50008 Timeout while waiting for standstill signal

Cause

Timeout occurred while waiting for standstill signal.

Remedy

Check the following:

- Configuration of 'Axis.TypeOfAxis.StandStillSignal'
- Correct operation of the control loop

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50009 Position limit switch active: (Parameter1: /1/%d) only one traversing direction possible**Additional references**

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

A positive (Parameter 1 = 1) or negative (Parameter 1 = 2) hardware limit switch is active or has been crossed. Motion is possible in the positive or negative traversing direction only.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

- Check the mechanical configuration.
- Check the limit switches.
- If an error has occurred in the program, change the program or use the software limit switches.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50010 **Error occurred while reading or writing data set (category: /1/%d, error number: /2/%d)**

Cause

An error occurred while reading or writing.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system

Error number:	Specification of the error
1000	General configuration error
1001	Communication error during data transmission
2000	Error in actuator system configuration.
2001	Outside of manipulated variable limits.
2003	Error in load gear factors.
2004	Error in maximum velocity.
2005	Maximum velocity greater than maximum attainable velocity.
2006	Drive not suitable for torque-controlled or torque-limited operation
2007	Linear stepper motor not implemented
2008	Right-justified format for direct output not implemented
2009	Illegal value in resolution for direct output
2010	Missing configuration data for actuator system
2011	Missing configuration data for additional actuator system
2012	The backstop range (min to max) does not contain a zero point
2014	Drive or telegram not suitable for torque superimposition
2015	Gear ratios less than or equal to 0.
2016	Resolution for stepper motor is 0.
2017	Illegal value for configuration data maxSpeed.
2018	Illegal value for configuration data maxVelocity.
2019	Range limits of configuration data exceeded.
2020	Range limits for maximum acceleration exceeded.
2021	Illegal values for dead zone compensation.
2022	Illegal values for sliding friction compensation.
2023	Illegal values for backstop.
2024	Error in friction compensation parameter
2025	DIRECT output: Analog and bit driver of a shared output are parameterized in different ways on the various axes
2026	Illegal value for pulsesEnable
2027	Illegal value for maxSpeed ($\text{maxSpeed} \geq 2 * \text{nominalSpeed}$)
2028	Illegal value for maxSpeed ($\text{maxSpeed} \leq 10 \text{ V} / \text{maxSetPointVoltage} * \text{nominalSpeed}$)
2029	Illegal value in TypeOfAxis.SetPointDriverInfo
2030	A parameter in DriveData is not correct.
2031	A parameter in LinearMotorDriveData is not correct.
2032	A parameter in StepMotorDriveData is not correct.
2033	A parameter in QOutput.EnableBit is not correct.
2034	A parameter of the technological data block is not correct.
2035	A parameter of the safety data block is not correct.
2036	A parameter of the operating characteristics data block is not correct.
2037	Cannot change the configuration during the drive adaptation.
2038	Illegal value for the manipulated variable filter
3000	Error in encoder system.

3001	Illegal value in Simulation.simulationMode
3002	The set axis type is invalid - illegal value in TypeOfAxis.typeOfAxis
3003	The set drive leadscrew pitch is invalid - illegal value in Leadscrew.pitchVal
3004	The set modulo activation is invalid - illegal value in Modulo.state
3005	Illegal specification(s) in the encoder data (incremental, absolute, etc.).
3006	The set number of encoders is invalid - illegal value in .NumberOfEncoders.numberOfEncoders
3007	Illegal incremental encoder number.
3008	Illegal data combination for homing with incremental encoder.
3009	The configuration of the 'Backlash compensation' encoder function is faulty - illegal value in .Encoder_N.IncBacklash or .Encoder_N.AbsBacklash
3010	Illegal data on SSI encoder.
3011	The configuration of the 'Absolute encoder adjustment' encoder function is faulty - illegal value in .Encoder_N.AbsHoming
3012	The configuration of the 'Counting direction of the raw actual encoder value' encoder function is faulty - illegal value in .Encoder_N.InversCountDirection.encoderFeedbackPolarity
3013	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptDrive
3014	The configuration of the 'Encoder limit frequency monitoring' encoder function is faulty - illegal value in .Encoder_N.FrequencyLimit.encoderFrequencyLimit
3015	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptLoad
3016	The load gear ratio configuration of a data set is faulty - illegal value in .DataSet_N.Gear
3017	Encoder data sequence and number of encoders do not match.
3018	The configuration of an encoder is incomplete
3019	The set mounting location of the encoder is invalid - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3020	The encoder simulation is either not supported or it is not activated simultaneously on the actuator and the sensor - illegal value in .Encoder_N.encoderIdentification or .SetPointDriverInfo.mode
3021	The number of configured data sets or the number of the active data set after the startup is invalid - illegal value in DataSet_N.numberOfDatasets or in DataSet_N.initDataSet
3022	The number of the encoder assigned to a data set is invalid - illegal value in DataSet_N.EncoderNumber.encoderNumber
3023	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptExtern
3024	The configuration of the encoder measuring wheel circumference is faulty - illegal value in .Encoder_N.pathPerRevolution.length
3025	The configuration of the 'Actual velocity monitoring' function is faulty - illegal value in .ActualVelocityMonitoring
3026	Illegal encoder number in absolute encoder configuration.
3027	The set message format of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absMessageFormat
3028	The set baud rate of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.baudRate

3029	The set protocol format of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absState
3030	The number of the encoder assigned to a data set is invalid - illegal value in DataSet_N.EncoderNumber.encoderNumber
3031	The encoder assigned to a data set does not exist - illegal value in DataSet_N.EncoderNumber.encoderNumber
3032	The load gear ratio numerator configuration of a data set is faulty - illegal value in .DataSet_N.Gear.numFactor
3033	The load gear ratio denominator configuration of a data set is faulty - illegal value in .DataSet_N.Gear.denFactor
3034	An encoder references a data set that does not exist
3035	An encoder references a data set that does not exist
3036	Encoder not configured.
3037	Homing with encoder zero mark and ENDAT encoder is not possible - illegal value in .Encoder_N.IncHomingEncoder.homingMode
3038	Homing to the falling edge of an external zero mark on an onboard input is not possible - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3039	Flying homing with encoder zero mark and ENDAT encoder is not possible - illegal value in .Encoder_N.IncHomingEncoder.passiveHomingMode
3040	Flying homing to the falling edge of an external zero mark on an onboard input is not possible - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3041	The (modified) encoder configuration does not permit any determination of the factors for converting the encoder raw actual values into actual position and velocity values or for converting the position and velocity setpoints into DSC encoder raw actual values, taking account of the mechanical relationships.
3042	Illegal data combination for homing with external encoder.
3043	The incremental position of the encoder is outside the permissible value range.
3044	The incremental position of the encoder is outside the permissible value range.
3045	The configuration of the linear encoder resolution is faulty - illegal value in .Encoder_N.Resolution
3046	The configuration of the encoder actual velocity values filter is faulty - illegal value in .Encoder_N.Filter
3047	The configuration of the encoder actual velocity values filter for the interpolator is faulty - illegal value in .SmoothingFilter
3048	The configuration of the encoder actual velocity values filter for the actual value coupling (Synchronous operation) is faulty - illegal value in .Extrapolation.Filter
3049	The set number of the DSC encoder is invalid - illegal value in .NumberOfEncoder.dscEncoderNumber
3050	The configuration of the encoder system has not been completed correctly.
3051	The configuration of the stepper motor encoder data is faulty - illegal value in .Encoder_N.StepMotorMonitoring
3052	The set encoder actual value type does not match its configuration or the technology object type - illegal value in .Encoder_N.encoderValueType
3053	Homing on a stepper motor is only possible with an external zero mark - illegal value in .Encoder_N.incHomingEncoder.homingMode
3054	Flying homing on a stepper motor is only possible with an external zero mark - illegal value in .Encoder_N.incHomingEncoder.passiveHomingMode

3055	The configuration of a stepper motor with encoder is only possible on a real axis - illegal value in <code>.Encoder_N.encoderMode</code>
3056	Only one encoder may be configured on a stepper motor - illegal value in <code>.NumberOfEncoders.numberOfEncoders</code>
3057	The DSC encoder is not a PROFIBUS encoder - illegal value in <code>.NumberOfEncoders.dscEncoderNumber</code> or <code>.Encoder_N.encoderIdentification</code>
3058	The DSC encoder telegram does not support DSC - illegal value in <code>.Encoder_N.DriverInfo.telegramType</code>
3059	Set modulo value in <code>Modulo.length</code> is smaller than an increment.
3060	The encoder configuration for the position difference measurement is faulty - illegal value in <code>.Encoder_N.PositionDifferenceMeasurement</code>
3061	The set limits for the position difference supplied by the encoder are invalid - illegal value in <code>.Encoder_N.PositionDifferenceMeasurement.Range</code>
3062	The activation of the 'Backlash compensation' encoder function is only possible for motor encoders - illegal value in <code>.Encoder_N.AssemblyBase.assemblyBase</code>
3063	The configuration of a TO externalEncoder for the operation as encoder on a stepper motor is not possible - illegal value in <code>.Encoder_N.encoderMode</code>
3064	The set resolution of the encoder is invalid - illegal value in <code>.Encoder_N.IncEncoder.incResolution</code>
3065	The set resolution of the encoder is invalid - illegal value in <code>.Encoder_N.AbsEncoder.absResolution</code>
3066	The set multiplication factor for the cyclic actual value of the encoder is invalid - illegal value in <code>.Encoder_N.IncEncoder.incResolutionMultiplierCyclic</code>
3067	The set multiplication factor for the cyclic actual value of the encoder is invalid - illegal value in <code>.Encoder_N.AbsEncoder.absResolutionMultiplierCyclic</code>
3068	The assignment of a velocity encoder to a data set on a positioning axis is not permitted - illegal value in <code>DataSet_N.EncoderNumber.encoderNumber</code>
3069	The configuration of the 'Tolerance of an encoder error' encoder function is invalid - illegal value in <code>.Encoder_N.SensorControlConfig.tolerateSensorDefect</code>
3070	The configuration of the 'Direct reading of the actual speed value (Nact) from the PROFIDrive telegram' encoder function is faulty - illegal value in <code>.Encoder_N.NistDriverConfig</code>
3071	The configuration of the reference cam is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.referenceCamType</code>
3072	The configuration of the negative reversing cam is faulty - illegal value in <code>.Homing.ReverseCamNegative</code>
3073	The configuration of the positive reversing cam is faulty - illegal value in <code>.Homing.ReverseCamPositive</code>
3074	The set edge of the external zero mark does not match the set homing approach direction - illegal value in <code>.Encoder_N.incHomingEncoder.approachDirection</code> or <code>.Homing.direction</code>
3075	The use of reversing cams in the selection of <code>.Homing.direction = 'POSITIVE_ALL_HOMING'</code> or <code>.Homing.direction = 'NEGATIVE_ALL_HOMING'</code> as homing approach direction is not permitted - illegal configuration in <code>.Homing.ReverseCamNegative._type</code> or <code>.Homing.ReverseCamPositive._type</code>
3076	The set approach direction of the zero mark or edge of the external zero mark does not match the set homing approach direction - illegal value in <code>.Encoder_N.IncHomingEncoder.approachDirection</code> or <code>.Homing.direction</code>

3077	The use of hardware limit switches as reference cams in the selection of .Homing.direction = 'POSITIVE_ALL_HOMING' or .Homing.direction = 'NEGATIVE_ALL_HOMING' as homing approach direction is not permitted - illegal value in .Encoder_N.IncHomingEncoder.referenceCamType
3078	The configuration of the 'Ready bit' encoder function is faulty - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring
3079	The configuration of the 'Error bit' encoder function is faulty - illegal value in .Encoder_N.AnalogSensor.ErrorStateMonitoring
3080	The encoder Ready bit is in the range of the actual encoder value data bit - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress and/or .Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber
3081	The encoder Error bit is in the range of the actual encoder value data bit - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress and/or .Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber
3082	The configuration of the external zero mark interface is faulty - illegal value in .Encoder_N.incHomingEncoder.StateDriveExternalZeroMark
3083	The configuration of the 'Update counter' encoder function is faulty - illegal value in .Encoder_N.AnalogSensor.UpdateCounter
3084	The encoder Update counter bits are in the range of the actual encoder value data bits - illegal value in .Encoder_N.AnalogSensor.UpdateCounter.logAddress and/or .Encoder_N.AnalogSensor.UpdateCounter.bitNumber
3085	The encoder Update counter bits and the Read bit overlap - illegal value in .Encoder_N.AnalogSensor.UpdateCounter.logAddress and/or .Encoder_N.AnalogSensor.UpdateCounter.bitNumber
3086	The encoder Update counter bits and the Error bit overlap - illegal value in .Encoder_N.AnalogSensor.UpdateCounter.logAddress and/or .Encoder_N.AnalogSensor.UpdateCounter.bitNumber
3087	The configuration of the 'Direct reading of the actual speed value (Nact) from the PROFIDrive telegram' encoder function is faulty - illegal value in .Encoder_N.SensorNist
3088	The configuration of the encoder with the identification 'SET_ACTUAL_VALUE' is faulty - illegal value in .Encoder_N.SensorSetActualValue
3089	The configuration of the encoder actual position values filter is faulty - illegal value in .Encoder_N.PositionFilter
3090	The configuration of the encoder actual position values filter for the actual value coupling (Synchronous operation) is faulty - illegal value in .Extrapolation.ExtrapolationPositionFilter
3091	The set multiplication factor for the cyclic actual value is not consistent with the known value on the drive encoder - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic or .Encoder_N.absEncoder.absResolutionMultiplierCyclic or .Encoder_N.Resolution.multiplierCyclic
3092	The set modulo length is invalid - illegal value in Modulo.length
3093	The set modulo start value is invalid - illegal value in Modulo.startValue
3094	Homing with deactivated hardware limit switches as reversing cams is not possible - illegal value in .Homing.ReverseCamNegative._type and/or .Homing.ReverseCamPosition._type
3095	The set encoder identification is invalid - illegal value in .Encoder_N.encoderIdentification
3096	The set encoder mode is invalid - illegal value in .Encoder_N.encoderMode
3097	The set encoder type is invalid - illegal value in .Encoder_N.encoderType

3098	The set encoder system is invalid - illegal value in .Encoder_N.encoderSystem
3099	The set actual value type is invalid - illegal value in .Encoder_N.encoderValueType
3100	The set utilization status of the actual value interface is invalid - illegal value in .Encoder_N.interfaceAllocation
3101	The set encoder mode is not supported by the TO externalEncoder - illegal value in .Encoder_N.encoderMode
3102	The set actual value type is not supported by the TO externalEncoder - illegal value in .Encoder_N.encoderValueType
3103	Only the 'VELOCITY' actual value type is permitted on a drive axis - illegal value in .Encoder_N.encoderValueType
3104	The set encoder mode does not match the set combination of encoder type and encoder identification - illegal value in .Encoder_N.encoderMode
3105	The set encoder type is not supported for encoders with the set encoder identification - illegal value in .Encoder_N.encoderType
3106	The encoder configuration does not match the set combination of encoder type and encoder identification - illegal value in .Encoder_N.encoderMode or .Encoder_N.encoderSystem or .Encoder_N.encoderValueType
3107	The configuration of the encoder for the position difference measurement requires the setting of the 'POSITION' actual value type - illegal value in .Encoder_N.encoderValueType
3108	Only encoders of the 'SENSOR_INCREMENTAL' type are supported on an axis of the 'REAL_AXIS_WITH_SIGNAL_OUTPUT' type - illegal value in .Encoder_N.encoderType
3109	Only the 'SENSOR_ABSOLUTE' encoder type is supported on an encoder with the 'SET_ACTUAL_VALUE' encoder identification - illegal value in .Encoder_N.encoderType
3110	The set combination of encoder type and encoder mode is not supported within the context of a linear encoder - illegal value in .Encoder_N.encoderType and .Encoder_N.encoderMode
3111	The configuration of a linear encoder on a rotary axis is not possible - illegal value in .Encoder_N.encoderSystem
3112	The configuration of the reference cam zero mark distance monitoring is faulty - illegal value in .Encoder_N.IncHomingEncoder.beroDistance or .Encoder_N.IncHomingEncoder.enableZeroMarkDistance
3113	The set home position offset is invalid - illegal value in .Encoder_N.IncHomingEncoder.proceedShiftPos
3114	The configuration of the reference cam interface is faulty - illegal value in .Encoder_N.incHomingEncoder.bitNumberBero or .Encoder_N.incHomingEncoder.logAddressBero
3115	The set zero mark approach direction is invalid - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3116	Homing setting faulty: Zero mark approach direction is invalid - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3117	The configuration of the reference cam interface is faulty - illegal value in .Encoder_N.incHomingEncoder.passiveBitNumberBero or .Encoder_N.incHomingEncoder.passiveLogAddressBero
3118	The set homing mode is invalid - illegal value in .Encoder_N.IncHomingEncoder.homingMode

3119	The set homing mode is invalid - illegal value in .Encoder_N.IncHomingEncoder.passiveHomingMode
3120	The set zero mark approach direction does not match the set homing mode - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3121	The set external zero mark approach direction does not match the set homing mode - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3122	The set zero mark approach direction does not match the set homing mode - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3123	The set external zero mark approach direction does not match the homing mode - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3124	The set type of the reference cam is invalid - illegal value in .Encoder_N.IncHomingEncoder.referenceCamType
3125	The set reference cam type does not match the set zero mark approach direction - illegal value in .Encoder_N.IncHomingEncoder.referenceCamType
3126	The resource required for the reference cam cannot be requested - illegal value in .Encoder_N.IncHomingEncoder.logAddress and/ or .Encoder_N.IncHomingEncoder.bitNumber or no memory available
3127	The resource required for the reference cam cannot be requested - illegal value in .Encoder_N.IncHomingEncoder.passiveLogAddress and/ or .Encoder_N.IncHomingEncoder.passiveBitNumber or no memory available
3128	The resource required for the external zero mark cannot be requested - illegal value in .Encoder_N.IncHomingEncoder.StateDriveExternalZeroMark.logAddress and/ or .Encoder_N.IncHomingEncoder.StateDriveExternalZeroMark.bitNumber or no memory available
3129	The resource required for the positive reversing cam cannot be requested - illegal value in .Homing.ReverseCamPositive.logAddress and/ or .Homing.ReverseCamPositive.bitNumber or no memory available
3130	The resource required for the negative reversing cam cannot be requested - illegal value in .Homing.ReverseCamNegative.logAddress and/ or .Homing.ReverseCamNegative.bitNumber or no memory available
3131	The resource required for the 'Update counter' of the analog encoder cannot be requested - illegal value in .Encoder_N.AnalogSensor.UpdateCounter.logAddress and/ or .Encoder_N.AnalogSensor.UpdateCounter.bitNumber or no memory available
3132	The resource required for the 'Read state bit' of the analog encoder cannot be requested - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress and/ or .Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber or no memory available
3133	The resource required for the 'Error state bit' of the analog encoder cannot be requested - illegal value in .Encoder_N.AnalogSensor.ErrorStateMonitoring.logAddress and/ or .Encoder_N.AnalogSensor.ErrorStateMonitoring.bitNumber or no memory available
3134	The configuration of the actual value interface is faulty - illegal value in .EncoderN.DriverInfo
3135	The configuration of the encoder actual value interface is faulty - illegal value in .EncoderN.DriverInfoDirectIncremental
3136	The configuration of the sensor measuring gear ratio is faulty - illegal value in .Sensor.ConversionDataAdapt

3137	Only an encoder with the 'DRIVE' encoder mounting type is permitted as DSC encoder - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3138	An encoder with the encoder value type 'POSITION_AND_PROFIDRIVE_ENCODER_NIST_B' is supported only on a TO positioning axis or as TO external encoder in conjunction with the encoder identification 'DPMASTER' or 'SIMULATION' and the encoder telegram type 'DP_TEL83_STANDARD' - illegal TO type or illegal value in .Encoder_n.encoderIdentification or in .Encoder.DriverInfo.telegramType
3139	The number assigned to an encoder lies outside the number of the last configured encoder 'NumberOfEncoders.numberOfEncoders'
3140	The configuration of the encoder configuration data adaptation is faulty - illegal value in .Encoder_N.dataAdaption
3141	Both the adapted and the configured encoder configuration are invalid
3143	The multiplication factor for the cyclic actual value and/or the multiplication factor for the absolute value in conjunction with the configured encoder mode (Encoder_N.encoderMode) is invalid - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic or .Encoder_N.absEncoder.absResolutionMultiplierCyclic and/ or .Encoder_N.Resolution.multiplierCyclic or Encoder_N.Resolution.multiplierCyclic
4000	Error in controller.
4001	Negative acceleration specified.
4002	Unknown 'FipoType' requested.
4003	Error in runtime system, ratio of controller cycle clock to interpolator cycle clock is incorrect.
4004	Requested filter order not possible.
4005	Reserve for later use.
4006	Maximum limit is lower than minimum.
4007	Reserve for later use.
4008	Error in configuration data for controller.
4009	Reserve for later use.
4010	Reserve for later use.
4011	Reserve for later use.
4012	Reserve for later use.
4013	Requested controller type is not available.
4014	Error in controller factors.
4015	Precontrol activated, kpc less than 0 or kpc greater than 150.
4016	Reserve for later use.
4017	Reserve for later use.
4018	Reserve for later use.
4019	Reserve for later use.
4020	Reserve for later use.
4021	Reserve for later use.
4022	Reserve for later use.
4023	Precontrol activated, kpc less than or equal to 0.
4024	Reference model monitoring: Error in value of tolerance window.
4025	Error in limit value for standstill signal.

4026	Error in parameter for positioning monitoring.
4027	Simultaneous activation of reference model and dynamic following error monitoring not allowed.
4028	Sampling time parameter calculated incorrectly.
4029	Too many data sets requested.
4030	Error in runtime system, ratio of controller cycle clock to interpolator cycle clock is incorrect.
4031	Error in time constant for emergency ramp generator (positionTimeConstant).
4032	Precontrol active, but fine interpolator type is DIRECT.
4033	Default data set outside limits.
4034	Maximum number of data sets not possible.
4035	Unknown data set change mode.
4036	Following error monitoring not activated/deactivated in all data sets.
4037	Reference model monitoring not activated/deactivated in all data sets.
4038	Different controller type in data sets.
4039	Precontrol activated/deactivated differently in data sets.
4040	Time constant is 0.
4041	Error in dynamic adaptation parameter.
4042	System variable initialization could not be read.
4043	Driver simulation not implemented.
4044	Connection for stepper motors not implemented.
4045	Maximum velocity cannot be attained; maximum drive speed or normalization factor is incorrect.
4046	DSC requires motor encoder data to be specified.
4047	Drive or telegram type not suitable for DSC.
4048	Error in clamping monitoring parameter. 'No detection' is not permitted for the fixed endstop detection
4049	A sensor is required to monitor actual velocity using 'DynamicControl'.
4050	Inconsistent PROFIBUS parameterization; the sum of Ti and To is greater than a DP cycle
4051	Error in manipulated variable limitation parameter of force/pressure controller
4052	Error in force/pressure entry monitoring parameter
4053	Error in force/pressure end value monitoring parameter
4054	Force/pressure entry monitoring tolerance less than pressure end value monitoring tolerance
4055	Error in force/pressure control deviation monitoring parameter
4056	Different activation/deactivation of control deviation monitoring of force/pressure controller in data sets not permitted
4057	Different manipulated variable inversion of force/pressure controller in data sets not permitted
4058	Different force/pressure sensor types in data sets not permitted
4059	Different activation/deactivation of anti-windup in data sets not permitted
4060	Kd factor of PID_ACTUAL controller is greater than 1
4061	Time constant of process model T1 less than or equal to T2
4062	Illegal actuator type selection
4063	Error in sliding friction compensation parameter

4064	Error in offset injection parameter
4065	Precontrol for force/pressure control not implemented
4066	Error in standstill monitoring parameter
4067	Following error monitoring: minVelocity cannot be greater than or equal to maxVelocity
4068	Maximum buffer length of balancing filter (Mode_2) is reached or exceeded. As the servo cycle is included in the calculation of the equivalent time constant of the speed control loop (=velocityTimeConstant), the maximum value of this time constant is limited to 16 servo cycles. The buffer length of the lag element is maximum 16.
4069	System-related dead times are less than 0 after allowing for additionalTime
4070	Controller types other than DIRECT require configuration of an encoder.
4071	Illegal values for delayTimeToActivate of standstill signal
4072	The I/O device for the positive HW limit switch is not available
4073	The I/O device for the negative HW limit switch is not available
4074	Range limits of controller parameter exceeded.
4075	Range limit of brake deceleration of emergency ramp exceeded.
4076	Range limit of equivalent time constant exceeded.
4077	Range limit for velocityTimeConstant exceeded.
4078	Error in value for QFDynamicData configuration.
4079	Error in value for reference model monitoring.
4080	Error in following error monitoring parameter
4081	Error in clamping monitoring parameter
4082	Error in value for DynamicData configuration.
4083	Error in value for PV controller configuration.
4084	Configuration data missing for controller.
4085	Error in value for SystemDeadTimeData configuration.
4086	Pressure control only possible with closed-loop speed controller
4087	DSC and compensation of valve curve not possible
4088	DSC not possible on hydraulic axes
4089	Time constants of dynamic response compensation must not be equal
4090	Incorrect value for system dead time correction
4091	Different activation of manipulated variable filter of pressure controller in data sets
4092	Different activation of dynamic response compensation in data sets
4093	Activation of DSC is not the same in all data sets
4127	enableDSCSpline is not the same in all data sets
4094	Balancing filter type is not the same in all data sets
4096	Activation of anti-windup is not the same in all data sets
4097	Activation of setpoint quantization is not the same in all data sets
4098	Activation of the reference model monitoring is not the same in all data sets
4099	Fixed endstop detection mode is not the same in all data sets
4100	Force controller is not the same in all data sets
4101	Force sensor type UNI_DIRECTION is not implemented
4102	Error in the time constant for smoothing controller parameters

4103	If encoderNumber = 0, ControllerStruct.conType must be DIRECT.
4104	The travel to fixed stop function is not possible on a QF axis.
4105	The integratorFeedbackTimeConstant cannot be less than 0
4106	Illegal value for CommandValueQuantization.value
4107	An electrical drive axis (typeOfAxis = REAL_KIND_OF_AXIS) may only have DIRECT as controller type (conType = DIRECT)
4108	Dead time of dynamic response compensation must not be zero.
4109	Time constant for smoothing manipulated variable jumps during data set changeover must not be less than zero.
4110	The parameters of the manipulated variable filter in the pressure controller are illegal.
4111	Range limit for positionTimeConstante exceeded.
4112	Force/pressure controller type not possible.
4113	Time constant for smoothing manipulated variable jumps outside the limits.
4114	The speed/velocityReference parameter must be set to NOMINAL_SPEED with active adaptation.
4115	The torque/forceReference parameter must be set to NOMINAL_TORQUE/ FORCE with active adaptation.
4116	The parameters in HWEndPos are not consistent.
4117	The setting disableModeSpecification = OFF1_AND_OFF3_MODE is only possible with a digital drive coupling.
5000	Encoder data sequence and number of encoders do not match.
5001	The set number of force/pressure sensors is invalid - illegal value in .NumberOfAdditionalSensors.number
5002	The set type of the force/pressure sensor is invalid - illegal value in .AdditionalSensor_N.additionalSensorType
5003	The actual value interface configuration of the force/pressure sensor is faulty - illegal value in .AdditionalSensor_N.DriverInfo
5004	The raw actual value weighting factors configuration of the force/pressure sensor is faulty - illegal value in .AdditionalSensor_N.ConversionData
5006	The value range limits configuration of the actual force/pressure value is faulty - illegal value in .AdditionalSensor_N.Range
5007	The configuration of the actual force/pressure value filter is faulty - illegal value in .AdditionalSensor.Filter
5008	Configuration of the force/pressure sensor not completed correctly.
5009	The number of the force/pressure sensor assigned to the data set is invalid - illegal value in .NumberOfDataSets.DataSet_N.AdditionalSensorNumber.number
5010	The sensor configuration for the force/pressure difference measurement is faulty - illegal value in .AdditionalSensor.PositionDifferenceMeasurement
5011	The number of the force/pressure sensor set as sensor A for the difference measurement is invalid - illegal value in .AdditionalSensor.PositionDifferenceMeasurement.numberSensorA
5012	The number of the force/pressure sensor set as sensor B for the difference measurement is invalid - illegal value in .AdditionalSensor.PositionDifferenceMeasurement.numberSensorB
5013	Illegal data in extrapolation configuration.

5014	The set execution cycle clock of the sensor is invalid - illegal value in Execution.executionlevel
5015	The set substitute value strategy for a technological alarm on the sensor is invalid - illegal value in .ValueOut.outputValueErrorBehaviorMode
5020	The configuration of the analog encoder actual value interface is faulty - illegal value in .Encoder_N.AnalogSensor.DriverInfo
5021	The configuration of the analog encoder actual position values filter is faulty - illegal value in .Encoder_N.AnalogSensor.PositionFilter
5022	The raw actual value weighting factors configuration of the analog encoder is faulty - illegal value in .Encoder_N.AnalogSensor.ConversionData
5023	The measuring input interface configuration for the analog encoder is faulty - illegal value in .Encoder_N.AnalogSensor.LogAddress
5030	The count value weighting factors configuration of the interval counter speed encoder is faulty - illegal value in .Encoder_N.IntervalCounterConversionData
5031	The set logical address for the count value interface of the interval counter speed encoder is faulty - illegal value in .Encoder_N.IntervalCounterConversionData.DriverInfo.logAddress
6000	The traversing distance monitoring up to the reference point switch is configured in the configuration data, but the configured maximum distance to be traversed is zero.
6001	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfMaxBufferedCommandId
6002	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfQueueCommands
6003	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfImmediateCommands
6004	Configuration of behaviourAtTheEndOfProfile not implemented
6005	Illegal value for configuration data for maximum acceleration
6006	Illegal value for configuration data for maximum jerk
6007	Illegal value for configuration data for maximum force/pressure setpoint
6008	Illegal value for configuration data for maximum force/pressure setpoint increase
6009	Illegal value for configuration data for Synchronous operation tolerance based on setpoint
6010	Illegal value for configuration data for Synchronous operation tolerance based on actual value
6011	Illegal value for configuration data for Synchronous operation tolerance activation based on setpoint
6012	Illegal value for configuration data for Synchronous operation tolerance activation based on actual value
6013	Illegal value for configuration data for profile end identification tolerance window
6014	Illegal value for configuration data for actual value extrapolation time
6015	Illegal value for configuration data for actual value coupling tolerance window
6016	Illegal value for the injection tolerance configuration (relieveWindow) at software limit switch
6017	Illegal value for the type specification configuration (monitoringAtMotionStart) at software limit switch
6018	Illegal value for configuration data for axis-specific path tolerance activation based on setpoint

6019	Illegal value for configuration data for axis-specific path tolerance based on setpoint
6020	Illegal value for configuration data for axis-specific path synchronization tolerance activation based on setpoint
6021	Illegal value for configuration data for axis-specific path synchronization tolerance based on setpoint
6022	Illegal value for configuration data driveControlConfig.releaseDisableMode (RELEASE_DISABLE drive behavior error response)
6023	Illegal value for configuration data of velocity type with master value extrapolation of actual values
6024	Illegal value for configuration data TypeOfAxis.Homing.direction, 'Approach direction during homing'
6025	Illegal value for configuration data TypeOfAxis.Homing.beroDistance, 'Maximum distance to the homing output cam'
6026	Illegal value for configuration data for Synchronous operation error message at master value
6027	Illegal value for the configuration data TypeOfAxis.DecodingConfig.directionDynamic
6028	Illegal value for the configuration data TypeOfAxis.DecodingConfig.behaviourAtTheEndOfProfile
6029	Illegal value for the configuration data TypeOfAxis.DecodingConfig.decodeSequentialMotionCommand
6030	Illegal value for the configuration data TypeOfAxis.DecodingConfig.transferSuperimposedPosition
6031	Illegal value for the configuration data TypeOfAxis.DecodingConfig.speedModeSetPointZero
6032	Illegal value for the configuration data TypeOfAxis.DecodingConfig.stopWithJerk
6033	Illegal value for the configuration data TypeOfAxis.DecodingConfig.disableMotionOperation
6034	Illegal value for the configuration data TypeOfAxis.DecodingConfig.profileDynamicsLimiting
6035	Illegal value for the configuration data TypeOfAxis.DecodingConfig.cyclicSetUpInForceLimiting
6036	Illegal value for the configuration data TypeOfAxis.Homing.enableBeroDistance
6037	Illegal value for the configuration data TypeOfAxis.Homing.referencingNecessary
6038	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableLifeSignMonitoring
6039	Illegal value for the configuration data TypeOfAxis.DistributedMotion.numberOfLifeSignFailures
6040	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableDelayOfCommandValueOutput
6041	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableOffsetCompensation
6042	Illegal value for configuration data driveControlConfig.pulsesEnabledEvaluation (axis behavior for drive-independent stop response)
6050	Illegal value for the configuration data driveControlConfig.dataAdaption
6051	Illegal value for the configuration data driveControlConfig.disableModeSpecification

6043	Illegal value for the configuration data TypeOfAxis.ControllerSwitchData.NumberOfDigitalInputs.number
6044	Illegal logical address of the digital input in the configuration data structure TypeOfAxis.ControllerSwitchData.NumberOfDigitalInputs.DigitalInput_x
6045	Illegal value for configuration data for maximum deceleration
7000	Illegal data in process model configuration
8000	General error when reading or writing data set.
8001	The selected data set number is not available.
8002	Cannot write the active data set.
8003	Cannot change the controller structure (by writing a data set).
4120	Error in following error monitoring parameter. Illegal value in DynamicFollowong.minPositionTolerance
4121	Error in following error monitoring parameter. Illegal value in DynamicFollowong.maxPositionTolerance
4122	Error in following error monitoring parameter. Illegal value in DynamicFollowong.minVelocity
4123	Error in following error monitoring parameter. Illegal value in DynamicFollowong.warningLevel
4124	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.posWinToITime
4125	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.posWinToIDelayTime
4126	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.tolerance
2042	The numerator of the load gear is incorrect.
2043	The nominal factor of the load gear is incorrect.
2044	The value for the reference velocity is incorrect.
2045	Evaluation of the PulsesEnabled bit (pulsesEnabledEvaluation = YES) is not possible in telegram 1 (telegramType = DP_TEL1_STANDARD).
6046	Illegal value for the configuration data TypeOfAxis.DecodingConfig.maximalBufferedMotionCommands
6047	Illegal value for the configuration data TypeOfAxis.DecodingConfig.lengthOfBufferForSuperimposedCommands
6048	Illegal value for the configuration data TypeOfAxis.DecodingConfig.blendingAcceleration
6049	Illegal value for the configuration data TypeOfAxis.DecodingConfig.commandsForAxisDynamics
4128	enableDSCSpline requires telegram 125 or 126
2046	Evaluation of the PulsesEnabled bit (pulsesEnabledEvaluation) is not carried out when using DSDB.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT

Remedy

Change the data set parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50011 Limit range of the incremental actual value exceeded (Parameter1: /1/%d)

Cause

The value of the current position or the internal incremental position has exceeded the system-internal upper or lower limit.

Meaning of alarm parameters

Parameter 1:	
1	Range exceeded in positive direction
2	Range exceeded in negative direction
4	The modified actual position is greater than the modulo length in one position control cycle clock.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

For parameter 1: 1 and parameter 1: 2

General

Ensure that the Modulo characteristic is activated on the TO (TO.Modulo.state = ACTIVE) if the encoder on the TO is to record the position of an infinite motion in one direction. If this is not possible, the traversing range must be taken into consideration during the configuration of the TO.

Leaving the error state for non-modulo encoders as of V4.3:

Absolute encoder

(TO.TypeOfAxis.NumberOfEncoders.Encoder_N.encoderType = SENSOR_ABSOLUTE/
SENSOR_CYCLIC_ABSOLUTE)

- Acknowledgement of the alarm 50011 and correction of the position in the direction opposite to the direction of crossing the limit value by absolute encoder adjustment. The offset to be calculated must be at least one millimeter. This value increases by the position changes of the absolute encoder, which are not recorded after the 50011 alarm.

Non-cyclic absolute encoders only:

- Restart of the TO with the prerequisite that the sum of the total absolute encoder adjustment and the position calculated from the current encoder incremental position is less than the internal upper or lower position limit.

For axes only:

- Acknowledgment of the 50011 alarm, speed-controlled enabling of the axis and then speed-controlled traversing of the axis in the direction opposite to the direction of crossing the limit value. The traversing distance must be at least one millimeter. The traversing distance increases by the position changes of the absolute encoder, which are not recorded after the 50011 alarm.

If the encoder returns to a valid range, then the position of the absolute encoder is reinitialized with the current absolute encoder adjustment and the current encoder incremental position (sensordata[N].state = NOT_VALID -> VALID).

Incremental encoder

(TO.TypeOfAxis.NumberOfEncoders.Encoder_N.encoderType = SENSOR_INCREMENTAL) (cause of error 1 and 2):

- Restart

For axes only:

- Acknowledgment of the 50011 alarm, enabling of the axis and then traversing of the axis in the direction opposite to the direction of crossing the limit value.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50012 Drive/encoder does not support the selected function (reason: /1/%d)**Cause**

The homing function cannot be performed.

Meaning of alarm parameters

Reason:	
1	The homing function is not possible with the type of zero mark configured.
2	The homing function is not supported by the device or has been aborted by it.
3	The homing function is not active on the device despite the homing job running on the technology object.
4	The device could not be configured for the homing function because of a measuring or homing job that was already active.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Check the following:

- The support for the homing function provided by the drive or encoder
- The availability of the zero mark configured
- The encoder's configuration data and the drive's settings. Please also consider, if necessary, any troubleshooting tips in the device documentation.
- The encoder
- Encoder connection
- Check the wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50013 The permissible range limits have been violated (logical address: /1/%d, reason: /2/%d)

Cause

Range violation for additional sensor.

Meaning of alarm parameters

Logical address:	Address configured on the technology object.
-------------------------	--

Reason:	
1	Value greater than maximum permissible value.
2	Value less than minimum permissible value.
3	Positive overflow of sensor range.
4	Negative overflow of sensor range.
5	Error in accessing hardware address.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	DINT

Remedy

Check the following:

- Check the sensor connection.
- Check the wiring.
- Adjust the configuration data, if necessary.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

50014 Permissible control deviation of the pressure controller has been exceeded

Cause

Permissible control deviation of pressure controller exceeded.

Remedy

Check for correct functioning of the pressure control loop.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50015 Level overflow of the IPO not detected

Cause

The system could not intercept a level overflow.

Remedy

Please contact Siemens Support with the error number indicated above.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50016 Limitation of the backstop active**Cause**

The speed setpoint is limited by the backstop.

Remedy

Check the following:

- Mechanical configuration
- Encoder connection
- Configuration of the speed setpoint interface
- Maximum permissible backstop values in the configuration data

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50017 Manipulated variable monitoring on the Q-/F-output active (Parameter1: /1/%d)

Cause

The manipulated variable is limited.

Meaning of alarm parameters

Parameter 1:	Specification of the limitation
1	Monitoring active on Q-output.
2	Monitoring active on F-output.

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT

Remedy

Check the following:

- Configuration of the valve characteristic
- Maximum permissible velocity or the maximum permissible force/pressure setpoint in the configuration data
- Encoder connection
- Configuration of the setpoint interface

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50018 The permissible range limits of the differential measurement have been violated (additional sensor number: /1/%d, reason: /2/%d)

Cause

Range violation for differential measurement of additional sensor.

Meaning of alarm parameters

Additional sensor number:	Specifies the additional sensor number.
----------------------------------	---

Reason:	
1	Value greater than maximum permissible value.
2	Value less than minimum permissible value.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	DINT

Remedy

Check and adjust the configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50019 **The permissible range limits of the input value via system variable have been violated (additional sensor number: /1/%d, reason: /2/%d)**

Cause

Range violation of input value via system variable for additional sensor.

Meaning of alarm parameters

Additional sensor number:	Specifies the additional sensor number.
----------------------------------	---

Reason:	
1	Value greater than maximum permissible value.
2	Value less than minimum permissible value.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	DINT

Remedy

Check and, if required, adjust the configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

50020 System variable ServoSettings (element /1/%d) is reset (reason /2/%d)

Cause

The ServoSettings system variable structure is reset due to a stop response.

Meaning of alarm parameters

Element:	
1	Axis_n.servoSettings.additionalCommandValueSwitch
2	Axis_n.servoSettings.additionalSetpointValueSwitch
3	Axis_n.servoSettings.additionalQOutputValueSwitch

Reason:	
1	_stopemergency command or alarm response FEED_BACK_EMERGENCY_STOP
2	Transition to follow-up in closed-loop control mode
3	Enables were canceled

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT
2	DINT

Remedy

Check the stop response.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50021 **The writing of system variable ServoSettings (element /1/%d) is rejected because of a stop response**

Cause

System variable ServoSettings (element /1/%d) cannot be write-accessed due to a stop response.

Meaning of alarm parameters

Element:	
1	Axis_n.servoSettings.additionalCommandValueSwitch
2	Axis_n.servoSettings.additionalSetpointValueSwitch
3	Axis_n.servoSettings.additionalQOutputValueSwitch

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT

Remedy

Check the stop response.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

50022 maxVelocity cannot be attained with the set drive and axis parameters**Cause**

The maximum velocity set in `TypeOfAxis.MaxVelocity.maximum` cannot be attained with the selected drive and axis parameters.

Remedy

Check the following:

- The mechanical configuration (leadscrew pitch, load gears, etc.).
- The drive parameters, in particular, the maximum speeds and velocities
- Configuration of the speed setpoint interface
- Maximum permissible velocity rates in the configuration data
- The maximum velocity of the axis (configuration data: `TypeOfAxis.MaxVelocity`).

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50023 Drive performs transition to independent state

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

The drive enters an independent state (e.g.:

- Drive-independent deceleration along the OFF3 ramp (typical scenario: selection of SS1 or SS2 / STOP B or STOP C)
- While the motor brake is closed.

Remedy

Check the following:

- The machine for safety-relevant events
- The parameterization of the safety components
- The drive for an OFF3 command
- The motor brake for full opening

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

OPEN_POSITION_CONTROL

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50024 Long-term stability of the actual values is not guaranteed (encoder number /1/%d, data set number /2/%d)

Cause

Taking account of the mechanical relationships, the current encoder configuration does not permit the determination of long-term stable factors for the sensor-side conversion of the encoder raw actual values into (modulo) position and velocity actual values and/or for the actuator-side conversion of the position and velocity setpoints into encoder raw actual value equivalents. To evaluate the quantities to be converted, equivalent but non-long-term stable factors are used as replacement. The long-term stability of the actual values is not guaranteed!

Meaning of alarm parameters

Encoder number:	Number of the encoder at which the problem was detected
Data set number:	The number of the data set whose configuration in conjunction with the configuration of the specified encoder caused the problem (>0: Error during the calculation of the sensor-side factors, =0 error during the calculation of the actuator-side factors)

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT

Remedy

Check the following:

- The leadscrew pitch configured on the technology object
- The load gear configured at the specified data set
- At the encoder, for example, the configured resolution, fine resolution of the cyclical actual value and the measuring gear ratio

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50101 Window for reference model monitoring exceeded

Cause

- The dynamic demands on the control loop are too high.
- The speed error monitoring is activated and the maximum speed deviation - i.e. the value in the configuration date "TypeOfAxis.NumberOfDataSets_1.ControllerDynamic.maxVeloTolerance" - was exceeded.

Remedy

- Check the encoder count direction.
- Check the control loop parameter assignment.
- Change the parameter assignment for following error monitoring.
- Check the rated speed of the motor specified on the axis against the setting on the drive, and adjust the speeds.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50102 Window for dynamic following error monitoring exceeded

Cause

The dynamic demands on the control loop are too high, or the control system is overloaded.

Remedy

- Check the encoder count direction.
- Check the control loop parameter assignment.
- Change the parameter assignment for following error monitoring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50103 Warning limit of dynamic following error monitoring reached

Cause

The dynamic demands on the control loop are too high or the control system is overloaded, the warning stage has been reached.

Remedy

- Check the encoder count direction.
- Check the control loop parameter assignment.
- Change the parameter assignment for following error monitoring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50106 Position monitoring error**Cause**

The axis could not reach the positioning window in the specified time.

Remedy

- Check the control loop parameter assignment.
- Check the parameter assignment for position monitoring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50107 Standstill monitoring error

Cause

The axis has left the standstill window or could not reach the standstill window in the specified time.

Remedy

- Check that the control loop is operating correctly.
- Check the parameter assignment for standstill monitoring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50108 Clamping monitoring error**Cause**

The axis has left the clamping tolerance window.

Remedy

- Check the mechanical end stop.
- Check that the control loop is operating correctly.
- Check the parameter assignment for clamping monitoring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50109 Force entry window monitoring error

Cause

The axis could not reach the starting force window in the specified time.

Remedy

Check the following:

- Control loop parameter assignment
- Parameter assignment for monitoring

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50110 Force end value monitoring error

Cause

The axis has left the full-scale force window or could not reach the window in the specified time.

Remedy

Check the following:

- Control loop operation
- Parameter assignment for monitoring

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50111 Pressure controller is working at the limit

Cause

The manipulated variable required by the force controller cannot be implemented and is limited.

Remedy

Check that the control loop is operating correctly.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50112 **Incorrect polynomial parameters when extrapolating pressure (reason: /1/%d, command type: /4/%X)**

Cause

The polynomial parameters entered do not define any continuously increasing, uniquely invertible polynomial.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as an integer value.
----------------------	---

Reason:	
0x1	The time entered is negative.
0x2	P0 is greater than P1.
0x4	The derivative in point P1 is 0.
0x10	The derivative in point P0 is 0.
0x20	The derivative in point P0 is greater than in point P1.
0x40	The polynomial is not unique.
0x80	The polynomial has a point of inflexion.
0x100	The polynomial is not uniquely invertible.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Change the parameter(s).

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50114 Error for the _enableForceControl-/LimitedByCondition command

Cause

The selection of a force/pressure encoder not in the closed-loop control is not permitted in conjunction with the use of the force/pressure criterion for _enableForceControl-/LimitedByCondition.

Remedy

Check the following:

- The parameterization of the command.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50201 Safety alarm in the drive**Additional references**

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

When using SIDB, a result appears in the SINAMICS Safety Integrated Message Buffer (r9747).

When using DSDB, either a result in the SINAMICS Safety Integrated Message Buffer (r9747) appears, or a STOP reaction is active in the drive.

Remedy

Program a specific alarm response.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50202 SINAMICS Safety Integrated Extended Function is selected

Additional references

For additional information, refer to the function manuals:

- TO Axis Electric / Hydraulic, External Encoder,
- Technology Objects Synchronous Operation, Cam and
- in the online help.

Cause

The drive starts a Safety Integrated Extended Function.

Remedy

Program a specific alarm response.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50203 SINAMICS Safety Integrated Extended Function is deselected**Additional references**

For additional information, refer to the function manuals:

- TO Axis Electric / Hydraulic, External Encoder,
- Technology Objects Synchronous Operation, Cam and
- in the online help.

Cause

The drive completes a Safety Integrated Extended Function.

Remedy

Program the specific alarm response.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50209 Error on safe brake test. (Reason /1/%d)

Cause

An error has occurred during the safe brake test.

Reason:	Specification
0	no reason specified.
1	Requirements for SBT incorrect.
2	Error establishing the load torque.
3	Error on brake 1 and positive direction brake test.
4	Error on brake 1 and negative direction brake test.
5	Error on brake 2 and positive direction brake test.
6	Error on brake 2 and negative direction brake test.
7	The maximum duration of the brake test has been exceeded.
8	The drive has unexpectedly returned the control priority.
9	The drive has finished the brake test with errors.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Check drive error message

Check your brake management in the case of an external brake

For reason 1: Ensure that the correct axis status is set on the TO before starting the brake test. The axis must be enabled with the `_enableAxis()` command in mode 'enableMode=POWER' with 'servoControlMode=INACTIVE'.

For reasons 7-9: Read the Safety Warn buffer, correct the error and, if necessary, acknowledge the corresponding message.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

2.8 FollowingObject Type

20001 Internal error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Error source
Parameters 2 to 4:	Fault number

Description of the alarm parameters in the `_getFollowingObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

FOLLOWING_OBJECT_DISABLE

Settable local reactions

FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

Yes

20002 **Insufficient memory (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)**

Cause

The memory required by the system is no longer available.

This alarm can occur both during ramp-up and after program calls.

Meaning of alarm parameters

Parameter 1:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Parameters 2 to 4 are area-specific.

They are not fully utilized by all areas.

Command decoding area:

Parameters 2 and 4	refer to the command in which the error occurred.
Parameter 2:	Command return value
Parameter 4:	Command type

Description of the alarm parameters in the `_getFollowingObjectErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

- Reduce the size of the ST code.
- Reduce the number of technology objects.
- Reduce the number of interpolation points for cams, if present.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

FOLLOWING_OBJECT_DISABLE

Settable local reactions

FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

Yes

20003 Internal configuration error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system

Parameters 2 to 4 are area-specific.

These parameters are not fully utilized by all areas.

Command decoding area:

Parameters 2 and 4	refer to the command in which the error occurred.
Parameter 2:	Command return value
Parameter 4:	Command type

Description of the alarm parameters in the `_getFollowingObjectErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

Yes

20004 Under logical address: /1/%d (bit number, if required: /2/%d) no driver (type: /3/%d) could be requested (error number: /4/%d)

Cause

The driver of a physical device or the device itself is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
	Not relevant

Description of the alarm parameters in the `_getFollowingObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT

Remedy

- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

FOLLOWING_OBJECT_DISABLE

Settable local reactions

FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

Yes

20005 Device type:/3/%d, log. address:/1/%d faulted. (Bit:/2/%d, encoder number:/5/%d, reason: 0x/4/%Xh)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

The driver of a physical device or the device itself has failed or is faulty.

If this alarm occurs, the cause of the error must be evaluated in the external device (drive or encoder).

Meaning of alarm parameters

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver
12	Safety data block driver
13	Update counter
14	Operating characteristics data block driver

Logical address:	This is the logical input address configured on the technology object.
Bit number:	For bit driver type = 3 or 4 only; number of the bit
Encoder number:	Number of the encoder in case of telegrams with multiple encoders. Applies only when type = 2.
Reason:	0 - only defined when type = 2

Note

Addition of error messages

The codings for the reason of the failure specified below for the individual alarm types can also occur in combination. A group coding is indicated as the sum of several individual codings (e.g. 0x0005 = 0x0001 + 0x0004).

A failure reason labeled with DP can occur only for PROFIBUS devices.

Type = 1	
0x0001h	Fault message from the drive (note: for PROFIBUS drives, which support acyclic communication in accordance with PROFIdrive V3, the error number(s) of the drive are displayed in the diagnostic buffer, e.g. for Masterdrives MC)
0x0002h	DP: Drive signal "control requested" failed
0x0004h	DP: Drive disconnected itself
0x0008h	Slot for drive data is not available in the project
0x0010h	Actuator driver does not have a connection to the drive data
0x0020h	Actuator driver was not initialized during ramp-up
0x0080h	DP: Difference between configuration data and drive parameters (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	DP: Control signals to the PROFIdrive state machine were incorrectly specified
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
0x8000h	DP: Life-sign of drive has malfunctioned or failed
0x80000000h	The drive interface has been deactivated for the pending enables.
Type = 2	
0x0000h	The actual value changes exceed the limit value derived from the maximum velocity (configuration data TypeOfAxis.MaxVelocity.maximum) over multiple cycles. This monitoring can be activated or deactivated with configuration data TypeOfAxis.NumberOfEncoders.Encoder_x.AbsEncoder.enableAbsMonitoring.
0x0001h	Alarm message from encoder (note: the encoder error number(s) are displayed in the diagnostic buffer)
0x0002h	General hardware error of encoder
0x0004h	Encoder is dirty
0x0008h	Slot for encoder data is not available in the project
0x0010h	Encoder driver does not have a connection to the encoder data
0x0020h	Encoder driver was not initialized during ramp-up
0x0040h	Error when reading the absolute value of the encoder
0x0080h	DP: Difference between the configuration data and the encoder parameters Onboard C2xx: Inconsistency of the configuration data (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	Zero mark monitoring of encoder
0x0200h	DP: Encoder has gone to Parked state
0x4000h	DP: Encoder on bus failed (station failure)

0x8000h	DP: Life-sign of encoder has malfunctioned or failed. (note: for an encoder whose data are transferred in a drive telegram together with actuator data, the actuator life-sign applies to the encoder, e.g. for standard telegram 3 in accordance with PROFIdrive)
0x80000000h	The sensor interface has been deactivated for the pending enables.
Type = 3...6	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 7	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 8	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 9	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 10	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 11	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 12	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 13	
0x1h	The actual value was specified via a system variable and the permissible number of failure cycles was exceeded
0x2h	The actual value was updated with an update counter in the I/O area and the permissible number of failure cycles was exceeded

Description of the alarm parameters in the `_getFollowingObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

The remedy for the respective type and cause is described below.

Type 1

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- A system fault may be present. Call the hotline.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- When sign-of-life monitoring is set: Ensure that in HW Config for drive under DP slave properties - isochronous operation - drive, the "synchronize to equidistant DP cycle" field is activated.
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
- Up to SIMOTION RT V4.3: If the alarm occurs after the download on a drive with telegram 999: Compare the parameterized bit position for the "Pulses enabled" status signal in drive parameter p924 with the configuration data 'DriveControlConfig.PulsesEnabled' of the TO axis. In this case, there is not necessarily an incorrect parameterization and therefore a check cannot be performed by the system because of the BICO interconnection. Therefore, make sure that the Pulses enabled bit is in the correct position.

For reason 0x0100

- Correct your user program with regard to PROFIdrive-compliant specification of control bits in the _enable/disableAxis commands, e.g. control signal OFF (STW1.0 = false) must precede a drive connection.

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 2

For reason 0x0000

- Check the absolute encoder functions, connections and configuration. Take note of this when monitoring is deactivated (not with Alarm 20015).

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- Make sure that the user program does not reference a technology object containing an encoder (Axis, External Encoder) with an '_enableaxis' or '_enableexternalencoder' command while system variable 'sensordata.sensordata[n].state' is signaling invalid.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0040

- Compare the encoder type in the drive or encoder parameter P979 with the configuration data of the technology object.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
 - Compare the encoder type, resolution, shift factor, and, in the case of absolute encoders, the number of rotations in the drive or encoder parameter P979 to the encoder type, resolution, fine resolution, and, in the case of absolute encoders, the data length in the configuration data of the technology object.
- When using telegram 999, this message always appears, as the bit position is not checked by the system in this case, but has to be performed by the user.

For reason 0x0100

- Check the device functions, connections and wiring.

For reason 0x0200

- Find the cause of the error in the connected drive or encoder. Check whether the alarm was triggered due to a commissioning operation on the drive or encoder.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 3 - Type 6For reason 0x0000

- Check the configuration and the signal paths of the connection.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 7For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 8For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 9For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 10For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 11 - Type 12For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring. If the error cannot be acknowledged when the axis is in simulation mode, check whether the technology data block is activated, and if this is the case, deactivate it.

Type 13

For reason 0x1

- Check the specification of the actual value with regard to function, configuration, and task configuration.

For reason 0x2

- Check the device functions, configuration, connections and wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FOLLOWING_OBJECT_DISABLE

Settable local reactions

FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

Yes

20006 Configuration error (category: /1/%d, error number: /2/%d, additional information: /3/%d)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

This alarm indicates error states caused by a faulty or inconsistent configuration. The technology objects perform a plausibility check on the configuration. Errors are identified by the error codes below.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of the error
500	Illegal technology object configuration state.
501	More configuration data expected than received.
502	Invalid configuration data.
503	Version conflict in configuration.
504	The configured task level is not supported by this TO.
505	The value range of the maximum number of command IDs has been violated.
506	The configured task level is not supported by the used hardware.
1001	Error in configuration data DecodingConfig.numberOfMaxBufferedCommandId
1002	Error in configuration data for the maximum tolerated master value change SyncingMotion.maximumOfMasterChange
1003	Error in magnification factor for synchronization actions configuration data SyncingMotion.overDriveFactor
1004	Configuration of SyncingMotion.approachLeadingValue not implemented
1005	Error in configuration data DecodingConfig.disableSynchronousOperation
6501	Illegal value for the configuration data of the master value tolerance in SyncingMotion.masterReversionTolerance
6502	Illegal value for the configuration data SyncingMotion.directionDynamic
6503	Illegal value for the configuration data SyncingMotion.approachLeadingValue
6504	Illegal value for the configuration data SyncingMotion.velocityMode
6505	Illegal value for the configuration data SyncingMotion.motionImpact
6506	Illegal value for the configuration data SyncingMotion.synchronizingAdaption
6507	Illegal value for the configuration data SyncingMotion.smoothAbsoluteSynchronization
6508	Illegal value for the configuration data DistributedMotion.enableLifeSignMonitoring
6509	Illegal value for the configuration data DistributedMotion.numberOfLifeSignFailures
6510	Illegal value for the configuration data SyncingMotion.camReferenceSlaveModeRelative

Additional information:	More detailed description of the error origin
	Not relevant

Description of the alarm parameters in the `_getFollowingObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT

Remedy

Change the configuration data.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

FOLLOWING_OBJECT_DISABLE

Settable local reactions

FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

Yes

20007 Interconnection error (category: /1/%d, context: /2/%d, context parameter1: /3/%d, context parameter2: /4/%d)

Cause

This alarm indicates errors in the interconnection of technology objects. When the interconnection is established, the technology object verifies it on the basis of the interface properties. Errors are classified by category.

Additional information for a more detailed description of the error can be output from the context. An error context is output for selected error categories. Additional context parameters can be output for a context, if necessary. Context and context parameters are output as an integer value.

Meaning of alarm parameters

Category:	
1	Technology object compatibility error An interconnection is to be established with a technology object that has been configured with another reference system (e.g. output cams with rotary reference system and linear axis).
2	Exclusive interface An interface on a technology object that can only be connected to another technology object using one coupling type should be interconnected using different, mutually exclusive couplings. For example, the master value interface on a positioning axis for an interconnected synchronous object can only be operated as a setpoint or an actual value coupling.
3	Interconnection request The technology object awaits the interconnection to another technology object (necessary interconnection) in order to provide its functionality. Thus, for example, the interconnection to a gear axis is a required interconnection on a synchronous object.
4	Error during interface initialization The alarm is output in the event of initialization errors when connecting interfaces on the technology object.
5	Interface not available on technology object An interface required in the interconnection is not available on the technology object.
6	Recursion The interconnection on the technology object results in a recursion in the execution system of the technology package. The technology object does not support recursive execution.
7	Execution level compatibility error An interconnection is to be established with a technology object that is classified in a different execution level (e.g. output cam in execution level IPO and axis in execution level IPO_2). The technology object does not support interconnection to technology objects of other execution levels.
8	Initialization distribution In the case of interconnected technology objects that are distributed among different devices, an error occurred during initialization of the communication.

9	<p>Illegal TO state</p> <p>The technology object cannot be interconnected in the current state. A technology object can be interconnected only after the configuration has been successfully completed. Refer to the diagnostic buffer to determine the exact cause of the error. The cause of the illegal TO state is entered there (e.g. a level overflow during the configuration phase) and can then be corrected (in the example, by allowing level overflows in the task configuration).</p>
10	<p>Interface assignment</p> <p>The configured interface via which the technology object communicates cannot be used from the processing cycle clock of the technology object.</p>
11	<p>Active command in recursive TO interconnection</p> <p>The interconnection of the technology object and the enable state at its inputs result in an active recursive interconnection (positive feedback).</p>

Description of the alarm parameters in the `_getFollowingObjectErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

Context / context parameter:

Contact the hotline and provide the name of the context parameter.

Category:

1 - Technology object compatibility error

Check the configuration and set a common reference system for the technology objects to be interconnected.

2 - Exclusive interface

Ensure that the project is consistent. Contact the hotline, if necessary.

3 - Interconnection request

Ensure that the project is consistent. The missing interconnection on the technology object is specified in the context:

Context

TO type

Interface

7

Synchronous object

Synchronous object / gearing axis

4 - Error during interface initialization

Contact the hotline and provide the name of the context parameter.

5 - Interface not available on technology object

Contact the hotline and provide the name of the context parameter.

6 - Recursion

Check the interconnection topology of your project. Remove unnecessary interconnections.

7 - Execution level compatibility error

Select a common execution level in the configuration for the technology objects to be interconnected (e.g. output cam and axis in IPO_2).

8 - Initialization distribution

- Ensure that your project is consistent. For proper configuration of communication, all devices must be compiled ('Project/Save and compile all' or "Save and compile all new').
- Determine whether all devices are selected for loading the project ('Target system/Select target devices...').
- Check whether the configured bus topology matches the actual bus topology.
- Ensure that the devices are linked in the bus configuration (PROFIBUS).
- Check whether isochronous operation was selected.
- In addition, the address areas that are used by the devices for communication must be set up. The address areas are automatically set up when the project is compiled; only afterwards is the valid hardware configuration available for downloading. Do not change automatically generated address areas afterwards.
- Contact the hotline and provide the name of the context parameter.

9 - Illegal technology object state

- Correct the configuration of the technology object.
- Eliminate the execution error.

10 - Interface assignment

- Configure the bus interface to match the processing cycle clock (e.g. fast bus system and axis in FastIPO).

11 - Active command in recursive TO interconnection

- Inputs of technology objects can already be enabled during the download (e.g. TO AdditionObjectType). Remove or change the relevant interconnection on the technology object or switch a technology object, whose input is enabled by the user program and not already by the download, into the positive feedback branch.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FOLLOWING_OBJECT_DISABLE

Settable local reactions

FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

Yes

20008 Assignment of USER_DEFAULT to system variables is not possible

Cause

It is not appropriate to assign USER_DEFAULT to a UserDefault system variable, because the variable references itself in this case.

As a result, a meaningful value cannot be generated on readout. When this error occurs, the new Enum value is not assigned. The variable retains the old value.

Remedy

USER_DEFAULT is intended for use in technology commands. Avoid assigning it to system variables.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE

Diagnostics buffer entry

No

20009 **Reserved error**

Cause

This error is not currently in use.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FOLLOWING_OBJECT_DISABLE

Settable local reactions

FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

Yes

20010 A restart is required to activate the configuration data

Cause

The configuration cannot be activated, since data has been modified preventing the activation. The technology object must be restarted to activate the data.

Remedy

- Execute the technology object reset command, and set the 'activateRestart' parameter to 'ACTIVATE_RESTART'.
- Set the 'restartActivation' system variable to 'ACTIVATE_RESTART'.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

20011 Error occurred while activating the configuration (category: /1/%d, error number: /2/%d, additional information: /3/%d)

Cause

This alarm indicates error conditions when activating the configuration. The error conditions can be traced back to an incorrect or inconsistent configuration. The technology objects perform a plausibility check on the configuration. Errors are identified by the error codes below. The configuration is not activated when this alarm occurs.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of the error
500	Illegal technology object configuration state.
501	More configuration data expected than received.
502	Invalid configuration data.
503	Version conflict in configuration.
504	The configured task level is not supported by this TO.
505	The value range of the maximum number of command IDs has been violated.
506	The configured task level is not supported by the used hardware.
1001	Error in configuration data DecodingConfig.numberOfMaxBufferedCommandId
1002	Error in configuration data for the maximum tolerated master value change SyncingMotion.maximumOfMasterChange
1003	Error in magnification factor for synchronization actions configuration data SyncingMotion.overDriveFactor
1004	Configuration of SyncingMotion.approachLeadingValue not implemented
1005	Error in configuration data DecodingConfig.disableSynchronousOperation
6501	Illegal value for the configuration data of the master value tolerance in SyncingMotion.masterReversionTolerance
6502	Illegal value for the configuration data SyncingMotion.directionDynamic
6503	Illegal value for the configuration data SyncingMotion.approachLeadingValue
6504	Illegal value for the configuration data SyncingMotion.velocityMode
6505	Illegal value for the configuration data SyncingMotion.motionImpact
6506	Illegal value for the configuration data SyncingMotion.synchronizingAdaption
6507	Illegal value for the configuration data SyncingMotion.smoothAbsoluteSynchronization
6508	Illegal value for the configuration data DistributedMotion.enableLifeSignMonitoring
6509	Illegal value for the configuration data DistributedMotion.numberOfLifeSignFailures
6510	Illegal value for the configuration data SyncingMotion.camReferenceSlaveModeRelative

Additional information:	More detailed description of the error origin
	Not relevant

Description of the alarm parameters in the `_getFollowingObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT

Remedy

Change the configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

20012 Restart not carried out (reason: /1/%d)

Cause

Technology object could not be restarted.

Meaning of alarm parameters

Reason:	
1	The technology object configuration does not allow a restart with the restart system variable.
2	The technology object is not ready to be restarted.
3	A configured condition for restarting the technology object is not met (e.g. technology object must be 'disabled').
4	Restart was not performed with the last programmed configuration of the technology object because this is faulty
5	The configuration of the technology object does not permit any restart.

Description of the alarm parameters in the `_getFollowingObjectErrorState` command:

No.	Data type
1	DINT

Remedy

Reason:	
1	Initiate the restart using the reset command.
2	Reload the project.
3	Work around the cause stated in the Reason parameter, or reload the project.
4	Determine whether technological alarms were reported or error entries were made in the device diagnostics and, if necessary, remedy the cause.
5	Change the configuration to activate the appropriate restart capability.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

20014 Under logical address: /1/%d (optional log. address: /2/%d and bit no.: /3/%d of the enable output), a driver (type: /4/%d) could not be requested

Cause

The driver of a physical device is not available or is being used by another technology object.

The enable command for the technology object has been issued more than once with the 'immediately' stepping condition.

Meaning of alarm parameters

Logical address:	This is the address of the actuator driver configured on the technology object.
Logical address and bit number:	This specifies the address and bit number of the output enable bit.

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver

Description of the alarm parameters in the _getFollowingObjectErrorState command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	DINT

Remedy

- Do not call the enable command cyclically "call the enable command only once for the axis enable".
- Check that the logical device was available at the time of the request or whether it was being used by another technology object.
- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FOLLOWING_OBJECT_DISABLE

Settable local reactions

FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

Yes

20015 Device type:/3/%d, log. address:/1/%d faulted. (Bit:/2/%d, encoder number:/5/%d, reason: 0x/4/%Xh)

Cause

The driver of a physical device or the device itself has failed or is faulty.

If this alarm occurs, the cause of the error must be evaluated in the external device (drive or encoder).

Meaning of alarm parameters

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver
12	Safety data block driver
13	Update counter
14	Operating characteristics data block driver

Logical address:	This is the logical input address configured on the technology object.
Bit number:	For bit driver type = 3 or 4 only; number of the bit
Encoder number:	Number of the encoder in case of telegrams with multiple encoders. Applies only when type = 2.
Reason:	0 - only defined when type = 2

Note

Addition of error messages

The codings for the reason of the failure specified below for the individual alarm types can also occur in combination. A group coding is indicated as the sum of several individual codings (e.g. 0x0005 = 0x0001 + 0x0004).

A failure reason labeled with DP can occur only for PROFIBUS devices.

Type = 1	
0x0001h	Fault message from the drive (note: for PROFIBUS drives, which support acyclic communication in accordance with PROFIdrive V3, the error number(s) of the drive are displayed in the diagnostic buffer, e.g. for Masterdrives MC)
0x0002h	DP: Drive signal "control requested" failed
0x0004h	DP: Drive disconnected itself
0x0008h	Slot for drive data is not available in the project
0x0010h	Actuator driver does not have a connection to the drive data
0x0020h	Actuator driver was not initialized during ramp-up
0x0080h	DP: Difference between configuration data and drive parameters (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	DP: Control signals to the PROFIdrive state machine were incorrectly specified
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
0x8000h	DP: Life-sign of drive has malfunctioned or failed
0x80000000h	The drive interface has been deactivated for the pending enables.
Type = 2	
0x0000h	The actual value changes exceed the limit value derived from the maximum velocity (configuration data TypeOfAxis.MaxVelocity.maximum) over multiple cycles. This monitoring can be activated or deactivated with configuration data TypeOfAxis.NumberOfEncoders.Encoder_x.AbsEncoder.enableAbsMonitoring.
0x0001h	Alarm message from encoder (note: the encoder error number(s) are displayed in the diagnostic buffer)
0x0002h	General hardware error of encoder
0x0004h	Encoder is dirty
0x0008h	Slot for encoder data is not available in the project
0x0010h	Encoder driver does not have a connection to the encoder data
0x0020h	Encoder driver was not initialized during ramp-up
0x0040h	Error when reading the absolute value of the encoder
0x0080h	DP: Difference between the configuration data and the encoder parameters Onboard C2xx: Inconsistency of the configuration data (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	Zero mark monitoring of encoder
0x0200h	DP: Encoder has gone to Parked state
0x4000h	DP: Encoder on bus failed (station failure)

0x8000h	DP: Life-sign of encoder has malfunctioned or failed. (note: for an encoder whose data are transferred in a drive telegram together with actuator data, the actuator life-sign applies to the encoder, e.g. for standard telegram 3 in accordance with PROFIdrive)
0x80000000h	The sensor interface has been deactivated for the pending enables.
Type = 3...6	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 7	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 8	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 9	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 10	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 11	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 12	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 13	
0x1h	The actual value was specified via a system variable and the permissible number of failure cycles was exceeded
0x2h	The actual value was updated with an update counter in the I/O area and the permissible number of failure cycles was exceeded

Description of the alarm parameters in the `_getFollowingObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

The remedy for the respective type and cause is described below.

Type 1

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- A system fault may be present. Call the hotline.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- When sign-of-life monitoring is set: Ensure that in HW Config for drive under DP slave properties - isochronous operation - drive, the "synchronize to equidistant DP cycle" field is activated.
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
- Up to SIMOTION RT V4.3: If the alarm occurs after the download on a drive with telegram 999: Compare the parameterized bit position for the "Pulses enabled" status signal in drive parameter p924 with the configuration data 'DriveControlConfig.PulsesEnabled' of the TO axis. In this case, there is not necessarily an incorrect parameterization and therefore a check cannot be performed by the system because of the BICO interconnection. Therefore, make sure that the Pulses enabled bit is in the correct position.

For reason 0x0100

- Correct your user program with regard to PROFIdrive-compliant specification of control bits in the _enable/disableAxis commands, e.g. control signal OFF (STW1.0 = false) must precede a drive connection.

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 2For reason 0x0000

- Check the absolute encoder functions, connections and configuration. Take note of this when monitoring is deactivated (not with Alarm 20015).

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- Make sure that the user program does not reference a technology object containing an encoder (Axis, External Encoder) with an '_enableaxis' or '_enableexternalencoder' command while system variable 'sensordata.sensordata[n].state' is signaling invalid.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0040

- Compare the encoder type in the drive or encoder parameter P979 with the configuration data of the technology object.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
 - Compare the encoder type, resolution, shift factor, and, in the case of absolute encoders, the number of rotations in the drive or encoder parameter P979 to the encoder type, resolution, fine resolution, and, in the case of absolute encoders, the data length in the configuration data of the technology object.
- When using telegram 999, this message always appears, as the bit position is not checked by the system in this case, but has to be performed by the user.

For reason 0x0100

- Check the device functions, connections and wiring.

For reason 0x0200

- Find the cause of the error in the connected drive or encoder. Check whether the alarm was triggered due to a commissioning operation on the drive or encoder.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 3 - Type 6

For reason 0x0000

- Check the configuration and the signal paths of the connection.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 7

For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 8

For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 9

For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 10

For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 11 - Type 12

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring. If the error cannot be acknowledged when the axis is in simulation mode, check whether the technology data block is activated, and if this is the case, deactivate it.

Type 13

For reason 0x1

- Check the specification of the actual value with regard to function, configuration, and task configuration.

For reason 0x2

- Check the device functions, configuration, connections and wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

Yes

20016 Under logical address: /1/%d (bit number, if required: /2/%d) no driver (type: /3/%d) activated (error number: /4/%d)

Cause

The driver of a physical device or the device itself is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
	Not relevant

Description of the alarm parameters in the _getFollowingObjectErrorState command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT

Remedy

- Check the activation/deactivation sequence for the interface.
- Note the runtimes of the commands and use the provided command control mechanisms (e.g. nextCommand := WHEN_COMMAND_DONE).
- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

Yes

20017 Internal algorithm error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Error source
Parameters 2 to 4:	Fault number

Description of the alarm parameters in the _getFollowingObjectErrorState command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact:

SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FOLLOWING_OBJECT_DISABLE

Settable local reactions

FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

Yes

20018 **Attempt to write the bit(s): 0x/1/%Xh in control word1 or the bit(s): 0x/2/%Xh in control word2 under the log. address: /3/%d has been rejected.**

Cause

An attempt to write certain bits in control word 1 or 2 has been rejected.

Meaning of alarm parameters

Bits:	Display of bits which could not be written
Log. address:	Logical address of the device driver

Description of the alarm parameters in the `_getFollowingObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT

Remedy

- Check the order of commands, particularly in relation to `_enableAxis(...)`.
- Check the command parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE

Diagnostics buffer entry

Yes

20019 Error for the commissioning, reason: /1/%d (Parameter1: /2/%d, Parameter2: /3/%d)

Cause

A commissioning function could not be executed.

Meaning of alarm parameters

Reason:	
1	Failure of the life-sign between controller and SIMOTION SCOUT
2	Protocol error
3	Command decoding error

Description of the alarm parameters in the _getFollowingObjectErrorState command:

No.	Data type
1	DINT
2	UDINT
3	UDINT

Remedy

Reason:	
1	Check the connection properties. If required, increase the monitoring time.
2	Should a system error of this type occur, note the alarm number, the alarm text and the specified alarm parameters, and contact: SIEMENS AG I DT MC, Hotline.
3	Should a system error of this type occur, note the alarm number, the alarm text and the specified alarm parameters, and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / NONE

Preassignment for local reactions

NONE

Settable local reactions

NONE FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

Yes

20020 Output deactivated

Cause

One or more outputs of the technology object have been deactivated. This is caused by the output-disable device status.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FOLLOWING_OBJECT_DISABLE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

20021 Configuration will be adapted internally (category: /1/%d, reason: /2/%d, limited value: /3/%f, additional information: /4/%d)

Cause

This alarm shows the implicit setting of configuration data to the maximum possible values. The technology objects perform a plausibility check on the configuration. Errors/manipulations are identified by the error codes below.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of configuration data
2001	Illegal value for maxSpeed (maxSpeed less than or equal to 2*nominalSpeed; maxSpeed will be set to 2*nominalSpeed)
2002	Illegal value for maxTorque/Force (maxTorque/Force less than or equal to 2*nominalTorque/Force; maxTorque/Force will be set to 2*nominalTorque/Force)
2003	Error during the adaptation of the Torque-/ForceReductionGranularity. p1544 is ignored and the default value used.
3001	The length of the backlash on reversal is limited to a permitted value (Encoder_N.incBacklash.length or Encoder_N.absBacklash.length).
3002	The compensation velocity of the backlash on reversal is limited to a permitted value (Encoder_N.incBacklash.velocity or Encoder_N.absBacklash.velocity).
3003	The value of the configuration data for the encoder system (.Encoder_N.encoderSystem) is limited to a permitted value.
3004	The value of the configuration data for the encoder resolution (rotary: .Encoder_N.incEncoder.incResolution, Encoder_N.absEncoder.absResolution; linear: Encoder_N.Resolution.distance) is limited to a permitted value.
3005	The value of the configuration data for the multiplication factor of the cyclical actual value (.Encoder_N.incEncoder.incResolutionMultiplierCyclic, Encoder_N.absEncoder.absResolutionMultiplierCyclic, Encoder_N.Resolution.multiplierCyclic) is limited to a permitted value.
3006	The value of the configuration data for the multiplication factor of the absolute value (Encoder_N.absEncoder.absResolutionMultiplierAbsolute) is limited to a permitted value.
3007	The value of the configuration data for the data length of the absolute value (Encoder_N.absEncoder.absDataLength) is limited to a permitted value.
3008	The value of the configuration data for the reference value of the Nact speed in the PROFIdrive telegram (Encoder_N.sensorNist.referenceValue) is limited to a permitted value.
3009	The load gear factor of the first data set is leading for the encoder simulation. The simulation with different load gear factors is not supported. The value of the configuration data for the load gear (DataSet_N.gear) is limited to the load gear ratio of the first data set.
4001	The delay time for the triggering of the standstill signal (StandStillSignal.delayTimeToActivate) is limited.
4002	The delay time until the position monitoring tolerance window is reached (PositionMonitoring.posWinToITime) is limited.
4003	The delay time until the activation of the position monitoring message (PositionMonitoring.posWinToIDelayTime) is limited.
4004	The delay time for the activation of the standstill monitoring message (StandStillMonitoring.delayTimeToActivate) is limited.
4005	The delay time of the actual value of the force/pressure entry monitoring (ForceControlRunningInWindowMonitoring.winToITime) is limited.
4006	The delay time until activation of the force/pressure entry monitoring (ForceControlRunningInWindowMonitoring.maxDelayTime) is limited.
4007	The delay time until activation of the force/pressure end value monitoring (ForceControlHeldValueMonitoring.delayTimeToActivate) is limited.

4008	The delay of the emergency ramp generator (EmergencyRampGenerator.maxDeceleration) is too small and set to the minimum possible value.
4009	The decay time constant of the friction compensation (Friction.decayTime) is limited.
4068	The maximum buffer length of the lag element in the balancing filter (Mode_2) is reached or exceeded. The lag element (maximum buffer length: 16 servo-cycles) is augmented by a PT1 element.
4069	The maximum buffer length of the lag component of the dynamic response compensation is reached or exceeded. The maximum value of this time constant is limited to 16 servo cycles. The buffer length of the lag element is maximum 16.

Additional information:	More detailed description of the error origin
Not relevant	

Description of the alarm parameters in the `_getFollowingObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	LREAL
4	UDINT

Remedy

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

30001 **Illegal parameter (parameter index according to standard sequence in the system functions: /1/%d, command type: /4/%X)**

Cause

Illegal parameter transfer to a system function. The command is not executed. This alarm occurs when the permissible parameter value range is violated. The permissible value range of the parameter is a function of its data type and the technological meaning of the parameter.

The parameter index indicates the position of the illegal parameter. The standard sequence of parameters in the system functions is apparent from the reference list associated with the command. The command type indicates the type of the faulty system function.

Meaning of alarm parameters

Parameter index:	Index of the system function parameter that triggered this error (listed according to the standard sequence in the system functions).
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getFollowingObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the value range of the parameter data type.
- Check the technological meaning of the parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

30002 Command aborted (reason: /1/%d, command type: /4/%X)

Additional references

Further information is provided in the Function Manual:

- Basic Functions and
- in the online help.

Cause

The command was aborted before or during execution.

This can be caused by:

- A substituted command
- Command buffer reset
- Error state

Note

This alarm is always output, e.g. for jogging (_move aborted with _stop) or for the retraction of the reference BERO for homing or when Synchronous operation (explicitly) deactivated.

Meaning of alarm parameters

Reason:	
1	Reset of the command buffer
2	Abort by another command
3	Abort by a stop
4	Abort by a higher-order stop
5	Abort by a pending error response
6	Abort due to ambiguous commandId
9	Abort due to abort of a dependent command
11	Abort due to active superimposed motion
19	Abort due to error during cam access
20	Slave is not ready for operation
21	Error in slave synchronization
22	Abort by command on the slave
23	Abort by stop on the slave
24	Abort by a pending error response on the slave
25	No actual values for slave (e.g. encoder or data bus not ready)
26	Abort by reset on the slave
27	Master values are not valid
28	Active command in recursive TO interconnection
29	Abort due to error during synchronization
31	Maximum number of active commands exceeded
32	Abort due to active correction command

41	Command parameter became invalid during processing
42	No interconnection to a technology object
43	Abort due to a Cancel command in the user program
44	Abort because of a pending command with identical command parameters

Command type:	Outputs the aborted command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getFollowingObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Set up the command again via program.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

30003 Command aborted because of full command buffer (command type: /4/%X)

Cause

The command is not entered in the command buffer because the buffer is already full.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getFollowingObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the program flow.
- Typical cause: The 'nextCommand' parameter is passed with the value 'IMMEDIATELY', and the 'mergeMode' parameter is passed with the value 'SEQUENTIAL'.
 - Synchronize the command execution in the user program so that the command buffer is not occupied when the command is issued.
 - Use other values for the 'nextCommand' or 'mergeMode' parameters. Setting the 'nextCommand' to a value other than 'IMMEDIATELY' causes the program to wait for the command buffer to become available. In addition, setting a different 'mergeMode' means that the command buffer can be overwritten.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

30004 Command is not defined for this technology object type (command type: /4/%X)

Cause

Command was programmed on a technology object type not supporting processing of this command.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getFollowingObjectErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Issue the command on the correct technology object type.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

30005 **Ambiguous commandId (number of commands with the specified ID: /1/%d, command type: /4/%X)**

Cause

The specified commandId refers to more than one command. The specified action is performed for the command matching the specified ID that has been in the interpolator for the longest time.

If no corresponding command is found in the interpolator, the action refers to the next command loaded in the interpolator.

Meaning of alarm parameters

Id:	Number of commands referenced by the specified command ID.
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the _getFollowingObjectErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Use a different 'commandId' for commands that are active simultaneously.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

30006 Command cannot be executed because of the current object state (command type: /4/%X)

Cause

A reset command is active at the object or the object is deactivated.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getFollowingObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the following:

- Check the object status.
- Check the possible execution sequence of the programmed commands.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

30007 The error cannot be reset because of its configuration

Cause

The 30007 alarm will be output when an alarm is reset that can only be acknowledged with PowerOn.

Example:

The internal 20001 error can only be acknowledged with PowerOn.

If an attempt is made to reset the alarm with a `_reset...Error` command, the 30007 alarm will be output.

Description of the alarm parameters in the `_getFollowingObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

Check whether the errors present on the technology object can be acknowledged.

Correct the cause of the error and switch the CPU off/on or load the project again.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

30008 **Link to a technology object necessary for this operation does not exist (command type: /4/%X)**

Cause

The object connection required for this operation has not been configured or the connected technology object has been deactivated.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getFollowingObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the project configuration.
- Change the object connection in the command.
- Activate the connected technology object.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

30009 Command rejected as the decoding of the command of the technology object addressed has been deactivated/stopped (reason: /1/%d, command type: /4/%X)

Cause

Command was rejected due to suspension of command decoding on the addressed technology object. The command decoding can be stopped by the DECODE_STOP alarm response, by deactivating or restarting the technology object, by starting the axis control panel in exclusive mode or by the absence of necessary interconnections.

Meaning of alarm parameters

Reason:	
1	Restart of the technology object
2	Technology object is deactivated
3	Technology object is in RUN mode.
4	Control panel active

Command type:	Outputs the type of the rejected command. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getFollowingObjectErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check why the command was rejected.
- If necessary, acknowledge any active errors once you have corrected the cause of the error.
- If the technology object is deactivated, you must activate it.
- Do not issue any commands while the technology object is restarting.
- Do not issue any commands while a connected technology object is restarting.
- Stop the axis control panel.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

30010 Command not available (command type: /4/%X)

Cause

The command is not available in this version of the runtime software.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getFollowingObjectErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the version of the runtime software.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

30011 **Parameter not available (parameter index according to the standard sequence in the system functions: /1/%d, command type: /4/%X)**

Cause

The parameter is not available in this version of the runtime software, the command is therefore rejected. The parameters indicate the position according to the standard sequence in the system functions and the command type of an incorrectly entered parameter.

Meaning of alarm parameters

Parameter index:	Index of the command parameter triggering this error according to the standard sequence in the system functions.
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getFollowingObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the version of the runtime software.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

30012 Command cannot be started synchronously (command type: /4/%X)

Cause

The command cannot be used within a 'BEGIN_SYNC' or 'END_SYNC' sequence. The command has only one return value in the user program, or the command is not capable of starting synchronously.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getFollowingObjectErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Do not use this command type during a BEGIN_SYNC, END_SYNC sequence.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

30013 Synchronous start of the command is carried out with mergeMode IMMEDIATELY (command type: /4/%X)

Cause

With synchronous command start, only merge modes that immediately override the current command (IMMEDIATELY) and superimpose the current command (SUPERIMPOSED_MOTION_MERGE) can be used.

If an illegal merge mode is programmed (e.g. SEQUENTIAL or NEXT_MOTION), the system automatically changes the merge mode to IMMEDIATELY and outputs this warning.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getFollowingObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Program the command which is to be started synchronously to immediately override the current command. To do this, enter the value IMMEDIATELY in the 'mergeMode' command parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

30015 **A technology required for this command has not been configured (technology: /1/%d, command type: /4/%X)**

Cause

The command cannot be selected in this technology object configuration.

Meaning of alarm parameters

Technology:	Not relevant
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the _getFollowingObjectErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Activate the technology needed for the command.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

40002 Programmed velocity is limited

Cause

The system is limiting the programmed velocity to the maximum permissible velocity.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

40003 Programmed acceleration (type: /1/%d) is limited

Cause

The system is limiting the programmed acceleration to the maximum permissible acceleration.

Meaning of alarm parameters

Type:	
0	Positive acceleration
1	Negative acceleration/deceleration

Description of the alarm parameters in the _getFollowingObjectErrorState command:

No.	Data type
1	DINT

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

40004 Programmed jerk (type: /1/%d) is limited**Cause**

The system is limiting the programmed jerk to the maximum permissible jerk.

Meaning of alarm parameters

Type:	
0	Increase in positive acceleration
1	Reduction in positive acceleration
2	Increase in negative acceleration/deceleration
3	Reduction in negative acceleration/deceleration

Description of the alarm parameters in the _getFollowingObjectErrorState command:

No.	Data type
1	DINT

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

40006 Programmed velocity is zero

Cause

The programmed velocity is zero. The specified motion cannot be executed.

Remedy

Program a value other than zero. If USER_DEFAULT is referenced, a value not equal to zero must be programmed in the assigned system variable.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FOLLOWING_OBJECT_DISABLE

Settable local reactions

DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

40007 Programmed acceleration (type: /1/%d) is zero**Cause**

The programmed acceleration is zero. The specified motion cannot be executed.

Meaning of alarm parameters

Type:	
0	Positive acceleration
1	Negative acceleration/deceleration

Description of the alarm parameters in the _getFollowingObjectErrorState command:

No.	Data type
1	DINT

Remedy

Program a value other than zero. If USER_DEFAULT is referenced, a value not equal to zero must be programmed in the assigned system variable.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FOLLOWING_OBJECT_DISABLE

Settable local reactions

DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

40008 Programmed jerk (type: /1/%d) is zero

Cause

The programmed jerk is zero. The specified motion cannot be executed.

Meaning of alarm parameters

Type:	
0	Increase in positive acceleration
1	Reduction in positive acceleration
2	Increase in negative acceleration/deceleration
3	Reduction in negative acceleration/deceleration

Description of the alarm parameters in the _getFollowingObjectErrorState command:

No.	Data type
1	DINT

Remedy

Program a value other than zero. If USER_DEFAULT is referenced, a value not equal to zero must be programmed in the assigned system variable.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FOLLOWING_OBJECT_DISABLE

Settable local reactions

DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

40009 Velocity limit is zero

Cause

The programmed velocity limit is zero. The specified motion cannot be executed.

Remedy

Program a value other than zero in the dynamic limit values.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FOLLOWING_OBJECT_DISABLE

Settable local reactions

DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

40010 Acceleration limit (type: /1/%d) is zero

Cause

The programmed acceleration limit is zero. The specified motion cannot be executed.

Meaning of alarm parameters

Type:	
0	Positive acceleration
1	Negative acceleration/deceleration

Description of the alarm parameters in the _getFollowingObjectErrorState command:

No.	Data type
1	DINT

Remedy

Program a value other than zero.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FOLLOWING_OBJECT_DISABLE

Settable local reactions

DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

40011 Programmed jerk limit (type: /1/%d) is zero**Cause**

The programmed jerk limit is zero. The specified motion cannot be executed.

Meaning of alarm parameters

Type:	
0	Increase in positive acceleration
1	Reduction in positive acceleration
2	Increase in negative acceleration/deceleration
3	Reduction in negative acceleration/deceleration

Description of the alarm parameters in the _getFollowingObjectErrorState command:

No.	Data type
1	DINT

Remedy

Program a value other than zero.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FOLLOWING_OBJECT_DISABLE

Settable local reactions

DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

40012 Dynamic limitations (type: /1/%d) are being violated

Cause

The specified dynamic limitations are being violated. This can occur due to:

- The incompatibility between the dynamic values from the Synchronous operation and the programmed dynamic values for synchronization.

One or more physical variables (velocity, acceleration, jerk) may be affected. The violations have only a temporary effect.

Meaning of alarm parameters

Type:	
0	The jerk is changed; jerk limitation is exceeded.
1	Programmed jerk limitation is disabled during jerk-controlled motion.
2	The programmed acceleration is changed. The programmed acceleration limitation is exceeded.
3	The programmed acceleration is changed, and the programmed jerk limitation is disabled. The programmed acceleration limitation is exceeded.
4	The programmed dynamic response values (velocity and/or acceleration) are adapted to the dynamic values from the set Synchronous operation behavior. The warning occurs when, with activated dynamic response adaptation, the dynamic response values during synchronization (e.g. velocity and acceleration in <code>_enableGearing</code>) and the dynamic response values of a Synchronous operation offset (e.g. <code>_setCammingOffset</code>) are too low and must be increased to the dynamic response values of the system resulting from the master value.
5	If the current master setpoint dynamic response is retained, the programmed dynamic response values are exceeded during synchronization. These are adjusted in accordance with the target dynamic response values.

Description of the alarm parameters in the `_getFollowingObjectErrorState` command:

No.	Data type
1	DINT

Remedy

- Increase the dynamic response parameters.
- Type 1:
For synchronization operations with a constant velocity profile, make sure that configuration data `syncingMotion.smoothAbsoluteSynchronisation` is set to YES.
- Type 4:
Please check the dynamic restrictions against the synchronized setpoints when synchronizing or with a Synchronous operation offset.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

40027 Programmed command abort cannot be executed (reason: /1/%d)

Cause

The programmed command abort could not be executed.

Meaning of alarm parameters

Reason:	
0	An abort is no longer possible in the current command status.
1	The '_stopEmergency' function can only be aborted during a standstill.

Description of the alarm parameters in the _getFollowingObjectErrorState command:

No.	Data type
1	DINT

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

50001 Error occurred while accessing specified cam (reason: /1/%d)**Cause**

An error occurred while processing the cam.

Meaning of alarm parameters

Reason:	
1	The cam does not exist or is not interconnection with the Synchronous operation.
2	The cam is not interpolated.
3	The cam is already used.
4	The definition range of the cam and the current master values relative to the specified Synchronous operation parameters contradict.
5	Parameters or values of the cam differ from the specified Synchronous operation parameters.

Description of the alarm parameters in the _getFollowingObjectErrorState command:

No.	Data type
1	DINT

Remedy

Reason:	
1	- Check the programmed cam. - Check the Synchronous operation connection with the cam.
2	Check whether the specified cam has been interpolated.
3	- Check whether competing write accesses are made to the cam. - Check the program sequence.
4	- Check the parameterization of the Synchronous operation with regard to the master values and of the cam start point. - Check the definition range of the cam.
5	- Check whether because of a master value offset, the master value lies outside the definition range of the cam. - Check whether an absolute Synchronous operation has been programmed in conjunction with END_OF_CAM_CYCLE.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FOLLOWING_OBJECT_DISABLE

Settable local reactions

FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

50002 The specified cam has not been interpolated

Cause

The system only accepts verified and interpolated cams for this operation. The specified cam has not yet been interpolated.

Remedy

Check whether the specified cam has been interpolated.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FOLLOWING_OBJECT_DISABLE

Settable local reactions

FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

50003 Cam starting point is outside the definition range

Cause

The addressed cam starting point is outside the definition range of the cam.

Remedy

- Check the definition range of the cam.
- Check the cam starting point.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

50004 Error occurred while changing a cam

Cause

An access conflict occurred while changing a cam.

Remedy

Check whether the cam object data were modified at the time of the error as a result of programming or downloading.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FOLLOWING_OBJECT_DISABLE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

50005 Deactivation of Synchronous operation aborted

Cause

Deactivation of Synchronous operation has been rejected because the current Synchronous operation type (gear / cam gear) does not agree with the deactivation type or no Synchronous operation programmed.

Remedy

- Change the deactivation type.
- Check the previous issuing of a Synchronous operation command.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

50006 Activation/deactivation of Synchronous operation executed directly

Cause

The activation or deactivation of the Synchronous operation was performed directly without consideration of the synchronization length because a synchronization in the standstill of the slave axis was possible with the programmed synchronization conditions.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

50007 Error occurred while activating/deactivating the Synchronous operation**Additional references**

Further information is provided in the Function Manual:

- Technology Objects Synchronous Operation, Cam and
- in the online help.

Cause

Activation/deactivation of Synchronous operation led to a fatal error. Possible causes are:

- During the synchronization operation, the master reversed direction and the selected synchronization/desynchronization strategy cannot tolerate this reversal.
- The master value noise during actual value coupling can be considered as the direction reversal of the master.
- Changes to master values result in an unattainable motion, e.g. by calling 'setMaster'.

Remedy

- Check to determine whether the previously processed gearing command was completely executed.
- Check the master motion and change the synchronization strategy, if necessary.
- Check the possible "Tolerance of a master value reversal during synchronization" (see Synchronous Operation, Cam Function Manual)
- With actual value coupling with extrapolation, check the possibility of a tolerance window on the master axis or on the external encoder (see "Actual value coupling with tolerance window", Synchronous Operation, Cam Function Manual)

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FOLLOWING_OBJECT_DISABLE

Settable local reactions

FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

50008 No long-term stability can be maintained with the gear

Cause

If the gear ratio is given as a decimal number, the gearing is calculated with the high accuracy of the LREAL data type (see chapter on elementary data types in the SIMOTION Programming and Operating Manual).

If the gearing is defined as a ratio between a numerator and a denominator and both the master value and slave axis have a modulo characteristic, the controller attempts to keep the connection free from errors to ensure its long-term stability. If this cannot be guaranteed, this alarm is output and the gearing will be calculated as described above.

Remedy

There is usually no need to implement a remedy.
Resynchronize in cases where higher accuracy levels are required.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

50009 **Changing the dynamic response of the master leads to a dynamic violation when synchronizing and desynchronizing**

Cause

The velocity change of the master exceeded the dynamic rate action specified in the 'maximumOfMasterChange' configuration data.

Remedy

- Check the master programming.
- Check the dynamic rate action.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

50101 The programmed master is not assigned/configured

Cause

The programmed master has not been configured as master for the Synchronous operation.

Remedy

- Check the master configuration in Synchronous operation.
- Check the programmed master.
- Add the appropriate master.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

50102 Master is not assigned/configured/faulty (reason: /1/%d)**Cause**

A synchronous object command cannot be executed because of an error in data communication with the master.

Meaning of alarm parameters

Reason	
1	No master has been assigned to Synchronous operation.
2	The master connection is not isochronous (distributed Synchronous operation).
3	Bus ramp-up (distributed Synchronous operation).
4	Waiting for connection on bus (distributed Synchronous operation).
5	Parameter exchange on bus (distributed Synchronous operation).
6	Life-sign synchronization on bus (distributed Synchronous operation).
7	Reconfiguration on bus (distributed Synchronous operation).
8	Offset determination (distributed Synchronous operation).
9	Master setpoint not valid.

Description of the alarm parameters in the `_getFollowingObjectErrorState` command:

No.	Data type
1	DINT

Remedy

First check the following general settings:

- Check the communication configuration.
- Synchronize the program sequence with the operating state of the communication system (e.g. via system variables).

Reason	
1	Create the missing master assignment.
9	Check the master enable. Check whether the system variable <code>distributedMotion.stateOfOffsetCalculation</code> has the value <code>VALID</code> .

Acknowledgement/reaction

Reset fault memory / `START TechnologicalFaultTask`

Preassignment for local reactions

`FOLLOWING_OBJECT_DISABLE`

Settable local reactions

`FOLLOWING_OBJECT_DISABLE`

Diagnostics buffer entry

No

50103 Master and slave values can only be read if a Synchronous operation relationship is active

Cause

Master and slave values can only be read out with the `_getMasterValue` and `_getSlaveValue` commands if a Synchronous operation relationship is active.

Remedy

Use the `_getMasterValue` and `_getSlaveValue` commands only for an active Synchronous operation relationship.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

50104 Master and slave values cannot be read during synchronization/desynchronization

Cause

Master and slave values can only be read out with the `_getMasterValue` and `_getSlaveValue` commands after synchronization and desynchronization of the slave axis is complete.

Remedy

Do not use the `_getMasterValue` and `_getSlaveValue` commands during synchronization and desynchronization.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

50105 No master value can be determined for a specified slave position

Cause

A master value cannot be defined for a specified slave value, as the slave value is outside the permissible value range of the Synchronous operation relationship.

Remedy

Take the value range of the Synchronous operation relationship into account when specifying slave values.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

50106 No slave value can be determined for a specified master position

Cause

A slave value cannot be defined for a specified master value, as the master value is outside the permissible definition range of the Synchronous operation relationship.

Remedy

Take the definition range of the Synchronous operation relationship into account when specifying master values.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

50107 Specified synchronization or desynchronization length is less than or equal to zero

Cause

A synchronization length is required for synchronization/desynchronization when 'syncProfileReference:=RELATE_SYNC_PROFILE_TO_LEADING_VALUE' is specified. This synchronization length must be greater than zero. It is defined by parameters 'syncLengthType' and 'syncLength'.

Remedy

Specify a synchronization length using the 'syncLengthType' and 'syncLength' parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

50108 **Synchronization position is 'AT_THE_END_OF_CAM_CYCLE' but no camming is active**

Cause

Synchronization mode 'AT_THE_END_OF_CAM_CYCLE' is used to link a new camming operation to an existing camming operation.

If camming is not active when the command is issued, this alarm is output.

Remedy

Use 'AT_THE_END_OF_CAM_CYCLE' only if camming is already active.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

50109 Synchronization position is AT_THE_END_OF_CAM_CYCLE but the master mode is not RELATIVE

Cause

Synchronization mode 'AT_THE_END_OF_CAM_CYCLE' is used to link a new camming operation to an existing camming operation. For this, RELATIVE must be specified for 'masterMode'.

Remedy

- Enter RELATIVE in command parameter 'masterMode'.
- Specify the synchronization position as something other than 'AT_THE_END_OF_CAM_CYCLE'.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

50110 Call-up of an absolute synchronous position operation after a synchronous velocity operation not permitted

Cause

The call of an absolute position-synchronous operation (gearing or camming) after a velocity-synchronous operation is not permitted.

Remedy

- With relative position-synchronous operation, switch out of 'velocity synchronous operation' mode in advance.
- On the slave axis, apply an override switch out of speed-controlled mode in advance.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

50111 The master axis is in speed-controlled mode

Cause

If the master axis is in speed-controlled mode, position-related synchronization is not allowed.

Remedy

- On the master axis, apply an override switch out of speed-controlled mode.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

50201 Loss of connection to the current master (assignment: /1/%d)**Cause**

The connection to an interconnected current master failed. The master is located on a distributed controller or has been assigned to a different execution level than the slave. The slave cannot be controlled without the master value of current the master.

Meaning of alarm parameters

Assignment:	
1	The failed master is located on an assigned controller.
2	The failed master has been assigned to a different execution level than the master.

Description of the alarm parameters in the `_getFollowingObjectErrorState` command:

No.	Data type
1	DINT

RemedyAssignment 1:

- Ensure that the associated controller is activated, the master is configured as distributed, and communication is permitted by the operating mode of the associated controller.
- Check the connection for mechanical damage, equivalence of configured network topology, firm contact by the plug connector, and, if necessary, correct electrical cable terminations.

Assignment 1 and 2:

- Make sure that the failed master was not being reloaded at the time the error was detected.
- Monitoring of the connection is set in the technology object configuration. The master and slave must have the same settings selected.

Assignment 2:

Check whether an overflow was diagnosed for the execution level of the assigned master.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FOLLOWING_OBJECT_DISABLE

Settable local reactions

FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

50202 Life-sign monitoring switched off for the master in the distributed synchronous operation

Cause

- The life-sign monitoring for the master connection to an assigned controller has been deactivated.
- Monitoring is configured differently on the master and slave. As a result, the connection is established without sign-of-life monitoring.

Remedy

Use identical configuration settings in the master and slave for sign-of-life monitoring of the connection.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

50203 Different local and master interpolation cycle clocks

Cause

The master and slave are required to have a common interpolation cycle clock for distributed Synchronous operation.

However, when establishing the connection between technology objects, different cycle clock settings were defined for interpolation.

Remedy

Use identical cycle clock settings for interpolation on the master and slave sides.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FOLLOWING_OBJECT_DISABLE

Settable local reactions

FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

50204 Connection during ramp-up

Cause

Ramp-up of the connection between master and slave was not yet completed when the motion command was called.

At the end of ramp-up, the offset between any technology objects communicating in a distributed Synchronous operation relationship is determined. The offset determination is necessary for proper functioning of offset-compensating motion control. The connection to the master is not ready until the offset calculation has been successfully completed.

Remedy

- Check the connection for:
 - Mechanical damage
 - Agreement with configured network topology
 - Firm contact of plug connector
 - Proper electrical cable terminations
- Synchronize your program sequence with system variables for offset determination on the technology object.
- Deactivate offset compensation on the technology objects involved. Deactivate compensation only if other remedies do not eliminate the malfunction. Deactivating the offset compensation limits the accuracy of motion control.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FOLLOWING_OBJECT_DISABLE

Settable local reactions

FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

50205 Clock offset in distributed Synchronous operation cannot be determined**Cause**

Clock offset to the master in distributed Synchronous operation cannot be determined These can be caused by configuring the PROFIBUS DP without selected equidistant operation or a ratio of interpolator cycle clock to PROFIBUS DP cycle clock greater than 64 or not an integer.

Remedy

- Select isochronous mode for PROFIBUS DP.
- Set an appropriate ratio of the interpolator cycle clock at the Synchronous operation object to the PROFIBUS DP cycle clock. The ratio must be an integer and may not be larger than 64. Note that also for clock scaling (internal DP cycle clock less than PROFIBUS DP cycle clock) the ratio of the interpolator cycle clock to the PROFIBUS DP cycle clock must be an integer.
- Ensure that the interpolation cycle clock on the connected controllers is an integer multiple of the PROFIBUS DP cycle clock.
- Deactivate offset compensation on the technology objects involved. Deactivate compensation only if other remedies do not eliminate the malfunction. Deactivating the offset compensation limits the accuracy of motion control.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FOLLOWING_OBJECT_DISABLE

Settable local reactions

FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

50206 Synchronization loss to the master on the assigned control in distributed Synchronous operation

Cause

There is no isochronous operation between the local and distributed controller. The local synchronization object and the assigned master thus have no common time reference system. When clock synchronism is lost, the parameters determined for this connection are no longer valid and further operation is not permissible.

Remedy

- Ensure that the connection between the controllers is configured for isochronous mode.
- Check if the user program is affecting the synchronization or if it has been deactivated.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FOLLOWING_OBJECT_DISABLE

Settable local reactions

FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

50207 Master setpoint outside of the permissible range (reason: /1/%d)**Cause**

One or more values in the master value protocol received on the slave has exceeded the permissible value range. The permissible value range is specified separately for each device. When distributing Synchronous operation functionality across different devices, a slave can receive master values which it is incapable of representing internally.

Meaning of alarm parameters

Reason:	
1	The position master setpoint has exceeded the specified limit value.
2	The velocity master setpoint has exceeded the specified limit value.
3	The position and velocity master setpoints have exceeded the specified limit values.

Description of the alarm parameters in the `_getFollowingObjectErrorState` command:

No.	Data type
1	DINT

Remedy

Take measures in the technology object configuration and user program to ensure that it is not possible to exceed the permissible value range. The error can be avoided by configuring the master as a cyclic technology object (modulo).

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FOLLOWING_OBJECT_DISABLE

Settable local reactions

FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

50208 Loss of connection to a non-current master (assignment: /1/%d)

Cause

The connection to an interconnected but not currently assigned master failed. The master is located on a distributed controller or has been assigned to a different execution level than the slave. The failure must be rectified before a change is made to this master.

Meaning of alarm parameters

Assignment:	
1	The non-current master is located on an assigned controller.
2	The non-current master has been assigned to a different execution level than the slave.

Description of the alarm parameters in the `_getFollowingObjectErrorState` command:

No.	Data type
1	DINT

Remedy

Assignment 1:

- Ensure that the associated controller is activated, the master is configured as distributed, and communication is permitted by the operating mode of the associated controller.
- Check the connection for mechanical damage, equivalence of configured network topology, firm contact by the plug connector, and, if necessary, correct electrical cable terminations.

Assignment 1 and 2:

- Make sure that the failed master was not being reloaded at the time the error was detected.
- Monitoring of the connection is set in the technology object configuration. The master and slave must have the same settings selected.

Assignment 2:

- Check whether an overflow was diagnosed for the execution level of the assigned master.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FOLLOWING_OBJECT_DISABLE

Diagnostics buffer entry

No

2.9 CamType

20001 Internal error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Error source
Parameters 2 to 4:	Fault number

Description of the alarm parameters in the `_getCamErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

DECODE_STOP

Settable local reactions

DECODE_STOP

Diagnostics buffer entry

Yes

20002 **Insufficient memory (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)**

Cause

The memory required by the system is no longer available.

This alarm can occur both during ramp-up and after program calls.

Meaning of alarm parameters

Parameter 1:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Parameters 2 to 4 are area-specific.

They are not fully utilized by all areas.

Command decoding area:

Parameters 2 and 4	refer to the command in which the error occurred.
Parameter 2:	Command return value
Parameter 4:	Command type

Description of the alarm parameters in the `_getCamErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

- Reduce the size of the ST code.
- Reduce the number of technology objects.
- Reduce the number of interpolation points for cams, if present.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

DECODE_STOP

Settable local reactions

DECODE_STOP

Diagnostics buffer entry

Yes

20003 Internal configuration error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system

Parameters 2 to 4 are area-specific.

These parameters are not fully utilized by all areas.

Command decoding area:

Parameters 2 and 4	refer to the command in which the error occurred.
Parameter 2:	Command return value
Parameter 4:	Command type

Description of the alarm parameters in the `_getCamErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

Yes

20004 Under logical address: /1/%d (bit number, if required: /2/%d) no driver (type: /3/%d) could be requested (error number: /4/%d)

Cause

The driver of a physical device or the device itself is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver
11	Technology data block driver

Error number:	Specification of the error
	Not relevant

Description of the alarm parameters in the _getCamErrorState command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT

Remedy

- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

DECODE_STOP

Settable local reactions

DECODE_STOP

Diagnostics buffer entry

Yes

20005 Device type:/3/%d, log. address:/1/%d faulted. (Bit:/2/%d, encoder number:/5/%d, reason: 0x/4/%Xh)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

The driver of a physical device or the device itself has failed or is faulty.

If this alarm occurs, the cause of the error must be evaluated in the external device (drive or encoder).

Meaning of alarm parameters

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver
12	Safety data block driver
13	Update counter
14	Operating characteristics data block driver

Logical address:	This is the logical input address configured on the technology object.
Bit number:	For bit driver type = 3 or 4 only; number of the bit
Encoder number:	Number of the encoder in case of telegrams with multiple encoders. Applies only when type = 2.
Reason:	0 - only defined when type = 2

Note

Addition of error messages

The codings for the reason of the failure specified below for the individual alarm types can also occur in combination. A group coding is indicated as the sum of several individual codings (e.g. 0x0005 = 0x0001 + 0x0004).

A failure reason labeled with DP can occur only for PROFIBUS devices.

Type = 1	
0x0001h	Fault message from the drive (note: for PROFIBUS drives, which support acyclic communication in accordance with PROFIdrive V3, the error number(s) of the drive are displayed in the diagnostic buffer, e.g. for Masterdrives MC)
0x0002h	DP: Drive signal "control requested" failed
0x0004h	DP: Drive disconnected itself
0x0008h	Slot for drive data is not available in the project
0x0010h	Actuator driver does not have a connection to the drive data
0x0020h	Actuator driver was not initialized during ramp-up
0x0080h	DP: Difference between configuration data and drive parameters (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	DP: Control signals to the PROFIdrive state machine were incorrectly specified
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
0x8000h	DP: Life-sign of drive has malfunctioned or failed
0x80000000h	The drive interface has been deactivated for the pending enables.
Type = 2	
0x0000h	The actual value changes exceed the limit value derived from the maximum velocity (configuration data TypeOfAxis.MaxVelocity.maximum) over multiple cycles. This monitoring can be activated or deactivated with configuration data TypeOfAxis.NumberOfEncoders.Encoder_x.AbsEncoder.enableAbsMonitoring.
0x0001h	Alarm message from encoder (note: the encoder error number(s) are displayed in the diagnostic buffer)
0x0002h	General hardware error of encoder
0x0004h	Encoder is dirty
0x0008h	Slot for encoder data is not available in the project
0x0010h	Encoder driver does not have a connection to the encoder data
0x0020h	Encoder driver was not initialized during ramp-up
0x0040h	Error when reading the absolute value of the encoder
0x0080h	DP: Difference between the configuration data and the encoder parameters Onboard C2xx: Inconsistency of the configuration data (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	Zero mark monitoring of encoder
0x0200h	DP: Encoder has gone to Parked state
0x4000h	DP: Encoder on bus failed (station failure)

0x8000h	DP: Life-sign of encoder has malfunctioned or failed. (note: for an encoder whose data are transferred in a drive telegram together with actuator data, the actuator life-sign applies to the encoder, e.g. for standard telegram 3 in accordance with PROFIdrive)
0x80000000h	The sensor interface has been deactivated for the pending enables.
Type = 3...6	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 7	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 8	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 9	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 10	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 11	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 12	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 13	
0x1h	The actual value was specified via a system variable and the permissible number of failure cycles was exceeded
0x2h	The actual value was updated with an update counter in the I/O area and the permissible number of failure cycles was exceeded

Description of the alarm parameters in the `_getCamErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

The remedy for the respective type and cause is described below.

Type 1

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- A system fault may be present. Call the hotline.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- When sign-of-life monitoring is set: Ensure that in HW Config for drive under DP slave properties - isochronous operation - drive, the "synchronize to equidistant DP cycle" field is activated.
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
- Up to SIMOTION RT V4.3: If the alarm occurs after the download on a drive with telegram 999: Compare the parameterized bit position for the "Pulses enabled" status signal in drive parameter p924 with the configuration data 'DriveControlConfig.PulsesEnabled' of the TO axis. In this case, there is not necessarily an incorrect parameterization and therefore a check cannot be performed by the system because of the BICO interconnection. Therefore, make sure that the Pulses enabled bit is in the correct position.

For reason 0x0100

- Correct your user program with regard to PROFIdrive-compliant specification of control bits in the _enable/disableAxis commands, e.g. control signal OFF (STW1.0 = false) must precede a drive connection.

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 2

For reason 0x0000

- Check the absolute encoder functions, connections and configuration. Take note of this when monitoring is deactivated (not with Alarm 20015).

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- Make sure that the user program does not reference a technology object containing an encoder (Axis, External Encoder) with an '_enableaxis' or '_enableexternalencoder' command while system variable 'sensordata.sensordata[n].state' is signaling invalid.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0040

- Compare the encoder type in the drive or encoder parameter P979 with the configuration data of the technology object.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
 - Compare the encoder type, resolution, shift factor, and, in the case of absolute encoders, the number of rotations in the drive or encoder parameter P979 to the encoder type, resolution, fine resolution, and, in the case of absolute encoders, the data length in the configuration data of the technology object.
- When using telegram 999, this message always appears, as the bit position is not checked by the system in this case, but has to be performed by the user.

For reason 0x0100

- Check the device functions, connections and wiring.

For reason 0x0200

- Find the cause of the error in the connected drive or encoder. Check whether the alarm was triggered due to a commissioning operation on the drive or encoder.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 3 - Type 6For reason 0x0000

- Check the configuration and the signal paths of the connection.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 7For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 8For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 9For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 10For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 11 - Type 12For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring. If the error cannot be acknowledged when the axis is in simulation mode, check whether the technology data block is activated, and if this is the case, deactivate it.

Type 13

For reason 0x1

- Check the specification of the actual value with regard to function, configuration, and task configuration.

For reason 0x2

- Check the device functions, configuration, connections and wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DECODE_STOP

Settable local reactions

DECODE_STOP

Diagnostics buffer entry

Yes

20006 Configuration error (category: /1/%d, error number: /2/%d, additional information: /3/%d)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

This alarm indicates error states caused by a faulty or inconsistent configuration. The technology objects perform a plausibility check on the configuration. Errors are identified by the error codes below.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of the error
500	Illegal technology object configuration state.
501	More configuration data expected than received.
502	Invalid configuration data.
503	Version conflict in configuration.
504	The configured task level is not supported by this TO.
505	The value range of the maximum number of command IDs has been violated.
506	The configured task level is not supported by the used hardware.
1001	Error in configuration data DecodingConfig.numberOfMaxBufferedCommandId
1002	Error in configuration data interpolationSettings.dataMode
1003	Error in configuration data interpolationSettings.cSplineInterpolation
1004	Error in configuration data interpolationSettings.bSplineInterpolation
1005	Error in configuration data interpolationSettings.maximumOfPoints
1006	Error in configuration data InverseCamRepresentation.camRepresentation
1007	Error in configuration data InverseCamRepresentation.maximumIterationLimit
1008	Error in configuration data InverseCamRepresentation.leadingRangeApproximationLimit
1009	Error in configuration data InverseCamRepresentation.followingRangeApproximationLimit
1010	Error in configuration data Tolerance.zeroEnvironment
1011	Error in configuration data Tolerance.equalDistance
1012	Error in configuration data Tolerance.IterativeZeroEnvironment.maximalIterationCycles
1013	Error in configuration data Tolerance.IterativeZeroEnvironment.leadingRangeIterationLimit
1014	Error in configuration data Tolerance.IterativeZeroEnvironment.followingRangeIterationLimit

Additional information:	More detailed description of the error origin
	Not relevant

Description of the alarm parameters in the `_getCamErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT

Remedy

Change the configuration data.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

DECODE_STOP

Settable local reactions

DECODE_STOP

Diagnostics buffer entry

Yes

20007 Interconnection error (category: /1/%d, context: /2/%d, context parameter1: /3/%d, context parameter2: /4/%d)

Cause

This alarm indicates errors in the interconnection of technology objects. When the interconnection is established, the technology object verifies it on the basis of the interface properties. Errors are classified by category.

Additional information for a more detailed description of the error can be output from the context. An error context is output for selected error categories. Additional context parameters can be output for a context, if necessary. Context and context parameters are output as an integer value.

Meaning of alarm parameters

Category:	
1	Technology object compatibility error An interconnection is to be established with a technology object that has been configured with another reference system (e.g. output cams with rotary reference system and linear axis).
2	Exclusive interface An interface on a technology object that can only be connected to another technology object using one coupling type should be interconnected using different, mutually exclusive couplings. For example, the master value interface on a positioning axis for an interconnected synchronous object can only be operated as a setpoint or an actual value coupling.
3	Interconnection request The technology object awaits the interconnection to another technology object (necessary interconnection) in order to provide its functionality. Thus, for example, the interconnection to a gear axis is a required interconnection on a synchronous object.
4	Error during interface initialization The alarm is output in the event of initialization errors when connecting interfaces on the technology object.
5	Interface not available on technology object An interface required in the interconnection is not available on the technology object.
6	Recursion The interconnection on the technology object results in a recursion in the execution system of the technology package. The technology object does not support recursive execution.
7	Execution level compatibility error An interconnection is to be established with a technology object that is classified in a different execution level (e.g. output cam in execution level IPO and axis in execution level IPO_2). The technology object does not support interconnection to technology objects of other execution levels.
8	Initialization distribution In the case of interconnected technology objects that are distributed among different devices, an error occurred during initialization of the communication.

9	<p>Illegal TO state</p> <p>The technology object cannot be interconnected in the current state. A technology object can be interconnected only after the configuration has been successfully completed. Refer to the diagnostic buffer to determine the exact cause of the error. The cause of the illegal TO state is entered there (e.g. a level overflow during the configuration phase) and can then be corrected (in the example, by allowing level overflows in the task configuration).</p>
10	<p>Interface assignment</p> <p>The configured interface via which the technology object communicates cannot be used from the processing cycle clock of the technology object.</p>
11	<p>Active command in recursive TO interconnection</p> <p>The interconnection of the technology object and the enable state at its inputs result in an active recursive interconnection (positive feedback).</p>

Description of the alarm parameters in the `_getCamErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

Context / context parameter:

Contact the hotline and provide the name of the context parameter.

Category:

1 - Technology object compatibility error

Check the configuration and set a common reference system for the technology objects to be interconnected.

2 - Exclusive interface

Ensure that the project is consistent. Contact the hotline, if necessary.

3 - Interconnection request

Ensure that the project is consistent. The missing interconnection on the technology object is specified in the context:

Context

TO type

Interface

4 - Error during interface initialization

Contact the hotline and provide the name of the context parameter.

5 - Interface not available on technology object

Contact the hotline and provide the name of the context parameter.

6 - Recursion

Check the interconnection topology of your project. Remove unnecessary interconnections.

7 - Execution level compatibility error

Select a common execution level in the configuration for the technology objects to be interconnected (e.g. output cam and axis in IPO_2).

8 - Initialization distribution

- Ensure that your project is consistent. For proper configuration of communication, all devices must be compiled ('Project/Save and compile all' or "Save and compile all new').
- Determine whether all devices are selected for loading the project ('Target system/Select target devices...').
- Check whether the configured bus topology matches the actual bus topology.
- Ensure that the devices are linked in the bus configuration (PROFIBUS).
- Check whether isochronous operation was selected.
- In addition, the address areas that are used by the devices for communication must be set up. The address areas are automatically set up when the project is compiled; only afterwards is the valid hardware configuration available for downloading. Do not change automatically generated address areas afterwards.
- Contact the hotline and provide the name of the context parameter.

9 - Illegal technology object state

- Correct the configuration of the technology object.
- Eliminate the execution error.

10 - Interface assignment

- Configure the bus interface to match the processing cycle clock (e.g. fast bus system and axis in FastIPO).

11 - Active command in recursive TO interconnection

- Inputs of technology objects can already be enabled during the download (e.g. TO AdditionObjectType). Remove or change the relevant interconnection on the technology object or switch a technology object, whose input is enabled by the user program and not already by the download, into the positive feedback branch.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DECODE_STOP

Settable local reactions

DECODE_STOP

Diagnostics buffer entry

Yes

20008 Assignment of USER_DEFAULT to system variables is not possible

Cause

It is not appropriate to assign USER_DEFAULT to a UserDefault system variable, because the variable references itself in this case.

As a result, a meaningful value cannot be generated on readout. When this error occurs, the new Enum value is not assigned. The variable retains the old value.

Remedy

USER_DEFAULT is intended for use in technology commands. Avoid assigning it to system variables.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE

Diagnostics buffer entry

No

20009 Reserved error

Cause

This error is not currently in use.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DECODE_STOP

Settable local reactions

DECODE_STOP

Diagnostics buffer entry

Yes

20010 A restart is required to activate the configuration data

Cause

The configuration cannot be activated, since data has been modified preventing the activation. The technology object must be restarted to activate the data.

Remedy

- Execute the technology object reset command, and set the 'activateRestart' parameter to 'ACTIVATE_RESTART'.
- Set the 'restartActivation' system variable to 'ACTIVATE_RESTART'.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

20011 Error occurred while activating the configuration (category: /1/%d, error number: /2/%d, additional information: /3/%d)

Cause

This alarm indicates error conditions when activating the configuration. The error conditions can be traced back to an incorrect or inconsistent configuration. The technology objects perform a plausibility check on the configuration. Errors are identified by the error codes below. The configuration is not activated when this alarm occurs.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of the error
500	Illegal technology object configuration state.
501	More configuration data expected than received.
502	Invalid configuration data.
503	Version conflict in configuration.
504	The configured task level is not supported by this TO.
505	The value range of the maximum number of command IDs has been violated.
506	The configured task level is not supported by the used hardware.
1001	Error in configuration data DecodingConfig.numberOfMaxBufferedCommandId
1002	Error in configuration data interpolationSettings.dataMode
1003	Error in configuration data interpolationSettings.cSplineInterpolation
1004	Error in configuration data interpolationSettings.bSplineInterpolation
1005	Error in configuration data interpolationSettings.maximumOfPoints
1006	Error in configuration data InverseCamRepresentation.camRepresentation
1007	Error in configuration data InverseCamRepresentation.maximumIterationLimit
1008	Error in configuration data InverseCamRepresentation.leadingRangeApproximationLimit
1009	Error in configuration data InverseCamRepresentation.followingRangeApproximationLimit
1010	Error in configuration data Tolerance.zeroEnvironment
1011	Error in configuration data Tolerance.equalDistance
1012	Error in configuration data Tolerance.iterativeZeroEnvironment.maximalIterationCycles
1013	Error in configuration data Tolerance.iterativeZeroEnvironment.leadingRangeIterationLimit
1014	Error in configuration data Tolerance.iterativeZeroEnvironment.followingRangeIterationLimit

Additional information:	More detailed description of the error origin
	Not relevant

Description of the alarm parameters in the `_getCamErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT

Remedy

Change the configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

20012 Restart not carried out (reason: /1/%d)**Cause**

Technology object could not be restarted.

Meaning of alarm parameters

Reason:	
1	The technology object configuration does not allow a restart with the restart system variable.
2	The technology object is not ready to be restarted.
3	A configured condition for restarting the technology object is not met (e.g. technology object must be 'disabled').
4	Restart was not performed with the last programmed configuration of the technology object because this is faulty
5	The configuration of the technology object does not permit any restart.

Description of the alarm parameters in the _getCamErrorState command:

No.	Data type
1	DINT

Remedy

Reason:	
1	Initiate the restart using the reset command.
2	Reload the project.
3	Work around the cause stated in the Reason parameter, or reload the project.
4	Determine whether technological alarms were reported or error entries were made in the device diagnostics and, if necessary, remedy the cause.
5	Change the configuration to activate the appropriate restart capability.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

20014 Under logical address: /1/%d (optional log. address: /2/%d and bit no.: /3/%d of the enable output), a driver (type: /4/%d) could not be requested

Cause

The driver of a physical device is not available or is being used by another technology object.

The enable command for the technology object has been issued more than once with the 'immediately' stepping condition.

Meaning of alarm parameters

Logical address:	This is the address of the actuator driver configured on the technology object.
Logical address and bit number:	This specifies the address and bit number of the output enable bit.

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver

Description of the alarm parameters in the `_getCamErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	DINT

Remedy

- Do not call the enable command cyclically "call the enable command only once for the axis enable".
- Check that the logical device was available at the time of the request or whether it was being used by another technology object.
- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DECODE_STOP

Settable local reactions

DECODE_STOP

Diagnostics buffer entry

Yes

20015 **Device type:/3/%d, log. address:/1/%d faulted. (Bit:/2/%d, encoder number:/5/%d, reason: 0x/4/%Xh)**

Cause

The driver of a physical device or the device itself has failed or is faulty.

If this alarm occurs, the cause of the error must be evaluated in the external device (drive or encoder).

Meaning of alarm parameters

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver
12	Safety data block driver
13	Update counter
14	Operating characteristics data block driver

Logical address:	This is the logical input address configured on the technology object.
Bit number:	For bit driver type = 3 or 4 only; number of the bit
Encoder number:	Number of the encoder in case of telegrams with multiple encoders. Applies only when type = 2.
Reason:	0 - only defined when type = 2

Note

Addition of error messages

The codings for the reason of the failure specified below for the individual alarm types can also occur in combination. A group coding is indicated as the sum of several individual codings (e.g. 0x0005 = 0x0001 + 0x0004).

A failure reason labeled with DP can occur only for PROFIBUS devices.

Type = 1	
0x0001h	Fault message from the drive (note: for PROFIBUS drives, which support acyclic communication in accordance with PROFIdrive V3, the error number(s) of the drive are displayed in the diagnostic buffer, e.g. for Masterdrives MC)
0x0002h	DP: Drive signal "control requested" failed
0x0004h	DP: Drive disconnected itself
0x0008h	Slot for drive data is not available in the project
0x0010h	Actuator driver does not have a connection to the drive data
0x0020h	Actuator driver was not initialized during ramp-up
0x0080h	DP: Difference between configuration data and drive parameters (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	DP: Control signals to the PROFIdrive state machine were incorrectly specified
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
0x8000h	DP: Life-sign of drive has malfunctioned or failed
0x80000000h	The drive interface has been deactivated for the pending enables.
Type = 2	
0x0000h	The actual value changes exceed the limit value derived from the maximum velocity (configuration data TypeOfAxis.MaxVelocity.maximum) over multiple cycles. This monitoring can be activated or deactivated with configuration data TypeOfAxis.NumberOfEncoders.Encoder_x.AbsEncoder.enableAbsMonitoring.
0x0001h	Alarm message from encoder (note: the encoder error number(s) are displayed in the diagnostic buffer)
0x0002h	General hardware error of encoder
0x0004h	Encoder is dirty
0x0008h	Slot for encoder data is not available in the project
0x0010h	Encoder driver does not have a connection to the encoder data
0x0020h	Encoder driver was not initialized during ramp-up
0x0040h	Error when reading the absolute value of the encoder
0x0080h	DP: Difference between the configuration data and the encoder parameters Onboard C2xx: Inconsistency of the configuration data (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	Zero mark monitoring of encoder
0x0200h	DP: Encoder has gone to Parked state
0x4000h	DP: Encoder on bus failed (station failure)

0x8000h	DP: Life-sign of encoder has malfunctioned or failed. (note: for an encoder whose data are transferred in a drive telegram together with actuator data, the actuator life-sign applies to the encoder, e.g. for standard telegram 3 in accordance with PROFIdrive)
0x80000000h	The sensor interface has been deactivated for the pending enables.
Type = 3...6	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 7	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 8	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 9	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 10	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 11	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 12	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 13	
0x1h	The actual value was specified via a system variable and the permissible number of failure cycles was exceeded
0x2h	The actual value was updated with an update counter in the I/O area and the permissible number of failure cycles was exceeded

Description of the alarm parameters in the `_getCamErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

The remedy for the respective type and cause is described below.

Type 1

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- A system fault may be present. Call the hotline.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- When sign-of-life monitoring is set: Ensure that in HW Config for drive under DP slave properties - isochronous operation - drive, the "synchronize to equidistant DP cycle" field is activated.
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
- Up to SIMOTION RT V4.3: If the alarm occurs after the download on a drive with telegram 999: Compare the parameterized bit position for the "Pulses enabled" status signal in drive parameter p924 with the configuration data 'DriveControlConfig.PulsesEnabled' of the TO axis. In this case, there is not necessarily an incorrect parameterization and therefore a check cannot be performed by the system because of the BICO interconnection. Therefore, make sure that the Pulses enabled bit is in the correct position.

For reason 0x0100

- Correct your user program with regard to PROFIdrive-compliant specification of control bits in the _enable/disableAxis commands, e.g. control signal OFF (STW1.0 = false) must precede a drive connection.

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 2

For reason 0x0000

- Check the absolute encoder functions, connections and configuration. Take note of this when monitoring is deactivated (not with Alarm 20015).

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- Make sure that the user program does not reference a technology object containing an encoder (Axis, External Encoder) with an '_enableaxis' or '_enableexternalencoder' command while system variable 'sensordata.sensordata[n].state' is signaling invalid.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0040

- Compare the encoder type in the drive or encoder parameter P979 with the configuration data of the technology object.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
 - Compare the encoder type, resolution, shift factor, and, in the case of absolute encoders, the number of rotations in the drive or encoder parameter P979 to the encoder type, resolution, fine resolution, and, in the case of absolute encoders, the data length in the configuration data of the technology object.
- When using telegram 999, this message always appears, as the bit position is not checked by the system in this case, but has to be performed by the user.

For reason 0x0100

- Check the device functions, connections and wiring.

For reason 0x0200

- Find the cause of the error in the connected drive or encoder. Check whether the alarm was triggered due to a commissioning operation on the drive or encoder.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 3 - Type 6For reason 0x0000

- Check the configuration and the signal paths of the connection.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 7For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 8For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 9For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 10For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 11 - Type 12For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring. If the error cannot be acknowledged when the axis is in simulation mode, check whether the technology data block is activated, and if this is the case, deactivate it.

Type 13

For reason 0x1

- Check the specification of the actual value with regard to function, configuration, and task configuration.

For reason 0x2

- Check the device functions, configuration, connections and wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

Yes

20016 Under logical address: /1/%d (bit number, if required: /2/%d) no driver (type: /3/%d) activated (error number: /4/%d)

Cause

The driver of a physical device or the device itself is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
	Not relevant

Description of the alarm parameters in the `_getCamErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT

Remedy

- Check the activation/deactivation sequence for the interface.
- Note the runtimes of the commands and use the provided command control mechanisms (e.g. nextCommand := WHEN_COMMAND_DONE).
- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

Yes

20017 Internal algorithm error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Error source
Parameters 2 to 4:	Fault number

Description of the alarm parameters in the `_getCamErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact:

SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DECODE_STOP

Settable local reactions

DECODE_STOP

Diagnostics buffer entry

Yes

20018 **Attempt to write the bit(s): 0x/1/%Xh in control word1 or the bit(s): 0x/2/%Xh in control word2 under the log. address: /3/%d has been rejected.**

Cause

An attempt to write certain bits in control word 1 or 2 has been rejected.

Meaning of alarm parameters

Bits:	Display of bits which could not be written
Log. address:	Logical address of the device driver

Description of the alarm parameters in the `_getCamErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT

Remedy

- Check the order of commands, particularly in relation to `_enableAxis(...)`.
- Check the command parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE

Diagnostics buffer entry

Yes

20019 Error for the commissioning, reason: /1/%d (Parameter1: /2/%d, Parameter2: /3/%d)

Cause

A commissioning function could not be executed.

Meaning of alarm parameters

Reason:	
1	Failure of the life-sign between controller and SIMOTION SCOUT
2	Protocol error
3	Command decoding error

Description of the alarm parameters in the _getCamErrorState command:

No.	Data type
1	DINT
2	UDINT
3	UDINT

Remedy

Reason:	
1	Check the connection properties. If required, increase the monitoring time.
2	Should a system error of this type occur, note the alarm number, the alarm text and the specified alarm parameters, and contact: SIEMENS AG I DT MC, Hotline.
3	Should a system error of this type occur, note the alarm number, the alarm text and the specified alarm parameters, and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / NONE

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

Yes

20020 Output deactivated

Cause

One or more outputs of the technology object have been deactivated. This is caused by the output-disable device status.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DECODE_STOP

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

20021 Configuration will be adapted internally (category: /1/%d, reason: /2/%d, limited value: /3/%f, additional information: /4/%d)

Cause

This alarm shows the implicit setting of configuration data to the maximum possible values. The technology objects perform a plausibility check on the configuration. Errors/manipulations are identified by the error codes below.

Meaning of alarm parameters

1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of configuration data
2001	Illegal value for maxSpeed (maxSpeed less than or equal to 2*nominalSpeed; maxSpeed will be set to 2*nominalSpeed)
2002	Illegal value for maxTorque/Force (maxTorque/Force less than or equal to 2*nominalTorque/Force; maxTorque/Force will be set to 2*nominalTorque/Force)
2003	Error during the adaptation of the Torque-/ForceReductionGranularity. p1544 is ignored and the default value used.
3001	The length of the backlash on reversal is limited to a permitted value (Encoder_N.incBacklash.length or Encoder_N.absBacklash.length).
3002	The compensation velocity of the backlash on reversal is limited to a permitted value (Encoder_N.incBacklash.velocity or Encoder_N.absBacklash.velocity).
3003	The value of the configuration data for the encoder system (.Encoder_N.encoderSystem) is limited to a permitted value.
3004	The value of the configuration data for the encoder resolution (rotary: .Encoder_N.incEncoder.incResolution, Encoder_N.absEncoder.absResolution; linear: Encoder_N.Resolution.distance) is limited to a permitted value.
3005	The value of the configuration data for the multiplication factor of the cyclical actual value (.Encoder_N.incEncoder.incResolutionMultiplierCyclic, Encoder_N.absEncoder.absResolutionMultiplierCyclic, Encoder_N.Resolution.multiplierCyclic) is limited to a permitted value.
3006	The value of the configuration data for the multiplication factor of the absolute value (Encoder_N.absEncoder.absResolutionMultiplierAbsolute) is limited to a permitted value.
3007	The value of the configuration data for the data length of the absolute value (Encoder_N.absEncoder.absDataLength) is limited to a permitted value.
3008	The value of the configuration data for the reference value of the Nact speed in the PROFIdrive telegram (Encoder_N.sensorNist.referenceValue) is limited to a permitted value.
3009	The load gear factor of the first data set is leading for the encoder simulation. The simulation with different load gear factors is not supported. The value of the configuration data for the load gear (DataSet_N.gear) is limited to the load gear ratio of the first data set.
4001	The delay time for the triggering of the standstill signal (StandStillSignal.delayTimeToActivate) is limited.
4002	The delay time until the position monitoring tolerance window is reached (PositionMonitoring.posWinTolTime) is limited.
4003	The delay time until the activation of the position monitoring message (PositionMonitoring.posWinTolDelayTime) is limited.
4004	The delay time for the activation of the standstill monitoring message (StandStillMonitoring.delayTimeToActivate) is limited.
4005	The delay time of the actual value of the force/pressure entry monitoring (ForceControlRunningInWindowMonitoring.winTolTime) is limited.
4006	The delay time until activation of the force/pressure entry monitoring (ForceControlRunningInWindowMonitoring.maxDelayTime) is limited.
4007	The delay time until activation of the force/pressure end value monitoring (ForceControlHeldValueMonitoring.delayTimeToActivate) is limited.

4008	The delay of the emergency ramp generator (EmergencyRampGenerator.maxDeceleration) is too small and set to the minimum possible value.
4009	The decay time constant of the friction compensation (Friction.decayTime) is limited.
4068	The maximum buffer length of the lag element in the balancing filter (Mode_2) is reached or exceeded. The lag element (maximum buffer length: 16 servo-cycles) is augmented by a PT1 element.
4069	The maximum buffer length of the lag component of the dynamic response compensation is reached or exceeded. The maximum value of this time constant is limited to 16 servo cycles. The buffer length of the lag element is maximum 16.

Additional information:	More detailed description of the error origin
Not relevant	

Description of the alarm parameters in the `_getCamErrorState` command:

No.	Data type
1	DINT
2	DINT
3	LREAL
4	UDINT

Remedy

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30001 **Illegal parameter (parameter index according to standard sequence in the system functions: /1/%d, command type: /4/%X)**

Cause

Illegal parameter transfer to a system function. The command is not executed. This alarm occurs when the permissible parameter value range is violated. The permissible value range of the parameter is a function of its data type and the technological meaning of the parameter.

The parameter index indicates the position of the illegal parameter. The standard sequence of parameters in the system functions is apparent from the reference list associated with the command. The command type indicates the type of the faulty system function.

Meaning of alarm parameters

Parameter index:	Index of the system function parameter that triggered this error (listed according to the standard sequence in the system functions).
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the _getCamErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the value range of the parameter data type.
- Check the technological meaning of the parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30002 Command aborted (reason: /1/%d, command type: /4/%X)**Additional references**

Further information is provided in the Function Manual:

- Basic Functions and
- in the online help.

Cause

The command was aborted before or during execution.

This can be caused by:

- A substituted command
- Command buffer reset
- Error state

Note

This alarm is always output, e.g. for jogging (_move aborted with _stop) or for the retraction of the reference BERO for homing or when Synchronous operation (explicitly) deactivated.

Meaning of alarm parameters

Reason:	
1	Reset of the command buffer
2	Abort by another command
5	Abort by a pending error response
6	Abort due to ambiguous commandId
9	Abort due to abort of a dependent command
31	Maximum number of active commands exceeded
42	No interconnection to a technology object
44	Abort because of a pending command with identical command parameters

Command type:	Outputs the aborted command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getCamErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Set up the command again via program.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30003 Command aborted because of full command buffer (command type: /4/%X)**Cause**

The command is not entered in the command buffer because the buffer is already full.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getCamErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the program flow.
- Typical cause: The 'nextCommand' parameter is passed with the value 'IMMEDIATELY', and the 'mergeMode' parameter is passed with the value 'SEQUENTIAL'.
 - Synchronize the command execution in the user program so that the command buffer is not occupied when the command is issued.
 - Use other values for the 'nextCommand' or 'mergeMode' parameters. Setting the 'nextCommand' to a value other than 'IMMEDIATELY' causes the program to wait for the command buffer to become available. In addition, setting a different 'mergeMode' means that the command buffer can be overwritten.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30004 Command is not defined for this technology object type (command type: /4/%X)

Cause

Command was programmed on a technology object type not supporting processing of this command.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getCamErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Issue the command on the correct technology object type.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30005 Ambiguous commandId (number of commands with the specified ID: /1/%d, command type: /4/%X)**Cause**

The specified commandId refers to more than one command. The specified action is performed for the command matching the specified ID that has been in the interpolator for the longest time.

If no corresponding command is found in the interpolator, the action refers to the next command loaded in the interpolator.

Meaning of alarm parameters

Id:	Number of commands referenced by the specified command ID.
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the _getCamErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Use a different 'commandId' for commands that are active simultaneously.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30006 **Command cannot be executed because of the current object state (command type: /4/%X)**

Cause

A reset command is active at the object or the object is deactivated.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getCamErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the following:

- Check the object status.
- Check the possible execution sequence of the programmed commands.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30007 The error cannot be reset because of its configuration**Cause**

The 30007 alarm will be output when an alarm is reset that can only be acknowledged with PowerOn.

Example:

The internal 20001 error can only be acknowledged with PowerOn.

If an attempt is made to reset the alarm with a `_reset...Error` command, the 30007 alarm will be output.

Description of the alarm parameters in the `_getCamErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

Check whether the errors present on the technology object can be acknowledged.

Correct the cause of the error and switch the CPU off/on or load the project again.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30008 **Link to a technology object necessary for this operation does not exist (command type: /4/%X)**

Cause

The object connection required for this operation has not been configured or the connected technology object has been deactivated.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getCamErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the project configuration.
- Change the object connection in the command.
- Activate the connected technology object.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30009 **Command rejected as the decoding of the command of the technology object addressed has been deactivated/stopped (reason: /1/%d, command type: /4/%X)**

Cause

Command was rejected due to suspension of command decoding on the addressed technology object. The command decoding can be stopped by the DECODE_STOP alarm response, by deactivating or restarting the technology object, by starting the axis control panel in exclusive mode or by the absence of necessary interconnections.

Meaning of alarm parameters

Reason:	
1	Restart of the technology object
2	Technology object is deactivated
3	Technology object is in RUN mode.
4	Control panel active

Command type:	Outputs the type of the rejected command. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getCamErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check why the command was rejected.
- If necessary, acknowledge any active errors once you have corrected the cause of the error.
- If the technology object is deactivated, you must activate it.
- Do not issue any commands while the technology object is restarting.
- Do not issue any commands while a connected technology object is restarting.
- Stop the axis control panel.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30010 Command not available (command type: /4/%X)**Cause**

The command is not available in this version of the runtime software.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getCamErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the version of the runtime software.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30011 **Parameter not available (parameter index according to the standard sequence in the system functions: /1/%d, command type: /4/%X)**

Cause

The parameter is not available in this version of the runtime software, the command is therefore rejected. The parameters indicate the position according to the standard sequence in the system functions and the command type of an incorrectly entered parameter.

Meaning of alarm parameters

Parameter index:	Index of the command parameter triggering this error according to the standard sequence in the system functions.
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getCamErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the version of the runtime software.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30012 Command cannot be started synchronously (command type: /4/%X)**Cause**

The command cannot be used within a 'BEGIN_SYNC' or 'END_SYNC' sequence. The command has only one return value in the user program, or the command is not capable of starting synchronously.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getCamErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Do not use this command type during a BEGIN_SYNC, END_SYNC sequence.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30013 Synchronous start of the command is carried out with mergeMode IMMEDIATELY (command type: /4/%X)

Cause

With synchronous command start, only merge modes that immediately override the current command (IMMEDIATELY) and superimpose the current command (SUPERIMPOSED_MOTION_MERGE) can be used.

If an illegal merge mode is programmed (e.g. SEQUENTIAL or NEXT_MOTION), the system automatically changes the merge mode to IMMEDIATELY and outputs this warning.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getCamErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Program the command which is to be started synchronously to immediately override the current command. To do this, enter the value IMMEDIATELY in the 'mergeMode' command parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30015 **A technology required for this command has not been configured (technology: /1/%d, command type: /4/%X)**

Cause

The command cannot be selected in this technology object configuration.

Meaning of alarm parameters

Technology:	Not relevant
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getCamErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Activate the technology needed for the command.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

40001 Write access to function refused (command type: /4/%X)

Cause

This error occurs if the function is read- or write-accessed while the command is being executed.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as an integer value.
----------------------	---

Description of the alarm parameters in the `_getCamErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Avoid reading and writing data simultaneously.
- Check whether another technology object is accessing the function.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

40002 Read access to function refused (command type: /4/%X)**Cause**

This error occurs if an external data source write-accesses the function while the command is being executed.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as an integer value.
----------------------	---

Description of the alarm parameters in the _getCamErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Avoid reading and writing data simultaneously.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

40003 Illegal range specification in the parameters (command type: /4/%X)

Cause

The combination of several parameters is not permissible.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as an integer value.
----------------------	---

Description of the alarm parameters in the `_getCamErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Change the parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

40004 Segment with length zero will not be inserted in the function (start and end point = /1/%lf)

Cause

The start and end point for mapping the segment onto the master axis are identical in the '_addSegmentToCam' command ('leadingRangeStartPoint:=leadingRangeEndPoint').

Description of the alarm parameters in the _getCamErrorState command:

No.	Data type
1	LREAL

Remedy

- Remove the segment from your function if it is not needed.
- Extend the segment in the direction of the master axis.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

40005 For the specified point (/1/%lf) in the definition range (/2/%lf, /3/%lf), no valid representation exists in the value range (representation: /4/%d, reason: /5/%d).

Cause

A point has been selected in the definition range for which no valid representation exists in the value range.

Meaning of alarm parameters

Definition range:	Definition range of function at the time of access.
--------------------------	---

Representation:	
1	The parameters for this alarm are shown with scaling and offset.
2	The parameters for this alarm are shown without scaling and offset.

Reason:	
1	The point is outside the definition range of the cam.
2	The point is at a discontinuity point of the cam.
3	The geometry of the cam is not defined.

Description of the alarm parameters in the _getCamErrorState command:

No.	Data type
1	LREAL
2	LREAL
3	LREAL
4	DINT
5	DINT

Remedy

Take the range limits into account when specifying points in the definition range.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

40006 For the specified point (/1/%lf) in the value range (/2/%lf, /3/%lf), no valid representation exists in the definition range (representation: /4/%d, reason: /5/%d).

Cause

A point has been selected in the value range for which no valid representation exists in the definition range.

Meaning of alarm parameters

Value range:	Value range of function at the time of access.
---------------------	--

Representation:	
1	The parameters for this alarm are shown with scaling and offset.
2	The parameters for this alarm are shown without scaling and offset.

Reason:	
1	The point is outside the value range of the cam.
2	The point is at a discontinuity point of the cam.
3	The geometry of the cam is not defined.

Description of the alarm parameters in the `_getCamErrorState` command:

No.	Data type
1	LREAL
2	LREAL
3	LREAL
4	DINT
5	DINT

Remedy

Take the range limits into account when specifying points in the range.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

40007 **Access to an interpolated function refused (command type: /4/%X).**

Cause

This error occurs for commands that are not permitted to be applied to interpolated functions.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as an integer value.
----------------------	---

Description of the alarm parameters in the `_getCamErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Reset the function before executing the command.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

40008 The property requested at interpolation could not be complied with

Cause

This message occurs when

- Interpolation cannot allow a continuous progression in the value range because there is a continuous progression in the definition range and the difference in the value range is outside the permissible segment adaptation limit.
- The end criterion was violated for the same reasons.

Remedy

- Move the interpolation limits.
- Check the shape of the cam.
- Change the criteria for interpolation of segments.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

40009 **No valid representation function exists for the specified range (reason: /1/%d).**

Cause

A value range has been specified for which no valid representation exists in the definition range. If a subrange of the specified value range cannot be represented, this alarm will also be output.

Meaning of alarm parameters

Reason:	
1	The range is outside the value range of the cam.
2	The range is at a discontinuity point of the cam or a range scaling exists and the query is made in the offset and scaled range.
3	The geometry of the cam is not defined.

Description of the alarm parameters in the `_getCamErrorState` command:

No.	Data type
1	DINT

Remedy

- Take the range limits into account when specifying the definition range.
- Specify the non-offset rather than the scaled range as reference system for the query.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

40010 The number of cam interpolation points exceeds the configured maximum limit

Cause

The number of cam interpolation points exceeds the number of the maximum limit set in the configuration data 'InterpolationSettings.maximumOfPoints'.

Remedy

- Check the setting of the configuration data 'InterpolationSettings.maximumOfPoints'.
- Check the programming of the cam.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

40011 **Limited mode on the cam active (reason: /1/%d).**

Cause

A limited mode has been activated on the cam. Not all of the operations can be executed.

Meaning of alarm parameters

Reason:	
1	An attempt was made to insert segments, but only points may be inserted.
2	An attempt was made to insert points, but only segments may be inserted.

Description of the alarm parameters in the _getCamErrorState command:

No.	Data type
1	DINT

Remedy

- Check the setting of the configuration data 'InterpolationSettings.dataMode'.
- Check the programming of the cam.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

40012 **No available memory for the cam assembly.**

Cause

The memory required for the cam assembly is no longer available.

Remedy

- Reduce the number of interpolation points or cam segments.
- Reduce the number of technology objects.
- Reduce the size of the ST code.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

TP Path

3.1 PathObjectType

20001 Internal error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Error source
Parameters 2 to 4:	Fault number

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

DISABLE_MOTION

Settable local reactions

DISABLE_MOTION

Diagnostics buffer entry

Yes

20002 **Insufficient memory (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)**

Cause

The memory required by the system is no longer available.

This alarm can occur both during ramp-up and after program calls.

Meaning of alarm parameters

Parameter 1:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Parameters 2 to 4 are area-specific.

They are not fully utilized by all areas.

Command decoding area:

Parameters 2 and 4	refer to the command in which the error occurred.
Parameter 2:	Command return value
Parameter 4:	Command type

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

- Reduce the size of the ST code.
- Reduce the number of technology objects.
- Reduce the number of interpolation points for cams, if present.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

DISABLE_MOTION

Settable local reactions

DISABLE_MOTION

Diagnostics buffer entry

Yes

20003 Internal configuration error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system

Parameters 2 to 4 are area-specific.

These parameters are not fully utilized by all areas.

Command decoding area:

Parameters 2 and 4	refer to the command in which the error occurred.
Parameter 2:	Command return value
Parameter 4:	Command type

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

Yes

20004 Under logical address: /1/%d (bit number, if required: /2/%d) no driver (type: /3/%d) could be requested (error number: /4/%d)

Cause

The driver of a physical device or the device itself is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
	Not relevant

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT

Remedy

- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_MOTION

Settable local reactions

DISABLE_MOTION

Diagnostics buffer entry

Yes

20005 Device type:/3/%d, log. address:/1/%d faulted. (Bit:/2/%d, encoder number:/5/%d, reason: 0x/4/%Xh)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

The driver of a physical device or the device itself has failed or is faulty.

If this alarm occurs, the cause of the error must be evaluated in the external device (drive or encoder).

Meaning of alarm parameters

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver
12	Safety data block driver
13	Update counter
14	Operating characteristics data block driver

Logical address:	This is the logical input address configured on the technology object.
Bit number:	For bit driver type = 3 or 4 only; number of the bit
Encoder number:	Number of the encoder in case of telegrams with multiple encoders. Applies only when type = 2.
Reason:	0 - only defined when type = 2

Note

Addition of error messages

The codings for the reason of the failure specified below for the individual alarm types can also occur in combination. A group coding is indicated as the sum of several individual codings (e.g. 0x0005 = 0x0001 + 0x0004).

A failure reason labeled with DP can occur only for PROFIBUS devices.

Type = 1	
0x0001h	Fault message from the drive (note: for PROFIBUS drives, which support acyclic communication in accordance with PROFIdrive V3, the error number(s) of the drive are displayed in the diagnostic buffer, e.g. for Masterdrives MC)
0x0002h	DP: Drive signal "control requested" failed
0x0004h	DP: Drive disconnected itself
0x0008h	Slot for drive data is not available in the project
0x0010h	Actuator driver does not have a connection to the drive data
0x0020h	Actuator driver was not initialized during ramp-up
0x0080h	DP: Difference between configuration data and drive parameters (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	DP: Control signals to the PROFIdrive state machine were incorrectly specified
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
0x8000h	DP: Life-sign of drive has malfunctioned or failed
0x80000000h	The drive interface has been deactivated for the pending enables.
Type = 2	
0x0000h	The actual value changes exceed the limit value derived from the maximum velocity (configuration data TypeOfAxis.MaxVelocity.maximum) over multiple cycles. This monitoring can be activated or deactivated with configuration data TypeOfAxis.NumberOfEncoders.Encoder_x.AbsEncoder.enableAbsMonitoring.
0x0001h	Alarm message from encoder (note: the encoder error number(s) are displayed in the diagnostic buffer)
0x0002h	General hardware error of encoder
0x0004h	Encoder is dirty
0x0008h	Slot for encoder data is not available in the project
0x0010h	Encoder driver does not have a connection to the encoder data
0x0020h	Encoder driver was not initialized during ramp-up
0x0040h	Error when reading the absolute value of the encoder
0x0080h	DP: Difference between the configuration data and the encoder parameters Onboard C2xx: Inconsistency of the configuration data (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	Zero mark monitoring of encoder
0x0200h	DP: Encoder has gone to Parked state
0x4000h	DP: Encoder on bus failed (station failure)

0x8000h	DP: Life-sign of encoder has malfunctioned or failed. (note: for an encoder whose data are transferred in a drive telegram together with actuator data, the actuator life-sign applies to the encoder, e.g. for standard telegram 3 in accordance with PROFIdrive)
0x80000000h	The sensor interface has been deactivated for the pending enables.
Type = 3...6	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 7	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 8	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 9	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 10	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 11	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 12	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 13	
0x1h	The actual value was specified via a system variable and the permissible number of failure cycles was exceeded
0x2h	The actual value was updated with an update counter in the I/O area and the permissible number of failure cycles was exceeded

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

The remedy for the respective type and cause is described below.

Type 1

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- A system fault may be present. Call the hotline.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- When sign-of-life monitoring is set: Ensure that in HW Config for drive under DP slave properties - isochronous operation - drive, the "synchronize to equidistant DP cycle" field is activated.
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
- Up to SIMOTION RT V4.3: If the alarm occurs after the download on a drive with telegram 999: Compare the parameterized bit position for the "Pulses enabled" status signal in drive parameter p924 with the configuration data 'DriveControlConfig.PulsesEnabled' of the TO axis. In this case, there is not necessarily an incorrect parameterization and therefore a check cannot be performed by the system because of the BICO interconnection. Therefore, make sure that the Pulses enabled bit is in the correct position.

For reason 0x0100

- Correct your user program with regard to PROFIdrive-compliant specification of control bits in the _enable/disableAxis commands, e.g. control signal OFF (STW1.0 = false) must precede a drive connection.

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 2

For reason 0x0000

- Check the absolute encoder functions, connections and configuration. Take note of this when monitoring is deactivated (not with Alarm 20015).

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- Make sure that the user program does not reference a technology object containing an encoder (Axis, External Encoder) with an '_enableaxis' or '_enableexternalencoder' command while system variable 'sensordata.sensordata[n].state' is signaling invalid.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0040

- Compare the encoder type in the drive or encoder parameter P979 with the configuration data of the technology object.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
 - Compare the encoder type, resolution, shift factor, and, in the case of absolute encoders, the number of rotations in the drive or encoder parameter P979 to the encoder type, resolution, fine resolution, and, in the case of absolute encoders, the data length in the configuration data of the technology object.
- When using telegram 999, this message always appears, as the bit position is not checked by the system in this case, but has to be performed by the user.

For reason 0x0100

- Check the device functions, connections and wiring.

For reason 0x0200

- Find the cause of the error in the connected drive or encoder. Check whether the alarm was triggered due to a commissioning operation on the drive or encoder.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 3 - Type 6For reason 0x0000

- Check the configuration and the signal paths of the connection.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 7For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 8For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 9For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 10For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 11 - Type 12For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring. If the error cannot be acknowledged when the axis is in simulation mode, check whether the technology data block is activated, and if this is the case, deactivate it.

Type 13

For reason 0x1

- Check the specification of the actual value with regard to function, configuration, and task configuration.

For reason 0x2

- Check the device functions, configuration, connections and wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_MOTION

Settable local reactions

DISABLE_MOTION

Diagnostics buffer entry

Yes

20006 Configuration error (category: /1/%d, error number: /2/%d, additional information: /3/%d)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

This alarm indicates error states caused by a faulty or inconsistent configuration. The technology objects perform a plausibility check on the configuration. Errors are identified by the error codes below.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of the error
500	Illegal technology object configuration state.
501	More configuration data expected than received.
502	Invalid configuration data.
503	Version conflict in configuration.
504	The configured task level is not supported by this TO.
505	The value range of the maximum number of command IDs has been violated.
506	The configured task level is not supported by the used hardware.
1000	Roller picker: Radius error
1001	Kinematics: Illegal articulated joint clearances
1002	Delta 2D picker: Configuration of the arm lengths and the zero point or target position separations do not suffice to form a closed parallel structure
1003	Delta 3D picker: Configuration of the arm lengths and the zero point or target position separations do not suffice to form a closed parallel structure
1004	Delta 3D picker: Angle offsets for arm M1-A1-A4 to X [-180°;180°), arm M2-A2-A5 to arm M1-A1-A4 (90°;180°) or arm M3-A3-A6 to arm M1-A1-A4 (-180°;-90°) are not contained within their permitted intervals
1005	Delta 3D picker: The resulting angle offset for arm M3-A3-A6 to arm M2-A2-A5 does not lie within its permitted interval (90°;180°)
1006	Error in configuration data DecodingConfig.numberOfMaxBufferedCommandId
1007	Error in configuration data Kinematics.ScaraConfig.LinkCompensationA4.factorA1A4
1008	Error in configuration data Kinematics.ScaraConfig.LinkCompensationA4.factorA2A4
1009	Error in configuration data Kinematics.ScaraConfig.LinkCompensationA3.factorA4A3
1010	Error in configuration data Kinematics.ArticulatedArmConfig.LinkCompensation.factorA2A3
1011	Special kinematics: A kinematics ID is used several times, use is not unique
1012	Special kinematics: An external kinematics ID violates the value range reserved by the system
1013	Special kinematics: No kinematics can be instantiated for the desired ID
1014	Kinematics: Limits not observed for the specification of orientations
1015	Error in configuration data Kinematics.ScaraConfig.LinkCompensationA2.factorA1A2
1016	Error in configuration data Kinematics.SwivelArmConfig.LinkCompensationA4.factorA1A4
1017	Error in configuration data Kinematics.SwivelArmConfig.LinkCompensationA2.factorA4A2
1018	Error in configuration data DecodingConfig.disablePathOperation
1019	Error in configuration data DecodingConfig.positionIndication
1020	Error in configuration data DecodingConfig.maximalBufferedMotionCommands
1022	Error in configuration data InterpolationConfig.blendingAcceleration

Additional information:	More detailed description of the error origin
	Not relevant

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT

Remedy

Change the configuration data.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_MOTION

Settable local reactions

DISABLE_MOTION

Diagnostics buffer entry

Yes

20007 Interconnection error (category: /1/%d, context: /2/%d, context parameter1: /3/%d, context parameter2: /4/%d)

Cause

This alarm indicates errors in the interconnection of technology objects. When the interconnection is established, the technology object verifies it on the basis of the interface properties. Errors are classified by category.

Additional information for a more detailed description of the error can be output from the context. An error context is output for selected error categories. Additional context parameters can be output for a context, if necessary. Context and context parameters are output as an integer value.

Meaning of alarm parameters

Category:	
1	Technology object compatibility error An interconnection is to be established with a technology object that has been configured with another reference system (e.g. output cams with rotary reference system and linear axis).
2	Exclusive interface An interface on a technology object that can only be connected to another technology object using one coupling type should be interconnected using different, mutually exclusive couplings. For example, the master value interface on a positioning axis for an interconnected synchronous object can only be operated as a setpoint or an actual value coupling.
3	Interconnection request The technology object awaits the interconnection to another technology object (necessary interconnection) in order to provide its functionality. Thus, for example, the interconnection to a gear axis is a required interconnection on a synchronous object.
4	Error during interface initialization The alarm is output in the event of initialization errors when connecting interfaces on the technology object.
5	Interface not available on technology object An interface required in the interconnection is not available on the technology object.
6	Recursion The interconnection on the technology object results in a recursion in the execution system of the technology package. The technology object does not support recursive execution.
7	Execution level compatibility error An interconnection is to be established with a technology object that is classified in a different execution level (e.g. output cam in execution level IPO and axis in execution level IPO_2). The technology object does not support interconnection to technology objects of other execution levels.
8	Initialization distribution In the case of interconnected technology objects that are distributed among different devices, an error occurred during initialization of the communication.

9	<p>Illegal TO state</p> <p>The technology object cannot be interconnected in the current state. A technology object can be interconnected only after the configuration has been successfully completed. Refer to the diagnostic buffer to determine the exact cause of the error. The cause of the illegal TO state is entered there (e.g. a level overflow during the configuration phase) and can then be corrected (in the example, by allowing level overflows in the task configuration).</p>
10	<p>Interface assignment</p> <p>The configured interface via which the technology object communicates cannot be used from the processing cycle clock of the technology object.</p>
11	<p>Active command in recursive TO interconnection</p> <p>The interconnection of the technology object and the enable state at its inputs result in an active recursive interconnection (positive feedback).</p>

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

Context / context parameter:

Contact the hotline and provide the name of the context parameter.

Category:

1 - Technology object compatibility error

Check the configuration and set a common reference system for the technology objects to be interconnected.

2 - Exclusive interface

Ensure that the project is consistent. Contact the hotline, if necessary.

3 - Interconnection request

Ensure that the project is consistent. The missing interconnection on the technology object is specified in the context:

Context

TO type

Interface

16

Interpolation

Interpolation/path axis 1

17

Interpolation

Interpolation/path axis 2

4 - Error during interface initialization

Contact the hotline and provide the name of the context parameter.

5 - Interface not available on technology object

Contact the hotline and provide the name of the context parameter.

6 - Recursion

Check the interconnection topology of your project. Remove unnecessary interconnections.

7 - Execution level compatibility error

Select a common execution level in the configuration for the technology objects to be interconnected (e.g. output cam and axis in IPO_2).

8 - Initialization distribution

- Ensure that your project is consistent. For proper configuration of communication, all devices must be compiled ('Project/Save and compile all' or "Save and compile all new').
- Determine whether all devices are selected for loading the project ('Target system/Select target devices...').
- Check whether the configured bus topology matches the actual bus topology.
- Ensure that the devices are linked in the bus configuration (PROFIBUS).
- Check whether isochronous operation was selected.
- In addition, the address areas that are used by the devices for communication must be set up. The address areas are automatically set up when the project is compiled; only afterwards is the valid hardware configuration available for downloading. Do not change automatically generated address areas afterwards.
- Contact the hotline and provide the name of the context parameter.

9 - Illegal technology object state

- Correct the configuration of the technology object.
- Eliminate the execution error.

10 - Interface assignment

- Configure the bus interface to match the processing cycle clock (e.g. fast bus system and axis in FastIPO).

11 - Active command in recursive TO interconnection

- Inputs of technology objects can already be enabled during the download (e.g. TO AdditionObjectType). Remove or change the relevant interconnection on the technology object or switch a technology object, whose input is enabled by the user program and not already by the download, into the positive feedback branch.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_MOTION

Settable local reactions

DISABLE_MOTION

Diagnostics buffer entry

Yes

20008 Assignment of USER_DEFAULT to system variables is not possible

Cause

It is not appropriate to assign USER_DEFAULT to a UserDefault system variable, because the variable references itself in this case.

As a result, a meaningful value cannot be generated on readout. When this error occurs, the new Enum value is not assigned. The variable retains the old value.

Remedy

USER_DEFAULT is intended for use in technology commands. Avoid assigning it to system variables.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

20009 Reserved error

Cause

This error is not currently in use.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_MOTION

Settable local reactions

DISABLE_MOTION

Diagnostics buffer entry

Yes

20010 A restart is required to activate the configuration data

Cause

The configuration cannot be activated, since data has been modified preventing the activation. The technology object must be restarted to activate the data.

Remedy

- Execute the technology object reset command, and set the 'activateRestart' parameter to 'ACTIVATE_RESTART'.
- Set the 'restartActivation' system variable to 'ACTIVATE_RESTART'.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

20011 Error occurred while activating the configuration (category: /1/%d, error number: /2/%d, additional information: /3/%d)

Cause

This alarm indicates error conditions when activating the configuration. The error conditions can be traced back to an incorrect or inconsistent configuration. The technology objects perform a plausibility check on the configuration. Errors are identified by the error codes below. The configuration is not activated when this alarm occurs.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of the error
500	Illegal technology object configuration state.
501	More configuration data expected than received.
502	Invalid configuration data.
503	Version conflict in configuration.
504	The configured task level is not supported by this TO.
505	The value range of the maximum number of command IDs has been violated.
506	The configured task level is not supported by the used hardware.
1000	Roller picker: Radius error
1001	Kinematics: Illegal articulated joint clearances
1002	Delta 2D picker: Configuration of the arm lengths and the zero point or target position separations do not suffice to form a closed parallel structure
1003	Delta 3D picker: Configuration of the arm lengths and the zero point or target position separations do not suffice to form a closed parallel structure
1004	Delta 3D picker: Angle offsets for arm M1-A1-A4 to X [-180°;180°), arm M2-A2-A5 to arm M1-A1-A4 (90°;180°) or arm M3-A3-A6 to arm M1-A1-A4 (-180°;-90°) are not contained within their permitted intervals
1005	Delta 3D picker: The resulting angle offset for arm M3-A3-A6 to arm M2-A2-A5 does not lie within its permitted interval (90°;180°)
1006	Error in configuration data DecodingConfig.numberOfMaxBufferedCommandId
1007	Error in configuration data Kinematics.ScaraConfig.LinkCompensationA4.factorA1A4
1008	Error in configuration data Kinematics.ScaraConfig.LinkCompensationA4.factorA2A4
1009	Error in configuration data Kinematics.ScaraConfig.LinkCompensationA3.factorA4A3
1010	Error in configuration data Kinematics.ArticulatedArmConfig.LinkCompensation.factorA2A3
1011	Special kinematics: A kinematics ID is used several times, use is not unique
1012	Special kinematics: An external kinematics ID violates the value range reserved by the system
1013	Special kinematics: No kinematics can be instantiated for the desired ID
1014	Kinematics: Limits not observed for the specification of orientations
1015	Error in configuration data Kinematics.ScaraConfig.LinkCompensationA2.factorA1A2
1016	Error in configuration data Kinematics.SwivelArmConfig.LinkCompensationA4.factorA1A4
1017	Error in configuration data Kinematics.SwivelArmConfig.LinkCompensationA2.factorA4A2
1018	Error in configuration data DecodingConfig.disablePathOperation
1019	Error in configuration data DecodingConfig.positionIndication
1020	Error in configuration data DecodingConfig.maximalBufferedMotionCommands
1022	Error in configuration data InterpolationConfig.blendingAcceleration

Additional information:	More detailed description of the error origin
	Not relevant

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT

Remedy

Change the configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

20012 Restart not carried out (reason: /1/%d)

Cause

Technology object could not be restarted.

Meaning of alarm parameters

Reason:	
1	The technology object configuration does not allow a restart with the restart system variable.
2	The technology object is not ready to be restarted.
3	A configured condition for restarting the technology object is not met (e.g. technology object must be 'disabled').
4	Restart was not performed with the last programmed configuration of the technology object because this is faulty
5	The configuration of the technology object does not permit any restart.

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	DINT

Remedy

Reason:	
1	Initiate the restart using the reset command.
2	Reload the project.
3	Work around the cause stated in the Reason parameter, or reload the project.
4	Determine whether technological alarms were reported or error entries were made in the device diagnostics and, if necessary, remedy the cause.
5	Change the configuration to activate the appropriate restart capability.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

20014 Under logical address: /1/%d (optional log. address: /2/%d and bit no.: /3/%d of the enable output), a driver (type: /4/%d) could not be requested

Cause

The driver of a physical device is not available or is being used by another technology object.

The enable command for the technology object has been issued more than once with the 'immediately' stepping condition.

Meaning of alarm parameters

Logical address:	This is the address of the actuator driver configured on the technology object.
Logical address and bit number:	This specifies the address and bit number of the output enable bit.

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	DINT

Remedy

- Do not call the enable command cyclically "call the enable command only once for the axis enable".
- Check that the logical device was available at the time of the request or whether it was being used by another technology object.
- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_MOTION

Settable local reactions

DISABLE_MOTION

Diagnostics buffer entry

Yes

20015 Device type:/3/%d, log. address:/1/%d faulted. (Bit:/2/%d, encoder number:/5/%d, reason: 0x/4/%Xh)

Cause

The driver of a physical device or the device itself has failed or is faulty.

If this alarm occurs, the cause of the error must be evaluated in the external device (drive or encoder).

Meaning of alarm parameters

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver
12	Safety data block driver
13	Update counter
14	Operating characteristics data block driver

Logical address:	This is the logical input address configured on the technology object.
Bit number:	For bit driver type = 3 or 4 only; number of the bit
Encoder number:	Number of the encoder in case of telegrams with multiple encoders. Applies only when type = 2.
Reason:	0 - only defined when type = 2

Note

Addition of error messages

The codings for the reason of the failure specified below for the individual alarm types can also occur in combination. A group coding is indicated as the sum of several individual codings (e.g. 0x0005 = 0x0001 + 0x0004).

A failure reason labeled with DP can occur only for PROFIBUS devices.

Type = 1	
0x0001h	Fault message from the drive (note: for PROFIBUS drives, which support acyclic communication in accordance with PROFIdrive V3, the error number(s) of the drive are displayed in the diagnostic buffer, e.g. for Masterdrives MC)
0x0002h	DP: Drive signal "control requested" failed
0x0004h	DP: Drive disconnected itself
0x0008h	Slot for drive data is not available in the project
0x0010h	Actuator driver does not have a connection to the drive data
0x0020h	Actuator driver was not initialized during ramp-up
0x0080h	DP: Difference between configuration data and drive parameters (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	DP: Control signals to the PROFIdrive state machine were incorrectly specified
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
0x8000h	DP: Life-sign of drive has malfunctioned or failed
0x80000000h	The drive interface has been deactivated for the pending enables.
Type = 2	
0x0000h	The actual value changes exceed the limit value derived from the maximum velocity (configuration data TypeOfAxis.MaxVelocity.maximum) over multiple cycles. This monitoring can be activated or deactivated with configuration data TypeOfAxis.NumberOfEncoders.Encoder_x.AbsEncoder.enableAbsMonitoring.
0x0001h	Alarm message from encoder (note: the encoder error number(s) are displayed in the diagnostic buffer)
0x0002h	General hardware error of encoder
0x0004h	Encoder is dirty
0x0008h	Slot for encoder data is not available in the project
0x0010h	Encoder driver does not have a connection to the encoder data
0x0020h	Encoder driver was not initialized during ramp-up
0x0040h	Error when reading the absolute value of the encoder
0x0080h	DP: Difference between the configuration data and the encoder parameters Onboard C2xx: Inconsistency of the configuration data (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	Zero mark monitoring of encoder
0x0200h	DP: Encoder has gone to Parked state
0x4000h	DP: Encoder on bus failed (station failure)

0x8000h	DP: Life-sign of encoder has malfunctioned or failed. (note: for an encoder whose data are transferred in a drive telegram together with actuator data, the actuator life-sign applies to the encoder, e.g. for standard telegram 3 in accordance with PROFIdrive)
0x80000000h	The sensor interface has been deactivated for the pending enables.
Type = 3...6	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 7	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 8	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 9	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 10	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 11	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 12	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 13	
0x1h	The actual value was specified via a system variable and the permissible number of failure cycles was exceeded
0x2h	The actual value was updated with an update counter in the I/O area and the permissible number of failure cycles was exceeded

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

The remedy for the respective type and cause is described below.

Type 1

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- A system fault may be present. Call the hotline.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- When sign-of-life monitoring is set: Ensure that in HW Config for drive under DP slave properties - isochronous operation - drive, the "synchronize to equidistant DP cycle" field is activated.
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
- Up to SIMOTION RT V4.3: If the alarm occurs after the download on a drive with telegram 999: Compare the parameterized bit position for the "Pulses enabled" status signal in drive parameter p924 with the configuration data 'DriveControlConfig.PulsesEnabled' of the TO axis. In this case, there is not necessarily an incorrect parameterization and therefore a check cannot be performed by the system because of the BICO interconnection. Therefore, make sure that the Pulses enabled bit is in the correct position.

For reason 0x0100

- Correct your user program with regard to PROFIdrive-compliant specification of control bits in the _enable/disableAxis commands, e.g. control signal OFF (STW1.0 = false) must precede a drive connection.

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 2For reason 0x0000

- Check the absolute encoder functions, connections and configuration. Take note of this when monitoring is deactivated (not with Alarm 20015).

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- Make sure that the user program does not reference a technology object containing an encoder (Axis, External Encoder) with an '_enableaxis' or '_enableexternalencoder' command while system variable 'sensordata.sensordata[n].state' is signaling invalid.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0040

- Compare the encoder type in the drive or encoder parameter P979 with the configuration data of the technology object.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
 - Compare the encoder type, resolution, shift factor, and, in the case of absolute encoders, the number of rotations in the drive or encoder parameter P979 to the encoder type, resolution, fine resolution, and, in the case of absolute encoders, the data length in the configuration data of the technology object.
- When using telegram 999, this message always appears, as the bit position is not checked by the system in this case, but has to be performed by the user.

For reason 0x0100

- Check the device functions, connections and wiring.

For reason 0x0200

- Find the cause of the error in the connected drive or encoder. Check whether the alarm was triggered due to a commissioning operation on the drive or encoder.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 3 - Type 6

For reason 0x0000

- Check the configuration and the signal paths of the connection.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 7

For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 8

For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 9

For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 10

For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 11 - Type 12

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring. If the error cannot be acknowledged when the axis is in simulation mode, check whether the technology data block is activated, and if this is the case, deactivate it.

Type 13For reason 0x1

- Check the specification of the actual value with regard to function, configuration, and task configuration.

For reason 0x2

- Check the device functions, configuration, connections and wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

Yes

20016 Under logical address: /1/%d (bit number, if required: /2/%d) no driver (type: /3/%d) activated (error number: /4/%d)

Cause

The driver of a physical device or the device itself is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
	Not relevant

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT

Remedy

- Check the activation/deactivation sequence for the interface.
- Note the runtimes of the commands and use the provided command control mechanisms (e.g. nextCommand := WHEN_COMMAND_DONE).
- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE_MOTION

Diagnostics buffer entry

Yes

20017 Internal algorithm error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Error source
Parameters 2 to 4:	Fault number

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact:

SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_MOTION

Settable local reactions

DISABLE_MOTION

Diagnostics buffer entry

Yes

20018 Attempt to write the bit(s): 0x/1/%Xh in control word1 or the bit(s): 0x/2/%Xh in control word2 under the log. address: /3/%d has been rejected.

Cause

An attempt to write certain bits in control word 1 or 2 has been rejected.

Meaning of alarm parameters

Bits:	Display of bits which could not be written
Log. address:	Logical address of the device driver

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT

Remedy

- Check the order of commands, particularly in relation to `_enableAxis(...)`.
- Check the command parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE

Diagnostics buffer entry

Yes

20019 Error for the commissioning, reason: /1/%d (Parameter1: /2/%d, Parameter2: /3/%d)

Cause

A commissioning function could not be executed.

Meaning of alarm parameters

Reason:	
1	Failure of the life-sign between controller and SIMOTION SCOUT
2	Protocol error
3	Command decoding error

Description of the alarm parameters in the _getPathObjectErrorState command:

No.	Data type
1	DINT
2	UDINT
3	UDINT

Remedy

Reason:	
1	Check the connection properties. If required, increase the monitoring time.
2	Should a system error of this type occur, note the alarm number, the alarm text and the specified alarm parameters, and contact: SIEMENS AG I DT MC, Hotline.
3	Should a system error of this type occur, note the alarm number, the alarm text and the specified alarm parameters, and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / NONE

Preassignment for local reactions

NONE

Settable local reactions

NONE MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

Yes

20020 Output deactivated

Cause

One or more outputs of the technology object have been deactivated. This is caused by the output-disable device status.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_MOTION

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

20021 Configuration will be adapted internally (category: /1/%d, reason: /2/%d, limited value: /3/%f, additional information: /4/%d)

Cause

This alarm shows the implicit setting of configuration data to the maximum possible values. The technology objects perform a plausibility check on the configuration. Errors/manipulations are identified by the error codes below.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of configuration data
2001	Illegal value for maxSpeed (maxSpeed less than or equal to 2*nominalSpeed; maxSpeed will be set to 2*nominalSpeed)
2002	Illegal value for maxTorque/Force (maxTorque/Force less than or equal to 2*nominalTorque/Force; maxTorque/Force will be set to 2*nominalTorque/Force)
2003	Error during the adaptation of the Torque-/ForceReductionGranularity. p1544 is ignored and the default value used.
3001	The length of the backlash on reversal is limited to a permitted value (Encoder_N.incBacklash.length or Encoder_N.absBacklash.length).
3002	The compensation velocity of the backlash on reversal is limited to a permitted value (Encoder_N.incBacklash.velocity or Encoder_N.absBacklash.velocity).
3003	The value of the configuration data for the encoder system (.Encoder_N.encoderSystem) is limited to a permitted value.
3004	The value of the configuration data for the encoder resolution (rotary: .Encoder_N.incEncoder.incResolution, Encoder_N.absEncoder.absResolution; linear: Encoder_N.Resolution.distance) is limited to a permitted value.
3005	The value of the configuration data for the multiplication factor of the cyclical actual value (.Encoder_N.incEncoder.incResolutionMultiplierCyclic, Encoder_N.absEncoder.absResolutionMultiplierCyclic, Encoder_N.Resolution.multiplierCyclic) is limited to a permitted value.
3006	The value of the configuration data for the multiplication factor of the absolute value (Encoder_N.absEncoder.absResolutionMultiplierAbsolute) is limited to a permitted value.
3007	The value of the configuration data for the data length of the absolute value (Encoder_N.absEncoder.absDataLength) is limited to a permitted value.
3008	The value of the configuration data for the reference value of the Nact speed in the PROFIdrive telegram (Encoder_N.sensorNist.referenceValue) is limited to a permitted value.
3009	The load gear factor of the first data set is leading for the encoder simulation. The simulation with different load gear factors is not supported. The value of the configuration data for the load gear (DataSet_N.gear) is limited to the load gear ratio of the first data set.
4001	The delay time for the triggering of the standstill signal (StandStillSignal.delayTimeToActivate) is limited.
4002	The delay time until the position monitoring tolerance window is reached (PositionMonitoring.posWinToITime) is limited.
4003	The delay time until the activation of the position monitoring message (PositionMonitoring.posWinToIDelayTime) is limited.
4004	The delay time for the activation of the standstill monitoring message (StandStillMonitoring.delayTimeToActivate) is limited.
4005	The delay time of the actual value of the force/pressure entry monitoring (ForceControlRunningInWindowMonitoring.winToITime) is limited.
4006	The delay time until activation of the force/pressure entry monitoring (ForceControlRunningInWindowMonitoring.maxDelayTime) is limited.
4007	The delay time until activation of the force/pressure end value monitoring (ForceControlHeldValueMonitoring.delayTimeToActivate) is limited.

4008	The delay of the emergency ramp generator (EmergencyRampGenerator.maxDeceleration) is too small and set to the minimum possible value.
4009	The decay time constant of the friction compensation (Friction.decayTime) is limited.
4068	The maximum buffer length of the lag element in the balancing filter (Mode_2) is reached or exceeded. The lag element (maximum buffer length: 16 servo-cycles) is augmented by a PT1 element.
4069	The maximum buffer length of the lag component of the dynamic response compensation is reached or exceeded. The maximum value of this time constant is limited to 16 servo cycles. The buffer length of the lag element is maximum 16.

Additional information:	More detailed description of the error origin
Not relevant	

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	LREAL
4	UDINT

Remedy

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

30001 **Illegal parameter (parameter index according to standard sequence in the system functions: /1/%d, command type: /4/%X)**

Cause

Illegal parameter transfer to a system function. The command is not executed. This alarm occurs when the permissible parameter value range is violated. The permissible value range of the parameter is a function of its data type and the technological meaning of the parameter.

The parameter index indicates the position of the illegal parameter. The standard sequence of parameters in the system functions is apparent from the reference list associated with the command. The command type indicates the type of the faulty system function.

Meaning of alarm parameters

Parameter index:	Index of the system function parameter that triggered this error (listed according to the standard sequence in the system functions).
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the value range of the parameter data type.
- Check the technological meaning of the parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

30002 Command aborted (reason: /1/%d, command type: /4/%X)

Additional references

Further information is provided in the Function Manual:

- Basic Functions and
- in the online help.

Cause

The command was aborted before or during execution.

This can be caused by:

- A substituted command
- Command buffer reset
- Error state

Note

This alarm is always output, e.g. for jogging (_move aborted with _stop) or for the retraction of the reference BERO for homing or when Synchronous operation (explicitly) deactivated.

Meaning of alarm parameters

Reason:	
1	Reset of the command buffer
2	Abort by another command
3	Abort by a stop
4	Abort by a higher-order stop
5	Abort by a pending error response
6	Abort due to ambiguous commandId
9	Abort due to abort of a dependent command
19	Abort due to error during cam access
29	Abort due to error during synchronization
31	Maximum number of active commands exceeded
34	Path axis is not ready for operation
35	Error during synchronization with a path axis
36	Abort due to command on a path axis
37	Abort due to stop on a path axis
38	Abort due to a pending error response on a path axis
39	No actual values for path axis (e.g. encoder or data bus not ready)
40	Abort due to reset on a path axis
41	Command parameter became invalid during processing
42	No interconnection to a technology object
43	Abort due to a Cancel command in the user program
44	Abort because of a pending command with identical command parameters

45	Values of belt object are not valid
46	Abort because of a command on the active object coordinate system
47	Abort as no belt object is assigned to the programmed object coordinate system
48	Abort due to entry of a coordinate system which is not synchronized with the assigned belt object
50	A different object coordinate system is synchronized or is currently being synchronized.
51	Abort because the programmed object coordinate system is currently being synchronized.
54	Abort, because _continuePath is not possible with aborted dynamicsIn motion.
55	Abort on the basis of internal limits.

Command type:	Outputs the aborted command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getPathObjectErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Set up the command again via program.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

30003 Command aborted because of full command buffer (command type: /4/%X)

Cause

The command is not entered in the command buffer because the buffer is already full.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the program flow.
- Typical cause: The 'nextCommand' parameter is passed with the value 'IMMEDIATELY', and the 'mergeMode' parameter is passed with the value 'SEQUENTIAL'.
 - Synchronize the command execution in the user program so that the command buffer is not occupied when the command is issued.
 - Use other values for the 'nextCommand' or 'mergeMode' parameters. Setting the 'nextCommand' to a value other than 'IMMEDIATELY' causes the program to wait for the command buffer to become available. In addition, setting a different 'mergeMode' means that the command buffer can be overwritten.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

30004 Command is not defined for this technology object type (command type: /4/%X)

Cause

Command was programmed on a technology object type not supporting processing of this command.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getPathObjectErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Issue the command on the correct technology object type.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

30005 Ambiguous commandId (number of commands with the specified ID: /1/%d, command type: /4/%X)

Cause

The specified commandId refers to more than one command. The specified action is performed for the command matching the specified ID that has been in the interpolator for the longest time.

If no corresponding command is found in the interpolator, the action refers to the next command loaded in the interpolator.

Meaning of alarm parameters

Id:	Number of commands referenced by the specified command ID.
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the _getPathObjectErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Use a different 'commandId' for commands that are active simultaneously.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

30006 Command cannot be executed because of the current object state (command type: /4/%X)

Cause

A reset command is active at the object or the object is deactivated.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the following:

- Check the object status.
- Check the possible execution sequence of the programmed commands.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

30007 The error cannot be reset because of its configuration

Cause

The 30007 alarm will be output when an alarm is reset that can only be acknowledged with PowerOn.

Example:

The internal 20001 error can only be acknowledged with PowerOn.

If an attempt is made to reset the alarm with a `_reset...Error` command, the 30007 alarm will be output.

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

Check whether the errors present on the technology object can be acknowledged.

Correct the cause of the error and switch the CPU off/on or load the project again.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

30008 **Link to a technology object necessary for this operation does not exist (command type: /4/%X)**

Cause

The object connection required for this operation has not been configured or the connected technology object has been deactivated.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the project configuration.
- Change the object connection in the command.
- Activate the connected technology object.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

30009 **Command rejected as the decoding of the command of the technology object addressed has been deactivated/stopped (reason: /1/%d, command type: /4/%X)**

Cause

Command was rejected due to suspension of command decoding on the addressed technology object. The command decoding can be stopped by the DECODE_STOP alarm response, by deactivating or restarting the technology object, by starting the axis control panel in exclusive mode or by the absence of necessary interconnections.

Meaning of alarm parameters

Reason:	
1	Restart of the technology object
2	Technology object is deactivated
3	Technology object is in RUN mode.
4	Control panel active

Command type:	Outputs the type of the rejected command. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check why the command was rejected.
- If necessary, acknowledge any active errors once you have corrected the cause of the error.
- If the technology object is deactivated, you must activate it.
- Do not issue any commands while the technology object is restarting.
- Do not issue any commands while a connected technology object is restarting.
- Stop the axis control panel.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

30010 Command not available (command type: /4/%X)

Cause

The command is not available in this version of the runtime software.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getPathObjectErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the version of the runtime software.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

30011 **Parameter not available (parameter index according to the standard sequence in the system functions: /1/%d, command type: /4/%X)**

Cause

The parameter is not available in this version of the runtime software, the command is therefore rejected. The parameters indicate the position according to the standard sequence in the system functions and the command type of an incorrectly entered parameter.

Meaning of alarm parameters

Parameter index:	Index of the command parameter triggering this error according to the standard sequence in the system functions.
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the version of the runtime software.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

30012 Command cannot be started synchronously (command type: /4/%X)

Cause

The command cannot be used within a 'BEGIN_SYNC' or 'END_SYNC' sequence. The command has only one return value in the user program, or the command is not capable of starting synchronously.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getPathObjectErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Do not use this command type during a BEGIN_SYNC, END_SYNC sequence.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

30013 Synchronous start of the command is carried out with mergeMode IMMEDIATELY (command type: /4/%X)

Cause

With synchronous command start, only merge modes that immediately override the current command (IMMEDIATELY) and superimpose the current command (SUPERIMPOSED_MOTION_MERGE) can be used.

If an illegal merge mode is programmed (e.g. SEQUENTIAL or NEXT_MOTION), the system automatically changes the merge mode to IMMEDIATELY and outputs this warning.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Program the command which is to be started synchronously to immediately override the current command. To do this, enter the value IMMEDIATELY in the 'mergeMode' command parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

30015 **A technology required for this command has not been configured (technology: /1/%d, command type: /4/%X)**

Cause

The command cannot be selected in this technology object configuration.

Meaning of alarm parameters

Technology:	Not relevant
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the _getPathObjectErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Activate the technology needed for the command.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

40002 Programmed velocity is limited

Cause

The system is limiting the programmed velocity to the maximum permissible velocity.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

40003 Programmed acceleration (type: /1/%d) is limited

Cause

The system is limiting the programmed acceleration to the maximum permissible acceleration.

Meaning of alarm parameters

Type:	
0	Positive acceleration
1	Negative acceleration/deceleration

Description of the alarm parameters in the _getPathObjectErrorState command:

No.	Data type
1	DINT

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

40004 Programmed jerk (type: /1/%d) is limited**Cause**

The system is limiting the programmed jerk to the maximum permissible jerk.

Meaning of alarm parameters

Type:	
0	Increase in positive acceleration
1	Reduction in positive acceleration
2	Increase in negative acceleration/deceleration
3	Reduction in negative acceleration/deceleration

Description of the alarm parameters in the _getPathObjectErrorState command:

No.	Data type
1	DINT

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

40005 Path/synchronous axis (axis index: /1/%d) not ready (reason: /2/%d)

Cause

The specified path axis is not/is no longer ready for operation during a pending motion command.

Meaning of alarm parameters

Axis index:	
1	Path axis a1
2	Path axis a2
3	Path axis a3
4	Synchronous axis w
5	Synchronous axis W2

Reason:	
0	Path/synchronous axis is not ready to start
1	The path/synchronous axis is removed from the interpolation grouping by an axis-specific detaching motion
2	The path/synchronous axis is removed from the interpolation grouping by a stop
3	The path/synchronous axis is removed from the interpolation grouping by an axis-specific error response
4	The path/synchronous axis is removed from the interpolation grouping by axis-specific path tolerance monitoring
5	The path/synchronous axis is removed from the interpolation grouping by an axis-specific reset

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	DINT
2	DINT

Remedy

- Check your program sequence.
- Reason 0:
Activate the axis enables before issuing a motion command.
- Reason 4:
Check the dynamic specifications of the path motion.
Increase the tolerance limits.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_MOTION

Settable local reactions

DISABLE_MOTION

Diagnostics buffer entry

No

40006 Programmed velocity is zero

Cause

The programmed velocity is zero. The specified motion cannot be executed.

Remedy

Program a value other than zero. If USER_DEFAULT is referenced, a value not equal to zero must be programmed in the assigned system variable.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_MOTION

Settable local reactions

MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

40007 Programmed acceleration (type: /1/%d) is zero**Cause**

The programmed acceleration is zero. The specified motion cannot be executed.

Meaning of alarm parameters

Type:	
0	Positive acceleration
1	Negative acceleration/deceleration

Description of the alarm parameters in the _getPathObjectErrorState command:

No.	Data type
1	DINT

Remedy

Program a value other than zero. If USER_DEFAULT is referenced, a value not equal to zero must be programmed in the assigned system variable.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_MOTION

Settable local reactions

MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

40008 Programmed jerk (type: /1/%d) is zero

Cause

The programmed jerk is zero. The specified motion cannot be executed.

Meaning of alarm parameters

Type:	
0	Increase in positive acceleration
1	Reduction in positive acceleration
2	Increase in negative acceleration/deceleration
3	Reduction in negative acceleration/deceleration

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	DINT

Remedy

Program a value other than zero. If USER_DEFAULT is referenced, a value not equal to zero must be programmed in the assigned system variable.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_MOTION

Settable local reactions

MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

40009 Velocity limit is zero

Cause

The programmed velocity limit is zero. The specified motion cannot be executed.

Remedy

Program a value other than zero in the dynamic limit values.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_MOTION

Settable local reactions

DISABLE_MOTION

Diagnostics buffer entry

No

40010 Acceleration limit (type: /1/%d) is zero

Cause

The programmed acceleration limit is zero. The specified motion cannot be executed.

Meaning of alarm parameters

Type:	
0	Positive acceleration
1	Negative acceleration/deceleration

Description of the alarm parameters in the _getPathObjectErrorState command:

No.	Data type
1	DINT

Remedy

Program a value other than zero.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_MOTION

Settable local reactions

DISABLE_MOTION

Diagnostics buffer entry

No

40011 Programmed jerk limit (type: /1/%d) is zero**Cause**

The programmed jerk limit is zero. The specified motion cannot be executed.

Meaning of alarm parameters

Type:	
0	Increase in positive acceleration
1	Reduction in positive acceleration
2	Increase in negative acceleration/deceleration
3	Reduction in negative acceleration/deceleration

Description of the alarm parameters in the _getPathObjectErrorState command:

No.	Data type
1	DINT

Remedy

Program a value other than zero.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_MOTION

Settable local reactions

DISABLE_MOTION

Diagnostics buffer entry

No

40012 Dynamic limitations (type: /1/%d) are being violated

Cause

The specified dynamic limitations are being violated. This can occur due to:

- Programming of substituted jerk-controlled motions with extremely divergent dynamic parameters, which would lead to an additional reversing motion, reducing the current acceleration.
- Programming of superimposed motions exceeding the resulting dynamic parameters, which would lead to overshoot or to a reversing motion when limited to the maximum velocity or when entering final velocity.

One or more physical variables (velocity, acceleration, jerk) may be affected. The violations have only a temporary effect.

Meaning of alarm parameters

Type:	
0	The jerk is changed; jerk limitation is exceeded.
1	Jerk limitation is disabled during jerk-controlled motion.
2	The acceleration is changed; acceleration limitation is exceeded.
3	The acceleration is changed, and the jerk limitation is disabled. The acceleration limitation is exceeded.
4	The programmed dynamic values are limited during motion. The direction of motion is reversed.
5	If the current master setpoint dynamic response is retained, the programmed dynamic response values are exceeded during synchronization. These are adjusted in accordance with the target dynamic response values.

Description of the alarm parameters in the _getPathObjectErrorState command:

No.	Data type
1	DINT

Remedy

- For substituted motion:
Increase the dynamic response parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

40015 Error occurred while accessing the specified curve profile (reason: /1/%d)**Cause**

An error occurred while processing the curve profile.

Meaning of alarm parameters

Reason:	
1	The curve profile does not exist or is not linked with the object.
2	The curve profile is not interpolated.
3	The curve profile is already used.
4	Parameters and values of the curve profile in conjunction with the current values relative to the specified motion parameters contradict.

Description of the alarm parameters in the _getPathObjectErrorState command:

No.	Data type
1	DINT

Remedy

- Check the programmed curve profile.
- Check the object connection with the curve profile.
- Check the program sequence.
- Check the parameterization of the profile with regard to the current reference values.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

40016 The specified curve profile has not been interpolated

Cause

The system only accepts verified and interpolated curve profiles for this operation. The specified curve profile has not yet been interpolated.

Remedy

Check whether the specified curve profile has been interpolated.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

40017 Curve profile starting point is outside the definition range

Cause

The addressed curve profile start point is outside the definition range of the curve profile.

Remedy

- Check the definition range of the curve profile.
- Check the curve profile start point.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

40019 Error occurred while accessing the specified motion interface

Cause

The specified reference object for the motion interface does not exist or is not connected to the path object.

Remedy

- Check the programmed input interconnection.
- Check the program sequence.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_MOTION

Settable local reactions

DISABLE_MOTION

Diagnostics buffer entry

No

40028 Error occurred while specifying the curve profile end point in the definition range (reason: /1/%d)

Cause

The addressed curve profile point cannot be used.

Meaning of alarm parameters

Reason:	
0	The curve profile end point is outside the definition range of the curve profile.
1	The curve profile end point is incorrect in relation to the curve profile starting point.

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	DINT

Remedy

- Check the definition range of the curve profile.
- Check the curve profile end point, including its relationship to the curve profile starting point.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

40110 Error triggered on slave during Synchronous operation (error number: /1/%d, slave stopped: /2/%d, motion output: /3/%d)

Additional references

Further information is provided in the Function Manual:

- Technology Objects Synchronous Operation, Cam and
- in the online help.

Cause

An error was triggered on a slave during Synchronous operation and reported to the master.

Meaning of alarm parameters

Error number:	Error reported by slave:
1	Synchronous operation setpoint tolerance exceeded.
2	Synchronous operation actual-value tolerance exceeded.
3	General slave axis error.

Slave stopped:	Indicates whether the slave axis has switched to Stop mode:
0	The slave axis has not switched to Stop mode.
1	The slave axis has switched to Stop mode.

Motion output:	Specifies the motion output to which the error-causing slave axis is interconnected.
1	The error-causing slave axis is interconnected with the motion output of the x coordinates.
2	The error-causing slave axis is interconnected with the motion output of the y coordinates.
3	The error-causing slave axis is interconnected with the motion output of the z coordinates.

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	DINT

Remedy

Check the following:

- Configuration data for Synchronous operation monitoring on the slave
- Programming (dynamic parameters, Synchronous operation connection)
- System variables

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_ABORT

Settable local reactions

NONE MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

50001 **Plane specification for the description of the geometry element required (command type: /4/%X)**

Cause

A plane must be specified to calculate the geometry element.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Select a plane in the 'pathPlane' command parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

50002 Calculation of the geometry element not possible (reason: /1/%d)

Cause

The geometry element cannot be calculated.

Meaning of alarm parameters

Reason:	
0	The radius for the specification of 'circularType:=WITH_RADIUS_AND_ENDPOSITION' is smaller than half the distance between the start and end position.
1	The start point and end point, the start point and midpoint, or the end point and midpoint are identical for the specification of 'circularType:=OVER_POSITION_TO_ENDPOSITION'.
2	The midpoint for the specification of 'circularType:=OVER_POSITION_TO_ENDPOSITION' cannot be reached.
3	Derivative of polynomial in the starting point cannot be determined with 'polynomialMode:=ATTACHED_STEADILY'.
4	First derivative of polynomial in the starting point has the value zero.
5	First derivative of polynomial in the end point has the value zero.

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	DINT

Remedy

Reason:	
= 0	Increase the radius or correct the specified end position.
= 1	The start point, midpoint, and end point must be different or else the circular path cannot be specified uniquely.
= 2	If the start point, midpoint, and endpoint are on a straight line, the midpoint must be situated between the start point and the end point.
= 3	Use the 'polynomialMode:=ATTACHED_STEADILY' parameter when programming with 'mergeMode:=SEQUENTIAL' or when substituting motions. Use the 'polynomialMode:=SPECIFIC_START_DATA' parameter if the previous geometry cannot be determined.
= 4	The direction of the polynomial in the starting point cannot be determined if the first derivative has the value zero. Specify the first derivative in the starting point correctly.
= 5	The direction of the polynomial in the end point cannot be determined if the first derivative has the value zero. Specify the first derivative in the end point correctly.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_MOTION

Settable local reactions

MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

50003 Error during the calculating of the transformation (cause: /1/%d)**Cause**

An error was detected during the transformation.

Meaning of alarm parameters

Cause:	
0	The error was caused by the transformation of axis coordinates to path coordinates.
1	The error was caused by the transformation of path coordinates to axis coordinates.

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	DINT

Remedy

- Check the transformation parameters.
- Check the axis configuration for modulo-axis ambiguities.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_MOTION

Settable local reactions

DISABLE_MOTION

Diagnostics buffer entry

No

50004 Plane parameter is ignored (transformation plane: /1/%d, programmed specification: /2/%d, command type: /3/%X)

Cause

- The plane specification for the transformation does not match the programmed plane specification.
- The transformation plane is used to calculate the geometry element.

Meaning of alarm parameters

Transformation plane:	
0	XY plane
1	YZ plane
2	ZX plane

Programmed specification:	
0	XY plane
1	YZ plane
2	ZX plane
3	XYZ specification in space

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getPathObjectErrorState command:

No.	Data type
1	DINT
2	DINT
3	UDINT

Remedy

- Check the configuration of the transformation.
- Check the programmed values.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

50005 Discontinuity in the programming of the synchronous axis motion

Cause

The path motion was not specified during programming of the synchronous axis motion. This results in a path length of 0, which causes a jump in the synchronous motion.

Remedy

- Check the programmed values.
- Program a path motion.
- Use a single-axis motion on the synchronous axis.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

50006 Path cannot be stopped at the end

Cause

The path motion cannot be stopped at the end with the active dynamic response parameters. This can occur when a substituted motion is programmed or if the user-defined velocity profile is specified incorrectly.

Remedy

- Check the programmed values.
- For substituted motion: Ensure that the motion can be carried out by checking the dynamic response in advance.
- For user-defined velocity profiles: Check the dynamic response of your profile, paying special attention to the end range of the motion.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_MOTION

Settable local reactions

DISABLE_MOTION

Diagnostics buffer entry

No

50007 Dynamic response of the velocity profile cannot be achieved (reason: /1/%d)

Cause

Specified dynamic response cannot be adhered to.

Meaning of alarm parameters

Reason:	
0	The velocity resulting from the profile has been limited to the programmed value.
1	The acceleration/deceleration resulting from the profile has been limited to the programmed value.

Description of the alarm parameters in the _getPathObjectErrorState command:

No.	Data type
1	DINT

Remedy

- For predefined motions:
Allow for the current active (resulting) limitations when programming the dynamic response parameters.
- Increase the dynamic response parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

50008 Adjustment of the dynamic path response to the dynamic axis response not possible (geometry element: /1/%d, adaptation mode: /2/%d)

Cause

- The selected object coordinate system or the configured transformation does not support the adaptation of the path dynamics to the axis dynamics for the programmed geometry element. The maximum dynamic axial values are not taken into account.

Meaning of alarm parameters

Geometry element:	
0	Linear interpolation
1	2D circular interpolation
2	3D circular interpolation
3	Polynomial interpolation

Adaptation mode:	
0	'ACTIVE_WITH_CONSTANT_LIMITS' selected in 'dynamicAdaptation' command parameter
1	'ACTIVE_WITH_VARIABLE_LIMITS' selected in 'dynamicAdaptation' command parameter

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	DINT
2	DINT

Remedy

Select 'INACTIVE' in the 'dynamicAdaptation' command parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

50009 Dynamic path response is limited by the dynamics of the path axes (Effect: /1/%d)

Cause

The specified dynamic response cannot be adhered to because of the dynamic limit values of the path axes.

Meaning of alarm parameters

Effect:	
0	The path velocity is being limited.
1	The path acceleration or deceleration is being limited.

Description of the alarm parameters in the _getPathObjectErrorState command:

No.	Data type
1	DINT

Remedy

No remedy necessary.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

50010 Error in limitation of the dynamic path response through the dynamic response of the path axes (reason: /1/%d)

Cause

The specified dynamic response is limited by the dynamic limit values of the path axes. One of these limits is 0, and the path cannot be traversed.

Meaning of alarm parameters

Reason:	
0	The path velocity is limited to 0.
1	The path acceleration or deceleration is limited to 0.

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	DINT

Remedy

- Check the limits on the path axes.
- Disable the dynamic adaptation.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_MOTION

Settable local reactions

DISABLE_MOTION

Diagnostics buffer entry

No

50011 **Rotation of the coordinate system not possible (transformation plane: /1/%d, rotation axis: /2/%d)**

Cause

The plane specification for the transformation and the programmed rotation axis cannot be combined.

Meaning of alarm parameters

Transformation plane:	
0	XY plane
1	YZ plane
2	ZX plane

Rotation axis:	
0	X axis
1	Y axis
2	Z axis

Description of the alarm parameters in the _getPathObjectErrorState command:

No.	Data type
1	DINT
2	DINT

Remedy

Transformation plane:	
= 0	Only a rotation at the Z axis is possible in the XY transformation plane.
= 1	Only a rotation at the X axis is possible in the YZ transformation plane.
= 2	Only a rotation at the Y axis is possible in the ZX transformation plane.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

50012 Displacement of the coordinate system not possible (transformation plane: /1/%d, direction: /2/%d)

Cause

The plane specification for the transformation and the programmed displacement cannot be combined.

Meaning of alarm parameters

Transformation plane:	
0	XY plane
1	YZ plane
2	ZX plane

Direction:	
0	Offset in X direction
1	Offset in Y direction
2	Offset in Z direction

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	DINT
2	DINT

Remedy

Transformation plane:	
= 0	Only a displacement in the X or Y direction is possible in the XY transformation plane.
= 1	Only a displacement in the Y or Z direction is possible in the YZ transformation plane.
= 2	Only a displacement in the Z or X direction is possible in the ZX transformation plane.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

50013 Blending segment modified (reason: /1/%d)

Cause

During geometric blending, the programmed blending segment was modified.

Meaning of alarm parameters

Reason:	
0	The blending distance has been shortened.
1	Geometric blending is not possible due to the geometric position of the relevant commands.
2	Circular blending is only possible between linear blocks.

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	DINT

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

50014 Synchronized axis programming not permitted (reason: /1/%d)

Cause

Synchronized axis programming is not permitted.

Meaning of alarm parameters

Reason:	
0	The W-axis is not interconnected.
1	The W2-axis is not interconnected.
2	It is not possible to output the path length for the W-axis with a compensation factor.

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	DINT

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

50101 Error occurred because of missing support of a required OA event (cause: /1/%d)

Cause

A necessary OA event is not supported during the special transformation.

Meaning of alarm parameters

Cause:	
0	The OA event OA_EVENT_PATH_DESTROY_SPECIFIC_TRAFO is not supported.
1	The OA event OA_EVENT_PATH_GET_TRAFO_SPECIFIC is not supported.
2	The OA event OA_EVENT_PATH_SET_AXIS_UNIT_CONFIG is not supported.
3	The OA event OA_EVENT_PATH_TRANSFORM_DIRECT_POSITION is not supported.
4	The OA event OA_EVENT_PATH_TRANSFORM_DIRECT_DYNAMICS is not supported.
5	The OA event OA_EVENT_PATH_TRANSFORM_INVERSE_POSITION is not supported.
6	The OA event OA_EVENT_PATH_TRANSFORM_INVERSE_DYNAMICS is not supported.

Description of the alarm parameters in the _getPathObjectErrorState command:

No.	Data type
1	DINT

Remedy

Check whether the named OA event (cause) has been registered/unregistered in your special transformation.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_MOTION

Settable local reactions

DISABLE_MOTION

Diagnostics buffer entry

No

50201 The programmed belt object is not configured (object coordinate system: /1/%d)

Cause

The programmed belt object has not been interconnected as a belt object for path interpolation.

Meaning of alarm parameters

Object coordinate system:	Number of programmed object coordinate system:
----------------------------------	--

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	UDINT

Remedy

- Check the configuration of the belt object on the path interpolation object.
- Check the programmed belt object.
- Add the relevant belt object.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT DISABLE_MOTION

Diagnostics buffer entry

No

50202 Belt object is not assigned/configured/faulty (object coordinate system: /1/%d, reason: /2/%d)

Cause

A path interpolation object command cannot be executed because of an error in data communication with the belt object.

Meaning of alarm parameters

Object coordinate system:	Number of programmed object coordinate system:
----------------------------------	--

Reason	
1	No belt object has been assigned to the path interpolation.
9	Master setpoint not valid.

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	UDINT
2	DINT

Remedy

Reason	
1	Create the missing belt object assignment on the path interpolation object.
9	Check the belt object enable.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_MOTION

Settable local reactions

DISABLE_MOTION

Diagnostics buffer entry

No

50203 Error when synchronizing path to an object coordinate system (object coordinate system: /1/%d, reason: /2/%d)

Cause

Error synchronizing path to an object coordinate system.

Meaning of alarm parameters

Object coordinate system:	Number of programmed object coordinate system:
----------------------------------	--

Description of the alarm parameters in the `_getPathObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT

Remedy

Check the motion of the belt object.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_MOTION

Settable local reactions

DISABLE_MOTION

Diagnostics buffer entry

No

50204 Object coordinate system with motional sequence reference value for configured transformation not possible

Cause

If an object coordinate system with motional sequence reference value is programmed, the X coordinate must be contained in the transformation. The configuration of the transformation for the Y_Z plane is not permitted.

Remedy

- Use the X_Y or Z_X plane for the 2D interpolation.
- Use the 3D interpolation.
- Use the object coordinate system without motional sequence reference value ('trackingIn' parameter in the _setPathObjectOcs command).

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_MOTION

Settable local reactions

DISABLE_MOTION

Diagnostics buffer entry

No

3.2 PathAxis

20001 Internal error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Error source
Parameters 2 to 4:	Fault number

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

RELEASE_DISABLE

Diagnostics buffer entry

Yes

20002 **Insufficient memory (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)**

Cause

The memory required by the system is no longer available.

This alarm can occur both during ramp-up and after program calls.

Meaning of alarm parameters

Parameter 1:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Parameters 2 to 4 are area-specific.

They are not fully utilized by all areas.

Command decoding area:

Parameters 2 and 4	refer to the command in which the error occurred.
Parameter 2:	Command return value
Parameter 4:	Command type

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

- Reduce the size of the ST code.
- Reduce the number of technology objects.
- Reduce the number of interpolation points for cams, if present.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

Yes

20003 Internal configuration error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system

Parameters 2 to 4 are area-specific.

These parameters are not fully utilized by all areas.

Command decoding area:

Parameters 2 and 4	refer to the command in which the error occurred.
Parameter 2:	Command return value
Parameter 4:	Command type

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

Yes

20004 Under logical address: /1/%d (bit number, if required: /2/%d) no driver (type: /3/%d) could be requested (error number: /4/%d)

Cause

The driver of a physical device or the device itself is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT

Remedy

- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

RELEASE_DISABLE

Diagnostics buffer entry

Yes

20005 Device type:/3/%d, log. address:/1/%d faulted. (Bit:/2/%d, encoder number:/5/%d, reason: 0x/4/%Xh)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

The driver of a physical device or the device itself has failed or is faulty.

If this alarm occurs, the cause of the error must be evaluated in the external device (drive or encoder).

Meaning of alarm parameters

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver
12	Safety data block driver
13	Update counter
14	Operating characteristics data block driver

Logical address:	This is the logical input address configured on the technology object.
Bit number:	For bit driver type = 3 or 4 only; number of the bit
Encoder number:	Number of the encoder in case of telegrams with multiple encoders. Applies only when type = 2.
Reason:	0 - only defined when type = 2

Note

Addition of error messages

The codings for the reason of the failure specified below for the individual alarm types can also occur in combination. A group coding is indicated as the sum of several individual codings (e.g. 0x0005 = 0x0001 + 0x0004).

A failure reason labeled with DP can occur only for PROFIBUS devices.

Type = 1	
0x0001h	Fault message from the drive (note: for PROFIBUS drives, which support acyclic communication in accordance with PROFIdrive V3, the error number(s) of the drive are displayed in the diagnostic buffer, e.g. for Masterdrives MC)
0x0002h	DP: Drive signal "control requested" failed
0x0004h	DP: Drive disconnected itself
0x0008h	Slot for drive data is not available in the project
0x0010h	Actuator driver does not have a connection to the drive data
0x0020h	Actuator driver was not initialized during ramp-up
0x0080h	DP: Difference between configuration data and drive parameters (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	DP: Control signals to the PROFIdrive state machine were incorrectly specified
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
0x8000h	DP: Life-sign of drive has malfunctioned or failed
0x80000000h	The drive interface has been deactivated for the pending enables.
Type = 2	
0x0000h	The actual value changes exceed the limit value derived from the maximum velocity (configuration data TypeOfAxis.MaxVelocity.maximum) over multiple cycles. This monitoring can be activated or deactivated with configuration data TypeOfAxis.NumberOfEncoders.Encoder_x.AbsEncoder.enableAbsMonitoring.
0x0001h	Alarm message from encoder (note: the encoder error number(s) are displayed in the diagnostic buffer)
0x0002h	General hardware error of encoder
0x0004h	Encoder is dirty
0x0008h	Slot for encoder data is not available in the project
0x0010h	Encoder driver does not have a connection to the encoder data
0x0020h	Encoder driver was not initialized during ramp-up
0x0040h	Error when reading the absolute value of the encoder
0x0080h	DP: Difference between the configuration data and the encoder parameters Onboard C2xx: Inconsistency of the configuration data (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	Zero mark monitoring of encoder
0x0200h	DP: Encoder has gone to Parked state
0x4000h	DP: Encoder on bus failed (station failure)

0x8000h	DP: Life-sign of encoder has malfunctioned or failed. (note: for an encoder whose data are transferred in a drive telegram together with actuator data, the actuator life-sign applies to the encoder, e.g. for standard telegram 3 in accordance with PROFIdrive)
0x80000000h	The sensor interface has been deactivated for the pending enables.
Type = 3...6	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 7	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 8	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 9	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 10	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 11	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 12	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 13	
0x1h	The actual value was specified via a system variable and the permissible number of failure cycles was exceeded
0x2h	The actual value was updated with an update counter in the I/O area and the permissible number of failure cycles was exceeded

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

The remedy for the respective type and cause is described below.

Type 1

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- A system fault may be present. Call the hotline.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- When sign-of-life monitoring is set: Ensure that in HW Config for drive under DP slave properties - isochronous operation - drive, the "synchronize to equidistant DP cycle" field is activated.
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
- Up to SIMOTION RT V4.3: If the alarm occurs after the download on a drive with telegram 999: Compare the parameterized bit position for the "Pulses enabled" status signal in drive parameter p924 with the configuration data 'DriveControlConfig.PulsesEnabled' of the TO axis. In this case, there is not necessarily an incorrect parameterization and therefore a check cannot be performed by the system because of the BICO interconnection. Therefore, make sure that the Pulses enabled bit is in the correct position.

For reason 0x0100

- Correct your user program with regard to PROFIdrive-compliant specification of control bits in the _enable/disableAxis commands, e.g. control signal OFF (STW1.0 = false) must precede a drive connection.

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 2

For reason 0x0000

- Check the absolute encoder functions, connections and configuration. Take note of this when monitoring is deactivated (not with Alarm 20015).

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- Make sure that the user program does not reference a technology object containing an encoder (Axis, External Encoder) with an '_enableaxis' or '_enableexternalencoder' command while system variable 'sensordata.sensordata[n].state' is signaling invalid.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0040

- Compare the encoder type in the drive or encoder parameter P979 with the configuration data of the technology object.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
 - Compare the encoder type, resolution, shift factor, and, in the case of absolute encoders, the number of rotations in the drive or encoder parameter P979 to the encoder type, resolution, fine resolution, and, in the case of absolute encoders, the data length in the configuration data of the technology object.
- When using telegram 999, this message always appears, as the bit position is not checked by the system in this case, but has to be performed by the user.

For reason 0x0100

- Check the device functions, connections and wiring.

For reason 0x0200

- Find the cause of the error in the connected drive or encoder. Check whether the alarm was triggered due to a commissioning operation on the drive or encoder.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 3 - Type 6For reason 0x0000

- Check the configuration and the signal paths of the connection.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 7For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 8For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 9For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 10For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 11 - Type 12For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring. If the error cannot be acknowledged when the axis is in simulation mode, check whether the technology data block is activated, and if this is the case, deactivate it.

Type 13

For reason 0x1

- Check the specification of the actual value with regard to function, configuration, and task configuration.

For reason 0x2

- Check the device functions, configuration, connections and wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

RELEASE_DISABLE

Diagnostics buffer entry

Yes

20006 Configuration error (category: /1/%d, error number: /2/%d, additional information: /3/%d)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

This alarm indicates error states caused by a faulty or inconsistent configuration. The technology objects perform a plausibility check on the configuration. Errors are identified by the error codes below.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of the error
500	Illegal technology object configuration state.
501	More configuration data expected than received.
502	Invalid configuration data.
503	Version conflict in configuration.
504	The configured task level is not supported by this TO.
505	The value range of the maximum number of command IDs has been violated.
506	The configured task level is not supported by the used hardware.
1000	General configuration error
1001	Communication error during data transmission
2000	Error in actuator system configuration.
2001	Outside of manipulated variable limits.
2003	Error in load gear factors.
2004	Error in maximum velocity.
2005	Maximum velocity greater than maximum attainable velocity.
2006	Drive not suitable for torque-controlled or torque-limited operation
2007	Linear stepper motor not implemented
2008	Right-justified format for direct output not implemented
2009	Illegal value in resolution for direct output
2010	Missing configuration data for actuator system
2011	Missing configuration data for additional actuator system
2012	The backstop range (min to max) does not contain a zero point
2014	Drive or telegram not suitable for torque superimposition
2015	Gear ratios less than or equal to 0.
2016	Resolution for stepper motor is 0.
2017	Illegal value for configuration data maxSpeed.
2018	Illegal value for configuration data maxVelocity.
2019	Range limits of configuration data exceeded.
2020	Range limits for maximum acceleration exceeded.
2021	Illegal values for dead zone compensation.
2022	Illegal values for sliding friction compensation.
2023	Illegal values for backstop.
2024	Error in friction compensation parameter
2025	DIRECT output: Analog and bit driver of a shared output are parameterized in different ways on the various axes
2026	Illegal value for pulsesEnable
2027	Illegal value for maxSpeed ($\text{maxSpeed} \geq 2 * \text{nominalSpeed}$)
2028	Illegal value for maxSpeed ($\text{maxSpeed} \leq 10 \text{ V} / \text{maxSetPointVoltage} * \text{nominalSpeed}$)
2029	Illegal value in TypeOfAxis.SetPointDriverInfo
2030	A parameter in DriveData is not correct.
2031	A parameter in LinearMotorDriveData is not correct.
2032	A parameter in StepMotorDriveData is not correct.

2033	A parameter in QOutput.EnableBit is not correct.
2034	A parameter of the technological data block is not correct.
2035	A parameter of the safety data block is not correct.
2036	A parameter of the operating characteristics data block is not correct.
2037	Cannot change the configuration during the drive adaptation.
2038	Illegal value for the manipulated variable filter
2040	No driver could be requested under the logical input address.
2041	No driver could be requested under the logical output address.
2042	The numerator of the load gear is incorrect.
2043	The nominal factor of the load gear is incorrect.
2044	The value for the reference velocity is incorrect.
3000	Error in encoder system.
3001	Illegal value in Simulation.simulationMode
3002	The set axis type is invalid - illegal value in TypeOfAxis.typeOfAxis
3003	The set drive leadscrew pitch is invalid - illegal value in Leadscrew.pitchVal
3004	The set modulo activation is invalid - illegal value in Modulo.state
3005	Illegal specification(s) in the encoder data (incremental, absolute, etc.).
3006	The set number of encoders is invalid - illegal value in .NumberOfEncoders.numberOfEncoders
3007	Illegal incremental encoder number.
3008	Illegal data combination for homing with incremental encoder.
3009	The configuration of the 'Backlash compensation' encoder function is faulty - illegal value in .Encoder_N.IncBacklash or .Encoder_N.AbsBacklash
3010	Illegal data on SSI encoder.
3011	The configuration of the 'Absolute encoder adjustment' encoder function is faulty - illegal value in .Encoder_N.AbsHoming
3012	The configuration of the 'Counting direction of the raw actual encoder value' encoder function is faulty - illegal value in .Encoder_N.InversCountDirection.encoderFeedbackPolarity
3013	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptDrive
3014	The configuration of the 'Encoder limit frequency monitoring' encoder function is faulty - illegal value in .Encoder_N.FrequencyLimit.encoderFrequencyLimit
3015	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptLoad
3016	The load gear ratio configuration of a data set is faulty - illegal value in .DataSet_N.Gear
3017	Encoder data sequence and number of encoders do not match.
3018	The configuration of an encoder is incomplete
3019	The set mounting location of the encoder is invalid - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3020	The encoder simulation is either not supported or it is not activated simultaneously on the actuator and the sensor - illegal value in .Encoder_N.encoderIdentification or .SetPointDriverInfo.mode
3021	The number of configured data sets or the number of the active data set after the startup is invalid - illegal value in DataSet_N.numberOfDatasets or in DataSet_N.initDataSet

3022	The number of the encoder assigned to a data set is invalid - illegal value in DataSet_N.EncoderNumber.encoderNumber
3023	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptExtern
3024	The configuration of the encoder measuring wheel circumference is faulty - illegal value in .Encoder_N.pathPerRevolution.length
3025	The configuration of the 'Actual velocity monitoring' function is faulty - illegal value in .ActualVelocityMonitoring
3026	Illegal encoder number in absolute encoder configuration.
3027	The set message format of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absMessageFormat
3028	The set baud rate of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.baudRate
3029	The set protocol format of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absState
3030	The number of the encoder assigned to a data set is invalid - illegal value in DataSet_N.EncoderNumber.encoderNumber
3031	The encoder assigned to a data set does not exist - illegal value in DataSet_N.EncoderNumber.encoderNumber
3032	The load gear ratio numerator configuration of a data set is faulty - illegal value in .DataSet_N.Gear.numFactor
3033	The load gear ratio denominator configuration of a data set is faulty - illegal value in .DataSet_N.Gear.denFactor
3034	An encoder references a data set that does not exist
3035	An encoder references a data set that does not exist
3036	Encoder not configured.
3037	Homing with encoder zero mark and ENDAT encoder is not possible - illegal value in .Encoder_N.IncHomingEncoder.homingMode
3038	Homing to the falling edge of an external zero mark on an onboard input is not possible - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3039	Flying homing with encoder zero mark and ENDAT encoder is not possible - illegal value in .Encoder_N.IncHomingEncoder.passiveHomingMode
3040	Flying homing to the falling edge of an external zero mark on an onboard input is not possible - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3041	The (modified) encoder configuration does not permit any determination of the factors for converting the encoder raw actual values into actual position and velocity values or for converting the position and velocity setpoints into DSC encoder raw actual values, taking account of the mechanical relationships.
3042	Illegal data combination for homing with external encoder.
3043	The incremental position of the encoder is outside the permissible value range.
3044	The incremental position of the encoder is outside the permissible value range.
3045	The configuration of the linear encoder resolution is faulty - illegal value in .Encoder_N.Resolution
3046	The configuration of the encoder actual velocity values filter is faulty - illegal value in .Encoder_N.Filter
3047	The configuration of the encoder actual velocity values filter for the interpolator is faulty - illegal value in .SmoothingFilter

3048	The configuration of the encoder actual velocity values filter for the actual value coupling (Synchronous operation) is faulty - illegal value in .Extrapolation.Filter
3049	The set number of the DSC encoder is invalid - illegal value in .NumberOfEncoder.dscEncoderNumber
3050	The configuration of the encoder system has not been completed correctly.
3051	The configuration of the stepper motor encoder data is faulty - illegal value in .Encoder_N.StepMotorMonitoring
3052	The set encoder actual value type does not match its configuration or the technology object type - illegal value in .Encoder_N.encoderValueType
3053	Homing on a stepper motor is only possible with an external zero mark - illegal value in .Encoder_N.incHomingEncoder.homingMode
3054	Flying homing on a stepper motor is only possible with an external zero mark - illegal value in .Encoder_N.incHomingEncoder.passiveHomingMode
3055	The configuration of a stepper motor with encoder is only possible on a real axis - illegal value in .Encoder_N.encoderMode
3056	Only one encoder may be configured on a stepper motor - illegal value in .NumberOfEncoders.numberOfEncoders
3057	The DSC encoder is not a PROFIBUS encoder - illegal value in .NumberOfEncoders.dscEncoderNumber or .Encoder_N.encoderIdentification
3058	The DSC encoder telegram does not support DSC - illegal value in .Encoder_N.DriverInfo.telegramType
3059	Set modulo value in Modulo.length is smaller than an increment.
3060	The encoder configuration for the position difference measurement is faulty - illegal value in .Encoder_N.PositionDifferenceMeasurement
3061	The set limits for the position difference supplied by the encoder are invalid - illegal value in .Encoder_N.PositionDifferenceMeasurement.Range
3062	The activation of the 'Backlash compensation' encoder function is only possible for motor encoders - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3063	The configuration of a TO externalEncoder for the operation as encoder on a stepper motor is not possible - illegal value in .Encoder_N.encoderMode
3064	The set resolution of the encoder is invalid - illegal value in .Encoder_N.IncEncoder.incResolution
3065	The set resolution of the encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absResolution
3066	The set multiplication factor for the cyclic actual value of the encoder is invalid - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic
3067	The set multiplication factor for the cyclic actual value of the encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absResolutionMultiplierCyclic
3068	The assignment of a velocity encoder to a data set on a positioning axis is not permitted - illegal value in DataSet_N.EncoderNumber.encoderNumber
3069	The configuration of the 'Tolerance of an encoder error' encoder function is invalid - illegal value in .Encoder_N.SensorControlConfig.tolerateSensorDefect
3070	The configuration of the 'Direct reading of the actual speed value (Nact) from the PROFIDrive telegram' encoder function is faulty - illegal value in .Encoder_N.NistDriverConfig
3071	The configuration of the reference cam is invalid - illegal value in .Encoder_N.IncHomingEncoder.referenceCamType
3072	The configuration of the negative reversing cam is faulty - illegal value in .Homing.ReverseCamNegative

3073	The configuration of the positive reversing cam is faulty - illegal value in <code>.Homing.ReverseCamPositive</code>
3074	The set edge of the external zero mark does not match the set homing approach direction - illegal value in <code>.Encoder_N.IncHomingEncoder.approachDirection</code> or <code>.Homing.direction</code>
3075	The use of reversing cams in the selection of <code>.Homing.direction = 'POSITIVE_ALL_HOMING'</code> or <code>.Homing.direction = 'NEGATIVE_ALL_HOMING'</code> as homing approach direction is not permitted - illegal configuration in <code>.Homing.ReverseCamNegative._type</code> or <code>.Homing.ReverseCamPositive._type</code>
3076	The set approach direction of the zero mark or edge of the external zero mark does not match the set homing approach direction - illegal value in <code>.Encoder_N.IncHomingEncoder.approachDirection</code> or <code>.Homing.direction</code>
3077	The use of hardware limit switches as reference cams in the selection of <code>.Homing.direction = 'POSITIVE_ALL_HOMING'</code> or <code>.Homing.direction = 'NEGATIVE_ALL_HOMING'</code> as homing approach direction is not permitted - illegal value in <code>.Encoder_N.IncHomingEncoder.referenceCamType</code>
3078	The configuration of the 'Ready bit' encoder function is faulty - illegal value in <code>.Encoder_N.AnalogSensor.ReadyStateMonitoring</code>
3079	The configuration of the 'Error bit' encoder function is faulty - illegal value in <code>.Encoder_N.AnalogSensor.ErrorStateMonitoring</code>
3080	The encoder Ready bit is in the range of the actual encoder value data bit - illegal value in <code>.Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress</code> and/or <code>.Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber</code>
3081	The encoder Error bit is in the range of the actual encoder value data bit - illegal value in <code>.Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress</code> and/or <code>.Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber</code>
3082	The configuration of the external zero mark interface is faulty - illegal value in <code>.Encoder_N.IncHomingEncoder.StateDriveExternalZeroMark</code>
3083	The configuration of the 'Update counter' encoder function is faulty - illegal value in <code>.Encoder_N.AnalogSensor.UpdateCounter</code>
3084	The encoder Update counter bits are in the range of the actual encoder value data bits - illegal value in <code>.Encoder_N.AnalogSensor.UpdateCounter.logAddress</code> and/or <code>.Encoder_N.AnalogSensor.UpdateCounter.bitNumber</code>
3085	The encoder Update counter bits and the Read bit overlap - illegal value in <code>.Encoder_N.AnalogSensor.UpdateCounter.logAddress</code> and/or <code>.Encoder_N.AnalogSensor.UpdateCounter.bitNumber</code>
3086	The encoder Update counter bits and the Error bit overlap - illegal value in <code>.Encoder_N.AnalogSensor.UpdateCounter.logAddress</code> and/or <code>.Encoder_N.AnalogSensor.UpdateCounter.bitNumber</code>
3087	The configuration of the 'Direct reading of the actual speed value (Nact) from the PROFIDrive telegram' encoder function is faulty - illegal value in <code>.Encoder_N.SensorNist</code>
3088	The configuration of the encoder with the identification 'SET_ACTUAL_VALUE' is faulty - illegal value in <code>.Encoder_N.SensorSetActualValue</code>
3089	The configuration of the encoder actual position values filter is faulty - illegal value in <code>.Encoder_N.PositionFilter</code>
3090	The configuration of the encoder actual position values filter for the actual value coupling (Synchronous operation) is faulty - illegal value in <code>.Extrapolation.ExtrapolationPositionFilter</code>

3091	The set multiplication factor for the cyclic actual value is not consistent with the known value on the drive encoder - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic or .Encoder_N.absEncoder.absResolutionMultiplierCyclic or .Encoder_N.Resolution.multiplierCyclic
3092	The set modulo length is invalid - illegal value in Modulo.length
3093	The set modulo start value is invalid - illegal value in Modulo.startValue
3094	Homing with deactivated hardware limit switches as reversing cams is not possible - illegal value in .Homing.ReverseCamNegative._type and/ or .Homing.ReverseCamPosition._type
3095	The set encoder identification is invalid - illegal value in .Encoder_N.encoderIdentification
3096	The set encoder mode is invalid - illegal value in .Encoder_N.encoderMode
3097	The set encoder type is invalid - illegal value in .Encoder_N.encoderType
3098	The set encoder system is invalid - illegal value in .Encoder_N.encoderSystem
3099	The set actual value type is invalid - illegal value in .Encoder_N.encoderValueType
3100	The set utilization status of the actual value interface is invalid - illegal value in .Encoder_N.interfaceAllocation
3101	The set encoder mode is not supported by the TO externalEncoder - illegal value in .Encoder_N.encoderMode
3102	The set actual value type is not supported by the TO externalEncoder - illegal value in .Encoder_N.encoderValueType
3103	Only the 'VELOCITY' actual value type is permitted on a drive axis - illegal value in .Encoder_N.encoderValueType
3104	The set encoder mode does not match the set combination of encoder type and encoder identification - illegal value in .Encoder_N.encoderMode
3105	The set encoder type is not supported for encoders with the set encoder identification - illegal value in .Encoder_N.encoderType
3106	The encoder configuration does not match the set combination of encoder type and encoder identification - illegal value in .Encoder_N.encoderMode or .Encoder_N.encoderSystem or .Encoder_N.encoderValueType
3107	The configuration of the encoder for the position difference measurement requires the setting of the 'POSITION' actual value type - illegal value in .Encoder_N.encoderValueType
3108	Only encoders of the 'SENSOR_INCREMENTAL' type are supported on an axis of the 'REAL_AXIS_WITH_SIGNAL_OUTPUT' type - illegal value in .Encoder_N.encoderType
3109	Only the 'SENSOR_ABSOLUTE' encoder type is supported on an encoder with the 'SET_ACTUAL_VALUE' encoder identification - illegal value in .Encoder_N.encoderType
3110	The set combination of encoder type and encoder mode is not supported within the context of a linear encoder - illegal value in .Encoder_N.encoderType and .Encoder_N.encoderMode
3111	The configuration of a linear encoder on a rotary axis is not possible - illegal value in .Encoder_N.encoderSystem
3112	The configuration of the reference cam zero mark distance monitoring is faulty - illegal value in .Encoder_N.IncHomingEncoder.beroDistance or .Encoder_N.IncHomingEncoder.enableZeroMarkDistance

3113	The set home position offset is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.proceedShiftPos</code>
3114	The configuration of the reference cam interface is faulty - illegal value in <code>.Encoder_N.incHomingEncoder.bitNumberBero</code> or <code>.Encoder_N.incHomingEncoder.logAddressBero</code>
3115	The set zero mark approach direction is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.approachDirection</code>
3116	Homing setting faulty: Zero mark approach direction is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveApproachDirection</code>
3117	The configuration of the reference cam interface is faulty - illegal value in <code>.Encoder_N.incHomingEncoder.passiveBitNumberBero</code> or <code>.Encoder_N.incHomingEncoder.passiveLogAddressBero</code>
3118	The set homing mode is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.homingMode</code>
3119	The set homing mode is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveHomingMode</code>
3120	The set zero mark approach direction does not match the set homing mode - illegal value in <code>.Encoder_N.IncHomingEncoder.approachDirection</code>
3121	The set external zero mark approach direction does not match the set homing mode - illegal value in <code>.Encoder_N.IncHomingEncoder.approachDirection</code>
3122	The set zero mark approach direction does not match the set homing mode - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveApproachDirection</code>
3123	The set external zero mark approach direction does not match the homing mode - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveApproachDirection</code>
3124	The set type of the reference cam is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.referenceCamType</code>
3125	The set reference cam type does not match the set zero mark approach direction - illegal value in <code>.Encoder_N.IncHomingEncoder.referenceCamType</code>
3126	The resource required for the reference cam cannot be requested - illegal value in <code>.Encoder_N.IncHomingEncoder.logAddress</code> and/ or <code>.Encoder_N.IncHomingEncoder.bitNumber</code> or no memory available
3127	The resource required for the reference cam cannot be requested - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveLogAddress</code> and/ or <code>.Encoder_N.IncHomingEncoder.passiveBitNumber</code> or no memory available
3128	The resource required for the external zero mark cannot be requested - illegal value in <code>.Encoder_N.incHomingEncoder.StateDriveExternalZeroMark.logAddress</code> and/ or <code>.Encoder_N.incHomingEncoder.StateDriveExternalZeroMark.bitNumber</code> or no memory available
3129	The resource required for the positive reversing cam cannot be requested - illegal value in <code>.Homing.ReverseCamPositive.logAddress</code> and/ or <code>.Homing.ReverseCamPositive.bitNumber</code> or no memory available
3130	The resource required for the negative reversing cam cannot be requested - illegal value in <code>.Homing.ReverseCamNegative.logAddress</code> and/ or <code>.Homing.ReverseCamNegative.bitNumber</code> or no memory available
3131	The resource required for the 'Update counter' of the analog encoder cannot be requested - illegal value in <code>.Encoder_N.AnalogSensor.UpdateCounter.logAddress</code> and/ or <code>.Encoder_N.AnalogSensor.UpdateCounter.bitNumber</code> or no memory available

3132	The resource required for the 'Read state bit' of the analog encoder cannot be requested - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress and/ or .Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber or no memory available
3133	The resource required for the 'Error state bit' of the analog encoder cannot be requested - illegal value in .Encoder_N.AnalogSensor.ErrorStateMonitoring.logAddress and/ or .Encoder_N.AnalogSensor.ErrorStateMonitoring.bitNumber or no memory available
3134	The configuration of the actual value interface is faulty - illegal value in .EncoderN.DriverInfo
3135	The configuration of the encoder actual value interface is faulty - illegal value in .EncoderN.DriverInfoDirectIncremental
3136	The configuration of the sensor measuring gear ratio is faulty - illegal value in .Sensor.ConversionDataAdapt
3137	Only an encoder with the 'DRIVE' encoder mounting type is permitted as DSC encoder - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3138	An encoder with the encoder value type 'POSITION_AND_PROFIDRIVE_ENCODER_NIST_B' is supported only on a TO positioning axis or as TO external encoder in conjunction with the encoder identification 'DPMaster' or 'SIMULATION' and the encoder telegram type 'DP_TEL83_STANDARD' - illegal TO type or illegal value in .Encoder_n.encoderIdentification or in .Encoder.DriverInfo.telegramType
3139	The number assigned to an encoder lies outside the number of the last configured encoder 'NumberOfEncoders.numberOfEncoders'
3140	The configuration of the encoder configuration data adaptation is faulty - illegal value in .Encoder_N.dataAdaption
3141	Both the adapted and the configured encoder configuration are invalid
3143	The multiplication factor for the cyclic actual value and/or the multiplication factor for the absolute value in conjunction with the configured encoder mode (Encoder_N.encoderMode) is invalid - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic or .Encoder_N.absEncoder.absResolutionMultiplierCyclic and/ or .Encoder_N.Resolution.multiplierCyclic or Encoder_N.Resolution.multiplierCyclic
3144	The set fine resolution for the cyclic absolute value (Gn_XIST2) is invalid - illegal value in .Encoder_N.AbsEncoder.absResolutionMultiplierAbsolute
4000	Error in controller.
4001	Negative acceleration specified.
4002	Unknown 'FipoType' requested.
4003	Error in runtime system, ratio of controller cycle clock to interpolator cycle clock is incorrect.
4004	Requested filter order not possible.
4005	Reserve for later use.
4006	Maximum limit is lower than minimum.
4007	Reserve for later use.
4008	Error in configuration data for controller.
4009	Reserve for later use.
4010	Reserve for later use.

4011	Reserve for later use.
4012	Reserve for later use.
4013	Requested controller type is not available.
4014	Error in controller factors.
4015	Precontrol activated, kpc less than 0 or kpc greater than 150.
4016	Reserve for later use.
4017	Reserve for later use.
4018	Reserve for later use.
4019	Reserve for later use.
4020	Reserve for later use.
4021	Reserve for later use.
4022	Reserve for later use.
4023	Precontrol activated, kpc less than or equal to 0.
4024	Reference model monitoring: Error in value of tolerance window.
4025	Error in limit value for standstill signal.
4026	Error in parameter for positioning monitoring.
4027	Simultaneous activation of reference model and dynamic following error monitoring not allowed.
4028	Sampling time parameter calculated incorrectly.
4029	Too many data sets requested.
4030	Error in runtime system, ratio of controller cycle clock to interpolator cycle clock is incorrect.
4031	Error in time constant for emergency ramp generator (positionTimeConstant).
4032	Precontrol active, but fine interpolator type is DIRECT.
4033	Default data set outside limits.
4034	Maximum number of data sets not possible.
4035	Unknown data set change mode.
4036	Following error monitoring not activated/deactivated in all data sets.
4037	Reference model monitoring not activated/deactivated in all data sets.
4038	Different controller type in data sets.
4039	Precontrol activated/deactivated differently in data sets.
4040	Time constant is 0.
4041	Error in dynamic adaptation parameter.
4042	System variable initialization could not be read.
4043	Driver simulation not implemented.
4044	Connection for stepper motors not implemented.
4045	Maximum velocity cannot be attained; maximum drive speed or normalization factor is incorrect.
4046	DSC requires motor encoder data to be specified.
4047	Drive or telegram type not suitable for DSC.
4048	Error in clamping monitoring parameter. 'No detection' is not permitted for the fixed endstop detection
4049	A sensor is required to monitor actual velocity using 'DynamicControl'.
4050	Inconsistent PROFIBUS parameterization; the sum of Ti and To is greater than a DP cycle

4051	Error in manipulated variable limitation parameter of force/pressure controller
4052	Error in force/pressure entry monitoring parameter
4053	Error in force/pressure end value monitoring parameter
4054	Force/pressure entry monitoring tolerance less than pressure end value monitoring tolerance
4055	Error in force/pressure control deviation monitoring parameter
4056	Different activation/deactivation of control deviation monitoring of force/pressure controller in data sets not permitted
4057	Different manipulated variable inversion of force/pressure controller in data sets not permitted
4058	Different force/pressure sensor types in data sets not permitted
4059	Different activation/deactivation of anti-windup in data sets not permitted
4060	Kd factor of PID_ACTUAL controller is greater than 1
4061	Time constant of process model T1 less than or equal to T2
4062	Illegal actuator type selection
4063	Error in sliding friction compensation parameter
4064	Error in offset injection parameter
4065	Precontrol for force/pressure control not implemented
4066	Error in standstill monitoring parameter
4067	Following error monitoring: minVelocity cannot be greater than or equal to maxVelocity
4068	Maximum buffer length of balancing filter (Mode_2) is reached or exceeded. As the servo cycle is included in the calculation of the equivalent time constant of the speed control loop (=velocityTimeConstant), the maximum value of this time constant is limited to 16 servo cycles. The buffer length of the lag element is maximum 16.
4069	System-related dead times are less than 0 after allowing for additionalTime
4070	Controller types other than DIRECT require configuration of an encoder.
4071	Illegal values for delayTimeToActivate of standstill signal
4072	The I/O device for the positive HW limit switch is not available
4073	The I/O device for the negative HW limit switch is not available
4074	Range limits of controller parameter exceeded.
4075	Range limit of brake deceleration of emergency ramp exceeded.
4076	Range limit of equivalent time constant exceeded.
4077	Range limit for velocityTimeConstant exceeded.
4078	Error in value for QFDynamicData configuration.
4079	Error in value for reference model monitoring.
4080	Error in following error monitoring parameter
4081	Error in clamping monitoring parameter
4082	Error in value for DynamicData configuration.
4083	Error in value for PV controller configuration.
4084	Configuration data missing for controller.
4085	Error in value for SystemDeadTimeData configuration.
4086	Pressure control only possible with closed-loop speed controller
4087	DSC and compensation of valve curve not possible
4088	DSC not possible on hydraulic axes

4089	Time constants of dynamic response compensation must not be equal
4090	Incorrect value for system dead time correction
4091	Different activation of manipulated variable filter of pressure controller in data sets
4092	Different activation of dynamic response compensation in data sets
4093	Activation of DSC is not the same in all data sets
4094	Balancing filter type is not the same in all data sets
4095	Illegal value for balanceFilterMode. For a drive axis, only MODE_1 is permitted (PV_Controller.balanceFilterMode).
4096	Activation of anti-windup is not the same in all data sets
4097	Activation of setpoint quantization is not the same in all data sets
4098	Activation of the reference model monitoring is not the same in all data sets
4099	Fixed endstop detection mode is not the same in all data sets
4100	Force controller is not the same in all data sets
4101	Force sensor type UNI_DIRECTION is not implemented
4102	Error in the time constant for smoothing controller parameters
4103	If encoderNumber = 0, ControllerStruct.conType must be DIRECT.
4104	The travel to fixed stop function is not possible on a QF axis.
4105	The integratorFeedbackTimeConstant cannot be less than 0
4106	Illegal value for CommandValueQuantization.value
4107	An electrical drive axis (typeOfAxis = REAL_KIND_OF_AXIS) may only have DIRECT as controller type (conType = DIRECT)
4108	Dead time of dynamic response compensation must not be zero.
4109	Time constant for smoothing manipulated variable jumps during data set changeover must not be less than zero.
4110	The parameters of the manipulated variable filter in the pressure controller are illegal.
4111	Range limit for positionTimeConstante exceeded.
4112	Force/pressure controller type not possible.
4113	Time constant for smoothing manipulated variable jumps outside the limits.
4114	The speed/velocityReference parameter must be set to NOMINAL_SPEED with active adaptation.
4115	The torque/forceReference parameter must be set to NOMINAL_TORQUE/ FORCE with active adaptation.
4116	The parameters in HWEndPos are not consistent.
4117	The setting disableModeSpecification = OFF1_AND_OFF3_MODE is only possible with a digital drive coupling.
4120	Error in following error monitoring parameter. Illegal value in DynamicFollwong.minPositionTolerance
4121	Error in following error monitoring parameter. Illegal value in DynamicFollwong.maxPositionTolerance
4122	Error in following error monitoring parameter. Illegal value in DynamicFollwong.minVelocity
4123	Error in following error monitoring parameter. Illegal value in DynamicFollwong.warningLevel
4124	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.posWinToTime

4125	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.posWinToIDelayTime
4126	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.tolerance
5000	Encoder data sequence and number of encoders do not match.
5001	The set number of force/pressure sensors is invalid - illegal value in .NumberOfAdditionalSensors.number
5002	The set type of the force/pressure sensor is invalid - illegal value in .AdditionalSensor_N.additionalSensorType
5003	The actual value interface configuration of the force/pressure sensor is faulty - illegal value in .AdditionalSensor_N.DriverInfo
5004	The raw actual value weighting factors configuration of the force/pressure sensor is faulty - illegal value in .AdditionalSensor_N.ConversionData
5006	The value range limits configuration of the actual force/pressure value is faulty - illegal value in .AdditionalSensor_N.Range
5007	The configuration of the actual force/pressure value filter is faulty - illegal value in .AdditionalSensor.Filter
5008	Configuration of the force/pressure sensor not completed correctly.
5009	The number of the force/pressure sensor assigned to the data set is invalid - illegal value in .NumberOfDataSets.DataSet_N.AdditionalSensorNumber.number
5010	The sensor configuration for the force/pressure difference measurement is faulty - illegal value in .AdditionalSensor.PositionDifferenceMeasurement
5011	The number of the force/pressure sensor set as sensor A for the difference measurement is invalid - illegal value in .AdditionalSensor.PositionDifferenceMeasurement.numberSensorA
5012	The number of the force/pressure sensor set as sensor B for the difference measurement is invalid - illegal value in .AdditionalSensor.PositionDifferenceMeasurement.numberSensorB
5013	Illegal data in extrapolation configuration.
5014	The set execution cycle clock of the sensor is invalid - illegal value in Execution.executionlevel
5015	The set substitute value strategy for a technological alarm on the sensor is invalid - illegal value in .ValueOut.outputValueErrorBehaviorMode
5020	The configuration of the analog encoder actual value interface is faulty - illegal value in .Encoder_N.AnalogSensor.DriverInfo
5021	The configuration of the analog encoder actual position values filter is faulty - illegal value in .Encoder_N.AnalogSensor.PositionFilter
5022	The raw actual value weighting factors configuration of the analog encoder is faulty - illegal value in .Encoder_N.AnalogSensor.ConversionData
5023	The measuring input interface configuration for the analog encoder is faulty - illegal value in .Encoder_N.AnalogSensor.LogAddress
5030	The count value weighting factors configuration of the interval counter speed encoder is faulty - illegal value in .Encoder_N.IntervalCounterConversionData
5031	The set logical address for the count value interface of the interval counter speed encoder is faulty - illegal value in .Encoder_N.IntervalCounterConversionData.DriverInfo.logAddress
6000	The traversing distance monitoring up to the reference point switch is configured in the configuration data, but the configured maximum distance to be traversed is zero.

6001	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfMaxBufferedCommandId
6002	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfQueueCommands
6003	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfImmediateCommands
6004	Configuration of behaviourAtTheEndOfProfile not implemented
6005	Illegal value for configuration data for maximum acceleration
6006	Illegal value for configuration data for maximum jerk
6007	Illegal value for configuration data for maximum force/pressure setpoint
6008	Illegal value for configuration data for maximum force/pressure setpoint increase
6009	Illegal value for configuration data for Synchronous operation tolerance based on setpoint
6010	Illegal value for configuration data for Synchronous operation tolerance based on actual value
6011	Illegal value for configuration data for Synchronous operation tolerance activation based on setpoint
6012	Illegal value for configuration data for Synchronous operation tolerance activation based on actual value
6013	Illegal value for configuration data for profile end identification tolerance window
6014	Illegal value for configuration data for actual value extrapolation time
6015	Illegal value for configuration data for actual value coupling tolerance window
6016	Illegal value for the injection tolerance configuration (relieveWindow) at software limit switch
6017	Illegal value for the type specification configuration (monitoringAtMotionStart) at software limit switch
6052	Illegal value for the configuration mode (modeSpecificMonitoring) at software limit switch
6053	Illegal value for the profile type configuration (stopJerk) on software limit switch
6018	Illegal value for configuration data for axis-specific path tolerance activation based on setpoint
6019	Illegal value for configuration data for axis-specific path tolerance based on setpoint
6020	Illegal value for configuration data for axis-specific path synchronization tolerance activation based on setpoint
6021	Illegal value for configuration data for axis-specific path synchronization tolerance based on setpoint
6022	Illegal value for configuration data driveControlConfig.releaseDisableMode (RELEASE_DISABLE drive behavior error response)
6023	Illegal value for configuration data of velocity type with master value extrapolation of actual values
6024	Illegal value for configuration data TypeOfAxis.Homing.direction, 'Approach direction during homing'
6025	Illegal value for configuration data TypeOfAxis.Homing.beroDistance, 'Maximum distance to the homing output cam'
6026	Illegal value for configuration data for Synchronous operation error message at master value

6027	Illegal value for the configuration data TypeOfAxis.DecodingConfig.directionDynamic
6028	Illegal value for the configuration data TypeOfAxis.DecodingConfig.behaviourAtTheEndOfProfile
6029	Illegal value for the configuration data TypeOfAxis.DecodingConfig.decodeSequentialMotionCommand
6030	Illegal value for the configuration data TypeOfAxis.DecodingConfig.transferSuperimposedPosition
6031	Illegal value for the configuration data TypeOfAxis.DecodingConfig.speedModeSetPointZero
6032	Illegal value for the configuration data TypeOfAxis.DecodingConfig.stopWithJerk
6033	Illegal value for the configuration data TypeOfAxis.DecodingConfig.disableMotionOperation
6034	Illegal value for the configuration data TypeOfAxis.DecodingConfig.profileDynamicsLimiting
6035	Illegal value for the configuration data TypeOfAxis.DecodingConfig.cyclicSetUpInForceLimiting
6036	Illegal value for the configuration data TypeOfAxis.Homing.enableBeroDistance
6037	Illegal value for the configuration data TypeOfAxis.Homing.referencingNecessary
6038	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableLifeSignMonitoring
6039	Illegal value for the configuration data TypeOfAxis.DistributedMotion.numberOfLifeSignFailures
6040	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableDelayOfCommandValueOutput
6041	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableOffsetCompensation
6042	Illegal value for configuration data driveControlConfig.pulsesEnabledEvaluation (axis behavior for drive-independent stop response)
6050	Illegal value for the configuration data driveControlConfig.dataAdaption
6051	Illegal value for the configuration data driveControlConfig.disableModeSpecification
6043	Illegal value for the configuration data TypeOfAxis.ControllerSwitchData.NumberOfDigitalInputs.number
6044	Illegal logical address of the digital input in the configuration data structure TypeOfAxis.ControllerSwitchData.NumberOfDigitalInputs.DigitalInput_x
6045	Illegal value for configuration data for maximum deceleration
7000	Illegal data in process model configuration
2045	Evaluation of the PulsesEnabled bit (pulsesEnabledEvaluation = YES) is not possible in telegram 1 (telegramType = DP_TEL1_STANDARD).
2046	Evaluation of the PulsesEnabled bit (pulsesEnabledEvaluation) is not carried out when using DSDB.

Additional information:	More detailed description of the error origin
Meaning for category 3	Number of the data set on the technology object for which the alarm was issued
Meaning for category 4	Not relevant
Meaning for category 5	Number of the encoder on the technology object that issued the alarm

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT

Remedy

Change the configuration data.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

Yes

20007 Interconnection error (category: /1/%d, context: /2/%d, context parameter1: /3/%d, context parameter2: /4/%d)

Cause

This alarm indicates errors in the interconnection of technology objects. When the interconnection is established, the technology object verifies it on the basis of the interface properties. Errors are classified by category.

Additional information for a more detailed description of the error can be output from the context. An error context is output for selected error categories. Additional context parameters can be output for a context, if necessary. Context and context parameters are output as an integer value.

Meaning of alarm parameters

Category:	
1	Technology object compatibility error An interconnection is to be established with a technology object that has been configured with another reference system (e.g. output cams with rotary reference system and linear axis).
2	Exclusive interface An interface on a technology object that can only be connected to another technology object using one coupling type should be interconnected using different, mutually exclusive couplings. For example, the master value interface on a positioning axis for an interconnected synchronous object can only be operated as a setpoint or an actual value coupling.
3	Interconnection request The technology object awaits the interconnection to another technology object (necessary interconnection) in order to provide its functionality. Thus, for example, the interconnection to a gear axis is a required interconnection on a synchronous object.
4	Error during interface initialization The alarm is output in the event of initialization errors when connecting interfaces on the technology object.
5	Interface not available on technology object An interface required in the interconnection is not available on the technology object.
6	Recursion The interconnection on the technology object results in a recursion in the execution system of the technology package. The technology object does not support recursive execution.
7	Execution level compatibility error An interconnection is to be established with a technology object that is classified in a different execution level (e.g. output cam in execution level IPO and axis in execution level IPO_2). The technology object does not support interconnection to technology objects of other execution levels.
8	Initialization distribution In the case of interconnected technology objects that are distributed among different devices, an error occurred during initialization of the communication.

9	<p>Illegal TO state The technology object cannot be interconnected in the current state. A technology object can be interconnected only after the configuration has been successfully completed. Refer to the diagnostic buffer to determine the exact cause of the error. The cause of the illegal TO state is entered there (e.g. a level overflow during the configuration phase) and can then be corrected (in the example, by allowing level overflows in the task configuration).</p>
10	<p>Interface assignment The configured interface via which the technology object communicates cannot be used from the processing cycle clock of the technology object.</p>
11	<p>Active command in recursive TO interconnection The interconnection of the technology object and the enable state at its inputs result in an active recursive interconnection (positive feedback).</p>

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

Context / context parameter:

Contact the hotline and provide the name of the context parameter.

Category:

1 - Technology object compatibility error

Check the configuration and set a common reference system for the technology objects to be interconnected.

2 - Exclusive interface

Ensure that the project is consistent. Contact the hotline, if necessary.

3 - Interconnection request

Ensure that the project is consistent. The missing interconnection on the technology object is specified in the context:

Context

TO type

Interface

4 - Error during interface initialization

Contact the hotline and provide the name of the context parameter.

5 - Interface not available on technology object

Contact the hotline and provide the name of the context parameter.

6 - Recursion

Check the interconnection topology of your project. Remove unnecessary interconnections.

7 - Execution level compatibility error

Select a common execution level in the configuration for the technology objects to be interconnected (e.g. output cam and axis in IPO_2).

8 - Initialization distribution

- Ensure that your project is consistent. For proper configuration of communication, all devices must be compiled ('Project/Save and compile all' or "Save and compile all new').
- Determine whether all devices are selected for loading the project ('Target system/Select target devices...').
- Check whether the configured bus topology matches the actual bus topology.
- Ensure that the devices are linked in the bus configuration (PROFIBUS).
- Check whether isochronous operation was selected.
- In addition, the address areas that are used by the devices for communication must be set up. The address areas are automatically set up when the project is compiled; only afterwards is the valid hardware configuration available for downloading. Do not change automatically generated address areas afterwards.
- Contact the hotline and provide the name of the context parameter.

9 - Illegal technology object state

- Correct the configuration of the technology object.
- Eliminate the execution error.

10 - Interface assignment

- Configure the bus interface to match the processing cycle clock (e.g. fast bus system and axis in FastIPO).

11 - Active command in recursive TO interconnection

- Inputs of technology objects can already be enabled during the download (e.g. TO AdditionObjectType). Remove or change the relevant interconnection on the technology object or switch a technology object, whose input is enabled by the user program and not already by the download, into the positive feedback branch.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

Yes

20008 Assignment of USER_DEFAULT to system variables is not possible**Cause**

It is not appropriate to assign USER_DEFAULT to a UserDefault system variable, because the variable references itself in this case.

As a result, a meaningful value cannot be generated on readout. When this error occurs, the new Enum value is not assigned. The variable retains the old value.

Remedy

USER_DEFAULT is intended for use in technology commands. Avoid assigning it to system variables.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

20009 The permissible difference between encoders (/1/%d) and (/2/%d) has been exceeded

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

The permissible difference between two encoders (slip monitoring) has been exceeded.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT

Remedy

1. Check the mechanical configuration.
2. Check the settings of the dynamic limit values (acceleration, jerk).

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

Yes

20010 A restart is required to activate the configuration data**Cause**

The configuration cannot be activated, since data has been modified preventing the activation. The technology object must be restarted to activate the data.

Remedy

- Execute the technology object reset command, and set the 'activateRestart' parameter to 'ACTIVATE_RESTART'.
- Set the 'restartActivation' system variable to 'ACTIVATE_RESTART'.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

20011 **Error occurred while activating the configuration (category: /1/%d, error number: /2/%d, additional information: /3/%d)**

Cause

This alarm indicates error conditions when activating the configuration. The error conditions can be traced back to an incorrect or inconsistent configuration. The technology objects perform a plausibility check on the configuration. Errors are identified by the error codes below. The configuration is not activated when this alarm occurs.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of the error
500	Illegal technology object configuration state.
501	More configuration data expected than received.
502	Invalid configuration data.
503	Version conflict in configuration.
504	The configured task level is not supported by this TO.
505	The value range of the maximum number of command IDs has been violated.
506	The configured task level is not supported by the used hardware.
1000	General configuration error
1001	Communication error during data transmission
2000	Error in actuator system configuration.
2001	Outside of manipulated variable limits.
2003	Error in load gear factors.
2004	Error in maximum velocity.
2005	Maximum velocity greater than maximum attainable velocity.
2006	Drive not suitable for torque-controlled or torque-limited operation
2007	Linear stepper motor not implemented
2008	Right-justified format for direct output not implemented
2009	Illegal value in resolution for direct output
2010	Missing configuration data for actuator system
2011	Missing configuration data for additional actuator system
2012	The backstop range (min to max) does not contain a zero point
2014	Drive or telegram not suitable for torque superimposition
2015	Gear ratios less than or equal to 0.
2016	Resolution for stepper motor is 0.
2017	Illegal value for configuration data maxSpeed.
2018	Illegal value for configuration data maxVelocity.
2019	Range limits of configuration data exceeded.
2020	Range limits for maximum acceleration exceeded.
2021	Illegal values for dead zone compensation.
2022	Illegal values for sliding friction compensation.
2023	Illegal values for backstop.
2024	Error in friction compensation parameter
2025	DIRECT output: Analog and bit driver of a shared output are parameterized in different ways on the various axes
2026	Illegal value for pulsesEnable
2027	Illegal value for maxSpeed (maxSpeed >= 2*nominalSpeed)
2028	Illegal value for maxSpeed (maxSpeed <= 10 V/ maxSetPointVoltage*nominalSpeed)
2029	Illegal value in TypeOfAxis.SetPointDriverInfo
2030	A parameter in DriveData is not correct.
2031	A parameter in LinearMotorDriveData is not correct.
2032	A parameter in StepMotorDriveData is not correct.

2033	A parameter in QOutput.EnableBit is not correct.
2034	A parameter of the technological data block is not correct.
2035	A parameter of the safety data block is not correct.
2036	A parameter of the operating characteristics data block is not correct.
2037	Cannot change the configuration during the drive adaptation.
2038	Illegal value for the manipulated variable filter
2040	No driver could be requested under the logical input address.
2041	No driver could be requested under the logical output address.
2042	The numerator of the load gear is incorrect.
2043	The nominal factor of the load gear is incorrect.
2044	The value for the reference velocity is incorrect.
3000	Error in encoder system.
3001	Illegal value in Simulation.simulationMode
3002	The set axis type is invalid - illegal value in TypeOfAxis.typeOfAxis
3003	The set drive leadscrew pitch is invalid - illegal value in Leadscrew.pitchVal
3004	The set modulo activation is invalid - illegal value in Modulo.state
3005	Illegal specification(s) in the encoder data (incremental, absolute, etc.).
3006	The set number of encoders is invalid - illegal value in .NumberOfEncoders.numberOfEncoders
3007	Illegal incremental encoder number.
3008	Illegal data combination for homing with incremental encoder.
3009	The configuration of the 'Backlash compensation' encoder function is faulty - illegal value in .Encoder_N.IncBacklash or .Encoder_N.AbsBacklash
3010	Illegal data on SSI encoder.
3011	The configuration of the 'Absolute encoder adjustment' encoder function is faulty - illegal value in .Encoder_N.AbsHoming
3012	The configuration of the 'Counting direction of the raw actual encoder value' encoder function is faulty - illegal value in .Encoder_N.InversCountDirection.encoderFeedbackPolarity
3013	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptDrive
3014	The configuration of the 'Encoder limit frequency monitoring' encoder function is faulty - illegal value in .Encoder_N.FrequencyLimit.encoderFrequencyLimit
3015	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptLoad
3016	The load gear ratio configuration of a data set is faulty - illegal value in .DataSet_N.Gear
3017	Encoder data sequence and number of encoders do not match.
3018	The configuration of an encoder is incomplete
3019	The set mounting location of the encoder is invalid - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3020	The encoder simulation is either not supported or it is not activated simultaneously on the actuator and the sensor - illegal value in .Encoder_N.encoderIdentification or .SetPointDriverInfo.mode
3021	The number of configured data sets or the number of the active data set after the startup is invalid - illegal value in DataSet_N.numberOfDatasets or in DataSet_N.initDataSet

3022	The number of the encoder assigned to a data set is invalid - illegal value in DataSet_N.EncoderNumber.encoderNumber
3023	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptExtern
3024	The configuration of the encoder measuring wheel circumference is faulty - illegal value in .Encoder_N.pathPerRevolution.length
3025	The configuration of the 'Actual velocity monitoring' function is faulty - illegal value in .ActualVelocityMonitoring
3026	Illegal encoder number in absolute encoder configuration.
3027	The set message format of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absMessageFormat
3028	The set baud rate of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.baudRate
3029	The set protocol format of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absState
3030	The number of the encoder assigned to a data set is invalid - illegal value in DataSet_N.EncoderNumber.encoderNumber
3031	The encoder assigned to a data set does not exist - illegal value in DataSet_N.EncoderNumber.encoderNumber
3032	The load gear ratio numerator configuration of a data set is faulty - illegal value in .DataSet_N.Gear.numFactor
3033	The load gear ratio denominator configuration of a data set is faulty - illegal value in .DataSet_N.Gear.denFactor
3034	An encoder references a data set that does not exist
3035	An encoder references a data set that does not exist
3036	Encoder not configured.
3037	Homing with encoder zero mark and ENDAT encoder is not possible - illegal value in .Encoder_N.IncHomingEncoder.homingMode
3038	Homing to the falling edge of an external zero mark on an onboard input is not possible - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3039	Flying homing with encoder zero mark and ENDAT encoder is not possible - illegal value in .Encoder_N.IncHomingEncoder.passiveHomingMode
3040	Flying homing to the falling edge of an external zero mark on an onboard input is not possible - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3041	The (modified) encoder configuration does not permit any determination of the factors for converting the encoder raw actual values into actual position and velocity values or for converting the position and velocity setpoints into DSC encoder raw actual values, taking account of the mechanical relationships.
3042	Illegal data combination for homing with external encoder.
3043	The incremental position of the encoder is outside the permissible value range.
3044	The incremental position of the encoder is outside the permissible value range.
3045	The configuration of the linear encoder resolution is faulty - illegal value in .Encoder_N.Resolution
3046	The configuration of the encoder actual velocity values filter is faulty - illegal value in .Encoder_N.Filter
3047	The configuration of the encoder actual velocity values filter for the interpolator is faulty - illegal value in .SmoothingFilter

3048	The configuration of the encoder actual velocity values filter for the actual value coupling (Synchronous operation) is faulty - illegal value in .Extrapolation.Filter
3049	The set number of the DSC encoder is invalid - illegal value in .NumberOfEncoder.dscEncoderNumber
3050	The configuration of the encoder system has not been completed correctly.
3051	The configuration of the stepper motor encoder data is faulty - illegal value in .Encoder_N.StepMotorMonitoring
3052	The set encoder actual value type does not match its configuration or the technology object type - illegal value in .Encoder_N.encoderValueType
3053	Homing on a stepper motor is only possible with an external zero mark - illegal value in .Encoder_N.incHomingEncoder.homingMode
3054	Flying homing on a stepper motor is only possible with an external zero mark - illegal value in .Encoder_N.incHomingEncoder.passiveHomingMode
3055	The configuration of a stepper motor with encoder is only possible on a real axis - illegal value in .Encoder_N.encoderMode
3056	Only one encoder may be configured on a stepper motor - illegal value in .NumberOfEncoders.numberOfEncoders
3057	The DSC encoder is not a PROFIBUS encoder - illegal value in .NumberOfEncoders.dscEncoderNumber or .Encoder_N.encoderIdentification
3058	The DSC encoder telegram does not support DSC - illegal value in .Encoder_N.DriverInfo.telegramType
3059	Set modulo value in Modulo.length is smaller than an increment.
3060	The encoder configuration for the position difference measurement is faulty - illegal value in .Encoder_N.PositionDifferenceMeasurement
3061	The set limits for the position difference supplied by the encoder are invalid - illegal value in .Encoder_N.PositionDifferenceMeasurement.Range
3062	The activation of the 'Backlash compensation' encoder function is only possible for motor encoders - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3063	The configuration of a TO externalEncoder for the operation as encoder on a stepper motor is not possible - illegal value in .Encoder_N.encoderMode
3064	The set resolution of the encoder is invalid - illegal value in .Encoder_N.IncEncoder.incResolution
3065	The set resolution of the encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absResolution
3066	The set multiplication factor for the cyclic actual value of the encoder is invalid - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic
3067	The set multiplication factor for the cyclic actual value of the encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absResolutionMultiplierCyclic
3068	The assignment of a velocity encoder to a data set on a positioning axis is not permitted - illegal value in DataSet_N.EncoderNumber.encoderNumber
3069	The configuration of the 'Tolerance of an encoder error' encoder function is invalid - illegal value in .Encoder_N.SensorControlConfig.tolerateSensorDefect
3070	The configuration of the 'Direct reading of the actual speed value (Nact) from the PROFIDrive telegram' encoder function is faulty - illegal value in .Encoder_N.NistDriverConfig
3071	The configuration of the reference cam is invalid - illegal value in .Encoder_N.IncHomingEncoder.referenceCamType
3072	The configuration of the negative reversing cam is faulty - illegal value in .Homing.ReverseCamNegative

3073	The configuration of the positive reversing cam is faulty - illegal value in <code>.Homing.ReverseCamPositive</code>
3074	The set edge of the external zero mark does not match the set homing approach direction - illegal value in <code>.Encoder_N.IncHomingEncoder.approachDirection</code> or <code>.Homing.direction</code>
3075	The use of reversing cams in the selection of <code>.Homing.direction = 'POSITIVE_ALL_HOMING'</code> or <code>.Homing.direction = 'NEGATIVE_ALL_HOMING'</code> as homing approach direction is not permitted - illegal configuration in <code>.Homing.ReverseCamNegative._type</code> or <code>.Homing.ReverseCamPositive._type</code>
3076	The set approach direction of the zero mark or edge of the external zero mark does not match the set homing approach direction - illegal value in <code>.Encoder_N.IncHomingEncoder.approachDirection</code> or <code>.Homing.direction</code>
3077	The use of hardware limit switches as reference cams in the selection of <code>.Homing.direction = 'POSITIVE_ALL_HOMING'</code> or <code>.Homing.direction = 'NEGATIVE_ALL_HOMING'</code> as homing approach direction is not permitted - illegal value in <code>.Encoder_N.IncHomingEncoder.referenceCamType</code>
3078	The configuration of the 'Ready bit' encoder function is faulty - illegal value in <code>.Encoder_N.AnalogSensor.ReadyStateMonitoring</code>
3079	The configuration of the 'Error bit' encoder function is faulty - illegal value in <code>.Encoder_N.AnalogSensor.ErrorStateMonitoring</code>
3080	The encoder Ready bit is in the range of the actual encoder value data bit - illegal value in <code>.Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress</code> and/or <code>.Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber</code>
3081	The encoder Error bit is in the range of the actual encoder value data bit - illegal value in <code>.Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress</code> and/or <code>.Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber</code>
3082	The configuration of the external zero mark interface is faulty - illegal value in <code>.Encoder_N.IncHomingEncoder.StateDriveExternalZeroMark</code>
3083	The configuration of the 'Update counter' encoder function is faulty - illegal value in <code>.Encoder_N.AnalogSensor.UpdateCounter</code>
3084	The encoder Update counter bits are in the range of the actual encoder value data bits - illegal value in <code>.Encoder_N.AnalogSensor.UpdateCounter.logAddress</code> and/or <code>.Encoder_N.AnalogSensor.UpdateCounter.bitNumber</code>
3085	The encoder Update counter bits and the Read bit overlap - illegal value in <code>.Encoder_N.AnalogSensor.UpdateCounter.logAddress</code> and/or <code>.Encoder_N.AnalogSensor.UpdateCounter.bitNumber</code>
3086	The encoder Update counter bits and the Error bit overlap - illegal value in <code>.Encoder_N.AnalogSensor.UpdateCounter.logAddress</code> and/or <code>.Encoder_N.AnalogSensor.UpdateCounter.bitNumber</code>
3087	The configuration of the 'Direct reading of the actual speed value (Nact) from the PROFIDrive telegram' encoder function is faulty - illegal value in <code>.Encoder_N.SensorNist</code>
3088	The configuration of the encoder with the identification 'SET_ACTUAL_VALUE' is faulty - illegal value in <code>.Encoder_N.SensorSetActualValue</code>
3089	The configuration of the encoder actual position values filter is faulty - illegal value in <code>.Encoder_N.PositionFilter</code>
3090	The configuration of the encoder actual position values filter for the actual value coupling (Synchronous operation) is faulty - illegal value in <code>.Extrapolation.ExtrapolationPositionFilter</code>

3091	The set multiplication factor for the cyclic actual value is not consistent with the known value on the drive encoder - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic or .Encoder_N.absEncoder.absResolutionMultiplierCyclic or .Encoder_N.Resolution.multiplierCyclic
3092	The set modulo length is invalid - illegal value in Modulo.length
3093	The set modulo start value is invalid - illegal value in Modulo.startValue
3094	Homing with deactivated hardware limit switches as reversing cams is not possible - illegal value in .Homing.ReverseCamNegative._type and/ or .Homing.ReverseCamPosition._type
3095	The set encoder identification is invalid - illegal value in .Encoder_N.encoderIdentification
3096	The set encoder mode is invalid - illegal value in .Encoder_N.encoderMode
3097	The set encoder type is invalid - illegal value in .Encoder_N.encoderType
3098	The set encoder system is invalid - illegal value in .Encoder_N.encoderSystem
3099	The set actual value type is invalid - illegal value in .Encoder_N.encoderValueType
3100	The set utilization status of the actual value interface is invalid - illegal value in .Encoder_N.interfaceAllocation
3101	The set encoder mode is not supported by the TO externalEncoder - illegal value in .Encoder_N.encoderMode
3102	The set actual value type is not supported by the TO externalEncoder - illegal value in .Encoder_N.encoderValueType
3103	Only the 'VELOCITY' actual value type is permitted on a drive axis - illegal value in .Encoder_N.encoderValueType
3104	The set encoder mode does not match the set combination of encoder type and encoder identification - illegal value in .Encoder_N.encoderMode
3105	The set encoder type is not supported for encoders with the set encoder identification - illegal value in .Encoder_N.encoderType
3106	The encoder configuration does not match the set combination of encoder type and encoder identification - illegal value in .Encoder_N.encoderMode or .Encoder_N.encoderSystem or .Encoder_N.encoderValueType
3107	The configuration of the encoder for the position difference measurement requires the setting of the 'POSITION' actual value type - illegal value in .Encoder_N.encoderValueType
3108	Only encoders of the 'SENSOR_INCREMENTAL' type are supported on an axis of the 'REAL_AXIS_WITH_SIGNAL_OUTPUT' type - illegal value in .Encoder_N.encoderType
3109	Only the 'SENSOR_ABSOLUTE' encoder type is supported on an encoder with the 'SET_ACTUAL_VALUE' encoder identification - illegal value in .Encoder_N.encoderType
3110	The set combination of encoder type and encoder mode is not supported within the context of a linear encoder - illegal value in .Encoder_N.encoderType and .Encoder_N.encoderMode
3111	The configuration of a linear encoder on a rotary axis is not possible - illegal value in .Encoder_N.encoderSystem
3112	The configuration of the reference cam zero mark distance monitoring is faulty - illegal value in .Encoder_N.IncHomingEncoder.beroDistance or .Encoder_N.IncHomingEncoder.enableZeroMarkDistance

3113	The set home position offset is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.proceedShiftPos</code>
3114	The configuration of the reference cam interface is faulty - illegal value in <code>.Encoder_N.incHomingEncoder.bitNumberBero</code> or <code>.Encoder_N.incHomingEncoder.logAddressBero</code>
3115	The set zero mark approach direction is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.approachDirection</code>
3116	Homing setting faulty: Zero mark approach direction is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveApproachDirection</code>
3117	The configuration of the reference cam interface is faulty - illegal value in <code>.Encoder_N.incHomingEncoder.passiveBitNumberBero</code> or <code>.Encoder_N.incHomingEncoder.passiveLogAddressBero</code>
3118	The set homing mode is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.homingMode</code>
3119	The set homing mode is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveHomingMode</code>
3120	The set zero mark approach direction does not match the set homing mode - illegal value in <code>.Encoder_N.IncHomingEncoder.approachDirection</code>
3121	The set external zero mark approach direction does not match the set homing mode - illegal value in <code>.Encoder_N.IncHomingEncoder.approachDirection</code>
3122	The set zero mark approach direction does not match the set homing mode - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveApproachDirection</code>
3123	The set external zero mark approach direction does not match the homing mode - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveApproachDirection</code>
3124	The set type of the reference cam is invalid - illegal value in <code>.Encoder_N.IncHomingEncoder.referenceCamType</code>
3125	The set reference cam type does not match the set zero mark approach direction - illegal value in <code>.Encoder_N.IncHomingEncoder.referenceCamType</code>
3126	The resource required for the reference cam cannot be requested - illegal value in <code>.Encoder_N.IncHomingEncoder.logAddress</code> and/ or <code>.Encoder_N.IncHomingEncoder.bitNumber</code> or no memory available
3127	The resource required for the reference cam cannot be requested - illegal value in <code>.Encoder_N.IncHomingEncoder.passiveLogAddress</code> and/ or <code>.Encoder_N.IncHomingEncoder.passiveBitNumber</code> or no memory available
3128	The resource required for the external zero mark cannot be requested - illegal value in <code>.Encoder_N.incHomingEncoder.StateDriveExternalZeroMark.logAddress</code> and/ or <code>.Encoder_N.incHomingEncoder.StateDriveExternalZeroMark.bitNumber</code> or no memory available
3129	The resource required for the positive reversing cam cannot be requested - illegal value in <code>.Homing.ReverseCamPositive.logAddress</code> and/ or <code>.Homing.ReverseCamPositive.bitNumber</code> or no memory available
3130	The resource required for the negative reversing cam cannot be requested - illegal value in <code>.Homing.ReverseCamNegative.logAddress</code> and/ or <code>.Homing.ReverseCamNegative.bitNumber</code> or no memory available
3131	The resource required for the 'Update counter' of the analog encoder cannot be requested - illegal value in <code>.Encoder_N.AnalogSensor.UpdateCounter.logAddress</code> and/ or <code>.Encoder_N.AnalogSensor.UpdateCounter.bitNumber</code> or no memory available

3132	The resource required for the 'Read state bit' of the analog encoder cannot be requested - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress and/ or .Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber or no memory available
3133	The resource required for the 'Error state bit' of the analog encoder cannot be requested - illegal value in .Encoder_N.AnalogSensor.ErrorStateMonitoring.logAddress and/ or .Encoder_N.AnalogSensor.ErrorStateMonitoring.bitNumber or no memory available
3134	The configuration of the actual value interface is faulty - illegal value in .EncoderN.DriverInfo
3135	The configuration of the encoder actual value interface is faulty - illegal value in .EncoderN.DriverInfoDirectIncremental
3136	The configuration of the sensor measuring gear ratio is faulty - illegal value in .Sensor.ConversionDataAdapt
3137	Only an encoder with the 'DRIVE' encoder mounting type is permitted as DSC encoder - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3138	An encoder with the encoder value type 'POSITION_AND_PROFIDRIVE_ENCODER_NIST_B' is supported only on a TO positioning axis or as TO external encoder in conjunction with the encoder identification 'DPMaster' or 'SIMULATION' and the encoder telegram type 'DP_TEL83_STANDARD' - illegal TO type or illegal value in .Encoder_n.encoderIdentification or in .Encoder.DriverInfo.telegramType
3139	The number assigned to an encoder lies outside the number of the last configured encoder 'NumberOfEncoders.numberOfEncoders'
3140	The configuration of the encoder configuration data adaptation is faulty - illegal value in .Encoder_N.dataAdaption
3141	Both the adapted and the configured encoder configuration are invalid
3143	The multiplication factor for the cyclic actual value and/or the multiplication factor for the absolute value in conjunction with the configured encoder mode (Encoder_N.encoderMode) is invalid - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic or .Encoder_N.absEncoder.absResolutionMultiplierCyclic and/ or .Encoder_N.Resolution.multiplierCyclic or Encoder_N.Resolution.multiplierCyclic
3144	The set fine resolution for the cyclic absolute value (Gn_XIST2) is invalid - illegal value in .Encoder_N.AbsEncoder.absResolutionMultiplierAbsolute
4000	Error in controller.
4001	Negative acceleration specified.
4002	Unknown 'FipoType' requested.
4003	Error in runtime system, ratio of controller cycle clock to interpolator cycle clock is incorrect.
4004	Requested filter order not possible.
4005	Reserve for later use.
4006	Maximum limit is lower than minimum.
4007	Reserve for later use.
4008	Error in configuration data for controller.
4009	Reserve for later use.
4010	Reserve for later use.

4011	Reserve for later use.
4012	Reserve for later use.
4013	Requested controller type is not available.
4014	Error in controller factors.
4015	Precontrol activated, kpc less than 0 or kpc greater than 150.
4016	Reserve for later use.
4017	Reserve for later use.
4018	Reserve for later use.
4019	Reserve for later use.
4020	Reserve for later use.
4021	Reserve for later use.
4022	Reserve for later use.
4023	Precontrol activated, kpc less than or equal to 0.
4024	Reference model monitoring: Error in value of tolerance window.
4025	Error in limit value for standstill signal.
4026	Error in parameter for positioning monitoring.
4027	Simultaneous activation of reference model and dynamic following error monitoring not allowed.
4028	Sampling time parameter calculated incorrectly.
4029	Too many data sets requested.
4030	Error in runtime system, ratio of controller cycle clock to interpolator cycle clock is incorrect.
4031	Error in time constant for emergency ramp generator (positionTimeConstant).
4032	Precontrol active, but fine interpolator type is DIRECT.
4033	Default data set outside limits.
4034	Maximum number of data sets not possible.
4035	Unknown data set change mode.
4036	Following error monitoring not activated/deactivated in all data sets.
4037	Reference model monitoring not activated/deactivated in all data sets.
4038	Different controller type in data sets.
4039	Precontrol activated/deactivated differently in data sets.
4040	Time constant is 0.
4041	Error in dynamic adaptation parameter.
4042	System variable initialization could not be read.
4043	Driver simulation not implemented.
4044	Connection for stepper motors not implemented.
4045	Maximum velocity cannot be attained; maximum drive speed or normalization factor is incorrect.
4046	DSC requires motor encoder data to be specified.
4047	Drive or telegram type not suitable for DSC.
4048	Error in clamping monitoring parameter. 'No detection' is not permitted for the fixed endstop detection
4049	A sensor is required to monitor actual velocity using 'DynamicControl'.
4050	Inconsistent PROFIBUS parameterization; the sum of Ti and To is greater than a DP cycle

4051	Error in manipulated variable limitation parameter of force/pressure controller
4052	Error in force/pressure entry monitoring parameter
4053	Error in force/pressure end value monitoring parameter
4054	Force/pressure entry monitoring tolerance less than pressure end value monitoring tolerance
4055	Error in force/pressure control deviation monitoring parameter
4056	Different activation/deactivation of control deviation monitoring of force/pressure controller in data sets not permitted
4057	Different manipulated variable inversion of force/pressure controller in data sets not permitted
4058	Different force/pressure sensor types in data sets not permitted
4059	Different activation/deactivation of anti-windup in data sets not permitted
4060	Kd factor of PID_ACTUAL controller is greater than 1
4061	Time constant of process model T1 less than or equal to T2
4062	Illegal actuator type selection
4063	Error in sliding friction compensation parameter
4064	Error in offset injection parameter
4065	Precontrol for force/pressure control not implemented
4066	Error in standstill monitoring parameter
4067	Following error monitoring: minVelocity cannot be greater than or equal to maxVelocity
4068	Maximum buffer length of balancing filter (Mode_2) is reached or exceeded. As the servo cycle is included in the calculation of the equivalent time constant of the speed control loop (=velocityTimeConstant), the maximum value of this time constant is limited to 16 servo cycles. The buffer length of the lag element is maximum 16.
4069	System-related dead times are less than 0 after allowing for additionalTime
4070	Controller types other than DIRECT require configuration of an encoder.
4071	Illegal values for delayTimeToActivate of standstill signal
4072	The I/O device for the positive HW limit switch is not available
4073	The I/O device for the negative HW limit switch is not available
4074	Range limits of controller parameter exceeded.
4075	Range limit of brake deceleration of emergency ramp exceeded.
4076	Range limit of equivalent time constant exceeded.
4077	Range limit for velocityTimeConstant exceeded.
4078	Error in value for QFDynamicData configuration.
4079	Error in value for reference model monitoring.
4080	Error in following error monitoring parameter
4081	Error in clamping monitoring parameter
4082	Error in value for DynamicData configuration.
4083	Error in value for PV controller configuration.
4084	Configuration data missing for controller.
4085	Error in value for SystemDeadTimeData configuration.
4086	Pressure control only possible with closed-loop speed controller
4087	DSC and compensation of valve curve not possible
4088	DSC not possible on hydraulic axes

4089	Time constants of dynamic response compensation must not be equal
4090	Incorrect value for system dead time correction
4091	Different activation of manipulated variable filter of pressure controller in data sets
4092	Different activation of dynamic response compensation in data sets
4093	Activation of DSC is not the same in all data sets
4094	Balancing filter type is not the same in all data sets
4095	Illegal value for balanceFilterMode. For a drive axis, only MODE_1 is permitted (PV_Controller.balanceFilterMode).
4096	Activation of anti-windup is not the same in all data sets
4097	Activation of setpoint quantization is not the same in all data sets
4098	Activation of the reference model monitoring is not the same in all data sets
4099	Fixed endstop detection mode is not the same in all data sets
4100	Force controller is not the same in all data sets
4101	Force sensor type UNI_DIRECTION is not implemented
4102	Error in the time constant for smoothing controller parameters
4103	If encoderNumber = 0, ControllerStruct.conType must be DIRECT.
4104	The travel to fixed stop function is not possible on a QF axis.
4105	The integratorFeedbackTimeConstant cannot be less than 0
4106	Illegal value for CommandValueQuantization.value
4107	An electrical drive axis (typeOfAxis = REAL_KIND_OF_AXIS) may only have DIRECT as controller type (conType = DIRECT)
4108	Dead time of dynamic response compensation must not be zero.
4109	Time constant for smoothing manipulated variable jumps during data set changeover must not be less than zero.
4110	The parameters of the manipulated variable filter in the pressure controller are illegal.
4111	Range limit for positionTimeConstante exceeded.
4112	Force/pressure controller type not possible.
4113	Time constant for smoothing manipulated variable jumps outside the limits.
4114	The speed/velocityReference parameter must be set to NOMINAL_SPEED with active adaptation.
4115	The torque/forceReference parameter must be set to NOMINAL_TORQUE/FORCE with active adaptation.
4116	The parameters in HWEndPos are not consistent.
4117	The setting disableModeSpecification = OFF1_AND_OFF3_MODE is only possible with a digital drive coupling.
4120	Error in following error monitoring parameter. Illegal value in DynamicFollwong.minPositionTolerance
4121	Error in following error monitoring parameter. Illegal value in DynamicFollwong.maxPositionTolerance
4122	Error in following error monitoring parameter. Illegal value in DynamicFollwong.minVelocity
4123	Error in following error monitoring parameter. Illegal value in DynamicFollwong.warningLevel
4124	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.posWinTolTime

4125	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.posWinTolDelayTime
4126	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.tolerance
5000	Encoder data sequence and number of encoders do not match.
5001	The set number of force/pressure sensors is invalid - illegal value in .NumberOfAdditionalSensors.number
5002	The set type of the force/pressure sensor is invalid - illegal value in .AdditionalSensor_N.additionalSensorType
5003	The actual value interface configuration of the force/pressure sensor is faulty - illegal value in .AdditionalSensor_N.DriverInfo
5004	The raw actual value weighting factors configuration of the force/pressure sensor is faulty - illegal value in .AdditionalSensor_N.ConversionData
5006	The value range limits configuration of the actual force/pressure value is faulty - illegal value in .AdditionalSensor_N.Range
5007	The configuration of the actual force/pressure value filter is faulty - illegal value in .AdditionalSensor.Filter
5008	Configuration of the force/pressure sensor not completed correctly.
5009	The number of the force/pressure sensor assigned to the data set is invalid - illegal value in .NumberOfDataSets.DataSet_N.AdditionalSensorNumber.number
5010	The sensor configuration for the force/pressure difference measurement is faulty - illegal value in .AdditionalSensor.PositionDifferenceMeasurement
5011	The number of the force/pressure sensor set as sensor A for the difference measurement is invalid - illegal value in .AdditionalSensor.PositionDifferenceMeasurement.numberSensorA
5012	The number of the force/pressure sensor set as sensor B for the difference measurement is invalid - illegal value in .AdditionalSensor.PositionDifferenceMeasurement.numberSensorB
5013	Illegal data in extrapolation configuration.
5014	The set execution cycle clock of the sensor is invalid - illegal value in Execution.executionlevel
5015	The set substitute value strategy for a technological alarm on the sensor is invalid - illegal value in .ValueOut.outputValueErrorBehaviorMode
5020	The configuration of the analog encoder actual value interface is faulty - illegal value in .Encoder_N.AnalogSensor.DriverInfo
5021	The configuration of the analog encoder actual position values filter is faulty - illegal value in .Encoder_N.AnalogSensor.PositionFilter
5022	The raw actual value weighting factors configuration of the analog encoder is faulty - illegal value in .Encoder_N.AnalogSensor.ConversionData
5023	The measuring input interface configuration for the analog encoder is faulty - illegal value in .Encoder_N.AnalogSensor.LogAddress
5030	The count value weighting factors configuration of the interval counter speed encoder is faulty - illegal value in .Encoder_N.IntervalCounterConversionData
5031	The set logical address for the count value interface of the interval counter speed encoder is faulty - illegal value in .Encoder_N.IntervalCounterConversionData.DriverInfo.logAddress
6000	The traversing distance monitoring up to the reference point switch is configured in the configuration data, but the configured maximum distance to be traversed is zero.

6001	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfMaxBufferedCommandId
6002	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfQueueCommands
6003	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfImmediateCommands
6004	Configuration of behaviourAtTheEndOfProfile not implemented
6005	Illegal value for configuration data for maximum acceleration
6006	Illegal value for configuration data for maximum jerk
6007	Illegal value for configuration data for maximum force/pressure setpoint
6008	Illegal value for configuration data for maximum force/pressure setpoint increase
6009	Illegal value for configuration data for Synchronous operation tolerance based on setpoint
6010	Illegal value for configuration data for Synchronous operation tolerance based on actual value
6011	Illegal value for configuration data for Synchronous operation tolerance activation based on setpoint
6012	Illegal value for configuration data for Synchronous operation tolerance activation based on actual value
6013	Illegal value for configuration data for profile end identification tolerance window
6014	Illegal value for configuration data for actual value extrapolation time
6015	Illegal value for configuration data for actual value coupling tolerance window
6016	Illegal value for the injection tolerance configuration (relieveWindow) at software limit switch
6017	Illegal value for the type specification configuration (monitoringAtMotionStart) at software limit switch
6052	Illegal value for the configuration mode (modeSpecificMonitoring) at software limit switch
6053	Illegal value for the profile type configuration (stopJerk) on software limit switch
6018	Illegal value for configuration data for axis-specific path tolerance activation based on setpoint
6019	Illegal value for configuration data for axis-specific path tolerance based on setpoint
6020	Illegal value for configuration data for axis-specific path synchronization tolerance activation based on setpoint
6021	Illegal value for configuration data for axis-specific path synchronization tolerance based on setpoint
6022	Illegal value for configuration data driveControlConfig.releaseDisableMode (RELEASE_DISABLE drive behavior error response)
6023	Illegal value for configuration data of velocity type with master value extrapolation of actual values
6024	Illegal value for configuration data TypeOfAxis.Homing.direction, 'Approach direction during homing'
6025	Illegal value for configuration data TypeOfAxis.Homing.beroDistance, 'Maximum distance to the homing output cam'
6026	Illegal value for configuration data for Synchronous operation error message at master value

6027	Illegal value for the configuration data TypeOfAxis.DecodingConfig.directionDynamic
6028	Illegal value for the configuration data TypeOfAxis.DecodingConfig.behaviourAtTheEndOfProfile
6029	Illegal value for the configuration data TypeOfAxis.DecodingConfig.decodeSequentialMotionCommand
6030	Illegal value for the configuration data TypeOfAxis.DecodingConfig.transferSuperimposedPosition
6031	Illegal value for the configuration data TypeOfAxis.DecodingConfig.speedModeSetPointZero
6032	Illegal value for the configuration data TypeOfAxis.DecodingConfig.stopWithJerk
6033	Illegal value for the configuration data TypeOfAxis.DecodingConfig.disableMotionOperation
6034	Illegal value for the configuration data TypeOfAxis.DecodingConfig.profileDynamicsLimiting
6035	Illegal value for the configuration data TypeOfAxis.DecodingConfig.cyclicSetUpInForceLimiting
6036	Illegal value for the configuration data TypeOfAxis.Homing.enableBeroDistance
6037	Illegal value for the configuration data TypeOfAxis.Homing.referencingNecessary
6038	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableLifeSignMonitoring
6039	Illegal value for the configuration data TypeOfAxis.DistributedMotion.numberOfLifeSignFailures
6040	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableDelayOfCommandValueOutput
6041	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableOffsetCompensation
6042	Illegal value for configuration data driveControlConfig.pulsesEnabledEvaluation (axis behavior for drive-independent stop response)
6050	Illegal value for the configuration data driveControlConfig.dataAdaption
6051	Illegal value for the configuration data driveControlConfig.disableModeSpecification
6043	Illegal value for the configuration data TypeOfAxis.ControllerSwitchData.NumberOfDigitalInputs.number
6044	Illegal logical address of the digital input in the configuration data structure TypeOfAxis.ControllerSwitchData.NumberOfDigitalInputs.DigitalInput_x
6045	Illegal value for configuration data for maximum deceleration
7000	Illegal data in process model configuration
2045	Evaluation of the PulsesEnabled bit (pulsesEnabledEvaluation = YES) is not possible in telegram 1 (telegramType = DP_TEL1_STANDARD).
2046	Evaluation of the PulsesEnabled bit (pulsesEnabledEvaluation) is not carried out when using DSDB.

Additional information:	More detailed description of the error origin
Meaning for category 3	Number of the data set on the technology object for which the alarm was issued
Meaning for category 4	Not relevant
Meaning for category 5	Number of the encoder on the technology object that did not issue the alarm

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT

Remedy

Change the configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

20012 Restart not carried out (reason: /1/%d)

Cause

Technology object could not be restarted.

Meaning of alarm parameters

Reason:	
1	The technology object configuration does not allow a restart with the restart system variable.
2	The technology object is not ready to be restarted.
3	A configured condition for restarting the technology object is not met (e.g. technology object must be 'disabled').
4	Restart was not performed with the last programmed configuration of the technology object because this is faulty
5	The configuration of the technology object does not permit any restart.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Reason:	
1	Initiate the restart using the reset command.
2	Reload the project.
3	Work around the cause stated in the Reason parameter, or reload the project.
4	Determine whether technological alarms were reported or error entries were made in the device diagnostics and, if necessary, remedy the cause.
5	Change the configuration to activate the appropriate restart capability.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

20014 Under logical address: /1/%d (optional log. address: /2/%d and bit no.: /3/%d of the enable output), a driver (type: /4/%d) could not be requested

Cause

The driver of a physical device is not available or is being used by another technology object.

The enable command for the technology object has been issued more than once with the 'immediately' stepping condition.

Meaning of alarm parameters

Logical address:	This is the address of the actuator driver configured on the technology object.
Logical address and bit number:	This specifies the address and bit number of the output enable bit.

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	DINT

Remedy

- Do not call the enable command cyclically "call the enable command only once for the axis enable".
- Check that the logical device was available at the time of the request or whether it was being used by another technology object.
- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

RELEASE_DISABLE

Diagnostics buffer entry

Yes

20015 Device type:/3/%d, log. address:/1/%d faulted. (Bit:/2/%d, encoder number:/5/%d, reason: 0x/4/%Xh)

Cause

The driver of a physical device or the device itself has failed or is faulty.

If this alarm occurs, the cause of the error must be evaluated in the external device (drive or encoder).

Meaning of alarm parameters

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver
12	Safety data block driver
13	Update counter
14	Operating characteristics data block driver

Logical address:	This is the logical input address configured on the technology object.
Bit number:	For bit driver type = 3 or 4 only; number of the bit
Encoder number:	Number of the encoder in case of telegrams with multiple encoders. Applies only when type = 2.
Reason:	0 - only defined when type = 2

Note

Addition of error messages

The codings for the reason of the failure specified below for the individual alarm types can also occur in combination. A group coding is indicated as the sum of several individual codings (e.g. 0x0005 = 0x0001 + 0x0004).

A failure reason labeled with DP can occur only for PROFIBUS devices.

Type = 1	
0x0001h	Fault message from the drive (note: for PROFIBUS drives, which support acyclic communication in accordance with PROFIdrive V3, the error number(s) of the drive are displayed in the diagnostic buffer, e.g. for Masterdrives MC)
0x0002h	DP: Drive signal "control requested" failed
0x0004h	DP: Drive disconnected itself
0x0008h	Slot for drive data is not available in the project
0x0010h	Actuator driver does not have a connection to the drive data
0x0020h	Actuator driver was not initialized during ramp-up
0x0080h	DP: Difference between configuration data and drive parameters (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	DP: Control signals to the PROFIdrive state machine were incorrectly specified
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
0x8000h	DP: Life-sign of drive has malfunctioned or failed
0x80000000h	The drive interface has been deactivated for the pending enables.
Type = 2	
0x0000h	The actual value changes exceed the limit value derived from the maximum velocity (configuration data TypeOfAxis.MaxVelocity.maximum) over multiple cycles. This monitoring can be activated or deactivated with configuration data TypeOfAxis.NumberOfEncoders.Encoder_x.AbsEncoder.enableAbsMonitoring.
0x0001h	Alarm message from encoder (note: the encoder error number(s) are displayed in the diagnostic buffer)
0x0002h	General hardware error of encoder
0x0004h	Encoder is dirty
0x0008h	Slot for encoder data is not available in the project
0x0010h	Encoder driver does not have a connection to the encoder data
0x0020h	Encoder driver was not initialized during ramp-up
0x0040h	Error when reading the absolute value of the encoder
0x0080h	DP: Difference between the configuration data and the encoder parameters Onboard C2xx: Inconsistency of the configuration data (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	Zero mark monitoring of encoder
0x0200h	DP: Encoder has gone to Parked state
0x4000h	DP: Encoder on bus failed (station failure)

0x8000h	DP: Life-sign of encoder has malfunctioned or failed. (note: for an encoder whose data are transferred in a drive telegram together with actuator data, the actuator life-sign applies to the encoder, e.g. for standard telegram 3 in accordance with PROFIdrive)
0x80000000h	The sensor interface has been deactivated for the pending enables.
Type = 3...6	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 7	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 8	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 9	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 10	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 11	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 12	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 13	
0x1h	The actual value was specified via a system variable and the permissible number of failure cycles was exceeded
0x2h	The actual value was updated with an update counter in the I/O area and the permissible number of failure cycles was exceeded

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

The remedy for the respective type and cause is described below.

Type 1

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- A system fault may be present. Call the hotline.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- When sign-of-life monitoring is set: Ensure that in HW Config for drive under DP slave properties - isochronous operation - drive, the "synchronize to equidistant DP cycle" field is activated.
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
- Up to SIMOTION RT V4.3: If the alarm occurs after the download on a drive with telegram 999: Compare the parameterized bit position for the "Pulses enabled" status signal in drive parameter p924 with the configuration data 'DriveControlConfig.PulsesEnabled' of the TO axis. In this case, there is not necessarily an incorrect parameterization and therefore a check cannot be performed by the system because of the BICO interconnection. Therefore, make sure that the Pulses enabled bit is in the correct position.

For reason 0x0100

- Correct your user program with regard to PROFIdrive-compliant specification of control bits in the `_enable/disableAxis` commands, e.g. control signal OFF (STW1.0 = false) must precede a drive connection.

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 2For reason 0x0000

- Check the absolute encoder functions, connections and configuration. Take note of this when monitoring is deactivated (not with Alarm 20015).

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- Make sure that the user program does not reference a technology object containing an encoder (Axis, External Encoder) with an '_enableaxis' or '_enableexternalencoder' command while system variable 'sensordata.sensordata[n].state' is signaling invalid.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0040

- Compare the encoder type in the drive or encoder parameter P979 with the configuration data of the technology object.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
 - Compare the encoder type, resolution, shift factor, and, in the case of absolute encoders, the number of rotations in the drive or encoder parameter P979 to the encoder type, resolution, fine resolution, and, in the case of absolute encoders, the data length in the configuration data of the technology object.
- When using telegram 999, this message always appears, as the bit position is not checked by the system in this case, but has to be performed by the user.

For reason 0x0100

- Check the device functions, connections and wiring.

For reason 0x0200

- Find the cause of the error in the connected drive or encoder. Check whether the alarm was triggered due to a commissioning operation on the drive or encoder.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 3 - Type 6

For reason 0x0000

- Check the configuration and the signal paths of the connection.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 7

For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 8

For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 9

For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 10

For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 11 - Type 12

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring. If the error cannot be acknowledged when the axis is in simulation mode, check whether the technology data block is activated, and if this is the case, deactivate it.

Type 13For reason 0x1

- Check the specification of the actual value with regard to function, configuration, and task configuration.

For reason 0x2

- Check the device functions, configuration, connections and wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

Yes

20016 Under logical address: /1/%d (bit number, if required: /2/%d) no driver (type: /3/%d) activated (error number: /4/%d)

Cause

The driver of a physical device or the device itself is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT

Remedy

- Check the activation/deactivation sequence for the interface.
- Note the runtimes of the commands and use the provided command control mechanisms (e.g. `nextCommand := WHEN_COMMAND_DONE`).
- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP
OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

Yes

20017 Internal algorithm error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Error source
Parameters 2 to 4:	Fault number

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact:

SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

RELEASE_DISABLE

Diagnostics buffer entry

Yes

20018 **Attempt to write the bit(s): 0x/1/%Xh in control word1 or the bit(s): 0x/2/%Xh in control word2 under the log. address: /3/%d has been rejected.**

Cause

An attempt to write certain bits in control word 1 or 2 has been rejected.

Meaning of alarm parameters

Bits:	Display of bits which could not be written
Log. address:	Logical address of the device driver

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT

Remedy

- Check the order of commands, particularly in relation to `_enableAxis(...)`.
- Check the command parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP
OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

Yes

20019 Error for the commissioning, reason: /1/%d (Parameter1: /2/%d, Parameter2: /3/%d)

Cause

A commissioning function could not be executed.

Meaning of alarm parameters

Reason:	
1	Failure of the life-sign between controller and SIMOTION SCOUT
2	Protocol error
3	Command decoding error

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT
2	UDINT
3	UDINT

Remedy

Reason:	
1	Check the connection properties. If required, increase the monitoring time.
2	Should a system error of this type occur, note the alarm number, the alarm text and the specified alarm parameters, and contact: SIEMENS AG I DT MC, Hotline.
3	Should a system error of this type occur, note the alarm number, the alarm text and the specified alarm parameters, and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / NONE

Preassignment for local reactions

NONE

Settable local reactions

NONE MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP
OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

Yes

20020 Output deactivated**Cause**

One or more outputs of the technology object have been deactivated. This is caused by the output-disable device status.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

20021 Configuration will be adapted internally (category: /1/%d, reason: /2/%d, limited value: /3/%f, additional information: /4/%d)

Cause

This alarm shows the implicit setting of configuration data to the maximum possible values. The technology objects perform a plausibility check on the configuration. Errors/manipulations are identified by the error codes below.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of configuration data
2001	Illegal value for maxSpeed (maxSpeed less than or equal to 2*nominalSpeed; maxSpeed will be set to 2*nominalSpeed)
2002	Illegal value for maxTorque/Force (maxTorque/Force less than or equal to 2*nominalTorque/Force; maxTorque/Force will be set to 2*nominalTorque/Force)
2003	Error during the adaptation of the Torque-/ForceReductionGranularity. p1544 is ignored and the default value used.
3001	The length of the backlash on reversal is limited to a permitted value (Encoder_N.incBacklash.length or Encoder_N.absBacklash.length).
3002	The compensation velocity of the backlash on reversal is limited to a permitted value (Encoder_N.incBacklash.velocity or Encoder_N.absBacklash.velocity).
3003	The value of the configuration data for the encoder system (.Encoder_N.encoderSystem) is limited to a permitted value.
3004	The value of the configuration data for the encoder resolution (rotary: .Encoder_N.incEncoder.incResolution, Encoder_N.absEncoder.absResolution; linear: Encoder_N.Resolution.distance) is limited to a permitted value.
3005	The value of the configuration data for the multiplication factor of the cyclical actual value (.Encoder_N.incEncoder.incResolutionMultiplierCyclic, Encoder_N.absEncoder.absResolutionMultiplierCyclic, Encoder_N.Resolution.multiplierCyclic) is limited to a permitted value.
3006	The value of the configuration data for the multiplication factor of the absolute value (Encoder_N.absEncoder.absResolutionMultiplierAbsolute) is limited to a permitted value.
3007	The value of the configuration data for the data length of the absolute value (Encoder_N.absEncoder.absDataLength) is limited to a permitted value.
3008	The value of the configuration data for the reference value of the Nact speed in the PROFIdrive telegram (Encoder_N.sensorNist.referenceValue) is limited to a permitted value.
3009	The load gear factor of the first data set is leading for the encoder simulation. The simulation with different load gear factors is not supported. The value of the configuration data for the load gear (DataSet_N.gear) is limited to the load gear ratio of the first data set.
4001	The delay time for the triggering of the standstill signal (StandStillSignal.delayTimeToActivate) is limited.
4002	The delay time until the position monitoring tolerance window is reached (PositionMonitoring.posWinToITime) is limited.
4003	The delay time until the activation of the position monitoring message (PositionMonitoring.posWinToIDelayTime) is limited.
4004	The delay time for the activation of the standstill monitoring message (StandStillMonitoring.delayTimeToActivate) is limited.
4005	The delay time of the actual value of the force/pressure entry monitoring (ForceControlRunningInWindowMonitoring.winToITime) is limited.
4006	The delay time until activation of the force/pressure entry monitoring (ForceControlRunningInWindowMonitoring.maxDelayTime) is limited.
4007	The delay time until activation of the force/pressure end value monitoring (ForceControlHeldValueMonitoring.delayTimeToActivate) is limited.

4008	The delay of the emergency ramp generator (EmergencyRampGenerator.maxDeceleration) is too small and set to the minimum possible value.
4009	The decay time constant of the friction compensation (Friction.decayTime) is limited.
4068	The maximum buffer length of the lag element in the balancing filter (Mode_2) is reached or exceeded. The lag element (maximum buffer length: 16 servo-cycles) is augmented by a PT1 element.
4069	The maximum buffer length of the lag component of the dynamic response compensation is reached or exceeded. The maximum value of this time constant is limited to 16 servo cycles. The buffer length of the lag element is maximum 16.

Additional information:	More detailed description of the error origin
Meaning for category 4	Not relevant
Meaning for category 5	Number of the encoder on the technology object that issued the alarm

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	LREAL
4	UDINT

Remedy

2001	Correct the reference value in the drive to $\text{maxSpeed(Velocity)} / 2$.
2002	Correct the reference value in the drive to $\text{maxTorque(Force)} / 2$.
2003	Set the reference value in the drive to 0x64 or 0x4000.
3001	Change the configuration data
3002	Change the configuration data
3003	Change the configuration data
3004	Change the configuration data
3005	Change the configuration data
3006	Change the configuration data
3007	Change the configuration data
3008	Change the configuration data
3009	Change the configuration data
4001	Change the configuration data
4002	Change the configuration data
4003	Change the configuration data
4004	Change the configuration data
4005	Change the configuration data
4006	Change the configuration data
4007	Change the configuration data
4008	Change the configuration data
4009	Change the configuration data
4068	Change the configuration data
4069	Change the configuration data

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP
OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

20022 **Error occurred while modifying the configuration (category: /1/%d, reason: /2/%d, additional information: /3/%d, parameter: /4/%d)**

Cause

This alarm indicates error conditions when modifying the configuration on the device.
 The configuration on the device is not modified when this alarm is issued.

Meaning of alarm parameters

Category:	Area in which the error occurred
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Reason:	Specification of the error
1	Adaptation of the configuration of the actuator or encoder without active drive interface is not possible
2	The actuator or the encoder is not assigned to any SINAMICS drive device
3	A parameter does not exist or its value either cannot be read or lies outside the permitted limits.
4	The adaptation of the actuator or encoder has not been activated
5	The reading of the parameters has been aborted because of a fault reported by the hardware
6	The adaptation is already active on the actuator or encoder
7	The modified configuration is activated only for reset TO enables.
8	The adaptation requires speedReference = NOMINAL_VALUE.
9	The adaptation requires torque/forceReference = NOMINAL_VALUE.
10	The enables are deleted by means of the adaptation
11	The adaptation is aborted due to a lack of resources.

Additional information:	More detailed description of the error origin
Meaning for category 4	Not relevant
Meaning for category 5	Number of the encoder on the technology object that issued the alarm

Parameters:	parameter affected when parameter error detected (reason = 3)
0	The read parameters are valid, but it was not possible to derive a consistent configuration.
1	Maximum speed/velocity (p1082)
2	Maximum torque/force (p1520)
3	Maximum torque/force (p1521)
4	Fine resolution of torque/force reduction (p1544)
5	Rated speed/velocity, reference velocity (p2000)
6	Rated torque/force (p2003)
7	Encoder system (r0979[1/11].0)
8	Encoder resolution (r0979[2/12])
9	Encoder fine resolution Gx_XIST1 (r0979[3/13])
10	Encoder fine resolution Gx_XIST2 (r0979[4/14])
11	Number of resolvable encoder revolutions (r0979[5/15])

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT
4	UDINT

Remedy

- For reason 1: Activate the drive interface of the actuator or affected device with `_enableAxisInterface()`.
- For reason 4: Activate the adaptation of the configuration for the actuator using `'TypeofAxis.Drivecontrolconfig.dataAdaption = YES'` or for an encoder using `'Encoder_N.encoderMode = PROFIDRIVE'`.
- For reason 6: Wait until completion of the active adaptation of the configuration for the actuator or encoder. Consider the current status of the adaptation in the `'actorData.dataAdaption'` or `'sensorData[N].dataAdaption'` system variable on the technology object.
- For reason 10: The enables must be deleted before calling the adaptation command.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP
OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

20023 Under logical address: /1/%d (bit number, if required: /2/%d) no I/O (type: /3/%d) are available (error number: /4/%d)

Cause

A physical device is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

RELEASE_DISABLE

Diagnostics buffer entry

Yes

20024 Under logical address: /1/%d (bit number, if required: /2/%d) no I/O (type: /3/%d) are available (error number: /4/%d)

Cause

A physical device is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

RELEASE_DISABLE

Diagnostics buffer entry

Yes

20025 Inconsistency between the TO and the drive/encoder configuration (category: /1/%d, additional information: /2/%d, reason: /3/%d)

Cause

An inconsistency has been detected between the drive/encoder configuration and the configuration of the technology object.

Meaning of alarm parameters

Category:	Area in which the error occurred.
4	Manipulated variable output
5	Encoder system

Additional information:	More detailed description of the error origin
Category 4	Not relevant
Category 5	Number of the encoder at which the inconsistency was detected

Reason:	Description of reason for error
91	The message length configured for the SSI encoder (Encoder_N.absEncoder.absMessageLength) is invalid.
92	The message format configured for the SSI encoder (Encoder_N.absEncoder.absMessageFormat) is invalid.
93	The encoder resolution configured for the SSI encoder (Encoder_N.absEncoder.absResolution) is invalid. The encoder resolution must be greater than one increment per encoder revolution.
94	The configured data width (Encoder_N.absEncoder.absDataLength) for the RIGHT_MARGIN message format configured on the SSI encoder (Encoder_N.absEncoder.absMessageFormat) is too large for the configured message length Encoder_N.absEncoder.absMessageLength).
95	The configured encoder resolution (Encoder_N.absEncoder.absResolution) for the RIGHT_MARGIN message format configured on the SSI encoder (Encoder_N.absEncoder.absMessageFormat) is larger than the encoder resolution which can be displayed by the configured data width (Encoder_N.absEncoder.absDataLength).
96	The configured encoder resolution (Encoder_N.absEncoder.absResolution) for the PINETREE message format configured on the SSI encoder (Encoder_N.absEncoder.absMessageFormat) is larger than the encoder resolution which can be displayed by the configured message length (Encoder_N.absEncoder.absMessageLength).
97	The encoder resolution which can be displayed by the configured data width (Encoder_N.absEncoder.absDataLength) for the PINETREE message format configured on the SSI encoder (Encoder_N.absEncoder.absMessageFormat) is larger than the configured data resolution (Encoder_N.absEncoder.absResolution).
100	The cycle clock period of the master application cycle (HW Config) is not identical to that of the servo cycle.
101	The processing cycle clock of the technology object is not identical to the application cycle of the drive.
110	The configured telegram type (SetPointDriverInfo.telegramType) is not compatible with the telegram type at the drive (P922).
111	The configured PZD number for the pulse enable signal (DriveControlConfig.pulsesEnabled.pzdNumber) is not consistent with the PZD number configured at the drive (P924).
112	The configured bit number for the pulse enable signal (DriveControlConfig.pulsesEnabled.bitNumber) is not consistent with the bit number configured at the drive (P924).
200	The cycle clock period of the master application cycle (HW Config) is not identical to that of the servo cycle.
201	The processing cycle clock of the technology object is not identical to the application cycle of the drive.
210	The configured telegram type (Encoder_N.driverInfo.telegramType) is not compatible with the telegram type at the drive (P922).
211	The encoder at the drive is not an absolute encoder (P979).
212	The configured encoder resolution (Encoder_N.absEncoder.absResolution, Encoder_N.incEncoder.incResolution) is not consistent with the encoder resolution configured at the drive encoder (P979).

213	The configured fine resolution for Gx_XIST1 (Encoder_N.absEncoder.absResolutionMultiplierCyclic, Encoder_N.incEncoder.incResolutionMultiplierCyclic, Encoder_N.Resolution.multiplierCyclic) is not consistent with the fine resolution configured at the drive encoder (P979).
214	The configured fine resolution for Gx_XIST2 (Encoder_N.absEncoder.absResolutionMultiplierAbsolute) is not consistent with the fine resolution configured at the drive encoder (P979).
215	The configured number of resolvable revolutions of the absolute encoder (Encoder_N.absEncoder.absDataLength minus Encoder_N.absEncoder.absResolution) is not consistent with the number of resolvable revolutions configured at the drive encoder (P979).
216	The configured format of the actual speed value is not supported (P65001).

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	DINT

Remedy

General	Check whether the false setting in the parameterization of the I/O device or in the configuration of the SIMOTION technology object is warranted. For PROFIBUS drives or encoders, compare the hardware configuration, the configuration of the technology object, and the drive parameter assignment.
Reason 91 ff.	Use the axis wizard or the expert list to adapt the configuration of the encoder at the technology object to the parameter assignment of the encoder connected to the drive and reload the project. Note the information on the onboard encoder interface on the SIMOTION C2xx in the Axis Function Manual.
Reason 100, 200	Compare the cycle clock parameters in the hardware configuration (PROFIBUS line, Slave OM for drive or encoder) and the execution system. The master application cycle and the servo must be set to the same cycle clock period.
Reason 101, 201	Compare the processing cycle clock of the technology object and the application cycle of the drive or encoder. Drives or encoders in the "Servo" application cycle can only run in the "Servo", "Ipo", or "Ipo2" processing cycle clock. The "FastServo" and "FastIPO" processing cycle clocks can only be used for drives or encoders with the "FastServo" application cycle.
Reason 110, 210	Compare the telegram type in the drive or encoder parameter p922 with the telegram type configured at the actuator or sensor of the technology object.
Reason 111, 112	The setting for the pulses enabled signal at the 'Axis' technology object (TypeOfAxis.DriveControlConfig.pulsesEnabled) does not match drive parameter p924. The position of the pulses enabled signal in the drive telegram is configured in both places. Note that in the configuration data of the TO, the number of the PZD is indicated in the telegram, but parameter r924 contains the signal number according to PROFIdrive. If the signal number is set to '0' in parameter p924, an entry is made in the diagnostics buffer regardless of the setting at the technology object.
Reason 211 ff.	Use the axis wizard or the expert list to adapt the configuration of the encoder at the technology object to the parameter assignment of the encoder connected to the drive and reload the project. Note the encoder parameter assignment in drive parameter P979.
Reason 216	Convert the format for N-act in the connected external encoder.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP
OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

Yes

30001 **Illegal parameter (parameter index according to standard sequence in the system functions: /1/%d, command type: /4/%X)**

Cause

Illegal parameter transfer to a system function. The command is not executed. This alarm occurs when the permissible parameter value range is violated. The permissible value range of the parameter is a function of its data type and the technological meaning of the parameter.

The parameter index indicates the position of the illegal parameter. The standard sequence of parameters in the system functions is apparent from the reference list associated with the command. The command type indicates the type of the faulty system function.

Meaning of alarm parameters

Parameter index:	Index of the system function parameter that triggered this error (listed according to the standard sequence in the system functions).
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the value range of the parameter data type.
- Check the technological meaning of the parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30002 Command aborted (reason: /1/%d, command type: /4/%X)

Additional references

Further information is provided in the Function Manual:

- Basic Functions and
- in the online help.

Cause

The command was aborted before or during execution.

This can be caused by:

- A substituted command
- Command buffer reset
- Error state

Note

This alarm is always output, e.g. for jogging (_move aborted with _stop) or for the retraction of the reference BERO for homing or when Synchronous operation (explicitly) deactivated.

Meaning of alarm parameters

Reason:	
1	Reset of the command buffer
2	Abort by another command
3	Abort by a stop
4	Abort by a higher-order stop
5	Abort by a pending error response
6	Abort due to ambiguous commandId
7	Acknowledgement delay
8	No actual value for axis/external encoder (e.g. encoder or data bus not ready)
9	Abort due to abort of a dependent command
10	Abort due to active Synchronous operation
11	Abort due to active superimposed motion
12	Abort due to active speed-controlled controller mode
13	Abort due to active position-controlled controller mode
14	Abort due to active travel to fixed end stop
15	Axis is not in pressure-limiting operation
16	Abort due to active pressure-controlled operation
17	Abort due to inactive pressure-controlled operation
18	Superimposed command is not permitted
19	Abort due to error during cam access
30	Axis is in pressure-limiting operation
31	Maximum number of active commands exceeded

33	Action only permissible in standstill
41	Command parameter became invalid during processing
42	No interconnection to a technology object
43	Abort due to a Cancel command in the user program
44	Abort because of a pending command with identical command parameters
52	Abort because enables are set
53	Abort because of running adaptation of drive data
55	Abort on the basis of internal limits.
56	Abort on the basis of active Safety Function.
57	Abort on the basis of active motion.

Command type:	Outputs the aborted command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Set up the command again via program.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30003 Command aborted because of full command buffer (command type: /4/%X)

Cause

The command is not entered in the command buffer because the buffer is already full.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the program flow.
- Typical cause: The 'nextCommand' parameter is passed with the value 'IMMEDIATELY', and the 'mergeMode' parameter is passed with the value 'SEQUENTIAL'.
 - Synchronize the command execution in the user program so that the command buffer is not occupied when the command is issued.
 - Use other values for the 'nextCommand' or 'mergeMode' parameters. Setting the "nextCommand" to a value other than 'IMMEDIATELY' causes the program to wait for the command buffer to become available. In addition, setting a different 'mergeMode' means that the command buffer can be overwritten.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

30004 **Command is not defined for this technology object type (command type: /4/%X)**

Cause

Command was programmed on a technology object type not supporting processing of this command.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Issue the command on the correct technology object type.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30005 Ambiguous commandId (number of commands with the specified ID: /1/%d, command type: /4/%X)

Cause

The specified commandId refers to more than one command. The specified action is performed for the command matching the specified ID that has been in the interpolator for the longest time.

If no corresponding command is found in the interpolator, the action refers to the next command loaded in the interpolator.

Meaning of alarm parameters

Id:	Number of commands referenced by the specified command ID.
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Use a different 'commandId' for commands that are active simultaneously.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

30006 Command cannot be executed because of the current object state (command type: /4/%X)**Cause**

A reset command is active at the object or the object is deactivated.

For axes only:

A `_stopEmergency` command is active at the object and a `_stopEmergency` command is sent with a different parameter assignment which will thus not take effect.

For axes with force control or force limitation only:

Superimposed force control is not possible in the current object state.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the following:

- Check the object status.
- Check the possible execution sequence of the programmed commands.

Acknowledgement/reaction

Reset fault memory / `START TechnologicalFaultTask`

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30007 The error cannot be reset because of its configuration

Cause

The 30007 alarm will be output when an alarm is reset that can only be acknowledged with PowerOn.

Example:

The internal 20001 error can only be acknowledged with PowerOn.

If an attempt is made to reset the alarm with a `_reset...Error` command, the 30007 alarm will be output.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check whether the errors present on the technology object can be acknowledged.

Correct the cause of the error and switch the CPU off/on or load the project again.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30008 **Link to a technology object necessary for this operation does not exist (command type: /4/%X)**

Cause

The object connection required for this operation has not been configured or the connected technology object has been deactivated.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the project configuration.
- Change the object connection in the command.
- Activate the connected technology object.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30009 Command rejected as the decoding of the command of the technology object addressed has been deactivated/stopped (reason: /1/%d, command type: /4/%X)

Cause

Command was rejected due to suspension of command decoding on the addressed technology object. The command decoding can be stopped by the DECODE_STOP alarm response, by deactivating or restarting the technology object, by starting the axis control panel in exclusive mode or by the absence of necessary interconnections.

Meaning of alarm parameters

Reason:	
1	Restart of the technology object
2	Technology object is deactivated
3	Technology object is in RUN mode.
4	Control panel active

Command type:	Outputs the type of the rejected command. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check why the command was rejected.
- If necessary, acknowledge any active errors once you have corrected the cause of the error.
- If the technology object is deactivated, you must activate it.
- Do not issue any commands while the technology object is restarting.
- Do not issue any commands while a connected technology object is restarting.
- Stop the axis control panel.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30010 Command not available (command type: /4/%X)

Cause

The command is not available in this version of the runtime software.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the version of the runtime software.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30011 **Parameter not available (parameter index according to the standard sequence in the system functions: /1/%d, command type: /4/%X)**

Cause

The parameter is not available in this version of the runtime software, the command is therefore rejected. The parameters indicate the position according to the standard sequence in the system functions and the command type of an incorrectly entered parameter.

Meaning of alarm parameters

Parameter index:	Index of the command parameter triggering this error according to the standard sequence in the system functions.
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the version of the runtime software.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30012 Command cannot be started synchronously (command type: /4/%X)

Cause

The command cannot be used within a 'BEGIN_SYNC' or 'END_SYNC' sequence. The command has only one return value in the user program, or the command is not capable of starting synchronously.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Do not use this command type during a BEGIN_SYNC, END_SYNC sequence.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

30013 Synchronous start of the command is carried out with mergeMode IMMEDIATELY (command type: /4/%X)

Cause

With synchronous command start, only merge modes that immediately override the current command (IMMEDIATELY) and superimpose the current command (SUPERIMPOSED_MOTION_MERGE) can be used.

If an illegal merge mode is programmed (e.g. SEQUENTIAL or NEXT_MOTION), the system automatically changes the merge mode to IMMEDIATELY and outputs this warning.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Program the command which is to be started synchronously to immediately override the current command. To do this, enter the value IMMEDIATELY in the 'mergeMode' command parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

30014 **Coordinate system has not been offset because the internal traversing range limit was exceeded (Parameter1: /1/%d, command type: /2/%X)**

Cause

The programmed coordinate system offset causes the internal traversing range limit to be exceeded. The coordinate system is not offset.

Meaning of alarm parameters

Parameter 1:	
0	Negative internal traversing range limit
1	Positive internal traversing range limit

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	UDINT

Remedy

Check the programming for the coordinate system offset.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

30015 A technology required for this command has not been configured (technology: /1/%d, command type: /4/%X)

Cause

The command cannot be selected in this technology object configuration.

Meaning of alarm parameters

Technology:	
1	Axis with force/pressure control without flow/force specification
2	Axis with force/pressure control and flow/force specification
3	Axis without flow/force specification
4	Axis with flow/force specification
5	Axis with force specification
6	Axis with pressure setpoint specification
7	Axis with pressure limiting
8	Axis with speed limiting parallel to force/pressure control
9	Axis with flow specification
10	Do not use encoder simulation
11	Do not use a hydraulic axis

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Activate the technology needed for the command.

Technology:	
1	Select the 'REAL_AXIS_WITH_PRESSURE_CONTROL' mode in the 'TypeOfAxis' configuration data.
2	Select the 'REAL_QP_AXIS_WITH_CLOSED_LOOP_FORCE_CONTROL' mode in the 'TypeOfAxis' configuration data.
3	Select the 'VIRTUAL_AXIS', 'REAL_AXIS', or 'REAL_AXIS_WITH_FORCE_CONTROL' mode in the 'TypeOfAxis' configuration data.
4	Select the 'REAL_QPAXIS', 'REAL_QP_AXIS_WITH_OPEN_LOOP_FORCE_CONTROL', or 'REAL_QP_AXIS_WITH_CLOSED_LOOP_FORCE_CONTROL' mode in the 'TypeOfAxis' configuration data.
5	Select the 'REAL_QP_AXIS_WITH_OPEN_LOOP_FORCE_CONTROL' mode in the 'TypeOfAxis' configuration data.
6	Select the 'REAL_AXIS_WITH_PRESSURE_CONTROL' or 'REAL_QP_AXIS_WITH_CLOSED_LOOP_FORCE_CONTROL' mode in the 'TypeOfAxis' configuration data.
7	Select the 'REAL_AXIS_WITH_PRESSURE_CONTROL', 'REAL_QP_AXIS_WITH_OPEN_LOOP_FORCE_CONTROL', or 'REAL_QP_AXIS_WITH_CLOSED_LOOP_FORCE_CONTROL' mode in the 'TypeofAxis' configuration data.
8	Select the 'REAL_QP_AXIS_WITH_CLOSED_LOOP_FORCE_CONTROL' mode in the 'TypeOfAxis' configuration data.
9	Select a mode with flow specification in the 'TypeOfAxis' configuration data.
10	Select a mode that is not used for simulation of an encoder (TM41) in the 'TypeOfAxis' configuration data.
11	Select a mode without hydraulics in the 'TypeOfAxis' configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

40001 Illegal state change of axis**Cause**

The command for the axis state change could not be executed because:

- The operating mode phase is not yet complete
- The operating transition is not possible

Remedy

The operating mode phase is not yet complete	Repeat the command.
Operating transition not possible	Reset the system first.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

Yes

40002 Programmed velocity is limited

Cause

- The system is limiting the programmed velocity to the maximum permissible velocity.
- For a master axis with modulo range, the velocity is limited to a value which allows certain detection of the direction within an IPO cycle (half the modulo length).

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40003 Programmed acceleration (type: /1/%d) is limited**Cause**

The system is limiting the programmed acceleration to the maximum permissible acceleration.

Meaning of alarm parameters

Type:	
0	Positive acceleration
1	Negative acceleration/deceleration

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40004 Programmed jerk (type: /1/%d) is limited

Cause

The system is limiting the programmed jerk to the maximum permissible jerk.

Meaning of alarm parameters

Type:	
0	Increase in positive acceleration
1	Reduction in positive acceleration
2	Increase in negative acceleration/deceleration
3	Reduction in negative acceleration/deceleration

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

40005 Missing enable(s) (Parameter1: /1/%X) and/or incorrect mode (Parameter2: /2/%d)**Cause**

The enables are missing for a pending motion command and/or the axis follow-up mode is active.

Meaning of alarm parameters

Parameter1:	
Bit 1 =	0: POWER enable is available 1: POWER enable is missing
Bit 2 =	0: DRIVE enable is available 1: DRIVE enable is missing
Bit 3 =	0: Position controller enable is available 1: Position controller enable is missing
Bit 4 =	0: Force/pressure controller enable is available 1: Force/pressure controller enable is missing
Bit 5 =	0: Separate P-output enable is available 1: Separate P-output enable is missing
Bit 7 =	For the output of bit 7, the enables are missing for: - Bit 1 POWER - Bit 2 DRIVE and - Bit 3 position controller.

Parameter2:	
0	Follow-up mode is deselected
1	Follow-up mode is selected

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	DINT

Remedy

Activate the enables before issuing a motion command.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

40006 Programmed velocity is zero

Cause

The programmed velocity is zero. The specified motion cannot be executed.

Remedy

Program a value other than zero. If USER_DEFAULT is referenced, a value not equal to zero must be programmed in the assigned system variable.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40007 Programmed acceleration (type: /1/%d) is zero**Cause**

The programmed acceleration is zero. The specified motion cannot be executed.

Meaning of alarm parameters

Type:	
0	Positive acceleration
1	Negative acceleration/deceleration

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT

Remedy

Program a value other than zero. If USER_DEFAULT is referenced, a value not equal to zero must be programmed in the assigned system variable.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40008 Programmed jerk (type: /1/%d) is zero

Cause

The programmed jerk is zero. The specified motion cannot be executed.

Meaning of alarm parameters

Type:	
0	Increase in positive acceleration
1	Reduction in positive acceleration
2	Increase in negative acceleration/deceleration
3	Reduction in negative acceleration/deceleration

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Program a value other than zero. If USER_DEFAULT is referenced, a value not equal to zero must be programmed in the assigned system variable.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40009 Velocity limit is zero

Cause

The programmed velocity limit is zero. The specified motion cannot be executed.

Remedy

Program a value other than zero in the dynamic limit values.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

40010 Acceleration limit (type: /1/%d) is zero

Cause

The programmed acceleration limit is zero. The specified motion cannot be executed.

Meaning of alarm parameters

Type:	
0	Positive acceleration
1	Negative acceleration/deceleration

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT

Remedy

Program a value other than zero.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

40011 Programmed jerk limit (type: /1/%d) is zero**Cause**

The programmed jerk limit is zero. The specified motion cannot be executed.

Meaning of alarm parameters

Type:	
0	Increase in positive acceleration
1	Reduction in positive acceleration
2	Increase in negative acceleration/deceleration
3	Reduction in negative acceleration/deceleration

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Program a value other than zero.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

40012 Dynamic limitations (type: /1/%d) are being violated

Cause

The specified dynamic limitations are being violated. This can occur due to:

- Programming of substituted jerk-controlled motions with extremely divergent dynamic parameters, which would lead to an additional reversing motion, reducing the current acceleration.
- Programming of superimposed motions exceeding the resulting dynamic parameters, which would lead to overshoot or to a reversing motion when limited to the maximum velocity or when entering final velocity.

One or more physical variables (velocity, acceleration, jerk) may be affected. The violations have only a temporary effect.

Meaning of alarm parameters

Type:	
0	The jerk is changed; jerk limitation is exceeded.
1	Programmed jerk limitation is disabled during jerk-controlled motion.
2	The programmed acceleration is changed. The effective acceleration limitation is exceeded.
3	The programmed acceleration is changed, and the programmed jerk limitation is disabled. The effective acceleration limitation is exceeded.
4	The programmed dynamic values are limited during motion. The direction of motion is reversed.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

- For substituted motion:
Increase the dynamic response parameters.
- For superimposed motion:
Allow for the current active (resulting) limitations when programming the dynamic response parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40013 Programmed stop time is limited by acceleration limits

Cause

The specified stop time cannot be achieved. It is violated due to the maximum acceleration limits. Deceleration is performed with the maximum values.

Remedy

- Increase the programmed time.
- Check the maximum acceleration and the active programmed limits.
- Increase the limits, if necessary.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40014 Command not possible on virtual axis (command type: /4/%X)**Cause**

The command is not supported by virtual axes.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Use a real axis.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40015 Error occurred while accessing the specified curve profile (reason: /1/%d)

Cause

An error occurred while processing the curve profile.

Meaning of alarm parameters

Reason:	
1	The curve profile does not exist or is not linked with the object.
2	The curve profile is not interpolated.
3	The curve profile is already used.
4	Parameters and values of the curve profile in conjunction with the current values relative to the specified motion parameters contradict.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

- Check the programmed curve profile.
- Check the object connection with the curve profile.
- Check the program sequence.
- Check the parameterization of the profile with regard to the current reference values.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

40016 The specified curve profile has not been interpolated**Cause**

The system only accepts verified and interpolated curve profiles for this operation. The specified curve profile has not yet been interpolated.

Remedy

Check whether the specified curve profile has been interpolated.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40017 Curve profile starting point is outside the definition range

Cause

The addressed curve profile start point is outside the definition range of the curve profile.

Remedy

- Check the definition range of the curve profile.
- Check the curve profile start point.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40018 Dynamic response of the motion profiles (type: /1/%d) cannot be achieved (reason: /2/%d)

Cause

Specified dynamic response cannot be adhered to.

If this alarm occurs while the profile is being traversed, the currently programmed set position of the cam may be exceeded.

Meaning of alarm parameters

Type:	
1	Velocity-time profile
2	Position-time profile
3	Velocity-position profile
4	Velocity-interface position profile
5	Velocity-time limit profile
6	Velocity-position limit profile
7	Velocity-interface position limit profile

Reason:	
0	The velocity resulting from the profile has been limited to the programmed value.
1	The acceleration/deceleration resulting from the profile has been limited to the programmed value.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT

Remedy

- For superimposed motion:
Allow for the current active (resulting) limitations when programming the dynamic response parameters.
- Increase the dynamic response parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40019 Error occurred while accessing the specified motion interface**Cause**

The specified reference object for the motion interface does not exist or is not connected to the axis.

Remedy

- Check the programmed input interconnection.
- Check the program sequence.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40020 Dynamic response of the setpoints on the motion interface (type: /1/%d) cannot be achieved (reason: /2/%d)

Cause

Specified dynamic response cannot be adhered to.

Meaning of alarm parameters

Type:	
1	Velocity-based setpoints
2	Position-based setpoints

Reason:	
0	The velocity resulting from the interface has been limited to the programmed value.
1	The acceleration/deceleration resulting from the interface has been limited to the programmed value.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT

Remedy

- For superimposed motion:
Allow for the current active (resulting) limitations when programming the dynamic response parameters.
- Increase the dynamic response parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

40021 StopEmergency command abort because of a pending stop response with the same or higher priority

Cause

The axis StopEmergency command was aborted when called or while the command was running due to a stop response of the same or higher priority as a result of an error.

This alarm is generated to assist you in developing emergency stop strategies. For example, safe program execution can be ensured by changing the stop response.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40022 Programmed pressure limitation is limited

Cause

The system is limiting the programmed pressure limitation value to the maximum permissible pressure value.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40023 Programmed increase of the pressure limitation is limited**Cause**

The system is limiting the programmed pressure limitation increase to the maximum permissible pressure increase value.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40024 Programmed increase of the pressure limitation is zero

Cause

The programmed increase of the pressure limiting is zero. The specified pressure limiting characteristic cannot be calculated.

Remedy

Program a value other than zero. If USER_DEFAULT is referenced, a value not equal to zero must be programmed in the assigned system variable.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_ABORT

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40025 Maximum increase of the pressure limitation is zero**Cause**

The limit value for the pressure limitation increase is zero. The specified pressure limiting characteristic cannot be calculated.

Remedy

Program a value other than zero in the dynamic limit values.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_ABORT

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40026 Dynamic response of the pressure/pressure-limitation profiles (type: /1/%d) cannot be achieved (reason: /2/%d)

Cause

Specified dynamic response cannot be adhered to.

Meaning of alarm parameters

Type:	
1	Pressure-time limit profile
2	Pressure-position limit profile
3	Pressure-interface position limit profile
4	Pressure-time profile
5	Pressure-position profile
6	Pressure-interface position profile

Reason:	
0	The pressure/pressure limiting value resulting from the profile has been limited to the maximum pressure/pressure limiting value.
1	The pressure/pressure limiting increase value resulting from the profile has been limited to the maximum pressure/pressure limiting increase value.

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT
2	DINT

Remedy

Increase the dynamic response parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40027 Programmed command abort cannot be executed (reason: /1/%d)**Cause**

The programmed command abort could not be executed.

Meaning of alarm parameters

Reason:	
0	An abort is no longer possible in the current command status.
1	The '_stopEmergency' function can only be aborted during a standstill.

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40101 Homing output cam not found

Cause

The homing output cam was not found because:

- It is outside the permissible range.
- Limit switch monitoring system has responded

Remedy

- Check the permissible range for homing.
- Check the hardware configuration.
- Check the home position and, if the approach direction is incorrect, change the start position of the axis for homing.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_ABORT

Settable local reactions

MOTION_STOP MOTION_EMERGENCY_STOP MOTION_EMERGENCY_ABORT
FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

40102 Encoder zero mark not found during homing**Cause**

The encoder zero mark was not found because:

- The difference between the reference output cam and the encoder zero mark is outside the permissible range
- Limit switch monitoring system has responded
- The reference deceleration velocity is too high
- Homing with encoder zero mark or external zero mark for drive simulation (.Encoder_N.encoderIdentification = SIMULATION) is not possible

Remedy

Check the following:

- Permissible range
- Hardware configuration
- And reduce the deceleration velocity.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40103 Reference data incorrect (Parameter1: /1/%d)

Cause

The configured axis data and the selected parameters in the homing command are inconsistent with one another.

Meaning of alarm parameters

Parameter 1	
1	'ENABLE_OFFSET_OF_ABSOLUTE_ENCODER' has been selected in the homing command but an incremental encoder is configured.
2	'ACTIVE_HOMING' or 'PASSIVE_HOMING' has been selected in the homing command, but an SSI encoder is configured.
3	'ACTIVE_HOMING' has been selected in the homing command, but 'NO_REFERENCE' was configured for 'homingMode' in the configuration data for the encoder.
4	'ACTIVE_HOMING', 'PASSIVE_HOMING' or 'ENABLE_OFFSET_OF_ABSOLUTE_ENCODER' has been selected in the homing command, but 'NO_SENSOR' was selected for 'encoderType' in the configuration data for the encoder.
5	Traversing distance monitoring up to the reference point switch is configured in the configuration data, but the configured maximum distance to be traversed is zero.
6	The homing approach velocity is zero.
7	The homing entry velocity is zero.
8	The homing reduced velocity is zero.
9	'SENSOR_POSITION_DIFFERENCE_MEASUREMENT' has been selected for 'encoderType' in the configuration data for the encoder. Homing is not possible in this encoder mode.
10	Homing is not possible when the actual value is specified using the 'sensorSettings.actualValue' system variable.
11	The resulting home position offset is outside the displayable axis position.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Check the configuration data and the command parameters for homing.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40104 Error occurred while setting the software limit switches (Parameter1: /1/%d)

Cause

The software limit switches are programmed incorrectly.

Meaning of alarm parameters

Parameter 1:	
0	Negative switch is greater than positive switch when the axis is not a modulo axis.
1	Current set position is not in programmed range. The software limit switch was deactivated.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Reprogram the software limit switches.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_STOP

Settable local reactions

MOTION_EMERGENCY_STOP MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP
OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

40105 Position limited to software limit switch (Parameter1: /1/%d)**Additional references**

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

The programmed position has been limited to the software limit switch.

Meaning of alarm parameters

Parameter 1:	
0	Negative switch
1	Positive switch

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Check the program code for the motion.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

END_OF_MOTION_STOP

Settable local reactions

END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40106 Software limit switch (Parameter1: /1/%d) reached

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

The software limit switch has been approached during a motion sequence. If valid actual values are present for a speed-controlled procedure, these serve as limits for the software end position monitoring.

Meaning of alarm parameters

Parameter 1:	
0	Negative switch
1	Positive switch

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Check the program code for the motion.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_ABORT

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40107 Software limit switch (Parameter1: /1/%d) will be crossed**Additional references**

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

The software limit switch has been crossed. If valid actual values are present for a speed-controlled procedure, these serve as limits for the software end position monitoring.

Meaning of alarm parameters

Parameter 1:	
0	Negative switch
1	Positive switch

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Check the program code for the motion.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40108 Axis is not homed

Cause

A command requiring a homed axis was passed to an axis that is not homed.

Remedy

Home the axis.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40109 Error occurred while synchronizing two encoders (reason: /1/%d)**Cause**

An attempt to synchronize two encoders has failed.

Meaning of alarm parameters

Reason	
0	The reference encoder is not configured or is defective.
1	The encoder to be synchronized is not configured or is defective.
2	Function not possible as only one encoder has been configured.
3	Illegal correction of the active encoder.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

- Check the command parameters.
- Configure the encoder.
- Remedy the fault on the encoder.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40110 Error triggered on slave during Synchronous operation (error number: /1/%d, slave stopped: /2/%d)

Additional references

Further information is provided in the Function Manual:

- Technology Objects Synchronous Operation, Cam and
- in the online help.

Cause

An error was triggered on a slave during Synchronous operation and reported to the master.

Meaning of alarm parameters

Error number:	Error reported by slave:
1	Synchronous operation setpoint tolerance exceeded.
2	Synchronous operation actual-value tolerance exceeded.
3	General slave axis error.

Slave stopped:	Indicates whether the slave axis has switched to Stop mode:
0	The slave axis has not switched to Stop mode.
1	The slave axis has switched to Stop mode.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT

Remedy

Check the following:

- Configuration data for Synchronous operation monitoring on the slave
- Programming (dynamic parameters, Synchronous operation connection)
- System variables

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_ABORT

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE NONE

Diagnostics buffer entry

No

40111 Internal traversing range limit (Parameter1: /1/%d) reached

Cause

The internal traversing range limit has been approached during a motion sequence.

Meaning of alarm parameters

Parameter 1:	
0	Negative internal traversing range limit
1	Positive internal traversing range limit

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT

Remedy

Check the program code for the motion.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_ABORT

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40112 Internal traversing range limit (Parameter1: /1/%d) will be crossed**Cause**

The internal traversing range limit has been crossed.

Meaning of alarm parameters

Parameter 1:	
0	Negative internal traversing range limit
1	Positive internal traversing range limit

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT

Remedy

Check the program code for the motion.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40120 Programmed pressure is being limited

Cause

The system is limiting the programmed pressure to the maximum permissible pressure.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40121 Programmed pressure increase is being limited**Cause**

The system is limiting the programmed pressure increase to the maximum permissible pressure increase.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40122 Programmed pressure increase is zero

Cause

- The programmed pressure increase is zero.
- The specified pressure characteristic cannot be calculated.

Remedy

- Program a value other than zero.
- If USER_DEFAULT is referenced, a value not equal to zero must be programmed in the assigned system variable.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_ABORT

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40123 Maximum pressure increase is zero**Cause**

- The limit value for the pressure increase is zero.
- The specified pressure characteristic cannot be calculated.

Remedy

Program a value other than zero in the dynamic limit values.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_ABORT

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40124 Offset cannot be fully compensated (reason: /1/%d)

Cause

The cycle clock offset for a Synchronous operation group cannot be compensated completely on the master side.

Meaning of alarm parameters

Reason	
1	The determined cycle clock offset is greater than the maximum permissible setpoint output delay.
2	An already active offset compensation cannot be reduced to a smaller offset as a result of reconfiguring a slave interconnection.
3	A setpoint output delay can only be configured when the axis is at a standstill.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

For reason:	
= 1:	Not necessary, for information only.
= 2:	Restart this axis.
= 3:	Stop the motion of this axis.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

40125 Master setpoint output delay deactivated**Cause**

This master value source operates without a master-side setpoint output delay.

The setpoint output delay on the master side was activated for at least one interconnected slave axis. The Synchronous operation relationship between the master value source and the slave axis is not operating synchronously.

Remedy

Activate the master-side setpoint output delay of the master value source.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40126 Tolerance of the axis-specific synchronous setpoints exceeded

Cause

The configured axis-specific synchronization setpoint tolerance has been exceeded while maintaining the dynamic limit values.

Remedy

Check the dynamic conditions for the path/synchronous motion. This involves:

- Check the dynamic parameters
- Check the configured units and the internal representation accuracy. Increase the configured tolerance.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_ABORT

Settable local reactions

NONE MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP
OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

40127 **Dynamic response of the axis-specific synchronous setpoints cannot be attained (reason: /1/%d)**

Cause

Specified dynamic response cannot be adhered to.

Meaning of alarm parameters

Reason:	
0	The resulting axis-specific synchronized velocity setpoint has been reduced to the current valid limit value.
1	The resulting axis-specific synchronized acceleration setpoint has been reduced to the current valid limit value.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

- For substituted motion: For information only
- Allow for the current active (resulting) limitations when programming the dynamic response parameters.
- Increase the dynamic response parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40128 Home position offset cannot be retracted

Cause

The home position offset cannot be retracted because 'homing only in positive direction' or 'homing only in negative direction' is set. The retraction of the home position offset, however, must be made in the opposite direction to the set direction.

Remedy

- Check whether the retraction of the home position offset is made in the configured homing direction.
- Check whether the required braking distance after transferring the homing signal is larger than the home position offset.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40129 Home position offset violates the internal traversing range limit (reason: /1/%d)

Cause

Homing have been canceled because the offset is greater than the internal traversing range limit.

Meaning of alarm parameters

Reason:	
0	The offset is too great.
1	The axis value is too great.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Check the set offset of the reference point and the current position value of the axis.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40201 Synchronous operation tolerance exceeded on gear axis (active monitoring: /1/%d)

Additional references

Further information is provided in the Function Manual:

- Technology Objects Synchronous Operation, Cam and
- in the online help.

Cause

The configured Synchronous operation tolerance has been exceeded while maintaining the dynamic limit values.

Meaning of alarm parameters

Active monitoring:	Indicates which Synchronous operation monitoring is active.
1	Setpoint monitoring
2	Actual value monitoring

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Check the dynamic conditions for Synchronous operation. This involves:

- Checking the Synchronous operation connections, ratios, and cam mechanism
- Checking the dynamic parameters for synchronization and desynchronization
- Checking the configured units and the internal representation accuracy
- Increase the configured tolerance.
- Set the `syncingMotion.masterReversionTolerance` to the value 0.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_ABORT

Settable local reactions

NONE MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP
OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

40202 **Dynamic response of the Synchronous operation setpoints (type: /1/%d) cannot be achieved (reason: /2/%d)**

Cause

Specified dynamic response cannot be adhered to.

Meaning of alarm parameters

Type	
1	Synchronous operation position
2	Synchronous operation velocity

Reason	
0	The resulting Synchronous-operation setpoint velocity has been reduced to the limit that is currently valid.
1	The resulting Synchronous-operation acceleration setpoint has been reduced to the current valid limit.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT

Remedy

- For superimposed motion:
Allow for the current active (resulting) limitations when programming the dynamic response parameters.
- Increase the dynamic response parameters.
- For time-based synchronization, the dynamic response parameters on the synchronous object must be decreased or the dynamic response parameters on the slave axis (mechanical limits) must be increased.
- For master-value-based synchronization, the synchronization length must be increased or the master velocity must be decreased.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40301 Loss of connection to slave (assignment: /1/%d)**Cause**

- The connection to an interconnected slave failed.
- The slave is located on a distributed controller or has been assigned to a different execution level than the master.
- Master values of the master cannot be communicated to the slave for the duration of the connection failure. During the communication malfunction, a Synchronous operation monitoring response on the slave cannot be communicated to the master.

Meaning of alarm parameters

Assignment	
1	The failed slave is located on an assigned controller.
2	The failed slave has been assigned to a different execution level than the master.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Assignment 1:

- Ensure that the associated controller is activated, the slave is configured as distributed, and communication is permitted by the operating mode of the associated controller.
- Check the connection for mechanical damage, equivalence of configured network topology, firm contact by the plug connector, and, if necessary, correct electrical cable terminations.

Assignment 1 and 2:

- Make sure that the failed slave was not being reloaded at the time the error was detected.
- Monitoring of the connection is set in the technology object configuration. The master and slave must have the same settings selected.

Assignment 2:

- Check whether an overflow was diagnosed for the execution level of the assigned slave.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40302 Sign-of-life monitoring to the slave in the distributed Synchronous operation switched off**Cause**

- The sign-of-life monitoring for the slave connection to an assigned controller has been deactivated.
- Monitoring is configured differently on the master and slave. As a result, the connection is established without sign-of-life monitoring.

Remedy

Use identical configuration settings in the master and slave for sign-of-life monitoring of the connection.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40303 Different local and slave interpolation cycle clock

Cause

The master and slave are required to have a common interpolation cycle clock for distributed Synchronous operation. However, when establishing the connection between technology objects, different cycle clock settings were defined for interpolation.

Remedy

Use identical cycle clock settings for interpolation on the master and slave sides.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40304 Offset cannot be determined**Cause**

The offset for the slave cannot be determined. This can be caused by configuring the PROFIBUS DP without equidistance or a ratio of interpolator cycle clock to PROFIBUS DP cycle clock greater than 64.

Remedy

- Select equidistant mode on the PROFIBUS DP.
- Select a suitable IPO / DP cycle clock ratio setting.
- Deactivate offset compensation on the technology objects involved. Deactivate compensation only if other remedies do not eliminate the malfunction. Deactivating the offset compensation limits the accuracy of motion control.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40305 Synchronism loss to slave(s) on assigned controller in distributed Synchronous operation

Cause

There is no isochronous operation between the local and distributed controller. The local master and the assigned synchronous object thus have no common time reference system.

When clock synchronism is lost, the parameters determined for this connection are no longer valid and further operation is not permissible.

Remedy

- Select isochronous mode for PROFIBUS DP.
- Select a suitable IPO / DP cycle clock ratio setting (not to exceed 64).
- Make sure that the bus cycle clock is an integer multiple of the internal DP cycle clock.
- Make sure that the interpolation cycle clock on the connected controllers is an integer multiple of the bus cycle clock.
- Deactivate offset compensation on the technology objects involved. Deactivate compensation only if other remedies do not eliminate the malfunction. Deactivating the offset compensation limits the accuracy of motion control.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

40401 Tolerance of the axis-specific path setpoints exceeded**Cause**

The configured axis-specific path setpoint tolerance has been exceeded while maintaining the dynamic limit values.

Remedy

Check the dynamic conditions for the path. This involves:

- Check the dynamic parameters
- Check the configured units and the internal representation accuracy. Increase the configured tolerance.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

MOTION_EMERGENCY_ABORT

Settable local reactions

NONE MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP
OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

40402 Dynamic response of the axis-specific path setpoints cannot be attained (reason: /1/%d)

Cause

Specified dynamic response cannot be adhered to.

Meaning of alarm parameters

Reason:	
0	The resulting axis-specific path velocity setpoint has been reduced to the current valid limit value.
1	The resulting axis-specific path acceleration setpoint has been reduced to the current valid limit value.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

- For substituted motion: For information only
- Allow for the current active (resulting) limitations when programming the dynamic response parameters.
- Increase the dynamic response parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

50002 Limiting frequency of measuring system exceeded**Cause**

The limiting frequency of the encoder has been exceeded.

Remedy

- Check the encoder connection.
- Check the parameterized encoder limit frequency in the encoder configuration data ('FrequencyLimit.EncoderFrequencyLimit') and, if necessary, adjust the value entered there to match the manufacturer documentation for the encoder being used.
- Reduce the traversing velocity of your drive to a value adapted to the encoder limit frequency. If necessary, amend the maximum velocity ('MaxVelocity') parameterized in the configuration data as well.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50003 Limitation of speed set acceleration is active

Cause

The speed set acceleration is being limited.

Remedy

Check the following:

- Mechanical configuration
- Encoder connection
- Configuration of the speed setpoint interface
- Maximum permissible acceleration rates in the configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50005 Speed setpoint monitoring active (Parameter1: /1/%d)**Cause**

The speed setpoint is being limited.

Meaning of alarm parameters

Parameter 1:	Specification of the limitation
0	Manipulated variable (speed setpoint) limit reached.
1	Velocity-related definition range limit (in front of cam in the case of hydraulic axes) reached.
2	Value range limit (for hydraulic axes only) reached.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Check the following:

- Mechanical configuration
- Encoder connection
- Configuration of the speed setpoint interface
- Maximum permissible velocity rates in the configuration data
- The maximum velocity of the axis (configuration data: `TypeOfAxis.MaxVelocity`).

To find faults faster: Trace the `motionStateData.actualVelocity` and `actorData.totalSetPoint` system variables.

Acknowledgement/reaction

Reset fault memory / `START TechnologicalFaultTask`

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50006 Zero mark monitoring

Cause

Zero mark monitoring has been activated.

Remedy

Check the following:

- Mechanical configuration and the encoder configuration
- Error messages of the encoder

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

OPEN_POSITION_CONTROL

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50007 Hardware limit switch (Parameter1: /1/%d, Parameter2: /2/%d)**Additional references**

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

Hardware limit switch has been violated.

Meaning of alarm parameters

Parameter 1:	
1	Limit switch reached
2	Polarity reversal on limit switch (can only be deleted by reconfiguring the technology object or Power On)
3	Illegal retraction direction
4	Both limit switches are active

Parameter 2:	
0	Not relevant
1	Limit switch in positive traversing direction
2	Limit switch in negative traversing direction

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT

Remedy

- Check the mechanical configuration.
- Check the limit switches.
- If an error has occurred in the program, change the program or use the software limit switches.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50008 Timeout while waiting for standstill signal**Cause**

Timeout occurred while waiting for standstill signal.

Remedy

Check the following:

- Configuration of 'Axis.TypeOfAxis.StandStillSignal'
- Correct operation of the control loop

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50009 Position limit switch active: (Parameter1: /1/%d) only one traversing direction possible

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

A positive (Parameter 1 = 1) or negative (Parameter 1 = 2) hardware limit switch is active or has been crossed. Motion is possible in the positive or negative traversing direction only.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

- Check the mechanical configuration.
- Check the limit switches.
- If an error has occurred in the program, change the program or use the software limit switches.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50010 Error occurred while reading or writing data set (category: /1/%d, error number: /2/%d)

Cause

An error occurred while reading or writing.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system

Error number:	Specification of the error
1000	General configuration error
1001	Communication error during data transmission
2000	Error in actuator system configuration.
2001	Outside of manipulated variable limits.
2003	Error in load gear factors.
2004	Error in maximum velocity.
2005	Maximum velocity greater than maximum attainable velocity.
2006	Drive not suitable for torque-controlled or torque-limited operation
2007	Linear stepper motor not implemented
2008	Right-justified format for direct output not implemented
2009	Illegal value in resolution for direct output
2010	Missing configuration data for actuator system
2011	Missing configuration data for additional actuator system
2012	The backstop range (min to max) does not contain a zero point
2014	Drive or telegram not suitable for torque superimposition
2015	Gear ratios less than or equal to 0.
2016	Resolution for stepper motor is 0.
2017	Illegal value for configuration data maxSpeed.
2018	Illegal value for configuration data maxVelocity.
2019	Range limits of configuration data exceeded.
2020	Range limits for maximum acceleration exceeded.
2021	Illegal values for dead zone compensation.
2022	Illegal values for sliding friction compensation.
2023	Illegal values for backstop.
2024	Error in friction compensation parameter
2025	DIRECT output: Analog and bit driver of a shared output are parameterized in different ways on the various axes
2026	Illegal value for pulsesEnable
2027	Illegal value for maxSpeed ($\text{maxSpeed} \geq 2 \cdot \text{nominalSpeed}$)
2028	Illegal value for maxSpeed ($\text{maxSpeed} \leq 10 \text{ V} / \text{maxSetPointVoltage} \cdot \text{nominalSpeed}$)
2029	Illegal value in TypeOfAxis.SetPointDriverInfo
2030	A parameter in DriveData is not correct.
2031	A parameter in LinearMotorDriveData is not correct.
2032	A parameter in StepMotorDriveData is not correct.
2033	A parameter in QOutput.EnableBit is not correct.
2034	A parameter of the technological data block is not correct.
2035	A parameter of the safety data block is not correct.
2036	A parameter of the operating characteristics data block is not correct.
2037	Cannot change the configuration during the drive adaptation.
2038	Illegal value for the manipulated variable filter
3000	Error in encoder system.

3001	Illegal value in Simulation.simulationMode
3002	The set axis type is invalid - illegal value in TypeOfAxis.typeOfAxis
3003	The set drive leadscrew pitch is invalid - illegal value in Leadscrew.pitchVal
3004	The set modulo activation is invalid - illegal value in Modulo.state
3005	Illegal specification(s) in the encoder data (incremental, absolute, etc.).
3006	The set number of encoders is invalid - illegal value in .NumberOfEncoders.numberOfEncoders
3007	Illegal incremental encoder number.
3008	Illegal data combination for homing with incremental encoder.
3009	The configuration of the 'Backlash compensation' encoder function is faulty - illegal value in .Encoder_N.IncBacklash or .Encoder_N.AbsBacklash
3010	Illegal data on SSI encoder.
3011	The configuration of the 'Absolute encoder adjustment' encoder function is faulty - illegal value in .Encoder_N.AbsHoming
3012	The configuration of the 'Counting direction of the raw actual encoder value' encoder function is faulty - illegal value in .Encoder_N.InversCountDirection.encoderFeedbackPolarity
3013	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptDrive
3014	The configuration of the 'Encoder limit frequency monitoring' encoder function is faulty - illegal value in .Encoder_N.FrequencyLimit.encoderFrequencyLimit
3015	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptLoad
3016	The load gear ratio configuration of a data set is faulty - illegal value in .DataSet_N.Gear
3017	Encoder data sequence and number of encoders do not match.
3018	The configuration of an encoder is incomplete
3019	The set mounting location of the encoder is invalid - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3020	The encoder simulation is either not supported or it is not activated simultaneously on the actuator and the sensor - illegal value in .Encoder_N.encoderIdentification or .SetPointDriverInfo.mode
3021	The number of configured data sets or the number of the active data set after the startup is invalid - illegal value in DataSet_N.numberofDatasets or in DataSet_N.initDataSet
3022	The number of the encoder assigned to a data set is invalid - illegal value in DataSet_N.EncoderNumber.encoderNumber
3023	The configuration of the encoder measuring gear ratio is faulty - illegal value in .Encoder_N.AdaptExtern
3024	The configuration of the encoder measuring wheel circumference is faulty - illegal value in .Encoder_N.pathPerRevolution.length
3025	The configuration of the 'Actual velocity monitoring' function is faulty - illegal value in .ActualVelocityMonitoring
3026	Illegal encoder number in absolute encoder configuration.
3027	The set message format of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absMessageFormat
3028	The set baud rate of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.baudRate

3029	The set protocol format of the absolute encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absState
3030	The number of the encoder assigned to a data set is invalid - illegal value in DataSet_N.EncoderNumber.encoderNumber
3031	The encoder assigned to a data set does not exist - illegal value in DataSet_N.EncoderNumber.encoderNumber
3032	The load gear ratio numerator configuration of a data set is faulty - illegal value in .DataSet_N.Gear.numFactor
3033	The load gear ratio denominator configuration of a data set is faulty - illegal value in .DataSet_N.Gear.denFactor
3034	An encoder references a data set that does not exist
3035	An encoder references a data set that does not exist
3036	Encoder not configured.
3037	Homing with encoder zero mark and ENDAT encoder is not possible - illegal value in .Encoder_N.IncHomingEncoder.homingMode
3038	Homing to the falling edge of an external zero mark on an onboard input is not possible - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3039	Flying homing with encoder zero mark and ENDAT encoder is not possible - illegal value in .Encoder_N.IncHomingEncoder.passiveHomingMode
3040	Flying homing to the falling edge of an external zero mark on an onboard input is not possible - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3041	The (modified) encoder configuration does not permit any determination of the factors for converting the encoder raw actual values into actual position and velocity values or for converting the position and velocity setpoints into DSC encoder raw actual values, taking account of the mechanical relationships.
3042	Illegal data combination for homing with external encoder.
3043	The incremental position of the encoder is outside the permissible value range.
3044	The incremental position of the encoder is outside the permissible value range.
3045	The configuration of the linear encoder resolution is faulty - illegal value in .Encoder_N.Resolution
3046	The configuration of the encoder actual velocity values filter is faulty - illegal value in .Encoder_N.Filter
3047	The configuration of the encoder actual velocity values filter for the interpolator is faulty - illegal value in .SmoothingFilter
3048	The configuration of the encoder actual velocity values filter for the actual value coupling (Synchronous operation) is faulty - illegal value in .Extrapolation.Filter
3049	The set number of the DSC encoder is invalid - illegal value in .NumberOfEncoder.dscEncoderNumber
3050	The configuration of the encoder system has not been completed correctly.
3051	The configuration of the stepper motor encoder data is faulty - illegal value in .Encoder_N.StepMotorMonitoring
3052	The set encoder actual value type does not match its configuration or the technology object type - illegal value in .Encoder_N.encoderValueType
3053	Homing on a stepper motor is only possible with an external zero mark - illegal value in .Encoder_N.incHomingEncoder.homingMode
3054	Flying homing on a stepper motor is only possible with an external zero mark - illegal value in .Encoder_N.incHomingEncoder.passiveHomingMode

3055	The configuration of a stepper motor with encoder is only possible on a real axis - illegal value in .Encoder_N.encoderMode
3056	Only one encoder may be configured on a stepper motor - illegal value in .NumberOfEncoders.numberOfEncoders
3057	The DSC encoder is not a PROFIBUS encoder - illegal value in .NumberOfEncoders.dscEncoderNumber or .Encoder_N.encoderIdentification
3058	The DSC encoder telegram does not support DSC - illegal value in .Encoder_N.DriverInfo.telegramType
3059	Set modulo value in Modulo.length is smaller than an increment.
3060	The encoder configuration for the position difference measurement is faulty - illegal value in .Encoder_N.PositionDifferenceMeasurement
3061	The set limits for the position difference supplied by the encoder are invalid - illegal value in .Encoder_N.PositionDifferenceMeasurement.Range
3062	The activation of the 'Backlash compensation' encoder function is only possible for motor encoders - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3063	The configuration of a TO externalEncoder for the operation as encoder on a stepper motor is not possible - illegal value in .Encoder_N.encoderMode
3064	The set resolution of the encoder is invalid - illegal value in .Encoder_N.IncEncoder.incResolution
3065	The set resolution of the encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absResolution
3066	The set multiplication factor for the cyclic actual value of the encoder is invalid - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic
3067	The set multiplication factor for the cyclic actual value of the encoder is invalid - illegal value in .Encoder_N.AbsEncoder.absResolutionMultiplierCyclic
3068	The assignment of a velocity encoder to a data set on a positioning axis is not permitted - illegal value in DataSet_N.EncoderNumber.encoderNumber
3069	The configuration of the 'Tolerance of an encoder error' encoder function is invalid - illegal value in .Encoder_N.SensorControlConfig.tolerateSensorDefect
3070	The configuration of the 'Direct reading of the actual speed value (Nact) from the PROFIDrive telegram' encoder function is faulty - illegal value in .Encoder_N.NistDriverConfig
3071	The configuration of the reference cam is invalid - illegal value in .Encoder_N.IncHomingEncoder.referenceCamType
3072	The configuration of the negative reversing cam is faulty - illegal value in .Homing.ReverseCamNegative
3073	The configuration of the positive reversing cam is faulty - illegal value in .Homing.ReverseCamPositive
3074	The set edge of the external zero mark does not match the set homing approach direction - illegal value in .Encoder_N.IncHomingEncoder.approachDirection or .Homing.direction
3075	The use of reversing cams in the selection of .Homing.direction = 'POSITIVE_ALL_HOMING' or .Homing.direction = 'NEGATIVE_ALL_HOMING' as homing approach direction is not permitted - illegal configuration in .Homing.ReverseCamNegative._type or .Homing.ReverseCamPositive._type
3076	The set approach direction of the zero mark or edge of the external zero mark does not match the set homing approach direction - illegal value in .Encoder_N.IncHomingEncoder.approachDirection or .Homing.direction

3077	The use of hardware limit switches as reference cams in the selection of <code>.Homing.direction = 'POSITIVE_ALL_HOMING'</code> or <code>.Homing.direction = 'NEGATIVE_ALL_HOMING'</code> as homing approach direction is not permitted - illegal value in <code>.Encoder_N.IncHomingEncoder.referenceCamType</code>
3078	The configuration of the 'Ready bit' encoder function is faulty - illegal value in <code>.Encoder_N.AnalogSensor.ReadyStateMonitoring</code>
3079	The configuration of the 'Error bit' encoder function is faulty - illegal value in <code>.Encoder_N.AnalogSensor.ErrorStateMonitoring</code>
3080	The encoder Ready bit is in the range of the actual encoder value data bit - illegal value in <code>.Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress</code> and/or <code>.Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber</code>
3081	The encoder Error bit is in the range of the actual encoder value data bit - illegal value in <code>.Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress</code> and/or <code>.Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber</code>
3082	The configuration of the external zero mark interface is faulty - illegal value in <code>.Encoder_N.IncHomingEncoder.StateDriveExternalZeroMark</code>
3083	The configuration of the 'Update counter' encoder function is faulty - illegal value in <code>.Encoder_N.AnalogSensor.UpdateCounter</code>
3084	The encoder Update counter bits are in the range of the actual encoder value data bits - illegal value in <code>.Encoder_N.AnalogSensor.UpdateCounter.logAddress</code> and/or <code>.Encoder_N.AnalogSensor.UpdateCounter.bitNumber</code>
3085	The encoder Update counter bits and the Read bit overlap - illegal value in <code>.Encoder_N.AnalogSensor.UpdateCounter.logAddress</code> and/or <code>.Encoder_N.AnalogSensor.UpdateCounter.bitNumber</code>
3086	The encoder Update counter bits and the Error bit overlap - illegal value in <code>.Encoder_N.AnalogSensor.UpdateCounter.logAddress</code> and/or <code>.Encoder_N.AnalogSensor.UpdateCounter.bitNumber</code>
3087	The configuration of the 'Direct reading of the actual speed value (Nact) from the PROFIDrive telegram' encoder function is faulty - illegal value in <code>.Encoder_N.SensorNist</code>
3088	The configuration of the encoder with the identification 'SET_ACTUAL_VALUE' is faulty - illegal value in <code>.Encoder_N.SensorSetActualValue</code>
3089	The configuration of the encoder actual position values filter is faulty - illegal value in <code>.Encoder_N.PositionFilter</code>
3090	The configuration of the encoder actual position values filter for the actual value coupling (Synchronous operation) is faulty - illegal value in <code>.Extrapolation.ExtrapolationPositionFilter</code>
3091	The set multiplication factor for the cyclic actual value is not consistent with the known value on the drive encoder - illegal value in <code>.Encoder_N.IncEncoder.incResolutionMultiplierCyclic</code> or <code>.Encoder_N.absEncoder.absResolutionMultiplierCyclic</code> or <code>.Encoder_N.Resolution.multiplierCyclic</code>
3092	The set modulo length is invalid - illegal value in <code>Modulo.length</code>
3093	The set modulo start value is invalid - illegal value in <code>Modulo.startValue</code>
3094	Homing with deactivated hardware limit switches as reversing cams is not possible - illegal value in <code>.Homing.ReverseCamNegative._type</code> and/or <code>.Homing.ReverseCamPosition._type</code>
3095	The set encoder identification is invalid - illegal value in <code>.Encoder_N.encoderIdentification</code>
3096	The set encoder mode is invalid - illegal value in <code>.Encoder_N.encoderMode</code>
3097	The set encoder type is invalid - illegal value in <code>.Encoder_N.encoderType</code>

3098	The set encoder system is invalid - illegal value in .Encoder_N.encoderSystem
3099	The set actual value type is invalid - illegal value in .Encoder_N.encoderValueType
3100	The set utilization status of the actual value interface is invalid - illegal value in .Encoder_N.interfaceAllocation
3101	The set encoder mode is not supported by the TO externalEncoder - illegal value in .Encoder_N.encoderMode
3102	The set actual value type is not supported by the TO externalEncoder - illegal value in .Encoder_N.encoderValueType
3103	Only the 'VELOCITY' actual value type is permitted on a drive axis - illegal value in .Encoder_N.encoderValueType
3104	The set encoder mode does not match the set combination of encoder type and encoder identification - illegal value in .Encoder_N.encoderMode
3105	The set encoder type is not supported for encoders with the set encoder identification - illegal value in .Encoder_N.encoderType
3106	The encoder configuration does not match the set combination of encoder type and encoder identification - illegal value in .Encoder_N.encoderMode or .Encoder_N.encoderSystem or .Encoder_N.encoderValueType
3107	The configuration of the encoder for the position difference measurement requires the setting of the 'POSITION' actual value type - illegal value in .Encoder_N.encoderValueType
3108	Only encoders of the 'SENSOR_INCREMENTAL' type are supported on an axis of the 'REAL_AXIS_WITH_SIGNAL_OUTPUT' type - illegal value in .Encoder_N.encoderType
3109	Only the 'SENSOR_ABSOLUTE' encoder type is supported on an encoder with the 'SET_ACTUAL_VALUE' encoder identification - illegal value in .Encoder_N.encoderType
3110	The set combination of encoder type and encoder mode is not supported within the context of a linear encoder - illegal value in .Encoder_N.encoderType and .Encoder_N.encoderMode
3111	The configuration of a linear encoder on a rotary axis is not possible - illegal value in .Encoder_N.encoderSystem
3112	The configuration of the reference cam zero mark distance monitoring is faulty - illegal value in .Encoder_N.IncHomingEncoder.beroDistance or .Encoder_N.IncHomingEncoder.enableZeroMarkDistance
3113	The set home position offset is invalid - illegal value in .Encoder_N.IncHomingEncoder.proceedShiftPos
3114	The configuration of the reference cam interface is faulty - illegal value in .Encoder_N.incHomingEncoder.bitNumberBero or .Encoder_N.incHomingEncoder.logAddressBero
3115	The set zero mark approach direction is invalid - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3116	Homing setting faulty: Zero mark approach direction is invalid - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3117	The configuration of the reference cam interface is faulty - illegal value in .Encoder_N.incHomingEncoder.passiveBitNumberBero or .Encoder_N.incHomingEncoder.passiveLogAddressBero
3118	The set homing mode is invalid - illegal value in .Encoder_N.IncHomingEncoder.homingMode

3119	The set homing mode is invalid - illegal value in .Encoder_N.IncHomingEncoder.passiveHomingMode
3120	The set zero mark approach direction does not match the set homing mode - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3121	The set external zero mark approach direction does not match the set homing mode - illegal value in .Encoder_N.IncHomingEncoder.approachDirection
3122	The set zero mark approach direction does not match the set homing mode - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3123	The set external zero mark approach direction does not match the homing mode - illegal value in .Encoder_N.IncHomingEncoder.passiveApproachDirection
3124	The set type of the reference cam is invalid - illegal value in .Encoder_N.IncHomingEncoder.referenceCamType
3125	The set reference cam type does not match the set zero mark approach direction - illegal value in .Encoder_N.IncHomingEncoder.referenceCamType
3126	The resource required for the reference cam cannot be requested - illegal value in .Encoder_N.IncHomingEncoder.logAddress and/ or .Encoder_N.IncHomingEncoder.bitNumber or no memory available
3127	The resource required for the reference cam cannot be requested - illegal value in .Encoder_N.IncHomingEncoder.passiveLogAddress and/ or .Encoder_N.IncHomingEncoder.passiveBitNumber or no memory available
3128	The resource required for the external zero mark cannot be requested - illegal value in .Encoder_N.incHomingEncoder.StateDriveExternalZeroMark.logAddress and/ or .Encoder_N.incHomingEncoder.StateDriveExternalZeroMark.bitNumber or no memory available
3129	The resource required for the positive reversing cam cannot be requested - illegal value in .Homing.ReverseCamPositive.logAddress and/ or .Homing.ReverseCamPositive.bitNumber or no memory available
3130	The resource required for the negative reversing cam cannot be requested - illegal value in .Homing.ReverseCamNegative.logAddress and/ or .Homing.ReverseCamNegative.bitNumber or no memory available
3131	The resource required for the 'Update counter' of the analog encoder cannot be requested - illegal value in .Encoder_N.AnalogSensor.UpdateCounter.logAddress and/ or .Encoder_N.AnalogSensor.UpdateCounter.bitNumber or no memory available
3132	The resource required for the 'Read state bit' of the analog encoder cannot be requested - illegal value in .Encoder_N.AnalogSensor.ReadyStateMonitoring.logAddress and/ or .Encoder_N.AnalogSensor.ReadyStateMonitoring.bitNumber or no memory available
3133	The resource required for the 'Error state bit' of the analog encoder cannot be requested - illegal value in .Encoder_N.AnalogSensor.ErrorStateMonitoring.logAddress and/ or .Encoder_N.AnalogSensor.ErrorStateMonitoring.bitNumber or no memory available
3134	The configuration of the actual value interface is faulty - illegal value in .EncoderN.DriverInfo
3135	The configuration of the encoder actual value interface is faulty - illegal value in .EncoderN.DriverInfoDirectIncremental
3136	The configuration of the sensor measuring gear ratio is faulty - illegal value in .Sensor.ConversionDataAdapt

3137	Only an encoder with the 'DRIVE' encoder mounting type is permitted as DSC encoder - illegal value in .Encoder_N.AssemblyBase.assemblyBase
3138	An encoder with the encoder value type 'POSITION_AND_PROFIDRIVE_ENCODER_NIST_B' is supported only on a TO positioning axis or as TO external encoder in conjunction with the encoder identification 'DPMMASTER' or 'SIMULATION' and the encoder telegram type 'DP_TEL83_STANDARD' - illegal TO type or illegal value in .Encoder_n.encoderIdentification or in .Encoder.DriverInfo.telegramType
3139	The number assigned to an encoder lies outside the number of the last configured encoder 'NumberOfEncoders.numberOfEncoders'
3140	The configuration of the encoder configuration data adaptation is faulty - illegal value in .Encoder_N.dataAdaption
3141	Both the adapted and the configured encoder configuration are invalid
3143	The multiplication factor for the cyclic actual value and/or the multiplication factor for the absolute value in conjunction with the configured encoder mode (Encoder_N.encoderMode) is invalid - illegal value in .Encoder_N.IncEncoder.incResolutionMultiplierCyclic or .Encoder_N.absEncoder.absResolutionMultiplierCyclic and/ or .Encoder_N.Resolution.multiplierCyclic or Encoder_N.Resolution.multiplierCyclic
4000	Error in controller.
4001	Negative acceleration specified.
4002	Unknown 'FipoType' requested.
4003	Error in runtime system, ratio of controller cycle clock to interpolator cycle clock is incorrect.
4004	Requested filter order not possible.
4005	Reserve for later use.
4006	Maximum limit is lower than minimum.
4007	Reserve for later use.
4008	Error in configuration data for controller.
4009	Reserve for later use.
4010	Reserve for later use.
4011	Reserve for later use.
4012	Reserve for later use.
4013	Requested controller type is not available.
4014	Error in controller factors.
4015	Precontrol activated, kpc less than 0 or kpc greater than 150.
4016	Reserve for later use.
4017	Reserve for later use.
4018	Reserve for later use.
4019	Reserve for later use.
4020	Reserve for later use.
4021	Reserve for later use.
4022	Reserve for later use.
4023	Precontrol activated, kpc less than or equal to 0.
4024	Reference model monitoring: Error in value of tolerance window.
4025	Error in limit value for standstill signal.

4026	Error in parameter for positioning monitoring.
4027	Simultaneous activation of reference model and dynamic following error monitoring not allowed.
4028	Sampling time parameter calculated incorrectly.
4029	Too many data sets requested.
4030	Error in runtime system, ratio of controller cycle clock to interpolator cycle clock is incorrect.
4031	Error in time constant for emergency ramp generator (positionTimeConstant).
4032	Precontrol active, but fine interpolator type is DIRECT.
4033	Default data set outside limits.
4034	Maximum number of data sets not possible.
4035	Unknown data set change mode.
4036	Following error monitoring not activated/deactivated in all data sets.
4037	Reference model monitoring not activated/deactivated in all data sets.
4038	Different controller type in data sets.
4039	Precontrol activated/deactivated differently in data sets.
4040	Time constant is 0.
4041	Error in dynamic adaptation parameter.
4042	System variable initialization could not be read.
4043	Driver simulation not implemented.
4044	Connection for stepper motors not implemented.
4045	Maximum velocity cannot be attained; maximum drive speed or normalization factor is incorrect.
4046	DSC requires motor encoder data to be specified.
4047	Drive or telegram type not suitable for DSC.
4048	Error in clamping monitoring parameter. 'No detection' is not permitted for the fixed endstop detection
4049	A sensor is required to monitor actual velocity using 'DynamicControl'.
4050	Inconsistent PROFIBUS parameterization; the sum of Ti and To is greater than a DP cycle
4051	Error in manipulated variable limitation parameter of force/pressure controller
4052	Error in force/pressure entry monitoring parameter
4053	Error in force/pressure end value monitoring parameter
4054	Force/pressure entry monitoring tolerance less than pressure end value monitoring tolerance
4055	Error in force/pressure control deviation monitoring parameter
4056	Different activation/deactivation of control deviation monitoring of force/pressure controller in data sets not permitted
4057	Different manipulated variable inversion of force/pressure controller in data sets not permitted
4058	Different force/pressure sensor types in data sets not permitted
4059	Different activation/deactivation of anti-windup in data sets not permitted
4060	Kd factor of PID_ACTUAL controller is greater than 1
4061	Time constant of process model T1 less than or equal to T2
4062	Illegal actuator type selection
4063	Error in sliding friction compensation parameter

4064	Error in offset injection parameter
4065	Precontrol for force/pressure control not implemented
4066	Error in standstill monitoring parameter
4067	Following error monitoring: minVelocity cannot be greater than or equal to maxVelocity
4068	Maximum buffer length of balancing filter (Mode_2) is reached or exceeded. As the servo cycle is included in the calculation of the equivalent time constant of the speed control loop (=velocityTimeConstant), the maximum value of this time constant is limited to 16 servo cycles. The buffer length of the lag element is maximum 16.
4069	System-related dead times are less than 0 after allowing for additionalTime
4070	Controller types other than DIRECT require configuration of an encoder.
4071	Illegal values for delayTimeToActivate of standstill signal
4072	The I/O device for the positive HW limit switch is not available
4073	The I/O device for the negative HW limit switch is not available
4074	Range limits of controller parameter exceeded.
4075	Range limit of brake deceleration of emergency ramp exceeded.
4076	Range limit of equivalent time constant exceeded.
4077	Range limit for velocityTimeConstant exceeded.
4078	Error in value for QFDynamicData configuration.
4079	Error in value for reference model monitoring.
4080	Error in following error monitoring parameter
4081	Error in clamping monitoring parameter
4082	Error in value for DynamicData configuration.
4083	Error in value for PV controller configuration.
4084	Configuration data missing for controller.
4085	Error in value for SystemDeadTimeData configuration.
4086	Pressure control only possible with closed-loop speed controller
4087	DSC and compensation of valve curve not possible
4088	DSC not possible on hydraulic axes
4089	Time constants of dynamic response compensation must not be equal
4090	Incorrect value for system dead time correction
4091	Different activation of manipulated variable filter of pressure controller in data sets
4092	Different activation of dynamic response compensation in data sets
4093	Activation of DSC is not the same in all data sets
4127	enableDSCSpline is not the same in all data sets
4094	Balancing filter type is not the same in all data sets
4096	Activation of anti-windup is not the same in all data sets
4097	Activation of setpoint quantization is not the same in all data sets
4098	Activation of the reference model monitoring is not the same in all data sets
4099	Fixed endstop detection mode is not the same in all data sets
4100	Force controller is not the same in all data sets
4101	Force sensor type UNI_DIRECTION is not implemented
4102	Error in the time constant for smoothing controller parameters

4103	If encoderNumber = 0, ControllerStruct.conType must be DIRECT.
4104	The travel to fixed stop function is not possible on a QF axis.
4105	The integratorFeedbackTimeConstant cannot be less than 0
4106	Illegal value for CommandValueQuantization.value
4107	An electrical drive axis (typeOfAxis = REAL_KIND_OF_AXIS) may only have DIRECT as controller type (conType = DIRECT)
4108	Dead time of dynamic response compensation must not be zero.
4109	Time constant for smoothing manipulated variable jumps during data set changeover must not be less than zero.
4110	The parameters of the manipulated variable filter in the pressure controller are illegal.
4111	Range limit for positionTimeConstante exceeded.
4112	Force/pressure controller type not possible.
4113	Time constant for smoothing manipulated variable jumps outside the limits.
4114	The speed/velocityReference parameter must be set to NOMINAL_SPEED with active adaptation.
4115	The torque/forceReference parameter must be set to NOMINAL_TORQUE/ FORCE with active adaptation.
4116	The parameters in HWEndPos are not consistent.
4117	The setting disableModeSpecification = OFF1_AND_OFF3_MODE is only possible with a digital drive coupling.
5000	Encoder data sequence and number of encoders do not match.
5001	The set number of force/pressure sensors is invalid - illegal value in .NumberOfAdditionalSensors.number
5002	The set type of the force/pressure sensor is invalid - illegal value in .AdditionalSensor_N.additionalSensorType
5003	The actual value interface configuration of the force/pressure sensor is faulty - illegal value in .AdditionalSensor_N.DriverInfo
5004	The raw actual value weighting factors configuration of the force/pressure sensor is faulty - illegal value in .AdditionalSensor_N.ConversionData
5006	The value range limits configuration of the actual force/pressure value is faulty - illegal value in .AdditionalSensor_N.Range
5007	The configuration of the actual force/pressure value filter is faulty - illegal value in .AdditionalSensor.Filter
5008	Configuration of the force/pressure sensor not completed correctly.
5009	The number of the force/pressure sensor assigned to the data set is invalid - illegal value in .NumberOfDataSets.DataSet_N.AdditionalSensorNumber.number
5010	The sensor configuration for the force/pressure difference measurement is faulty - illegal value in .AdditionalSensor.PositionDifferenceMeasurement
5011	The number of the force/pressure sensor set as sensor A for the difference measurement is invalid - illegal value in .AdditionalSensor.PositionDifferenceMeasurement.numberSensorA
5012	The number of the force/pressure sensor set as sensor B for the difference measurement is invalid - illegal value in .AdditionalSensor.PositionDifferenceMeasurement.numberSensorB
5013	Illegal data in extrapolation configuration.

5014	The set execution cycle clock of the sensor is invalid - illegal value in Execution.executionlevel
5015	The set substitute value strategy for a technological alarm on the sensor is invalid - illegal value in .ValueOut.outputValueErrorBehaviorMode
5020	The configuration of the analog encoder actual value interface is faulty - illegal value in .Encoder_N.AnalogSensor.DriverInfo
5021	The configuration of the analog encoder actual position values filter is faulty - illegal value in .Encoder_N.AnalogSensor.PositionFilter
5022	The raw actual value weighting factors configuration of the analog encoder is faulty - illegal value in .Encoder_N.AnalogSensor.ConversionData
5023	The measuring input interface configuration for the analog encoder is faulty - illegal value in .Encoder_N.AnalogSensor.LogAddress
5030	The count value weighting factors configuration of the interval counter speed encoder is faulty - illegal value in .Encoder_N.IntervalCounterConversionData
5031	The set logical address for the count value interface of the interval counter speed encoder is faulty - illegal value in .Encoder_N.IntervalCounterConversionData.DriverInfo.logAddress
6000	The traversing distance monitoring up to the reference point switch is configured in the configuration data, but the configured maximum distance to be traversed is zero.
6001	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfMaxBufferedCommandId
6002	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfQueueCommands
6003	Illegal value for the configuration data TypeOfAxis.DecodingConfig.numberOfImmediateCommands
6004	Configuration of behaviourAtTheEndOfProfile not implemented
6005	Illegal value for configuration data for maximum acceleration
6006	Illegal value for configuration data for maximum jerk
6007	Illegal value for configuration data for maximum force/pressure setpoint
6008	Illegal value for configuration data for maximum force/pressure setpoint increase
6009	Illegal value for configuration data for Synchronous operation tolerance based on setpoint
6010	Illegal value for configuration data for Synchronous operation tolerance based on actual value
6011	Illegal value for configuration data for Synchronous operation tolerance activation based on setpoint
6012	Illegal value for configuration data for Synchronous operation tolerance activation based on actual value
6013	Illegal value for configuration data for profile end identification tolerance window
6014	Illegal value for configuration data for actual value extrapolation time
6015	Illegal value for configuration data for actual value coupling tolerance window
6016	Illegal value for the injection tolerance configuration (relieveWindow) at software limit switch
6017	Illegal value for the type specification configuration (monitoringAtMotionStart) at software limit switch
6018	Illegal value for configuration data for axis-specific path tolerance activation based on setpoint

6019	Illegal value for configuration data for axis-specific path tolerance based on setpoint
6020	Illegal value for configuration data for axis-specific path synchronization tolerance activation based on setpoint
6021	Illegal value for configuration data for axis-specific path synchronization tolerance based on setpoint
6022	Illegal value for configuration data driveControlConfig.releaseDisableMode (RELEASE_DISABLE drive behavior error response)
6023	Illegal value for configuration data of velocity type with master value extrapolation of actual values
6024	Illegal value for configuration data TypeOfAxis.Homing.direction, 'Approach direction during homing'
6025	Illegal value for configuration data TypeOfAxis.Homing.beroDistance, 'Maximum distance to the homing output cam'
6026	Illegal value for configuration data for Synchronous operation error message at master value
6027	Illegal value for the configuration data TypeOfAxis.DecodingConfig.directionDynamic
6028	Illegal value for the configuration data TypeOfAxis.DecodingConfig.behaviourAtTheEndOfProfile
6029	Illegal value for the configuration data TypeOfAxis.DecodingConfig.decodeSequentialMotionCommand
6030	Illegal value for the configuration data TypeOfAxis.DecodingConfig.transferSuperimposedPosition
6031	Illegal value for the configuration data TypeOfAxis.DecodingConfig.speedModeSetPointZero
6032	Illegal value for the configuration data TypeOfAxis.DecodingConfig.stopWithJerk
6033	Illegal value for the configuration data TypeOfAxis.DecodingConfig.disableMotionOperation
6034	Illegal value for the configuration data TypeOfAxis.DecodingConfig.profileDynamicsLimiting
6035	Illegal value for the configuration data TypeOfAxis.DecodingConfig.cyclicSetUpInForceLimiting
6036	Illegal value for the configuration data TypeOfAxis.Homing.enableBeroDistance
6037	Illegal value for the configuration data TypeOfAxis.Homing.referencingNecessary
6038	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableLifeSignMonitoring
6039	Illegal value for the configuration data TypeOfAxis.DistributedMotion.numberOfLifeSignFailures
6040	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableDelayOfCommandValueOutput
6041	Illegal value for the configuration data TypeOfAxis.DistributedMotion.enableOffsetCompensation
6042	Illegal value for configuration data driveControlConfig.pulsesEnabledEvaluation (axis behavior for drive-independent stop response)
6050	Illegal value for the configuration data driveControlConfig.dataAdaption
6051	Illegal value for the configuration data driveControlConfig.disableModeSpecification

6043	Illegal value for the configuration data TypeOfAxis.ControllerSwitchData.NumberOfDigitalInputs.number
6044	Illegal logical address of the digital input in the configuration data structure TypeOfAxis.ControllerSwitchData.NumberOfDigitalInputs.DigitalInput_x
6045	Illegal value for configuration data for maximum deceleration
7000	Illegal data in process model configuration
8000	General error when reading or writing data set.
8001	The selected data set number is not available.
8002	Cannot write the active data set.
8003	Cannot change the controller structure (by writing a data set).
4120	Error in following error monitoring parameter. Illegal value in DynamicFollwong.minPositionTolerance
4121	Error in following error monitoring parameter. Illegal value in DynamicFollwong.maxPositionTolerance
4122	Error in following error monitoring parameter. Illegal value in DynamicFollwong.minVelocity
4123	Error in following error monitoring parameter. Illegal value in DynamicFollwong.warningLevel
4124	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.posWinTolTime
4125	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.posWinTolDelayTime
4126	Error in parameter for positioning monitoring. Illegal value in PositionMonitoring.tolerance
2042	The numerator of the load gear is incorrect.
2043	The nominal factor of the load gear is incorrect.
2044	The value for the reference velocity is incorrect.
2045	Evaluation of the PulsesEnabled bit (pulsesEnabledEvaluation = YES) is not possible in telegram 1 (telegramType = DP_TEL1_STANDARD).
6046	Illegal value for the configuration data TypeOfAxis.DecodingConfig.maximalBufferedMotionCommands
6047	Illegal value for the configuration data TypeOfAxis.DecodingConfig.lengthOfBufferForSuperimposedCommands
6048	Illegal value for the configuration data TypeOfAxis.DecodingConfig.blendingAcceleration
6049	Illegal value for the configuration data TypeOfAxis.DecodingConfig.commandsForAxisDynamics
4128	enableDSCSpline requires telegram 125 or 126
2046	Evaluation of the PulsesEnabled bit (pulsesEnabledEvaluation) is not carried out when using DSDB.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT

Remedy

Change the data set parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50011 Limit range of the incremental actual value exceeded (Parameter1: /1/%d)**Cause**

The value of the current position or the internal incremental position has exceeded the system-internal upper or lower limit.

Meaning of alarm parameters

Parameter 1:	
1	Range exceeded in positive direction
2	Range exceeded in negative direction
4	The modified actual position is greater than the modulo length in one position control cycle clock.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

For parameter 1: 1 and parameter 1: 2

General

Ensure that the Modulo characteristic is activated on the TO (TO.Modulo.state = ACTIVE) if the encoder on the TO is to record the position of an infinite motion in one direction. If this is not possible, the traversing range must be taken into consideration during the configuration of the TO.

Leaving the error state for non-modulo encoders as of V4.3:

Absolute encoder

(TO.TypeOfAxis.NumberOfEncoders.Encoder_N.encoderType = SENSOR_ABSOLUTE/
SENSOR_CYCLIC_ABSOLUTE)

- Acknowledgement of the alarm 50011 and correction of the position in the direction opposite to the direction of crossing the limit value by absolute encoder adjustment. The offset to be calculated must be at least one millimeter. This value increases by the position changes of the absolute encoder, which are not recorded after the 50011 alarm.

Non-cyclic absolute encoders only:

- Restart of the TO with the prerequisite that the sum of the total absolute encoder adjustment and the position calculated from the current encoder incremental position is less than the internal upper or lower position limit.

For axes only:

- Acknowledgment of the 50011 alarm, speed-controlled enabling of the axis and then speed-controlled traversing of the axis in the direction opposite to the direction of crossing the limit value. The traversing distance must be at least one millimeter. The traversing distance increases by the position changes of the absolute encoder, which are not recorded after the 50011 alarm.

If the encoder returns to a valid range, then the position of the absolute encoder is reinitialized with the current absolute encoder adjustment and the current encoder incremental position (sensoredata[N].state = NOT_VALID -> VALID).

Incremental encoder

(TO.TypeOfAxis.NumberOfEncoders.Encoder_N.encoderType = SENSOR_INCREMENTAL) (cause of error 1 and 2):

- Restart

For axes only:

- Acknowledgment of the 50011 alarm, enabling of the axis and then traversing of the axis in the direction opposite to the direction of crossing the limit value.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50012 Drive/encoder does not support the selected function (reason: /1/%d)

Cause

The homing function cannot be performed.

Meaning of alarm parameters

Reason:	
1	The homing function is not possible with the type of zero mark configured.
2	The homing function is not supported by the device or has been aborted by it.
3	The homing function is not active on the device despite the homing job running on the technology object.
4	The device could not be configured for the homing function because of a measuring or homing job that was already active.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Check the following:

- The support for the homing function provided by the drive or encoder
- The availability of the zero mark configured
- The encoder's configuration data and the drive's settings. Please also consider, if necessary, any troubleshooting tips in the device documentation.
- The encoder
- Encoder connection
- Check the wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

50013 The permissible range limits have been violated (logical address: /1/%d, reason: /2/%d)

Cause

Range violation for additional sensor.

Meaning of alarm parameters

Logical address:	Address configured on the technology object.
-------------------------	--

Reason:	
1	Value greater than maximum permissible value.
2	Value less than minimum permissible value.
3	Positive overflow of sensor range.
4	Negative overflow of sensor range.
5	Error in accessing hardware address.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	DINT

Remedy

Check the following:

- Check the sensor connection.
- Check the wiring.
- Adjust the configuration data, if necessary.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50014 **Permissible control deviation of the pressure controller has been exceeded**

Cause

Permissible control deviation of pressure controller exceeded.

Remedy

Check for correct functioning of the pressure control loop.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50015 Level overflow of the IPO not detected

Cause

The system could not intercept a level overflow.

Remedy

Please contact Siemens Support with the error number indicated above.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50016 Limitation of the backstop active

Cause

The speed setpoint is limited by the backstop.

Remedy

Check the following:

- Mechanical configuration
- Encoder connection
- Configuration of the speed setpoint interface
- Maximum permissible backstop values in the configuration data

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50017 Manipulated variable monitoring on the Q-/F-output active (Parameter1: /1/%d)**Cause**

The manipulated variable is limited.

Meaning of alarm parameters

Parameter 1:	Specification of the limitation
1	Monitoring active on Q-output.
2	Monitoring active on F-output.

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT

Remedy

Check the following:

- Configuration of the valve characteristic
- Maximum permissible velocity or the maximum permissible force/pressure setpoint in the configuration data
- Encoder connection
- Configuration of the setpoint interface

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50018 **The permissible range limits of the differential measurement have been violated (additional sensor number: /1/%d, reason: /2/%d)**

Cause

Range violation for differential measurement of additional sensor.

Meaning of alarm parameters

Additional sensor number:	Specifies the additional sensor number.
----------------------------------	---

Reason:	
1	Value greater than maximum permissible value.
2	Value less than minimum permissible value.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	DINT

Remedy

Check and adjust the configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
 MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
 RELEASE_DISABLE

Diagnostics buffer entry

No

50019 **The permissible range limits of the input value via system variable have been violated (additional sensor number: /1/%d, reason: /2/%d)**

Cause

Range violation of input value via system variable for additional sensor.

Meaning of alarm parameters

Additional sensor number:	Specifies the additional sensor number.
----------------------------------	---

Reason:	
1	Value greater than maximum permissible value.
2	Value less than minimum permissible value.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	DINT

Remedy

Check and, if required, adjust the configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50020 System variable Servosettings (element /1/%d) is reset (reason /2/%d)

Cause

The Servosettings system variable structure is reset due to a stop response.

Meaning of alarm parameters

Element:	
1	Axis_n.servoSettings.additionalCommandValueSwitch
2	Axis_n.servoSettings.additionalSetpointValueSwitch
3	Axis_n.servoSettings.additionalQOutputValueSwitch

Reason:	
1	_stopemergency command or alarm response FEED_BACK_EMERGENCY_STOP
2	Transition to follow-up in closed-loop control mode
3	Enables were canceled

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT
2	DINT

Remedy

Check the stop response.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50021 **The writing of system variable ServoSettings (element /1/%d) is rejected because of a stop response**

Cause

System variable ServoSettings (element /1/%d) cannot be write-accessed due to a stop response.

Meaning of alarm parameters

Element:	
1	Axis_n.servoSettings.additionalCommandValueSwitch
2	Axis_n.servoSettings.additionalSetpointValueSwitch
3	Axis_n.servoSettings.additionalQOutputValueSwitch

Description of the alarm parameters in the _getAxisErrorState command:

No.	Data type
1	DINT

Remedy

Check the stop response.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50022 maxVelocity cannot be attained with the set drive and axis parameters

Cause

The maximum velocity set in `TypeOfAxis.MaxVelocity.maximum` cannot be attained with the selected drive and axis parameters.

Remedy

Check the following:

- The mechanical configuration (leadscrew pitch, load gears, etc.).
- The drive parameters, in particular, the maximum speeds and velocities
- Configuration of the speed setpoint interface
- Maximum permissible velocity rates in the configuration data
- The maximum velocity of the axis (configuration data: `TypeOfAxis.MaxVelocity`).

Acknowledgement/reaction

Reset fault memory / `START TechnologicalFaultTask`

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50023 Drive performs transition to independent state**Additional references**

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

The drive enters an independent state (e.g.:

- Drive-independent deceleration along the OFF3 ramp (typical scenario: selection of SS1 or SS2 / STOP B or STOP C)
- While the motor brake is closed.

Remedy

Check the following:

- The machine for safety-relevant events
- The parameterization of the safety components
- The drive for an OFF3 command
- The motor brake for full opening

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

OPEN_POSITION_CONTROL

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50024 Long-term stability of the actual values is not guaranteed (encoder number /1/%d, data set number /2/%d)

Cause

Taking account of the mechanical relationships, the current encoder configuration does not permit the determination of long-term stable factors for the sensor-side conversion of the encoder raw actual values into (modulo) position and velocity actual values and/or for the actuator-side conversion of the position and velocity setpoints into encoder raw actual value equivalents. To evaluate the quantities to be converted, equivalent but non-long-term stable factors are used as replacement. The long-term stability of the actual values is not guaranteed!

Meaning of alarm parameters

Encoder number:	Number of the encoder at which the problem was detected
Data set number:	The number of the data set whose configuration in conjunction with the configuration of the specified encoder caused the problem (>0: Error during the calculation of the sensor-side factors, =0 error during the calculation of the actuator-side factors)

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	UDINT
2	UDINT

Remedy

Check the following:

- The leadscrew pitch configured on the technology object
- The load gear configured at the specified data set
- At the encoder, for example, the configured resolution, fine resolution of the cyclical actual value and the measuring gear ratio

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50101 Window for reference model monitoring exceeded**Cause**

- The dynamic demands on the control loop are too high.
- The speed error monitoring is activated and the maximum speed deviation - i.e. the value in the configuration data "TypeOfAxis.NumberOfDataSets_1.ControllerDynamic.maxVeloTolerance" - was exceeded.

Remedy

- Check the encoder count direction.
- Check the control loop parameter assignment.
- Change the parameter assignment for following error monitoring.
- Check the rated speed of the motor specified on the axis against the setting on the drive, and adjust the speeds.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50102 Window for dynamic following error monitoring exceeded

Cause

The dynamic demands on the control loop are too high, or the control system is overloaded.

Remedy

- Check the encoder count direction.
- Check the control loop parameter assignment.
- Change the parameter assignment for following error monitoring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50103 Warning limit of dynamic following error monitoring reached**Cause**

The dynamic demands on the control loop are too high or the control system is overloaded, the warning stage has been reached.

Remedy

- Check the encoder count direction.
- Check the control loop parameter assignment.
- Change the parameter assignment for following error monitoring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50106 Position monitoring error

Cause

The axis could not reach the positioning window in the specified time.

Remedy

- Check the control loop parameter assignment.
- Check the parameter assignment for position monitoring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50107 Standstill monitoring error**Cause**

The axis has left the standstill window or could not reach the standstill window in the specified time.

Remedy

- Check that the control loop is operating correctly.
- Check the parameter assignment for standstill monitoring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50108 Clamping monitoring error

Cause

The axis has left the clamping tolerance window.

Remedy

- Check the mechanical end stop.
- Check that the control loop is operating correctly.
- Check the parameter assignment for clamping monitoring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

RELEASE_DISABLE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50109 Force entry window monitoring error**Cause**

The axis could not reach the starting force window in the specified time.

Remedy

Check the following:

- Control loop parameter assignment
- Parameter assignment for monitoring

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50110 Force end value monitoring error

Cause

The axis has left the full-scale force window or could not reach the window in the specified time.

Remedy

Check the following:

- Control loop operation
- Parameter assignment for monitoring

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50111 Pressure controller is working at the limit**Cause**

The manipulated variable required by the force controller cannot be implemented and is limited.

Remedy

Check that the control loop is operating correctly.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50112 **Incorrect polynomial parameters when extrapolating pressure (reason: /1/%d, command type: /4/%X)**

Cause

The polynomial parameters entered do not define any continuously increasing, uniquely invertible polynomial.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as an integer value.
----------------------	---

Reason:	
0x1	The time entered is negative.
0x2	P0 is greater than P1.
0x4	The derivative in point P1 is 0.
0x10	The derivative in point P0 is 0.
0x20	The derivative in point P0 is greater than in point P1.
0x40	The polynomial is not unique.
0x80	The polynomial has a point of inflexion.
0x100	The polynomial is not uniquely invertible.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Change the parameter(s).

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50114 Error for the _enableForceControl-/LimitedByCondition command**Cause**

The selection of a force/pressure encoder not in the closed-loop control is not permitted in conjunction with the use of the force/pressure criterion for _enableForceControl-/LimitedByCondition.

Remedy

Check the following:

- The parameterization of the command.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FEEDBACK_EMERGENCY_STOP

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50201 Safety alarm in the drive

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

When using SIDB, a result appears in the SINAMICS Safety Integrated Message Buffer (r9747).

When using DSDB, either a result in the SINAMICS Safety Integrated Message Buffer (r9747) appears, or a STOP reaction is active in the drive.

Remedy

Program a specific alarm response.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50202 SINAMICS Safety Integrated Extended Function is selected**Additional references**

For additional information, refer to the function manuals:

- TO Axis Electric / Hydraulic, External Encoder,
- Technology Objects Synchronous Operation, Cam and
- in the online help.

Cause

The drive starts a Safety Integrated Extended Function.

Remedy

Program a specific alarm response.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50203 SINAMICS Safety Integrated Extended Function is deselected

Additional references

For additional information, refer to the function manuals:

- TO Axis Electric / Hydraulic, External Encoder,
- Technology Objects Synchronous Operation, Cam and
- in the online help.

Cause

The drive completes a Safety Integrated Extended Function.

Remedy

Program the specific alarm response.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP END_OF_MOTION_STOP MOTION_STOP MOTION_EMERGENCY_STOP
MOTION_EMERGENCY_ABORT FEEDBACK_EMERGENCY_STOP OPEN_POSITION_CONTROL
RELEASE_DISABLE

Diagnostics buffer entry

No

50209 Error on safe brake test. (Reason /1/%d)**Cause**

An error has occurred during the safe brake test.

Reason:	Specification
0	no reason specified.
1	Requirements for SBT incorrect.
2	Error establishing the load torque.
3	Error on brake 1 and positive direction brake test.
4	Error on brake 1 and negative direction brake test.
5	Error on brake 2 and positive direction brake test.
6	Error on brake 2 and negative direction brake test.
7	The maximum duration of the brake test has been exceeded.
8	The drive has unexpectedly returned the control priority.
9	The drive has finished the brake test with errors.

Description of the alarm parameters in the `_getAxisErrorState` command:

No.	Data type
1	DINT

Remedy

Check drive error message

Check your brake management in the case of an external brake

For reason 1: Ensure that the correct axis status is set on the TO before starting the brake test. The axis must be enabled with the `_enableAxis()` command in mode 'enableMode=POWER' with 'servoControlMode=INACTIVE'.

For reasons 7-9: Read the Safety Warn buffer, correct the error and, if necessary, acknowledge the corresponding message.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP OPEN_POSITION_CONTROL RELEASE_DISABLE

Diagnostics buffer entry

No

TP Cam_ext

4.1 AdditionObjectType

20001 Internal error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Error source
Parameters 2 to 4:	Fault number

Description of the alarm parameters in the `_getAdditionObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

DISABLE

Settable local reactions

DISABLE

Diagnostics buffer entry

Yes

20002 **Insufficient memory (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)**

Cause

The memory required by the system is no longer available.

This alarm can occur both during ramp-up and after program calls.

Meaning of alarm parameters

Parameter 1:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Parameters 2 to 4 are area-specific.

They are not fully utilized by all areas.

Command decoding area:

Parameters 2 and 4	refer to the command in which the error occurred.
Parameter 2:	Command return value
Parameter 4:	Command type

Description of the alarm parameters in the `_getAdditionObjectErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

- Reduce the size of the ST code.
- Reduce the number of technology objects.
- Reduce the number of interpolation points for cams, if present.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

DISABLE

Settable local reactions

DISABLE

Diagnostics buffer entry

Yes

20003 Internal configuration error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system

Parameters 2 to 4 are area-specific.

These parameters are not fully utilized by all areas.

Command decoding area:

Parameters 2 and 4	refer to the command in which the error occurred.
Parameter 2:	Command return value
Parameter 4:	Command type

Description of the alarm parameters in the `_getAdditionObjectErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

Yes

20004 Under logical address: /1/%d (bit number, if required: /2/%d) no driver (type: /3/%d) could be requested (error number: /4/%d)

Cause

The driver of a physical device or the device itself is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
	Not relevant

Description of the alarm parameters in the `_getAdditionObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT

Remedy

- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE

Settable local reactions

DISABLE

Diagnostics buffer entry

Yes

20005 Device type:/3/%d, log. address:/1/%d faulted. (Bit:/2/%d, encoder number:/5/%d, reason: 0x/4/%Xh)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

The driver of a physical device or the device itself has failed or is faulty.

If this alarm occurs, the cause of the error must be evaluated in the external device (drive or encoder).

Meaning of alarm parameters

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver
12	Safety data block driver
13	Update counter
14	Operating characteristics data block driver

Logical address:	This is the logical input address configured on the technology object.
Bit number:	For bit driver type = 3 or 4 only; number of the bit
Encoder number:	Number of the encoder in case of telegrams with multiple encoders. Applies only when type = 2.
Reason:	0 - only defined when type = 2

Note

Addition of error messages

The codings for the reason of the failure specified below for the individual alarm types can also occur in combination. A group coding is indicated as the sum of several individual codings (e.g. 0x0005 = 0x0001 + 0x0004).

A failure reason labeled with DP can occur only for PROFIBUS devices.

Type = 1	
0x0001h	Fault message from the drive (note: for PROFIBUS drives, which support acyclic communication in accordance with PROFIdrive V3, the error number(s) of the drive are displayed in the diagnostic buffer, e.g. for Masterdrives MC)
0x0002h	DP: Drive signal "control requested" failed
0x0004h	DP: Drive disconnected itself
0x0008h	Slot for drive data is not available in the project
0x0010h	Actuator driver does not have a connection to the drive data
0x0020h	Actuator driver was not initialized during ramp-up
0x0080h	DP: Difference between configuration data and drive parameters (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	DP: Control signals to the PROFIdrive state machine were incorrectly specified
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
0x8000h	DP: Life-sign of drive has malfunctioned or failed
0x80000000h	The drive interface has been deactivated for the pending enables.
Type = 2	
0x0000h	The actual value changes exceed the limit value derived from the maximum velocity (configuration data TypeOfAxis.MaxVelocity.maximum) over multiple cycles. This monitoring can be activated or deactivated with configuration data TypeOfAxis.NumberOfEncoders.Encoder_x.AbsEncoder.enableAbsMonitoring.
0x0001h	Alarm message from encoder (note: the encoder error number(s) are displayed in the diagnostic buffer)
0x0002h	General hardware error of encoder
0x0004h	Encoder is dirty
0x0008h	Slot for encoder data is not available in the project
0x0010h	Encoder driver does not have a connection to the encoder data
0x0020h	Encoder driver was not initialized during ramp-up
0x0040h	Error when reading the absolute value of the encoder
0x0080h	DP: Difference between the configuration data and the encoder parameters Onboard C2xx: Inconsistency of the configuration data (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	Zero mark monitoring of encoder
0x0200h	DP: Encoder has gone to Parked state
0x4000h	DP: Encoder on bus failed (station failure)

0x8000h	DP: Life-sign of encoder has malfunctioned or failed. (note: for an encoder whose data are transferred in a drive telegram together with actuator data, the actuator life-sign applies to the encoder, e.g. for standard telegram 3 in accordance with PROFIdrive)
0x80000000h	The sensor interface has been deactivated for the pending enables.
Type = 3...6	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 7	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 8	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 9	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 10	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 11	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 12	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 13	
0x1h	The actual value was specified via a system variable and the permissible number of failure cycles was exceeded
0x2h	The actual value was updated with an update counter in the I/O area and the permissible number of failure cycles was exceeded

Description of the alarm parameters in the `_getAdditionObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

The remedy for the respective type and cause is described below.

Type 1

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- A system fault may be present. Call the hotline.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- When sign-of-life monitoring is set: Ensure that in HW Config for drive under DP slave properties - isochronous operation - drive, the "synchronize to equidistant DP cycle" field is activated.
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
- Up to SIMOTION RT V4.3: If the alarm occurs after the download on a drive with telegram 999: Compare the parameterized bit position for the "Pulses enabled" status signal in drive parameter p924 with the configuration data 'DriveControlConfig.PulsesEnabled' of the TO axis. In this case, there is not necessarily an incorrect parameterization and therefore a check cannot be performed by the system because of the BICO interconnection. Therefore, make sure that the Pulses enabled bit is in the correct position.

For reason 0x0100

- Correct your user program with regard to PROFIdrive-compliant specification of control bits in the _enable/disableAxis commands, e.g. control signal OFF (STW1.0 = false) must precede a drive connection.

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 2

For reason 0x0000

- Check the absolute encoder functions, connections and configuration. Take note of this when monitoring is deactivated (not with Alarm 20015).

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- Make sure that the user program does not reference a technology object containing an encoder (Axis, External Encoder) with an '_enableaxis' or '_enableexternalencoder' command while system variable 'sensordata.sensordata[n].state' is signaling invalid.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0040

- Compare the encoder type in the drive or encoder parameter P979 with the configuration data of the technology object.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
 - Compare the encoder type, resolution, shift factor, and, in the case of absolute encoders, the number of rotations in the drive or encoder parameter P979 to the encoder type, resolution, fine resolution, and, in the case of absolute encoders, the data length in the configuration data of the technology object.
- When using telegram 999, this message always appears, as the bit position is not checked by the system in this case, but has to be performed by the user.

For reason 0x0100

- Check the device functions, connections and wiring.

For reason 0x0200

- Find the cause of the error in the connected drive or encoder. Check whether the alarm was triggered due to a commissioning operation on the drive or encoder.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 3 - Type 6For reason 0x0000

- Check the configuration and the signal paths of the connection.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 7For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 8For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 9For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 10For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 11 - Type 12For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring. If the error cannot be acknowledged when the axis is in simulation mode, check whether the technology data block is activated, and if this is the case, deactivate it.

Type 13

For reason 0x1

- Check the specification of the actual value with regard to function, configuration, and task configuration.

For reason 0x2

- Check the device functions, configuration, connections and wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE

Settable local reactions

DISABLE

Diagnostics buffer entry

Yes

20006 Configuration error (category: /1/%d, error number: /2/%d, additional information: /3/%d)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

This alarm indicates error states caused by a faulty or inconsistent configuration. The technology objects perform a plausibility check on the configuration. Errors are identified by the error codes below.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of the error
500	Illegal technology object configuration state.
501	More configuration data expected than received.
502	Invalid configuration data.
503	Version conflict in configuration.
504	The configured task level is not supported by this TO.
505	The value range of the maximum number of command IDs has been violated.
506	The configured task level is not supported by the used hardware.
1001	Error in configuration data numberOfMaxBufferedCommandId
1002	Error in configuration data MotionOut.Modulo.length
1003	Error in configuration data MotionOut.Modulo.startValue
1004	Error in configuration data MotionOut.Modulo.state
1005	Error in configuration data MotionOut.Modulo.configurationMode

Additional information:	More detailed description of the error origin
	Not relevant

Description of the alarm parameters in the `_getAdditionObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT

Remedy

Change the configuration data.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE

Settable local reactions

DISABLE

Diagnostics buffer entry

Yes

20007 Interconnection error (category: /1/%d, context: /2/%d, context parameter1: /3/%d, context parameter2: /4/%d)

Cause

This alarm indicates errors in the interconnection of technology objects. When the interconnection is established, the technology object verifies it on the basis of the interface properties. Errors are classified by category.

Additional information for a more detailed description of the error can be output from the context. An error context is output for selected error categories. Additional context parameters can be output for a context, if necessary. Context and context parameters are output as an integer value.

Meaning of alarm parameters

Category:	
1	Technology object compatibility error An interconnection is to be established with a technology object that has been configured with another reference system (e.g. output cams with rotary reference system and linear axis).
2	Exclusive interface An interface on a technology object that can only be connected to another technology object using one coupling type should be interconnected using different, mutually exclusive couplings. For example, the master value interface on a positioning axis for an interconnected synchronous object can only be operated as a setpoint or an actual value coupling.
3	Interconnection request The technology object awaits the interconnection to another technology object (necessary interconnection) in order to provide its functionality. Thus, for example, the interconnection to a gear axis is a required interconnection on a synchronous object.
4	Error during interface initialization The alarm is output in the event of initialization errors when connecting interfaces on the technology object.
5	Interface not available on technology object An interface required in the interconnection is not available on the technology object.
6	Recursion The interconnection on the technology object results in a recursion in the execution system of the technology package. The technology object does not support recursive execution.
7	Execution level compatibility error An interconnection is to be established with a technology object that is classified in a different execution level (e.g. output cam in execution level IPO and axis in execution level IPO_2). The technology object does not support interconnection to technology objects of other execution levels.
8	Initialization distribution In the case of interconnected technology objects that are distributed among different devices, an error occurred during initialization of the communication.

9	<p>Illegal TO state The technology object cannot be interconnected in the current state. A technology object can be interconnected only after the configuration has been successfully completed. Refer to the diagnostic buffer to determine the exact cause of the error. The cause of the illegal TO state is entered there (e.g. a level overflow during the configuration phase) and can then be corrected (in the example, by allowing level overflows in the task configuration).</p>
10	<p>Interface assignment The configured interface via which the technology object communicates cannot be used from the processing cycle clock of the technology object.</p>
11	<p>Active command in recursive TO interconnection The interconnection of the technology object and the enable state at its inputs result in an active recursive interconnection (positive feedback).</p>

Description of the alarm parameters in the `_getAdditionObjectErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

Context / context parameter:

Contact the hotline and provide the name of the context parameter.

Category:

1 - Technology object compatibility error

Check the configuration and set a common reference system for the technology objects to be interconnected.

2 - Exclusive interface

Ensure that the project is consistent. Contact the hotline, if necessary.

3 - Interconnection request

Ensure that the project is consistent. The missing interconnection on the technology object is specified in the context:

Context

TO type

Interface

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Addition object

MotionIn

4 - Error during interface initialization

Contact the hotline and provide the name of the context parameter.

5 - Interface not available on technology object

Contact the hotline and provide the name of the context parameter.

6 - Recursion

Check the interconnection topology of your project. Remove unnecessary interconnections.

7 - Execution level compatibility error

Select a common execution level in the configuration for the technology objects to be interconnected (e.g. output cam and axis in IPO_2).

8 - Initialization distribution

- Ensure that your project is consistent. For proper configuration of communication, all devices must be compiled ('Project/Save and compile all' or "Save and compile all new').
- Determine whether all devices are selected for loading the project ('Target system/Select target devices...').
- Check whether the configured bus topology matches the actual bus topology.
- Ensure that the devices are linked in the bus configuration (PROFIBUS).
- Check whether isochronous operation was selected.
- In addition, the address areas that are used by the devices for communication must be set up. The address areas are automatically set up when the project is compiled; only afterwards is the valid hardware configuration available for downloading. Do not change automatically generated address areas afterwards.
- Contact the hotline and provide the name of the context parameter.

9 - Illegal technology object state

- Correct the configuration of the technology object.
- Eliminate the execution error.

10 - Interface assignment

- Configure the bus interface to match the processing cycle clock (e.g. fast bus system and axis in FastIPO).

11 - Active command in recursive TO interconnection

- Inputs of technology objects can already be enabled during the download (e.g. TO AdditionObjectType). Remove or change the relevant interconnection on the technology object or switch a technology object, whose input is enabled by the user program and not already by the download, into the positive feedback branch.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE

Settable local reactions

DISABLE

Diagnostics buffer entry

Yes

20008 Assignment of USER_DEFAULT to system variables is not possible

Cause

It is not appropriate to assign USER_DEFAULT to a UserDefault system variable, because the variable references itself in this case.

As a result, a meaningful value cannot be generated on readout. When this error occurs, the new Enum value is not assigned. The variable retains the old value.

Remedy

USER_DEFAULT is intended for use in technology commands. Avoid assigning it to system variables.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE

Diagnostics buffer entry

No

20009 **Reserved error**

Cause

This error is not currently in use.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE

Settable local reactions

DISABLE

Diagnostics buffer entry

Yes

20010 A restart is required to activate the configuration data**Cause**

The configuration cannot be activated, since data has been modified preventing the activation. The technology object must be restarted to activate the data.

Remedy

- Execute the technology object reset command, and set the 'activateRestart' parameter to 'ACTIVATE_RESTART'.
- Set the 'restartActivation' system variable to 'ACTIVATE_RESTART'.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

20011 Error occurred while activating the configuration (category: /1/%d, error number: /2/%d, additional information: /3/%d)

Cause

This alarm indicates error conditions when activating the configuration. The error conditions can be traced back to an incorrect or inconsistent configuration. The technology objects perform a plausibility check on the configuration. Errors are identified by the error codes below. The configuration is not activated when this alarm occurs.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of the error
500	Illegal technology object configuration state.
501	More configuration data expected than received.
502	Invalid configuration data.
503	Version conflict in configuration.
504	The configured task level is not supported by this TO.
505	The value range of the maximum number of command IDs has been violated.
506	The configured task level is not supported by the used hardware.
1001	Error in configuration data numberOfMaxBufferedCommandId
1002	Error in configuration data MotionOut.Modulo.length
1003	Error in configuration data MotionOut.Modulo.startValue
1004	Error in configuration data MotionOut.Modulo.state
1005	Error in configuration data MotionOut.Modulo.configurationMode

Additional information:	More detailed description of the error origin
	Not relevant

Description of the alarm parameters in the `_getAdditionObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT

Remedy

Change the configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

20012 Restart not carried out (reason: /1/%d)

Cause

Technology object could not be restarted.

Meaning of alarm parameters

Reason:	
1	The technology object configuration does not allow a restart with the restart system variable.
2	The technology object is not ready to be restarted.
3	A configured condition for restarting the technology object is not met (e.g. technology object must be 'disabled').
4	Restart was not performed with the last programmed configuration of the technology object because this is faulty
5	The configuration of the technology object does not permit any restart.

Description of the alarm parameters in the `_getAdditionObjectErrorState` command:

No.	Data type
1	DINT

Remedy

Reason:	
1	Initiate the restart using the reset command.
2	Reload the project.
3	Work around the cause stated in the Reason parameter, or reload the project.
4	Determine whether technological alarms were reported or error entries were made in the device diagnostics and, if necessary, remedy the cause.
5	Change the configuration to activate the appropriate restart capability.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

20014 Under logical address: /1/%d (optional log. address: /2/%d and bit no.: /3/%d of the enable output), a driver (type: /4/%d) could not be requested

Cause

The driver of a physical device is not available or is being used by another technology object.

The enable command for the technology object has been issued more than once with the 'immediately' stepping condition.

Meaning of alarm parameters

Logical address:	This is the address of the actuator driver configured on the technology object.
Logical address and bit number:	This specifies the address and bit number of the output enable bit.

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver

Description of the alarm parameters in the _getAdditionObjectErrorState command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	DINT

Remedy

- Do not call the enable command cyclically "call the enable command only once for the axis enable".
- Check that the logical device was available at the time of the request or whether it was being used by another technology object.
- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE

Settable local reactions

DISABLE

Diagnostics buffer entry

Yes

20015 Device type:/3/%d, log. address:/1/%d faulted. (Bit:/2/%d, encoder number:/5/%d, reason: 0x/4/%Xh)

Cause

The driver of a physical device or the device itself has failed or is faulty.

If this alarm occurs, the cause of the error must be evaluated in the external device (drive or encoder).

Meaning of alarm parameters

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver
12	Safety data block driver
13	Update counter
14	Operating characteristics data block driver

Logical address:	This is the logical input address configured on the technology object.
Bit number:	For bit driver type = 3 or 4 only; number of the bit
Encoder number:	Number of the encoder in case of telegrams with multiple encoders. Applies only when type = 2.
Reason:	0 - only defined when type = 2

Note

Addition of error messages

The codings for the reason of the failure specified below for the individual alarm types can also occur in combination. A group coding is indicated as the sum of several individual codings (e.g. 0x0005 = 0x0001 + 0x0004).

A failure reason labeled with DP can occur only for PROFIBUS devices.

Type = 1	
0x0001h	Fault message from the drive (note: for PROFIBUS drives, which support acyclic communication in accordance with PROFIdrive V3, the error number(s) of the drive are displayed in the diagnostic buffer, e.g. for Masterdrives MC)
0x0002h	DP: Drive signal "control requested" failed
0x0004h	DP: Drive disconnected itself
0x0008h	Slot for drive data is not available in the project
0x0010h	Actuator driver does not have a connection to the drive data
0x0020h	Actuator driver was not initialized during ramp-up
0x0080h	DP: Difference between configuration data and drive parameters (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	DP: Control signals to the PROFIdrive state machine were incorrectly specified
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
0x8000h	DP: Life-sign of drive has malfunctioned or failed
0x80000000h	The drive interface has been deactivated for the pending enables.
Type = 2	
0x0000h	The actual value changes exceed the limit value derived from the maximum velocity (configuration data TypeOfAxis.MaxVelocity.maximum) over multiple cycles. This monitoring can be activated or deactivated with configuration data TypeOfAxis.NumberOfEncoders.Encoder_x.AbsEncoder.enableAbsMonitoring.
0x0001h	Alarm message from encoder (note: the encoder error number(s) are displayed in the diagnostic buffer)
0x0002h	General hardware error of encoder
0x0004h	Encoder is dirty
0x0008h	Slot for encoder data is not available in the project
0x0010h	Encoder driver does not have a connection to the encoder data
0x0020h	Encoder driver was not initialized during ramp-up
0x0040h	Error when reading the absolute value of the encoder
0x0080h	DP: Difference between the configuration data and the encoder parameters Onboard C2xx: Inconsistency of the configuration data (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	Zero mark monitoring of encoder
0x0200h	DP: Encoder has gone to Parked state
0x4000h	DP: Encoder on bus failed (station failure)

0x8000h	DP: Life-sign of encoder has malfunctioned or failed. (note: for an encoder whose data are transferred in a drive telegram together with actuator data, the actuator life-sign applies to the encoder, e.g. for standard telegram 3 in accordance with PROFIdrive)
0x80000000h	The sensor interface has been deactivated for the pending enables.
Type = 3...6	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 7	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 8	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 9	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 10	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 11	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 12	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 13	
0x1h	The actual value was specified via a system variable and the permissible number of failure cycles was exceeded
0x2h	The actual value was updated with an update counter in the I/O area and the permissible number of failure cycles was exceeded

Description of the alarm parameters in the `_getAdditionObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

The remedy for the respective type and cause is described below.

Type 1

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- A system fault may be present. Call the hotline.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- When sign-of-life monitoring is set: Ensure that in HW Config for drive under DP slave properties - isochronous operation - drive, the "synchronize to equidistant DP cycle" field is activated.
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
- Up to SIMOTION RT V4.3: If the alarm occurs after the download on a drive with telegram 999: Compare the parameterized bit position for the "Pulses enabled" status signal in drive parameter p924 with the configuration data 'DriveControlConfig.PulsesEnabled' of the TO axis. In this case, there is not necessarily an incorrect parameterization and therefore a check cannot be performed by the system because of the BICO interconnection. Therefore, make sure that the Pulses enabled bit is in the correct position.

For reason 0x0100

- Correct your user program with regard to PROFIdrive-compliant specification of control bits in the `_enable/disableAxis` commands, e.g. control signal OFF (STW1.0 = false) must precede a drive connection.

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 2For reason 0x0000

- Check the absolute encoder functions, connections and configuration. Take note of this when monitoring is deactivated (not with Alarm 20015).

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- Make sure that the user program does not reference a technology object containing an encoder (Axis, External Encoder) with an '_enableaxis' or '_enableexternalencoder' command while system variable 'sensordata.sensordata[n].state' is signaling invalid.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0040

- Compare the encoder type in the drive or encoder parameter P979 with the configuration data of the technology object.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
 - Compare the encoder type, resolution, shift factor, and, in the case of absolute encoders, the number of rotations in the drive or encoder parameter P979 to the encoder type, resolution, fine resolution, and, in the case of absolute encoders, the data length in the configuration data of the technology object.
- When using telegram 999, this message always appears, as the bit position is not checked by the system in this case, but has to be performed by the user.

For reason 0x0100

- Check the device functions, connections and wiring.

For reason 0x0200

- Find the cause of the error in the connected drive or encoder. Check whether the alarm was triggered due to a commissioning operation on the drive or encoder.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 3 - Type 6

For reason 0x0000

- Check the configuration and the signal paths of the connection.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 7

For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 8

For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 9

For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 10

For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 11 - Type 12

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring. If the error cannot be acknowledged when the axis is in simulation mode, check whether the technology data block is activated, and if this is the case, deactivate it.

Type 13For reason 0x1

- Check the specification of the actual value with regard to function, configuration, and task configuration.

For reason 0x2

- Check the device functions, configuration, connections and wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

Yes

20016 Under logical address: /1/%d (bit number, if required: /2/%d) no driver (type: /3/%d) activated (error number: /4/%d)

Cause

The driver of a physical device or the device itself is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
	Not relevant

Description of the alarm parameters in the `_getAdditionObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT

Remedy

- Check the activation/deactivation sequence for the interface.
- Note the runtimes of the commands and use the provided command control mechanisms (e.g. nextCommand := WHEN_COMMAND_DONE).
- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE

Settable local reactions

DISABLE

Diagnostics buffer entry

Yes

20017 Internal algorithm error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Error source
Parameters 2 to 4:	Fault number

Description of the alarm parameters in the `_getAdditionObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact:

SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE

Settable local reactions

DISABLE

Diagnostics buffer entry

Yes

20018 Attempt to write the bit(s): 0x/1/%Xh in control word1 or the bit(s): 0x/2/%Xh in control word2 under the log. address: /3/%d has been rejected.

Cause

An attempt to write certain bits in control word 1 or 2 has been rejected.

Meaning of alarm parameters

Bits:	Display of bits which could not be written
Log. address:	Logical address of the device driver

Description of the alarm parameters in the `_getAdditionObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT

Remedy

- Check the order of commands, particularly in relation to `_enableAxis(...)`.
- Check the command parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE

Diagnostics buffer entry

Yes

20019 Error for the commissioning, reason: /1/%d (Parameter1: /2/%d, Parameter2: /3/%d)

Cause

A commissioning function could not be executed.

Meaning of alarm parameters

Reason:	
1	Failure of the life-sign between controller and SIMOTION SCOUT
2	Protocol error
3	Command decoding error

Description of the alarm parameters in the _getAdditionObjectErrorState command:

No.	Data type
1	DINT
2	UDINT
3	UDINT

Remedy

Reason:	
1	Check the connection properties. If required, increase the monitoring time.
2	Should a system error of this type occur, note the alarm number, the alarm text and the specified alarm parameters, and contact: SIEMENS AG I DT MC, Hotline.
3	Should a system error of this type occur, note the alarm number, the alarm text and the specified alarm parameters, and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / NONE

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

Yes

20020 Output deactivated

Cause

One or more outputs of the technology object have been deactivated. This is caused by the output-disable device status.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

20021 Configuration will be adapted internally (category: /1/%d, reason: /2/%d, limited value: /3/%f, additional information: /4/%d)

Cause

This alarm shows the implicit setting of configuration data to the maximum possible values. The technology objects perform a plausibility check on the configuration. Errors/manipulations are identified by the error codes below.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of configuration data
2001	Illegal value for maxSpeed (maxSpeed less than or equal to 2*nominalSpeed; maxSpeed will be set to 2*nominalSpeed)
2002	Illegal value for maxTorque/Force (maxTorque/Force less than or equal to 2*nominalTorque/Force; maxTorque/Force will be set to 2*nominalTorque/Force)
2003	Error during the adaptation of the Torque-/ForceReductionGranularity. p1544 is ignored and the default value used.
3001	The length of the backlash on reversal is limited to a permitted value (Encoder_N.incBacklash.length or Encoder_N.absBacklash.length).
3002	The compensation velocity of the backlash on reversal is limited to a permitted value (Encoder_N.incBacklash.velocity or Encoder_N.absBacklash.velocity).
3003	The value of the configuration data for the encoder system (.Encoder_N.encoderSystem) is limited to a permitted value.
3004	The value of the configuration data for the encoder resolution (rotary: .Encoder_N.incEncoder.incResolution, Encoder_N.absEncoder.absResolution; linear: Encoder_N.Resolution.distance) is limited to a permitted value.
3005	The value of the configuration data for the multiplication factor of the cyclical actual value (.Encoder_N.incEncoder.incResolutionMultiplierCyclic, Encoder_N.absEncoder.absResolutionMultiplierCyclic, Encoder_N.Resolution.multiplierCyclic) is limited to a permitted value.
3006	The value of the configuration data for the multiplication factor of the absolute value (Encoder_N.absEncoder.absResolutionMultiplierAbsolute) is limited to a permitted value.
3007	The value of the configuration data for the data length of the absolute value (Encoder_N.absEncoder.absDataLength) is limited to a permitted value.
3008	The value of the configuration data for the reference value of the Nact speed in the PROFIdrive telegram (Encoder_N.sensorNist.referenceValue) is limited to a permitted value.
3009	The load gear factor of the first data set is leading for the encoder simulation. The simulation with different load gear factors is not supported. The value of the configuration data for the load gear (DataSet_N.gear) is limited to the load gear ratio of the first data set.
4001	The delay time for the triggering of the standstill signal (StandStillSignal.delayTimeToActivate) is limited.
4002	The delay time until the position monitoring tolerance window is reached (PositionMonitoring.posWinToITime) is limited.
4003	The delay time until the activation of the position monitoring message (PositionMonitoring.posWinToIDelayTime) is limited.
4004	The delay time for the activation of the standstill monitoring message (StandStillMonitoring.delayTimeToActivate) is limited.
4005	The delay time of the actual value of the force/pressure entry monitoring (ForceControlRunningInWindowMonitoring.winToITime) is limited.
4006	The delay time until activation of the force/pressure entry monitoring (ForceControlRunningInWindowMonitoring.maxDelayTime) is limited.
4007	The delay time until activation of the force/pressure end value monitoring (ForceControlHeldValueMonitoring.delayTimeToActivate) is limited.

4008	The delay of the emergency ramp generator (EmergencyRampGenerator.maxDeceleration) is too small and set to the minimum possible value.
4009	The decay time constant of the friction compensation (Friction.decayTime) is limited.
4068	The maximum buffer length of the lag element in the balancing filter (Mode_2) is reached or exceeded. The lag element (maximum buffer length: 16 servo-cycles) is augmented by a PT1 element.
4069	The maximum buffer length of the lag component of the dynamic response compensation is reached or exceeded. The maximum value of this time constant is limited to 16 servo cycles. The buffer length of the lag element is maximum 16.

Additional information:	More detailed description of the error origin
Not relevant	

Description of the alarm parameters in the `_getAdditionObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	LREAL
4	UDINT

Remedy

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

30001 **Illegal parameter (parameter index according to standard sequence in the system functions: /1/%d, command type: /4/%X)**

Cause

Illegal parameter transfer to a system function. The command is not executed. This alarm occurs when the permissible parameter value range is violated. The permissible value range of the parameter is a function of its data type and the technological meaning of the parameter.

The parameter index indicates the position of the illegal parameter. The standard sequence of parameters in the system functions is apparent from the reference list associated with the command. The command type indicates the type of the faulty system function.

Meaning of alarm parameters

Parameter index:	Index of the system function parameter that triggered this error (listed according to the standard sequence in the system functions).
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getAdditionObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the value range of the parameter data type.
- Check the technological meaning of the parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

30002 Command aborted (reason: /1/%d, command type: /4/%X)

Additional references

Further information is provided in the Function Manual:

- Basic Functions and
- in the online help.

Cause

The command was aborted before or during execution.

This can be caused by:

- A substituted command
- Command buffer reset
- Error state

Note

This alarm is always output, e.g. for jogging (`_move` aborted with `_stop`) or for the retraction of the reference BERO for homing or when Synchronous operation (explicitly) deactivated.

Meaning of alarm parameters

Reason:	
1	Reset of the command buffer
2	Abort by another command
5	Abort by a pending error response
6	Abort due to ambiguous commandId
9	Abort due to abort of a dependent command
28	Active command in recursive TO interconnection
31	Maximum number of active commands exceeded
42	No interconnection to a technology object
44	Abort because of a pending command with identical command parameters

Command type:	Outputs the aborted command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAdditionObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Set up the command again via program.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

30003 Command aborted because of full command buffer (command type: /4/%X)

Cause

The command is not entered in the command buffer because the buffer is already full.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAdditionObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the program flow.
- Typical cause: The 'nextCommand' parameter is passed with the value 'IMMEDIATELY', and the 'mergeMode' parameter is passed with the value 'SEQUENTIAL'.
 - Synchronize the command execution in the user program so that the command buffer is not occupied when the command is issued.
 - Use other values for the 'nextCommand' or 'mergeMode' parameters. Setting the 'nextCommand' to a value other than 'IMMEDIATELY' causes the program to wait for the command buffer to become available. In addition, setting a different 'mergeMode' means that the command buffer can be overwritten.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

30004 Command is not defined for this technology object type (command type: /4/%X)

Cause

Command was programmed on a technology object type not supporting processing of this command.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getAdditionObjectErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Issue the command on the correct technology object type.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

30005 Ambiguous commandId (number of commands with the specified ID: /1/%d, command type: /4/%X)

Cause

The specified commandId refers to more than one command. The specified action is performed for the command matching the specified ID that has been in the interpolator for the longest time.

If no corresponding command is found in the interpolator, the action refers to the next command loaded in the interpolator.

Meaning of alarm parameters

Id:	Number of commands referenced by the specified command ID.
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getAdditionObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Use a different 'commandId' for commands that are active simultaneously.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

30006 Command cannot be executed because of the current object state (command type: /4/%X)

Cause

A reset command is active at the object or the object is deactivated.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAdditionObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the following:

- Check the object status.
- Check the possible execution sequence of the programmed commands.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

30007 The error cannot be reset because of its configuration

Cause

The 30007 alarm will be output when an alarm is reset that can only be acknowledged with PowerOn.

Example:

The internal 20001 error can only be acknowledged with PowerOn.

If an attempt is made to reset the alarm with a `_reset...Error` command, the 30007 alarm will be output.

Description of the alarm parameters in the `_getAdditionObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

Check whether the errors present on the technology object can be acknowledged.

Correct the cause of the error and switch the CPU off/on or load the project again.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

30008 **Link to a technology object necessary for this operation does not exist (command type: /4/%X)**

Cause

The object connection required for this operation has not been configured or the connected technology object has been deactivated.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAdditionObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the project configuration.
- Change the object connection in the command.
- Activate the connected technology object.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

30009 Command rejected as the decoding of the command of the technology object addressed has been deactivated/stopped (reason: /1/%d, command type: /4/%X)

Cause

Command was rejected due to suspension of command decoding on the addressed technology object. The command decoding can be stopped by the DECODE_STOP alarm response, by deactivating or restarting the technology object, by starting the axis control panel in exclusive mode or by the absence of necessary interconnections.

Meaning of alarm parameters

Reason:	
1	Restart of the technology object
2	Technology object is deactivated
3	Technology object is in RUN mode.
4	Control panel active

Command type:	Outputs the type of the rejected command. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getAdditionObjectErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check why the command was rejected.
- If necessary, acknowledge any active errors once you have corrected the cause of the error.
- If the technology object is deactivated, you must activate it.
- Do not issue any commands while the technology object is restarting.
- Do not issue any commands while a connected technology object is restarting.
- Stop the axis control panel.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

30010 Command not available (command type: /4/%X)

Cause

The command is not available in this version of the runtime software.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAdditionObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the version of the runtime software.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

30011 **Parameter not available (parameter index according to the standard sequence in the system functions: /1/%d, command type: /4/%X)**

Cause

The parameter is not available in this version of the runtime software, the command is therefore rejected. The parameters indicate the position according to the standard sequence in the system functions and the command type of an incorrectly entered parameter.

Meaning of alarm parameters

Parameter index:	Index of the command parameter triggering this error according to the standard sequence in the system functions.
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getAdditionObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the version of the runtime software.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

30012 Command cannot be started synchronously (command type: /4/%X)

Cause

The command cannot be used within a 'BEGIN_SYNC' or 'END_SYNC' sequence. The command has only one return value in the user program, or the command is not capable of starting synchronously.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getAdditionObjectErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Do not use this command type during a BEGIN_SYNC, END_SYNC sequence.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

30013 Synchronous start of the command is carried out with mergeMode IMMEDIATELY (command type: /4/%X)

Cause

With synchronous command start, only merge modes that immediately override the current command (IMMEDIATELY) and superimpose the current command (SUPERIMPOSED_MOTION_MERGE) can be used.

If an illegal merge mode is programmed (e.g. SEQUENTIAL or NEXT_MOTION), the system automatically changes the merge mode to IMMEDIATELY and outputs this warning.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getAdditionObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Program the command which is to be started synchronously to immediately override the current command. To do this, enter the value IMMEDIATELY in the 'mergeMode' command parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

30015 **A technology required for this command has not been configured (technology: /1/%d, command type: /4/%X)**

Cause

The command cannot be selected in this technology object configuration.

Meaning of alarm parameters

Technology:	Not relevant
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the _getAdditionObjectErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Activate the technology needed for the command.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

40001 Interface could not be activated (interface: 0x1/%Xh)**Cause**

The interface could not be activated because a connection to this interface was not configured.

Meaning of alarm parameters

Interface:	
0x0001h	MotionIn1
0x0002h	MotionIn2
0x0004h	MotionIn3
0x0008h	MotionIn4
0x0010h	MotionOut

Description of the alarm parameters in the _getAdditionObjectErrorState command:

No.	Data type
1	UDINT

Remedy

- Check the command for activating the interface.
- Interconnect the interface to be activated.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

40002 Modulo configuration is not taken over from the interconnected output vector

Cause

The modulo configuration could not be transferred from the interconnected output vector.

Possible causes:

- Multiple interconnection of the output vector, and the interconnected technology objects have a different modulo configuration.
- Interconnection of the output vector to a technology object without modulo configuration.

Remedy

- Check the modulo configuration of the technology object that is interconnected to the output vector.
- Disable transfer of the modulo configuration from the interconnected output vector to the configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

40110 Error triggered on slave during Synchronous operation (error number: /1/%d, slave stopped: /2/%d)

Additional references

Further information is provided in the Function Manual:

- Technology Objects Synchronous Operation, Cam and
- in the online help.

Cause

An error was triggered on a slave during Synchronous operation and reported to the master.

Meaning of alarm parameters

Error number:	Error reported by slave:
1	Synchronous operation setpoint tolerance exceeded.
2	Synchronous operation actual-value tolerance exceeded.
3	General slave axis error.

Slave stopped:	Indicates whether the slave axis has switched to Stop mode:
0	The slave axis has not switched to Stop mode.
1	The slave axis has switched to Stop mode.

Description of the alarm parameters in the `_getAdditionObjectErrorState` command:

No.	Data type
1	DINT
2	DINT

Remedy

Check the following:

- Configuration data for Synchronous operation monitoring on the slave
- Programming (dynamic parameters, Synchronous operation connection)
- System variables

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

4.2 ControllerObjectType

20001 Internal error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Error source
Parameters 2 to 4:	Fault number

Description of the alarm parameters in the `_getControllerObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

DISABLE_CONTROLLER

Settable local reactions

DISABLE_CONTROLLER

Diagnostics buffer entry

Yes

20002 Insufficient memory (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

The memory required by the system is no longer available.

This alarm can occur both during ramp-up and after program calls.

Meaning of alarm parameters

Parameter 1:	Area in which the error occurred.
1	Command decoding
2	Config manager
3	Sequence control
4	Controller
5	Identification
6	Technology package

Parameters 2 to 4 are area-specific.

They are not fully utilized by all areas.

Command decoding area:

Parameters 2 and 4	refer to the command in which the error occurred.
Parameter 2:	Command return value
Parameter 4:	Command type

Description of the alarm parameters in the `_getControllerObjectErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

- Reduce the size of the ST code.
- Reduce the number of technology objects.
- Reduce the number of interpolation points for cams, if present.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

DISABLE_CONTROLLER

Settable local reactions

DISABLE_CONTROLLER

Diagnostics buffer entry

Yes

20003 Internal configuration error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Area in which the error occurred.
1	Command decoding
2	Config manager
3	Sequence control
4	Controller
5	Identification
6	Technology package

Parameters 2 to 4 are area-specific.

These parameters are not fully utilized by all areas.

Command decoding area:

Parameters 2 and 4	refer to the command in which the error occurred.
Parameter 2:	Command return value
Parameter 4:	Command type

Description of the alarm parameters in the `_getControllerObjectErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE CONTROL_STOP DECODE_STOP DISABLE_CONTROLLER

Diagnostics buffer entry

Yes

20004 Under logical address: /1/%d (bit number, if required: /2/%d) no driver (type: /3/%d) could be requested (error number: /4/%d)

Cause

The driver of a physical device or the device itself is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
	Not relevant

Description of the alarm parameters in the `_getControllerObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT

Remedy

- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_CONTROLLER

Settable local reactions

DISABLE_CONTROLLER

Diagnostics buffer entry

Yes

20005 Device type:/3/%d, log. address:/1/%d faulted. (Bit:/2/%d, encoder number:/5/%d, reason: 0x/4/%Xh)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

The driver of a physical device or the device itself has failed or is faulty.

If this alarm occurs, the cause of the error must be evaluated in the external device (drive or encoder).

Meaning of alarm parameters

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver
12	Safety data block driver
13	Update counter
14	Operating characteristics data block driver

Logical address:	This is the logical input address configured on the technology object.
Bit number:	For bit driver type = 3 or 4 only; number of the bit
Encoder number:	Number of the encoder in case of telegrams with multiple encoders. Applies only when type = 2.
Reason:	0 - only defined when type = 2

Note

Addition of error messages

The codings for the reason of the failure specified below for the individual alarm types can also occur in combination. A group coding is indicated as the sum of several individual codings (e.g. 0x0005 = 0x0001 + 0x0004).

A failure reason labeled with DP can occur only for PROFIBUS devices.

Type = 1	
0x0001h	Fault message from the drive (note: for PROFIBUS drives, which support acyclic communication in accordance with PROFIdrive V3, the error number(s) of the drive are displayed in the diagnostic buffer, e.g. for Masterdrives MC)
0x0002h	DP: Drive signal "control requested" failed
0x0004h	DP: Drive disconnected itself
0x0008h	Slot for drive data is not available in the project
0x0010h	Actuator driver does not have a connection to the drive data
0x0020h	Actuator driver was not initialized during ramp-up
0x0080h	DP: Difference between configuration data and drive parameters (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	DP: Control signals to the PROFIdrive state machine were incorrectly specified
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
0x8000h	DP: Life-sign of drive has malfunctioned or failed
0x80000000h	The drive interface has been deactivated for the pending enables.
Type = 2	
0x0000h	The actual value changes exceed the limit value derived from the maximum velocity (configuration data TypeOfAxis.MaxVelocity.maximum) over multiple cycles. This monitoring can be activated or deactivated with configuration data TypeOfAxis.NumberOfEncoders.Encoder_x.AbsEncoder.enableAbsMonitoring.
0x0001h	Alarm message from encoder (note: the encoder error number(s) are displayed in the diagnostic buffer)
0x0002h	General hardware error of encoder
0x0004h	Encoder is dirty
0x0008h	Slot for encoder data is not available in the project
0x0010h	Encoder driver does not have a connection to the encoder data
0x0020h	Encoder driver was not initialized during ramp-up
0x0040h	Error when reading the absolute value of the encoder
0x0080h	DP: Difference between the configuration data and the encoder parameters Onboard C2xx: Inconsistency of the configuration data (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	Zero mark monitoring of encoder
0x0200h	DP: Encoder has gone to Parked state
0x4000h	DP: Encoder on bus failed (station failure)

0x8000h	DP: Life-sign of encoder has malfunctioned or failed. (note: for an encoder whose data are transferred in a drive telegram together with actuator data, the actuator life-sign applies to the encoder, e.g. for standard telegram 3 in accordance with PROFIdrive)
0x80000000h	The sensor interface has been deactivated for the pending enables.
Type = 3...6	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 7	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 8	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 9	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 10	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 11	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 12	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 13	
0x1h	The actual value was specified via a system variable and the permissible number of failure cycles was exceeded
0x2h	The actual value was updated with an update counter in the I/O area and the permissible number of failure cycles was exceeded

Description of the alarm parameters in the `_getControllerObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

The remedy for the respective type and cause is described below.

Type 1

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- A system fault may be present. Call the hotline.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- When sign-of-life monitoring is set: Ensure that in HW Config for drive under DP slave properties - isochronous operation - drive, the "synchronize to equidistant DP cycle" field is activated.
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
- Up to SIMOTION RT V4.3: If the alarm occurs after the download on a drive with telegram 999: Compare the parameterized bit position for the "Pulses enabled" status signal in drive parameter p924 with the configuration data 'DriveControlConfig.PulsesEnabled' of the TO axis. In this case, there is not necessarily an incorrect parameterization and therefore a check cannot be performed by the system because of the BICO interconnection. Therefore, make sure that the Pulses enabled bit is in the correct position.

For reason 0x0100

- Correct your user program with regard to PROFIdrive-compliant specification of control bits in the `_enable/disableAxis` commands, e.g. control signal OFF (STW1.0 = false) must precede a drive connection.

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 2For reason 0x0000

- Check the absolute encoder functions, connections and configuration. Take note of this when monitoring is deactivated (not with Alarm 20015).

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- Make sure that the user program does not reference a technology object containing an encoder (Axis, External Encoder) with an '_enableaxis' or '_enableexternalencoder' command while system variable 'sensordata.sensordata[n].state' is signaling invalid.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0040

- Compare the encoder type in the drive or encoder parameter P979 with the configuration data of the technology object.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
 - Compare the encoder type, resolution, shift factor, and, in the case of absolute encoders, the number of rotations in the drive or encoder parameter P979 to the encoder type, resolution, fine resolution, and, in the case of absolute encoders, the data length in the configuration data of the technology object.
- When using telegram 999, this message always appears, as the bit position is not checked by the system in this case, but has to be performed by the user.

For reason 0x0100

- Check the device functions, connections and wiring.

For reason 0x0200

- Find the cause of the error in the connected drive or encoder. Check whether the alarm was triggered due to a commissioning operation on the drive or encoder.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 3 - Type 6

For reason 0x0000

- Check the configuration and the signal paths of the connection.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 7

For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 8

For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 9

For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 10

For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 11 - Type 12

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring. If the error cannot be acknowledged when the axis is in simulation mode, check whether the technology data block is activated, and if this is the case, deactivate it.

Type 13

For reason 0x1

- Check the specification of the actual value with regard to function, configuration, and task configuration.

For reason 0x2

- Check the device functions, configuration, connections and wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_CONTROLLER

Settable local reactions

DISABLE_CONTROLLER

Diagnostics buffer entry

Yes

20006 Configuration error (category: /1/%d, error number: /2/%d, additional information: /3/%d)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

This alarm indicates error states caused by a faulty or inconsistent configuration. The technology objects perform a plausibility check on the configuration. Errors are identified by the error codes below.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Config manager
3	Sequence control
4	Controller
5	Identification
6	Technology package

Error number:	Specification of the error
500	Illegal technology object configuration state.
501	More configuration data expected than received.
502	Invalid configuration data.
503	Version conflict in configuration.
504	The configured task level is not supported by this TO.
505	The value range of the maximum number of command IDs has been violated.
506	The configured task level is not supported by the used hardware.
1000	General configuration error
1001	Invalid controller type selected.
1002	Invalid execution level selected.
1003	Configuration data missing for Controller TO.
1004	Error when creating Controller TO.
1005	Limit value for precontrol factor exceeded.
1006	P controller not implemented for this TO.
1007	Limit value for control deviation threshold exceeded.
1008	Limit value for control deviation monitoring exceeded.
1009	Limit value for I-feedback factor exceeded.
1010	Limit value for actual value factor of D component exceeded.
1011	Limit value for increase limitation at the output exceeded.
1012	Limit value for minimum value of a limiter exceeded.
1013	Limit value for maximum value of a limiter exceeded.
1014	Minimum value of a limiter is greater than the maximum value.
1015	Error in configuration data numberOfMaxBufferedCommandId

Additional information:	More detailed description of the error origin
	Not relevant

Description of the alarm parameters in the `_getControllerObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT

Remedy

Change the configuration data.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_CONTROLLER

Settable local reactions

DISABLE_CONTROLLER

Diagnostics buffer entry

Yes

20007 Interconnection error (category: /1/%d, context: /2/%d, context parameter1: /3/%d, context parameter2: /4/%d)

Cause

This alarm indicates errors in the interconnection of technology objects. When the interconnection is established, the technology object verifies it on the basis of the interface properties. Errors are classified by category.

Additional information for a more detailed description of the error can be output from the context. An error context is output for selected error categories. Additional context parameters can be output for a context, if necessary. Context and context parameters are output as an integer value.

Meaning of alarm parameters

Category:	
1	Technology object compatibility error An interconnection is to be established with a technology object that has been configured with another reference system (e.g. output cams with rotary reference system and linear axis).
2	Exclusive interface An interface on a technology object that can only be connected to another technology object using one coupling type should be interconnected using different, mutually exclusive couplings. For example, the master value interface on a positioning axis for an interconnected synchronous object can only be operated as a setpoint or an actual value coupling.
3	Interconnection request The technology object awaits the interconnection to another technology object (necessary interconnection) in order to provide its functionality. Thus, for example, the interconnection to a gear axis is a required interconnection on a synchronous object.
4	Error during interface initialization The alarm is output in the event of initialization errors when connecting interfaces on the technology object.
5	Interface not available on technology object An interface required in the interconnection is not available on the technology object.
6	Recursion The interconnection on the technology object results in a recursion in the execution system of the technology package. The technology object does not support recursive execution.
7	Execution level compatibility error An interconnection is to be established with a technology object that is classified in a different execution level (e.g. output cam in execution level IPO and axis in execution level IPO_2). The technology object does not support interconnection to technology objects of other execution levels.
8	Initialization distribution In the case of interconnected technology objects that are distributed among different devices, an error occurred during initialization of the communication.

9	<p>Illegal TO state The technology object cannot be interconnected in the current state. A technology object can be interconnected only after the configuration has been successfully completed. Refer to the diagnostic buffer to determine the exact cause of the error. The cause of the illegal TO state is entered there (e.g. a level overflow during the configuration phase) and can then be corrected (in the example, by allowing level overflows in the task configuration).</p>
10	<p>Interface assignment The configured interface via which the technology object communicates cannot be used from the processing cycle clock of the technology object.</p>
11	<p>Active command in recursive TO interconnection The interconnection of the technology object and the enable state at its inputs result in an active recursive interconnection (positive feedback).</p>

Description of the alarm parameters in the `_getControllerObjectErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

Context / context parameter:

Contact the hotline and provide the name of the context parameter.

Category:

1 - Technology object compatibility error

Check the configuration and set a common reference system for the technology objects to be interconnected.

2 - Exclusive interface

Ensure that the project is consistent. Contact the hotline, if necessary.

3 - Interconnection request

Ensure that the project is consistent. The missing interconnection on the technology object is specified in the context:

Context

TO type

Interface

4 - Error during interface initialization

Contact the hotline and provide the name of the context parameter.

5 - Interface not available on technology object

Contact the hotline and provide the name of the context parameter.

6 - Recursion

Check the interconnection topology of your project. Remove unnecessary interconnections.

7 - Execution level compatibility error

Select a common execution level in the configuration for the technology objects to be interconnected (e.g. output cam and axis in IPO_2).

8 - Initialization distribution

- Ensure that your project is consistent. For proper configuration of communication, all devices must be compiled ('Project/Save and compile all' or "Save and compile all new').
- Determine whether all devices are selected for loading the project ('Target system/Select target devices...').
- Check whether the configured bus topology matches the actual bus topology.
- Ensure that the devices are linked in the bus configuration (PROFIBUS).
- Check whether isochronous operation was selected.
- In addition, the address areas that are used by the devices for communication must be set up. The address areas are automatically set up when the project is compiled; only afterwards is the valid hardware configuration available for downloading. Do not change automatically generated address areas afterwards.
- Contact the hotline and provide the name of the context parameter.

9 - Illegal technology object state

- Correct the configuration of the technology object.
- Eliminate the execution error.

10 - Interface assignment

- Configure the bus interface to match the processing cycle clock (e.g. fast bus system and axis in FastIPO).

11 - Active command in recursive TO interconnection

- Inputs of technology objects can already be enabled during the download (e.g. TO AdditionObjectType). Remove or change the relevant interconnection on the technology object or switch a technology object, whose input is enabled by the user program and not already by the download, into the positive feedback branch.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_CONTROLLER

Settable local reactions

DISABLE_CONTROLLER

Diagnostics buffer entry

Yes

20008 Assignment of USER_DEFAULT to system variables is not possible**Cause**

It is not appropriate to assign USER_DEFAULT to a UserDefault system variable, because the variable references itself in this case.

As a result, a meaningful value cannot be generated on readout. When this error occurs, the new Enum value is not assigned. The variable retains the old value.

Remedy

USER_DEFAULT is intended for use in technology commands. Avoid assigning it to system variables.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE

Diagnostics buffer entry

No

20009 **Reserved error**

Cause

This error is not currently in use.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_CONTROLLER

Settable local reactions

DISABLE_CONTROLLER

Diagnostics buffer entry

Yes

20010 A restart is required to activate the configuration data**Cause**

The configuration cannot be activated, since data has been modified preventing the activation. The technology object must be restarted to activate the data.

Remedy

- Execute the technology object reset command, and set the 'activateRestart' parameter to 'ACTIVATE_RESTART'.
- Set the 'restartActivation' system variable to 'ACTIVATE_RESTART'.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE CONTROL_STOP DECODE_STOP DISABLE_CONTROLLER

Diagnostics buffer entry

No

20011 Error occurred while activating the configuration (category: /1/%d, error number: /2/%d, additional information: /3/%d)

Cause

This alarm indicates error conditions when activating the configuration. The error conditions can be traced back to an incorrect or inconsistent configuration. The technology objects perform a plausibility check on the configuration. Errors are identified by the error codes below. The configuration is not activated when this alarm occurs.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Config manager
3	Sequence control
4	Controller
5	Identification
6	Technology package

Error number:	Specification of the error
500	Illegal technology object configuration state.
501	More configuration data expected than received.
502	Invalid configuration data.
503	Version conflict in configuration.
504	The configured task level is not supported by this TO.
505	The value range of the maximum number of command IDs has been violated.
506	The configured task level is not supported by the used hardware.
1000	General configuration error
1001	Invalid controller type selected.
1002	Invalid execution level selected.
1003	Configuration data missing for Controller TO.
1004	Error when creating Controller TO.
1005	Limit value for precontrol factor exceeded.
1006	P controller not implemented for this TO.
1007	Limit value for control deviation threshold exceeded.
1008	Limit value for control deviation monitoring exceeded.
1009	Limit value for I-feedback factor exceeded.
1010	Limit value for actual value factor of D component exceeded.
1011	Limit value for increase limitation at the output exceeded.
1012	Limit value for minimum value of a limiter exceeded.
1013	Limit value for maximum value of a limiter exceeded.
1014	Minimum value of a limiter is greater than the maximum value.
1015	Error in configuration data numberOfMaxBufferedCommandId

Additional information:	More detailed description of the error origin
	Not relevant

Description of the alarm parameters in the `_getControllerObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT

Remedy

Change the configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE CONTROL_STOP DECODE_STOP DISABLE_CONTROLLER

Diagnostics buffer entry

No

20012 Restart not carried out (reason: /1/%d)

Cause

Technology object could not be restarted.

Meaning of alarm parameters

Reason:	
1	The technology object configuration does not allow a restart with the restart system variable.
2	The technology object is not ready to be restarted.
3	A configured condition for restarting the technology object is not met (e.g. technology object must be 'disabled').
4	Restart was not performed with the last programmed configuration of the technology object because this is faulty
5	The configuration of the technology object does not permit any restart.

Description of the alarm parameters in the `_getControllerObjectErrorState` command:

No.	Data type
1	DINT

Remedy

Reason:	
1	Initiate the restart using the reset command.
2	Reload the project.
3	Work around the cause stated in the Reason parameter, or reload the project.
4	Determine whether technological alarms were reported or error entries were made in the device diagnostics and, if necessary, remedy the cause.
5	Change the configuration to activate the appropriate restart capability.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE CONTROL_STOP DECODE_STOP DISABLE_CONTROLLER

Diagnostics buffer entry

No

20014 Under logical address: /1/%d (optional log. address: /2/%d and bit no.: /3/%d of the enable output), a driver (type: /4/%d) could not be requested

Cause

The driver of a physical device is not available or is being used by another technology object.

The enable command for the technology object has been issued more than once with the 'immediately' stepping condition.

Meaning of alarm parameters

Logical address:	This is the address of the actuator driver configured on the technology object.
Logical address and bit number:	This specifies the address and bit number of the output enable bit.

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver

Description of the alarm parameters in the `_getControllerObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	DINT

Remedy

- Do not call the enable command cyclically "call the enable command only once for the axis enable".
- Check that the logical device was available at the time of the request or whether it was being used by another technology object.
- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_CONTROLLER

Settable local reactions

DISABLE_CONTROLLER

Diagnostics buffer entry

Yes

20015 Device type:/3/%d, log. address:/1/%d faulted. (Bit:/2/%d, encoder number:/5/%d, reason: 0x/4/%Xh)

Cause

The driver of a physical device or the device itself has failed or is faulty.

If this alarm occurs, the cause of the error must be evaluated in the external device (drive or encoder).

Meaning of alarm parameters

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver
12	Safety data block driver
13	Update counter
14	Operating characteristics data block driver

Logical address:	This is the logical input address configured on the technology object.
Bit number:	For bit driver type = 3 or 4 only; number of the bit
Encoder number:	Number of the encoder in case of telegrams with multiple encoders. Applies only when type = 2.
Reason:	0 - only defined when type = 2

Note

Addition of error messages

The codings for the reason of the failure specified below for the individual alarm types can also occur in combination. A group coding is indicated as the sum of several individual codings (e.g. 0x0005 = 0x0001 + 0x0004).

A failure reason labeled with DP can occur only for PROFIBUS devices.

Type = 1	
0x0001h	Fault message from the drive (note: for PROFIBUS drives, which support acyclic communication in accordance with PROFIdrive V3, the error number(s) of the drive are displayed in the diagnostic buffer, e.g. for Masterdrives MC)
0x0002h	DP: Drive signal "control requested" failed
0x0004h	DP: Drive disconnected itself
0x0008h	Slot for drive data is not available in the project
0x0010h	Actuator driver does not have a connection to the drive data
0x0020h	Actuator driver was not initialized during ramp-up
0x0080h	DP: Difference between configuration data and drive parameters (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	DP: Control signals to the PROFIdrive state machine were incorrectly specified
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
0x8000h	DP: Life-sign of drive has malfunctioned or failed
0x80000000h	The drive interface has been deactivated for the pending enables.
Type = 2	
0x0000h	The actual value changes exceed the limit value derived from the maximum velocity (configuration data TypeOfAxis.MaxVelocity.maximum) over multiple cycles. This monitoring can be activated or deactivated with configuration data TypeOfAxis.NumberOfEncoders.Encoder_x.AbsEncoder.enableAbsMonitoring.
0x0001h	Alarm message from encoder (note: the encoder error number(s) are displayed in the diagnostic buffer)
0x0002h	General hardware error of encoder
0x0004h	Encoder is dirty
0x0008h	Slot for encoder data is not available in the project
0x0010h	Encoder driver does not have a connection to the encoder data
0x0020h	Encoder driver was not initialized during ramp-up
0x0040h	Error when reading the absolute value of the encoder
0x0080h	DP: Difference between the configuration data and the encoder parameters Onboard C2xx: Inconsistency of the configuration data (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	Zero mark monitoring of encoder
0x0200h	DP: Encoder has gone to Parked state
0x4000h	DP: Encoder on bus failed (station failure)

0x8000h	DP: Life-sign of encoder has malfunctioned or failed. (note: for an encoder whose data are transferred in a drive telegram together with actuator data, the actuator life-sign applies to the encoder, e.g. for standard telegram 3 in accordance with PROFIdrive)
0x80000000h	The sensor interface has been deactivated for the pending enables.
Type = 3..6	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 7	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 8	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 9	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 10	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 11	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 12	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 13	
0x1h	The actual value was specified via a system variable and the permissible number of failure cycles was exceeded
0x2h	The actual value was updated with an update counter in the I/O area and the permissible number of failure cycles was exceeded

Description of the alarm parameters in the `_getControllerObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

The remedy for the respective type and cause is described below.

Type 1

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- A system fault may be present. Call the hotline.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- When sign-of-life monitoring is set: Ensure that in HW Config for drive under DP slave properties - isochronous operation - drive, the "synchronize to equidistant DP cycle" field is activated.
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
- Up to SIMOTION RT V4.3: If the alarm occurs after the download on a drive with telegram 999: Compare the parameterized bit position for the "Pulses enabled" status signal in drive parameter p924 with the configuration data 'DriveControlConfig.PulsesEnabled' of the TO axis. In this case, there is not necessarily an incorrect parameterization and therefore a check cannot be performed by the system because of the BICO interconnection. Therefore, make sure that the Pulses enabled bit is in the correct position.

For reason 0x0100

- Correct your user program with regard to PROFIdrive-compliant specification of control bits in the `_enable/disableAxis` commands, e.g. control signal OFF (STW1.0 = false) must precede a drive connection.

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 2For reason 0x0000

- Check the absolute encoder functions, connections and configuration. Take note of this when monitoring is deactivated (not with Alarm 20015).

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- Make sure that the user program does not reference a technology object containing an encoder (Axis, External Encoder) with an '_enableaxis' or '_enableexternalencoder' command while system variable 'sensordata.sensordata[n].state' is signaling invalid.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0040

- Compare the encoder type in the drive or encoder parameter P979 with the configuration data of the technology object.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
 - Compare the encoder type, resolution, shift factor, and, in the case of absolute encoders, the number of rotations in the drive or encoder parameter P979 to the encoder type, resolution, fine resolution, and, in the case of absolute encoders, the data length in the configuration data of the technology object.
- When using telegram 999, this message always appears, as the bit position is not checked by the system in this case, but has to be performed by the user.

For reason 0x0100

- Check the device functions, connections and wiring.

For reason 0x0200

- Find the cause of the error in the connected drive or encoder. Check whether the alarm was triggered due to a commissioning operation on the drive or encoder.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 3 - Type 6

For reason 0x0000

- Check the configuration and the signal paths of the connection.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 7

For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 8

For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 9

For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 10

For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 11 - Type 12

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring. If the error cannot be acknowledged when the axis is in simulation mode, check whether the technology data block is activated, and if this is the case, deactivate it.

Type 13

For reason 0x1

- Check the specification of the actual value with regard to function, configuration, and task configuration.

For reason 0x2

- Check the device functions, configuration, connections and wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE CONTROL_STOP DECODE_STOP DISABLE_CONTROLLER

Diagnostics buffer entry

Yes

20016 Under logical address: /1/%d (bit number, if required: /2/%d) no driver (type: /3/%d) activated (error number: /4/%d)

Cause

The driver of a physical device or the device itself is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
	Not relevant

Description of the alarm parameters in the `_getControllerObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT

Remedy

- Check the activation/deactivation sequence for the interface.
- Note the runtimes of the commands and use the provided command control mechanisms (e.g. nextCommand := WHEN_COMMAND_DONE).
- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_CONTROLLER

Settable local reactions

DISABLE_CONTROLLER

Diagnostics buffer entry

Yes

20017 Internal algorithm error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Error source
Parameters 2 to 4:	Fault number

Description of the alarm parameters in the `_getControllerObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact:

SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_CONTROLLER

Settable local reactions

DISABLE_CONTROLLER

Diagnostics buffer entry

Yes

20018 Attempt to write the bit(s): 0x/1/%Xh in control word1 or the bit(s): 0x/2/%Xh in control word2 under the log. address: /3/%d has been rejected.

Cause

An attempt to write certain bits in control word 1 or 2 has been rejected.

Meaning of alarm parameters

Bits:	Display of bits which could not be written
Log. address:	Logical address of the device driver

Description of the alarm parameters in the `_getControllerObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT

Remedy

- Check the order of commands, particularly in relation to `_enableAxis(...)`.
- Check the command parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE

Diagnostics buffer entry

Yes

20019 Error for the commissioning, reason: /1/%d (Parameter1: /2/%d, Parameter2: /3/%d)

Cause

A commissioning function could not be executed.

Meaning of alarm parameters

Reason:	
1	Failure of the life-sign between controller and SIMOTION SCOUT
2	Protocol error
3	Command decoding error

Description of the alarm parameters in the _getControllerObjectErrorState command:

No.	Data type
1	DINT
2	UDINT
3	UDINT

Remedy

Reason:	
1	Check the connection properties. If required, increase the monitoring time.
2	Should a system error of this type occur, note the alarm number, the alarm text and the specified alarm parameters, and contact: SIEMENS AG I DT MC, Hotline.
3	Should a system error of this type occur, note the alarm number, the alarm text and the specified alarm parameters, and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / NONE

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE_CONTROLLER

Diagnostics buffer entry

Yes

20020 Output deactivated

Cause

One or more outputs of the technology object have been deactivated. This is caused by the output-disable device status.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_CONTROLLER

Settable local reactions

NONE CONTROL_STOP DECODE_STOP DISABLE_CONTROLLER

Diagnostics buffer entry

No

20021 Configuration will be adapted internally (category: /1/%d, reason: /2/%d, limited value: /3/%f, additional information: /4/%d)

Cause

This alarm shows the implicit setting of configuration data to the maximum possible values. The technology objects perform a plausibility check on the configuration. Errors/manipulations are identified by the error codes below.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Config manager
3	Sequence control
4	Controller
5	Identification
6	Technology package

Error number:	Specification of configuration data
2001	Illegal value for maxSpeed (maxSpeed less than or equal to 2*nominalSpeed; maxSpeed will be set to 2*nominalSpeed)
2002	Illegal value for maxTorque/Force (maxTorque/Force less than or equal to 2*nominalTorque/Force; maxTorque/Force will be set to 2*nominalTorque/Force)
2003	Error during the adaptation of the Torque-/ForceReductionGranularity. p1544 is ignored and the default value used.
3001	The length of the backlash on reversal is limited to a permitted value (Encoder_N.incBacklash.length or Encoder_N.absBacklash.length).
3002	The compensation velocity of the backlash on reversal is limited to a permitted value (Encoder_N.incBacklash.velocity or Encoder_N.absBacklash.velocity).
3003	The value of the configuration data for the encoder system (.Encoder_N.encoderSystem) is limited to a permitted value.
3004	The value of the configuration data for the encoder resolution (rotary: .Encoder_N.incEncoder.incResolution, Encoder_N.absEncoder.absResolution; linear: Encoder_N.Resolution.distance) is limited to a permitted value.
3005	The value of the configuration data for the multiplication factor of the cyclical actual value (.Encoder_N.incEncoder.incResolutionMultiplierCyclic, Encoder_N.absEncoder.absResolutionMultiplierCyclic, Encoder_N.Resolution.multiplierCyclic) is limited to a permitted value.
3006	The value of the configuration data for the multiplication factor of the absolute value (Encoder_N.absEncoder.absResolutionMultiplierAbsolute) is limited to a permitted value.
3007	The value of the configuration data for the data length of the absolute value (Encoder_N.absEncoder.absDataLength) is limited to a permitted value.
3008	The value of the configuration data for the reference value of the Nact speed in the PROFIdrive telegram (Encoder_N.sensorNist.referenceValue) is limited to a permitted value.
3009	The load gear factor of the first data set is leading for the encoder simulation. The simulation with different load gear factors is not supported. The value of the configuration data for the load gear (DataSet_N.gear) is limited to the load gear ratio of the first data set.
4001	The delay time for the triggering of the standstill signal (StandStillSignal.delayTimeToActivate) is limited.
4002	The delay time until the position monitoring tolerance window is reached (PositionMonitoring.posWinToITime) is limited.
4003	The delay time until the activation of the position monitoring message (PositionMonitoring.posWinToIDelayTime) is limited.
4004	The delay time for the activation of the standstill monitoring message (StandStillMonitoring.delayTimeToActivate) is limited.
4005	The delay time of the actual value of the force/pressure entry monitoring (ForceControlRunningInWindowMonitoring.winToITime) is limited.
4006	The delay time until activation of the force/pressure entry monitoring (ForceControlRunningInWindowMonitoring.maxDelayTime) is limited.
4007	The delay time until activation of the force/pressure end value monitoring (ForceControlHeldValueMonitoring.delayTimeToActivate) is limited.

4008	The delay of the emergency ramp generator (EmergencyRampGenerator.maxDeceleration) is too small and set to the minimum possible value.
4009	The decay time constant of the friction compensation (Friction.decayTime) is limited.
4068	The maximum buffer length of the lag element in the balancing filter (Mode_2) is reached or exceeded. The lag element (maximum buffer length: 16 servo-cycles) is augmented by a PT1 element.
4069	The maximum buffer length of the lag component of the dynamic response compensation is reached or exceeded. The maximum value of this time constant is limited to 16 servo cycles. The buffer length of the lag element is maximum 16.

Additional information:	More detailed description of the error origin
Not relevant	

Description of the alarm parameters in the `_getControllerObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	LREAL
4	UDINT

Remedy

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE_CONTROLLER

Diagnostics buffer entry

No

30001 **Illegal parameter (parameter index according to standard sequence in the system functions: /1/%d, command type: /4/%X)**

Cause

Illegal parameter transfer to a system function. The command is not executed. This alarm occurs when the permissible parameter value range is violated. The permissible value range of the parameter is a function of its data type and the technological meaning of the parameter.

The parameter index indicates the position of the illegal parameter. The standard sequence of parameters in the system functions is apparent from the reference list associated with the command. The command type indicates the type of the faulty system function.

Meaning of alarm parameters

Parameter index:	Index of the system function parameter that triggered this error (listed according to the standard sequence in the system functions).
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getControllerObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the value range of the parameter data type.
- Check the technological meaning of the parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30002 Command aborted (reason: /1/%d, command type: /4/%X)

Additional references

Further information is provided in the Function Manual:

- Basic Functions and
- in the online help.

Cause

The command was aborted before or during execution.

This can be caused by:

- A substituted command
- Command buffer reset
- Error state

Note

This alarm is always output, e.g. for jogging (_move aborted with _stop) or for the retraction of the reference BERO for homing or when Synchronous operation (explicitly) deactivated.

Meaning of alarm parameters

Reason:	
1	Reset of the command buffer
2	Abort by another command
5	Abort by a pending error response
6	Abort due to ambiguous commandId
9	Abort due to abort of a dependent command
31	Maximum number of active commands exceeded
42	No interconnection to a technology object
44	Abort because of a pending command with identical command parameters

Command type:	Outputs the aborted command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getControllerObjectErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Set up the command again via program.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30003 Command aborted because of full command buffer (command type: /4/%X)

Cause

The command is not entered in the command buffer because the buffer is already full.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getControllerObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the program flow.
- Typical cause: The 'nextCommand' parameter is passed with the value 'IMMEDIATELY', and the 'mergeMode' parameter is passed with the value 'SEQUENTIAL'.
 - Synchronize the command execution in the user program so that the command buffer is not occupied when the command is issued.
 - Use other values for the 'nextCommand' or 'mergeMode' parameters. Setting the "nextCommand" to a value other than 'IMMEDIATELY' causes the program to wait for the command buffer to become available. In addition, setting a different 'mergeMode' means that the command buffer can be overwritten.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30004 **Command is not defined for this technology object type (command type: /4/%X)**

Cause

Command was programmed on a technology object type not supporting processing of this command.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getControllerObjectErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Issue the command on the correct technology object type.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30005 **Ambiguous commandId (number of commands with the specified ID: /1/%d, command type: /4/%X)**

Cause

The specified commandId refers to more than one command. The specified action is performed for the command matching the specified ID that has been in the interpolator for the longest time.

If no corresponding command is found in the interpolator, the action refers to the next command loaded in the interpolator.

Meaning of alarm parameters

Id:	Number of commands referenced by the specified command ID.
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the _getControllerObjectErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Use a different 'commandId' for commands that are active simultaneously.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30006 Command cannot be executed because of the current object state (command type: /4/%X)

Cause

A reset command is active at the object or the object is deactivated.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getControllerObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the following:

- Check the object status.
- Check the possible execution sequence of the programmed commands.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30007 The error cannot be reset because of its configuration

Cause

The 30007 alarm will be output when an alarm is reset that can only be acknowledged with PowerOn.

Example:

The internal 20001 error can only be acknowledged with PowerOn.

If an attempt is made to reset the alarm with a `_reset...Error` command, the 30007 alarm will be output.

Description of the alarm parameters in the `_getControllerObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

Check whether the errors present on the technology object can be acknowledged.

Correct the cause of the error and switch the CPU off/on or load the project again.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30008 **Link to a technology object necessary for this operation does not exist (command type: /4/%X)**

Cause

The object connection required for this operation has not been configured or the connected technology object has been deactivated.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getControllerObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the project configuration.
- Change the object connection in the command.
- Activate the connected technology object.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30009 **Command rejected as the decoding of the command of the technology object addressed has been deactivated/stopped (reason: /1/%d, command type: /4/%X)**

Cause

Command was rejected due to suspension of command decoding on the addressed technology object. The command decoding can be stopped by the DECODE_STOP alarm response, by deactivating or restarting the technology object, by starting the axis control panel in exclusive mode or by the absence of necessary interconnections.

Meaning of alarm parameters

Reason:	
1	Restart of the technology object
2	Technology object is deactivated
3	Technology object is in RUN mode.
4	Control panel active

Command type:	Outputs the type of the rejected command. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getControllerObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check why the command was rejected.
- If necessary, acknowledge any active errors once you have corrected the cause of the error.
- If the technology object is deactivated, you must activate it.
- Do not issue any commands while the technology object is restarting.
- Do not issue any commands while a connected technology object is restarting.
- Stop the axis control panel.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30010 Command not available (command type: /4/%X)

Cause

The command is not available in this version of the runtime software.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getControllerObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the version of the runtime software.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30011 **Parameter not available (parameter index according to the standard sequence in the system functions: /1/%d, command type: /4/%X)**

Cause

The parameter is not available in this version of the runtime software, the command is therefore rejected. The parameters indicate the position according to the standard sequence in the system functions and the command type of an incorrectly entered parameter.

Meaning of alarm parameters

Parameter index:	Index of the command parameter triggering this error according to the standard sequence in the system functions.
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getControllerObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the version of the runtime software.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30012 Command cannot be started synchronously (command type: /4/%X)

Cause

The command cannot be used within a 'BEGIN_SYNC' or 'END_SYNC' sequence. The command has only one return value in the user program, or the command is not capable of starting synchronously.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getControllerObjectErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Do not use this command type during a BEGIN_SYNC, END_SYNC sequence.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30013 Synchronous start of the command is carried out with mergeMode IMMEDIATELY (command type: /4/%X)

Cause

With synchronous command start, only merge modes that immediately override the current command (IMMEDIATELY) and superimpose the current command (SUPERIMPOSED_MOTION_MERGE) can be used.

If an illegal merge mode is programmed (e.g. SEQUENTIAL or NEXT_MOTION), the system automatically changes the merge mode to IMMEDIATELY and outputs this warning.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getControllerObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Program the command which is to be started synchronously to immediately override the current command. To do this, enter the value IMMEDIATELY in the 'mergeMode' command parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30015 **A technology required for this command has not been configured (technology: /1/%d, command type: /4/%X)**

Cause

The command cannot be selected in this technology object configuration.

Meaning of alarm parameters

Technology:	Not relevant
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the _getControllerObjectErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Activate the technology needed for the command.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

40001 Actual value violates upper limit

Cause

The actual value has exceeded the maximum permissible value of 1000000.

Remedy

Check the program and cycle time.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_CONTROLLER

Settable local reactions

NONE DECODE_STOP CONTROL_STOP DISABLE_CONTROLLER

Diagnostics buffer entry

No

40002 Actual value violates lower limit

Cause

The actual value is less than the minimum permissible value of -1000000.

Remedy

Check the program and cycle time.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_CONTROLLER

Settable local reactions

NONE DECODE_STOP CONTROL_STOP DISABLE_CONTROLLER

Diagnostics buffer entry

No

40003 Setpoint violates upper limit

Cause

The setpoint has exceeded the maximum permissible value of 1000000.

Remedy

Check the program and cycle time.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_CONTROLLER

Settable local reactions

NONE DECODE_STOP CONTROL_STOP DISABLE_CONTROLLER

Diagnostics buffer entry

No

40004 Setpoint violates lower limit

Cause

The setpoint is less than the minimum permissible value of -1000000.

Remedy

Check the program and cycle time.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_CONTROLLER

Settable local reactions

NONE DECODE_STOP CONTROL_STOP DISABLE_CONTROLLER

Diagnostics buffer entry

No

40005 Precontrol variable violates upper limit

Cause

The precontrol variable has exceeded its maximum permissible value of 1000000.

Remedy

Check the program and cycle time.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_CONTROLLER

Settable local reactions

NONE DECODE_STOP CONTROL_STOP DISABLE_CONTROLLER

Diagnostics buffer entry

No

40006 Precontrol variable violates lower limit

Cause

The precontrol variable is less than its minimum permissible value of -1000000.

Remedy

Check the program and cycle time.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_CONTROLLER

Settable local reactions

NONE DECODE_STOP CONTROL_STOP DISABLE_CONTROLLER

Diagnostics buffer entry

No

40007 Permissible control deviation exceeded

Cause

The control deviation value is greater than the configured maximum permissible value.

Remedy

- Check the controller parameters and the control error monitoring configuration.
- Make sure the control loop is closed and there are no errors in the sensor/actuator.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_CONTROLLER

Settable local reactions

NONE DECODE_STOP CONTROL_STOP DISABLE_CONTROLLER

Diagnostics buffer entry

No

40110 Error triggered on slave during Synchronous operation (error number: /1/%d, slave stopped: /2/%d)

Additional references

Further information is provided in the Function Manual:

- Technology Objects Synchronous Operation, Cam and
- in the online help.

Cause

An error was triggered on a slave during Synchronous operation and reported to the master.

Meaning of alarm parameters

Error number:	Error reported by slave:
1	Synchronous operation setpoint tolerance exceeded.
2	Synchronous operation actual-value tolerance exceeded.
3	General slave axis error.

Slave stopped:	Indicates whether the slave axis has switched to Stop mode:
0	The slave axis has not switched to Stop mode.
1	The slave axis has switched to Stop mode.

Description of the alarm parameters in the `_getControllerObjectErrorState` command:

No.	Data type
1	DINT
2	DINT

Remedy

Check the following:

- Configuration data for Synchronous operation monitoring on the slave
- Programming (dynamic parameters, Synchronous operation connection)
- System variables

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

CONTROL_STOP

Settable local reactions

NONE DECODE_STOP CONTROL_STOP DISABLE_CONTROLLER

Diagnostics buffer entry

No

4.3 FormulaObjectType

20001 Internal error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Error source
Parameters 2 to 4:	Fault number

Description of the alarm parameters in the `_getFormulaObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

DISABLE

Settable local reactions

DISABLE

Diagnostics buffer entry

Yes

20002 **Insufficient memory (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)**

Cause

The memory required by the system is no longer available.

This alarm can occur both during ramp-up and after program calls.

Meaning of alarm parameters

Parameter 1:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Parameters 2 to 4 are area-specific.

They are not fully utilized by all areas.

Command decoding area:

Parameters 2 and 4	refer to the command in which the error occurred.
Parameter 2:	Command return value
Parameter 4:	Command type

Description of the alarm parameters in the `_getFormulaObjectErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

- Reduce the size of the ST code.
- Reduce the number of technology objects.
- Reduce the number of interpolation points for cams, if present.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

DISABLE

Settable local reactions

DISABLE

Diagnostics buffer entry

Yes

20003 Internal configuration error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system

Parameters 2 to 4 are area-specific.

These parameters are not fully utilized by all areas.

Command decoding area:

Parameters 2 and 4	refer to the command in which the error occurred.
Parameter 2:	Command return value
Parameter 4:	Command type

Description of the alarm parameters in the `_getFormulaObjectErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

Yes

20004 Under logical address: /1/%d (bit number, if required: /2/%d) no driver (type: /3/%d) could be requested (error number: /4/%d)

Cause

The driver of a physical device or the device itself is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
	Not relevant

Description of the alarm parameters in the `_getFormulaObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT

Remedy

- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE

Settable local reactions

DISABLE

Diagnostics buffer entry

Yes

20005 Device type:/3/%d, log. address:/1/%d faulted. (Bit:/2/%d, encoder number:/5/%d, reason: 0x/4/%Xh)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

The driver of a physical device or the device itself has failed or is faulty.

If this alarm occurs, the cause of the error must be evaluated in the external device (drive or encoder).

Meaning of alarm parameters

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver
12	Safety data block driver
13	Update counter
14	Operating characteristics data block driver

Logical address:	This is the logical input address configured on the technology object.
Bit number:	For bit driver type = 3 or 4 only; number of the bit
Encoder number:	Number of the encoder in case of telegrams with multiple encoders. Applies only when type = 2.
Reason:	0 - only defined when type = 2

Note

Addition of error messages

The codings for the reason of the failure specified below for the individual alarm types can also occur in combination. A group coding is indicated as the sum of several individual codings (e.g. 0x0005 = 0x0001 + 0x0004).

A failure reason labeled with DP can occur only for PROFIBUS devices.

Type = 1	
0x0001h	Fault message from the drive (note: for PROFIBUS drives, which support acyclic communication in accordance with PROFIdrive V3, the error number(s) of the drive are displayed in the diagnostic buffer, e.g. for Masterdrives MC)
0x0002h	DP: Drive signal "control requested" failed
0x0004h	DP: Drive disconnected itself
0x0008h	Slot for drive data is not available in the project
0x0010h	Actuator driver does not have a connection to the drive data
0x0020h	Actuator driver was not initialized during ramp-up
0x0080h	DP: Difference between configuration data and drive parameters (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	DP: Control signals to the PROFIdrive state machine were incorrectly specified
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
0x8000h	DP: Life-sign of drive has malfunctioned or failed
0x80000000h	The drive interface has been deactivated for the pending enables.
Type = 2	
0x0000h	The actual value changes exceed the limit value derived from the maximum velocity (configuration data TypeOfAxis.MaxVelocity.maximum) over multiple cycles. This monitoring can be activated or deactivated with configuration data TypeOfAxis.NumberOfEncoders.Encoder_x.AbsEncoder.enableAbsMonitoring.
0x0001h	Alarm message from encoder (note: the encoder error number(s) are displayed in the diagnostic buffer)
0x0002h	General hardware error of encoder
0x0004h	Encoder is dirty
0x0008h	Slot for encoder data is not available in the project
0x0010h	Encoder driver does not have a connection to the encoder data
0x0020h	Encoder driver was not initialized during ramp-up
0x0040h	Error when reading the absolute value of the encoder
0x0080h	DP: Difference between the configuration data and the encoder parameters Onboard C2xx: Inconsistency of the configuration data (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	Zero mark monitoring of encoder
0x0200h	DP: Encoder has gone to Parked state
0x4000h	DP: Encoder on bus failed (station failure)

0x8000h	DP: Life-sign of encoder has malfunctioned or failed. (note: for an encoder whose data are transferred in a drive telegram together with actuator data, the actuator life-sign applies to the encoder, e.g. for standard telegram 3 in accordance with PROFIdrive)
0x80000000h	The sensor interface has been deactivated for the pending enables.
Type = 3...6	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 7	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 8	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 9	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 10	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 11	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 12	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 13	
0x1h	The actual value was specified via a system variable and the permissible number of failure cycles was exceeded
0x2h	The actual value was updated with an update counter in the I/O area and the permissible number of failure cycles was exceeded

Description of the alarm parameters in the `_getFormulaObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

The remedy for the respective type and cause is described below.

Type 1

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- A system fault may be present. Call the hotline.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- When sign-of-life monitoring is set: Ensure that in HW Config for drive under DP slave properties - isochronous operation - drive, the "synchronize to equidistant DP cycle" field is activated.
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
- Up to SIMOTION RT V4.3: If the alarm occurs after the download on a drive with telegram 999: Compare the parameterized bit position for the "Pulses enabled" status signal in drive parameter p924 with the configuration data 'DriveControlConfig.PulsesEnabled' of the TO axis. In this case, there is not necessarily an incorrect parameterization and therefore a check cannot be performed by the system because of the BICO interconnection. Therefore, make sure that the Pulses enabled bit is in the correct position.

For reason 0x0100

- Correct your user program with regard to PROFIdrive-compliant specification of control bits in the _enable/disableAxis commands, e.g. control signal OFF (STW1.0 = false) must precede a drive connection.

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 2

For reason 0x0000

- Check the absolute encoder functions, connections and configuration. Take note of this when monitoring is deactivated (not with Alarm 20015).

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- Make sure that the user program does not reference a technology object containing an encoder (Axis, External Encoder) with an '_enableaxis' or '_enableexternalencoder' command while system variable 'sensordata.sensordata[n].state' is signaling invalid.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0040

- Compare the encoder type in the drive or encoder parameter P979 with the configuration data of the technology object.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
 - Compare the encoder type, resolution, shift factor, and, in the case of absolute encoders, the number of rotations in the drive or encoder parameter P979 to the encoder type, resolution, fine resolution, and, in the case of absolute encoders, the data length in the configuration data of the technology object.
- When using telegram 999, this message always appears, as the bit position is not checked by the system in this case, but has to be performed by the user.

For reason 0x0100

- Check the device functions, connections and wiring.

For reason 0x0200

- Find the cause of the error in the connected drive or encoder. Check whether the alarm was triggered due to a commissioning operation on the drive or encoder.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 3 - Type 6For reason 0x0000

- Check the configuration and the signal paths of the connection.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 7For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 8For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 9For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 10For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 11 - Type 12For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring. If the error cannot be acknowledged when the axis is in simulation mode, check whether the technology data block is activated, and if this is the case, deactivate it.

Type 13

For reason 0x1

- Check the specification of the actual value with regard to function, configuration, and task configuration.

For reason 0x2

- Check the device functions, configuration, connections and wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE

Settable local reactions

DISABLE

Diagnostics buffer entry

Yes

20006 Configuration error (category: /1/%d, error number: /2/%d, additional information: /3/%d)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

This alarm indicates error states caused by a faulty or inconsistent configuration. The technology objects perform a plausibility check on the configuration. Errors are identified by the error codes below.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of the error
500	Illegal technology object configuration state.
501	More configuration data expected than received.
502	Invalid configuration data.
503	Version conflict in configuration.
504	The configured task level is not supported by this TO.
505	The value range of the maximum number of command IDs has been violated.
506	The configured task level is not supported by the used hardware.
1001	Error in configuration data numberOfMaxBufferedCommandId
1002	Error in configuration data MotionIn.behaviorByInvalidInterface
1003	Error in configuration data DINTOut.behaviorByInvalidInterface
1004	Error in configuration data LREALOut.behaviorByInvalidInterface
1005	Error in configuration data MotionOut.errorBehaviorMode
1006	Error in configuration data DINTOut.errorBehaviorMode
1007	Error in configuration data LREALOut.errorBehaviorMode

Additional information:	More detailed description of the error origin
	Not relevant

Description of the alarm parameters in the `_getFormulaObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT

Remedy

Change the configuration data.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE

Settable local reactions

DISABLE

Diagnostics buffer entry

Yes

20007 Interconnection error (category: /1/%d, context: /2/%d, context parameter1: /3/%d, context parameter2: /4/%d)

Cause

This alarm indicates errors in the interconnection of technology objects. When the interconnection is established, the technology object verifies it on the basis of the interface properties. Errors are classified by category.

Additional information for a more detailed description of the error can be output from the context. An error context is output for selected error categories. Additional context parameters can be output for a context, if necessary. Context and context parameters are output as an integer value.

Meaning of alarm parameters

Category:	
1	Technology object compatibility error An interconnection is to be established with a technology object that has been configured with another reference system (e.g. output cams with rotary reference system and linear axis).
2	Exclusive interface An interface on a technology object that can only be connected to another technology object using one coupling type should be interconnected using different, mutually exclusive couplings. For example, the master value interface on a positioning axis for an interconnected synchronous object can only be operated as a setpoint or an actual value coupling.
3	Interconnection request The technology object awaits the interconnection to another technology object (necessary interconnection) in order to provide its functionality. Thus, for example, the interconnection to a gear axis is a required interconnection on a synchronous object.
4	Error during interface initialization The alarm is output in the event of initialization errors when connecting interfaces on the technology object.
5	Interface not available on technology object An interface required in the interconnection is not available on the technology object.
6	Recursion The interconnection on the technology object results in a recursion in the execution system of the technology package. The technology object does not support recursive execution.
7	Execution level compatibility error An interconnection is to be established with a technology object that is classified in a different execution level (e.g. output cam in execution level IPO and axis in execution level IPO_2). The technology object does not support interconnection to technology objects of other execution levels.
8	Initialization distribution In the case of interconnected technology objects that are distributed among different devices, an error occurred during initialization of the communication.

9	<p>Illegal TO state The technology object cannot be interconnected in the current state. A technology object can be interconnected only after the configuration has been successfully completed. Refer to the diagnostic buffer to determine the exact cause of the error. The cause of the illegal TO state is entered there (e.g. a level overflow during the configuration phase) and can then be corrected (in the example, by allowing level overflows in the task configuration).</p>
10	<p>Interface assignment The configured interface via which the technology object communicates cannot be used from the processing cycle clock of the technology object.</p>
11	<p>Active command in recursive TO interconnection The interconnection of the technology object and the enable state at its inputs result in an active recursive interconnection (positive feedback).</p>

Description of the alarm parameters in the `_getFormulaObjectErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

Context / context parameter:

Contact the hotline and provide the name of the context parameter.

Category:

1 - Technology object compatibility error

Check the configuration and set a common reference system for the technology objects to be interconnected.

2 - Exclusive interface

Ensure that the project is consistent. Contact the hotline, if necessary.

3 - Interconnection request

Ensure that the project is consistent. The missing interconnection on the technology object is specified in the context:

Context

TO type

Interface

4 - Error during interface initialization

Contact the hotline and provide the name of the context parameter.

5 - Interface not available on technology object

Contact the hotline and provide the name of the context parameter.

6 - Recursion

Check the interconnection topology of your project. Remove unnecessary interconnections.

7 - Execution level compatibility error

Select a common execution level in the configuration for the technology objects to be interconnected (e.g. output cam and axis in IPO_2).

8 - Initialization distribution

- Ensure that your project is consistent. For proper configuration of communication, all devices must be compiled ('Project/Save and compile all' or "Save and compile all new').
- Determine whether all devices are selected for loading the project ('Target system/Select target devices...').
- Check whether the configured bus topology matches the actual bus topology.
- Ensure that the devices are linked in the bus configuration (PROFIBUS).
- Check whether isochronous operation was selected.
- In addition, the address areas that are used by the devices for communication must be set up. The address areas are automatically set up when the project is compiled; only afterwards is the valid hardware configuration available for downloading. Do not change automatically generated address areas afterwards.
- Contact the hotline and provide the name of the context parameter.

9 - Illegal technology object state

- Correct the configuration of the technology object.
- Eliminate the execution error.

10 - Interface assignment

- Configure the bus interface to match the processing cycle clock (e.g. fast bus system and axis in FastIPO).

11 - Active command in recursive TO interconnection

- Inputs of technology objects can already be enabled during the download (e.g. TO AdditionObjectType). Remove or change the relevant interconnection on the technology object or switch a technology object, whose input is enabled by the user program and not already by the download, into the positive feedback branch.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE

Settable local reactions

DISABLE

Diagnostics buffer entry

Yes

20008 Assignment of USER_DEFAULT to system variables is not possible**Cause**

It is not appropriate to assign USER_DEFAULT to a UserDefault system variable, because the variable references itself in this case.

As a result, a meaningful value cannot be generated on readout. When this error occurs, the new Enum value is not assigned. The variable retains the old value.

Remedy

USER_DEFAULT is intended for use in technology commands. Avoid assigning it to system variables.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE

Diagnostics buffer entry

No

20009 **Reserved error**

Cause

This error is not currently in use.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE

Settable local reactions

DISABLE

Diagnostics buffer entry

Yes

20010 A restart is required to activate the configuration data**Cause**

The configuration cannot be activated, since data has been modified preventing the activation. The technology object must be restarted to activate the data.

Remedy

- Execute the technology object reset command, and set the 'activateRestart' parameter to 'ACTIVATE_RESTART'.
- Set the 'restartActivation' system variable to 'ACTIVATE_RESTART'.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

20011 **Error occurred while activating the configuration (category: /1/%d, error number: /2/%d, additional information: /3/%d)**

Cause

This alarm indicates error conditions when activating the configuration. The error conditions can be traced back to an incorrect or inconsistent configuration. The technology objects perform a plausibility check on the configuration. Errors are identified by the error codes below. The configuration is not activated when this alarm occurs.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of the error
500	Illegal technology object configuration state.
501	More configuration data expected than received.
502	Invalid configuration data.
503	Version conflict in configuration.
504	The configured task level is not supported by this TO.
505	The value range of the maximum number of command IDs has been violated.
506	The configured task level is not supported by the used hardware.
1001	Error in configuration data numberOfMaxBufferedCommandId
1002	Error in configuration data MotionIn.behaviorByInvalidInterface
1003	Error in configuration data DINTOut.behaviorByInvalidInterface
1004	Error in configuration data LREALOut.behaviorByInvalidInterface
1005	Error in configuration data MotionOut.errorBehaviorMode
1006	Error in configuration data DINTOut.errorBehaviorMode
1007	Error in configuration data LREALOut.errorBehaviorMode

Additional information:	More detailed description of the error origin
	Not relevant

Description of the alarm parameters in the `_getFormulaObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT

Remedy

Change the configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

20012 Restart not carried out (reason: /1/%d)

Cause

Technology object could not be restarted.

Meaning of alarm parameters

Reason:	
1	The technology object configuration does not allow a restart with the restart system variable.
2	The technology object is not ready to be restarted.
3	A configured condition for restarting the technology object is not met (e.g. technology object must be 'disabled').
4	Restart was not performed with the last programmed configuration of the technology object because this is faulty
5	The configuration of the technology object does not permit any restart.

Description of the alarm parameters in the `_getFormulaObjectErrorState` command:

No.	Data type
1	DINT

Remedy

Reason:	
1	Initiate the restart using the reset command.
2	Reload the project.
3	Work around the cause stated in the Reason parameter, or reload the project.
4	Determine whether technological alarms were reported or error entries were made in the device diagnostics and, if necessary, remedy the cause.
5	Change the configuration to activate the appropriate restart capability.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

20014 Under logical address: /1/%d (optional log. address: /2/%d and bit no.: /3/%d of the enable output), a driver (type: /4/%d) could not be requested

Cause

The driver of a physical device is not available or is being used by another technology object.

The enable command for the technology object has been issued more than once with the 'immediately' stepping condition.

Meaning of alarm parameters

Logical address:	This is the address of the actuator driver configured on the technology object.
Logical address and bit number:	This specifies the address and bit number of the output enable bit.

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver

Description of the alarm parameters in the _getFormulaObjectErrorState command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	DINT

Remedy

- Do not call the enable command cyclically "call the enable command only once for the axis enable".
- Check that the logical device was available at the time of the request or whether it was being used by another technology object.
- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE

Settable local reactions

DISABLE

Diagnostics buffer entry

Yes

20015 Device type:/3/%d, log. address:/1/%d faulted. (Bit:/2/%d, encoder number:/5/%d, reason: 0x/4/%Xh)

Cause

The driver of a physical device or the device itself has failed or is faulty.

If this alarm occurs, the cause of the error must be evaluated in the external device (drive or encoder).

Meaning of alarm parameters

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver
12	Safety data block driver
13	Update counter
14	Operating characteristics data block driver

Logical address:	This is the logical input address configured on the technology object.
Bit number:	For bit driver type = 3 or 4 only; number of the bit
Encoder number:	Number of the encoder in case of telegrams with multiple encoders. Applies only when type = 2.
Reason:	0 - only defined when type = 2

Note

Addition of error messages

The codings for the reason of the failure specified below for the individual alarm types can also occur in combination. A group coding is indicated as the sum of several individual codings (e.g. 0x0005 = 0x0001 + 0x0004).

A failure reason labeled with DP can occur only for PROFIBUS devices.

Type = 1	
0x0001h	Fault message from the drive (note: for PROFIBUS drives, which support acyclic communication in accordance with PROFIdrive V3, the error number(s) of the drive are displayed in the diagnostic buffer, e.g. for Masterdrives MC)
0x0002h	DP: Drive signal "control requested" failed
0x0004h	DP: Drive disconnected itself
0x0008h	Slot for drive data is not available in the project
0x0010h	Actuator driver does not have a connection to the drive data
0x0020h	Actuator driver was not initialized during ramp-up
0x0080h	DP: Difference between configuration data and drive parameters (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	DP: Control signals to the PROFIdrive state machine were incorrectly specified
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
0x8000h	DP: Life-sign of drive has malfunctioned or failed
0x80000000h	The drive interface has been deactivated for the pending enables.
Type = 2	
0x0000h	The actual value changes exceed the limit value derived from the maximum velocity (configuration data TypeOfAxis.MaxVelocity.maximum) over multiple cycles. This monitoring can be activated or deactivated with configuration data TypeOfAxis.NumberOfEncoders.Encoder_x.AbsEncoder.enableAbsMonitoring.
0x0001h	Alarm message from encoder (note: the encoder error number(s) are displayed in the diagnostic buffer)
0x0002h	General hardware error of encoder
0x0004h	Encoder is dirty
0x0008h	Slot for encoder data is not available in the project
0x0010h	Encoder driver does not have a connection to the encoder data
0x0020h	Encoder driver was not initialized during ramp-up
0x0040h	Error when reading the absolute value of the encoder
0x0080h	DP: Difference between the configuration data and the encoder parameters Onboard C2xx: Inconsistency of the configuration data (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	Zero mark monitoring of encoder
0x0200h	DP: Encoder has gone to Parked state
0x4000h	DP: Encoder on bus failed (station failure)

0x8000h	DP: Life-sign of encoder has malfunctioned or failed. (note: for an encoder whose data are transferred in a drive telegram together with actuator data, the actuator life-sign applies to the encoder, e.g. for standard telegram 3 in accordance with PROFIdrive)
0x80000000h	The sensor interface has been deactivated for the pending enables.
Type = 3...6	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 7	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 8	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 9	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 10	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 11	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 12	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 13	
0x1h	The actual value was specified via a system variable and the permissible number of failure cycles was exceeded
0x2h	The actual value was updated with an update counter in the I/O area and the permissible number of failure cycles was exceeded

Description of the alarm parameters in the `_getFormulaObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

The remedy for the respective type and cause is described below.

Type 1

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- A system fault may be present. Call the hotline.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- When sign-of-life monitoring is set: Ensure that in HW Config for drive under DP slave properties - isochronous operation - drive, the "synchronize to equidistant DP cycle" field is activated.
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
- Up to SIMOTION RT V4.3: If the alarm occurs after the download on a drive with telegram 999: Compare the parameterized bit position for the "Pulses enabled" status signal in drive parameter p924 with the configuration data 'DriveControlConfig.PulsesEnabled' of the TO axis. In this case, there is not necessarily an incorrect parameterization and therefore a check cannot be performed by the system because of the BICO interconnection. Therefore, make sure that the Pulses enabled bit is in the correct position.

For reason 0x0100

- Correct your user program with regard to PROFIdrive-compliant specification of control bits in the _enable/disableAxis commands, e.g. control signal OFF (STW1.0 = false) must precede a drive connection.

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 2For reason 0x0000

- Check the absolute encoder functions, connections and configuration. Take note of this when monitoring is deactivated (not with Alarm 20015).

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- Make sure that the user program does not reference a technology object containing an encoder (Axis, External Encoder) with an '_enableaxis' or '_enableexternalencoder' command while system variable 'sensordata.sensordata[n].state' is signaling invalid.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0040

- Compare the encoder type in the drive or encoder parameter P979 with the configuration data of the technology object.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
 - Compare the encoder type, resolution, shift factor, and, in the case of absolute encoders, the number of rotations in the drive or encoder parameter P979 to the encoder type, resolution, fine resolution, and, in the case of absolute encoders, the data length in the configuration data of the technology object.
- When using telegram 999, this message always appears, as the bit position is not checked by the system in this case, but has to be performed by the user.

For reason 0x0100

- Check the device functions, connections and wiring.

For reason 0x0200

- Find the cause of the error in the connected drive or encoder. Check whether the alarm was triggered due to a commissioning operation on the drive or encoder.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 3 - Type 6

For reason 0x0000

- Check the configuration and the signal paths of the connection.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 7

For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 8

For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 9

For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 10

For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 11 - Type 12

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring. If the error cannot be acknowledged when the axis is in simulation mode, check whether the technology data block is activated, and if this is the case, deactivate it.

Type 13For reason 0x1

- Check the specification of the actual value with regard to function, configuration, and task configuration.

For reason 0x2

- Check the device functions, configuration, connections and wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

Yes

20016 Under logical address: /1/%d (bit number, if required: /2/%d) no driver (type: /3/%d) activated (error number: /4/%d)

Cause

The driver of a physical device or the device itself is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
	Not relevant

Description of the alarm parameters in the `_getFormulaObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT

Remedy

- Check the activation/deactivation sequence for the interface.
- Note the runtimes of the commands and use the provided command control mechanisms (e.g. nextCommand := WHEN_COMMAND_DONE).
- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE

Settable local reactions

DISABLE

Diagnostics buffer entry

Yes

20017 Internal algorithm error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Error source
Parameters 2 to 4:	Fault number

Description of the alarm parameters in the `_getFormulaObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact:

SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE

Settable local reactions

DISABLE

Diagnostics buffer entry

Yes

20018 Attempt to write the bit(s): 0x/1/%Xh in control word1 or the bit(s): 0x/2/%Xh in control word2 under the log. address: /3/%d has been rejected.

Cause

An attempt to write certain bits in control word 1 or 2 has been rejected.

Meaning of alarm parameters

Bits:	Display of bits which could not be written
Log. address:	Logical address of the device driver

Description of the alarm parameters in the `_getFormulaObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT

Remedy

- Check the order of commands, particularly in relation to `_enableAxis(...)`.
- Check the command parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE

Diagnostics buffer entry

Yes

20019 Error for the commissioning, reason: /1/%d (Parameter1: /2/%d, Parameter2: /3/%d)

Cause

A commissioning function could not be executed.

Meaning of alarm parameters

Reason:	
1	Failure of the life-sign between controller and SIMOTION SCOUT
2	Protocol error
3	Command decoding error

Description of the alarm parameters in the _getFormulaObjectErrorState command:

No.	Data type
1	DINT
2	UDINT
3	UDINT

Remedy

Reason:	
1	Check the connection properties. If required, increase the monitoring time.
2	Should a system error of this type occur, note the alarm number, the alarm text and the specified alarm parameters, and contact: SIEMENS AG I DT MC, Hotline.
3	Should a system error of this type occur, note the alarm number, the alarm text and the specified alarm parameters, and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / NONE

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

Yes

20020 Output deactivated

Cause

One or more outputs of the technology object have been deactivated. This is caused by the output-disable device status.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

20021 Configuration will be adapted internally (category: /1/%d, reason: /2/%d, limited value: /3/%f, additional information: /4/%d)

Cause

This alarm shows the implicit setting of configuration data to the maximum possible values. The technology objects perform a plausibility check on the configuration. Errors/manipulations are identified by the error codes below.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of configuration data
2001	Illegal value for maxSpeed (maxSpeed less than or equal to 2*nominalSpeed; maxSpeed will be set to 2*nominalSpeed)
2002	Illegal value for maxTorque/Force (maxTorque/Force less than or equal to 2*nominalTorque/Force; maxTorque/Force will be set to 2*nominalTorque/Force)
2003	Error during the adaptation of the Torque-/ForceReductionGranularity. p1544 is ignored and the default value used.
3001	The length of the backlash on reversal is limited to a permitted value (Encoder_N.incBacklash.length or Encoder_N.absBacklash.length).
3002	The compensation velocity of the backlash on reversal is limited to a permitted value (Encoder_N.incBacklash.velocity or Encoder_N.absBacklash.velocity).
3003	The value of the configuration data for the encoder system (.Encoder_N.encoderSystem) is limited to a permitted value.
3004	The value of the configuration data for the encoder resolution (rotary: .Encoder_N.incEncoder.incResolution, Encoder_N.absEncoder.absResolution; linear: Encoder_N.Resolution.distance) is limited to a permitted value.
3005	The value of the configuration data for the multiplication factor of the cyclical actual value (.Encoder_N.incEncoder.incResolutionMultiplierCyclic, Encoder_N.absEncoder.absResolutionMultiplierCyclic, Encoder_N.Resolution.multiplierCyclic) is limited to a permitted value.
3006	The value of the configuration data for the multiplication factor of the absolute value (Encoder_N.absEncoder.absResolutionMultiplierAbsolute) is limited to a permitted value.
3007	The value of the configuration data for the data length of the absolute value (Encoder_N.absEncoder.absDataLength) is limited to a permitted value.
3008	The value of the configuration data for the reference value of the Nact speed in the PROFIdrive telegram (Encoder_N.sensorNist.referenceValue) is limited to a permitted value.
3009	The load gear factor of the first data set is leading for the encoder simulation. The simulation with different load gear factors is not supported. The value of the configuration data for the load gear (DataSet_N.gear) is limited to the load gear ratio of the first data set.
4001	The delay time for the triggering of the standstill signal (StandStillSignal.delayTimeToActivate) is limited.
4002	The delay time until the position monitoring tolerance window is reached (PositionMonitoring.posWinToITime) is limited.
4003	The delay time until the activation of the position monitoring message (PositionMonitoring.posWinToIDelayTime) is limited.
4004	The delay time for the activation of the standstill monitoring message (StandStillMonitoring.delayTimeToActivate) is limited.
4005	The delay time of the actual value of the force/pressure entry monitoring (ForceControlRunningInWindowMonitoring.winToITime) is limited.
4006	The delay time until activation of the force/pressure entry monitoring (ForceControlRunningInWindowMonitoring.maxDelayTime) is limited.
4007	The delay time until activation of the force/pressure end value monitoring (ForceControlHeldValueMonitoring.delayTimeToActivate) is limited.

4008	The delay of the emergency ramp generator (EmergencyRampGenerator.maxDeceleration) is too small and set to the minimum possible value.
4009	The decay time constant of the friction compensation (Friction.decayTime) is limited.
4068	The maximum buffer length of the lag element in the balancing filter (Mode_2) is reached or exceeded. The lag element (maximum buffer length: 16 servo-cycles) is augmented by a PT1 element.
4069	The maximum buffer length of the lag component of the dynamic response compensation is reached or exceeded. The maximum value of this time constant is limited to 16 servo cycles. The buffer length of the lag element is maximum 16.

Additional information:	More detailed description of the error origin
Not relevant	

Description of the alarm parameters in the `_getFormulaObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	LREAL
4	UDINT

Remedy

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

30001 **Illegal parameter (parameter index according to standard sequence in the system functions: /1/%d, command type: /4/%X)**

Cause

Illegal parameter transfer to a system function. The command is not executed. This alarm occurs when the permissible parameter value range is violated. The permissible value range of the parameter is a function of its data type and the technological meaning of the parameter.

The parameter index indicates the position of the illegal parameter. The standard sequence of parameters in the system functions is apparent from the reference list associated with the command. The command type indicates the type of the faulty system function.

Meaning of alarm parameters

Parameter index:	Index of the system function parameter that triggered this error (listed according to the standard sequence in the system functions).
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getFormulaObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the value range of the parameter data type.
- Check the technological meaning of the parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

30002 Command aborted (reason: /1/%d, command type: /4/%X)

Additional references

Further information is provided in the Function Manual:

- Basic Functions and
- in the online help.

Cause

The command was aborted before or during execution.

This can be caused by:

- A substituted command
- Command buffer reset
- Error state

Note

This alarm is always output, e.g. for jogging (`_move` aborted with `_stop`) or for the retraction of the reference BERO for homing or when Synchronous operation (explicitly) deactivated.

Meaning of alarm parameters

Reason:	
1	Reset of the command buffer
2	Abort by another command
5	Abort by a pending error response
6	Abort due to ambiguous commandId
9	Abort due to abort of a dependent command
28	Active command in recursive TO interconnection
31	Maximum number of active commands exceeded
42	No interconnection to a technology object
44	Abort because of a pending command with identical command parameters

Command type:	Outputs the aborted command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getFormulaObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Set up the command again via program.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

30003 Command aborted because of full command buffer (command type: /4/%X)

Cause

The command is not entered in the command buffer because the buffer is already full.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getFormulaObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the program flow.
- Typical cause: The 'nextCommand' parameter is passed with the value 'IMMEDIATELY', and the 'mergeMode' parameter is passed with the value 'SEQUENTIAL'.
 - Synchronize the command execution in the user program so that the command buffer is not occupied when the command is issued.
 - Use other values for the 'nextCommand' or 'mergeMode' parameters. Setting the "nextCommand" to a value other than 'IMMEDIATELY' causes the program to wait for the command buffer to become available. In addition, setting a different 'mergeMode' means that the command buffer can be overwritten.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

30004 Command is not defined for this technology object type (command type: /4/%X)

Cause

Command was programmed on a technology object type not supporting processing of this command.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getFormulaObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Issue the command on the correct technology object type.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

30005 **Ambiguous commandId (number of commands with the specified ID: /1/%d, command type: /4/%X)**

Cause

The specified commandId refers to more than one command. The specified action is performed for the command matching the specified ID that has been in the interpolator for the longest time.

If no corresponding command is found in the interpolator, the action refers to the next command loaded in the interpolator.

Meaning of alarm parameters

Id:	Number of commands referenced by the specified command ID.
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getFormulaObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Use a different 'commandId' for commands that are active simultaneously.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

30006 Command cannot be executed because of the current object state (command type: /4/%X)

Cause

A reset command is active at the object or the object is deactivated.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getFormulaObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the following:

- Check the object status.
- Check the possible execution sequence of the programmed commands.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

30007 The error cannot be reset because of its configuration

Cause

The 30007 alarm will be output when an alarm is reset that can only be acknowledged with PowerOn.

Example:

The internal 20001 error can only be acknowledged with PowerOn.

If an attempt is made to reset the alarm with a `_reset...Error` command, the 30007 alarm will be output.

Description of the alarm parameters in the `_getFormulaObjectErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

Check whether the errors present on the technology object can be acknowledged.

Correct the cause of the error and switch the CPU off/on or load the project again.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

30008 **Link to a technology object necessary for this operation does not exist (command type: /4/%X)**

Cause

The object connection required for this operation has not been configured or the connected technology object has been deactivated.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getFormulaObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the project configuration.
- Change the object connection in the command.
- Activate the connected technology object.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

30009 Command rejected as the decoding of the command of the technology object addressed has been deactivated/stopped (reason: /1/%d, command type: /4/%X)

Cause

Command was rejected due to suspension of command decoding on the addressed technology object. The command decoding can be stopped by the DECODE_STOP alarm response, by deactivating or restarting the technology object, by starting the axis control panel in exclusive mode or by the absence of necessary interconnections.

Meaning of alarm parameters

Reason:	
1	Restart of the technology object
2	Technology object is deactivated
3	Technology object is in RUN mode.
4	Control panel active

Command type:	Outputs the type of the rejected command. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getFormulaObjectErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check why the command was rejected.
- If necessary, acknowledge any active errors once you have corrected the cause of the error.
- If the technology object is deactivated, you must activate it.
- Do not issue any commands while the technology object is restarting.
- Do not issue any commands while a connected technology object is restarting.
- Stop the axis control panel.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

30010 Command not available (command type: /4/%X)

Cause

The command is not available in this version of the runtime software.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getFormulaObjectErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the version of the runtime software.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

30011 **Parameter not available (parameter index according to the standard sequence in the system functions: /1/%d, command type: /4/%X)**

Cause

The parameter is not available in this version of the runtime software, the command is therefore rejected. The parameters indicate the position according to the standard sequence in the system functions and the command type of an incorrectly entered parameter.

Meaning of alarm parameters

Parameter index:	Index of the command parameter triggering this error according to the standard sequence in the system functions.
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getFormulaObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the version of the runtime software.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

30012 Command cannot be started synchronously (command type: /4/%X)

Cause

The command cannot be used within a 'BEGIN_SYNC' or 'END_SYNC' sequence. The command has only one return value in the user program, or the command is not capable of starting synchronously.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getFormulaObjectErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Do not use this command type during a BEGIN_SYNC, END_SYNC sequence.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

30013 Synchronous start of the command is carried out with mergeMode IMMEDIATELY (command type: /4/%X)

Cause

With synchronous command start, only merge modes that immediately override the current command (IMMEDIATELY) and superimpose the current command (SUPERIMPOSED_MOTION_MERGE) can be used.

If an illegal merge mode is programmed (e.g. SEQUENTIAL or NEXT_MOTION), the system automatically changes the merge mode to IMMEDIATELY and outputs this warning.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getFormulaObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Program the command which is to be started synchronously to immediately override the current command. To do this, enter the value IMMEDIATELY in the 'mergeMode' command parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

30015 A technology required for this command has not been configured (technology: /1/%d, command type: /4/%X)

Cause

The command cannot be selected in this technology object configuration.

Meaning of alarm parameters

Technology:	Not relevant
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the _getFormulaObjectErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Activate the technology needed for the command.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE

Diagnostics buffer entry

No

40001 Interface could not be activated (interface: 0x/1/%Xh)**Cause**

The interface could not be activated because a connection to this interface was not configured.

Meaning of alarm parameters

Interface:	
0x000001h	MotionIn1
0x000002h	MotionIn2
0x000004h	MotionIn3
0x000010h	DINTIn1
0x000020h	DINTIn2
0x000040h	DINTIn3
0x000080h	DINTIn4
0x000100h	LREALIn1
0x000200h	LREALIn2
0x000400h	LREALIn3
0x000800h	LREALIn4
0x001000h	MotionOut1
0x002000h	MotionOut2
0x004000h	MotionOut3
0x010000h	DINTOut1
0x020000h	DINTOut2
0x040000h	DINTOut3
0x080000h	DINTOut4
0x100000h	LREALOut1
0x200000h	LREALOut2
0x400000h	LREALOut3
0x800000h	LREALOut4

Description of the alarm parameters in the `_getFormulaObjectErrorState` command:

No.	Data type
1	UDINT

Remedy

- Check the command for activating the interface.
- Interconnect the interface to be activated.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE STOP_ALL_FORMULA

Diagnostics buffer entry

No

40110 Error triggered on slave during Synchronous operation (error number: /1/%d, slave stopped: /2/%d, motion output: /3/%d)

Additional references

Further information is provided in the Function Manual:

- Technology Objects Synchronous Operation, Cam and
- in the online help.

Cause

An error was triggered on a slave during Synchronous operation and reported to the master.

Meaning of alarm parameters

Error number:	Error reported by slave:
1	Synchronous operation setpoint tolerance exceeded.
2	Synchronous operation actual-value tolerance exceeded.
3	General slave axis error.

Slave stopped:	Indicates whether the slave axis has switched to Stop mode:
0	The slave axis has not switched to Stop mode.
1	The slave axis has switched to Stop mode.

Motion output:	Specifies the motion output to which the error-causing slave axis is interconnected.
1	The error-causing slave axis is interconnected with the first motion output.
2	The error-causing slave axis is interconnected with the second motion output.
3	The error-causing slave axis is interconnected with the third motion output.

Description of the alarm parameters in the `_getFormulaObjectErrorState` command:

No.	Data type
1	DINT
2	DINT
3	DINT

Remedy

Check the following:

- Configuration data for Synchronous operation monitoring on the slave
- Programming (dynamic parameters, Synchronous operation connection)
- System variables

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

STOP_ALL_FORMULA

Settable local reactions

NONE DISABLE STOP_ALL_FORMULA

Diagnostics buffer entry

No

40301 Error while compiling a formula expression (formula number: /1/%d, reason: /2/%d)**Additional references**

Further information is provided in the Function Manual:

- Technology Objects Synchronous Operation, Cam and
- in the online help.

Cause

An error occurred when compiling a formula expression.

Meaning of alarm parameters

Formula number:

Number of formula that triggered this error.

Reason:	
1	Fatal PARSER error
2	Fatal EXPRESSION error
3	Character unknown
4	Illegal value specified for data type
5	Expression expected
6	Variable identifier expected
7	Type conflict in expression
8	Variable cannot be accessed
9	Return value expected
10	Function argument expected
11	Number of arguments when called does not tally with declaration
12	Function parameter has no default value
13	Constant value outside definition range
14	Cannot be divided by 0
15	Function parameter already in call
16	Type conflict in expression (conversion not possible)
17	Type conflict in expression (operation incompatible with data type)
18	Mixed use of function argument assignments and position parameters is not permitted
19	Variable must be directly accessible input or output I/O
20	Syntax errors
21	Construct not supported in this version

Description of the alarm parameters in the `_getFormulaObjectErrorState` command:

No.	Data type
1	UDINT
2	DINT

Remedy

Check and modify the relevant formula expression.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE

Settable local reactions

NONE DISABLE STOP_ALL_FORMULA

Diagnostics buffer entry

No

40302 Warning while compiling a formula expression (formula number: /1/%d, reason: /2/%d)**Additional references**

Further information is provided in the Function Manual:

- Technology Objects Synchronous Operation, Cam and
- in the online help.

Cause

A warning occurred when compiling a formula expression.

Meaning of alarm parameters

Formula number:	Number of formula that triggered this error.
Reason:	
1	Data type of comparison operation not specified.
2	Constant rounded to next value that can be displayed.
3	Data type conversion between signed and unsigned.

Description of the alarm parameters in the _getFormulaObjectErrorState command:

No.	Data type
1	UDINT
2	DINT

Remedy

Check and modify the relevant formula expression, if necessary.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE STOP_ALL_FORMULA

Diagnostics buffer entry

No

40303 Division by 0 while calculating a formula expression (formula number: /1/%d)

Cause

A division by 0 occurred when calculating a formula expression.

Meaning of alarm parameters

Formula number:	Number of formula that triggered this error.
------------------------	--

Description of the alarm parameters in the _getFormulaObjectErrorState command:

No.	Data type
1	UDINT

Remedy

Check and modify the relevant formula expression, if necessary.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE

Settable local reactions

DISABLE STOP_SPECIFIC_FORMULA STOP_ALL_FORMULA

Diagnostics buffer entry

No

40304 Overflow in LREAL operation during calculation of a formula expression (formula number: /1/%d)**Cause**

An overflow occurred in an LREAL operation during calculation of a formula expression.

Meaning of alarm parameters

Formula number:	Number of formula that triggered this error.
------------------------	--

Description of the alarm parameters in the _getFormulaObjectErrorState command:

No.	Data type
1	UDINT

Remedy

Check and modify the relevant formula expression, if necessary.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE

Settable local reactions

DISABLE STOP_SPECIFIC_FORMULA STOP_ALL_FORMULA

Diagnostics buffer entry

No

40305 Underflow in LREAL operation during calculation of a formula expression (formula number: /1/%d)

Cause

An underflow occurred in an LREAL operation during calculation of a formula expression.

Meaning of alarm parameters

Formula number:	Number of formula that triggered this error.
------------------------	--

Description of the alarm parameters in the _getFormulaObjectErrorState command:

No.	Data type
1	UDINT

Remedy

Check and modify the relevant formula expression, if necessary.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE STOP_SPECIFIC_FORMULA STOP_ALL_FORMULA

Diagnostics buffer entry

No

40306 Function result not defined while calculating a formula expression (formula number: /1/%d)**Cause**

The result of a calculation in the formula expression is undefined (e.g. root of negative number).

Meaning of alarm parameters

Formula number:	Number of formula that triggered this error.
------------------------	--

Description of the alarm parameters in the _getFormulaObjectErrorState command:

No.	Data type
1	UDINT

Remedy

Check and modify the function arguments in the relevant formula expression, if necessary.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE

Settable local reactions

DISABLE STOP_SPECIFIC_FORMULA STOP_ALL_FORMULA

Diagnostics buffer entry

No

40307 Invalid formula number specified (formula number: /1/%d, reason: /2/%d)

Cause

An invalid formula number was specified.

Meaning of alarm parameters

Formula number:	Number of formula that triggered this error.
------------------------	--

Reason:	
1	The formula number is outside the permissible range. Valid formula numbers are 0 (predefined zero formula, which cannot be overwritten), 1 to 34 (formulas, which can be defined).
2	A formula with the specified number has already been assigned to an output and can therefore not be redefined.
3	A formula with the specified number has not been defined.

Description of the alarm parameters in the `_getFormulaObjectErrorState` command:

No.	Data type
1	UDINT
2	DINT

Remedy

- Select a valid formula number.
- Before assigning a formula to an output, define a formula with the specified number.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE

Settable local reactions

NONE DISABLE STOP_ALL_FORMULA

Diagnostics buffer entry

No

40308 Overflow in DINT operation during calculation of a formula expression (formula number: /1/%d)**Cause**

An overflow occurred in a DINT operation during calculation of a formula expression.

Meaning of alarm parameters

Formula number:	Number of formula that triggered this error.
------------------------	--

Description of the alarm parameters in the _getFormulaObjectErrorState command:

No.	Data type
1	UDINT

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / NONE

Preassignment for local reactions

NONE

Settable local reactions

NONE DISABLE STOP_SPECIFIC_FORMULA STOP_ALL_FORMULA

Diagnostics buffer entry

No

4.4 FixedGearType

20001 Internal error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Error source
Parameters 2 to 4:	Fault number

Description of the alarm parameters in the `_getFixedGearErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

FIXED_GEAR_DISABLE

Settable local reactions

FIXED_GEAR_DISABLE

Diagnostics buffer entry

Yes

20002 Insufficient memory (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

The memory required by the system is no longer available.

This alarm can occur both during ramp-up and after program calls.

Meaning of alarm parameters

Parameter 1:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Parameters 2 to 4 are area-specific.

They are not fully utilized by all areas.

Command decoding area:

Parameters 2 and 4	refer to the command in which the error occurred.
Parameter 2:	Command return value
Parameter 4:	Command type

Description of the alarm parameters in the `_getFixedGearErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

- Reduce the size of the ST code.
- Reduce the number of technology objects.
- Reduce the number of interpolation points for cams, if present.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

FIXED_GEAR_DISABLE

Settable local reactions

FIXED_GEAR_DISABLE

Diagnostics buffer entry

Yes

20003 Internal configuration error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system

Parameters 2 to 4 are area-specific.

These parameters are not fully utilized by all areas.

Command decoding area:

Parameters 2 and 4	refer to the command in which the error occurred.
Parameter 2:	Command return value
Parameter 4:	Command type

Description of the alarm parameters in the `_getFixedGearErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FIXED_GEAR_DISABLE

Diagnostics buffer entry

Yes

20004 Under logical address: /1/%d (bit number, if required: /2/%d) no driver (type: /3/%d) could be requested (error number: /4/%d)

Cause

The driver of a physical device or the device itself is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
	Not relevant

Description of the alarm parameters in the `_getFixedGearErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT

Remedy

- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

FIXED_GEAR_DISABLE

Settable local reactions

FIXED_GEAR_DISABLE

Diagnostics buffer entry

Yes

20005 Device type:/3/%d, log. address:/1/%d faulted. (Bit:/2/%d, encoder number:/5/%d, reason: 0x/4/%Xh)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

The driver of a physical device or the device itself has failed or is faulty.

If this alarm occurs, the cause of the error must be evaluated in the external device (drive or encoder).

Meaning of alarm parameters

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver
12	Safety data block driver
13	Update counter
14	Operating characteristics data block driver

Logical address:	This is the logical input address configured on the technology object.
Bit number:	For bit driver type = 3 or 4 only; number of the bit
Encoder number:	Number of the encoder in case of telegrams with multiple encoders. Applies only when type = 2.
Reason:	0 - only defined when type = 2

Note

Addition of error messages

The codings for the reason of the failure specified below for the individual alarm types can also occur in combination. A group coding is indicated as the sum of several individual codings (e.g. 0x0005 = 0x0001 + 0x0004).

A failure reason labeled with DP can occur only for PROFIBUS devices.

Type = 1	
0x0001h	Fault message from the drive (note: for PROFIBUS drives, which support acyclic communication in accordance with PROFIdrive V3, the error number(s) of the drive are displayed in the diagnostic buffer, e.g. for Masterdrives MC)
0x0002h	DP: Drive signal "control requested" failed
0x0004h	DP: Drive disconnected itself
0x0008h	Slot for drive data is not available in the project
0x0010h	Actuator driver does not have a connection to the drive data
0x0020h	Actuator driver was not initialized during ramp-up
0x0080h	DP: Difference between configuration data and drive parameters (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	DP: Control signals to the PROFIdrive state machine were incorrectly specified
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
0x8000h	DP: Life-sign of drive has malfunctioned or failed
0x80000000h	The drive interface has been deactivated for the pending enables.
Type = 2	
0x0000h	The actual value changes exceed the limit value derived from the maximum velocity (configuration data TypeOfAxis.MaxVelocity.maximum) over multiple cycles. This monitoring can be activated or deactivated with configuration data TypeOfAxis.NumberOfEncoders.Encoder_x.AbsEncoder.enableAbsMonitoring.
0x0001h	Alarm message from encoder (note: the encoder error number(s) are displayed in the diagnostic buffer)
0x0002h	General hardware error of encoder
0x0004h	Encoder is dirty
0x0008h	Slot for encoder data is not available in the project
0x0010h	Encoder driver does not have a connection to the encoder data
0x0020h	Encoder driver was not initialized during ramp-up
0x0040h	Error when reading the absolute value of the encoder
0x0080h	DP: Difference between the configuration data and the encoder parameters Onboard C2xx: Inconsistency of the configuration data (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	Zero mark monitoring of encoder
0x0200h	DP: Encoder has gone to Parked state
0x4000h	DP: Encoder on bus failed (station failure)

0x8000h	DP: Life-sign of encoder has malfunctioned or failed. (note: for an encoder whose data are transferred in a drive telegram together with actuator data, the actuator life-sign applies to the encoder, e.g. for standard telegram 3 in accordance with PROFIdrive)
0x80000000h	The sensor interface has been deactivated for the pending enables.
Type = 3...6	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 7	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 8	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 9	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 10	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 11	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 12	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 13	
0x1h	The actual value was specified via a system variable and the permissible number of failure cycles was exceeded
0x2h	The actual value was updated with an update counter in the I/O area and the permissible number of failure cycles was exceeded

Description of the alarm parameters in the `_getFixedGearErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

The remedy for the respective type and cause is described below.

Type 1

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- A system fault may be present. Call the hotline.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- When sign-of-life monitoring is set: Ensure that in HW Config for drive under DP slave properties - isochronous operation - drive, the "synchronize to equidistant DP cycle" field is activated.
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
- Up to SIMOTION RT V4.3: If the alarm occurs after the download on a drive with telegram 999: Compare the parameterized bit position for the "Pulses enabled" status signal in drive parameter p924 with the configuration data 'DriveControlConfig.PulsesEnabled' of the TO axis. In this case, there is not necessarily an incorrect parameterization and therefore a check cannot be performed by the system because of the BICO interconnection. Therefore, make sure that the Pulses enabled bit is in the correct position.

For reason 0x0100

- Correct your user program with regard to PROFIdrive-compliant specification of control bits in the `_enable/disableAxis` commands, e.g. control signal OFF (STW1.0 = false) must precede a drive connection.

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 2For reason 0x0000

- Check the absolute encoder functions, connections and configuration. Take note of this when monitoring is deactivated (not with Alarm 20015).

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- Make sure that the user program does not reference a technology object containing an encoder (Axis, External Encoder) with an '_enableaxis' or '_enableexternalencoder' command while system variable 'sensordata.sensordata[n].state' is signaling invalid.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0040

- Compare the encoder type in the drive or encoder parameter P979 with the configuration data of the technology object.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
 - Compare the encoder type, resolution, shift factor, and, in the case of absolute encoders, the number of rotations in the drive or encoder parameter P979 to the encoder type, resolution, fine resolution, and, in the case of absolute encoders, the data length in the configuration data of the technology object.
- When using telegram 999, this message always appears, as the bit position is not checked by the system in this case, but has to be performed by the user.

For reason 0x0100

- Check the device functions, connections and wiring.

For reason 0x0200

- Find the cause of the error in the connected drive or encoder. Check whether the alarm was triggered due to a commissioning operation on the drive or encoder.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 3 - Type 6

For reason 0x0000

- Check the configuration and the signal paths of the connection.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 7

For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 8

For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 9

For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 10

For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 11 - Type 12

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring. If the error cannot be acknowledged when the axis is in simulation mode, check whether the technology data block is activated, and if this is the case, deactivate it.

Type 13For reason 0x1

- Check the specification of the actual value with regard to function, configuration, and task configuration.

For reason 0x2

- Check the device functions, configuration, connections and wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FIXED_GEAR_DISABLE

Settable local reactions

FIXED_GEAR_DISABLE

Diagnostics buffer entry

Yes

20006 Configuration error (category: /1/%d, error number: /2/%d, additional information: /3/%d)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

This alarm indicates error states caused by a faulty or inconsistent configuration. The technology objects perform a plausibility check on the configuration. Errors are identified by the error codes below.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of the error
500	Illegal technology object configuration state.
501	More configuration data expected than received.
502	Invalid configuration data.
503	Version conflict in configuration.
504	The configured task level is not supported by this TO.
505	The value range of the maximum number of command IDs has been violated.
506	The configured task level is not supported by the used hardware.
1001	Error in configuration data <code>DecodingConfig.numberOfMaxBufferedCommandId</code>
1002	Configuration data <code>MotionOut.Modulo.length</code> not in the permitted range
1003	Configuration data <code>MotionOut.Modulo.startValue</code> not in the permitted range
1004	Error in configuration data <code>MotionOut.Modulo.state</code>
1005	Error in configuration data <code>MotionOut.Modulo.configurationMode</code>
1006	Error in configuration data <code>BaseConfig.motionBase</code>

Additional information:	More detailed description of the error origin
	Not relevant

Description of the alarm parameters in the `_getFixedGearErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT

Remedy

Change the configuration data.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

FIXED_GEAR_DISABLE

Settable local reactions

FIXED_GEAR_DISABLE

Diagnostics buffer entry

Yes

20007 Interconnection error (category: /1/%d, context: /2/%d, context parameter1: /3/%d, context parameter2: /4/%d)

Cause

This alarm indicates errors in the interconnection of technology objects. When the interconnection is established, the technology object verifies it on the basis of the interface properties. Errors are classified by category.

Additional information for a more detailed description of the error can be output from the context. An error context is output for selected error categories. Additional context parameters can be output for a context, if necessary. Context and context parameters are output as an integer value.

Meaning of alarm parameters

Category:	
1	Technology object compatibility error An interconnection is to be established with a technology object that has been configured with another reference system (e.g. output cams with rotary reference system and linear axis).
2	Exclusive interface An interface on a technology object that can only be connected to another technology object using one coupling type should be interconnected using different, mutually exclusive couplings. For example, the master value interface on a positioning axis for an interconnected synchronous object can only be operated as a setpoint or an actual value coupling.
3	Interconnection request The technology object awaits the interconnection to another technology object (necessary interconnection) in order to provide its functionality. Thus, for example, the interconnection to a gear axis is a required interconnection on a synchronous object.
4	Error during interface initialization The alarm is output in the event of initialization errors when connecting interfaces on the technology object.
5	Interface not available on technology object An interface required in the interconnection is not available on the technology object.
6	Recursion The interconnection on the technology object results in a recursion in the execution system of the technology package. The technology object does not support recursive execution.
7	Execution level compatibility error An interconnection is to be established with a technology object that is classified in a different execution level (e.g. output cam in execution level IPO and axis in execution level IPO_2). The technology object does not support interconnection to technology objects of other execution levels.
8	Initialization distribution In the case of interconnected technology objects that are distributed among different devices, an error occurred during initialization of the communication.

9	<p>Illegal TO state</p> <p>The technology object cannot be interconnected in the current state. A technology object can be interconnected only after the configuration has been successfully completed. Refer to the diagnostic buffer to determine the exact cause of the error. The cause of the illegal TO state is entered there (e.g. a level overflow during the configuration phase) and can then be corrected (in the example, by allowing level overflows in the task configuration).</p>
10	<p>Interface assignment</p> <p>The configured interface via which the technology object communicates cannot be used from the processing cycle clock of the technology object.</p>
11	<p>Active command in recursive TO interconnection</p> <p>The interconnection of the technology object and the enable state at its inputs result in an active recursive interconnection (positive feedback).</p>

Description of the alarm parameters in the `_getFixedGearErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

Context / context parameter:

Contact the hotline and provide the name of the context parameter.

Category:

1 - Technology object compatibility error

Check the configuration and set a common reference system for the technology objects to be interconnected.

2 - Exclusive interface

Ensure that the project is consistent. Contact the hotline, if necessary.

3 - Interconnection request

Ensure that the project is consistent. The missing interconnection on the technology object is specified in the context:

Context

TO type

Interface

4 - Error during interface initialization

Contact the hotline and provide the name of the context parameter.

5 - Interface not available on technology object

Contact the hotline and provide the name of the context parameter.

6 - Recursion

Check the interconnection topology of your project. Remove unnecessary interconnections.

7 - Execution level compatibility error

Select a common execution level in the configuration for the technology objects to be interconnected (e.g. output cam and axis in IPO_2).

8 - Initialization distribution

- Ensure that your project is consistent. For proper configuration of communication, all devices must be compiled ('Project/Save and compile all' or "Save and compile all new").
- Determine whether all devices are selected for loading the project ('Target system/Select target devices...').
- Check whether the configured bus topology matches the actual bus topology.
- Ensure that the devices are linked in the bus configuration (PROFIBUS).
- Check whether isochronous operation was selected.
- In addition, the address areas that are used by the devices for communication must be set up. The address areas are automatically set up when the project is compiled; only afterwards is the valid hardware configuration available for downloading. Do not change automatically generated address areas afterwards.
- Contact the hotline and provide the name of the context parameter.

9 - Illegal technology object state

- Correct the configuration of the technology object.
- Eliminate the execution error.

10 - Interface assignment

- Configure the bus interface to match the processing cycle clock (e.g. fast bus system and axis in FastIPO).

11 - Active command in recursive TO interconnection

- Inputs of technology objects can already be enabled during the download (e.g. TO AdditionObjectType). Remove or change the relevant interconnection on the technology object or switch a technology object, whose input is enabled by the user program and not already by the download, into the positive feedback branch.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FIXED_GEAR_DISABLE

Settable local reactions

FIXED_GEAR_DISABLE

Diagnostics buffer entry

Yes

20008 Assignment of USER_DEFAULT to system variables is not possible

Cause

It is not appropriate to assign USER_DEFAULT to a UserDefault system variable, because the variable references itself in this case.

As a result, a meaningful value cannot be generated on readout. When this error occurs, the new Enum value is not assigned. The variable retains the old value.

Remedy

USER_DEFAULT is intended for use in technology commands. Avoid assigning it to system variables.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE

Diagnostics buffer entry

No

20009 Reserved error

Cause

This error is not currently in use.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FIXED_GEAR_DISABLE

Settable local reactions

FIXED_GEAR_DISABLE

Diagnostics buffer entry

Yes

20010 A restart is required to activate the configuration data

Cause

The configuration cannot be activated, since data has been modified preventing the activation. The technology object must be restarted to activate the data.

Remedy

- Execute the technology object reset command, and set the 'activateRestart' parameter to 'ACTIVATE_RESTART'.
- Set the 'restartActivation' system variable to 'ACTIVATE_RESTART'.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FIXED_GEAR_DISABLE

Diagnostics buffer entry

No

20011 Error occurred while activating the configuration (category: /1/%d, error number: /2/%d, additional information: /3/%d)

Cause

This alarm indicates error conditions when activating the configuration. The error conditions can be traced back to an incorrect or inconsistent configuration. The technology objects perform a plausibility check on the configuration. Errors are identified by the error codes below. The configuration is not activated when this alarm occurs.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of the error
500	Illegal technology object configuration state.
501	More configuration data expected than received.
502	Invalid configuration data.
503	Version conflict in configuration.
504	The configured task level is not supported by this TO.
505	The value range of the maximum number of command IDs has been violated.
506	The configured task level is not supported by the used hardware.
1001	Error in configuration data DecodingConfig.numberOfMaxBufferedCommandId
1002	Configuration data MotionOut.Modulo.length not in the permitted range
1003	Configuration data MotionOut.Modulo.startValue not in the permitted range
1004	Error in configuration data MotionOut.Modulo.state
1005	Error in configuration data MotionOut.Modulo.configurationMode
1006	Error in configuration data BaseConfig.motionBase

Additional information:	More detailed description of the error origin
	Not relevant

Description of the alarm parameters in the `_getFixedGearErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT

Remedy

Change the configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FIXED_GEAR_DISABLE

Diagnostics buffer entry

No

20012 Restart not carried out (reason: /1/%d)**Cause**

Technology object could not be restarted.

Meaning of alarm parameters

Reason:	
1	The technology object configuration does not allow a restart with the restart system variable.
2	The technology object is not ready to be restarted.
3	A configured condition for restarting the technology object is not met (e.g. technology object must be 'disabled').
4	Restart was not performed with the last programmed configuration of the technology object because this is faulty
5	The configuration of the technology object does not permit any restart.

Description of the alarm parameters in the _getFixedGearErrorState command:

No.	Data type
1	DINT

Remedy

Reason:	
1	Initiate the restart using the reset command.
2	Reload the project.
3	Work around the cause stated in the Reason parameter, or reload the project.
4	Determine whether technological alarms were reported or error entries were made in the device diagnostics and, if necessary, remedy the cause.
5	Change the configuration to activate the appropriate restart capability.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FIXED_GEAR_DISABLE

Diagnostics buffer entry

No

20014 Under logical address: /1/%d (optional log. address: /2/%d and bit no.: /3/%d of the enable output), a driver (type: /4/%d) could not be requested

Cause

The driver of a physical device is not available or is being used by another technology object.

The enable command for the technology object has been issued more than once with the 'immediately' stepping condition.

Meaning of alarm parameters

Logical address:	This is the address of the actuator driver configured on the technology object.
Logical address and bit number:	This specifies the address and bit number of the output enable bit.

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver

Description of the alarm parameters in the _getFixedGearErrorState command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	DINT

Remedy

- Do not call the enable command cyclically "call the enable command only once for the axis enable".
- Check that the logical device was available at the time of the request or whether it was being used by another technology object.
- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FIXED_GEAR_DISABLE

Settable local reactions

FIXED_GEAR_DISABLE

Diagnostics buffer entry

Yes

20015 **Device type:/3/%d, log. address:/1/%d faulted. (Bit:/2/%d, encoder number:/5/%d, reason: 0x/4/%Xh)**

Cause

The driver of a physical device or the device itself has failed or is faulty.

If this alarm occurs, the cause of the error must be evaluated in the external device (drive or encoder).

Meaning of alarm parameters

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver
12	Safety data block driver
13	Update counter
14	Operating characteristics data block driver

Logical address:	This is the logical input address configured on the technology object.
Bit number:	For bit driver type = 3 or 4 only; number of the bit
Encoder number:	Number of the encoder in case of telegrams with multiple encoders. Applies only when type = 2.
Reason:	0 - only defined when type = 2

Note

Addition of error messages

The codings for the reason of the failure specified below for the individual alarm types can also occur in combination. A group coding is indicated as the sum of several individual codings (e.g. 0x0005 = 0x0001 + 0x0004).

A failure reason labeled with DP can occur only for PROFIBUS devices.

Type = 1	
0x0001h	Fault message from the drive (note: for PROFIBUS drives, which support acyclic communication in accordance with PROFIdrive V3, the error number(s) of the drive are displayed in the diagnostic buffer, e.g. for Masterdrives MC)
0x0002h	DP: Drive signal "control requested" failed
0x0004h	DP: Drive disconnected itself
0x0008h	Slot for drive data is not available in the project
0x0010h	Actuator driver does not have a connection to the drive data
0x0020h	Actuator driver was not initialized during ramp-up
0x0080h	DP: Difference between configuration data and drive parameters (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	DP: Control signals to the PROFIdrive state machine were incorrectly specified
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
0x8000h	DP: Life-sign of drive has malfunctioned or failed
0x80000000h	The drive interface has been deactivated for the pending enables.
Type = 2	
0x0000h	The actual value changes exceed the limit value derived from the maximum velocity (configuration data TypeOfAxis.MaxVelocity.maximum) over multiple cycles. This monitoring can be activated or deactivated with configuration data TypeOfAxis.NumberOfEncoders.Encoder_x.AbsEncoder.enableAbsMonitoring.
0x0001h	Alarm message from encoder (note: the encoder error number(s) are displayed in the diagnostic buffer)
0x0002h	General hardware error of encoder
0x0004h	Encoder is dirty
0x0008h	Slot for encoder data is not available in the project
0x0010h	Encoder driver does not have a connection to the encoder data
0x0020h	Encoder driver was not initialized during ramp-up
0x0040h	Error when reading the absolute value of the encoder
0x0080h	DP: Difference between the configuration data and the encoder parameters Onboard C2xx: Inconsistency of the configuration data (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	Zero mark monitoring of encoder
0x0200h	DP: Encoder has gone to Parked state
0x4000h	DP: Encoder on bus failed (station failure)

0x8000h	DP: Life-sign of encoder has malfunctioned or failed. (note: for an encoder whose data are transferred in a drive telegram together with actuator data, the actuator life-sign applies to the encoder, e.g. for standard telegram 3 in accordance with PROFIdrive)
0x80000000h	The sensor interface has been deactivated for the pending enables.
Type = 3...6	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 7	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 8	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 9	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 10	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 11	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 12	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 13	
0x1h	The actual value was specified via a system variable and the permissible number of failure cycles was exceeded
0x2h	The actual value was updated with an update counter in the I/O area and the permissible number of failure cycles was exceeded

Description of the alarm parameters in the `_getFixedGearErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

The remedy for the respective type and cause is described below.

Type 1

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- A system fault may be present. Call the hotline.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- When sign-of-life monitoring is set: Ensure that in HW Config for drive under DP slave properties - isochronous operation - drive, the "synchronize to equidistant DP cycle" field is activated.
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
- Up to SIMOTION RT V4.3: If the alarm occurs after the download on a drive with telegram 999: Compare the parameterized bit position for the "Pulses enabled" status signal in drive parameter p924 with the configuration data 'DriveControlConfig.PulsesEnabled' of the TO axis. In this case, there is not necessarily an incorrect parameterization and therefore a check cannot be performed by the system because of the BICO interconnection. Therefore, make sure that the Pulses enabled bit is in the correct position.

For reason 0x0100

- Correct your user program with regard to PROFIdrive-compliant specification of control bits in the _enable/disableAxis commands, e.g. control signal OFF (STW1.0 = false) must precede a drive connection.

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 2

For reason 0x0000

- Check the absolute encoder functions, connections and configuration. Take note of this when monitoring is deactivated (not with Alarm 20015).

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- Make sure that the user program does not reference a technology object containing an encoder (Axis, External Encoder) with an '_enableaxis' or '_enableexternalencoder' command while system variable 'sensordata.sensordata[n].state' is signaling invalid.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0040

- Compare the encoder type in the drive or encoder parameter P979 with the configuration data of the technology object.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
 - Compare the encoder type, resolution, shift factor, and, in the case of absolute encoders, the number of rotations in the drive or encoder parameter P979 to the encoder type, resolution, fine resolution, and, in the case of absolute encoders, the data length in the configuration data of the technology object.
- When using telegram 999, this message always appears, as the bit position is not checked by the system in this case, but has to be performed by the user.

For reason 0x0100

- Check the device functions, connections and wiring.

For reason 0x0200

- Find the cause of the error in the connected drive or encoder. Check whether the alarm was triggered due to a commissioning operation on the drive or encoder.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 3 - Type 6For reason 0x0000

- Check the configuration and the signal paths of the connection.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 7For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 8For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 9For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 10For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 11 - Type 12For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring. If the error cannot be acknowledged when the axis is in simulation mode, check whether the technology data block is activated, and if this is the case, deactivate it.

Type 13

For reason 0x1

- Check the specification of the actual value with regard to function, configuration, and task configuration.

For reason 0x2

- Check the device functions, configuration, connections and wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FIXED_GEAR_DISABLE

Diagnostics buffer entry

Yes

20016 Under logical address: /1/%d (bit number, if required: /2/%d) no driver (type: /3/%d) activated (error number: /4/%d)

Cause

The driver of a physical device or the device itself is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
	Not relevant

Description of the alarm parameters in the `_getFixedGearErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT

Remedy

- Check the activation/deactivation sequence for the interface.
- Note the runtimes of the commands and use the provided command control mechanisms (e.g. nextCommand := WHEN_COMMAND_DONE).
- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE FIXED_GEAR_DISABLE

Diagnostics buffer entry

Yes

20017 Internal algorithm error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Error source
Parameters 2 to 4:	Fault number

Description of the alarm parameters in the `_getFixedGearErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact:

SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FIXED_GEAR_DISABLE

Settable local reactions

FIXED_GEAR_DISABLE

Diagnostics buffer entry

Yes

20018 **Attempt to write the bit(s): 0x/1/%Xh in control word1 or the bit(s): 0x/2/%Xh in control word2 under the log. address: /3/%d has been rejected.**

Cause

An attempt to write certain bits in control word 1 or 2 has been rejected.

Meaning of alarm parameters

Bits:	Display of bits which could not be written
Log. address:	Logical address of the device driver

Description of the alarm parameters in the `_getFixedGearErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT

Remedy

- Check the order of commands, particularly in relation to `_enableAxis(...)`.
- Check the command parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE

Diagnostics buffer entry

Yes

20019 Error for the commissioning, reason: /1/%d (Parameter1: /2/%d, Parameter2: /3/%d)

Cause

A commissioning function could not be executed.

Meaning of alarm parameters

Reason:	
1	Failure of the life-sign between controller and SIMOTION SCOUT
2	Protocol error
3	Command decoding error

Description of the alarm parameters in the `_getFixedGearErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT

Remedy

Reason:	
1	Check the connection properties. If required, increase the monitoring time.
2	Should a system error of this type occur, note the alarm number, the alarm text and the specified alarm parameters, and contact: SIEMENS AG I DT MC, Hotline.
3	Should a system error of this type occur, note the alarm number, the alarm text and the specified alarm parameters, and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / NONE

Preassignment for local reactions

NONE

Settable local reactions

NONE FIXED_GEAR_DISABLE

Diagnostics buffer entry

Yes

20020 Output deactivated

Cause

One or more outputs of the technology object have been deactivated. This is caused by the output-disable device status.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FIXED_GEAR_DISABLE

Settable local reactions

NONE DECODE_STOP FIXED_GEAR_DISABLE

Diagnostics buffer entry

No

20021 Configuration will be adapted internally (category: /1/%d, reason: /2/%d, limited value: /3/%f, additional information: /4/%d)

Cause

This alarm shows the implicit setting of configuration data to the maximum possible values. The technology objects perform a plausibility check on the configuration. Errors/manipulations are identified by the error codes below.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of configuration data
2001	Illegal value for maxSpeed (maxSpeed less than or equal to 2*nominalSpeed; maxSpeed will be set to 2*nominalSpeed)
2002	Illegal value for maxTorque/Force (maxTorque/Force less than or equal to 2*nominalTorque/Force; maxTorque/Force will be set to 2*nominalTorque/Force)
2003	Error during the adaptation of the Torque-/ForceReductionGranularity. p1544 is ignored and the default value used.
3001	The length of the backlash on reversal is limited to a permitted value (Encoder_N.incBacklash.length or Encoder_N.absBacklash.length).
3002	The compensation velocity of the backlash on reversal is limited to a permitted value (Encoder_N.incBacklash.velocity or Encoder_N.absBacklash.velocity).
3003	The value of the configuration data for the encoder system (.Encoder_N.encoderSystem) is limited to a permitted value.
3004	The value of the configuration data for the encoder resolution (rotary: .Encoder_N.incEncoder.incResolution, Encoder_N.absEncoder.absResolution; linear: Encoder_N.Resolution.distance) is limited to a permitted value.
3005	The value of the configuration data for the multiplication factor of the cyclical actual value (.Encoder_N.incEncoder.incResolutionMultiplierCyclic, Encoder_N.absEncoder.absResolutionMultiplierCyclic, Encoder_N.Resolution.multiplierCyclic) is limited to a permitted value.
3006	The value of the configuration data for the multiplication factor of the absolute value (Encoder_N.absEncoder.absResolutionMultiplierAbsolute) is limited to a permitted value.
3007	The value of the configuration data for the data length of the absolute value (Encoder_N.absEncoder.absDataLength) is limited to a permitted value.
3008	The value of the configuration data for the reference value of the Nact speed in the PROFIdrive telegram (Encoder_N.sensorNist.referenceValue) is limited to a permitted value.
3009	The load gear factor of the first data set is leading for the encoder simulation. The simulation with different load gear factors is not supported. The value of the configuration data for the load gear (DataSet_N.gear) is limited to the load gear ratio of the first data set.
4001	The delay time for the triggering of the standstill signal (StandStillSignal.delayTimeToActivate) is limited.
4002	The delay time until the position monitoring tolerance window is reached (PositionMonitoring.posWinTolTime) is limited.
4003	The delay time until the activation of the position monitoring message (PositionMonitoring.posWinTolDelayTime) is limited.
4004	The delay time for the activation of the standstill monitoring message (StandStillMonitoring.delayTimeToActivate) is limited.
4005	The delay time of the actual value of the force/pressure entry monitoring (ForceControlRunningInWindowMonitoring.winTolTime) is limited.
4006	The delay time until activation of the force/pressure entry monitoring (ForceControlRunningInWindowMonitoring.maxDelayTime) is limited.
4007	The delay time until activation of the force/pressure end value monitoring (ForceControlHeldValueMonitoring.delayTimeToActivate) is limited.

4008	The delay of the emergency ramp generator (EmergencyRampGenerator.maxDeceleration) is too small and set to the minimum possible value.
4009	The decay time constant of the friction compensation (Friction.decayTime) is limited.
4068	The maximum buffer length of the lag element in the balancing filter (Mode_2) is reached or exceeded. The lag element (maximum buffer length: 16 servo-cycles) is augmented by a PT1 element.
4069	The maximum buffer length of the lag component of the dynamic response compensation is reached or exceeded. The maximum value of this time constant is limited to 16 servo cycles. The buffer length of the lag element is maximum 16.

Additional information:	More detailed description of the error origin
Not relevant	

Description of the alarm parameters in the `_getFixedGearErrorState` command:

No.	Data type
1	DINT
2	DINT
3	LREAL
4	UDINT

Remedy

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE FIXED_GEAR_DISABLE

Diagnostics buffer entry

No

30001 **Illegal parameter (parameter index according to standard sequence in the system functions: /1/%d, command type: /4/%X)**

Cause

Illegal parameter transfer to a system function. The command is not executed. This alarm occurs when the permissible parameter value range is violated. The permissible value range of the parameter is a function of its data type and the technological meaning of the parameter.

The parameter index indicates the position of the illegal parameter. The standard sequence of parameters in the system functions is apparent from the reference list associated with the command. The command type indicates the type of the faulty system function.

Meaning of alarm parameters

Parameter index:	Index of the system function parameter that triggered this error (listed according to the standard sequence in the system functions).
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the _getFixedGearErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the value range of the parameter data type.
- Check the technological meaning of the parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FIXED_GEAR_DISABLE

Diagnostics buffer entry

No

30002 Command aborted (reason: /1/%d, command type: /4/%X)**Additional references**

Further information is provided in the Function Manual:

- Basic Functions and
- in the online help.

Cause

The command was aborted before or during execution.

This can be caused by:

- A substituted command
- Command buffer reset
- Error state

Note

This alarm is always output, e.g. for jogging (_move aborted with _stop) or for the retraction of the reference BERO for homing or when synchronous operation (explicitly) deactivated.

Meaning of alarm parameters

Reason:	
1	Reset of the command buffer
2	Abort by another command
5	Abort by a pending error response
6	Abort due to ambiguous commandId
9	Abort due to abort of a dependent command
28	Active command in recursive TO interconnection
31	Maximum number of active commands exceeded
41	Command parameter became invalid during processing
42	No interconnection to a technology object
44	Abort because of a pending command with identical command parameters

Command type:	Outputs the aborted command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getFixedGearErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Set up the command again via program.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FIXED_GEAR_DISABLE

Diagnostics buffer entry

No

30003 Command aborted because of full command buffer (command type: /4/%X)**Cause**

The command is not entered in the command buffer because the buffer is already full.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getFixedGearErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the program flow.
- Typical cause: The 'nextCommand' parameter is passed with the value 'IMMEDIATELY', and the 'mergeMode' parameter is passed with the value 'SEQUENTIAL'.
 - Synchronize the command execution in the user program so that the command buffer is not occupied when the command is issued.
 - Use other values for the 'nextCommand' or 'mergeMode' parameters. Setting the 'nextCommand' to a value other than 'IMMEDIATELY' causes the program to wait for the command buffer to become available. In addition, setting a different 'mergeMode' means that the command buffer can be overwritten.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FIXED_GEAR_DISABLE

Diagnostics buffer entry

No

30004 Command is not defined for this technology object type (command type: /4/%X)

Cause

Command was programmed on a technology object type not supporting processing of this command.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getFixedGearErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Issue the command on the correct technology object type.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FIXED_GEAR_DISABLE

Diagnostics buffer entry

No

30005 Ambiguous commandId (number of commands with the specified ID: /1/%d, command type: /4/%X)**Cause**

The specified commandId refers to more than one command. The specified action is performed for the command matching the specified ID that has been in the interpolator for the longest time.

If no corresponding command is found in the interpolator, the action refers to the next command loaded in the interpolator.

Meaning of alarm parameters

Id:	Number of commands referenced by the specified command ID.
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the _getFixedGearErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Use a different 'commandId' for commands that are active simultaneously.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FIXED_GEAR_DISABLE

Diagnostics buffer entry

No

30006 **Command cannot be executed because of the current object state (command type: /4/%X)**

Cause

A reset command is active at the object or the object is deactivated.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getFixedGearErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the following:

- Check the object status.
- Check the possible execution sequence of the programmed commands.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FIXED_GEAR_DISABLE

Diagnostics buffer entry

No

30007 The error cannot be reset because of its configuration**Cause**

The 30007 alarm will be output when an alarm is reset that can only be acknowledged with PowerOn.

Example:

The internal 20001 error can only be acknowledged with PowerOn.

If an attempt is made to reset the alarm with a `_reset...Error` command, the 30007 alarm will be output.

Description of the alarm parameters in the `_getFixedGearErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

Check whether the errors present on the technology object can be acknowledged.

Correct the cause of the error and switch the CPU off/on or load the project again.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FIXED_GEAR_DISABLE

Diagnostics buffer entry

No

30008 **Link to a technology object necessary for this operation does not exist (command type: /4/%X)**

Cause

The object connection required for this operation has not been configured or the connected technology object has been deactivated.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getFixedGearErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the project configuration.
- Change the object connection in the command.
- Activate the connected technology object.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FIXED_GEAR_DISABLE

Diagnostics buffer entry

No

30009 Command rejected as the decoding of the command of the technology object addressed has been deactivated/stopped (reason: /1/%d, command type: /4/%X)

Cause

Command was rejected due to suspension of command decoding on the addressed technology object. The command decoding can be stopped by the DECODE_STOP alarm response, by deactivating or restarting the technology object, by starting the axis control panel in exclusive mode or by the absence of necessary interconnections.

Meaning of alarm parameters

Reason:	
1	Restart of the technology object
2	Technology object is deactivated
3	Technology object is in RUN mode.
4	Control panel active

Command type:	Outputs the type of the rejected command. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getFixedGearErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check why the command was rejected.
- If necessary, acknowledge any active errors once you have corrected the cause of the error.
- If the technology object is deactivated, you must activate it.
- Do not issue any commands while the technology object is restarting.
- Do not issue any commands while a connected technology object is restarting.
- Stop the axis control panel.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FIXED_GEAR_DISABLE

Diagnostics buffer entry

No

30010 Command not available (command type: /4/%X)**Cause**

The command is not available in this version of the runtime software.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getFixedGearErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the version of the runtime software.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FIXED_GEAR_DISABLE

Diagnostics buffer entry

No

30011 **Parameter not available (parameter index according to the standard sequence in the system functions: /1/%d, command type: /4/%X)**

Cause

The parameter is not available in this version of the runtime software, the command is therefore rejected. The parameters indicate the position according to the standard sequence in the system functions and the command type of an incorrectly entered parameter.

Meaning of alarm parameters

Parameter index:	Index of the command parameter triggering this error according to the standard sequence in the system functions.
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getFixedGearErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the version of the runtime software.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FIXED_GEAR_DISABLE

Diagnostics buffer entry

No

30012 Command cannot be started synchronously (command type: /4/%X)**Cause**

The command cannot be used within a 'BEGIN_SYNC' or 'END_SYNC' sequence. The command has only one return value in the user program, or the command is not capable of starting synchronously.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getFixedGearErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Do not use this command type during a BEGIN_SYNC, END_SYNC sequence.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FIXED_GEAR_DISABLE

Diagnostics buffer entry

No

30013 Synchronous start of the command is carried out with mergeMode IMMEDIATELY (command type: /4/%X)

Cause

With synchronous command start, only merge modes that immediately override the current command (IMMEDIATELY) and superimpose the current command (SUPERIMPOSED_MOTION_MERGE) can be used.

If an illegal merge mode is programmed (e.g. SEQUENTIAL or NEXT_MOTION), the system automatically changes the merge mode to IMMEDIATELY and outputs this warning.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getFixedGearErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Program the command which is to be started synchronously to immediately override the current command. To do this, enter the value IMMEDIATELY in the 'mergeMode' command parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FIXED_GEAR_DISABLE

Diagnostics buffer entry

No

30015 **A technology required for this command has not been configured (technology: /1/%d, command type: /4/%X)**

Cause

The command cannot be selected in this technology object configuration.

Meaning of alarm parameters

Technology:	Not relevant
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getFixedGearErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Activate the technology needed for the command.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FIXED_GEAR_DISABLE

Diagnostics buffer entry

No

40001 Interface could not be activated (interface: 0x/1/%Xh)

Cause

The interface could not be activated because a connection to this interface was not configured.

Meaning of alarm parameters

Interface:	
0x0001h:	MotionIn
0x0010h:	MotionOut

Description of the alarm parameters in the _getFixedGearErrorState command:

No.	Data type
1	UDINT

Remedy

- Check the command for activating the interface.
- Interconnect the interface to be activated.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FIXED_GEAR_DISABLE

Diagnostics buffer entry

No

40002 Modulo configuration is not taken over from the interconnected output vector**Cause**

The modulo configuration could not be transferred from the interconnected output vector.

Possible causes:

- Multiple interconnection of the output vector, and the interconnected technology objects have a different modulo configuration.
- Interconnection of the output vector to a technology object without modulo configuration.

Remedy

- Check the modulo configuration of the technology object that is interconnected to the output vector.
- Disable transfer of the modulo configuration from the interconnected output vector to the configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FIXED_GEAR_DISABLE

Diagnostics buffer entry

No

40110 Error triggered on slave during Synchronous operation (error number: /1/%d, slave stopped: /2/%d)

Additional references

Further information is provided in the Function Manual:

- Technology Objects Synchronous Operation, Cam and
- in the online help.

Cause

An error was triggered on a slave during Synchronous operation and reported to the master.

Meaning of alarm parameters

Error number:	Error reported by slave:
1	Synchronous operation setpoint tolerance exceeded.
2	Synchronous operation actual-value tolerance exceeded.
3	General slave axis error.

Slave stopped:	Indicates whether the slave axis has switched to Stop mode:
0	The slave axis has not switched to Stop mode.
1	The slave axis has switched to Stop mode.

Description of the alarm parameters in the `_getFixedGearErrorState` command:

No.	Data type
1	DINT
2	DINT

Remedy

Check the following:

- Configuration data for Synchronous operation monitoring on the slave
- Programming (dynamic parameters, Synchronous operation connection)
- System variables

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FIXED_GEAR_DISABLE

Settable local reactions

NONE DECODE_STOP FIXED_GEAR_DISABLE

Diagnostics buffer entry

No

50008 **No long-term stability can be maintained with the gear**

Cause

The programmed gear ratio of numerator and denominator cannot be kept stable over the long-term.

Remedy

- Resynchronize in the event of inaccuracies.
- Reduce the gear ratio.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FIXED_GEAR_DISABLE

Diagnostics buffer entry

No

50101 The programmed master is not assigned/configured

Cause

The programmed master has not been configured as master for the Synchronous operation.

Remedy

- Check the master configuration in Synchronous operation.
- Check the programmed master.
- Add the appropriate master.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP FIXED_GEAR_DISABLE

Diagnostics buffer entry

No

50102 Master is not assigned/configured/faulty (reason: /1/%d)**Cause**

A synchronous object command cannot be executed because of an error in data communication with the master.

Meaning of alarm parameters

Reason	
1	No master has been assigned to Synchronous operation.
9	Master setpoint not valid.

Description of the alarm parameters in the _getFixedGearErrorState command:

No.	Data type
1	DINT

Remedy

Reason	
1	Create the missing master assignment.
9	Check the master enable.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

FIXED_GEAR_DISABLE

Settable local reactions

FIXED_GEAR_DISABLE

Diagnostics buffer entry

No

4.5 Sensor Type

20001 Internal error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Error source
Parameters 2 to 4:	Fault number

Description of the alarm parameters in the `_getSensorErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

CONFIGURED_OUTPUT_VALUE

Settable local reactions

CONFIGURED_OUTPUT_VALUE

Diagnostics buffer entry

Yes

20002 Insufficient memory (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

The memory required by the system is no longer available.

This alarm can occur both during ramp-up and after program calls.

Meaning of alarm parameters

Parameter 1:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Parameters 2 to 4 are area-specific.

They are not fully utilized by all areas.

Command decoding area:

Parameters 2 and 4	refer to the command in which the error occurred.
Parameter 2:	Command return value
Parameter 4:	Command type

Description of the alarm parameters in the `_getSensorErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

- Reduce the size of the ST code.
- Reduce the number of technology objects.
- Reduce the number of interpolation points for cams, if present.

Acknowledgement/reaction

Power On / STOP

Preassignment for local reactions

CONFIGURED_OUTPUT_VALUE

Settable local reactions

CONFIGURED_OUTPUT_VALUE

Diagnostics buffer entry

Yes

20003 Internal configuration error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system

Parameters 2 to 4 are area-specific.

These parameters are not fully utilized by all areas.

Command decoding area:

Parameters 2 and 4	refer to the command in which the error occurred.
Parameter 2:	Command return value
Parameter 4:	Command type

Description of the alarm parameters in the `_getSensorErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP CONFIGURED_OUTPUT_VALUE

Diagnostics buffer entry

Yes

20004 Under logical address: /1/%d (bit number, if required: /2/%d) no driver (type: /3/%d) could be requested (error number: /4/%d)

Cause

The driver of a physical device or the device itself is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getSensorErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT

Remedy

- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

CONFIGURED_OUTPUT_VALUE

Settable local reactions

CONFIGURED_OUTPUT_VALUE

Diagnostics buffer entry

Yes

20005 Device type:/3/%d, log. address:/1/%d faulted. (Bit:/2/%d, encoder number:/5/%d, reason: 0x/4/%Xh)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

The driver of a physical device or the device itself has failed or is faulty.

If this alarm occurs, the cause of the error must be evaluated in the external device (drive or encoder).

Meaning of alarm parameters

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver
12	Safety data block driver
13	Update counter
14	Operating characteristics data block driver

Logical address:	This is the logical input address configured on the technology object.
Bit number:	For bit driver type = 3 or 4 only; number of the bit
Encoder number:	Number of the encoder in case of telegrams with multiple encoders. Applies only when type = 2.
Reason:	0 - only defined when type = 2

Note

Addition of error messages

The codings for the reason of the failure specified below for the individual alarm types can also occur in combination. A group coding is indicated as the sum of several individual codings (e.g. 0x0005 = 0x0001 + 0x0004).

A failure reason labeled with DP can occur only for PROFIBUS devices.

Type = 1	
0x0001h	Fault message from the drive (note: for PROFIBUS drives, which support acyclic communication in accordance with PROFIdrive V3, the error number(s) of the drive are displayed in the diagnostic buffer, e.g. for Masterdrives MC)
0x0002h	DP: Drive signal "control requested" failed
0x0004h	DP: Drive disconnected itself
0x0008h	Slot for drive data is not available in the project
0x0010h	Actuator driver does not have a connection to the drive data
0x0020h	Actuator driver was not initialized during ramp-up
0x0080h	DP: Difference between configuration data and drive parameters (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	DP: Control signals to the PROFIdrive state machine were incorrectly specified
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
0x8000h	DP: Life-sign of drive has malfunctioned or failed
0x80000000h	The drive interface has been deactivated for the pending enables.
Type = 2	
0x0000h	The actual value changes exceed the limit value derived from the maximum velocity (configuration data TypeOfAxis.MaxVelocity.maximum) over multiple cycles. This monitoring can be activated or deactivated with configuration data TypeOfAxis.NumberOfEncoders.Encoder_x.AbsEncoder.enableAbsMonitoring.
0x0001h	Alarm message from encoder (note: the encoder error number(s) are displayed in the diagnostic buffer)
0x0002h	General hardware error of encoder
0x0004h	Encoder is dirty
0x0008h	Slot for encoder data is not available in the project
0x0010h	Encoder driver does not have a connection to the encoder data
0x0020h	Encoder driver was not initialized during ramp-up
0x0040h	Error when reading the absolute value of the encoder
0x0080h	DP: Difference between the configuration data and the encoder parameters Onboard C2xx: Inconsistency of the configuration data (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	Zero mark monitoring of encoder
0x0200h	DP: Encoder has gone to Parked state
0x4000h	DP: Encoder on bus failed (station failure)

0x8000h	DP: Life-sign of encoder has malfunctioned or failed. (note: for an encoder whose data are transferred in a drive telegram together with actuator data, the actuator life-sign applies to the encoder, e.g. for standard telegram 3 in accordance with PROFIdrive)
0x80000000h	The sensor interface has been deactivated for the pending enables.
Type = 3...6	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 7	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 8	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 9	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 10	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 11	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 12	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 13	
0x1h	The actual value was specified via a system variable and the permissible number of failure cycles was exceeded
0x2h	The actual value was updated with an update counter in the I/O area and the permissible number of failure cycles was exceeded

Description of the alarm parameters in the `_getSensorErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

The remedy for the respective type and cause is described below.

Type 1

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- A system fault may be present. Call the hotline.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- When sign-of-life monitoring is set: Ensure that in HW Config for drive under DP slave properties - isochronous operation - drive, the "synchronize to equidistant DP cycle" field is activated.
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
- Up to SIMOTION RT V4.3: If the alarm occurs after the download on a drive with telegram 999: Compare the parameterized bit position for the "Pulses enabled" status signal in drive parameter p924 with the configuration data 'DriveControlConfig.PulsesEnabled' of the TO axis. In this case, there is not necessarily an incorrect parameterization and therefore a check cannot be performed by the system because of the BICO interconnection. Therefore, make sure that the Pulses enabled bit is in the correct position.

For reason 0x0100

- Correct your user program with regard to PROFIdrive-compliant specification of control bits in the `_enable/disableAxis` commands, e.g. control signal OFF (STW1.0 = false) must precede a drive connection.

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 2For reason 0x0000

- Check the absolute encoder functions, connections and configuration. Take note of this when monitoring is deactivated (not with Alarm 20015).

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- Make sure that the user program does not reference a technology object containing an encoder (Axis, External Encoder) with an '_enableaxis' or '_enableexternalencoder' command while system variable 'sensordata.sensordata[n].state' is signaling invalid.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0040

- Compare the encoder type in the drive or encoder parameter P979 with the configuration data of the technology object.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
 - Compare the encoder type, resolution, shift factor, and, in the case of absolute encoders, the number of rotations in the drive or encoder parameter P979 to the encoder type, resolution, fine resolution, and, in the case of absolute encoders, the data length in the configuration data of the technology object.
- When using telegram 999, this message always appears, as the bit position is not checked by the system in this case, but has to be performed by the user.

For reason 0x0100

- Check the device functions, connections and wiring.

For reason 0x0200

- Find the cause of the error in the connected drive or encoder. Check whether the alarm was triggered due to a commissioning operation on the drive or encoder.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 3 - Type 6

For reason 0x0000

- Check the configuration and the signal paths of the connection.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 7

For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 8

For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 9

For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 10

For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 11 - Type 12

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring. If the error cannot be acknowledged when the axis is in simulation mode, check whether the technology data block is activated, and if this is the case, deactivate it.

Type 13For reason 0x1

- Check the specification of the actual value with regard to function, configuration, and task configuration.

For reason 0x2

- Check the device functions, configuration, connections and wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

CONFIGURED_OUTPUT_VALUE

Settable local reactions

CONFIGURED_OUTPUT_VALUE

Diagnostics buffer entry

Yes

20006 Configuration error (category: /1/%d, error number: /2/%d, additional information: /3/%d)

Additional references

Further information is provided in the Function Manual:

- TO Axis Electric / Hydraulic, External Encoder and
- in the online help.

Cause

This alarm indicates error states caused by a faulty or inconsistent configuration. The technology objects perform a plausibility check on the configuration. Errors are identified by the error codes below.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of the error
500	Illegal technology object configuration state.
501	More configuration data expected than received.
502	Invalid configuration data.
503	Version conflict in configuration.
504	The configured task level is not supported by this TO.
505	The value range of the maximum number of command IDs has been violated.
506	The configured task level is not supported by the used hardware.
1001	Error in configuration data numberOfMaxBufferedCommandId
5003	Illegal data in driver data configuration of Sensor TO.
5004	Illegal data in conversion data configuration of Sensor TO.
5006	Illegal data in range configuration of Sensor TO.
5007	Illegal data in filter time configuration of Sensor TO.
5008	Configuration of Sensor TO not completed correctly.
5013	Illegal data in extrapolation configuration.
5014	Illegal data in configuration of Sensor TO execution task.
5015	Illegal data in configuration of substitute value strategy for Sensor TO technological alarm.

Additional information:	More detailed description of the error origin
	Not relevant

Description of the alarm parameters in the `_getSensorErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT

Remedy

Change the configuration data.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

CONFIGURED_OUTPUT_VALUE

Settable local reactions

CONFIGURED_OUTPUT_VALUE

Diagnostics buffer entry

Yes

20007 Interconnection error (category: /1/%d, context: /2/%d, context parameter1: /3/%d, context parameter2: /4/%d)

Cause

This alarm indicates errors in the interconnection of technology objects. When the interconnection is established, the technology object verifies it on the basis of the interface properties. Errors are classified by category.

Additional information for a more detailed description of the error can be output from the context. An error context is output for selected error categories. Additional context parameters can be output for a context, if necessary. Context and context parameters are output as an integer value.

Meaning of alarm parameters

Category:	
1	Technology object compatibility error An interconnection is to be established with a technology object that has been configured with another reference system (e.g. output cams with rotary reference system and linear axis).
2	Exclusive interface An interface on a technology object that can only be connected to another technology object using one coupling type should be interconnected using different, mutually exclusive couplings. For example, the master value interface on a positioning axis for an interconnected synchronous object can only be operated as a setpoint or an actual value coupling.
3	Interconnection request The technology object awaits the interconnection to another technology object (necessary interconnection) in order to provide its functionality. Thus, for example, the interconnection to a gear axis is a required interconnection on a synchronous object.
4	Error during interface initialization The alarm is output in the event of initialization errors when connecting interfaces on the technology object.
5	Interface not available on technology object An interface required in the interconnection is not available on the technology object.
6	Recursion The interconnection on the technology object results in a recursion in the execution system of the technology package. The technology object does not support recursive execution.
7	Execution level compatibility error An interconnection is to be established with a technology object that is classified in a different execution level (e.g. output cam in execution level IPO and axis in execution level IPO_2). The technology object does not support interconnection to technology objects of other execution levels.
8	Initialization distribution In the case of interconnected technology objects that are distributed among different devices, an error occurred during initialization of the communication.

9	<p>Illegal TO state</p> <p>The technology object cannot be interconnected in the current state. A technology object can be interconnected only after the configuration has been successfully completed. Refer to the diagnostic buffer to determine the exact cause of the error. The cause of the illegal TO state is entered there (e.g. a level overflow during the configuration phase) and can then be corrected (in the example, by allowing level overflows in the task configuration).</p>
10	<p>Interface assignment</p> <p>The configured interface via which the technology object communicates cannot be used from the processing cycle clock of the technology object.</p>
11	<p>Active command in recursive TO interconnection</p> <p>The interconnection of the technology object and the enable state at its inputs result in an active recursive interconnection (positive feedback).</p>

Description of the alarm parameters in the `_getSensorErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT
4	UDINT

Remedy

Context / context parameter:

Contact the hotline and provide the name of the context parameter.

Category:

1 - Technology object compatibility error

Check the configuration and set a common reference system for the technology objects to be interconnected.

2 - Exclusive interface

Ensure that the project is consistent. Contact the hotline, if necessary.

3 - Interconnection request

Ensure that the project is consistent. The missing interconnection on the technology object is specified in the context:

Context

TO type

Interface

4 - Error during interface initialization

Contact the hotline and provide the name of the context parameter.

5 - Interface not available on technology object

Contact the hotline and provide the name of the context parameter.

6 - Recursion

Check the interconnection topology of your project. Remove unnecessary interconnections.

7 - Execution level compatibility error

Select a common execution level in the configuration for the technology objects to be interconnected (e.g. output cam and axis in IPO_2).

8 - Initialization distribution

- Ensure that your project is consistent. For proper configuration of communication, all devices must be compiled ('Project/Save and compile all' or "Save and compile all new').
- Determine whether all devices are selected for loading the project ('Target system/Select target devices...').
- Check whether the configured bus topology matches the actual bus topology.
- Ensure that the devices are linked in the bus configuration (PROFIBUS).
- Check whether isochronous operation was selected.
- In addition, the address areas that are used by the devices for communication must be set up. The address areas are automatically set up when the project is compiled; only afterwards is the valid hardware configuration available for downloading. Do not change automatically generated address areas afterwards.
- Contact the hotline and provide the name of the context parameter.

9 - Illegal technology object state

- Correct the configuration of the technology object.
- Eliminate the execution error.

10 - Interface assignment

- Configure the bus interface to match the processing cycle clock (e.g. fast bus system and axis in FastIPO).

11 - Active command in recursive TO interconnection

- Inputs of technology objects can already be enabled during the download (e.g. TO AdditionObjectType). Remove or change the relevant interconnection on the technology object or switch a technology object, whose input is enabled by the user program and not already by the download, into the positive feedback branch.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

CONFIGURED_OUTPUT_VALUE

Settable local reactions

CONFIGURED_OUTPUT_VALUE

Diagnostics buffer entry

Yes

20008 Assignment of USER_DEFAULT to system variables is not possible

Cause

It is not appropriate to assign USER_DEFAULT to a UserDefault system variable, because the variable references itself in this case.

As a result, a meaningful value cannot be generated on readout. When this error occurs, the new Enum value is not assigned. The variable retains the old value.

Remedy

USER_DEFAULT is intended for use in technology commands. Avoid assigning it to system variables.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE

Diagnostics buffer entry

No

20009 Reserved error

Cause

This error is not currently in use.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

CONFIGURED_OUTPUT_VALUE

Settable local reactions

CONFIGURED_OUTPUT_VALUE

Diagnostics buffer entry

Yes

20010 A restart is required to activate the configuration data

Cause

The configuration cannot be activated, since data has been modified preventing the activation. The technology object must be restarted to activate the data.

Remedy

- Execute the technology object reset command, and set the 'activateRestart' parameter to 'ACTIVATE_RESTART'.
- Set the 'restartActivation' system variable to 'ACTIVATE_RESTART'.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP CONFIGURED_OUTPUT_VALUE

Diagnostics buffer entry

No

20011 Error occurred while activating the configuration (category: /1/%d, error number: /2/%d, additional information: /3/%d)

Cause

This alarm indicates error conditions when activating the configuration. The error conditions can be traced back to an incorrect or inconsistent configuration. The technology objects perform a plausibility check on the configuration. Errors are identified by the error codes below. The configuration is not activated when this alarm occurs.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of the error
500	Illegal technology object configuration state.
501	More configuration data expected than received.
502	Invalid configuration data.
503	Version conflict in configuration.
504	The configured task level is not supported by this TO.
505	The value range of the maximum number of command IDs has been violated.
506	The configured task level is not supported by the used hardware.
1001	Error in configuration data numberOfMaxBufferedCommandId
5003	Illegal data in driver data configuration of Sensor TO.
5004	Illegal data in conversion data configuration of Sensor TO.
5006	Illegal data in range configuration of Sensor TO.
5007	Illegal data in filter time configuration of Sensor TO.
5008	Configuration of Sensor TO not completed correctly.
5013	Illegal data in extrapolation configuration.
5014	Illegal data in configuration of Sensor TO execution task.
5015	Illegal data in configuration of substitute value strategy for Sensor TO technological alarm.

Additional information:	More detailed description of the error origin
	Not relevant

Description of the alarm parameters in the `_getSensorErrorState` command:

No.	Data type
1	DINT
2	DINT
3	UDINT

Remedy

Change the configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP CONFIGURED_OUTPUT_VALUE

Diagnostics buffer entry

No

20012 Restart not carried out (reason: /1/%d)**Cause**

Technology object could not be restarted.

Meaning of alarm parameters

Reason:	
1	The technology object configuration does not allow a restart with the restart system variable.
2	The technology object is not ready to be restarted.
3	A configured condition for restarting the technology object is not met (e.g. technology object must be 'disabled').
4	Restart was not performed with the last programmed configuration of the technology object because this is faulty
5	The configuration of the technology object does not permit any restart.

Description of the alarm parameters in the `_getSensorErrorState` command:

No.	Data type
1	DINT

Remedy

Reason:	
1	Initiate the restart using the reset command.
2	Reload the project.
3	Work around the cause stated in the Reason parameter, or reload the project.
4	Determine whether technological alarms were reported or error entries were made in the device diagnostics and, if necessary, remedy the cause.
5	Change the configuration to activate the appropriate restart capability.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP CONFIGURED_OUTPUT_VALUE

Diagnostics buffer entry

No

20014 Under logical address: /1/%d (optional log. address: /2/%d and bit no.: /3/%d of the enable output), a driver (type: /4/%d) could not be requested

Cause

The driver of a physical device is not available or is being used by another technology object.

The enable command for the technology object has been issued more than once with the 'immediately' stepping condition.

Meaning of alarm parameters

Logical address:	This is the address of the actuator driver configured on the technology object.
Logical address and bit number:	This specifies the address and bit number of the output enable bit.

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver

Description of the alarm parameters in the `_getSensorErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	DINT

Remedy

- Do not call the enable command cyclically "call the enable command only once for the axis enable".
- Check that the logical device was available at the time of the request or whether it was being used by another technology object.
- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

CONFIGURED_OUTPUT_VALUE

Settable local reactions

CONFIGURED_OUTPUT_VALUE

Diagnostics buffer entry

Yes

20015 **Device type:/3/%d, log. address:/1/%d faulted. (Bit:/2/%d, encoder number:/5/%d, reason: 0x/4/%Xh)**

Cause

The driver of a physical device or the device itself has failed or is faulty.

If this alarm occurs, the cause of the error must be evaluated in the external device (drive or encoder).

Meaning of alarm parameters

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver
12	Safety data block driver
13	Update counter
14	Operating characteristics data block driver

Logical address:	This is the logical input address configured on the technology object.
Bit number:	For bit driver type = 3 or 4 only; number of the bit
Encoder number:	Number of the encoder in case of telegrams with multiple encoders. Applies only when type = 2.
Reason:	0 - only defined when type = 2

Note

Addition of error messages

The codings for the reason of the failure specified below for the individual alarm types can also occur in combination. A group coding is indicated as the sum of several individual codings (e.g. 0x0005 = 0x0001 + 0x0004).

A failure reason labeled with DP can occur only for PROFIBUS devices.

Type = 1	
0x0001h	Fault message from the drive (note: for PROFIBUS drives, which support acyclic communication in accordance with PROFIdrive V3, the error number(s) of the drive are displayed in the diagnostic buffer, e.g. for Masterdrives MC)
0x0002h	DP: Drive signal "control requested" failed
0x0004h	DP: Drive disconnected itself
0x0008h	Slot for drive data is not available in the project
0x0010h	Actuator driver does not have a connection to the drive data
0x0020h	Actuator driver was not initialized during ramp-up
0x0080h	DP: Difference between configuration data and drive parameters (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	DP: Control signals to the PROFIdrive state machine were incorrectly specified
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
0x8000h	DP: Life-sign of drive has malfunctioned or failed
0x80000000h	The drive interface has been deactivated for the pending enables.
Type = 2	
0x0000h	The actual value changes exceed the limit value derived from the maximum velocity (configuration data TypeOfAxis.MaxVelocity.maximum) over multiple cycles. This monitoring can be activated or deactivated with configuration data TypeOfAxis.NumberOfEncoders.Encoder_x.AbsEncoder.enableAbsMonitoring.
0x0001h	Alarm message from encoder (note: the encoder error number(s) are displayed in the diagnostic buffer)
0x0002h	General hardware error of encoder
0x0004h	Encoder is dirty
0x0008h	Slot for encoder data is not available in the project
0x0010h	Encoder driver does not have a connection to the encoder data
0x0020h	Encoder driver was not initialized during ramp-up
0x0040h	Error when reading the absolute value of the encoder
0x0080h	DP: Difference between the configuration data and the encoder parameters Onboard C2xx: Inconsistency of the configuration data (note: the specific cause is indicated in the diagnostic buffer)
0x0100h	Zero mark monitoring of encoder
0x0200h	DP: Encoder has gone to Parked state
0x4000h	DP: Encoder on bus failed (station failure)

0x8000h	DP: Life-sign of encoder has malfunctioned or failed. (note: for an encoder whose data are transferred in a drive telegram together with actuator data, the actuator life-sign applies to the encoder, e.g. for standard telegram 3 in accordance with PROFIdrive)
0x80000000h	The sensor interface has been deactivated for the pending enables.
Type = 3...6	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 7	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 8	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 9	
0xbh	Read incorrect Status Ready bit actual value in the I/O area
0xch	Read incorrect Status Error bit actual value in the I/O area
Type = 10	
0x0000h	Additional information, not assigned
0x0200h	No driver is available for the requested action
Type = 11	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 12	
0x0200h	No driver is available for the requested action
0x4000h	DP: Drive on bus failed (station failure)
Type = 13	
0x1h	The actual value was specified via a system variable and the permissible number of failure cycles was exceeded
0x2h	The actual value was updated with an update counter in the I/O area and the permissible number of failure cycles was exceeded

Description of the alarm parameters in the `_getSensorErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

The remedy for the respective type and cause is described below.

Type 1

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- A system fault may be present. Call the hotline.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- When sign-of-life monitoring is set: Ensure that in HW Config for drive under DP slave properties - isochronous operation - drive, the "synchronize to equidistant DP cycle" field is activated.
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
- Up to SIMOTION RT V4.3: If the alarm occurs after the download on a drive with telegram 999: Compare the parameterized bit position for the "Pulses enabled" status signal in drive parameter p924 with the configuration data 'DriveControlConfig.PulsesEnabled' of the TO axis. In this case, there is not necessarily an incorrect parameterization and therefore a check cannot be performed by the system because of the BICO interconnection. Therefore, make sure that the Pulses enabled bit is in the correct position.

For reason 0x0100

- Correct your user program with regard to PROFIdrive-compliant specification of control bits in the _enable/disableAxis commands, e.g. control signal OFF (STW1.0 = false) must precede a drive connection.

For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 2

For reason 0x0000

- Check the absolute encoder functions, connections and configuration. Take note of this when monitoring is deactivated (not with Alarm 20015).

For reason 0x0001, 0x0002, 0x0004

- Check the device functions, connections and wiring.

For reason 0x0008

- Check the topology in HW Config.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0010

- A system fault may be present. Call the hotline.

For reason 0x0020

- Make sure that the user program does not reference a technology object containing an encoder (Axis, External Encoder) with an '_enableaxis' or '_enableexternalencoder' command while system variable 'sensordata.sensordata[n].state' is signaling invalid.
- If this remedy does not apply, a system fault may be present. Call the hotline.

For reason 0x0040

- Compare the encoder type in the drive or encoder parameter P979 with the configuration data of the technology object.

For reason 0x0080

- For PROFIBUS drives or encoders, compare the configuration of HW Config, the technology object, and the drive parameter assignment (pay special attention to the help text for the associated diagnostic buffer entry).
- Perform the following comparisons:
 - Compare the telegram type in the drive or encoder parameter P922 with HW Config and the configuration data of the technology object.
 - Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (reason 0x8000 can occur as a follow-on error).
 - Compare the encoder type, resolution, shift factor, and, in the case of absolute encoders, the number of rotations in the drive or encoder parameter P979 to the encoder type, resolution, fine resolution, and, in the case of absolute encoders, the data length in the configuration data of the technology object.
- When using telegram 999, this message always appears, as the bit position is not checked by the system in this case, but has to be performed by the user.

For reason 0x0100

- Check the device functions, connections and wiring.

For reason 0x0200

- Find the cause of the error in the connected drive or encoder. Check whether the alarm was triggered due to a commissioning operation on the drive or encoder.

For reason 0x4000

- Check the device functions, connections and wiring.

For reason 0x8000

- Check the device functions, connections and wiring.
- Compare the cycle clock parameters of HW Config (PROFIBUS line, Slave OM for drive or encoder) and the execution system. Tmapc and servo must be parameterized with the same cycle clock period! (incorrect parameter assignment is indicated by reason 0x0080)

Type 3 - Type 6For reason 0x0000

- Check the configuration and the signal paths of the connection.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 7For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 8For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 9For reason 0xb

- Check the Ready bit with regard to function, configuration, connections and wiring.

For reason 0xc

- Check the Error bit with regard to function, configuration, connections and wiring.

Type 10For reason 0x0000

- Check the device functions, connections and wiring.

For reason 0x0200

- Assign a valid address to the I/O device.

Type 11 - Type 12For reason 0x0200

- Assign a valid address to the I/O device.

For reason 0x4000

- Check the device functions, connections and wiring. If the error cannot be acknowledged when the axis is in simulation mode, check whether the technology data block is activated, and if this is the case, deactivate it.

Type 13

For reason 0x1

- Check the specification of the actual value with regard to function, configuration, and task configuration.

For reason 0x2

- Check the device functions, configuration, connections and wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP CONFIGURED_OUTPUT_VALUE

Diagnostics buffer entry

Yes

20016 Under logical address: /1/%d (bit number, if required: /2/%d) no driver (type: /3/%d) activated (error number: /4/%d)

Cause

The driver of a physical device or the device itself is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getSensorErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT

Remedy

- Check the activation/deactivation sequence for the interface.
- Note the runtimes of the commands and use the provided command control mechanisms (e.g. `nextCommand := WHEN_COMMAND_DONE`).
- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Contact the hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

CONFIGURED_OUTPUT_VALUE

Settable local reactions

CONFIGURED_OUTPUT_VALUE

Diagnostics buffer entry

Yes

20017 Internal algorithm error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter 1:	Error source
Parameters 2 to 4:	Fault number

Description of the alarm parameters in the `_getSensorErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

A detailed description of this system error alarm is not provided.

Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact:

SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

CONFIGURED_OUTPUT_VALUE

Settable local reactions

CONFIGURED_OUTPUT_VALUE

Diagnostics buffer entry

Yes

20018 **Attempt to write the bit(s): 0x/1/%Xh in control word1 or the bit(s): 0x/2/%Xh in control word2 under the log. address: /3/%d has been rejected.**

Cause

An attempt to write certain bits in control word 1 or 2 has been rejected.

Meaning of alarm parameters

Bits:	Display of bits which could not be written
Log. address:	Logical address of the device driver

Description of the alarm parameters in the `_getSensorErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT

Remedy

- Check the order of commands, particularly in relation to `_enableAxis(...)`.
- Check the command parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE

Diagnostics buffer entry

Yes

20019 Error for the commissioning, reason: /1/%d (Parameter1: /2/%d, Parameter2: /3/%d)

Cause

A commissioning function could not be executed.

Meaning of alarm parameters

Reason:	
1	Failure of the life-sign between controller and SIMOTION SCOUT
2	Protocol error
3	Command decoding error

Description of the alarm parameters in the `_getSensorErrorState` command:

No.	Data type
1	DINT
2	UDINT
3	UDINT

Remedy

Reason:	
1	Check the connection properties. If required, increase the monitoring time.
2	Should a system error of this type occur, note the alarm number, the alarm text and the specified alarm parameters, and contact: SIEMENS AG I DT MC, Hotline.
3	Should a system error of this type occur, note the alarm number, the alarm text and the specified alarm parameters, and contact: SIEMENS AG I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / NONE

Preassignment for local reactions

NONE

Settable local reactions

NONE CONFIGURED_OUTPUT_VALUE

Diagnostics buffer entry

Yes

20020 Output deactivated

Cause

One or more outputs of the technology object have been deactivated. This is caused by the output-disable device status.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

CONFIGURED_OUTPUT_VALUE

Settable local reactions

NONE DECODE_STOP CONFIGURED_OUTPUT_VALUE

Diagnostics buffer entry

No

20021 Configuration will be adapted internally (category: /1/%d, reason: /2/%d, limited value: /3/%f, additional information: /4/%d)

Cause

This alarm shows the implicit setting of configuration data to the maximum possible values. The technology objects perform a plausibility check on the configuration. Errors/manipulations are identified by the error codes below.

Meaning of alarm parameters

Category:	Area in which the error occurred.
1	Command decoding
2	Interpolator
3	Controller
4	Manipulated variable output
5	Encoder system
6	Technology object

Error number:	Specification of configuration data
2001	Illegal value for maxSpeed (maxSpeed less than or equal to 2*nominalSpeed; maxSpeed will be set to 2*nominalSpeed)
2002	Illegal value for maxTorque/Force (maxTorque/Force less than or equal to 2*nominalTorque/Force; maxTorque/Force will be set to 2*nominalTorque/Force)
2003	Error during the adaptation of the Torque-/ForceReductionGranularity. p1544 is ignored and the default value used.
3001	The length of the backlash on reversal is limited to a permitted value (Encoder_N.incBacklash.length or Encoder_N.absBacklash.length).
3002	The compensation velocity of the backlash on reversal is limited to a permitted value (Encoder_N.incBacklash.velocity or Encoder_N.absBacklash.velocity).
3003	The value of the configuration data for the encoder system (.Encoder_N.encoderSystem) is limited to a permitted value.
3004	The value of the configuration data for the encoder resolution (rotary: .Encoder_N.incEncoder.incResolution, Encoder_N.absEncoder.absResolution; linear: Encoder_N.Resolution.distance) is limited to a permitted value.
3005	The value of the configuration data for the multiplication factor of the cyclical actual value (.Encoder_N.incEncoder.incResolutionMultiplierCyclic, Encoder_N.absEncoder.absResolutionMultiplierCyclic, Encoder_N.Resolution.multiplierCyclic) is limited to a permitted value.
3006	The value of the configuration data for the multiplication factor of the absolute value (Encoder_N.absEncoder.absResolutionMultiplierAbsolute) is limited to a permitted value.
3007	The value of the configuration data for the data length of the absolute value (Encoder_N.absEncoder.absDataLength) is limited to a permitted value.
3008	The value of the configuration data for the reference value of the Nact speed in the PROFIdrive telegram (Encoder_N.sensorNist.referenceValue) is limited to a permitted value.
3009	The load gear factor of the first data set is leading for the encoder simulation. The simulation with different load gear factors is not supported. The value of the configuration data for the load gear (DataSet_N.gear) is limited to the load gear ratio of the first data set.
4001	The delay time for the triggering of the standstill signal (StandStillSignal.delayTimeToActivate) is limited.
4002	The delay time until the position monitoring tolerance window is reached (PositionMonitoring.posWinTolTime) is limited.
4003	The delay time until the activation of the position monitoring message (PositionMonitoring.posWinTolDelayTime) is limited.
4004	The delay time for the activation of the standstill monitoring message (StandStillMonitoring.delayTimeToActivate) is limited.
4005	The delay time of the actual value of the force/pressure entry monitoring (ForceControlRunningInWindowMonitoring.winTolTime) is limited.
4006	The delay time until activation of the force/pressure entry monitoring (ForceControlRunningInWindowMonitoring.maxDelayTime) is limited.
4007	The delay time until activation of the force/pressure end value monitoring (ForceControlHeldValueMonitoring.delayTimeToActivate) is limited.

4008	The delay of the emergency ramp generator (EmergencyRampGenerator.maxDeceleration) is too small and set to the minimum possible value.
4009	The decay time constant of the friction compensation (Friction.decayTime) is limited.
4068	The maximum buffer length of the lag element in the balancing filter (Mode_2) is reached or exceeded. The lag element (maximum buffer length: 16 servo-cycles) is augmented by a PT1 element.
4069	The maximum buffer length of the lag component of the dynamic response compensation is reached or exceeded. The maximum value of this time constant is limited to 16 servo cycles. The buffer length of the lag element is maximum 16.

Additional information:	More detailed description of the error origin
Not relevant	

Description of the alarm parameters in the `_getSensorErrorState` command:

No.	Data type
1	DINT
2	DINT
3	LREAL
4	UDINT

Remedy

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE CONFIGURED_OUTPUT_VALUE

Diagnostics buffer entry

No

20023 Under logical address: /1/%d (bit number, if required: /2/%d) no I/O (type: /3/%d) are available (error number: /4/%d)

Cause

A physical device is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getSensorErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

CONFIGURED_OUTPUT_VALUE

Settable local reactions

CONFIGURED_OUTPUT_VALUE

Diagnostics buffer entry

Yes

20024 Under logical address: /1/%d (bit number, if required: /2/%d) no I/O (type: /3/%d) are available (error number: /4/%d)

Cause

A physical device is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	For bit driver only; bit number

Type:	
1	Actuator driver
2	Encoder driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver
11	Technology data block driver

Error number:	Specification of the error
1	Memory problem when instantiating a driver
2	Unknown driver requested. The technology may be newer than the Kernel version.
6	The number of available driver objects is limited and has been fully utilized. Please contact customer support.
7	The requested logical address is invalid.
8	Unknown driver version requested. The technology may be newer than the Kernel version.
9	Configuration error
11	Internal error. Please contact customer support.
12	Incorrect driver parameterization.
13	Driver requires a shorter position control cycle clock.
15	The requested logical input address is invalid.
16	The requested logical output address is invalid.
17	Internal error. Please contact customer support.
18	A processing cycle clock must be set on the technology object that is not faster than the servo cycle clock.
19	Incorrect processing cycle clock: The processing cycle clock on the technology object must match the cycle clock system associated with the I/O.
20	The distributed I/O connection must be isochronous/equidistant.

Description of the alarm parameters in the `_getSensorErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	DINT
4	UDINT
5	UDINT

Remedy

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP CONFIGURED_OUTPUT_VALUE

Diagnostics buffer entry

Yes

30001 **Illegal parameter (parameter index according to standard sequence in the system functions: /1/%d, command type: /4/%X)**

Cause

Illegal parameter transfer to a system function. The command is not executed. This alarm occurs when the permissible parameter value range is violated. The permissible value range of the parameter is a function of its data type and the technological meaning of the parameter.

The parameter index indicates the position of the illegal parameter. The standard sequence of parameters in the system functions is apparent from the reference list associated with the command. The command type indicates the type of the faulty system function.

Meaning of alarm parameters

Parameter index:	Index of the system function parameter that triggered this error (listed according to the standard sequence in the system functions).
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getSensorErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the value range of the parameter data type.
- Check the technological meaning of the parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30002 Command aborted (reason: /1/%d, command type: /4/%X)**Additional references**

Further information is provided in the Function Manual:

- Basic Functions and
- in the online help.

Cause

The command was aborted before or during execution.

This can be caused by:

- A substituted command
- Command buffer reset
- Error state

Note

This alarm is always output, e.g. for jogging (_move aborted with _stop) or for the retraction of the reference BERO for homing or when Synchronous operation (explicitly) deactivated.

Meaning of alarm parameters

Reason:	
1	Reset of the command buffer
2	Abort by another command
5	Abort by a pending error response
6	Abort due to ambiguous commandId
9	Abort due to abort of a dependent command
31	Maximum number of active commands exceeded
42	No interconnection to a technology object
44	Abort because of a pending command with identical command parameters

Command type:	Outputs the aborted command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getSensorErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Set up the command again via program.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30003 Command aborted because of full command buffer (command type: /4/%X)**Cause**

The command is not entered in the command buffer because the buffer is already full.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getSensorErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the program flow.
- Typical cause: The 'nextCommand' parameter is passed with the value 'IMMEDIATELY', and the 'mergeMode' parameter is passed with the value 'SEQUENTIAL'.
 - Synchronize the command execution in the user program so that the command buffer is not occupied when the command is issued.
 - Use other values for the 'nextCommand' or 'mergeMode' parameters. Setting the 'nextCommand' to a value other than 'IMMEDIATELY' causes the program to wait for the command buffer to become available. In addition, setting a different 'mergeMode' means that the command buffer can be overwritten.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30004 Command is not defined for this technology object type (command type: /4/%X)

Cause

Command was programmed on a technology object type not supporting processing of this command.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getSensorErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Issue the command on the correct technology object type.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30005 Ambiguous commandId (number of commands with the specified ID: /1/%d, command type: /4/%X)**Cause**

The specified commandId refers to more than one command. The specified action is performed for the command matching the specified ID that has been in the interpolator for the longest time.

If no corresponding command is found in the interpolator, the action refers to the next command loaded in the interpolator.

Meaning of alarm parameters

Id:	Number of commands referenced by the specified command ID.
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the _getSensorErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Use a different 'commandId' for commands that are active simultaneously.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30006 **Command cannot be executed because of the current object state (command type: /4/%X)**

Cause

A reset command is active at the object or the object is deactivated.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getSensorErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the following:

- Check the object status.
- Check the possible execution sequence of the programmed commands.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30007 The error cannot be reset because of its configuration**Cause**

The 30007 alarm will be output when an alarm is reset that can only be acknowledged with PowerOn.

Example:

The internal 20001 error can only be acknowledged with PowerOn.

If an attempt is made to reset the alarm with a `_reset...Error` command, the 30007 alarm will be output.

Description of the alarm parameters in the `_getSensorErrorState` command:

No.	Data type
1	UDINT
2	UDINT
3	UDINT
4	UDINT

Remedy

Check whether the errors present on the technology object can be acknowledged.

Correct the cause of the error and switch the CPU off/on or load the project again.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30008 **Link to a technology object necessary for this operation does not exist (command type: /4/%X)**

Cause

The object connection required for this operation has not been configured or the connected technology object has been deactivated.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getSensorErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check the project configuration.
- Change the object connection in the command.
- Activate the connected technology object.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30009 Command rejected as the decoding of the command of the technology object addressed has been deactivated/stopped (reason: /1/%d, command type: /4/%X)

Cause

Command was rejected due to suspension of command decoding on the addressed technology object. The command decoding can be stopped by the DECODE_STOP alarm response, by deactivating or restarting the technology object, by starting the axis control panel in exclusive mode or by the absence of necessary interconnections.

Meaning of alarm parameters

Reason:	
1	Restart of the technology object
2	Technology object is deactivated
3	Technology object is in RUN mode.
4	Control panel active

Command type:	Outputs the type of the rejected command. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getSensorErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

- Check why the command was rejected.
- If necessary, acknowledge any active errors once you have corrected the cause of the error.
- If the technology object is deactivated, you must activate it.
- Do not issue any commands while the technology object is restarting.
- Do not issue any commands while a connected technology object is restarting.
- Stop the axis control panel.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30010 Command not available (command type: /4/%X)

Cause

The command is not available in this version of the runtime software.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the `_getSensorErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the version of the runtime software.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30011 **Parameter not available (parameter index according to the standard sequence in the system functions: /1/%d, command type: /4/%X)**

Cause

The parameter is not available in this version of the runtime software, the command is therefore rejected. The parameters indicate the position according to the standard sequence in the system functions and the command type of an incorrectly entered parameter.

Meaning of alarm parameters

Parameter index:	Index of the command parameter triggering this error according to the standard sequence in the system functions.
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getSensorErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Check the version of the runtime software.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30012 Command cannot be started synchronously (command type: /4/%X)**Cause**

The command cannot be used within a 'BEGIN_SYNC' or 'END_SYNC' sequence. The command has only one return value in the user program, or the command is not capable of starting synchronously.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getSensorErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Do not use this command type during a BEGIN_SYNC, END_SYNC sequence.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30013 Synchronous start of the command is carried out with mergeMode IMMEDIATELY (command type: /4/%X)

Cause

With synchronous command start, only merge modes that immediately override the current command (IMMEDIATELY) and superimpose the current command (SUPERIMPOSED_MOTION_MERGE) can be used.

If an illegal merge mode is programmed (e.g. SEQUENTIAL or NEXT_MOTION), the system automatically changes the merge mode to IMMEDIATELY and outputs this warning.

Meaning of alarm parameters

Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.
----------------------	--

Description of the alarm parameters in the _getSensorErrorState command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Program the command which is to be started synchronously to immediately override the current command. To do this, enter the value IMMEDIATELY in the 'mergeMode' command parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

30015 **A technology required for this command has not been configured (technology: /1/%d, command type: /4/%X)**

Cause

The command cannot be selected in this technology object configuration.

Meaning of alarm parameters

Technology:	Not relevant
Command type:	Outputs the command type. The command type is output as a hexadecimal integer value.

Description of the alarm parameters in the `_getSensorErrorState` command:

No.	Data type
1	DINT
2	DINT
3	CommandId
4	DINT

Remedy

Activate the technology needed for the command.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

No

40110 Error triggered on slave during Synchronous operation (error number: /1/%d, slave stopped: /2/%d)

Additional references

Further information is provided in the Function Manual:

- Technology Objects Synchronous Operation, Cam and
- in the online help.

Cause

An error was triggered on a slave during Synchronous operation and reported to the master.

Meaning of alarm parameters

Error number:	Error reported by slave:
1	Synchronous operation setpoint tolerance exceeded.
2	Synchronous operation actual-value tolerance exceeded.
3	General slave axis error.

Slave stopped:	Indicates whether the slave axis has switched to Stop mode:
0	The slave axis has not switched to Stop mode.
1	The slave axis has switched to Stop mode.

Description of the alarm parameters in the `_getSensorErrorState` command:

No.	Data type
1	DINT
2	DINT

Remedy

Check the following:

- Configuration data for Synchronous operation monitoring on the slave
- Programming (dynamic parameters, Synchronous operation connection)
- System variables

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DECODE_STOP

Settable local reactions

DECODE_STOP CONFIGURED_OUTPUT_VALUE NONE

Diagnostics buffer entry

No

50013 The permissible range limits have been violated (logical address: /1/%d, reason: /2/%d)

Cause

Range violation of additional sensor.

Meaning of alarm parameters

Logical address:	Address configured on the technology object.
-------------------------	--

Reason:	
1	Value greater than maximum permissible value.
2	Value less than minimum permissible value.
3	Positive overflow of sensor range.
4	Negative overflow of sensor range.
5	Error in accessing hardware address.

Description of the alarm parameters in the `_getSensorErrorState` command:

No.	Data type
1	UDINT
2	DINT

Remedy

- Check and adjust the configuration data.
- Check the sensor connection.
- Check the wiring.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP CONFIGURED_OUTPUT_VALUE

Diagnostics buffer entry

Yes

TP TControl

5.1 TemperatureControllerType

20001 Internal error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter1:	Error source
Parameter2 to 4:	Fault number

Remedy

A detailed description of this system error alarm is not provided. Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact:

SIEMENS AG, I DT MC, Hotline.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_ALL

Settable local reactions

DISABLE_ALL

Diagnostics buffer entry

Yes

20002 **Insufficient memory (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)**

Cause

The memory required by the system is no longer available. This alarm can occur both during power up and after program calls.

Meaning of alarm parameters

Parameter1:	Area in which the error occurred.
Parameters 2 to 4	are area-specific. They are not fully utilized by all areas.

Remedy

Change the memory configuration of the controller.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_ALL

Settable local reactions

DISABLE_ALL

Diagnostics buffer entry

Yes

20003 No object configuration (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)

Cause

Error in system configuration. The configuration data for a software tool could not be found.

Meaning of alarm parameters

Parameter1:	Area in which the error occurred.
Parameters 2 to 4	are area-specific. They are not fully utilized by all areas.

Remedy

Check the accuracy of the configuration data in your project. When commands are called on technology objects, the technology objects must be configured.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_ALL

Settable local reactions

DISABLE_ALL

Diagnostics buffer entry

Yes

20004 Under logical address: /1/%d (bit number, if required: /2/%d) no driver (type: /3/%d) could not be requested

Cause

The driver of a physical device or the device itself is not available.

Meaning of alarm parameters

Logical address:	This is the address configured on the technology object.
Bit number:	Bit number (only for bit driver)

Type:	
1	Actuator driver
2	Sensor driver
3	BitRead driver
4	BitWrite driver
5	ByteRead driver
6	ByteWrite driver
7	WordRead driver
8	WordWrite driver
9	DWordRead driver
10	DWordWrite driver

Remedy

- Connect a suitable device.
- Check the device (function, connections, terminals).
- Check the topology in HW Config.
- Compare the configuration in HW Config and the technology object configuration.
- Call the hotline.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_ALL

Settable local reactions

DISABLE_ALL

Diagnostics buffer entry

Yes

20006 Configuration error (category: /1/%d, error number: /2/%d)**Cause**

This alarm indicates error states caused by a faulty or inconsistent configuration. The technology objects perform a plausibility check on the configuration. Errors are identified by the error codes below.

Meaning of alarm parameters:

Parameter1:	Area in which the error occurred.
Parameter2:	Error number (see return values _setTControllerOperatingMode() value 2000 or higher)

Remedy

Change the configuration data.

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_ALL

Settable local reactions

DISABLE_ALL

Diagnostics buffer entry

Yes

20007 Interconnection error (category: /1/%d, error number: /2/%d)

Cause

This alarm indicates errors in the interconnection of technology objects. When the interconnection is established, the technology object verifies it on the basis of the interface properties. Errors are displayed using the error category and identification.

Meaning of alarm parameters

Category:	
1	Technology object compatibility error - An interconnection is to be established with a technology object that has been configured with another reference system (e.g. interconnection of linear and rotary axes).
2	Exclusive interface - Multiple interconnections are to be established for an interface intended for exclusive interconnection.
3	Interconnection request - The technology object is waiting for an interconnection required for the sequence; <id> specifies the expected interface.
4	Error initializing interface - Errors result from expanded initializations and parameter exchange between interconnected interfaces.
5	Interface on technology object unavailable - An interface specified in the interconnection is not available on the technology object.

Remedy

1 - Technology object compatibility error:

Correct the configuration of the reference system of the technology objects to be interconnected.

2 - Exclusive interface:

Correct the configuration of the interconnected technology object.

3 - Interconnection request:

Add the missing interconnection to the technology object.

4 - Error during interface initialization

Interface not available on technology object.

5 - Interface not available on technology object

Call the hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_ALL

Settable local reactions

DISABLE_ALL

Diagnostics buffer entry

Yes

20008 Assignment of USER_DEFAULT to system variables is not possible

Cause

It is not appropriate to assign USER_DEFAULT to a UserDefault system variable, because the variable references itself in this case. As a result, a meaningful value cannot be generated on readout. When this error occurs, the new Enum value is not assigned. The variable retains the old value.

Remedy

USER_DEFAULT is intended for use in technology commands. Avoid assigning it to system variables.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE

Diagnostics buffer entry

No

20010 A restart is required to activate the configuration data

Cause

The configuration cannot be activated, since data has been modified preventing the activation. The technology object must be restarted to activate the data.

Remedy

- Execute the technology object reset command, and set the 'activateRestart' parameter to ACTIVATE_RESTART.
- Set the 'restartActivation' system variable to ACTIVATE_RESTART.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP DISABLE_ALL

Diagnostics buffer entry

No

20011 Error occurred while activating the configuration (category: /1/%d, error number: /2/%d)

Cause

This alarm indicates error conditions when activating the configuration.

The error conditions can be traced back to an incorrect or inconsistent configuration. The technology objects perform a plausibility check on the configuration. Errors are identified by the error codes below.

The configuration is not activated with this error message.

Meaning of alarm parameters

Category:	Area in which the error occurred.
	Not relevant

Remedy

Change the configuration data.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP

Diagnostics buffer entry

Yes

20012 Restart not carried out (reason: /1/%d)

Cause

Technology object could not be restarted.

Meaning of alarm parameters

Reason:	
1	The technology object configuration does not allow a restart with the restart system variable.
2	The technology object is not ready to be restarted.
3	A configured condition for restarting the technology object is not met (e.g. operatingMode must be 'INACTIVE').
4	Restart was not executed with the last programmed configuration of the technology object because it was incorrect.
5	The configuration of the technology object does not permit any restart.

Remedy

1	Initiate the restart using the reset command.
2	Reload the project.
3	Work around the cause specified in the parameter reason or change the configuration accordingly.
4	Determine whether technological alarms were reported or error entries were made in the device diagnostics and, if necessary, remedy the cause.
5	Change the configuration to activate the appropriate restart capability.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_ALL

Settable local reactions

DISABLE_ALL

Diagnostics buffer entry

Yes

20020 Output deactivated

Cause

One or more outputs of the technology object have been deactivated. This is caused by the output-disable device status.

Remedy

Not necessary, for information only.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE DECODE_STOP DISABLE_ALL

Diagnostics buffer entry

No

30001 **Illegal command parameter (error code: /1/%d, command type: /2/%X, p3: /3/%d, p4: /4/%d, p5: /5/%d)**

Cause

The command parameter is incorrect.

Meaning of alarm parameters

Error code:	
Command type:	Type of aborted command (hexadecimal)
p3-p5:	Parameter with internal significance

Remedy

Change the command parameter.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE

Diagnostics buffer entry

No

30002 Command aborted (reason: /1/%d, command type: /2/%X, p3: /3/%d, p4: /4/%d, p5: /5/%d)

Cause

The command was aborted before or during execution. This can be caused by:

- An overriding command
- Command buffer reset
- Error state

Meaning of alarm parameters

Reason:	Cause of command abort
1	Deletion of command buffer
2	Abort by another command
3	Abort by a pending error response

Note

Values greater than 2000 correspond to the return code of the issued command.

Command type:	Type of aborted command (hexadecimal)
----------------------	---------------------------------------

p3-p5:	Parameter with internal significance
---------------	--------------------------------------

Remedy

Set up the command again via program.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE

Diagnostics buffer entry

Yes

30003 Error in the output device

Cause

An actuating signal cannot be output.

Remedy

Check the output module.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_OUTPUT

Settable local reactions

DISABLE_OUTPUT

Diagnostics buffer entry

No

30004 Error in the input device (Parameter1: /1/%d)**Cause**

An actual value cannot be read in.

Meaning of alarm parameters

Parameter1:	Error specification
1	ADC is not supplying a valid value, overrange.
2	ADC is not supplying a valid value, underrange.
3	Access over the I/O bus is not possible.

Remedy

Check the input module.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_MEASURE_AND_MANUAL_OUTPUT_VALUE

Settable local reactions

DISABLE_MEASURE_AND_MANUAL_OUTPUT_VALUE

Diagnostics buffer entry

No

30005 Actual value violates temperature limit (Parameter1: /1/%lf)

Cause

The actual value determined by the module cannot be a temperature based on its value.

Remark: The limits used for this check can be assigned.

Meaning of alarm parameters

Parameter1:	Error specification
	Temperature measured in degrees Celsius.

Remedy

- Check the input module.
- Check the temperature limits that can be configured.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_MEASURE_AND_MANUAL_OUTPUT_VALUE

Settable local reactions

DISABLE_MEASURE_AND_MANUAL_OUTPUT_VALUE

Diagnostics buffer entry

No

30006 Gradient error (rise too great)

Cause

The actual value gradient has exceeded the number of violations to be tolerated.

Remedy

- Check the input module and the sensor connection for short circuits and loose contacts.
- Check the maximum actual-value rise and fall of the parameters. They must be greater than the potential actual-value gradients based on the properties of the controlled system.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE

Diagnostics buffer entry

No

30007 **Inner, upper tolerance violated**

Cause

The actual value is greater than the inner upper tolerance limit.

Remedy

Check the controller parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE

Diagnostics buffer entry

No

30008 **Inner, lower tolerance violated**

Cause

The actual value is less than the inner lower tolerance limit.

Remedy

Check the controller parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE

Diagnostics buffer entry

No

30009 **Outer, upper tolerance violated**

Cause

The actual value is greater than the outer upper tolerance limit.

Remedy

Check the control loop.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

HEAT_OUTPUT_ZERO

Settable local reactions

HEAT_OUTPUT_ZERO DEPENDING_ON_OUTER_INPUT_LIMITCHECK_STATUS

Diagnostics buffer entry

No

30010 Outer, lower tolerance violated

Cause

The actual value is less than the outer lower tolerance limit.

Remedy

Check the control loop.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

HEAT_AND_COOL_OUTPUT_ZERO

Settable local reactions

HEAT_AND_COOL_OUTPUT_ZERO DEPENDING_ON_OUTER_INPUT_LIMITCHECK_STATUS

Diagnostics buffer entry

No

30011 Controller mode is invalid in the current technology state

Cause

The new controller mode cannot be selected from the current technology object state.

Remedy

Restart the computer via reset.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_ALL

Settable local reactions

DISABLE_ALL

Diagnostics buffer entry

No

30012 The identification has been aborted. Cause: /1/%d

Cause

The identification was aborted.

Meaning of alarm parameters

Parameter1:	Error specification
0	General error
1	Minimum step height is too small.
2	Temperature change is too large.
3	Duration of a phase is too long.

Remedy

Restart the identification with different parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

HEAT_AND_COOL_OUTPUT_ZERO

Settable local reactions

HEAT_AND_COOL_OUTPUT_ZERO

Diagnostics buffer entry

No

30013 The self tuning has been completed successfully: /1/%d

Cause

Identification was successfully completed.

Remedy

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE

Diagnostics buffer entry

No

30014 The identification cannot work optimally: /1/%d

Cause

The identification does not work optimally but can still be completed.

Meaning of alarm parameters

Parameter1:	Error specification
1	Turning point was not found.
2	Controlled system parameters are faulty.
3	Selected controller sampling time too small for the measured temperature rise.

Remedy

The identification can be completed or restarted with new parameters.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE

Diagnostics buffer entry

No

30015 Controller plausibility violated

Cause

The controller plausibility was violated.

Remedy

Check the control loop. (final controlling element, sensor, contacts).

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

HEAT_AND_COOL_OUTPUT_ZERO

Settable local reactions

HEAT_AND_COOL_OUTPUT_ZERO

Diagnostics buffer entry

No

30016 Task configuration inconsistent with technology object configuration (reason: /1/%d)**Cause**

The task configuration is inconsistent with the technology object configuration.

The technology object must be reloaded.

Meaning of alarm parameters

Parameter1:	Error specification
1	General error source.
2	Sampling time of 'TCInput_Task' is greater than the sampling time of 'TCTask'.
3	Sampling time of 'TCPWM_Task' is greater than the sampling time of 'TCInput_Task'.
4	Limit for minimum controller sampling time (limits.controller.minControllerCycle) is less than sampling time of 'TCTask'.
5	Ratio of sampling time between 'TCTask' and 'TCInput_Task' is a non-integer value.
6	Ratio of sampling time between 'TCTask' and 'TCPWM_Task' is a non-integer value.

Remedy

Change:

- The task configuration or
- The limit for minimum controller sampling time (limits.controller.minControllerCycle).

Acknowledgement/reaction

Power On / START TechnologicalFaultTask

Preassignment for local reactions

DISABLE_ALL

Settable local reactions

DISABLE_ALL

Diagnostics buffer entry

Yes

30050 **Warning of internal error (Parameter1: /1/%d, Parameter2: /2/%d, Parameter3: /3/%d, Parameter4: /4/%d)**

Cause

This alarm indicates internal error states, which along with the error numbers provide information about the cause and location of the error.

Meaning of alarm parameters

Parameter1:	Error source
Parameter2 to 4:	Fault number

Remedy

A detailed description of this system error alarm is not provided. Should a system error of this type occur, note the alarm number, the alarm text, and the internal system error number specified in the alarm and contact:

SIEMENS AG, I DT MC, Hotline.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE

Diagnostics buffer entry

Yes

30051 **Command rejected as the decoding of the command of the technology object addressed has been deactivated/stopped (command type: /4/%X)**

Cause

Command was rejected due to suspension of command decoding on the addressed technology object. The command decoding can be stopped by the DECODE_STOP alarm response or by deactivating or restarting the technology object.

Meaning of alarm parameters

Command type:	Outputs the type of the rejected command. The command type is output as a hexadecimal integer value.
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Remedy

- Check why the command was rejected.
- If necessary, acknowledge any active errors once you have corrected the cause of the error.
- If the technology object is deactivated, you must activate it.

Acknowledgement/reaction

Reset fault memory / START TechnologicalFaultTask

Preassignment for local reactions

NONE

Settable local reactions

NONE

Diagnostics buffer entry

Yes

Appendix

A.1 Command type numbers of the individual commands

Command	Decimal	Hex
_MOVE	4097	1001
_ENABLEAXISSIMULATION	4103	1007
_DISABLEAXISSIMULATION	4104	1008
_GETSTATEOFAXISCOMMAND	4107	100B
_RESETMOTIONBUFFER	4108	100C
_GETSTATEOFMOTIONBUFFER	4109	100D
_SETAXISDATASETACTIVE	4112	1010
_GETMOTIONSTATEOFAXISCOMMAND	4115	1013
_REMOVEBUFFEREDAXISCOMMANDID	4117	1015
_DISABLETORQUELIMITING	4119	1017
_ENABLETORQUELIMITING	4120	1018
_RESETAXISCONFIGDATABUFFER	4124	101C
_GETAXISERRORNUMBERSTATE	4127	101F
_DISABLEFORCELIMITING	4129	1021
_STOPEMERGENCY	4132	1024
_STOP	4133	1025
_RUNVELOCITYBASEDMOTIONIN	4134	1026
_SETAXISSTW	4135	1027
_ENABLEAXISADDITIVETORQUE	4136	1028
_DISABLEAXISADDITIVETORQUE	4137	1029
_ENABLEAXISTORQUELIMITPOSITIVE	4138	102A
_DISABLEAXISTORQUELIMITPOSITIVE	4139	102B
_ENABLEAXISTORQUELIMITNEGATIVE	4140	102C
_DISABLEAXISTORQUELIMITNEGATIVE	4141	102D
_ENABLEQFAXIS	4143	102F
_RESETAXIS	4145	1031
_RESETAXISERROR	4146	1032
_ENABLEFORCELIMITINGVALUE	4147	1033
_BUFFERAXISCOMMANDID	4148	1034
_SETFORCECOMMANDVALUE	4149	1035
_SETFORCECONTROLDATASETPARAMETER	4150	1036
_GETFORCECONTROLDATASETPARAMETER	4151	1037
_ENABLEAXIS	4152	1038
_DISABLEAXIS	4153	1039
_DISABLEQFAXIS	4154	103A

A.1 Command type numbers of the individual commands

Command	Decimal	Hex
_SETAXISDATASETPARAMETER	4155	103B
_GETAXISDATASETPARAMETER	4156	103C
_SETQFAXISDATASETPARAMETER	4157	103D
_GETQFAXISDATASETPARAMETER	4158	103E
_CONTINUE	4160	1040
_GETAXISERRORSTATE	4162	1042
_CANCELAXISCOMMAND	4164	1044
_ENABLEAXISINTERFACE	4165	1045
_DISABLEAXISINTERFACE	4166	1046
_ADAPTAXISCONFIGDATA	4175	104F
_RUNTIMELOCKEDVELOCITYPROFILE	4177	1051
_SETQFAXISQCHARACTERISTICS	4178	1052
_SETQFAXISFCHARACTERISTICS	4179	1053
_RUNMOTIONINPOSITIONLOCKEDFORCEPROFILE	4181	1055
_RUNMOTIONINPOSITIONLOCKEDVELOCITYPROFILE	4182	1056
_ENABLEMOTIONINPOSITIONLOCKEDFORCELIMITINGPROFILE	4183	1057
_ENABLETIMELOCKEDFORCELIMITINGPROFILE	4184	1058
_RUNTIMELOCKEDFORCEPROFILE	4185	1059
_EXECUTEAXISSAFETYSBT	4354	1102
_SETAXISSAFETYSBTEXTBRAKESTATE	4355	1103
_POS	4609	1201
_HOMING	4610	1202
_REDEFINEPOSITION	4611	1203
_SETANDGETENCODERVALUE	4612	1204
_ENABLEMONITORINGOFENCODERDIFFERENCE	4613	1205
_DISABLEMONITORINGOFENCODERDIFFERENCE	4614	1206
_GETAXISUSERPOSITION	4615	1207
_GETAXISINTERNALPOSITION	4616	1208
_DISABLEMOVINGTOENDSTOP	4619	120B
_ENABLEMOVINGTOENDSTOP	4620	120C
_GETPROGRAMMEDTARGETPOSITION	4622	120E
_ENABLEVELOCITYLIMITINGVALUE	4625	1211
_DISABLEVELOCITYLIMITING	4626	1212
_RUNPOSITIONBASEDMOTIONIN	4628	1214
_GETAXISSTOPPINGDATA	4631	1217
_RUNTIMELOCKEDPOSITIONPROFILE	4689	1251
_RUNPOSITIONLOCKEDFORCEPROFILE	4693	1255
_RUNPOSITIONLOCKEDVELOCITYPROFILE	4694	1256
_ENABLEPOSITIONLOCKEDVELOCITYLIMITINGPROFILE	4695	1257
_ENABLETIMELOCKEDVELOCITYLIMITINGPROFILE	4697	1259
_ENABLEPOSITIONLOCKEDFORCELIMITINGPROFILE	4698	125A
_ENABLEFORCECONTROLBYCONDITION	4699	125B
_ENABLEFORCELIMITINGBYCONDITION	4700	125C

A.1 Command type numbers of the individual commands

Command	Decimal	Hex
_ENABLEMOTIONINPOSITIONLOCKEDVELOCITYLIMITINGPROFILE	4701	125D
_ADDPOINTTOCAM	4868	1304
_INTERPOLATECAM	4869	1305
_SETCAMSCALE	4870	1306
_SETCAMOFFSET	4871	1307
_GETCAMFOLLOWINGVALUE	4872	1308
_GETCAMLEADINGVALUE	4873	1309
_ADDSEGMENTTOCAM	4874	130A
_ADDPOLYNOMIALSEGMENTTOCAM	4875	130B
_RESETCAMCONFIGDATABUFFER	4877	130D
_GETCAMERRORNUMBERSTATE	4878	130E
_RESETCAM	4880	1310
_RESETCAMERROR	4881	1311
_GETSTATEOFCAMCOMMAND	4882	1312
_BUFFERCAMCOMMANDID	4883	1313
_REMOVEBUFFEREDCAMCOMMANDID	4884	1314
_GETCAMFOLLOWINGDERIVATIVE	4886	1316
_GETCAMERRORSTATE	4887	1317
_GETCAMFOLLOWINGMINMAX	4889	1319
_ENABLEMEASURINGINPUT	5123	1403
_DISABLEMEASURINGINPUT	5124	1404
_ENABLEMEASURINGINPUTSIMULATION	5125	1405
_DISABLEMEASURINGINPUTSIMULATION	5126	1406
_RESETMEASURINGINPUTCONFIGDATABUFFER	5128	1408
_GETMEASURINGINPUTERRORNUMBERSTATE	5129	1409
_RESETMEASURINGINPUT	5131	140B
_RESETMEASURINGINPUTERROR	5132	140C
_GETSTATEOFMEASURINGINPUTCOMMAND	5133	140D
_BUFFERMEASURINGINPUTCOMMANDID	5134	140E
_REMOVEBUFFEREDMEASURINGINPUTCOMMANDID	5135	140F
_ENABLEMEASURINGINPUTCYCLIC	5136	1410
_GETMEASURINGINPUTERRORSTATE	5139	1413
_ENABLEOUTPUTCAM	5377	1501
_DISABLEOUTPUTCAM	5378	1502
_ENABLEOUTPUTCAMSIMULATION	5379	1503
_DISABLEOUTPUTCAMSIMULATION	5380	1504
_SETOUTPUTCAMSTATE	5381	1505
_SETOUTPUTCAMCOUNTER	5384	1508
_RESETOUTPUTCAMCONFIGDATABUFFER	5386	150A
_GETOUTPUTCAMERRORNUMBERSTATE	5387	150B
_RESETOUTPUTCAM	5389	150D
_RESETOUTPUTCAMERROR	5390	150E
_GETSTATEOFOUTPUTCAMCOMMAND	5391	150F

Appendix

A.1 Command type numbers of the individual commands

Command	Decimal	Hex
_BUFFEROUTPUTCAMCOMMANDID	5392	1510
_REMOVEBUFFEREDOUTPUTCAMCOMMANDID	5393	1511
_GETOUTPUTCAMERRORSTATE	5395	1513
_GETSLAVEVALUE	5635	1603
_GETMASTERVALUE	5636	1604
_GETSTATEOFFOLLOWINGOBJECTCOMMAND	5645	160D
_GETMOTIONSTATEOFFOLLOWINGOBJECTCOMMAND	5646	160E
_REMOVEBUFFEREDFOLLOWINGOBJECTCOMMANDID	5648	1610
_RESETFOLLOWINGOBJECTCONFIGDATABUFFER	5650	1612
_GETFOLLOWINGOBJECTERRORNUMBERSTATE	5651	1613
_SETMASTER	5652	1614
_ENABLEVELOCITYGEARING	5653	1615
_DISABLEVELOCITYGEARING	5654	1616
_DISABLEGEARING	5657	1619
_RESETFOLLOWINGOBJECTERROR	5659	161B
_RESETFOLLOWINGOBJECT	5660	161C
_BUFFERFOLLOWINGOBJECTCOMMANDID	5661	161D
_ENABLEFOLLOWINGOBJECTSIMULATION	5662	161E
_DISABLEFOLLOWINGOBJECTSIMULATION	5663	161F
_SETGEARINGOFFSET	5664	1620
_ENABLEGEARING	5665	1621
_GETFOLLOWINGOBJECTERRORSTATE	5666	1622
_CANCELFOLLOWINGOBJECTCOMMAND	5667	1623
_ENABLECAMMING	5719	1657
_DISABLECAMMING	5720	1658
_SETCAMMINGOFFSET	5721	1659
_SETCAMMINGSCALE	5722	165A
_ENABLEEXTERNALENCODER	6147	1803
_DISABLEEXTERNALENCODER	6148	1804
_SYNCHRONIZEEXTERNALENCODER	6149	1805
_ENABLEEXTERNALENCODERSIMULATION	6150	1806
_DISABLEEXTERNALENCODERSIMULATION	6151	1807
_SETEXTERNALENCODERVALUE	6152	1808
_RESETEXTERNALENCODERCONFIGDATABUFFER	6154	180A
_GETEXTERNALENCODERERRORNUMBERSTATE	6155	180B
_GETSTATEOFEXTERNALENCODERCOMMAND	6156	180C
_REMOVEBUFFEREDEXTERNALENCODERCOMMANDID	6158	180E
_RESETEXTERNALENCODER	6160	1810
_RESETEXTERNALENCODERERROR	6161	1811
_BUFFEREXTERNALENCODERCOMMANDID	6162	1812
_REDEFINEEXTERNALENCODERPOSITION	6163	1813
_GETEXTERNALENCODERERRORSTATE	6165	1815
_CANCELEXTERNALENCODERCOMMAND	6166	1816

A.1 Command type numbers of the individual commands

Command	Decimal	Hex
_ADAPTEXTERNALENCODERCONFIGDATA	6167	1817
_ENABLEDISTRIBUTEDMOTIONDELAYVALUECALCULATION	8193	2001
_RESETPATHOBJECT	8705	2201
_RESETPATHOBJECTERROR	8706	2202
_MOVEPATHLINEAR	8707	2203
_MOVEPATHCIRCULAR	8708	2204
_MOVEPATHPOLYNOMIAL	8709	2205
_STOPPATH	8710	2206
_CONTINUEPATH	8711	2207
_GETLINEARPATHDATA	8712	2208
_GETLINEARPATHGEOMETRICDATA	8713	2209
_GETCIRCULARPATHDATA	8714	220A
_GETCIRCULARPATHGEOMETRICDATA	8715	220B
_GETPOLYNOMIALPATHDATA	8716	220C
_GETPOLYNOMIALPATHGEOMETRICDATA	8717	220D
_GETSTATEOFPATHOBJECTCOMMAND	8718	220E
_GETMOTIONSTATEOFPATHOBJECTCOMMAND	8719	220F
_BUFFERPATHOBJECTCOMMANDID	8720	2210
_REMOVEBUFFEREDPATHOBJECTCOMMANDID	8721	2211
_RESETPATHOBJECTCONFIGDATABUFFER	8722	2212
_GETPATHCARTESIANPOSITION	8723	2213
_GETPATHAXESPOSITION	8724	2214
_GETPATHCARTESIANDATA	8725	2215
_GETPATHAXESDATA	8726	2216
_GETPATHOBJECTERRORNUMBERSTATE	8727	2217
_GETPATHOBJECTERRORSTATE	8728	2218
_ENABLEPATHOBJECTSIMULATION	8729	2219
_DISABLEPATHOBJECTSIMULATION	8730	221A
_RESETPATHOBJECTMOTIONBUFFER	8731	221B
_GETSTATEOFPATHOBJECTMOTIONBUFFER	8732	221C
_CANCELPATHOBJECTCOMMAND	8733	221D
_SETPATHOBJECTOCS	8735	221F
_REDEFINEPATHOBJECTOCS	8736	2220
_GETPATHOBJECTBCSFROMOCSDATA	8737	2221
_GETPATHOBJECTOCSFROMBCSDATA	8738	2222
_ENABLEPATHOBJECTTRACKING V4.1	8739	2223
_ENABLEPATHOBJECTTRACKINGSUPERIMPOSED	8745	2229
_GETPATHGEOMETRICDATA	8749	222D
_RESETCONTROLLEROBJECT	8961	2301
_RESETCONTROLLEROBJECTERROR	8962	2302
_RESETCONTROLLEROBJECTCONFIGDATABUFFER	8963	2303
_GETSTATEOFCONTROLLEROBJECTCOMMAND	8964	2304
_BUFFERCONTROLLEROBJECTCOMMANDID	8965	2305

A.1 Command type numbers of the individual commands

Command	Decimal	Hex
_REMOVEBUFFEREDCONTROLLEROBJECTCOMMANDID	8966	2306
_GETCONTROLLEROBJECTERRORNUMBERSTATE	8967	2307
_ENABLECONTROLLEROBJECTIN	8968	2308
_DISABLECONTROLLEROBJECTIN	8969	2309
_CHANGEENABLEMODEOFCONTROLLEROBJECTIN	8970	230A
_ENABLECONTROLLEROBJECT	8971	230B
_DISABLECONTROLLEROBJECT	8972	230C
_SETCONTROLLEROBJECTPIDCONTROL	8973	230D
_GETCONTROLLEROBJECTERRORSTATE	8974	230E
_RESETSSENSOR	9473	2501
_RESETSSENSORERROR	9474	2502
_RESETSSENSORCONFIGDATABUFFER	9475	2503
_GETSTATEOFSENSORCOMMAND	9476	2504
_BUFFERSENSORCOMMANDID	9477	2505
_REMOVEBUFFEREDSENSORCOMMANDID	9478	2506
_GETSENSORERRORNUMBERSTATE	9479	2507
_ENABLESENSOR	9480	2508
_DISABLESENSOR	9481	2509
_GETSENSORERRORSTATE	9482	250A
_RESETADDITIONOBJECT	9729	2601
_RESETADDITIONOBJECTERROR	9730	2602
_RESETADDITIONOBJECTCONFIGDATABUFFER	9731	2603
_ENABLEADDITIONOBJECTIN	9732	2604
_DISABLEADDITIONOBJECTIN	9733	2605
_GETADDITIONOBJECTERRORNUMBERSTATE	9734	2606
_GETSTATEOFADDITIONOBJECTCOMMAND	9735	2607
_BUFFERADDITIONOBJECTCOMMANDID	9736	2608
_REMOVEBUFFEREDADDITIONOBJECTCOMMANDID	9737	2609
_CHANGEENABLEMODEOFADDITIONOBJECTIN	9738	260A
_GETADDITIONOBJECTERRORSTATE	9739	260B
_RESETFIXEDGEAR	9985	2701
_RESETFIXEDGEARERROR	9986	2702
_RESETFIXEDGEARCONFIGDATABUFFER	9987	2703
_ENABLEFIXEDGEARMOTIONIN	9988	2704
_DISABLEFIXEDGEARMOTIONIN	9989	2705
_ENABLEFIXEDGEARING	9990	2706
_DISABLEFIXEDGEARING	9991	2707
_SETFIXEDGEARINGOFFSET	9992	2708
_SETFIXEDGEARMASTER	9993	2709
_GETSTATEOFFIXEDGEARCOMMAND	9994	270A
_BUFFERFIXEDGEARCOMMANDID	9995	270B
_REMOVEBUFFEREDFIXEDGEARCOMMANDID	9996	270C
_GETFIXEDGEARERRORNUMBERSTATE	9997	270D

A.1 Command type numbers of the individual commands

Command	Decimal	Hex
_GETFIXEDGEARERRORSTATE	9998	270E
_RESETFORMULAOBJECT	10241	2801
_RESETFORMULAOBJECTERROR	10242	2802
_RESETFORMULAOBJECTCONFIGDATABUFFER	10243	2803
_GETFORMULAOBJECTERRORNUMBERSTATE	10244	2804
_SETFORMULA	10245	2805
_ENABLEFORMULAOBJECTIN	10246	2806
_DISABLEFORMULAOBJECTIN	10247	2807
_CHANGEENABLEMODEOFFORMULAOBJECTIN	10248	2808
_SETFORMULAOBJECTOUTPUTVALUE	10249	2809
_ENABLEFORMULA	10250	280A
_DISABLEFORMULA	10251	280B
_CHANGEENABLEOFFORMULA	10252	280C
_DEFINEFORMULA	10253	280D
_GETSTATEOFFORMULAOBJECTCOMMAND	10254	280E
_BUFFERFORMULAOBJECTCOMMANDID	10255	280F
_REMOVEBUFFEREDFORMULAOBJECTCOMMANDID	10256	2810
_GETFORMULAOBJECTERRORSTATE	10257	2811
_ENABLECAMTRACK	10497	2901
_DISABLECAMTRACK	10498	2902
_ENABLECAMTRACKSIMULATION	10499	2903
_DISABLECAMTRACKSIMULATION	10500	2904
_SETCAMTRACKSTATE	10501	2905
_GETCAMTRACKERRORNUMBERSTATE	10502	2906
_RESETCAMTRACK	10503	2907
_RESETCAMTRACKERROR	10504	2908
_GETSTATEOFCAMTRACKCOMMAND	10505	2909
_BUFFERCAMTRACKCOMMANDID	10506	290A
_REMOVEBUFFEREDCAMTRACKCOMMANDID	10507	290B
_RESETCAMTRACKCONFIGDATABUFFER	10508	290C
_GETCAMTRACKERRORSTATE	10509	290D
_MC_MOVEVELOCITY	12545	3101
_MC_STOP	12547	3103
_MC_POWER	12549	3105
_MC_READSTATUS	12551	3107
_MC_READAXISERROR	12553	3109
_MC_RESET	12555	310B
_MC_READPARAMETER	12557	310D
_MC_READBOOLPARAMETER	12558	310E
_MC_WRITEPARAMETER	12559	310F
_MC_WRITEBOOLPARAMETER	12560	3110
_MC_VELOCITYPROFILE	12561	3111
_MC_MOVEABSOLUTE	12625	3151

Appendix

A.1 Command type numbers of the individual commands

Command	Decimal	Hex
_MC_MOVERELATIVE	12627	3153
_MC_MOVEADDITIVE	12629	3155
_MC_MOVESUPERIMPOSED	12631	3157
_MC_HOME	12633	3159
_MC_READACTUALPOSITION	12635	315B
_MC_POSITIONPROFILE	12637	315D
_MC_CAMIN	12801	3201
_MC_CAMOUT	12803	3203
_MC_GEARIN	12805	3205
_MC_GEAROUT	12807	3207
_MC_PHASING	12809	3209
_MC_CAMSWITCH	12881	3251
_MC_CAMSWITCHOFF	12882	3252