



Operating instructions

SINAMICS/SIMOTICS

Servo drive system SINAMICS S210

SINAMICS S210 SIMOTICS S-1FK2

converter servomotor

Edition

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www.siemens.com/drives

SIEMENS

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SINAMICS/SIMOTICS

SINAMICS S210 servo drive system

Operating Instructions

Firmware V5.1

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.

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

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

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:

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.

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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.

Preface

Keeping the documentation safe

This documentation should be kept in a location where it can be easily accessed. Make the documentation available to the personnel responsible.

Target group

These operating instructions are intended for persons who perform different tasks in the drive environment, e.g. for:

- Planning engineers
- Project engineers
- Machine manufacturers
- Commissioning engineers
- Electricians
- Installation personnel
- Service technician
- Warehouse personnel

More information

Information on the following topics is available at:

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

Additional information on drive technology (<u>https://support.industry.siemens.com/cs/de/en/ps/</u> 13204)

If you have any questions relating to the technical documentation (e.g. suggestions, corrections) then please email them to the following address: Email (mailto:docu.motioncontrol@siemens.com)

My support

The following link provides information on how to create your own individual documentation based on Siemens content, and adapt it for your own machine documentation:

My support (https://support.industry.siemens.com/My/de/en/documentation)

Note

If you want to use this function, you must first register.

Later, you can log on with your login data.

Technical Support

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

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Use of OpenSSL

This product contains software (<u>https://www.openssl.org/</u>) that has been developed by the OpenSSL project for use in the OpenSSL toolkit.

This product contains cryptographic software (<u>mailto:eay@cryptsoft.com</u>) created by Eric Young.

This product contains software (mailto:eay@cryptsoft.com) developed by Eric Young.

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Fundamental safety instructions

1.1 General safety instructions



M WARNING

Electric shock and danger to life due to other energy sources

Touching live components can result in death or severe injury.

- Only work on electrical devices when you are qualified for this job.
- Always observe the country-specific safety rules.

Generally, the following six steps apply when establishing safety:

- 1. Prepare for disconnection. Notify all those who will be affected by the procedure.
- 2. Isolate the drive system from the power supply and take measures to prevent it being switched back on again.
- 3. Wait until the discharge time specified on the warning labels has elapsed.
- 4. Check that there is no voltage between any of the power connections, and between any of the power connections and the protective conductor connection.
- 5. Check whether the existing auxiliary supply circuits are de-energized.
- 6. Ensure that the motors cannot move.
- 7. Identify all other dangerous energy sources, e.g. compressed air, hydraulic systems, or water. Switch the energy sources to a safe state.
- 8. Check that the correct drive system is completely locked.

After you have completed the work, restore the operational readiness in the inverse sequence.



Electric shock due to connection to an unsuitable power supply

When equipment is connected to an unsuitable power supply, exposed components may carry a hazardous voltage that might result in serious injury or death.

 Only use power supplies that provide SELV (Safety Extra Low Voltage) or PELV-(Protective Extra Low Voltage) output voltages for all connections and terminals of the electronics modules.

1.1 General safety instructions



🔨 WARNING

Electric shock due to damaged motors or devices

Improper handling of motors or devices can damage them.

Hazardous voltages can be present at the enclosure or at exposed components on damaged motors or devices.

- Ensure compliance with the limit values specified in the technical data during transport, storage and operation.
- Do not use any damaged motors or devices.



Electric shock due to unconnected cable shields

Hazardous touch voltages can occur through capacitive cross-coupling due to unconnected cable shields.

• As a minimum, connect cable shields and the cores of cables that are not used at one end at the grounded housing potential.



Electric shock if there is no ground connection

For missing or incorrectly implemented protective conductor connection for devices with protection class I, high voltages can be present at open, exposed parts, which when touched, can result in death or severe injury.

• Ground the device in compliance with the applicable regulations.



Arcing when a plug connection is opened during operation

Opening a plug connection when a system is operation can result in arcing that may cause serious injury or death.

• Only open plug connections when the equipment is in a voltage-free state, unless it has been explicitly stated that they can be opened in operation.



🕂 WARNING

Electric shock due to residual charges in power components

Because of the capacitors, a hazardous voltage is present for up to 5 minutes after the power supply has been switched off. Contact with live parts can result in death or serious injury.

 Wait for 5 minutes before you check that the unit really is in a no-voltage condition and start work.

\Lambda WARNING

Spread of fire from built-in devices

In the event of fire outbreak, the enclosures of built-in devices cannot prevent the escape of fire and smoke. This can result in serious personal injury or property damage.

- Install built-in units in a suitable metal cabinet in such a way that personnel are protected against fire and smoke, or take other appropriate measures to protect personnel.
- Ensure that smoke can only escape via controlled and monitored paths.

Failure of pacemakers or implant malfunctions due to electromagnetic fields

Electromagnetic fields (EMF) are generated by the operation of electrical power equipment, such as transformers, converters, or motors. People with pacemakers or implants in the immediate vicinity of this equipment are at particular risk.

• If you have a heart pacemaker or implant, maintain a minimum distance of 2 m from electrical power equipment.



Failure of pacemakers or implant malfunctions due to permanent magnetic fields

Even when switched off, electric motors with permanent magnets represent a potential risk for persons with heart pacemakers or implants if they are close to converters/motors.

- If you have a heart pacemaker or implant, maintain the minimum distance specified in the Chapter "Technical data".
- When transporting or storing permanent-magnet motors always use the original packing materials with the warning labels attached.
- Clearly mark the storage locations with the appropriate warning labels.
- IATA regulations must be observed when transported by air.

Unexpected movement of machines caused by radio devices or mobile phones

When radio devices or mobile phones with a transmission power > 1 W are used in the immediate vicinity of components, they may cause the equipment to malfunction. Malfunctions may impair the functional safety of machines and can therefore put people in danger or lead to property damage.

- If you come closer than around 2 m to such components, switch off any radios or mobile phones.
- Use the "SIEMENS Industry Online Support App" only on equipment that has already been switched off.

1.1 General safety instructions

Motor fire in the event of insulation overload

There is higher stress on the motor insulation through a ground fault in an IT system. If the insulation fails, it is possible that death or severe injury can occur as a result of smoke and fire.

- Use a monitoring device that signals an insulation fault.
- Correct the fault as quickly as possible so the motor insulation is not overloaded.

Fire due to inadequate ventilation clearances

Inadequate ventilation clearances can cause overheating of components with subsequent fire and smoke. This can cause severe injury or even death. This can also result in increased downtime and reduced service lives for devices/systems.

• Ensure compliance with the specified minimum clearance as ventilation clearance for the respective component.

Unrecognized dangers due to missing or illegible warning labels

Dangers might not be recognized if warning labels are missing or illegible. Unrecognized dangers may cause accidents resulting in serious injury or death.

- Check that the warning labels are complete based on the documentation.
- Attach any missing warning labels to the components, where necessary in the national language.
- Replace illegible warning labels.

NOTICE

Device damage caused by incorrect voltage/insulation tests

Incorrect voltage/insulation tests can damage the device.

• Before carrying out a voltage/insulation check of the system/machine, disconnect the devices as all converters and motors have been subject to a high voltage test by the manufacturer, and therefore it is not necessary to perform an additional test within the system/machine.

\Lambda WARNING

Unexpected movement of machines caused by inactive safety functions

Inactive or non-adapted safety functions can trigger unexpected machine movements that may result in serious injury or death.

- Observe the information in the appropriate product documentation before commissioning.
- Carry out a safety inspection for functions relevant to safety on the entire system, including all safety-related components.
- Ensure that the safety functions used in your drives and automation tasks are adjusted and activated through appropriate parameterizing.
- Perform a function test.
- Only put your plant into live operation once you have guaranteed that the functions relevant to safety are running correctly.

Note

Important safety notices for Safety Integrated functions

If you want to use Safety Integrated functions, you must observe the safety notices in the Safety Integrated manuals.

Malfunctions of the machine as a result of incorrect or changed parameter settings

As a result of incorrect or changed parameterization, machines can malfunction, which in turn can lead to injuries or death.

- Protect the parameterization (parameter assignments) against unauthorized access.
- Handle possible malfunctions by taking suitable measures, e.g. emergency stop or emergency off.

M WARNING

Injury caused by moving or ejected parts

Contact with moving motor parts or drive output elements and the ejection of loose motor parts (e.g. feather keys) out of the motor enclosure can result in severe injury or death.

- Remove any loose parts or secure them so that they cannot be flung out.
- Do not touch any moving parts.
- Safeguard all moving parts using the appropriate safety guards.

1.1 General safety instructions

Fire due to inadequate cooling

Inadequate cooling can cause the motor to overheat, resulting in death or severe injury as a result of smoke and fire. This can also result in increased failures and reduced service lives of motors.

• Comply with the specified cooling requirements for the motor.

Fire due to incorrect operation of the motor

When incorrectly operated and in the case of a fault, the motor can overheat resulting in fire and smoke. This can result in severe injury or death. Further, excessively high temperatures destroy motor components and result in increased failures as well as shorter service lives of motors.

- Operate the motor according to the relevant specifications.
- Only operate the motors in conjunction with effective temperature monitoring.
- Immediately switch off the motor if excessively high temperatures occur.



Burn injuries caused by hot surfaces

In operation, the motor can reach high temperatures, which can cause burns if touched.

• Mount the motor so that it is not accessible in operation.

Measures when maintenance is required:

- Allow the motor to cool down before starting any work.
- Use the appropriate personnel protection equipment, e.g. gloves.

1.2 Equipment damage due to electric fields or electrostatic discharge

1.2 Equipment damage due to electric fields or electrostatic discharge

Electrostatic sensitive devices (ESD) are individual components, integrated circuits, modules or devices that may be damaged by either electric fields or electrostatic discharge.



NOTICE

Equipment damage due to electric fields or electrostatic discharge

Electric fields or electrostatic discharge can cause malfunctions through damaged individual components, integrated circuits, modules or devices.

- Only pack, store, transport and send electronic components, modules or devices in their original packaging or in other suitable materials, e.g conductive foam rubber of aluminum foil.
- Only touch components, modules and devices when you are grounded by one of the following methods:
 - Wearing an ESD wrist strap
 - Wearing ESD shoes or ESD grounding straps in ESD areas with conductive flooring
- Only place electronic components, modules or devices on conductive surfaces (table with ESD surface, conductive ESD foam, ESD packaging, ESD transport container).

1.3 Warranty and liability for application examples

1.3 Warranty and liability for application examples

The application examples are not binding and do not claim to be complete regarding configuration, equipment or any eventuality which may arise. The application examples do not represent specific customer solutions, but are only intended to provide support for typical tasks. You are responsible for the proper operation of the described products. These application examples do not relieve you of your responsibility for safe handling when using, installing, operating and maintaining the equipment.

1.4 Industrial security

Note

Industrial security

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens products and solutions only represent one component of such a concept.

The customer is responsible for preventing unauthorized access to its plants, systems, machines and networks. Systems, machines and components should only be connected to the enterprise network or the internet if and to the extent necessary and with appropriate security measures (e.g. use of firewalls and network segmentation) in place.

Additionally, Siemens' guidance on appropriate security measures should be taken into account. For more information about industrial security, please visit:

Industrial security (http://www.siemens.com/industrialsecurity).

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends to apply product updates as soon as available and to always use the latest product versions. Use of product versions that are no longer supported, and failure to apply latest updates may increase customer's exposure to cyber threats.

To stay informed about product updates, subscribe to the Siemens Industrial Security RSS Feed at:

Industrial security (http://www.siemens.com/industrialsecurity).

Unsafe operating states resulting from software manipulation

Software manipulations (e.g. viruses, trojans, malware or worms) can cause unsafe operating states in your system that may lead to death, serious injury, and property damage.

- Keep the software up to date.
- Incorporate the automation and drive components into a holistic, state-of-the-art industrial security concept for the installation or machine.
- Make sure that you include all installed products into the holistic industrial security concept.
- Protect files stored on exchangeable storage media from malicious software by with suitable protection measures, e.g. virus scanners.

1.5 Residual risks of power drive systems

1.5 Residual risks of power drive systems

When assessing the machine- or system-related risk in accordance with the respective local regulations (e.g., EC Machinery Directive), the machine manufacturer or system installer must take into account the following residual risks emanating from the control and drive components of a drive system:

- 1. Unintentional movements of driven machine or system components during commissioning, operation, maintenance, and repairs caused by, for example,
 - Hardware and/or software errors in the sensors, control system, actuators, and cables and connections
 - Response times of the control system and of the drive
 - Operation and/or environmental conditions outside the specification
 - Condensation/conductive contamination
 - Parameterization, programming, cabling, and installation errors
 - Use of wireless devices/mobile phones in the immediate vicinity of electronic components
 - External influences/damage
 - X-ray, ionizing radiation and cosmic radiation
- 2. Unusually high temperatures, including open flames, as well as emissions of light, noise, particles, gases, etc., can occur inside and outside the components under fault conditions caused by, for example:
 - Component failure
 - Software errors
 - Operation and/or environmental conditions outside the specification
 - External influences/damage
- 3. Hazardous shock voltages caused by, for example:
 - Component failure
 - Influence during electrostatic charging
 - Induction of voltages in moving motors
 - Operation and/or environmental conditions outside the specification
 - Condensation/conductive contamination
 - External influences/damage
- 4. Electrical, magnetic and electromagnetic fields generated in operation that can pose a risk to people with a pacemaker, implants or metal replacement joints, etc., if they are too close
- 5. Release of environmental pollutants or emissions as a result of improper operation of the system and/or failure to dispose of components safely and correctly
- 6. Influence of network-connected communication systems, e.g. ripple-control transmitters or data communication via the network

For more information about the residual risks of the drive system components, see the relevant sections in the technical user documentation.

Description

The components described in this manual – motor, converter and associated connection cables – are optimally tailored to one another and thereby facilitate the installation and commissioning in a few steps.

The commissioning and diagnostics are performed with a PC or notebook (commissioning device) via the web server integrated in the converter. A separate commissioning program or diagnostics tool is not required.

Correct usage

The components are intended for industrial and commercial use in industrial networks.

The motor is only approved for operation with a converter.

For system-specific setting options, refer to the following Chapter:

Commissioning and diagnostics in the Web server (Page 105).

Typical applications

- Robots and handling systems
- · Packaging, plastics and textile machines
- · Wood, glass, ceramics and stone working machines
- Printing machines

2.1 System overview

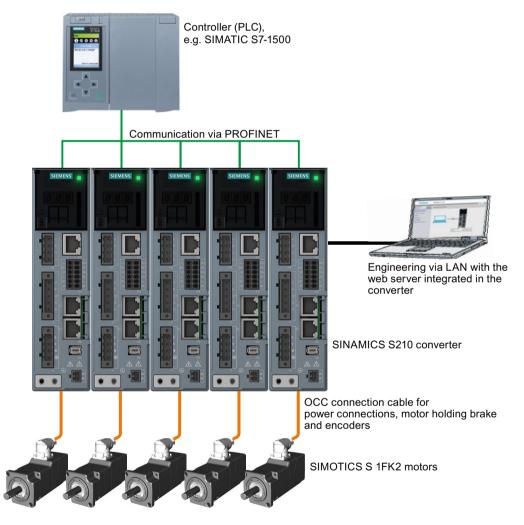
2.1 System overview

The drive system comprises the following system components tailored to one another:

- SINAMICS S210 converter
- SIMOTICS S-1FK2 motor
- OCC MOTION-CONNECT cable

The converter and the motor are optimally tailored to one another and are intended for use with a higher-level controller (PLC). Connection to the controller is via PROFINET:

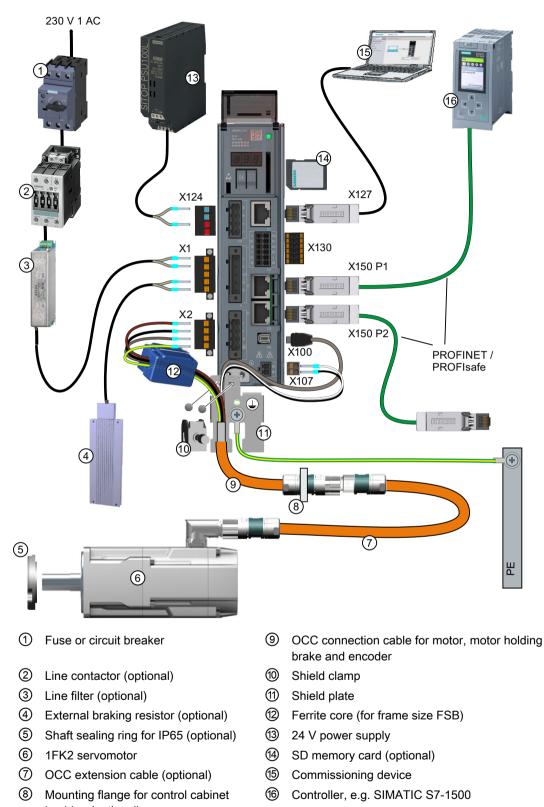
Prefabricated MOTION-CONNECT cables in various lengths are available to simply connect the motor to the converter and to ensure safe and reliable operation.





Description

2.1 System overview



bushing (optional) Figure 2-2 System components and accessories 2.2 The scope of supply for the system components

2.2 The scope of supply for the system components

You must order the components individually.

Motor

The motor scope of delivery includes:

- A "Safety instructions" sheet
- A sheet referencing links to product information

Converter

The converter scope of delivery includes:

- The Quick Installation Guide (English)
- Shield plate
- A warning label for affixing in the control cabinet
- For FSB a ferrite core for EMC category C2
- The following connectors:
 - X1: Line connection and external braking resistor (jumper for internal braking resistor is enclosed.)
 - X2: Motor connection
 - X107: Motor holding brake
 - X124: 24 V DC supply voltage
 - X130: Connector for digital inputs

MOTION-CONNECT cable (OCC cable)

The scope of supply for the prefabricated MOTION-CONNECT cables includes:

- The MOTION-CONNECT cable with assembled connectors for connecting to motors and encoders
- A shield clamp for the connection of the shield to the shield plate of the converter
- A safety data sheet

Details on the OCC MOTION-CONNECT cables can be found in the following Section:

2.3 Motor

The SIMOTICS S-1FK2, called "1FK2" in the following, is a permanent-magnet compact synchronous motor with an integrated encoder and a high degree of protection.

The 1FK2 meets the requirements of standards EN 60034 and EN 60204-1 - and complies with the Low-Voltage Directive 2014/35/EU.

Failure of pacemakers or implant malfunctions due to electromagnetic fields

Electromagnetic fields (EMF) are generated by the operation of electrical power equipment, such as converters or motors. People with pacemakers or implants in the immediate vicinity of this equipment are at particular risk.

Deviating from the notes in Section "General safety instructions (Page 11), applies to the 1FK2 motors:

If you are affected, stay at a minimum distance of 30 cm from the motors.

Dynamic versions

- 1FK21 "High Dynamic" with low moment of inertia for a maximum acceleration capability in applications with low load moments of inertia
- 1FK22 "Compact" with average moment of inertia and precise positioning and synchronous operation characteristics for applications with a high and variable load moment of inertia

Power range

0.05 kW ... 0.75 kW for a line supply voltage of 230 V 1 AC

Degree of protection

- IP64
- IP65 with a radial shaft sealing ring to protect against spray water

For additional information on the degree of protection, see Chapter:

Cooling

The 1FK2 is a non-ventilated motor.

The motor thermal losses are dissipated by thermal conduction, thermal radiation and natural convection.

If the ambient temperature exceeds 40 °C (104 °F) or the installation altitude 1000 meters above sea level, you must reduce torque and power of the motor (derating).

Information on derating can be found in Chapter:

2.3 Motor

When mounting the motor, carefully observe the specifications in Chapter:

Bearing version

The motors have deep groove ball bearings with life-long lubrication.

The average bearing service life is designed for 25000 operating hours.

The motors have spring-loaded bearings in the NDE direction. For version with holding brake, the NDE bearing is a locating bearing.

The permissible axial and radial forces can be found in the technical data in Chapter:

Shaft extension (IEC 60072-1)

- Cylindrical shaft without feather key
- Cylindrical shaft with feather key (half-key balancing)
- Optional for SH30 (1FK2□03): Cylindrical shaft without feather key, diameter x length: 11 mm x 23 mm

For additional information, see Chapter:

Encoder

The motor encoder resolution is 20 bit (1,048,576) per revolution (singleturn). An optional multiturn encoder is available that is equipped with an additional 12-bit revolution counter (traversing range of 4096 revolutions).

The names of these two encoders are as follows:

- AS20DQC: Absolute encoder, singleturn, 20 bit
- AM20DQC: Absolute encoder, 20 bit + 12 bit multiturn

For additional information, see Chapter:

Holding brake

The 1FK2 servomotor is available with integrated holding brake. The holding brake is used to clamp the motor shaft when the motor is at a standstill.

The holding brake closes in the current-free state and locks the motor shaft. It opens as soon as current is flowing.

SINAMICS S210 controls the holding brake without any additional devices.

The torsional backlash of the holding brake is less than 1°.

The holding brake is not a working brake for braking the rotating motor. However, limited emergency stop operation is permissible.

The brake data can be found in Chapter: "Brake data (Page 185)"

Rating plate

The rating plate contains the Article No. and the technical information of the motor.

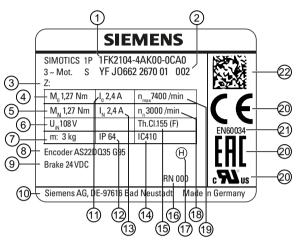


Figure 2-3 Rating plate

- Position Description / technical specifications
 - 1 Article number
 - 2 ID No., serial number
 - 3 Additional options specified as a supplement to the article number
 - 4 Static torque M_0 / Nm
 - 5 Rated torque M_{rated} / Nm
 - 6 Induced voltage at rated speed $V_{\rm IN}$ / V
 - 7 Motor weight m / kg
 - 8 Marking of encoder type
 - 9 Data of the holding brake
 - 10 Manufacturer's address
 - 11 Stall current I₀ / A 22

Position Description / technical specifications

- 12 Degree of protection
- 13 Rated current I_{rated} / A
- 14 Cooling mode according to EN 60034-6
- 15 Thermal class of the insulation system
- 16 Revision
- 17 Type of balancing (only for motors with feather key)
- 18 Rated speed n_{rated} / rpm
- 19 Maximum speed *n*_{max} / rpm
- 20 Certifications
- 21 Standard for all rotating electrical machines
- Data matrix code

2.4 Converter

2.4 Converter

The converter is a single-axis device (complete converter with integrated infeed). It is characterized by a compact design, side-by-side installation and high overload capability.

It is intended for use with 1FK2 motors.

- Supply voltage 200 V ... 240 V 1 AC ± 10%
- Power range 100 W ... 750 kW

Control mode

Servo control, optimized for 1FK2 motors

Integrated safety functions

With firmware version 5.1, the converter provides the following Safety Integrated Basic Functions:

- STO Safe Torque Off
- SS1 Safe Stop 1, time-controlled
- SBC Safe Brake Control

 \square Safety functions integrated in the drive (Page 57)

Integrated braking resistor

In order to absorb the regenerative load of the motor, converters have an internal braking resistor (exception: 100 W device).

If the internal braking resistor is not sufficient, you have the option of connecting an external braking resistor.

 \Box Configuring the external braking resistor (Page 52)

 \square Connections at the converter (Page 95)

Communicating with the controller via PROFINET

The converter supports the following functions:

- RT (real time)
- IRT (isochronous real time)
- MRP (media redundancy) with RT
- MRPD (seamless media redundancy) with IRT
- Shared device
- PROFIsafe
- PROFlenergy
- Automatic telegram selection

Commissioning, diagnostics and data backup

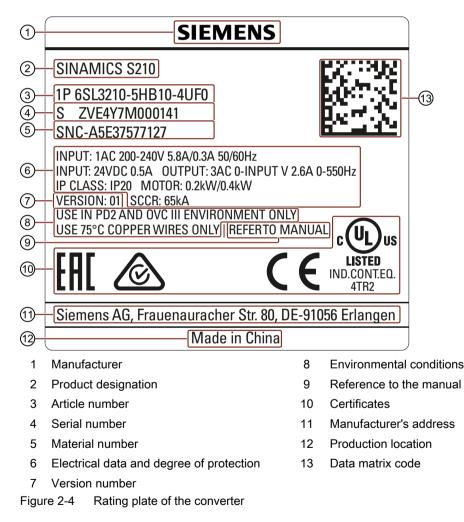
The commissioning, diagnostics and data backup are performed using a PC or notebook (commissioning device) via the web server integrated in the converter.

The converter is connected to the commissioning device via the service interface (X127).

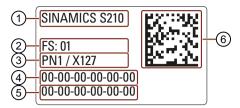
Functions of the web server integrated into the converter:

- Commissioning
- Diagnostics of the drive
- Data backup and restore
- Restoring factory settings

Rating plate and information plate



2.4 Converter



- 1 Product designation
- 2 Function release

3 PROFINET interface / service interface

Figure 2-5 Information plate of the converter

- 4 MAC address of the PROFINET interface
- 5 MAC address of the service interface
- 6 Data matrix code

2.5 Connection systems

The motor is connected to the converter by a MOTION-CONNECT cable.

The cable is in one cable connection technology and called "OCC cable" in the following.

As a result of its flexibility and low diameter, it permits very tight bending radii.

The OCC cables are available in the following variants:

- MOTION-CONNECT 500
 - Cost-effective solution for mainly fixed installation
 - Suitable for low mechanical loading
- MOTION-CONNECT 800PLUS
 - Meets requirements for use in cable carriers
 - tested for horizontal movement distances up to 50 m
 - not self-supporting
 - Suitable for high mechanical loading
 - Oil-resistant

The OCC cables can be supplied in lengths by the decimeter.

Extensions and cabinet bushings are available for the OCC cables.

For additional information, see Chapter:

"Technical data and properties of the connection system (Page 204)"

2.6 Motor-converter combinations

2.6 Motor-converter combinations

The following table contains possible combinations of motors, converters and the associated connecting cables.

Motor			Converter				OCC cable	
Shaft	Article number	Torque M ₀ / Nm	100 W	200 W	400 W	750 W	M12	M17
height [mm]	digits 1 … 10		Article number 6SL3210-5HB10			Article number 6FX . 002		
			1UF0	2UF0	4UF0	8UF0	8QN04	8QN08
High Dynar	High Dynamic							
20	1FK2102-0AG	0.16	х				x	
20	1FK2102-1AG	0.32	х				х	
30	1FK2103-2AG	0.64		x			x	
30	1FK2103-4AG	1.27			х		х	
40	1FK2104-4AK	1.27			х			x
40	1FK2104-5AK	2.4				х		x
Compact								
30	1FK2203-2AG	0.64		x			х	
30	1FK2203-4AG	1.27			х		х	

2.7 Optional accessories

The following accessories are optionally available for the drive:

- Memory card for the converter for data backup, series commissioning and for firmware updates
- Line filter
- Extension cable
- Components for customers to fabricate the connecting cable
 - Shield clamp
 - Connectors and cut-to-length cables (probably available from spring 2018)
- Mounting flange for control cabinet bushing
- Degree of protection kit: Shaft sealing ring for IP65 degree of protection for the motor
 Ordering data (Page 215)

Description

2.7 Optional accessories

Configuring

3.1 EMC-compliant installation of a machine or system

The converter is designed for operation in industrial environments. Reliable and disturbance-free operation is only guaranteed for EMC-compliant installation.

Further information



Additional information about EMC-compliant installation is available in the Internet: EMC installation guideline (<u>http://support.automation.siemens.com/WW/view/en/60612658</u>)

3.1.1 Control cabinet

Control cabinet assembly

- Install a shield support for shielded cables that are routed out of the control cabinet.
- Connect the PE bar and the shield support to the control cabinet frame through a large surface area to establish a good electrical connection.
- Mount the converter, the 24 V DC power supply and the optional line filter on a bare metal mounting plate.
- Connect the mounting plate to the control cabinet frame and PE bar and shield support through a large surface area to establish a good electrical connection.

3.1 EMC-compliant installation of a machine or system

3.1.2 Cables

Cables with a high level of interference and cables with a low level of interference are connected to the converter.

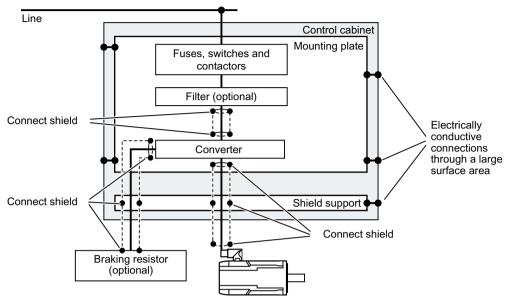
Note

Cables with a high level of interference must be shielded.

- Cables with a high level of interference:
 - Cable between the line filter and converter
 - Motor cable
 - Cable between the converter and external braking resistor
- Cables with a low level of interference:
 - Cable between the line and line filter
 - Signal and data cables

Cable routing inside the cabinet

- Route the cables with a high level of interference so that there is the largest possible clearance to cables with a low level of interference.
- Cables with a high level of interference and cables with a low level of interference may only cross over at right angles:
- Keep all of the cables as short as possible.
- Route all of the cables close to the mounting plates or cabinet frames.
- Route signal and data cables as well as the associated equipotential bonding cables parallel and close to one another.
- Twist incoming and outgoing unshielded individual conductors. Alternatively, you can route incoming and outgoing conductors in parallel, but close to one another.
- Ground any unused conductors of signal and data cables at both ends.
- Signal and data cables must only enter the cabinet from one side, e.g. from below.
- Use shielded cables for the following connections:
 - Cable between the converter and line filter
 - Cable between the converter and motor
 - Cable between the converter and external braking resistor



Routing converter cables inside and outside a control cabinet

Figure 3-1 Routing converter cables inside and outside a control cabinet

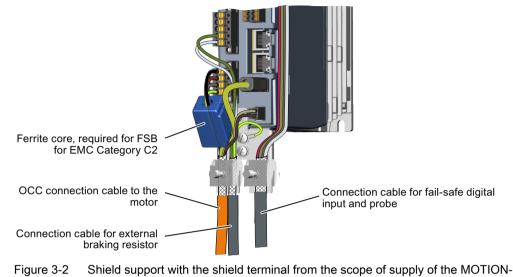
Routing cables outside the control cabinet

- Maintain a minimum clearance of 25 cm between cables with a high level of interference and cables with a low level of interference.
- Use shielded cables for the following connections:
 - Converter motor cable
 - Cable between the converter and braking resistor
 - Signal and data cables

3.1 EMC-compliant installation of a machine or system

Requirements relating to shielded cables

- Use cables with finely-stranded, braided shields.
- Connect the shield at both ends of the cable.



- CONNECT OCC cable.
- Connect the shield to the shield support.
- Do not interrupt the shield.

3.1.3 Electromechanical components

Surge voltage protection circuit

- Connect surge voltage protection circuits to the following components:
 - Coils of contactors
 - Relays
 - Solenoid valves
- Connect the surge voltage protection circuit directly at the coil.
- Use RC elements or varistors for AC-operated coils and freewheeling diodes or varistors for DC-operated coils.

The converter is designed for the following line supplies according to IEC 60364-1 (2005).

- TN system
- TT system
- IT system

Converter operated on an IT system

You must move the grounding screw when operating the converter on an IT line system. As a consequence, you remove the grounding of the integrated EMC filter.

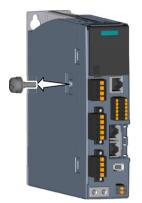
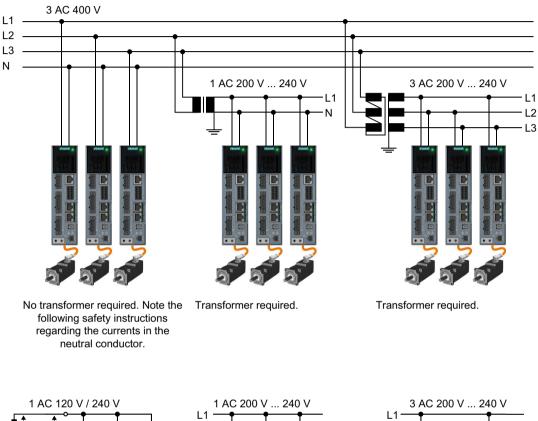


Figure 3-3 Screw for grounding at the converter

3.2.1 Connection options, 230 V devices

Basic connection options



You have the following options to supply the converter with an input voltage of 230 V.

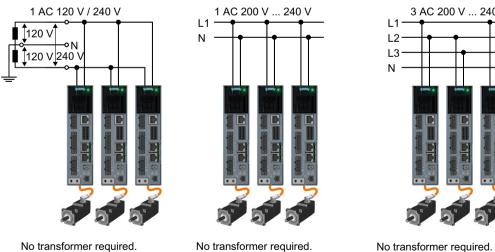


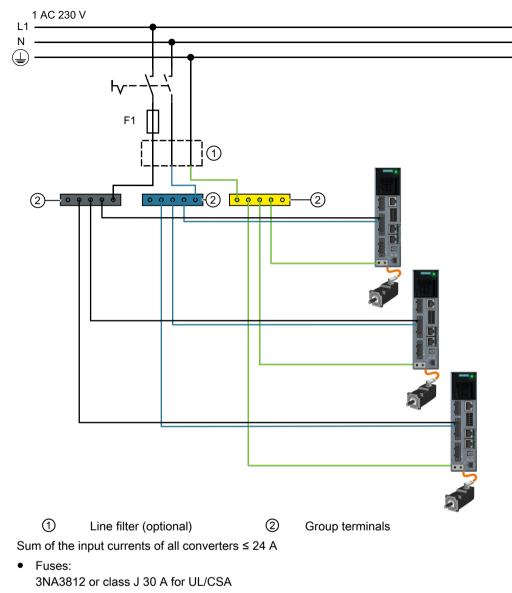
Figure 3-4 Connection options

Neutral conductor fire caused by high currents

If you connect the converter without an isolation transformer to a supply system with 400 V 3 AC between the N-conductor and a line conductor (L1, L2 or L3), the harmonic currents in the N-conductor can add up to values that are greater than the currents in the line conductors. This heats up the N-conductor and can cause a fire.

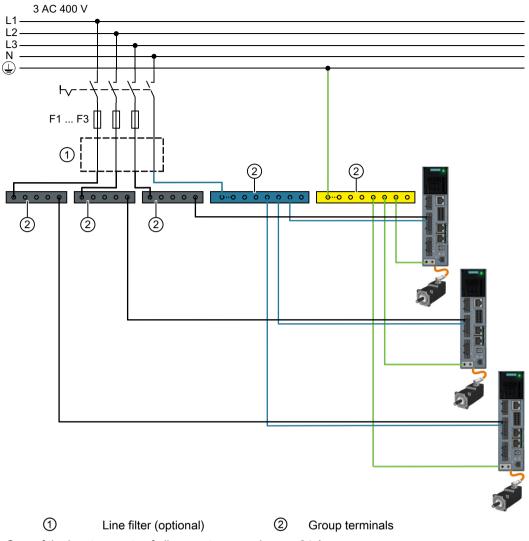
• Take the harmonic currents into account when dimensioning the power supply cables.

Connection examples and cable cross-sections



- Cables for the line connection up to the terminal box 4 mm², dimensioned for $I_{\rm rms} \ge 32 \text{ A}_{\rm rms}$ at 50 °C
- Cables for the connection from the terminal box to the converter 2.5 mm², dimensioned for $I_{\rm rms} \ge$ 18.5 A at 50 °C

Figure 3-5 Connection example for 230 V 1 AC



Sum of the input currents of all converters per phase ≤ 24 A

- Fuses, F1 ... F3 3NA3812 or class J 30 A for UL/CSA
- Cables for the connection from the terminal box to the converter 4 mm², dimensioned for $I_{ms} \ge 32$ A at 50 °C
- Cables for the line connection up to the terminal box 2.5 mm², dimensioned for $l_{\rm rms} \ge 18.5$ A at 50 °C

Figure 3-6 Connection example for 400 V 3 AC

3.3 Configuring the motor

3.3.1 Configuration sequence

Motion control

Drives are optimized for motion control applications. They execute linear or rotary movements within a defined movement cycle. All movements should be optimized in terms of time.

As a result, drives must meet the following requirements:

- High dynamic response, i.e. short rise times
- Capable of overload, i.e. a high reserve for accelerating
- Wide control range, i.e. high resolution for precise positioning.

The following table "Configuring procedure" is valid for synchronous and induction motors.

General configuring procedure

The function description of the machine provides the basis when configuring the drive application. The definition of the components is based on physical interdependencies and is usually carried out as follows:

Table 3-1	Configuring procedure
-----------	-----------------------

step	Description of the configuring activity	
1.	Clarification of the type of drive	Refer to the
2.	Definition of supplementary conditions and integration into an automation system	next chapter
3.	Definition of the load, calculation of the maximum load torque and selection of the motor	

step	Description of the configuring activity	
4.	Selection of the SINAMICS Motor Module	Refer to
5.	Steps 3 and 4 are repeated for additional axes	catalog
6.	Calculation of the required DC link power and selection of the SINAMICS Line Module	
7.	Selection of the line-side options (main switch, fuses, line filters, etc.)	
8.	Specification of the required control performance and selection of the Control Unit, definition of component cabling	
9.	Definition of other system components (e.g. braking resistors)	
10.	Calculation of the current demand of the 24 V DC supply for the components and specification of the power supplies (SITOP devices, Control Supply Modules)	
11.	Selection of the components for the connection system	
12.	Configuration of the drive line-up components	
13.	Calculation of the required cable cross sections for power supply and motor connections	
14.	Inclusion of mandatory installation clearances	

3.3.1.1 Clarification of type of drive

Select the motor on the basis of the required torque (load torque), which is defined by the application, e.g. traveling drives, hoisting drives, test stands, centrifuges, paper and rolling mill drives, feed drives or main spindle drives.

Gearboxes to convert motion or to adapt the motor speed and motor torque to the load conditions must also be taken into account when selecting the motor.

You must know the following mechanical data in order to determine the torque to be supplied by the motor:

- The load torque specified by the application
- Masses to be moved
- Diameter of the drive wheel
- Leadscrew pitch, gear ratios
- Frictional resistance data
- Mechanical efficiency
- Traversing distances
- Maximum velocity
- Maximum acceleration and maximum deceleration
- Cycle time

3.3.1.2 Specification of the supplementary conditions and integration into the automation system

Take the following into account during the confguration:

- The line system configuration when using specific motor types and/or line filters
- The utilization of the motor rated values for winding overtemperatures of 60 K or 100 K (for synchronous motors)
- The ambient temperatures and the installation altitude of the motors and drive components
- The heat dissipation from the motors through natural ventilation, forced ventilation or water cooling

Other conditions apply when integrating the drives into an automation environment such as SINUMERIK or SIMOTION.

For motion control and technology functions (e.g. positioning), as well as for synchronous operation functions, the corresponding automation system, e.g. SIMATIC S7-1500 or SIMOTION D is used.

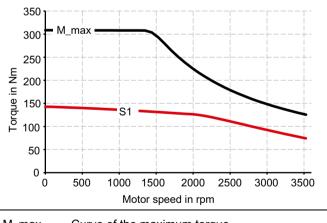
3.3.1.3 Definition of the load, calculation of the maximum load torque and determination of the motor

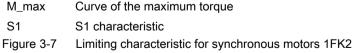
The motors are defined bases on the motor type-specific limiting characteristic curves.

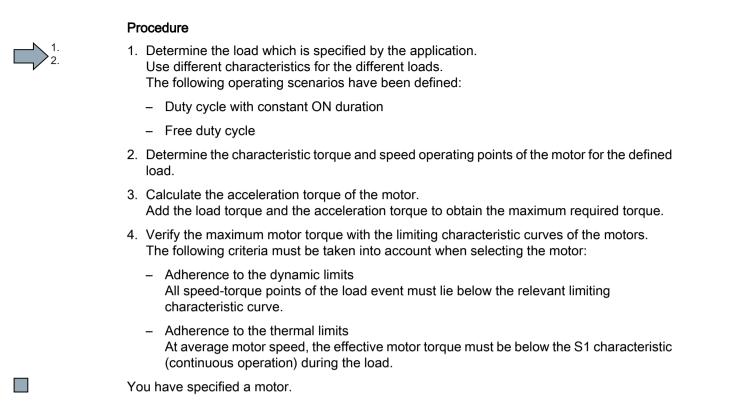
The limiting characteristic curves describe the torque or power curve over the speed.

The limiting characteristic curves take the limits of the motor into account on the basis of the DC-link voltage. The DC-link voltage is dependent on the line voltage.

In the case of torque drive the DC-link voltage is dependent on the type of Line Module and the type of infeed module or infeed/regenerative feedback module.







Duty cycles with constant ON duration

For duty cycles with constant ON duration, there are specific requirements for the torque characteristic curve as a function of the speed, for example:

M = constant, M ~ n^2 , M ~ n or P = constant.

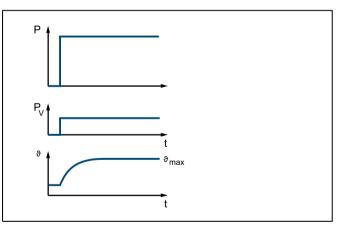


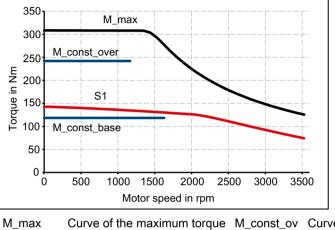
Figure 3-8 S1 duty (continuous operation)

The drives with this load cycle typically operate at a stationary operating point.

1. 2.

Procedure

- 1. Configure a base load for the stationary operating point. The base load torque must lie below the S1 characteristic.
- In the event of transient overloads (e.g. during acceleration), configure an overload. Calculate the overload current in relation to the required overload torque. The overload torque must lie below the M_max characteristic. In summary, the motor is configured as follows:



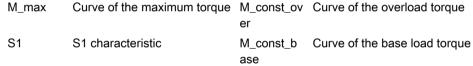
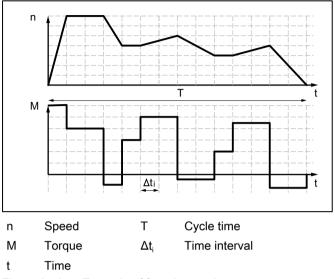


Figure 3-9 Motor selection for a duty cycle with constant switch-on duration

3. Select a motor that satisfies the requirements of S1 duty.

Free duty cycle



A free duty cycle defines the curve of the motor speed and the torque over time.

Figure 3-10 Example of free duty cycle

Procedure

Determine the required motor torque as follows:

- Define a load torque for each time slice. Also take the average load moment of inertia and motor moment of inertia into account for acceleration operations. If required, take a frictional torque into account that opposes the direction of motion.
- With mounted gearbox: Determine the load torque and the acceleration torque that must be supplied by the motor. Take the gear ratio and gear efficiency into account.

Note

A higher gear ratio increases positioning accuracy in terms of encoder resolution. For any given motor encoder resolution, as the gear ratio increases, so does the resolution of the machine position to be detected.

The following formulas can be used for duty cycles outside the field weakening range.

For the motor torque in a time slice Δt_i the following applies:

$$M_{\text{Mot, }i} = \left(J_{\text{M}} + J_{\text{G}}\right) \cdot \frac{2\pi}{60} \cdot \frac{\Delta n_{\text{Last, }i}}{\Delta t_{i}} \cdot i + \left(J_{\text{Last}} \cdot \frac{2\pi}{60} - \frac{\Delta n_{\text{Last, }i}}{\Delta t_{i}} + M_{\text{Last, }i} + M_{\text{R}}\right) \cdot \frac{1}{i \cdot \eta_{\text{G}}}$$

The motor speed is:

The effective torque is obtained as follows:

$$M_{\text{Mot, eff}} = \sqrt{\frac{\sum M_{\text{Mot, i}}^2 \cdot \Delta t_i}{T}}$$

 $n_{\text{Mot, i}} = n_{\text{Last, i}} \cdot i$

The average motor speed is calculated as follows:

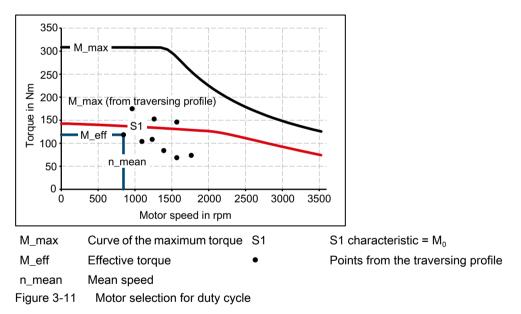
$$n_{\text{Mot, mittel}} = \frac{\sum \frac{n_{\text{Mot, i, A}} + n_{\text{Mot, i, E}}}{2}}{\frac{2}{\tau}}$$

 Δt_{i}

$J_{\rm M}$	Motor moment of inertia
$J_{ m G}$	Gearbox moment of inertia
$J_{\sf load}$	Load moment of inertia
<i>n</i> _{load}	Load speed
i	Gear ratio
$\eta_{ m G}$	Gearbox efficiency
$M_{\sf load}$	Load torque
M _R	Frictional torque
Т	Cycle time
A; E	Initial value, final value in time slice Δt_{i}
<i>t</i> e	ON duration
Δt_{i}	Time interval

The effective torque M_{eff} must lie below the S1 characteristic.

The maximum torque M_{max} is produced during the acceleration operation. M_{max} must lie below the voltage limiting characteristic curve. In summary, the motor is configured as follows:



You have defined the characteristic motor values corresponding to the duty cycle.

Specification of the motor

By varying, you can find the motor that satisfies the conditions of the operating mode (duty cycle).

• Determine the motor current at base load. The calculation depends on the type of motor (synchronous motor or induction motor) and the operating mode (duty cycle) used.

Note

When configuring according to duty cycle with constant ON duration with overload, the overload current is calculated in relation to the required overload torque.

- Comply with the thermal limits of the motor.
- Configure the other properties of the motor through the available motor options.

3.4 Configuring the external braking resistor

3.4 Configuring the external braking resistor

The converter has a Braking Module that converts regenerative energy of the servo motors into heat via an integrated braking resistor. Regenerative energy is produced, for example, when braking the connected mechanical system.

The continuous braking power and the braking energy that the integrated braking resistor can convert into heat are listed in the following table:

Table 3-2Braking energy and continuous braking power with the integrated braking resistor in
relation to the shaft of the servo motor

Converter		Braking energy	Continuous braking power [W]	
Article number	Power [W]	[J]		
6SL3210-5HB10-1UF0	100	20	5	
6SL3210-5HB10-2UF0	200	570	10	
6SL3210-5HB10-4UF0	400	840	20	
6SL3210-5HB10-8UF0	750	1680	40	

When do you require an external braking resistor?

Applications with frequent and very fast braking processes are typical applications that may require an external braking resistor.

To find out whether you require an external braking resistor, calculate the braking energy that you require according to the following formula:

W = 0.5 $(J_{Mot} + J) \times 4\pi^2 / 3600 \times (n_1^2 + n_2^2)$

J_{mot} Moment of inertia of the servomotor High Dynamic (Page 187)

Compact (Page 194)

J Moment of inertia of the driven mechanical system in relation to the shaft of the servo motor

Note

As the actual friction is not taken into account in the above formula, less energy is fed back to the servo drive system in practice than that calculated in the formula.

Example

Moment of inertia of the servomotor 1FK2104-2AG1 $J_{mot} = 0.75 \times 10^{-4} \text{ kg m}^2$ Moment of inertia of the driven mechanical system $J = 4 \times 10^{-4} \text{ kg m}^2$ $n_1 = 3000 \text{ rpm}$ $n_2 = 600 \text{ rpm}$ $\Rightarrow W = 22.5 \text{ J}$ (1 J = 1 Ws)

3.4 Configuring the external braking resistor

Requirements placed on the external braking resistor

WARNING

Risk of fire caused by continuous overload

If the external braking resistor is continuously overloaded, for example as the result of a defective braking chopper, this can result in an explosion or fire - or the housing could melt. Use only braking resistors that are intrinsically safe.

Table 3-3 Resistance data for an external braking resistor

Converter		Braking resistor				
Article number	Power [W]	Resistance [Ω]	Peak braking pow- er [kW]	Braking energy [kJ]	Rated power [W]	
6SL3210-5HB10-1UF0	100					
6SL3210-5HB10-2UF0	200	150	1.09	0.8	20	
6SL3210-5HB10-4UF0	400	100	1.64	1.23	21	
6SL3210-5HB10-8UF0	750	50	3.28	2.46	62	

Table 3-4 Examples of suitable external braking resistors from a third party

Converter			Braking resistor	
Article number	Power [W]	Continuous braking power of the brake chopper [W]	Peak braking pow- er [kW]	Example of manufacturer or equiva- lent
6SL3210-5HB10-1UF0	100	50	1.1	Michael Koch GmbH, BWG250150
6SL3210-5HB10-2UF0	200	100	1.1	Michael Koch GmbH, BWG250150
6SL3210-5HB10-4UF0	400	200	1.7	Michael Koch GmbH, BWG500100
6SL3210-5HB10-8UF0	750	240	3.6	Michael Koch GmbH, BWG600047 ¹⁾

1) For thermal reasons, it is not permissible that the continuous braking power of 240 W is exceeded.

Note

Braking resistor with temperature monitoring

Use only a braking resistor with temperature monitoring.

Connecting the external braking resistor

Use shielded cables to connect power to the external braking resistor.

How to connect the external braking resistor and the temperature monitoring is described in the following Sections:

Connections for open-loop and closed-loop control of the converter (Page 101).

3.4 Configuring the external braking resistor

Setting the temperature monitoring of the external braking resistor

If you have connected the external braking resistor with motor temperature monitoring, you must activate the temperature monitoring via the web server of the converter.

Configuring digital inputs (Page 127).

Activate the digital input DI 4 "Temperature monitoring of the external braking resistor".

The converter switches the motor off as soon as the external braking resistor is too hot or when no external braking resistor is connected (wire break).

3.5 Establishing communication of the converter with the controller

You only have to create the communication settings between the converter and the PLC in the corresponding PLC.

The converter takes over the telegram settings from the PLC during run-up.

You can create one standard telegram and two different supplementary or safety telegrams for the converter.

The converter supports the following telegrams:

Standard telegrams:

- Telegram 3
- Telegram 5
- Telegram 102
- Telegram 105

Supplementary telegrams

- Telegram 700
- Telegram 701
- Telegram 750

PROFIsafe telegrams

- Telegram 30
- Telegram 901

For further information about telegrams

Communication telegrams (Page 737)

3.5 Establishing communication of the converter with the controller

Safety functions integrated in the drive

4.1 Overview of Safety Integrated Functions

In comparison to standard drive functions, safety functions have an especially low error rate. Performance level (PL) and safety integrity level (SIL) of the corresponding standards are a measure of the error rate.

As a consequence, the safety functions are suitable for use in safety-related applications to minimize risk. An application is safety-related if the risk analysis of the machine or the system indicates a special hazard potential in the application.

Safety Integrated ("drive-integrated") means that the safety functions are integrated in the converter and can be executed without requiring additional external components.

You make the settings for these Safety Integrated Functions via the web server. Take the instruction in the following section into account:

Safety settings in the Web server (Page 135)

Overview of Safety Integrated Functions

The Safety Integrated Functions comply with:

- Safety Integrity Level (SIL) 2 according to DIN EN 61508
- Category 3 according to DIN EN ISO 13849-1
- Performance level (PL) d according to DIN EN ISO 13849-1

The Safety Integrated Functions correspond to the functions according to EN 61800-5-2.

Basic Functions

These functions are part of the standard scope of the converter and can be used without requiring an additional license. The Basic Functions consist of the following Safety Integrated Functions:

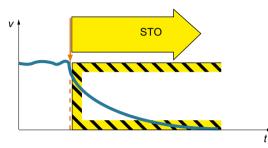
- Safe Torque Off (STO)
- Safe Brake Control (SBC)
- Safe Stop 1, time-controlled (SS1)

4.2 Basic Functions

4.2 Basic Functions

4.2.1 Safe Torque Off (STO)

Overview



Safe Torque Off (STO) is a safety function that immediately ensures that torque or force-generating energy is not fed to the motor. This function corresponds to stop category 0 to EN 60204-1.

If the motor is still rotating when STO is selected, then it coasts down to standstill.

Functional features

The switching on inhibited prevents an automatic restart after deselection of STO and therefore satisfies the requirements of EN 60204-1. Consequently, the STO function prevents an electrically-driven machine component from restarting.

Note

There is no galvanic isolation between motor and converter.

The STO function can be selected via PROFIsafe and/or the fail-safe digital input (F-DI).

STO is a drive-specific function that must be put into operation individually for each drive.

Applications

Applications include all machines and systems with moving axes (e.g. conveyor technology, handling).

STO is suitable for applications where the motor is already at a standstill or will come to a standstill in a short, safe period of time as a result of friction.

STO facilitates personnel to work safely with the protective door open. A classic Emergency Stop with electromechanical isolation is not required. The converter remains connected to the line and can be fully diagnosed.

Note

The distinction between Emergency Off and Emergency Stop

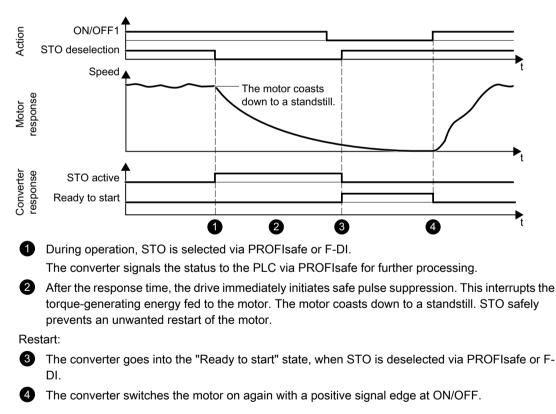
"Emergency Off" and "Emergency Stop" are commands that minimize different risks in the machine or plant.

The STO function is suitable for implementing an Emergency Stop - but not an Emergency Off.

Details regarding the distinction between Emergency Off and Emergency Stop are provided in the following section:

What is the difference between the Emergency Off and Emergency Stop functions? (Page 745)

Sequence diagram



Selecting/deselecting "Safe Torque Off"

If "Safe Torque Off" is selected, the motor holding brake is closed (if connected and configured).

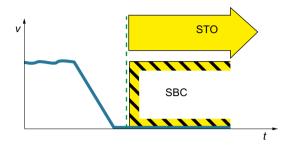
4.2 Basic Functions

Deselecting "Safe Torque Off" represents an internal safety acknowledgment. The following is executed when the cause of the fault has been removed:

- 1. The Safety requirement "Close motor holding brake" is canceled.
- 2. Any pending STOP F or STOP A commands are canceled.
- 3. The messages in the fault memory must also be reset using the general acknowledgment mechanism.

4.2.2 Safe Brake Control (SBC)

Overview



The "Safe Brake Control" function (SBC) is used to safely control the motor-integrated holding brake.

The holding brake opens as soon as voltage is available - and closes when in the no-voltage state.

Functional features

In order that SBC can become active you must enable the function when commissioning the system.

Note

SBC cannot be selected as an autonomous function; however, if it is enabled, it is activated at the same time that STO is selected.

The holding brake is controlled using the encoder integrated in the motor.

Applications

SBC can be used wherever a safe position must be maintained even with a de-energized motor, in order to prevent suspended or passing loads from dropping (e.g. lifting gear, passenger elevators, winders). No external logic or switching elements required, as the functionality is completely integrated in the drive.

Note

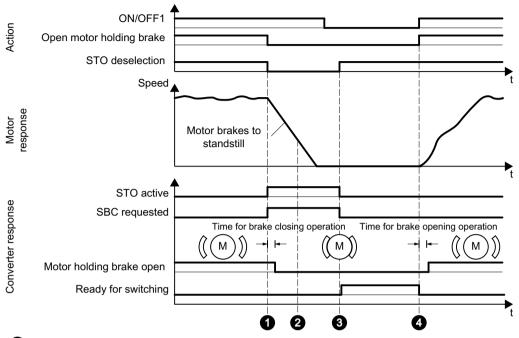
Condition of the motor holding brake

SBC is not able to identify as to whether a holding brake is mechanically worn or is a defective.

As a consequence, observe the maximum permissible number of emergency braking operations for the motor holding brake being used.

4.2 Basic Functions

Sequence diagram



STO is selected during operation via the control bit of the selected PROFIsafe telegram or via the F-DI.

Safe Brake Control (SBC) is activated at the same time. Taking the brake closing time (r1217) into account, the command to close the motor holding brake closes the brake, thus supporting the shutdown process initiated by STO.



The mechanical brake brakes the motor down to standstill.

The converter goes into the "Ready to start" state, when STO is deselected via PROFIsafe or F-DI. SBC is reset at the same time. The brake remains (unsafely) closed until the standard program executes the command to open the brake.

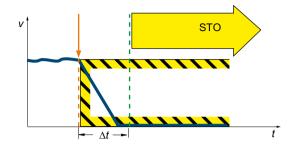
4

The converter switches the motor on again with a positive signal edge at ON/OFF. Taking the brake opening time (r1216) into account, the command to open the motor holding brake opens the brake.

The converter carries out a check to ensure that the "Safe Brake Control" function is working properly and ensures that - if there is a failure or fault - the brake current is interrupted and the brake is thus applied. If a fault is detected by the converter, the brake current is disconnected. The brake then closes and a safe state is reached.

4.2.3 Safe Stop 1 (SS1, time-controlled)

Overview



The "Safe Stop 1" function (SS1, time-controlled) causes a drive-autonomous deceleration of the motor and initiates the "Safe Torque Off" (STO) function after a predefined time interval has elapsed. This function corresponds to stop category 1 to EN 60204-1.

Functional features

There are the following variants for the Basic Function "Safe Stop 1":

- SS1 with OFF3 (SS1-t according to IEC 61800-5-2)
- SS1 with external stop (SS1E)

The setting of the SS1 response is performed during the Safety commissioning in the step "Parameterization"

Applications

SS1 can be used wherever the load torque cannot stop the motor in a sufficiently short time as a result of friction - or where there is a safety risk if the drive coasts down (STO).

SS1 with OFF3 (SS1-t)

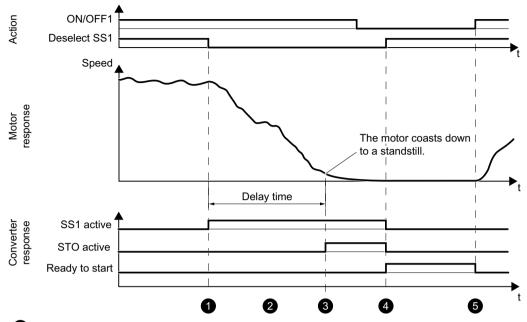
When SS1-t is selected, the motor speed is reduced along the OFF3 ramp for the duration of the selected delay time. After the delay time expires, the converter activates the STO function (independent of the actual speed).

Note

There is a single-channel monitoring of the braking process at the OFF3 ramp!

4.2 Basic Functions

Flow diagram SS1 with OFF3 (SS1-t)



SS1 is selected during operation (selection via the control bit of the selected PROFIsafe telegram or via F-DI).

The converter signals the status "SS1 active" via the status bit of the PROFIsafe telegram to the PLC for further processing.

2 After the response time, the converter initiates braking along the OFF3 ramp. The SS1 delay time is started at the same time.

The converter brakes the motor along the OFF3 ramp for the duration of the delay time.

3 STO is initiated automatically after the SS1 delay time expires (p9652).

The motor coasts down to a standstill. STO safely prevents an unwanted restart of the motor.

When SS1 is deselected (via PROFIsafe or F-DI), STO and SS1 are deactivated and the converter goes into the "Ready for switching on" state.

5 The converter switches the motor on again with a positive signal edge at ON/OFF.

Shutting down the motor with SS1 active

When SS1 is active, the OFF2 command stops the energy supply to the motor, even before the delay time for SS1 has elapsed. The motor coasts down to a standstill.

Proceed as follows in order to switch on the motor again:

- 1. Deselect SS1. This deactivates SS1 and STO.
- 2. Deselect the OFF2 command. The converter goes into the "Ready for switching on" state.
- 3. Switch the motor off and back on to send an ON signal to the motor.

Note

OFF1 or OFF3 for active SS1

Switching the motor off via an OFF1 or OFF3 command while SS1 is active (e.g. by a limit switch) does not influence the response of converter and motor.

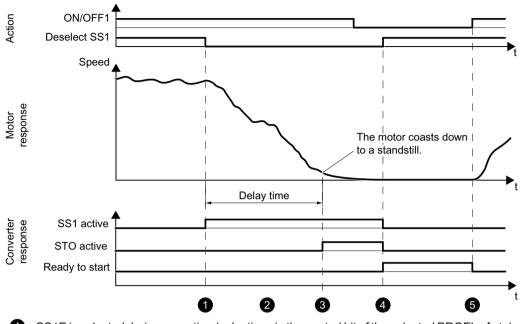
SS1 remains active after the OFF command. After the delay time has elapsed, the converter transitions to STO status.

SS1 with external stop (SS1E)

If several drives are connected with one another through a material web, then braking initiated by a single drive at the related OFF3 ramp can damage the machine or system.

When the safety function SS1E is used, the drive is shut down using the user program of a higher-level control system. Although the safe delay time is activated when SS1E is selected, OFF3 is not activated. The converter signals via PROFIsafe or the Safety Info Channel (SIC) of the supplementary telegram that SS1 was selected. Using an appropriate program, the control must then ramp down the drives involved within the delay time to the safe state. After the delay time has elapsed, the converter activates the STO function and safely interrupts the energy feed to the motor (independent of the actual speed).

4.2 Basic Functions



Flow diagram SS1 with external stop (SS1E)

SS1E is selected during operation (selection via the control bit of the selected PROFIsafe telegram or via F-DI).

The converter signals the status "SS1 active" via the status bit of the PROFIsafe telegram to the PLC for further processing.

2 The control system triggers the shutdown via the setpoint input. The SS1 delay time in the converter is started at the same time.

The motor is braked by the external setpoint input, and signals "SS1E selected" to the PLC.

3 STO is initiated automatically after the SS1 delay time expires (p9652).

The motor coasts down to a standstill. STO safely prevents an unwanted restart of the motor.

When SS1 is deselected (via PROFIsafe or F-DI), STO and SS1 are deactivated and the converter goes into the "Ready for switching on" state.

5 The converter switches the motor on again with a positive signal edge at ON/OFF.

Note

SS1 cannot be interrupted

If SS1 is deselected again during this time, the STO function is selected and deselected again immediately after the delay time has elapsed or the speed has dropped below the shutdown speed. This terminates the SS1 function normally. It cannot be interrupted.

Setting the delay time for SS1

Select the SS1 delay time such that the converter can brake the motor down to standstill along the OFF3 ramp in any state of the work process.

The OFF3 ramp-down time must be orientated to the actual braking capacity of the system or machine.

Use the following procedure to select the SS1 delay time:

SS1 delay time with parameterized motor holding brake:

SS1 delay time (p9652) \geq OFF3 ramp-down time (p1135) + pulse suppression delay time (p1228) + motor holding brake closing time (p1217)

SS1 delay time, without parameterized motor holding brake:

SS1 delay time (p9652) \geq OFF3 ramp-down time (p1135) + pulse suppression delay time (p1228)

4.3 Configuring the safety functions

4.3 Configuring the safety functions

When configuring the safety functions, you specify the interfaces that activate the safety functions.

Selection via F-DI

You can select or deselect the safety function via the fail-safe digital input (F-DI).

Whether STO or SS1 is activated when you select the safety function depends on the setting of the SS1 delay time:

- SS1 delay time = 0: STO is activated immediately
- SS1 delay time > 0: SS1 is activated; STO is activated after the SS1 delay time has expired

Selection via PROFIsafe

The following safety telegrams are available for the safety functions via PROFIsafe:

- Telegram 30
- Telegram 901

Details of telegrams and control word and status word assignments can be found in section Communication telegrams (Page 737).

Selection via PROFINET

The following supplementary telegrams are available for the safety functions via PROFINET:

- Telegram 700
- Telegram 701

Details of telegrams and control word and status word assignments can be found in section Communication telegrams (Page 737).

4.4 Responses to safety faults

4.4.1 Stop responses

Overview

If Basic Function faults occur, the following stop responses can be triggered:

- STOP A
- STOP F

Internal event

An "internal event" is a major fault that causes the converter to bring the motor to a standstill as quickly as possible by triggering a STOP reaction.

An "internal event" can be triggered, for example, if the converter detects a fault in the monitoring channels during a data cross-check (e.g. F01611 "Defect in a monitoring channel").

An "internal event" can only be acknowledged using a fail-safe signal.

STOP A

For a STOP A, the converter safely switches off the torque of the connected motor immediately. STOP A corresponds to STO.

STOP F

STOP F is triggered when a fault in the data cross-check of the monitoring channels is detected.

Consequently, STOP A is triggered and fault F01600 issued.

The transition time from STOP F to STOP A can be selected in p9658.

Note

The selected transition time from STOP F to STOP A (p9658) must be greater than or equal to the delay time (p9652).

If a safety function is active, the following happens after a STOP F:

- Fault F01611 initiates a STOP A after the transition time.
- The message C01711 "Defect in a monitoring channel" triggers a STOP A when STO is active.

4.4 Responses to safety faults

If a safety function is not active, the following happens after a STOP F:

- Fault F01611 initiates a STOP A after the transition time.
- Message C01711 does not trigger an immediate stop response. The message continues to be pending.

When selecting a safety function, the converter responds with a stop as described above.

4.4.2 Response to a discrepancy when STO is active

If there is a discrepancy between the two digital inputs of an F-DI, the converter ignores the signals via the fail-safe digital input and transitions to the safe STO state.

Drive response

The converter sets the bit "Internal event" after the discrepancy time has elapsed. You cannot switch on the motor as long as this signal is active.

Note

Discrepancy time

To avoid incorrectly triggered fault messages, the selected discrepancy time in p9650 must always be shorter than the shortest time between 2 switching events at these inputs (ON/OFF, OFF/ON).

The converter indicates the discrepancy error when the RDY-LED flashes quickly red.

- The converter outputs a fault message on the numerical display. It signals the fault via the web server and vie PROFIsafe
 - "Discrepancy (fault F01611 or F30611 "Defect in a monitoring channel" with fault values r0949 = 2000 or 2002)"
- The converter sets the error bit of the safety functions (= internal event).
 Communication telegrams (Page 737) and Bit assignments of the process data (Page 740)

Independent of the voltage levels present, the converter remains in the STO state until you have acknowledged the "Internal event" state.

Switching the motor on again

Proceed as follows in order to switch on the motor again:

Acknowledging an internal event

Remove the cause of the internal event (e.g. wire break). You have the following options to acknowledge the signal:

- Via PROFIsafe
 - Selecting and deselecting STO
 - Select and deselect SS1
 - Fail-safe acknowledgment

Communication telegrams (Page 737)and Bit assignments of the process data (Page 740)

- Select and deselect STO via the fail-safe digital input
- Switch-on the motor again by

4.4 Responses to safety faults

Switching the motor on again

- Acknowledge converter faults using one of the following methods:
 - Using the "OK" button at the converter
 - Via the web server
 - Via the PLC
- Issue an OFF1 command (ON/OFF1 = 0).
- Switch on the motor (ON/OFF1 = 1).

4.5 System properties

4.5.1 Response times of the Basic Functions

The Basic Functions are executed with a monitoring cycle of 4 ms. PROFIsafe telegrams are evaluated in the PROFIsafe scan cycle, which corresponds to twice the monitoring cycle.

Note for understanding the following tables

The drive system is the component that provides the safety functions. The designation "faultfree drive system" means that the component that provides the safety functions does not have a defect itself:

- Worst case for a fault-free drive system For faults outside the drive system, such as e.g. faulty setpoint input from a control system, limit value violations as a result of the behavior of the motor, closed-loop control, load, etc., the "Worst case for a fault-free drive system" response time is guaranteed.
- Worst case when a fault exists For a single fault within the drive system, such as a defect in a switch-off signal path of the power unit, a defect in an encoder actual value measurement, a defect in a microprocessor (Control Unit or Motor Module) etc., the "Worst case when a fault exists" response time is guaranteed.

4.5.2 Control of the Basic Functions via terminals

The following table lists the response times from the control via terminals until the response actually occurs.

Function	Worst case for		
	Drive system has no fault	A fault is present	
STO	2 · 4 ms + t_E ¹⁾	3 · 4 ms + t_E ¹⁾	
SBC	4 · 4 ms + t_E ¹⁾	8 · 4 ms + t_E ¹⁾	
SS1/SS1E (time-controlled) Selection until STO is initiated	2 · 4 ms + p9652 + t_E ¹⁾	3 · 4 ms + p9652 + t_E ¹⁾	
SS1/SS1E (time-controlled) Selection until SBC is initiated	4 · 4 ms + p9652 + t_E ¹⁾	8 · 4 ms + p9652 + t_E ¹⁾	
SS1 (time-controlled) Selection until braking is initiated	3 · 4 ms + 2 ms + t_E ¹⁾	4 · 4 ms + 2 ms + t_E ¹⁾	

 Table 4-1
 Response times for control via terminals on the Control Unit and the Motor Module.

¹⁾ The following applies for t_E (debounce time of the digital input being used):

p9651 = 0	t_E = 8 ms
p9651 ≠ 0	t_E = p9651 + 5 ms

4.5 System properties

4.5.3 Control of the Basic Functions via PROFIsafe

The following table lists the response times¹⁾ from receiving the PROFIsafe telegram at the Control Unit up to initiating the particular response.

Table 4-2	Response times when controlling via PROFIsafe	
	Tesponse limes when controlling via FROFIsale	

Function	Worst case for		
	Drive system has no fault	A fault is present	
STO	5 · 4 ms + t_K ²⁾	5 · 4 ms + t_K ²⁾	
SBC	6 · 4 ms + t_K ²⁾	10 · 4 ms + t_K ²	
SS1/SS1E (time-controlled) Selection until STO is initiated	5 · 4 ms + p9652 + t_K ²⁾	5 · 4 ms + p9652 + t_K ²⁾	
SS1/SS1E (time-controlled) Selection until SBC is initiated	6 · 4 ms + p9652 + t_K₂)	10 · 4 ms + p9652 + t_K ²⁾	
SS1 (time-controlled) Selection until braking is initiated	5 · 4 ms + 2 ms + t_K ²⁾	5 · 4 ms + 2 ms + t_K ²⁾	

¹⁾ The specified response times involve internal SINAMICS response times. Program run times in the F-host and the transmission time via PROFIBUS or PROFINET are not taken into account. When calculating the response times between the F-CPU and the converter, you must take into account that faults in the communication can result in a safety function only being selected after the PROFIsafe monitoring time (F_WD_Time) has expired. The PROFIsafe monitoring time (F_WD_Time) must also be included in the calculation when an error occurs.

²⁾ t_K is the time for internal communication within the SINAMICS module; t_K can be determined as follows:

For isochronous communication	t_K = To (for To see settings in the controller)
-------------------------------	--

4.5.4 PFH values



You can find more details about the PFH values via the following link: SINAMCS Industrial Security (<u>https://support.industry.siemens.com/cs/ww/en/view/76254308</u>)

4.6 Acceptance - completion of commissioning

What is an acceptance?

The machine manufacturer is responsible in ensuring that the plant or machine functions perfectly. As a consequence, after commissioning, the machine manufacturer must check those functions or have them checked by specialist personnel, which represent an increased risk of injury or material damage. This acceptance or validation is, for example, also specified in the European machinery directive and essentially comprises two parts:

- Acceptance test: Checking the safety-relevant functions and machine parts after startup.
- Documentation: Generate an "Acceptance report" that describes the test results.

Supply information for the validation, e.g. the harmonized European standards EN ISO 13849-1 and EN ISO 13849-2.

Acceptance test of the machine or plant

The acceptance test is used to check whether the safety-relevant functions in the machine or system function properly. The documentation of the components used in the safety functions can also provide information about the necessary tests.

Testing the safety-relevant functions includes, e.g. the following:

- Are all safety equipment such as protective door monitoring devices, light barriers or emergency-off switches connected and ready for operation?
- Does the higher-level controller respond as expected to the safety-relevant feedback signals of the converter?
- Do the converter settings match the configured safety-relevant function in the machine?

Acceptance test of the converter

The acceptance test of the converter is a part of the acceptance test of the entire machine or plant.

The acceptance test of the converter checks whether the settings of the Basic Functions are compatible with the configured safety functions of the machine.

Documentation

The following must be documented for the converter:

- Result of the acceptance tests
- · Settings of the integrated drive safety functions

This documentation must be countersigned.

Persons authorized for acceptance

Personnel from the machine manufacturer, who, on account of their technical qualifications and knowledge of the safety functions, are in a position to perform the acceptance test in the correct manner are authorized to perform the acceptance testing of the converter.

Recommendations

With the acceptance test, you check whether the safety functions in the converter have been set correctly.

- Perform the acceptance test with the maximum possible velocity and acceleration to test the expected maximum braking distances and braking times.
- Alarm A01697: This alarm is issued following each system startup and is not critical for acceptance.

After the acceptance test of the converter's safety functions, you must also check whether the safety-related functions in the machine or system are functioning correctly.

Note

Examples of acceptance tests

The following acceptance tests are examples which demonstrate the basic procedure. They are not suitable for every possible setting of the converter.

When do you have to conduct an acceptance test of the machine or plant?

You must conduct an acceptance test of the machine or plant in the following cases:

- After commissioning
- After a new firmware version has been uploaded to the converter
- When you change the parameter assignment of the converter

When do you have to conduct an acceptance test of the converter?

If you have replaced the converter, you have to conduct an acceptance test for it.

Note

When you replace the converter, an error message appears. Acknowledge this error message, e.g. by switching off and on.

What does the acceptance test for the converter consist of?

Documentation

- 1. Supplement/change the hardware data
- 2. Supplement/change the software data (specify version)

Function test, safety functions

- 1. Test of the SI function "Safe Torque Off" (STO)
- 2. Test of the SI function "Safe Stop 1" (SS1)
- 3. Test of the SI function "Safe Brake Control" (SBC)

Functional testing of forced checking procedure (test stop)

Select and deselect STO.

4.6.1 STO acceptance test

Precondition

The converter is ready for operation.

- The converter signals neither faults nor alarms of the safety functions (r0945[0...7], r2122[0...7]).
- STO is not active (r9734.0 = 0).

Procedure



Use the following procedure for the acceptance test of the Basic Function STO:

Switch on motor

- 1. Enter a speed setpoint \neq 0.
- 2. Switch on the motor (ON command).
- 3. Check that the correct motor is running.

Select STO

- 1. Select STO while the motor is running. Test each configured activation, e.g. via digital inputs and PROFIsafe.
- 2. Check the following:
 - If a mechanical brake is not available, the motor coasts down.
 A mechanical brake brakes the motor and holds it to ensure that it remains at a standstill.
 - The converter signals neither faults nor alarms of the safety functions (r0945[0...7], r2122[0...7]).
 - The converter signals the following: "STO is active" (r9734.0 = 1).

Deselect STO

- 1. Deselect STO.
- 2. Check the following:
 - STO is not active (r9734.0 = 0).
 - The converter signals neither faults nor alarms of the safety functions (r0945[0...7], r2122[0...7]).

4.6.2 SBC acceptance test

Precondition

The converter is ready for operation.

- The converter signals neither faults nor alarms of the safety functions (r0945[0...7], r2122[0...7]).
- SBC is not active (r9734.0 = 0 and r0899.12 = 1).

Procedure



Use the following procedure for the acceptance test of the Basic Function SBC:

Switch on motor

- 1. Enter a speed setpoint \neq 0.
- 2. Switch on the motor (ON command).
- 3. Check that the correct motor is running.
- 4. Enter the speed setpoint = 0.

Select SBC

- 1. Select the STO function or the SS1 function.
- 2. Check the following: The converter signals the following: "SBC is active" (r9734.0 = 1 and r0899.12 = 0).

Deselect STO

- 1. Deselect STO.
- 2. Check the following:
 - The converter signals the following: "SBC is not active" (r9734.0 = 0 and r0899.12 = 1).
 - The converter signals neither faults nor alarms of the safety functions (r0945[0...7], r2122[0...7]).

4.6.3 SS1 acceptance test

Precondition

The converter is ready for operation.

- The converter signals neither faults nor alarms of the safety functions (r0945[0...7], r2122[0...7]).
- SS1 is not active (r9734.1 = 0).

Procedure



To perform the acceptance test of the SS1 Basic Function, proceed as follows:

Switch on motor

- 1. Enter a speed setpoint \neq 0.
- 2. Switch on the motor (ON command).
- 3. Check that the correct motor is running.

Select SS1

- 1. Select SS1 while the motor is switched on. Test each configured activation, e.g. via digital inputs and PROFIsafe.
- 2. In your machine, check the following:
 - The motor brakes on the OFF3 ramp.
 - SS1 is active (r9734.1 = 1).
 - After the p9652 time has expired, the converter signals: "STO is active" (r9734.0 = 1).

Deselect SS1

- 1. Deselect SS1.
- 2. Check the following:
 - SS1 is not active (r9734.1 = 0).
 - The converter signals neither faults nor alarms of the safety functions (r0945[0...7], r2122[0...7]).

4.7 Functional safety

Safety, from the perspective of the object to be protected, cannot be split-up. The causes of hazards and, in turn, the technical measures to avoid them can vary significantly. This is why a differentiation is made between different types of safety (e.g. by specifying the cause of possible hazards). "Functional safety" is involved if safety depends on the correct function.

To ensure the functional safety of a machine or plant, the safety-related parts of the protection and control devices must function correctly. In addition, the systems must behave in such a way that either the plant remains in a safe state or it is brought into a safe state if a fault occurs. In this case, it is necessary to use specially qualified technology that fulfills the requirements described in the associated Standards. The requirements to implement functional safety are based on the following basic goals:

- Avoiding systematic faults
- Controlling random faults or failures

Benchmarks for establishing whether or not a sufficient level of functional safety has been achieved include the probability of hazardous failures, the fault tolerance, and the quality that is to be ensured by avoiding systematic faults. This is expressed in the standards using specific classification. In IEC/EN 61508, IEC/EN 62061 "Safety Integrity Level" (SIL) and EN ISO 13849-1 "Category" and "Performance Level" (PL).

4.8 Machinery Directive

4.8 Machinery Directive

The basic safety and health requirements specified in Annex I of the Directive must be fulfilled for the safety of machines.

The protective goals must be implemented responsibly to ensure compliance with the Directive.

Manufacturers of a machine must verify that their machine complies with the basic requirements. This verification is facilitated by means of harmonized standards.

IEC 61800-5-2 Adjustable-speed electrical power drive systems Part 5-2 is relevant for the Machinery Directive: Safety requirements - Functional safety

Within the context of IEC 61508, IEC 61800-5-2 considers adjustable speed electric power drive systems (PDS), which are suitable for use in safety-related applications (PDS(SR)).

IEC 61800-5-2 places demands on PDS(SR) as subsystems of a safety-related system. This therefore permits the implementation of the electrical/electronic/programmable electronic elements of a PDS(SR) taking into account the safety-relevant performance of the safety function(s) of a PDS.

Manufacturers and suppliers of PDS(SR) can prove to users (e.g. integrators of control systems, developers of machines and plants etc.) the safety-relevant performance of their equipment by implementing the specifications stipulated in standard IEC 61800-5-2.

Installing

5.1 Safety instructions



NOTICE

Thermal damage to temperature-sensitive parts

Some parts of the electrical motor enclosure can reach temperatures that exceed 100 °C. If temperature-sensitive parts, for instance electric cables or electronic components, come into contact with hot surfaces then these parts can be damaged.

• Ensure that no temperature-sensitive parts come into contact with hot surfaces.

5.2 Installing the motor

5.2 Installing the motor

5.2.1 Checklists prior to assembly

Note

Required checks

The checks listed below are a minimum benchmark and must be performed in any case. Further checks before, during and after the installation of the motor depend on the systemspecific conditions and are the responsibility of the plant or system manufacturer.

• Thoroughly familiarize yourself with the safety instructions and observe the checklists below before starting any work.

OK

5.2.2 Mounting instructions for the motor

NOTICE

Damage to shaft sealing rings caused by solvent

If shaft sealing rings come into contact with solvents when removing the corrosion protection, the shaft sealing rings can be damaged.

Avoid contact between solvents and shaft sealing rings.

NOTICE

Damage to the motor due to runout on the shaft extension

Runout and thrust on the shaft extension of the motor damage the motor.

- Mount the motor without runout and thrust on the shaft extension.
- Observe the specifications on the rating plate.
- Observe the warning and information plates on the motor.
- Remove the anti-corrosion protection thoroughly from the motor shaft. Use commercially available solvents.
- Please pay attention to the notes on the thermal mounting variants.
- If the motor is installed vertically with the shaft extension facing up, ensure that no liquid can enter the upper bearing.
- Ensure that the flange is in even contact with the mounting surface.
- Use hexagon socket head cap screws with a property class of at least 8.8.
- When tightening the fastening bolts avoid any uneven stressing.
- Observe the tightening torques for the fastening bolts.

Tightening torques for fastening bolts

The general tolerance for the tightening torque is 10%. The tightening torque is based on a friction coefficient of μ = 0.14.

Motor	Bolt DIN 7984	Washer ISO 7092 [mm]	Tightening torque for bolts (not for electri- cal connections)
1FK2□02	M4	4 (d2 = 8)	2.2 Nm
1FK2□03	M5	5 (d2 = 9)	4 Nm
1FK2□04	M6	6 (d2 = 11)	8 Nm

Tightening torques for fastening bolts

5.2 Installing the motor

5.2.3 Fitting output elements

NOTICE

Damage to the motor due to runout on the shaft extension

Runout and thrust on the shaft extension of the motor can damage the motor.

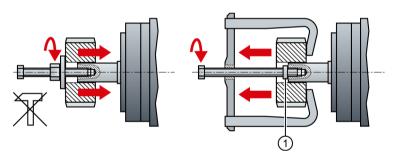
• Mount the motor without runout and thrust on the shaft extension.

Mount or remove the power output elements (e.g. couplings, gear wheels, belt pulleys) using suitable devices only (see figure).

- Use the threaded hole in the shaft extension.
- If required, heat up the output elements before mounting or removing.
- When removing the output elements, use an intermediate disk to protect the centering in the shaft extension.
- If necessary, completely balance the motor together with the output elements according to ISO 1940.

Note

Motors with feather key are half-key balanced. The motors have been balanced with half a feather key.



1 Intermediate washer/disk (to protect the centering in the shaft extension)

Figure 5-1 Mounting and removing output elements

The motor dimensions can be found in Chapter: "Dimension drawings of motor (Page 207)"

5.3 Installing the converter

5.3.1 Installation conditions

When installing the converter carefully observe the conditions listed below in order to guarantee reliable, continuous and trouble-free operation.

- The converter is designed for installation in a control cabinet.
- The converter is certified for use in environments with degree of pollution 2 without condensation; i.e. in environments where no conductive pollution/dirt occurs. Condensation is not permissible.
- The converter fulfills degree of protection IP20.
- EMC-compliant installation:
 EMC-compliant installation of a machine or system (Page 35).

Additional requirements for plants and systems in the United States / Canada (UL/cUL)

A label with the following number is provided with the device: A5E36790112.

Note the instructions on the label and attach the label in a clearly visible location close to the converter in the control cabinet.

Installation notes

• Install the converter vertically with the flap for the LED display facing upwards.



Figure 5-2 Mounting position of the converter

- Maintain the minimum clearances to other components.
- Use the recommended hardware (screws M5) and comply with the specified torques.

5.3 Installing the converter

5.3.2 Dimension drawings and drilling dimensions

Leave a minimum 100 mm clearance to other devices at the top and bottom. A lateral clearance between multiple SINAMICS S210 converters is not mandatory. Observe a lateral clearance of at least 10 mm to other devices.

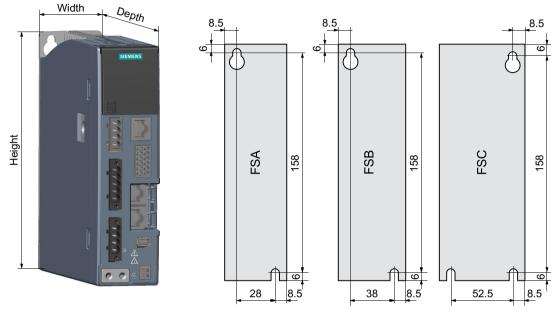


Figure 5-3 Dimension drawing and drilling dimensions

Frame size	Width	Height	Depth	Weight
FSA	45 mm	170 mm	170 mm	1.1 kg
FSB	55 mm	170 mm	170 mm	1.2 kg
FSC	70 mm	170 mm	195 mm	1.9 kg

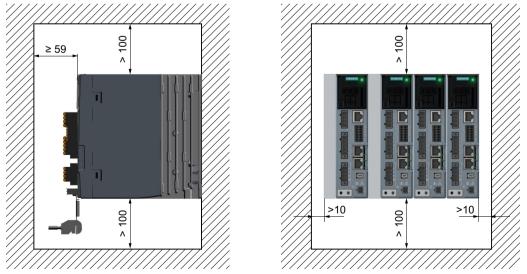


Figure 5-4 Distances to cabinet walls and other components

5.4 Connecting the converter and the motor

5.4.1 Cable lengths

Permissible cable lengths for the connection of the motor to the converter.

	Converter without additional line filter	Converter with additional exter- nal filter
EMC category C2	10 m	25 m
EMC category C3	25 m	50 m

External line filter (Page 219)

Connection cables between the motor and the converter (Page 217)

Electromagnetic compatibility (Page 199)

Permissible cable lengths for the other converter connections

Type of connection	Connection via	Permissible cable length
Control voltage 24 VDC	X124	30 m
External braking resistor	X1 (R1, DCP)	3 m
Motor power connections	X2	50 m
Service interface	X127	10 m
Digital inputs	X130	30 m
Connection to the control system via PROFINET	X150 P1	100 m
	X150 P2	
Encoder	X100	50 m
Motor holding brake	X107	50 m

5.4.2 Connecting the motor

NOTICE

Destruction of the motor if it is directly connected to the three-phase line supply

The motor will be destroyed if it is directly connected to the three-phase line supply.

Only operate motors with the permitted converters.

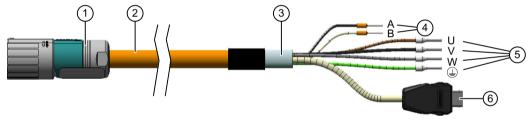
The manufacturer of the system/machine is responsible for ensuring that installation is performed correctly.

Ensure that the associated warning labels in the appropriate national language are attached.

The motors are equipped with a rotatable cable outlet with SPEED-CONNECT connectors M12 or M17.

The motor is connected to the converter with a MOTION-CONNECT OCC cable. The cables for the power, the holding brake, the encoder and the shielding are integrated in the OCC cable.

Use the prefabricated MOTION-CONNECT OCC cables from SIEMENS.



- ① Round connector M12 or M17, 10-pin
- ② MOTION-CONNECT OCC cable
- ③ Shielding

```
Figure 5-5 MOTION-CONNECT OCC
```

- ④ Cables for holding brake
- ⑤ Power cables
- 6 SIEMENS IX connector for signal line

The cables have a SPEED-CONNECT connector. This reduces the installation time and costs, and increases the operational reliability of the drive.

Check that the sealing surfaces of the connectors have not been damaged.

Clearance required when connecting the motor

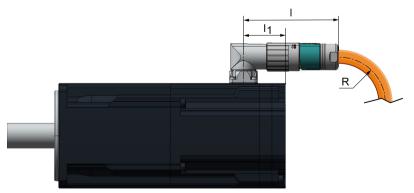


Figure 5-6 Clearances for OCC connection at the motor

Motor	Connec-	Distance, point of	Length of the plug	Minimum bending radius, static	
	tor size	rotation to NDE	connection MC500 MC800		MC800 PLUS
		<i>l</i> ₁ / mm	//mm	<i>R</i> /mm	
1FK2□02	M12	40	61	23	29
1FK2□03		22			
1FK2□04	M17	32.5	70	25	31

Rotation range of the OCC connector on the motor

You can rotate the motor connector. Use a suitable socket connector as lever to rotate the connector.

Note

A maximum of 10 twists are permitted so as not to impair the degree of protection of the motor.

Motor	Angle α	Angle α'	Connector size	Drawing
1FK2□02 1FK2□03	≤ 225°	≤ 81°	M12	
1FK2⊡04	≤ 215°	≤ 75°	M17	

Table 5-2Rotation range of the power connector

The motors are equipped with SPEED-CONNECT connectors.

You can also connect quick-connection cables with SPEED-CONNECT to motor connectors as conventional cables with screw locks (fully threaded).

Note

We recommend cables equipped with SPEED-CONNECT connectors.

Handling plug-in connections

The following information on the handling of plug-in connections applies for power connectors and signal connectors as round connector in the SPEED-CONNECT version and fully threaded.

The figures show the connecting and disconnecting of the power connector in the SPEED-CONNECT version.

Connecting

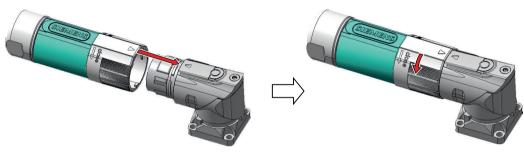


Figure 5-7 Connecting the SPEED-CONNECT plug-in connection

- 1. Make sure that the SIEMENS logo on the connector enclosure is at the top or that the arrows on both connectors are opposite to each other. This ensures that the pins and coding keys of the connector and motor connector are aligned.
- 2. Push the connector into the motor connector up to the endstop.
- 3. Tighten the fastener or the screw cap per hand in a clockwise direction.

Disconnecting

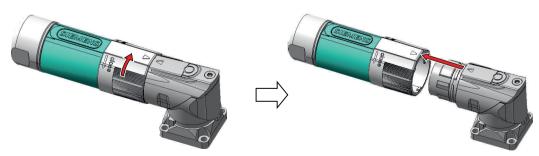


Figure 5-8 Disconnecting the SPEED-CONNECT plug-in connection

- 1. Turn the fastener or the screw cap per hand in an anticlockwise direction up to the endstop.
- 2. Pull the connector out of the motor connector.

Note

To disconnect the plug-in connection, always pull the cable connector and not the cable.

Routing cables in a damp environment

If you are operating the motor in environments in which moisture can arise follow the installation instructions below.



Figure 5-9 Permissible and impermissible cable routing when connecting in a damp environment

5.4.3 Connecting the converter

Install the converter so that you are compliant with local regulations for erecting and installing low-voltage systems.

Note

Safety devices

Install suitable protective equipment between the line supply and converter.

Technical specifications of the converter (Page 197)

Note

Operating displays for converter operation

If, when switching over a function from ON to OFF, an LED or other similar display is not lit or not active; this does not indicate that the device is switched-off or in a no-current condition.

Observe the following product note about protection against indirect contact:



To protect against indirectly touching part of the motor circuit of a frequency converter and to automatically shut down in the case of a fault according to DIN EN 60364-4-41 (VDE 0100-410) (http://support.automation.siemens.com/WW/view/en/103474630)

Protection and monitoring equipment

To provide protection against short-circuit, use the overcurrent devices listed in the Technical data (fuses, circuit breakers, etc.).

If the apparent impedance of the line supply at the infeed point is not suitable, so that fuses do not rupture in the specified time in the case of insulation failure (ground fault, fault to frame),

then you must use additional residual current protective devices RCD (RCCB or MRCD), type B.

- RCCB: Residual current circuit breaker
- MRCD: An MRCD comprises an RCM (differential current monitoring device), a measuring current transducer and a circuit breaker with additional undervoltage release, listed in the Technical data.

To prevent an RCD from unnecessarily tripping as a result of operational leakage currents, the following preconditions must be fulfilled:

- The neutral point of the line supply is grounded.
- Use an RCCB type B with a response limit current of 300 mA. Connect the RCCB in series with the overcurrent protective devices.
- Use a separate RCD for each converter.
- The motor cables are shorter than 50 m (164 ft) and shielded.

MARNING 🔨

Risk of electric shock and fire from a network with an excessively high impedance

Excessively low short-circuit currents can lead to the protective devices not tripping or tripping too late, and so causing electric shock or a fire.

- In the case of a conductor-conductor or conductor-ground short-circuit, ensure that the short-circuit current at the point where the inverter is connected to the line supply at least meets the minimum requirements for the response of the protective device used.
- You must use an additional residual-current device (RCD) if a conductor-ground short circuit does not reach the short-circuit current required for the protective device to respond. The required short-circuit current can be too low, especially for TT systems.

Risk of electric shock and fire from a network with an impedance that is too low.

Excessively high short-circuit currents can lead to the protective devices not being able to interrupt these short-circuit currents and being destroyed, and so causing electric shock or a fire.

 Ensure that the uninfluenced short-circuit current at the line terminal of the inverter does not exceed the breaking capacity (SCCR or Icc) of the protective device used.

5.4.3.1 Connections at the converter

Connections and operator controls on the converter

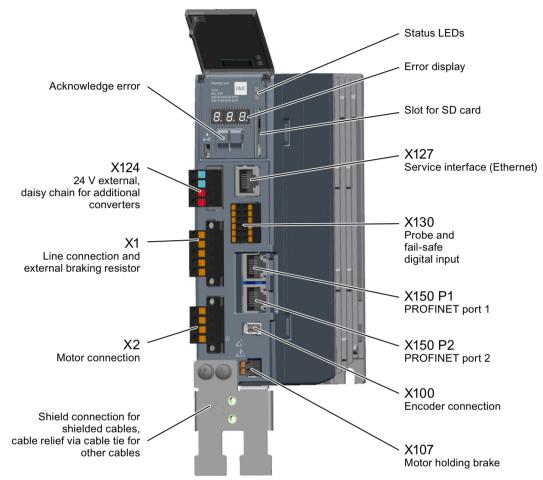


Figure 5-10 Overview of connections and operator controls on the converter

Type of connection	Connector	
Control voltage 24 VDC	X124	Included in the scope of sup- ply
Line connection and external braking resistor	X1	Included in the scope of supply
Motor power connections	X2	Included in the scope of sup- ply
Service interface	X127	RJ45
Digital inputs	X130	Included in the scope of sup- ply
Connection to the control system via PROFINET	X150 P1	RJ45
	X150 P2	

Type of connection	Connector	
Encoder	X100	Siemens IX connector ¹⁾
Motor holding brake	X107	Included in the scope of sup- ply

¹⁾ Part of the prefabricated MOTION-CONNECT OCC cable

The permissible cable lengths can be found in Chapter: "Cable lengths (Page 89)".

Note

Connection of motor holding brake, connector X107

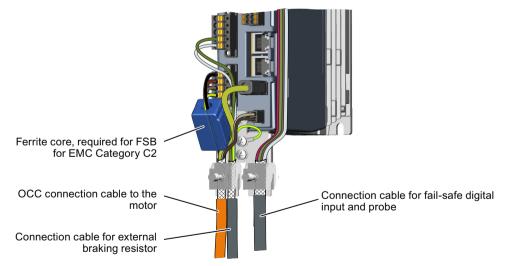
Also connect the conductors for the motor holding brake to the connector at X107, even when you are using a motor without holding brake.

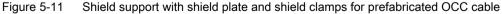
Shielded cables

To ensure the proper functioning of the drive, use shielded cables for the connection of the motor (OCC cable with connection of encoder and holding brake), of the external braking resistor and of the fail-safe digital input.

Use the shield support that comes with the converter to connect the shield. Siemens recommends connecting the shield - as shown in the figure - with the shield clamp that comes with the prefabricated OCC cable for the motor connection.

- Connect the shield at both ends of the cable.
- Use cables with finely-stranded, braided shields.
- Do not interrupt the shield.





Ferrite core with FSB

For devices of frame size FSB, you must attach the ferrite cores provided in order to achieve EMC Category C2.

• Place the ferrite core supplied as shown in the figure around the motor cable conductors and press the ferrite core until it snaps together.

Note

Without the ferrite core, EMC Category C3 is achieved.

5.4.3.2 Connecting the line supply, motor, motor holding brake and encoder to the converter

Connecting the line supply to the converter

Connect the line supply as shown in the following to connector X1 of the converter. Connect the protective conductor with a cable lug and an M4 screw to the shield plate of the converter.

Information about stripping the insulation can be found in Chapter "Connection cables between the motor and the converter (Page 217)".

If you do not use a shield plate, then you must connect the protective conductor directly at the device.

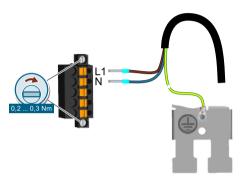


Figure 5-12 X1 - line connection

The terminals are spring-loaded terminals.

Permissible conductor cross-sections for single-core connection or for the connection of flexible cables with end sleeves:

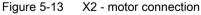
- 0.2 mm² ... 2.5 mm²
- AWG: 26 ... 12

Connecting the motor to the converter

Connect the motor as shown in the following to connector X2 of the converter.

Color coding for MOTION-CONNECT OCC cables: Phase U = brown, phase = V black, phase W = gray





The terminals are spring-loaded terminals.

Permissible conductor cross-sections for single-core connection or for the connection of flexible cables with end sleeves:

- 0.2 mm² ... 2.5 mm^{2,}
- AWG: 26 ... 12

Connect the shield of the motor connection cable to the shield plate over a large area. Use commercially available clamps, the clamps supplied with the prefabricated cable or the shield connection clamps supplied as accessories.

Connecting the encoder to the converter

The cables and the connector for the encoder connection are part of the prefabricated MOTION-CONNECT cable from the motor to the converter.

NOTICE

Damage to the device by connecting other motors or devices

Connecting other devices (motors, encoders) can destroy the converter or the connected device.

- Only connect 1FK2 motors to this interface.
- Use only MOTION-CONNECT OCC cables from Siemens or cables that you have fabricated yourself with the correct pin assignment.

To connect the encoder, insert the Siemens IX connector as shown in the following in the X100 plug socket.

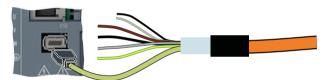


Figure 5-14 X100 - encoder connection

Connecting the motor holding brake

The cables for the motor holding brake are part of the prefabricated MOTION-CONNECT cable from the motor to the converter.

Connect the cables as shown below to the connector X107 of the converter.

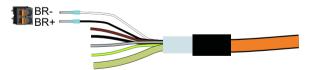


Figure 5-15 X107 - connecting the motor holding brake

The terminals are spring-loaded terminals.

Permissible conductor cross-sections:

- For single-conductor cables or for flexible cables with end sleeves without plastic protection: 0.25 mm² ... 1.5 mm², AWG: 24 ... 16
- For flexible cables with end sleeves with plastic protection: 0.25 mm² ... 0.75 mm², AWG: 24 ... 19

Note

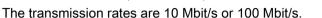
Connection of motor holding brake, connector X107

Also connect the conductors for the motor holding brake to the connector at X107, even when you are using a motor without holding brake.

5.4.3.3 Connections for open-loop and closed-loop control of the converter

Connecting service interface and PROFINET

Connect your commissioning device using an Ethernet cable to the service interface (socket X127).



Connect the converter with PROFINET cables with RJ45 FastConnect connectors or with PROFINET patch cables (see accessories) via the sockets X150 P1 and X150 P2 to the PROFINET network.

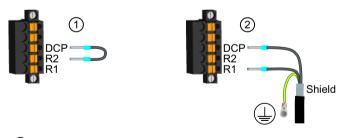
	Pin	Pin assignment	Explanation
	1	RXP	Receiving data +
	2	RXN	Receiving data -
	3	ТХР	Sending data +
	4	Reserved	
	5	Reserved	
	6	TXN	Sending data -
	7	Reserved	
	8	Reserved	

Table 5-3	Pin assignment for X127, X150 P1 and X150 P2
-----------	--

Connecting an external braking resistor

If you are using the internal braking resistor, DCP and R2 must be jumpered.

If you are using an external braking resistor, DCP and R2 must not be jumpered. Connect the external braking resistor via the DCP and R1 terminals.



- Jumper when you use the internal braking resistor.
 The jumper is included in the scope of delivery of the converter
- 2 Connect an external braking resistor

Protective conductor connection and shield support via the shield plate

Figure 5-16 X1 - connecting an external braking resistor

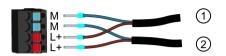
The terminals are spring-loaded terminals.

Permissible conductor cross-sections for single-core connection or for the connection of flexible cables with end sleeves:

- 0.2 mm² ... 2.5 mm²
- AWG: 26 ... 12

Connecting the external 24 V supply

Connect a 24 V power supply to the converter.



24 V external

Loop-through for additional converters
 Figure 5-17 X124 - 24 V external

The terminals are spring-loaded terminals.

Permissible conductor cross-sections for single-core connection or for the connection of flexible cables with end sleeves:

- 0.2 mm² ... 2.5 mm²,
- AWG: 26 ... 12

Connecting high-speed digital inputs, temperature monitoring for external braking resistor and fail-safe digital input

Digital inputs DI 0 and DI 1 are high-speed digital inputs and can be used as measuring inputs.

Digital inputs DI 2 and DI 3 form a fail-safe digital input.

The temperature monitoring for an external braking resistor can be connected to DI 4. When the temperature of the external braking resistor is too high, the converter shuts down the motor.

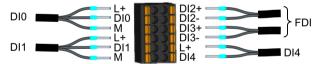


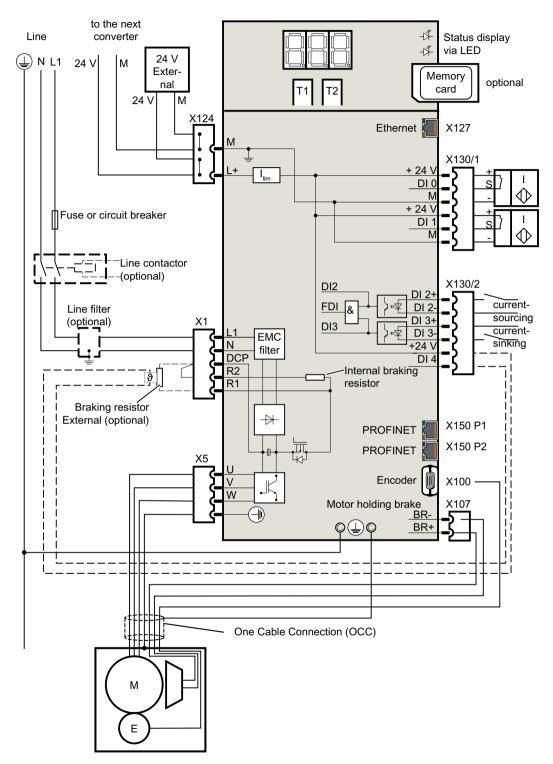
Figure 5-18 X130 - connector for digital inputs

The terminals are spring-loaded terminals.

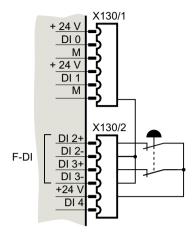
Permissible conductor cross-sections

- for single-wire connection: 0.2 mm² ... 1.5 mm², AWG: 24 ... 16
- for flexible cables with end sleeves: 0.25 mm² ... 1.5 mm²
- for flexible cables with end sleeves with plastic protection: 0.25 mm² ... 0.75 mm²

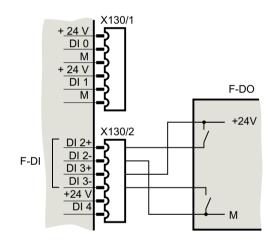
5.4.3.4 Connection example



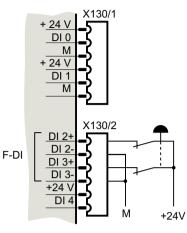
5.4.3.5 Connection example of the fail-safe digital input



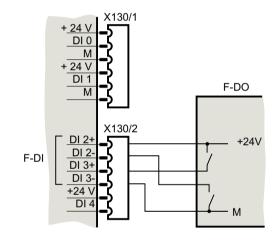
Connection for an Emergency Stop with internal 24 V



Connection of the fail-safe digital input with a fail-safe digital output



Connection for an Emergency Stop with external 24 V



Connection of the fail-safe digital input with a fail-safe digital output

6

Commissioning and diagnostics in the Web server

Overview

Use the web server for the commissioning, fine parameterization and diagnostics of the converter. The following important functions can be found in the web server:

- Perform commissioning (Page 118)
- Perform parameterization settings (Page 124)
- Perform safety settings (Page 135)
- Display diagnostics (Page 150)
- Backup and restore (Page 153)
- System settings (Page 156)

Supported browsers

The web server integrated in the converter supports the following browsers:

Commissioning device	Operating system	Supported browsers
PC	Windows Version 7 or higher	 Microsoft Internet Explorer, Version 11 or higher
		Microsoft Edge Version 14 or higher
		Mozilla Firefox, Version 45 or higher
		Google Chrome Version 52 or higher
Smartphone/	Apple iOS Version 9.3 or higher	Google Chrome Version 54.0
tablet		Safari Version 9.3 or higher
	Android Version 4.4.4 or high- er	Google Chrome Version 54.0 or higher

6.1 Fundamentals

6.1 Fundamentals

Accessing the web server

The web server is accessed per default via the service interface X127.

The service interface is designed for point-to-point connections and must not be networked.

The service interface has the following default setting:

- IP address: 169.254.11.22
- Subnet mask: 255.255.0.0

The interface can be assigned via DHCP or also another address (e.g. from an external WLAN access point).

If you want to access the converter via WLAN from a mobile terminal device, connect a commercially available WLAN access point to the service interface. Refer to the description of the device on how to configure the access point.

Access via PROFINET

The IP addresses of the service and PROFINET interfaces must not be in the same subnet.

Preparations

- 1. Install the motor and converter according to the specifications in the following section:
- 2. Mount the motor on the mechanical system. Connect the motor to the converter.
- 3. Connect the converter to your commissioning device via the service interface (X127).
- 4. Switch the converter on. The converter powers up and reads the motor data.
- 5. Start the browser for commissioning.
- 6. Enter the IP address of the converter in the input line of your browser. Default IP address: 169.254.11.22.

Interfaces and connection type

Using the default configuration of the web server, you can access the SINAMICS frequency converter using the service interface (X127) - both via an HTTP connection as well as via an encrypted HTTPS connection.

In the standard configuration, interface X150 is deactivated for web server access operations. If the X150 interface is activated for access to the web server, then access takes place automatically via a secure HTTPS connection.

For details on this, see:

6.1 Fundamentals

"Configuring the IP connection (Page 158)"

NOTICE

Software manipulation when using non-encrypted connections (HTTP)

The HTTP protocol transfers data without encryption. This facilitates password theft, for example, and can lead to data manipulation by unauthorized parties and thus ultimately to damage.

• Limit access to HTTPS connections so that all data is transferred encrypted.

6.2 First login

6.2 First login

Assigning the administrator password

You must log in as administrator to obtain complete access to the converter. A password is required for access as administrator.

6.2 First login

To assign an administrator password, proceed as follows:

1. Switch the converter on and within 10 minutes, connect it via the service interface (X127) to the web server (default IP address: 169.254.11.22.).

The following screen form only appears when an administrator password has not yet been assigned and only for 10 minutes after switch-on.

Initial Setup	
0	To receive access to the drive you must log in as Administrator within ten minutes. Assign a password for this.
	Password
	Confirm password
	Security information In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement - and continuously maintain - a holistic, state- of-the-art industrial security concept. Siemens' products and solutions only form one element of such a concept. http://www.siemens.com/industrialsecurity OK

Figure 6-1 Prompt for the administrator password

2. Enter an administrator password in the "Password" field.

Note

To protect against unauthorized access, by an attacker, for example, select a password that is as secure as possible, and consists of:

- At least 8 characters
- Uppercase and lowercase letters
- Numbers and special characters (e.g.: ?!%+ ...)

It is not permissible that the password is used elsewhere.

Checking the password

The length of the password is checked by the converter. There is no check for uppercase and lowercase letters and special characters!

Repeat the password in the "Confirm password" field.
 If the input is not identical in both fields, the "OK" button is not enabled.

6.2 First login

- Confirm your password entry with "OK". Remember the password or store the password in a safe place that cannot be accessed by unauthorized persons.
- 5. The display changes to the Login screen form. Log in there with the administrator password.

Note

The display also changes to the Login screen form if you do not enter a password within 10 minutes.

If you wish to assign an administrator password for the first time, switch the converter off and on again so that the initial input screen form appears again.

Password reset

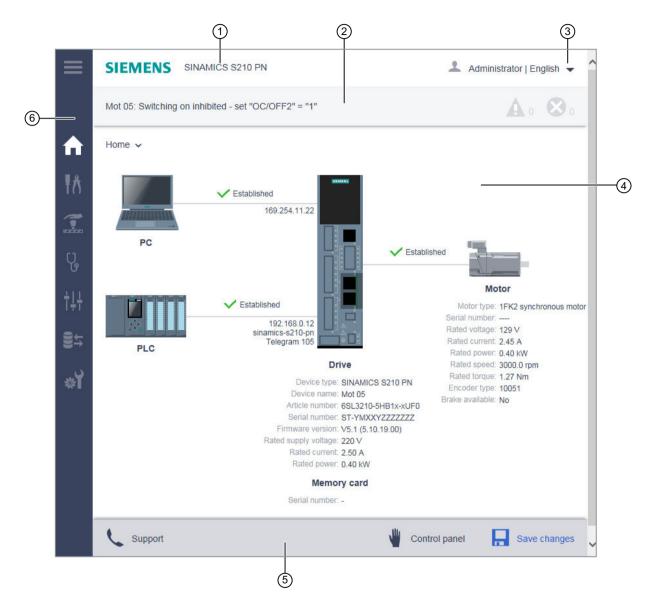
It will be no longer possible to access the converter if the administrator password is lost. In this case, you must reset the password. To do this, use a memory card that contains a configuration with a known password.

Procedure:

Load a configuration for a converter which has a known administrator password and reset it to factory settings.

- 1. Insert an empty memory card (max. 2 GB) into the PC.
- 2. Copy the configuration to the memory card (as a minimum, to the USER directory).
- 3. Insert the memory card card into the converter and switch on the converter.
- 4. Open the web browser and log on as administrator with the known password.
- 5. Reset the converter to the factory settings.
- 6. The converter starts with the factory settings. After the run-up, the input dialog for the administrator password appears.
- Re-assign the administrator password. Remember the password or store the password in a safe place that cannot be accessed by unauthorized persons.
- 8. Recommission the converter.
- 9. Save the changes.

6.3 Structure of the Web browser



6.3 Structure of the Web browser

- ① Device designation
- ② Status bar (from left to right):

Name of the converter (if entered) / Status of the converter / Fault and warning messages

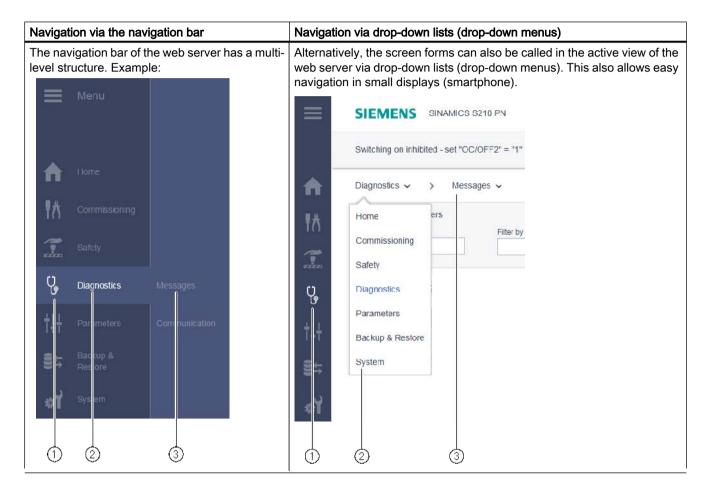
- ③ Drop-down list for the language selection and to log out from the web server. Displays the logged-in user and the set language
- ④ Active view of the web server (in the example: Start page after the user has logged in)
- Action bar (from left to right):
 Support information / Call control panel / Save retentively (RAM to ROM)
- 6 Navigation toolbar (see following "Navigation of the web server")
- Figure 6-2 Basic structure of the web server

6.3 Structure of the Web browser

Navigation in the web server

The web server provides the following options for navigating:

- Multi-level navigation bar of the web server
- In the active web server view via drop-down lists



- ① Main menu as icon
- 2 Main menu in text format
- ③ Submenus of the active main menu

6.3 Structure of the Web browser

6.3.1 Changing parameter values in dialog input screens

The web pages are structured to include an information section, a graphic section and a context sensitive table section with parameters.

Mot 05	A • 8
Parameters 🗸 🖒 Limits 🗸	
✓ Illustration nset Direction Imitation Speed Controller Current limit	Current controller M E
Parameter name	Value Unit
Parameter name Maximum speed	Value Unit 2517.091 1/min
Maximum speed	2517.091 1/min
Maximum speed Torque limit motoring	2517.091 1/min 20.38 Nm

You make changes to the parameter values in the table rows under the graphic display. It is not possible to make entries in the graphics. However, the edited rows are highlighted context-sensitive in the table and graphic.

In most cases you will be able to work with the parameters in the table directly below the diagram.

In some cases, you must make the parameter settings which can only be found in the parameter list of the converter.

Further information:



Adapt parameter list (Page 129)

6.4 Login/logout

6.4.1 Users and access rights

There are two or permanent defined users for access to the converter via the web server:

- Administrator The administrator has full access to the converter data displayed in the web server. A password is always required for access as administrator.
- SINAMICS The SINAMICS user has restricted access rights, see the following table. Per default, a password is not assigned for the SINAMICS user.

Note

Configuring passwords for the users

You can configure the passwords of the two users in the system settings with administrator rights (see Chapter "Setting or changing user accounts (Page 156)").

Functions of the web server	Acces	ss rights
	SINAMICS	Administrator
Start page	Write	Write
Password input		
Perform commissioning		
Change drive name	None ¹⁾	Write
Perform One Button Tuning		
Use control panel		
Safety settings		
Make commissioning settings	None ¹⁾	Write
Check commissioning in read mode	None ¹⁾	Read
Diagnostics	Read	Read
Diagnostics		
Display communication settings	Write	Write
Adapt message list	Write	Write
Acknowledge alarms	Write	Write
Settings		
Set limits	Read	Write
Adapt brake control	Read	Write
Adapt digital inputs	Read	Write
Adapt parameter list	Write	Write
Change parameterization	Read	Write

The following access rights apply for the users of the web server:

Functions of the web server	Acces	Access rights	
	SINAMICS	Administrator	
Back up and restore			
Back up parameter settings externally	None ¹⁾	Write	
 Load externally backed-up parameter settings 			
Restore factory settings			
Adapt system settings			
Set user accounts	None ¹⁾	Write	
Configure IP connection			
Configure system time			
Save permanently (Copy RAM to ROM)	None ¹⁾	Write	
Call support information	Read	Read	

¹⁾ This function is not displayed for a logged-in "SINAMICS" user.

6.4.2 Login/logout

In order to be able to work in the web server, you must be logged in as "SINAMICS" or "Administrator" user.

Logging in to the web server

1. Enter the IP address for the converter in the entry line of your browser (default IP address: 169.254.11.22).

The password prompt appears in the browser.

SIEMENS SINAMICS S210	PN 👤	Not logged in El	nglish 🔻
		Δ	
	Please log in!		
Username			
Password			
	Login		
PC	Established 169.254.11.22 Drive Article number: Firmware version:		

Figure 6-3 Login screen

2. Enter the name of the user (Administrator or SINAMICS) in the "User name" field.

- Then enter the password of the user. Per default, a password is not assigned for the "SINAMICS" user. In this case, you can skip the password input.
- 4. Click "Login".

When you have successfully logged in, the browser displays the user name at the top right. The most important elements of your drive system are shown centrally in the view:

Logging out from the web server

- 1. In the window, click the 🔔 icon with the user name at the top right.
- 2. Click "Logout".

If have changed the converter settings, a save prompt appears. You can select here whether to save or discard the changes.

Save chang	es	×
?	The parameters of at least the drive unit have changed. Do you want to save the parameters in retentive (non- volatile) memory?	
	Save Cancel	

Figure 6-4 Save prompt when logging out

3. If you want to save the changes, click "Save".

Automatic logout

If you are not using the web server, access to the web server is automatically logged out after 10 minutes. You must log in again to access the web server.

6.5 Commissioning

After being switched on, the converter starts extensive self-configuration. The most important data is read from the electronic rating plate of the motor connected using the OCC cable and used for the self-configuration. The following steps are required to complete the commissioning:

- Name assignment of the converter (initialization) according to its technical application
- One Button Tuning for the optimal controller setting of the converter

Note

Rights required for commissioning

Administrator rights are essential for commissioning via the Web server:



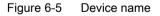
Assigning the drive name

During converter commissioning you can allocate a specific system name.

Procedure

1. Select "Commissioning" and "Device" in the navigation.

Commissioning	> Device Properties ~	
Here you car	n change the name of the drive	
Device name	Mot 05	
		Apply Settings Discard



- Enter a new drive name in the "Drive name" field. Do not use special characters for the drive name. The name cannot be saved when special characters are used.
- 3. Click "Apply Settings" to save the changes in the RAM of the device. The assigned drive name is displayed in the status bar of the web browser, on the overview page for the converter data and on the tab of the browser window.
- 4. Click 📮 to save the data permanently.

6.5.2 Performing One Button Tuning



An important part of the basic commissioning is performed using "One Button Tuning" ("OBT"). In this way, the optimum controller settings of the converter can be quickly determined with just a few entries.

Procedure

1. Select the "Optimization" submenu in the "Commissioning" navigation.

Commissioni	ing 🗸 🖒	Tuning 🗸			
One Butto	n Tuning				
	Take Control	 Dynamic setting Conservativ Standard Dynamic Mechanical 	e	Start Tuning	
Parameter	name		Current value	Previous value	
Speed cont	troller P gain		0.0085 Nms/rad	-	
Speed cont	troller integral tir	ne	10.00 ms	-	
About C	one Button Tunir	ng			Ð

Figure 6-6 View before performing the One Button Tuning

- Click "Take Control". Confirm the "Activate master control" prompt. The master control is indicated by a broken orange bar.
- Select the desired dynamic response setting for the One Button Tuning corresponding to the mechanical system of your machine.
 One Button Tuning optimizes the drive based on the selected dynamic response setting.
 - "Conservative": Slow control – low mechanical load.
 - "Standard": Best compromise between fast speed control and low mechanical load.
 - "Dynamic":
 Fast speed control high mechanical load.

4. Click "Start Tuning ... ".

A prompt for the permissible angle of rotation (rotation limit) of the motor shaft appears.

Set rotation limit	×
Put in the maximum tuning distance. One motor revolution equates 360° Normally up to two revolutions are required If this is not possible due to your mach distance.	2
Warning: The drive must be able to mo or mechanical equipment within the sp	
Rotation limit	360 degrees (°)
	OK Cancel

Figure 6-7 Rotation limit

5. Enter the angle through which the motor and the connected machine are permitted to turn for the required measurements (e.g. 360°) without the mechanical system being damaged. The angle should be at least 60° in order to be able to determine useful controller parameters. Generally, longer traversing distances result in better optimization results.

6. Click "OK".

The tuning through the One Button Tuning starts. No entries are possible during the tuning. After the tuning has been completed, a message appears as to whether the "One Button Tuning" was successful - or not. If the OBT was not successful, then optimization must be repeated, possibly with modified entries.

One Button Tuning		
	Dynamic settings	
4))) _	 Conservative 	0
Return	 Standard 	Start
Control	 Dynamic 	Tuning
One Button Tuning s	Mechanical settings	
One Button Tuning se		Previous value
	uccessful	Previous value 0.0085 Nms/rad
Parameter name	uccessful Current value 0.0281 Nms/rad	

Figure 6-8 View after performing the One Button Tuning

A list in the lower part of the window shows how the settings have been changed by the One button tuning.

Note

If the machine vibrates or whistles at certain speeds following One Button Tuning, then the dynamic response setting is too high. In this case, select a lower dynamic response and repeat the One Button Tuning.

- 7. After completing the controller tuning, you must return the master control over the converter. Click "Return control".
- 8. Confirm the confirmation prompt with "Confirm". The color bar is no longer displayed.
- 9. Click 🔜 to save the data permanently.

Result

When One Button Tuning is completed, the basic commissioning of the converter is finished. All other parameters are automatically preset according to the motor characteristic.

6.5.3 Using the control panel

The control panel is only used during the commissioning phase to control and monitor the drive. The required safety measures must be strictly complied with. It offers the following options:

- Monitoring drive movements
- Checking missing enables
- Testing drive movements or traversing manually

Call the control panel

You can always call the control panel when you access the web server in the converter with your commissioning device.

1. To call the control panel, click "Control panel" in the footer of the web server. The control panel is started in monitoring mode.

Control panel			×
	Missing Enables:	Click here for deta	ils
	Set speed 0 rpm	Hold to rotate	C Hold to rotate
Take control	Actual speed A 0.0 rpm	Actual torque A	0.00 A

Figure 6-9 Control panel - Monitoring mode

2. To close the control panel again, click the "Control panel" button again in the footer of the web server or on the X at the top right in the header of the control panel.

Control panel in monitoring mode

When all enables are present, the "Missing Enables" line is not displayed and the "Actual speed", "Actual torque" and "Actual current" display fields show the current values of the drive.

If enables are missing, the motor does not turn. In this case the "Missing Enables" LED lights up in blue.

- 1. Click the "Click here for details" link to display the details. The "Missing enables" dialog opens:
- 2. Click "Close" to close the display dialog.

Control panel in control mode

If you take control, you can test the drive movements or traverse manually.

- 1. To call the control panel, click the "Control panel" button in the footer of the web server. The control panel is displayed in monitoring mode.
- 2. Click the "Take control" button.

3. Confirm the "Take control" confirmation prompt with "Confirm".

The control panel now has master control over the drive. This is indicated by a broken orange line. All other control sources are switched off.

Control panel	×
[Missing Enables: Click here for details
Return	Set speed D Rotate 0 rpm rpm
control	Actual speedActual torqueActual current0.0rpm-0.00Nm0.00A

Figure 6-10 Control panel - Control mode

- 4. To specify a new speed for traversing, click in the "Speed" field. The "Set speed" dialog opens. Define the speed and acknowledge with "OK".
- 5. To traverse the drive manually, click the "Rotate" button with counterclockwise or clockwise arrow briefly and check the response in the display fields or at the missing enables. The traversing motion is only performed as long as the button is clicked. The traversing motion stops when you release the mouse button. The arrows on the buttons indicate the direction of rotation of the drive when viewing the end of the motor with the shaft extension. Check the correct direction of rotation of the motor shaft.
- 6. Click "Return control" to return the master control. Confirm the confirmation prompt with "Confirm".
- 7. To close the control panel again, click the "Control panel" button again in the footer of the web server or the X at the top right in the "Control panel" dialog.

6.6 Settings

6.6.1 Setting limits



When required, you can configure limits for elements of your converter and adapt to the requirements of your mechanical system in the "Parameters - Limits" view.

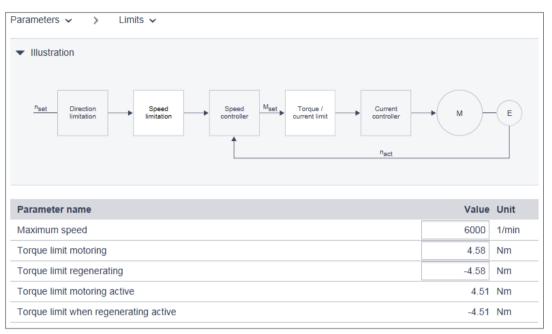


Figure 6-11 Parameters - Limits

Setting limits

- 1. Select "Parameters" and "Limits" in the navigation. The table below the graphic shows the "Maximum speed" line of the speed limitation.
- 2. Enter the maximum speed in the input field of the same name.
- 3. Enter the two torque limit values.
 - "Torque limit when motoring"
 - "Torque limit when generating"
- 4. Click 📮 to save the data permanently.

6.6.2 Setting the brake control

†‡†

The simple brake control is used exclusively for the control of holding brakes. The holding brake is used to secure drives against unwanted motion when deactivated.

Based on system-internal sequences, the converter checks and monitors the commands for opening and closing the holding brake and controls the output accordingly. The data required for the brake control is stored in the motor and only has to be corrected in exceptional circumstances.

More detailed information on the closing and opening times of the motor can be found in Chapter:

Brake data (Page 185)

The start of the closing time for the brake depends on the end of the shorter of the two times "Standstill detection monitoring time" and "Pulse cancellation delay time".

Note

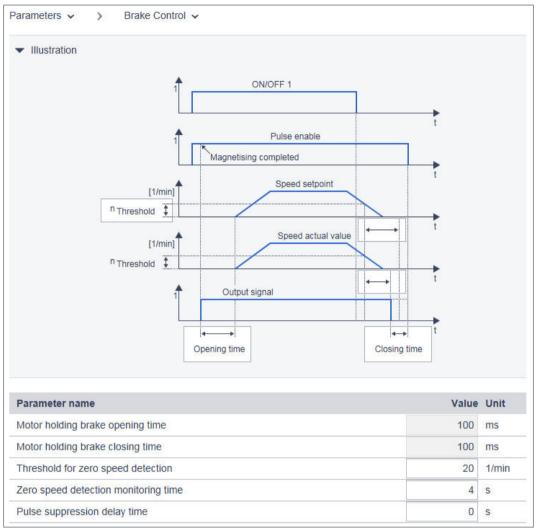
Automatic default setting

The values of the holding brake are automatically set correctly through the self-configuration of the converter in accordance with the electronic rating plate. As a consequence, generally the displayed values no longer have to be corrected.

The values in this screen form serve more as a check. It may only be necessary to adapt the values for suspended axes.

Procedure







- 2. If required, adapt the brake control values in the "Value" column:
 - "Standstill detection speed threshold"
 - "Standstill detection monitoring time"
 - "Pulse cancellation delay time"
- 3. Click 🔚 to save the data permanently.

Configuring digital inputs 6.6.3

†Ļ∔

In addition to the fail-safe digital input (F-DI, DI 2 and DI 3), the converter has two high-speed digital inputs (DI 0 and DI 1) as measuring inputs and for the evaluation in the controller.

If you use these digital inputs, you have to set a telegram in the controller that transfers the values, e.g. the PROFIdrive telegram 105.

The converter also has an input (DI 4) to monitor the temperature of an optional external braking resistor.



Connection example (Page 103)

Setting digital inputs

- Inputs v Parameters v > Please choose the function for each input. Illustration L+ DI2+ . DIO DI2-. Μ • DI3+ L+ • • DI3-DI1 • L+ Μ ٠ ٠ DI4 X130 Terminal Function Digital Input 0 (X130/DI0) No measuring probe ~ No measuring probe Digital Input 1 (X130/DI1) ~ Defined via Safety Digital Input 2, 3 (X130/DI2+, DI2-, DI3+, DI3-) Digital Input 4 (X130/DI4) No function ×
- 1. Select "Parameters" and "Inputs" in the navigation.



- 2. Select the appropriate input signal in the table for the measuring inputs and the temperature control:
 - "Digital input 0 (X130/DI 0)": Probe 1
 - "Digital input 1 (X130/DI 1)": Probe 2
 - "Digital input 2, 3 (X130/DI 2+, DI 2-, DI 3+, DI 3-)": Fail-safe digital input for the Safety Integrated Basic Function "STO" or "SS1". The configuration is performed via the Safety commissioning. By clicking "Safety", you open the Safety commissioning and can make the appropriate settings there.
 "Safety commissioning (Page 135)"
 - "Digital input 4 (X130/DI 4)": Temperature monitoring of ext. braking resistor
- 3. Click 📮 to save the data permanently.

6.6.4 Adapt parameter list

You can make all of the essential settings after commissioning using the setting web pages. In certain cases, it may be necessary to make extra settings or evaluations of status and measured value outputs.

The available parameter list in which you can view or change all the available device parameters, is used for this purpose.

You will find a detailed description of all S210 parameters in the following Section: Parameters (Page 225).

Parameter types used in the parameter list

There are two main groups for the parameters:

• Adjustable parameters

Adjustable parameters are identified by a frame in which you can either enter values or select values via drop-down menus. Invalid values have a red background and are rejected.

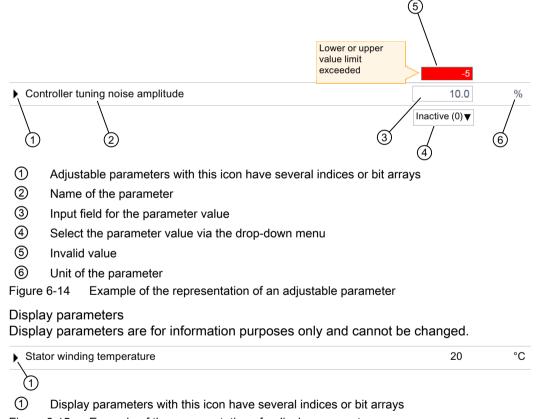


Figure 6-15 Example of the representation of a display parameter

Calling the parameter list

Select "Parameters" and "Parameter list" in the navigation. The "Parameters - Parameter List" view is displayed.

6.6.4.1 Configuring the parameter list



Per default, the web server displays the parameter list with all parameters of the converter in the simple view.

In order to keep the display as clear and compact as possible, some of the columns of the parameter list are hidden. The detailed information of the parameters (index or bit array) is also hidden and can be displayed manually.

Changing the display of the parameters

Displaying the advanced list view

The parameter list is displayed in the simple view when called.

1. To display the advanced view of the parameter list, click "Advanced view". The "ID" and "My group" columns are now displayed to the left of the "Parameter" column.

Parameters 、	~ >	Parameter L	List 🗸				
 Search a 	and Filter	S				Reset all filter	s 🍸
		F	Parameter Group				
Sear	rch		Commissioning Wizard			~	
Parameter	r Types						
Editable	e and rea	d-only 🗸					
						Simple	e view
My group	ID	Parameter				Value	Unit
	p10	Drive commiss	sioning parameter filter 2		Ready (0)	~	
	p210	Drive unit line	supply voltage			230	V
	r302	motor code DR	RIVE-CLIQ			27204	
	r304	Rated motor v	oltage			129	Vrms
	r305	Rated motor c	urrent			2.45	Arms
	r307	Rated motor p	oower			0.40	kW
	r311	Rated motor s	peed			3000.0	rpm
	г322	Maximum mot	or speed			6000.0	rpm
	r323	Maximum mot	or current			8.80	Arms
	r550	Brake status				No data (0)	
	r922	Telegram sele	ection	SIEMENS	S telegram 105, F	PZD-10/10 (105)	

Figure 6-16 Parameter list: Advanced view

This advanced list view is only temporary. The next time the web server is called, the simple view is displayed again.

Displaying parameter details

1. To display parameter details, click the picon in front of the parameter name.

 p5271 One Button Tuning configuration 1 p5271[0] One Button Tuning configuration 1 p5271[0] One Button Tuning configuration 1 p5271[0].0 PD controller for large load moments of inertia No p5271[0].1 Reduce gain at low speeds No p5271[0].2 Load adaptation Kp Yes p5271[0].3 Speed precontrol Yes p5271[0].4 Torque precontrol Yes p5271[0].5 Set maximum acceleration limiting No p5271[0].6 Do not change Kp No v p5271[0].7 Voltage feedforward control No v 					
p5271[0].0 PD controller for large load moments of inertia No ✓ p5271[0].1 Reduce gain at low speeds No ✓ p5271[0].2 Load adaptation Kp Yes ✓ p5271[0].3 Speed precontrol Yes ✓ p5271[0].4 Torque precontrol Yes ✓ p5271[0].5 Set maximum acceleration limiting No ✓ p5271[0].6 Do not change Kp No ✓ p5271[0].7 Voltage feedforward control No ✓ 0ne Button Tuning dynamic 0.67 m	▼ p5271	One Button Tuning configuration 1	11	100 B	
p5271[0].0 moments of inertia No Image: constraint of the state of the s	▼ p5271[0]	One Button Tuning configuration 1	11	100 B	
p5271[0].2 Load adaptation Kp Yes ✓ p5271[0].3 Speed precontrol Yes ✓ p5271[0].4 Torque precontrol Yes ✓ p5271[0].5 Set maximum acceleration limiting No ✓ p5271[0].6 Do not change Kp No ✓ p5271[0].7 Voltage feedforward control No ✓ One Button Tuning dynamic 0.67 m	p5271[0].0	0	No	~	
p5271[0].3 Speed precontrol Yes ✓ p5271[0].4 Torque precontrol Yes ✓ p5271[0].5 Set maximum acceleration limiting No ✓ p5271[0].6 Do not change Kp No ✓ p5271[0].7 Voltage feedforward control No ✓ 0ne Button Tuning dynamic 0.67 m	p5271[0].1	Reduce gain at low speeds	No	~	
p5271[0].4 Torque precontrol Yes ✓ p5271[0].5 Set maximum acceleration limiting No ✓ p5271[0].6 Do not change Kp No ✓ p5271[0].7 Voltage feedforward control No ✓ One Button Tuning dynamic 0.67 m	p5271[0].2	Load adaptation Kp	Yes	~	
p5271[0].5 Set maximum acceleration limiting No ✓ p5271[0].6 Do not change Kp No ✓ p5271[0].7 Voltage feedforward control No ✓ r5274 One Button Tuning dynamic 0.67 m	p5271[0].3	Speed precontrol	Yes	~	
p5271[0].6 Do not change Kp p5271[0].7 Voltage feedforward control No r5274 One Button Tuning dynamic 0.67 m	p5271[0].4	Torque precontrol	Yes	~	
p5271[0].7 Voltage feedforward control No V De Button Tuning dynamic 0.67 m	p5271[0].5	Set maximum acceleration limiting	No	~	
De Button Tuning dynamic 0.67 m	p5271[0].6	Do not change Kp	No	~	
1 152/4 ²¹ 06/ m	p5271[0].7	Voltage feedforward control	No	~	
	r5274	0,1		0.67	ms

Figure 6-17 Example: Parameter details in the extended view

The parameter details are displayed. They are either:

- Values
- Index
- Bit array

An additional line is displayed in the table for each detail. This display is temporary. The parameter details are hidden again the next time the web server is called.

Grouping parameters

You can combine individual parameters of the parameter list into a personal group. You can activate the checkboxes in the "My group" column to assign the selected parameters to your personal group.

- 1. In the "My group" column, activate all checkboxes of the parameters that you want to take into your group.
- 2. Click to save the data permanently.

6.6.4.2 Changing the parameter value



You can change the parameter values of the parameters that can be written to (p parameters) in the parameter list.

To do this, you have one of the following options:

- 1. Overwrite the current parameter value with the new value.
- 2. Select a value via the drop-down list.

Invalid values will be rejected.

Click — to save the data permanently.

6.6.4.3 Filtering the parameter list

You can set filters in the parameter list of the Web server and therefore limit the display of the parameters. You can make the filter settings via a filter bar above the parameter list. You can also combine the individual filter settings.

Search and Filters				Reset all filters	T
		Parameter Group			
search		Rotating measurement / speed controller optimization	~		
·,				-	
Parameter Types					
Editable and read-only	~				

Figure 6-18 Filter bar of the parameter list

Setting the filters of the parameter list

- In the "Search" field, enter a search term (any number of characters) for which you want to search in the parameter list, e.g. "Current". The search term is applied to the "ID" (only in the advanced view) and "Parameter" columns in the parameter list.
- 2. Select a group from the "Parameter Group" drop-down list.
 - All groups
 - My groups (configured by the user)
 - Specific groups, such as motor parameters
- 3. In the "Parameter Types" drop-down list, select whether adjustable parameters ("Editable"), display parameters ("write protected") or both are to be displayed in the parameter list.

The parameter list is limited further after every further filter setting (the filters are linked via an AND operation). The filters can be set in any order.

Note

Collapsing the filter bar

The filter bar is opened per default. To collapse the filter bar, click the \checkmark arrow next to "Search and Filters".

Resetting filters

As long as you are logged in to the Web server and the filter settings have not changed, the parameter list is always displayed with the last filter settings. To reset all filter settings in the parameter list, proceed as follows:

Click "Reset all filters" at the top right in the filter bar.

6.7 Plant-specific settings

6.7 Plant-specific settings

To make plant-specific settings, go to the "Parameter - Parameter list" menu and select the expanded view there.

6.7.1 †]‡

Changing the direction of rotation of the motor

If you determine that the motor is rotating in the wrong direction, you can reverse the direction of rotation as described below.

- 1. Set p0010 to value 3 (motor commissioning).
- 2. Change the direction of rotation via p1821.
 - 0: Clockwise rotation
 - 1: Counter-clockwise rotation
- 3. Reset p0010 to value 0 (ready).
- 4. If possible, check the new setting using the control panel.
- 5. Save the setting via -.

This change takes effect in both the control panel and the PLC.

6.7.2

Electronic weight counterbalance for a vertical axis

With a vertical axis without mechanical weight compensation, you can set an electronic weight compensation by offsetting the torque limits (p1532).

The torque limits (p1520 and p1521 - can also be set via "Parameter - Limits") are shifted by this offset.

The required offset value is displayed in r0031 during a standstill. Transfer this value to p1532.

Save the setting via

To prevent the axis from dropping after the brake is released, you can specify the torque offset as an additional torque setpoint (M_ADD) via the supplementary telegram 750. As a result, the holding torque is specified immediately after the brake is released.

Note

Due to the specified supplementary torque setpoint via the controller, a switchover of the supplementary torque is also possible. Thus, when the product is lifted, a supplementary torque can be specified that is different from the supplementary torque for a movement without a load.

The supplementary telegram 750 must be configured in the PLC.



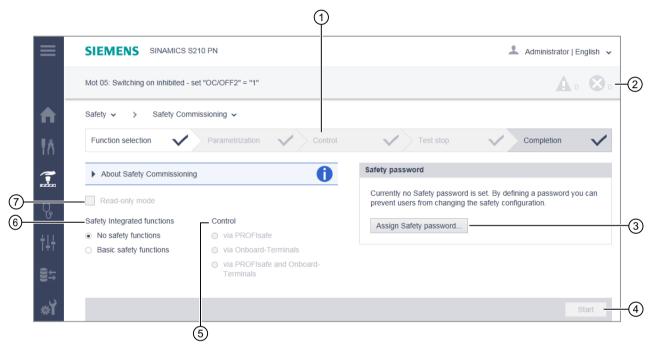
Supplementary telegrams (Page 739)

6.8 Safety settings

6.8.1 Safety commissioning

6.8.1.1 Overview

The web server provides you with a commissioning Wizard that navigates you through all of the steps required when commissioning safety. The basic handling is shown in the following diagram:



- ① Wizard with commissioning steps
- 2 Access to fault and alarm messages
- ③ Safety password
- (4) Start and carry out Safety commissioning
- Selection for controlling the safety functions
- 6 Selects the safety functions
- Activation of the read-only mode (prevents inadvertent changes)
- Figure 6-19 Overview: Safety commissioning Wizard

Basic information on commissioning Safety in the web server

- Safety settings can only be made in the "Safety Integrated commissioning" mode. The converter is in a safe state (STO active) as long as the commissioning mode is active. The commissioning mode is activated in step "Function selection" using the "Start" button.
- Safety settings are carried out step-by-step in the individual screen forms. A green checkmark indicates that a commissioning step has been completed.

- The safety commissioning must have been fully completed. It is not possible to cancel commissioning.
- A password can be defined to protect against unauthorized changes to safety settings. This
 can either be done at the beginning or at the end of the safety commissioning.
 The converter issues an alarm if a password has not been defined.
- The fault and alarm messages for safety are provided in the general message window.
- The set safety settings can be checked in the read mode at a later point in time. The commissioning mode is not required for this.

Displaying the Safety commissioning view

The individual commissioning steps are displayed in the header of the "Safety Commissioning" screen form. All commissioning steps in which settings have already been made are marked in the header with a green check mark.

The Safety commissioning in the web server is described step-by-step in the following.

1. Select "Safety" and "Safety Commissioning" in the navigation.

Safety V Safety Commissionin	ıg 🗸				
Function selection V Para	metrization V Control V Test stop				
About Safety Commissioning	0				
Read-only mode					
Safety Integrated functions	Control				
 No safety functions 	via PROFIsafe				
 Basic safety functions 	via Onboard-Terminals				
	 via PROFIsafe and Onboard- Terminals 				
Safety password					
Currently no Safety password is set. By defining a password you can prevent users from changing the safety configuration. Assign Safety password					
	Start				



- 2. Specify how you want to continue with the Safety commissioning. The following options are available for selection:
 - Execute commissioning step-by-step (Page 138)
 - Check commissioning in read mode (Page 148)

Basic information on the safety functions

Detailed information on the safety functions used can be found in the following Chapter:

Safety functions integrated in the drive (Page 57)

6.8.1.2 Commissioning step 1

The commissioning steps marked with a checkmark do not require any compulsory entries. The commissioning steps marked with a red pen require entries.

Function selection

Select the desired functions and the control method in the "Function selection".

About Safety Commiss	sioning 🚺	Safety password
Read-only mode Safety Integrated functions No safety functions Basic safety functions	• via PROFIsafe	Currently no Safety password is set. By defining a password you can prevent users from changing the safety configuration. Assign Safety password
Stop functions		
Braking functions		
SBC SBC		

Figure 6-21 Defining the function selection

- 1. Select the "Basic Functions" safety function group. In this way, you select the "STO" and "SS1" safety functions.
- 2. Select the "SBC" function if your motor has an integrated holding brake.
- 3. Also select the control method of the safety functions:
 - "Via PROFIsafe"
 - "via onboard terminals"
 - "via PROFIsafe and onboard terminals"

- Assign a safety password. You can also define the safety password later. As long as a safety password is not defined, the drive issues an alarm.
 Configuring the safety password (Page 146)
- 5. If a safety password has been defined, enter the safety password in the input field. You cannot make any further Safety settings without this entry.
- 6. To start the configuration of the individual Safety commissioning steps, click "Start" in the footer of the screen form.

6.8.1.3 Commissioning step 2

Parameterization

Adapt the required settings in the "Parameterization" tab.

Fur	ction selection V Parametrization Control	🔪 Te	st stop
0	The PROFIsafe control bit for SS1 is not evaluated for an SI SS1 delay time = 0 s	3.	
•	STO / SS1 - Illustration		
	SS1 selection Delay time SS1 > STO active STO active		
Par	ameter name	Valu	e Unit
SI S	S1 delay time	1	s
SL	nable safe brake control	Enable SB	с
SIS	afety Info Channel status word S_ZSW1B: STO active	Ye	s
-	More Function Parameters		
	Parameter name	Value	Unit
	OFF3 ramp-down time	3	s
	SI SS1 drive-based braking response SS1 with Of	F3 🗸	
	SI transition time STOP F to STOP A	2	ms
		Back	Continue

Figure 6-22 Configuring the parameterization

- 1. Parameterize the emergency stop function with the "SI SS1 delay time". The following settings are possible:
 - SS1 delay time = $0 \rightarrow$ STO (stop category 0 according to EN 60204-1)
 - SS1 delay time ≠ 0 → SS1 (stop category 1 according to EN 60204-1)
- If the converter is not to be autonomously braked in the event of an emergency stop ("SS1 with OFF3"), but via the higher-level controller ("SS1E external stop"), select this via the drop-down list "SI SS1 drive-based braking response".
- Click "Continue". The "Control" commissioning step is activated.

6.8.1.4 Commissioning step 3

Variant A: Control via PROFIsafe

The telegram and the address must be entered for control of the safety functions via PROFIsafe.

configuration of the F-Contro	e Telegram and enter the PROF oller.	Isafe address, matching the h	ardware	
configuration of the F-Contro	-	Isafe address, matching the h	ardware	
DDOElaafa Talaaram fram				
PROFIsafe Telegram from HW configuration	No PROFIsafe telegram select	ted		
PROFIsafe Telegram	No PROFIsafe telegram select	ted	~	
PROFIsafe address	0			
PROFIsafe failure response	STOP A		~	

Figure 6-23 Parameterizing control via PROFIsafe

If, in the HW configuration, a PROFIsafe telegram was already selected and downloaded to the converter, then this telegram is displayed in field "PROFIsafe telegram from HW configuration".

- 1. In the "PROFIsafe telegram" drop-down list, select the desired PROFIsafe telegram and enter the PROFIsafe address. The PROFIsafe telegram and PROFIsafe address must match the definitions in the higher-level controller.
- 2. Click "Continue".

The "Test stop" commissioning step is activated.

Variant B: Control via onboard terminals

The Basic Functions (STO, SS1) can be controlled via terminals.

The following connections are supported:

- Current sourcing/sinking F-DO of external devices
- Current sourcing/sourcing F-DO of external devices
- Self-monitoring sensors (OSSD)
- Non-self-monitoring sensors (e.g. emergency stop button)

The existing modules of external devices operate with different test pulses for the on/off test.

The debounce time is set in conjunction with the connected module. The debounce time specifies the duration of an interference pulse at the F-DIs, which does not change the state of the drive.

The signal states at the two terminals of an F-DI are monitored in order to determine whether these have assumed the same logical state within the discrepancy time (unavoidable time delay). The selection and deselection must be performed in both monitoring channels within this discrepancy time.

The discrepancy time and the debounce time are pre-assigned default values and do not have to be changed in most cases. See the following figure.

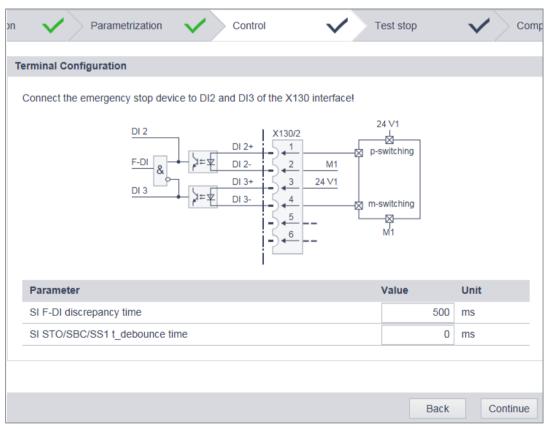


Figure 6-24 Parameterizing the controller via terminals

- 1. If you want to change the discrepancy time, click the "SI F-DI discrepancy time" field. An input dialog with the same name opens. Adjust the set discrepancy time and confirm with "OK".
- 2. If you want to change the debounce time, click the "SI STO/SS1 debounce time" field. An input dialog with the same name opens. Set the debounce time and confirm with "OK".
- Click "Continue". The "Test stop" commissioning step is activated.

Variant C: Control via PROFIsafe and onboard terminals

The settings of variants A and B are combined in variant C.

As a consequence, the STO and SS1 functions can be independently controlled via PROFIsafe and F-DI.

6.8.1.5 Commissioning step 4

Test stop (forced checking procedure)

To meet the requirements of the EN ISO 13849-1 and IEC 61508 standards in terms of timely fault detection, the converter must test its safety-related circuits regularly - at least once a year - for correct functioning.

The "Test stop timer" exists for the forced checking procedure; by default, it is set to 8760 hours = 1 year. After this time, the drive signals that a forced checking procedure is necessary by issuing error message ("Acceptance test required"). The remaining time up to the test stop is determined automatically and displayed.

The test stop (forced checking procedure) for the Safety Integrated Basic Functions is performed by selecting STO and then deselecting it. As a consequence, the timer is reset and the active message acknowledged.

If a different time interval is required for the test stop (e.g. as the result of a risk analysis), change the interval as described in the following.

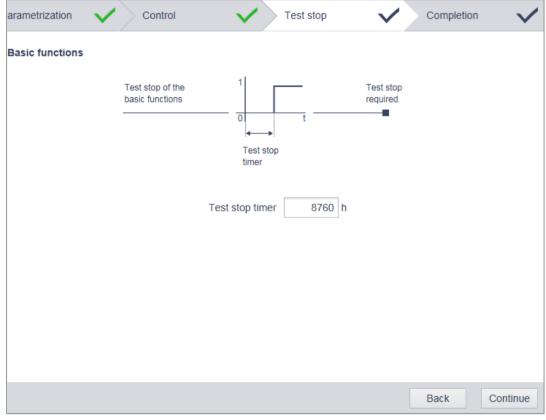


Figure 6-25 Configuring test stop (forced checking procedure)

 To change the time interval, click in the "Test stop timer" field. An input dialog with the same name opens. Set the timer interval here and confirm by clicking "OK".

The remaining time up to the test stop is determined automatically and displayed.

2. Click "Continue". The "Completion" commissioning step is activated.

6.8.1.6 Commissioning step 5

Completion

You have made all of the settings for commissioning the drive-integrated safety functions. If, up until now a safety password has not been configured, then it can now be configured in this step (see the following chapter).

1. Click "Finish".

The following prompt appears. Click "Finish" again to confirm the prompt.

Finish Safet	y Commissioning	×
?	You can save the parameters on the drive when finishing the Safety commissioning (RAM2ROM). After restarting the system the new parameters come into effect and the drive will disconnect. The drive restart will ask for a fresh login.	
	Finish Cancel]

Figure 6-26 Completing the safety commissioning

If both checkmarks are checked, the converter imports the settings of the safety commissioning and performs a restart when the user clicks "Finish". After the restart, the commissioning of the drive-integrated safety functions is completed and the browser once again shows the home page of the web server.

6.8.1.7 Configuring the safety password



The safety password protects the safety parameters against maloperation by unauthorized users.

The safety password can be assigned either before starting to commission the safety functions or at the end. The drive issues an alarm as long as a password is not assigned.

Note

The safety password is write protection specified in the appropriate standards to prevent against maloperation by unauthorized users.

The password must also include the following elements to provide protection against unauthorized access, e.g. unauthorized persons.

- At least 8 characters
- Uppercase and lowercase letters
- Numbers and special characters (e.g.: ?!%+ ...)

It is not permissible that the safety password is used elsewhere.

Checking the password

The length of the password is checked by the converter. There is no check for uppercase and lowercase letters and special characters!

Assigning the safety password

If you have not yet assigned a safety password, the "Assign safety password" button is active in the "Function selection" and "Completion" screen forms.

- 1. Click the "Assign safety password" button. The password dialog with the same name opens.
- 2. Enter the new safety password in the "Safety password" field.
- 3. Repeat the input in the "Confirm safety password" field.

4. If you click "OK", the converter imports the safety password.

Remember the password or store the password in a safe place that cannot be accessed by unauthorized persons.

You are prompted to enter a password each time safety commissioning is started.

Safety password			
Entering the Safety password is required in order to continue.			
Safety password			
Change Safety password	Reset Safety password		

Figure 6-27 Safety password

You must enter the safety password in this input field so that you can continue with the other safety settings.

5. Click 📮 to save the data permanently.

Changing the safety password

- 1. Click "Change safety password ...". The input dialog opens.
- 2. Enter the current safety password in the first field.
- 3. Enter the new safety password in the second field.
- 4. Repeat the input in the "Confirm new safety password" field.
- 5. Click "OK" to confirm the input of the password.
- 6. Click to save the data permanently.

Resetting the safety password

- 1. Click "Reset safety password ...". The input dialog opens.
- 2. Enter the current safety password.
- 3. Click "OK" to confirm the resetting of the password. The drive then outputs an alarm that password protection is no longer active.
- 4. Click 📮 to save the data permanently.

6.8.1.8 Checking existing safety settings in the read mode

7

You can run through the complete safety commissioning step-by-step in the read mode and check the settings that have been made.

1. Activate the "Read-only mode" option.

Safety V Safety Commissioning V Read-only mode is active. You can navigate through the steps of the workflow freely, no data will be written to the drive.				the drive.
Function selection	Parametrization	Control	Test stop	Compl
About Safety Commission	ning	Safety pas	ssword	
Read-only mode			v no Safety password is set. By o d you can prevent users from chat ation	
Safety Integrated functions	Control	comgute		
No safety functions	via PROFIsafe	Assign	Safety password	
Basic safety functions	via Onboard-Terminals	S		
	via PROFIsafe and Onboard-Terminals			
Stop functions				
STO	SS1	t		
Braking functions				
SBC	t			
				Next

Figure 6-28 Safety commissioning in read mode

The individual commissioning steps are displayed in the header of the "Safety Commissioning" screen form.

2. Click the "Continue" button each time and check the settings that are required Safety commissioning.

6.8.2 Safety diagnostics



The most important information on the safety settings and the states of the converter are displayed using the safety diagnostics.

Select "Safety" and "Safety Diagnostics" in the navigation.

Safety V V Safety Diagnostics V	
Status of Safety Functions	Status
	Test stop timer8760 hRemaining time until test stop8759.68 h✓No Internal event
SS1	Safety Logbook
SBC	The Safety Logbook helps detecting safety parameters changes. Functional changes
	Checksum 15F33580 H
	Timestamp 628.3519
	Hardware-specific changes
	Checksum 9EE7A9DB H
	Timestamp 628.3519

Figure 6-29 Display of the safety functions

You receive the following individual information via separate display areas:

- "Diagnostics of the safety functions" Shows which safety functions have been activated in the converter.
- "Status"

Information on the status of the converter. If a forced checking procedure is required, then this is displayed. The times for the forced checking procedure of the timer and the remaining time up to the forced checking procedure are displayed.

The display area also shows whether internal events (e.g. software errors in the converter or a discrepancy in the monitoring channels) have taken place and whether the communication is OK.

• "Checksums"

Uses the safety logbook to determine changes to safety parameters and to indicate if a component has been replaced/exchanged. Shows changes in the form of functional checksums with time stamps.

6.9 Diagnostics in the Web server

6.9 Diagnostics in the Web server

- 6.9.1 Adapt message list
- 6.9.1.1 Displaying messages

ប្ចូ

Calling the list of messages

- 1. Select "Diagnostics" and "Messages" in the navigation. - Or -
- Click the or icon in the header of the web server. The "Diagnostics - Messages" view appears with a message list. Further information about S210 messages can be found in Chapter "Faults and alarms (Page 291)".

Diagnostics	s 🗸	>	Messages	~	
▼ Searc	h and F	ilters			
	earch			Filter by date	
Antriebszei	it aktuel	II: 200	0-11-16 15:	12:33	Acknowledge faults
Туре		Time	received	Alarm	Time removed
Fault		-11-10 1:46:4	-	1650: SI P1 (CU): Acceptance test required (2003)	2000-11-16 14:31:48:781
Fault		-11-10 1:46:6	-	30650: SI P2: Acceptance test required (2003)	2000-11-16 14:31:49:277
Fault		-11-1(B:11:8	-	1658: SI P1 (CU): PROFIsafe telegram number differ (0)	2000-11-16 12:41:01:0
Fault		-11-10 5:35:9	-	1650: SI P1 (CU): Acceptance test required (2003)	2000-11-16 13:06:39:36

Figure 6-30 Message list

Explanation of the icons:

- Alarm
- OK (acknowledged fault)

6.9.1.2 Filtering messages



You can set filters in the message list of the Web server and therefore limit the display of the messages. You can make the filter settings via a filter bar above the message list. All filters are linked by an AND connection.

 Search and Filters 		Reset all filters 📍
	Filter by date 2017-07-02 to 2017-07-14	

Figure 6-31 Filter bar of the message list

Setting filters

1. In the "Search" field, enter a search term (any number of characters) for which you want to search in the message list.

The search term is also active in the "Alarm" column in the message list.

2. In the two "Filter by Date" fields, enter a period for which the messages are to be displayed. The message list is limited further after every filter setting. The filters can be set in any order.

Note

Collapsing the filter bar

The filter bar is opened per default. To collapse the filter bar, click the \neg arrow next to "Search and Filters".

Resetting filters

As long as you are logged in to the Web server and the filter settings have not changed, the message list is always displayed with the last filter settings. To reset all filter settings in the message list, proceed as follows:

Click "Reset all filters" at the top right in the filter bar.

The message list then displays the unfiltered view of the messages again.

6.9 Diagnostics in the Web server

6.9.2 Displaying communication settings

Proceed as follows to display the communication settings: Select "Diagnostics" and "Communication" in the navigation. The web server shows a window with the following contents:

- IP address of the converter
- Name of the station
- Information as to whether the connection between the controller and the converter is active
- The standard telegram
 - Table with process data for the transfer direction "controller > converter"
 - Table with process data for the transfer direction "converter > controller"

Diagnostic	s 🗸 📏 (Communication 🗸		
PROFINE [®]	T Name of Statio PN diagnosti	on 192.168.0.12 on sinamics-s210-pn cs ✓ Established on SIEMENS Telegramm 105,	PZD-10/10	
PZD	Content	Description	Value	
1	STW 1	Control word 1	0400	hex
23	NSOLL	Setpoint speed	0000_0000	hex
4	STW 2	Control word 2	D000	hex
5	MOMRED	Torque reduction	0000	hex
6	G1 STW	Encoder control word	0000	hex
78	XERR	Control deviation	0000_0000	hex
9 10	KPC	Position control gain	0000_0000	hex
Direction:	Drive > Controlle	er		
PZD	Content	Description	Value	
1	ZSW 1	Status word 1	03C0	hex
23	NIST	Actual speed	0001_4000	hex
4	ZSW 2	Status word 2	F010	hex
5	MELDW	Message word	11CF	hex
6	G1 ZSW	Encoder status word	0000	hex

Figure 6-32 Communication settings

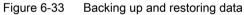
The values are displayed in hexadecimal format in the default setting. You can switch the display of individual values between binary and hex format by clicking on the button to the right of the value.

6.10 Backup and restore

6.10 Backup and restore

Backup & Restore 🗸			
Parameter Backup			
Save the current drive settings in a file.			
Backup Parameter			
Restore Parameters From File			
1 Load the drive settings from a file into the drive.			
Select file	Browse	Restore Parameters	
Restore Factory Settings			
When restoring the factory settings, all parameters of the drive are reset to their original values. After restoring the factory settings, you must recommission the drive			
Restore Factory Settings			

Select entry "Backup and restore" in the navigation.



You can perform backup and restoration functions in the 3 setting ranges of the view.

6.10 Backup and restore

6.10.1 Backing up the parameter settings externally



You can back up the converter settings externally on the commissioning device via the web server.

You can perform the data backup at any time. We recommend a data backup after the commissioning of the converter.

 Click "Back up parameters" in the "Parameter Backup" setting area. The data backup of the parameters is performed. A message is displayed when the data backup is successful.

Depending on the browser used, a storage dialog appears in which you can specify where the backup file is to be saved.

In some browsers, e.g. Google Chrome, the file is stored in the standard directory for downloads as "Backup.zip".

2. Correct the automatically generated name of the data backup so that the required data backup can be clearly identified by the name when there are several data backups.

Note

The parameterization is saved in encrypted form during a data backup. Therefore, it is not possible to check or edit parameters.

6.10 Backup and restore

6.10.2 Restoring externally backed-up parameter settings



If you load the externally backed-up parameter settings to the converter again, you restore the converter state to the time of the data backup. You can also use the externally backed-up files for a series commissioning.

- 1. Click "Browse" in the "Restore Parameters From File" setting area.
- 2. Select the data backup file in your file system. The data backup file is now displayed in the view.
- Click "Restore" in the "Restore Parameters From File" setting area. The data backup is loaded. The converter is then restarted. You must log in to the Web server again.
- 4. Log in to the Web server again.

6.10.3 Restoring the factory settings

If required, you can restore the factory settings for your converter.

- 1. In view "Backup and restore", click on "Restore Factory Settings".
- Confirm the prompt with "Restore Factory Settings". The restoration of the factory settings starts. The converter is then restarted. You must log in to the Web server again.
- 3. Reassign the administrator password and log on to the Web server with it.

6.11 System settings

6.11.1 Setting or changing user accounts

For SINAMICS S210, both user accounts - "SINAMICS" and "Administrator" - are permanently defined, and cannot be changed by users.

You can make the following settings in the user accounts:

- Changing the Administrator password
- Authorize or inhibit "SINAMICS" user
- Defining a new password for the "SINAMICS" user
- · Changing/deleting the password for the "SINAMICS" user

Password requirements

The password must fulfill the following conditions to provide protection against unauthorized access, e.g. cyber attacks:

- At least 8 characters
- Both uppercase and lowercase letters
- Numbers and special characters (e.g.: ?!%+ ...)
- Different passwords for different types of access (administrator / user)

The length of the password is checked by the converter. There is no check for uppercase and lowercase letters and special characters!

Remember the passwords or store the passwords in a safe place that cannot be accessed by unauthorized persons.

Procedure

- 1. Select "System" and "Settings" in the navigation.
- 2. Select the "User Accounts" tab.

System V > Settings V				
User Accounts	IP Connections and Addresses	Drive System Time and Date		
Enable "Administrator" user (extended rights) Change password				
Enable "SINAMICS" user (limited rights)				
Define password				

Figure 6-34 Changing the password

Perform the following steps to configure the user accounts for the web server:

Changing the Administrator password

The "Administrator" cannot be deactivated.

 To change the Administrator password, click "Change password..." at the "Administrator" user.

A password dialog opens.

- 2. Enter the old password.
- 3. Enter a new password.
- 4. Enter the new password again.
- 5. Confirm the password change with "Change". The dialog closes.
- 6. Click 📙 to save the data permanently.

Defining a new password for the "SINAMICS" user

- 1. Activate the "Enable SINAMICS user" option.
- 2. Click "Define password..." at the "SINAMICS" user. A password dialog opens.
- 3. Enter a new password.
- 4. Enter the new password again.
- 5. Confirm the password input with "OK". The dialog closes.
- 6. Click 📙 to save the data permanently.

Changing/deleting the password for the "SINAMICS" user

- If you want to change the password of the "SINAMICS" user, proceed as for the Administrator password (see "Changing the Administrator password").
 Or -
- If you want to delete the password of the "SINAMICS" user, click "Delete password...". A prompt appears. Enter the old password and click "Delete".
- 3. Click 📙 to save the data permanently.

6.11.2 Configuring the IP connection



The X127 and X150 interfaces have the following defaults:

• Service interface (X127)

Access to the web server via the service interface is always active. Communication is performed in the factory setting via an HTTP connection.

NOTICE

Software manipulation when using non-encrypted connections (HTTP)

The HTTP protocol transfers data without encryption. This facilitates password theft, for example, and can lead to data manipulation by unauthorized parties and thus ultimately to damage.

- Limit access to HTTPS connections so that all data is transferred encrypted.
- PROFINET interface (X150)

Access to the web server via the PROFINET interface is deactivated by default. Communication via the PROFINET interface is always performed via the secure HTTPS connection.

Note

Security measures for communication via PROFINET

In accordance with the Defense in Depth concept, PROFINET must be isolated from the remaining plant network (see Industrial Security (<u>https://www.industry.siemens.com/topics/global/en/industrial-security/pages/default.aspx</u>)). Access to cables and possibly open connections must be implemented in a protected fashion, as in a control cabinet.

Note

Certificates for the secure data transfer

To secure an HTTPS connection, it requires security certificates for the encryption of the access. Detailed information on working with these security certificates can be found in Section "Certificates for the secure data transfer (Page 750)".

You can make the connection between the converter and the commissioning device more secure through the settings described in the following.

Procedure

- 1. Select "System" and "Settings" in the navigation.
- 2. Select the "IP Connections and Addresses" tab.

System 🗸 🖒 Settings 🗸		
User Accounts	IP Connections and Addresses	Drive System Time and Date
	cess via https protocol at service interf DFINET interface (X150). Here is only s	
		Apply Settings Discard

Figure 6-35 IP connections

- 3. Activate the desired connection options.
- 4. Click "Apply Settings" to save the changes in the RAM of the device.
- 5. Click 📙 to save the data permanently.

Note

Switchover from HTTP to HTTPS

If you were logged-in via HTTP, then after activating option "Only use HTTPS connection", you will be logged-out. To log in again, you must set a secure HTTPS connection (https://...) to the converter.

6.11.3 Configuring the system time

¢ĭ

Per default, an NTP time synchronization (NTP = Network Time Protocol) is activated for the system time of the converter. The converter then synchronizes its system time with a central NTP server in the PROFINET network.

A library for use as SNTP server is available for the SIMATIC controllers. You will find these on the Support pages:



Library for the SNTP server functionality in SIMATIC S7 CPUs (<u>https://support.industry.siemens.com/cs/ww/en/view/82203451</u>)

Note

If the NTP server cannot be accessed for more than 10 minutes when NTP time synchronization is activated, alarm A01097 "NPT server cannot be accessed" appears.

If you want to deactivate this time synchronization or activate it again, proceed as follows:

- 1. Select "System" and "Settings" in the navigation.
- 2. Select the "Drive System Time and Date" tab.

System V V Settings V			
User Accounts	IP Connections and Addresses	Drive System Time	and Date
Activate NTP time sychron			
		Apply Settings	Discard

Figure 6-36 System time

- 3. Deactivate/activate "Activate NTP time synchronization".
- 4. Click "Apply Settings" to save the changes in the RAM of the device.
- 5. Click to save the data permanently.

6.12 Saving permanently

6.12 Saving permanently

The changed settings are only saved in the volatile memory. They are lost when you switch off the converter or close the Web server. For this reason, it is important that the settings made in the Web server are regularly saved permanently (also known as "Copy RAM to ROM"). You can either save the setting for each individual commissioning step or save all the settings made and the tuning results at the end of the commissioning.

1. To save permanently, click **__** in the footer of the Web server. A save prompt appears:

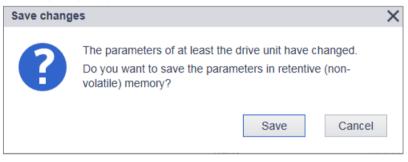


Figure 6-37 Permanent saving prompt

2. Click "Save" to save the data permanently.

6.13 Calling Support information

6.13 Calling Support information

You can call the Support addresses for the SINAMICS S210 via the footer of the Web server.

1. Click "Support" in the footer of the Web server. The following information is displayed:

Support	×
SINAMICS S210 Product page	
http://www.siemens.com/sinamics-s210	
Siemens Industry Online Support	
http://support.industry.siemens.com	
Product specific information in the Siemens Industry Online Support (SIOS) for SINAMICS S210	t -
Product support	
FAQs	
Software downloads	
Manuals / Operating instructions	
Approvals / Certificates	
Updates	
Close	

Figure 6-38 Support addresses

Click the links to open the desired support addresses - or to open in another browser - or to copy at a later point in time.

2. Click "Close" to close the Support information.

6.14 Firmware update

6.14 Firmware update

You have the option of upgrading your converter to a newer firmware version. You can also install an older firmware version to always provide the same machine configurations.

Settings made before the upgrade will be retained.

During a downgrade to an older firmware version, the converter is reset to the factory settings.

Proceed as follows to perform an upgrade or downgrade:

- 1. Save the firmware version that you would like to install on the converter on a blank SD card (maximum storage capacity 2 GB).
- 2. Switch off the converter.
- 3. Insert the SD card into the converter and switch on the converter.
- 4. The new firmware will be installed this can take up to five minutes or longer. The update is completed when both LEDs are flashing red at 1 Hz in sync with each other.
- 5. Switch the converter off and remove the memory card.
- 6. Switch on the converter again. The firmware of the connected DRIVE-CLiQ components is updated. This may require a restart (see alarm messages in the web server).
- 7. Check whether the new version is installed. The firmware version of the converter is displayed on the home page of the web server under the converter.

6.14 Firmware update

Diagnostics

7.1 Status displays and operating elements on the converter

The status of the converter is displayed via the three-digit display as well as by the "RDY" and "COM" LEDs.

Status display via the three-digit display

Normally, the display is dark.

Alarms and faults are shown according to the message classes defined in PROFIdrive. If PROFIdrive diagnostics is active, then they are simultaneously transferred to the control system.

Detailed information about alarms and faults is provided by the Web server of the converter.

Status display via LEDs

The converter displays the current operating state via two LEDs.

- RDY: converter state
- COM: communication state

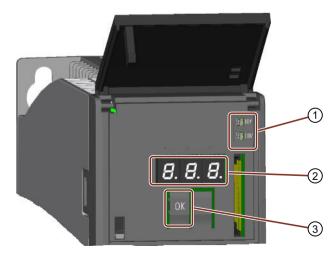
During ramp-up, the LEDs assume different states.

The converter is ready for operation when the "RDY" LED is permanently green.

The LEDs always operate independently of one another, except when updating the firmware.

OK button

You can acknowledge the faults whose cause has been corrected with the OK button.



1 LED display

- ② Three-digit display
- ③ OK button

Display and operating elements on the converter

7.1 Status displays and operating elements on the converter

7.1.1 Status display via LEDs

LED is ON
LED is OFF
LED flashes slowly
LED flashes quickly
LED flashes with variable frequency

Table 7-1 Explanation of symbols for the following tables

Please contact Technical Support for LED states that are not described in the following.

RDY	Explanation
	The electronics power supply is missing or outside the permissible tolerance range.
	Remedy: Check the power supply.
ж.	Temporary status after the supply voltage is switched on.
	The device is ready for operation.
	Cyclic DRIVE-CLiQ communication is in progress.
	Writing to the memory card
	Commissioning or reset to factory settings
	PROFlenergy energy-saving mode is active.
	Switch-on/off ratio:
	On: 0.5 s
	Off: 3 s
	A fault is active
	Remedy: Check the converter settings/configuration.
i	Firmware update is active
	Converter waits until the power supply is switched off and switched on again after a firmware update

7.1 Status displays and operating elements on the converter

RDY	Explanation
	Firmware update in progress for the connected DRIVE-CLiQ components.
	DRIVE-CLiQ component firmware update has been completed.
	Waiting for POWER ON of the corresponding components.
	Remedy: Switch the component off and on again.
	CU detection via DCP flashing.
	Remark: Both options depend on the LED status when activating via DCP.
or	

Table 7-3 Status explanation of the COM LED

COM	Explanation						
	No bus fault is present. When the RDY LED lights up green and the COM LED is off, the converter is ready for communication.						
	Temporary status after the supply voltage is switched on.						
	Bus ok. cyclic communication running perfectly						
	 Bus ok, however no setpoints (PLC in stop) In the isochronous mode: Bus ok, no synchronization 						
	No bus connection Remedy : Make sure that the bus cables are connected and are not damaged.						
	 Bus error, possible causes: Incorrect configuration in the PLC (the same supplementary telegram has been set twice?) 						

Table 7-4 Explanation of the RDY and COM LEDs - firmware update

RDY	СОМ	Explanation
黨		Firmware update is active
*		LEDs are flashing synchronously: Converter waits until the power supply is switched off and switched on again after a firmware update

7.2 Message classes in accordance with PROFIdrive

7.2 Message classes in accordance with PROFIdrive

Message class					
1	9000	Hardware fault/software error			
		A hardware or software malfunction has been identified.			
		 Carry out a POWER ON for the relevant component. 			
		If it occurs again, replace again.			
2	9001	Line fault			
		A line supply fault has occurred (phase failure, voltage level, etc.).			
		Check the line supply/fuses			
		Check the supply voltage.			
		Check the wiring.			
3	9002	Supply voltage fault			
		An electronics power supply fault (24 V) has been identified. Check the wiring.			
		Check the voltage level.			
4	9003	DC link overvoltage			
		The DC-link voltage has assumed an inadmissibly high value.			
		Check the dimensioning of the system (line supply, reactor, voltages).			
		Check the infeed settings.			
5 9004 Power electronics fat		Power electronics fault			
		An inadmissible operating state of the power electronics has been identified			
		(overcurrent, overtemperature, IGBT failure,).			
		 Check compliance with the permissible load cycles. 			
		Check the ambient temperatures (fan).			
6	9005	Electronic component overload			
		The temperature in the component has exceeded the highest permissible limit.			
		Check the ambient temperature / control cabinet ventilation.			
7	9006	Ground fault / inter-phase short-circuit detected			
		A ground fault / inter-phase short-circuit has been identified in the power ca- bles or in the motor windings.			
		Check the power cables (connection).			
		Check the motor.			
8	9007	Motor overload			
		The motor was operated outside the permissible limits (temperature, current, torque).			
		Check the load cycles and set limits.			
		Check the ambient temperature / motor cooling.			
9	9008	Communication error to the higher-level controller			
		The communication to the higher-level controller is faulted or interrupted. Check the state of the higher-level controller.			
		Check the communication connection/wiring.			
		 Check the bus configuration / clock cycles. 			

Message class	Explanation of the message class according to PROFIdrive - cause and remedy.	
10	9009	Safety monitoring channel has identified an error
		A safe operation monitoring function has detected an error.
11	900A	Actual position value / actual speed value incorrect or not available
		An illegal signal state has been detected while evaluating the encoder signals (track signals, zero marks, absolute values).
		Check the encoder / state of the encoder signals.
		Observe the maximum permissible frequencies.
12	900 B	Internal (DRIVE-CLiQ) communication error
		The internal communication between the SINAMICS components is faulted or interrupted. Check the DRIVE-CLiQ wiring.
		Ensure an EMC-compliant design.
13	900C	Infeed fault
		The infeed is faulted or has failed.
		 Check the infeed and its environment (line supply, filters, reactors, fuses).
		Check the infeed control.
14	900D	Braking controller / Braking Module faulted
		The internal or external Braking Module is faulted or overloaded (tempera- ture).
		Check the connection/state of the Braking Module.
		 Comply with the permissible number of braking operations and their duration.
15	900E	Line filter faulted
		The line filter monitoring has identified an excessively high temperature or other inadmissible state.
		Check the temperature / temperature monitoring.
		• Check the configuration to ensure that it is permissible (filter type, infeed, thresholds).
16	900F	External measured value / signal state outside of the permissible range
		A measured value / signal state read in via the input area (digital/analog/tem- perature) has assumed an inadmissible value/state.
		 Identify and check the relevant signal.
		Check the set thresholds.
17	9010	Application / technology function faulted
		The application / technological function has exceeded a (set) limit (position, velocity, torque).
		 Identify and check the relevant limit.
		Check the setpoint specification of the higher-level controller.

7.2 Message classes in accordance with PROFIdrive

7.2 Message classes in accordance with PROFIdrive

Message class	PN ¹⁾ (hex)	Explanation of the message class according to PROFIdrive - cause and remedy.
18	9011	Error in the parameterization/configuration/commissioning sequence
		An error has been identified in the parameterization or in a commissioning procedure, or the parameterization does not match the actual device configuration.
		• Determine the precise cause of the fault using the commissioning tool.
		Adapt the parameterization or device configuration.
19	9012	General drive fault
		Group fault.
		• Determine the precise cause of the fault using the commissioning tool.

¹⁾ "Channel Error Type" of the PROFINET channel diagnostics. When channel diagnostics is activated, then the fault texts are indicated in the PLC.

7.3 Correcting faults on the motor

Operation without functioning protective devices

Operation without functioning protective devices can cause death or severe injury.

• Operate the motor, even in test operation, only with functioning protective devices.

If there are deviations from normal operation or if faults occur, proceed as follows.

- Identify the fault using the "Possible faults" table. Also observe the converter messages.
- Try to correct the fault using the "Fault causes and remedial measures" key table.

Fault		ult c / tab		e (se	e "l	Faul	t ca	uses	s an	d rei	med	ial n	nea	sure	s"
Motor does not start	А	В													
Motor starts slowly	Α		С		F										
Humming sound when starting			С		F										
Humming sound in operation	Α		С		F										
High temperature rise under no-load oper- ation				D		I									
High temperature rise under load	А		С			Ι									
High temperature rise of individual winding sections					F										
Uneven running							J	к							
Grinding sound, running noise									L						
Radial vibrations										М	Ν	0	Р		R
Axial vibrations												0		Q	R

Table 7-5Possible faults

Table 7-6 "Fault causes and remedial measures" key table

No.	Fault cause	Remedial measures					
А	Overload	Reduce load					
В	Interruption of a phase in the supply cable / motor winding	Check the frequency converter and supply cables, measure the winding resistances and insulation resistances, repair after consultation with manufacturer					
С	Interrupted phase in the feeder cable after switching on	Check the frequency converter, supply cables and the winding resistances					
		Check the settings on the frequency converter, perform automatic mot identification					
		Measure the winding resistances and insulation resistances, repair after consultation with the manufacturer, if required, replace the motor					

7.3 Correcting faults on the motor

No.	Fault cause	Remedial measures
I	Heat dissipation impeded by deposits	Clean the surface of the drives and ensure that the cooling air can flow in and out unimpeded
	Cooling air inlet/outlet is blocked by for- eign bodies	Remove the reason for the blocking and ensure that the cooling air can flow in and out unimpeded
J	Insufficient shielding for motor and/or en- coder cable	Check the shielding and grounding
К	Excessive drive controller gain	Adjust the controller
L	Rotating parts are grinding	Determine cause and adjust parts
	Foreign bodies inside the motor	Replace the motor
	Bearing damage	Replace the motor
М	Rotor not balanced	Replace the motor
Ν	Rotor out of true, shaft bent	Consult the manufacturer
0	Poor alignment	Align motor set, check coupling
Р	Coupled machine not balanced	Re-balance coupled machine
Q	Shocks from coupled machine	Check coupled machine
R	Fault originating from the gearbox	Adjust/repair gearbox

If the fault still cannot be resolved after taking the measures stated above, please contact the manufacturer or the Siemens Service Center.

7.4 Alarms

7.4 Alarms

Alarms

Alarms have the following properties:

- Alarms have no direct influence on the drive.
- Alarms disappear again when the cause is eliminated.
- Alarms cannot be acknowledged.
- Alarms are displayed as follows:
 - In the PLC according to the PROFIdrive message class
 - On the drive via LEDs
 - At the drive using the three-digit display according to the PROFIdrive message classes
 - In the Web server via the "Diagnostics Messages" view

Alarm code or alarm value describe the cause of the alarm.

Reference

You can find additional information on alarms in Chapter "Overview of faults and alarms (Page 291)".

7.5 Faults

7.5 Faults

Faults

Faults have the following properties:

- The fault causes the motor to be switched off.
- Faults must be acknowledged.
- Faults are displayed as follows:
 - In the PLC according to the PROFIdrive message class
 - On the drive via LEDs
 - At the drive using the three-digit display according to the PROFIdrive message classes
 - In the Web server via the "Diagnostics Messages" view

Acknowledge fault

Before you can acknowledge a fault, you must have resolved the cause of the fault.

To acknowledge, you have the following options:

- Acknowledging via the PLC
- Acknowledging via the OK button under the front cover
- Switch off the converter power supply and switch on again
- Acknowledging via the Web server

Faults detected during the converter-internal monitoring of hardware and firmware can be acknowledged only by switching the power supply off and on again. In the list of faults, you will find the information on limitations when acknowledging at the corresponding fault codes.

Reference

You can find additional information on faults in Chapter "Overview of faults and alarms (Page 291)".

Technical specifications

8.1 Technical data and properties of the motor

8.1.1 Technical features

Table 8-1 Technical features

Type of motor	Permanent-magnet synchronous motor
Rotor inertia	1FK21 - High Dynamic - motor with low rotor inertia
	1FK22 - Compact - motor with average rotor inertia
Power range	0.05 kW 0.75 kW for a line supply voltage of 1 AC 230 V
Cooling	Natural cooling
Insulation of the stator winding according	1FK2□02, 1FK2□03:
EN 60034-1 (IEC 60034-1)	Temperature class 130 (B) for a winding temperature of ΔT = 80 K at an ambient temperature of +40 °C
	1FK2□04:
	Temperature class 155 (F) for a winding temperature of ΔT = 100 K at an ambient temperature of +40 °C
Pulse voltage insulation class according to EN 60034-18-41 (IEC 60034-18-41)	IVIC: C
Operating range	-15° to +40° C, derating at higher temperatures
Installation altitude (according to EN 60034– 1 and IEC 60034–1)	≤ 1000 m above sea level, otherwise power derating
Type of construction according to EN 60034-7 (IEC 60034-7)	IM B5 (IM V1, IM V3)
Degree of protection according to EN 60034-5 (IEC 60034-5)	IP64, optional IP65
Temperature monitoring	Thermal motor model
Paint finish	Anthracite (RAL 7016)
Shaft extension according to DIN 748-3 (IEC 60072-1)	Plain shaft, optionally with feather key and half-key balancing
Radial eccentricity, concentricity, and axial eccentricity according to DIN 42955 (IEC 60072–1) ¹⁾	Tolerance N (normal)
Vibration severity grade according to EN 60034-14 (IEC 60034-14)	Grade A is maintained up to rated speed
Sound pressure level L_{pA} (1 m) according to DIN EN ISO 1680, max. tolerance + 3 dB(A)	Natural cooling: 55 dB(A)
Encoder systems, built-in with DRIVE-CLiQ interface	 AS20DQC, absolute encoder singleturn 20-bit AM20DQC absolute encoder 20-bit + 12-bit multiturr

8.1 Technical data and properties of the motor

Connection	One cable system (OCC), rotatable
Holding brake	Optional integrated holding brake (24 V)

¹⁾ Radial eccentricity of the shaft extension, concentricity of centering edge, and axial eccentricity of the mounting flange to the axis of the shaft extension.

8.1.2 Permissible environmental conditions for the motor

Property	Version	
Environmental conditions for transport in the transport packaging according to Class 2K3 to EN 60721-3-2 except for the "air temperature" and "condensation" environmental factors		
Climatic environmental con- ditions	- 15° C + 70° C	
Highest relative humidity	< 95% at 40° C, condensation not permissible	
Mechanical environmental conditions	Shock and vibration permissible according to 3M8 to EN 60721-3-3: Single shocks (6 ms) max. 250 m/s ²	
Protection against chemical substances	Protected according to Class 2C2	
Biological environmental conditions	Suitable according to Class 2B2	

Property	Version	
Environmental conditions for long-term storage in the transport packaging according to Class 1K3 to EN 60721-3-1 except for the "air temperature", "highest relative humidity" and "condensation" environmental factors		
Climatic environmental con- ditions	- 15° C + 55° C	
Highest relative humidity	< 60% - condensation not permissible	
Mechanical environmental conditions	Vibration-free storage space, v _{rms} < 0.2 mm/s	
Protection against chemical substances	Protected according to Class 1C2	
Biological environmental conditions	Suitable according to Class 1B2	
Duration	Six months for the above-mentioned conditions.	
	 For storage periods of six months up to a maximum of two years, special preservation measures are required. Further information [2] Calling Support information (Page 162) 	

Property	Version	
Ambient conditions during operation according to 3K4 to EN 60721-3-3 except for the "low air temperature", "condensation" and "low air pressure" environmental factors		
Installation altitude	Up to 1000 m above sea level without limitations	

8.1 Technical data and properties of the motor

Property	Version	
Climatic environmental con-	• Temperature range: - 15 °C ¹⁾ + 40 °C	
ditions ¹⁾	Relative humidity: 5 95%, condensation not permitted	
	 Absolute air humidity: 129 g/m³ 	
	• Rate of temperature change ²): 0.5°/min	
	• Atmospheric pressure: 89 ^{1), 3)} 106 kPa ⁴⁾	
	• Solar radiation: 700 W/m ^{2 2)}	
	 Movement of the air: 1.0 m/s 	
	Water (other than rain): See protection class	
Mechanical environmental conditions	• Vibration levels permissible according to Class 3M8 to EN 60721-3-3: Max. 50 m/s ²	
	 Shock permissible according to Class 3M8 to EN 60721-3-3 	
Protection against chemical substances	Protected according to 3C2 to EN 60721-3-3	
Biological environmental conditions	Suitable according to 3B2 to EN 60721-3-3	
Pollution	Suitable for environments with degree of pollution 2 according to EN 61800-5-1	
Cooling air	Clean and dry air	
The motors are not suitable for	or operation	
 In a vacuum⁵⁾ 		
In salt-laden or aggressive	e atmospheres	

• Outdoors

¹⁾ Increased ruggedness with regard to low temperature and low atmospheric pressure better than 3K3 according to EN 60721-3-3

²⁾ Averaged over a period of 5 min

- ³⁾ The limit value of 89 kPa covers applications at altitudes up to 1000 m.
- ⁴⁾ Conditions in mines are not considered.

⁵⁾ Operation in a vacuum is not permissible because of the low dielectric strength and poor heat dissipation.

8.1 Technical data and properties of the motor

8.1.3 Cooling

The 1FK2 is a non-ventilated motor.

To ensure sufficient heat dissipation when installed, the motor requires a minimum clearance of 100 mm from adjacent components on three lateral surfaces.

Maintain theses clearances irrespective of the following mounting variants.

Non-thermally insulated mounting

Some of the motor power loss is dissipated through the flange when the motor is connected to the mounting surface.

• Observe the following mounting conditions for the specified motor data:

Shaft height	Steel plate, width x height x thickness (in mm)
1FK2Q02	200 x 200 x 6
1FK2Q03	250 x 250 x 6
1FK2□04	250 x 250 x 6

The data in the table refers to an ambient temperature of 40 °C and an installation altitude up to 1000 m above sea level.

If the environmental conditions are different, derating may be required. For more information, refer to Chapter:

"Derating factors (Page 180)"

For larger mounting surfaces, the heat dissipation conditions improve.

Thermally insulated mounting without additional mounted components

For self-cooled motors, you must reduce the S1/characteristic curve as follows: Reduce the motor static torque by 20 to 30%.

Reduce the torque at 3000 rpm by 40 to 50%.

Thermal motor protection

The converter monitors the motor temperature based on a thermal motor model and issues the alarm "Motor overtemperature" before the maximum temperature is reached. If the motor exceeds the maximum temperature, the converter switches off the motor with the error message "Motor overtemperature".

The thermal motor model requires the ambient temperature to be entered at the converter.

To do this, select parameter p0613 at the converter.

Parameter r0034 indicates the thermal load of the motor as a percentage. The reading is influenced by the ambient temperature selected in parameter p0613.

Additional information can be found in the parameter lists:

8.1.4 Derating factors

Given an ambient temperature > 40 °C or installation altitude > 1000 m above sea level, the permissible torques/powers must be determined with the factors from the following table.

The factors refer to the static torque M₀. Shift the S1 characteristic curve in parallel.

Table 8-2 Power derating depending on the installation altitude and the ambient temperature

Installation altitude above sea		Ambient temperature in ° C			
level in m	30	40	45	50	
1000	1.05	1.00	0.97	0.94	
2000	1.00	0.95	0.92	0.88	

Calculate the derating value for ambient temperatures that are not shown here and installation altitudes below the maximum values by interpolating. For example: 40 °C at 1500 m above sea level = derating factor 0.975

8.1.5 Degree of protection

The degree of protection designation in accordance with EN 60034-5 (IEC 60034-5) is described using the letters IP and two digits (e.g. IP64).

IP = International Protection

1st digit = protection against the ingress of foreign bodies 2nd digit = protection against water

DIN 60034-5 is valid for water as potentially occurring medium, not for oil or other creeping fluids.

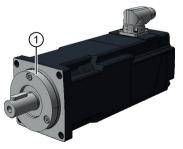
Configure the motor in the required degree of protection.

Degrees of protection available for the 1FK2

The 1FK2 motors are available with the following degrees of protection:

- IP64
- IP65 optional

The motors with IP65 degree of protection have a radial shaft seal.



1 Radial shaft sealing ring

Note

It is permissible that the radial shaft sealing ring runs dry.

With degree of protection IP65, it is not permissible for liquid to collect in the flange.

The service life of the radial shaft sealing ring is approximately 25000 operating hours.

The radial shaft seal ring shortens the usable shaft end.

For additional information, see Chapter:

8.1.6 Balancing

The motors are balanced according to DIN ISO 8821.

Motors with featherkey in the shaft are half-key balanced.

A mass equalization for the protruding half key must be taken into account for the output elements.

8.1.7 Vibration response

Vibration severity grade

The vibration response of the system at the location of use is influenced by output elements, any built-on parts, the alignment, the installation, and external vibrations. This can change the vibration values of the motor.

The motors conform to vibration severity grade A according to EN 60034-14 (IEC 60034-14).

The specified values refer only to the motor. The installation-dependent system vibration behavior can increase these values at the motor.

The vibration severity grade is maintained up to the rated speed (n_N) .

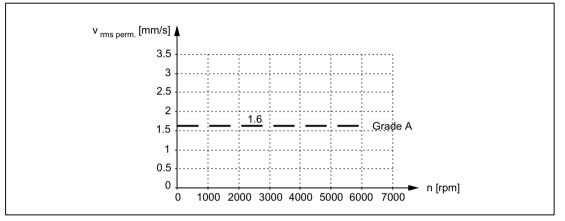


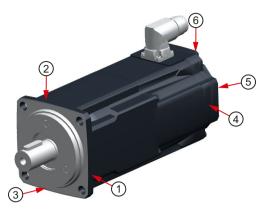
Figure 8-1 Vibration severity levels

Permissible vibration in operation

In order to guarantee the proper function of the motor and not to impair the lifetime of the bearing, the following vibration values must be observed during operation.

- Vibration velocity ¹⁾ V_{rms} according to ISO 10816 Max. 4.5 mm/s
- Vibration acceleration a_{peak} axial ²) 50 m/s²
- Vibration acceleration a_{peak} radial ²⁾ 50 m/s²
- ¹⁾ To measure the vibration velocity, the measuring equipment must fulfill the requirements of ISO 2954.
- ²⁾ The vibration acceleration is evaluated in the frequency range of 10 Hz to 2000 Hz. The maximum peak in the time range is considered.

Select the measuring points according to ISO 10816-1 section 3.2. The vibration values must not exceed the specified limits at any measuring point.



- 1 End shield DE radial
- 2 End shield DE radial
- 3 End shield DE axial
- 4 End shield NDE radial
- 5 End shield NDE axial
- 6 End shield NDE radial

Measuring points for vibration values

8.1.8 Shaft extension

The motors are supplied with cylindrical shaft extensions. The shaft extension usually has a centering thread according to DIN 332, form DR.

Optionally, a shaft extension can also be supplied with a keyway and feather key.

With the IP65 degree of protection, the useable shaft extension is reduced by the radial shaft sealing ring.

Shaft height	Shaft dimensions Diameter x length in mm	Shaft dimensions with IP65 Diameter x length in mm	Feather key Width x height x length in mm	Centering thread DIN 332-DR
20	8 x 25	8 x 18	2 x 2 x 10	M3
	14 x 30	14 x 21.5	5 x 5 x 16	M5
30	optional 11 X 23 ¹⁾	-	-	M4
40	19 x 40	19 x 32	6 x 6 x 22	M6

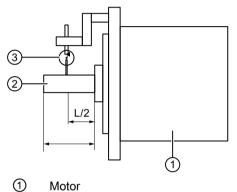
¹⁾ The optional 11 mm x 23 mm shaft extension is only available without a keyway and without a shaft sealing ring (IP65).

8.1.9 Radial eccentricity, concentricity and axial eccentricity

The shaft and flange accuracies for the 1FK2 motors are implemented to DIN 42955 (IEC 60072-1) as standard (Normal class).

Table 8-3 Radial eccentricity tolerance of the shaft to the frame axis (referred to cylindrical shaft ends)

Motor	Standard (Normal class)
1FK2□02	0.03 mm
1FK2□03	0.035 mm
1FK2□04	0.04 mm



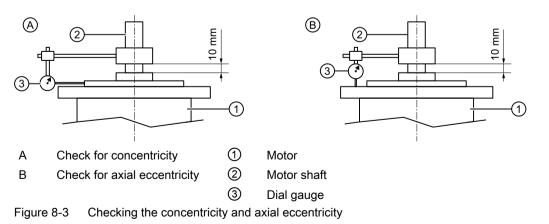
Motor shaft

3 Dial gauge

Figure 8-2 Checking the radial eccentricity

Table 8-4Concentricity and axial eccentricity tolerance of the flange surface to the shaft axis (referred
to the centering diameter of the mounting flange)

Motor	Standard (Normal class)
1FK2□02	
1FK2□03	0.08 mm
1FK2□04	



8.1.10 Permissible radial and axial forces

Shaft height	Reference type without brake <i>M</i> ₀ / Nm	Average oper- ating speed <i>n</i> / rpm	Point of load (distance from the flange) // mm	Radial force reference type <i>F</i> _R / N	Axial force, dynamic ¹⁾ <i>F</i> _{A dyn} / N	Axial force, static ¹⁾ <i>F</i> _{A stat} / N
20	0.32	3000	20	120	20	30
30	1.27	3000	25	280	40	75
40	3.18	3000	30	400	60	100

1) The specified axial forces are determined by the spring loading and therefore also apply for motors with holding brake.

Note

Applications with an angular toothed pinion directly on the motor are not permitted with standard bearings because the permissible axial forces are exceeded.

8.1.11 Available encoders

	Encoders that can be ordered for the 1FK2:				
	Absolute encoder, singleturn, 20 bitAbsolute encoder 20 bit +12 bit multiturn				
Encoder designation	AS20DQC	AM20DQC			
Identification in the article number	С	D			
Resolution	1,048,576 = 20 bits	1,048,576 = 20 bits			
Absolute position	Yes, one revolution	Yes, 4096 revolutions (12 bits)			
Angular error	± 100"	± 100"			

8.1.12 Brake data

Unintentional movements through inadequate braking effect

If you use the holding brake incorrectly, e.g. as a safety brake, or you ignore the number of permissible operating cycles of the brake, the brake does not close reliably. As a consequence, there may be no brake effect. Unintentional movements of the machine or system can result in death or serious injury.

- Observe the permissible number of operating cycles and EMERGENCY STOP properties.
- Operate the motor only in conjunction with an intact brake.
- Avoid repeated brief acceleration of the motor against a holding brake that is still closed.

The holding brakes of the 1FK2 have a torsional backlash of less than 1°. The following table contains additional technical data regarding the holding brakes:

Motor type	Holding torque M₄ at 120 °C	Dyn. brak- ing torque M _{1m}	Opening time	Closing time	Maximum permissi- ble single switching energy	Maximum EMER- GENCY STOP speed	Total oper- ating ener- gy (serv- ice life)
	<i>M</i> ₄ / Nm	<i>M</i> ₁ / Nm	<i>t</i> / ms	t/ms	<i>W</i> /J	<i>n</i> / rpm	W _{max} / kJ
1FK2□02	0.32	0.2	50	15	7.4	8000	0.5
1FK2□03	1.3	1.1	90	20	62	7500	5
1FK2□04	3.3	3	110	30	268	7500	35

Holding torque M₄

The holding torque M_4 is the highest permissible torque for the closed brake in steady-state operation without slip (holding function when motor is at standstill). The data applies for the state at operating temperature (120 °C).

Dynamic braking torque M_{1m}

The dynamic braking torque M_{1m} is the smallest mean dynamic braking torque that can occur for an EMERGENCY STOP.

Opening time and closing time

The delay times that occur when switching the brake.

Maximum permissible single switching energy

The maximum permissible single switching energy of an individual EMERGENCY STOP procedure.

After an EMERGENCY STOP with the maximum single switching energy, allow for a cooling time of at least 5 minutes before you put the motor into operation again.

Maximum EMERGENCY STOP speed

Maximum permitted speed for a safe EMERGENCY STOP procedure.

Total operating energy (service life)

The total switching energy is the sum of the single switching energy (switching energy for each EMERGENCY STOP procedure). If the total switching energy is exceeded, flawless functioning of the brakes can no longer be guaranteed.

• Refurbish the motor.

Formula for calculating the operating energy per braking operation

 $W_{\rm BR} = (J_{\rm Mot\,Br} + J_{\rm load}) \cdot n_{\rm mot}^2 / 182.4$

 $n_{\rm Mot}$ / rpm Speed at which the brake is engaged

$J_{ m Mot \ Br}$ / kgm ²	Rotor moment of inertia of the motor with brake
	You can find this information in the chapters:
	"Technical data and characteristics 1FK2 High Dynamic (Page 187)" or
	"Technical data and characteristics 1FK2 Compact (Page 194)"

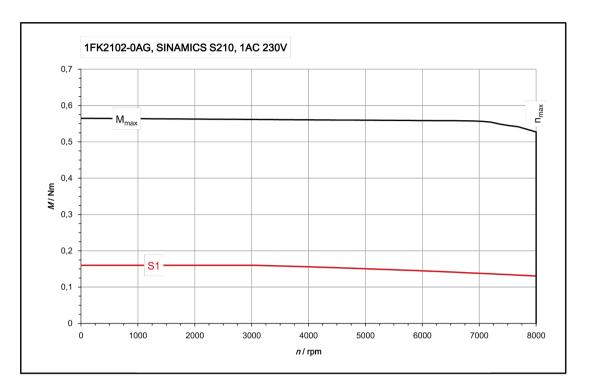
J load / kgm²Load moment of inertia of the mounting part on the motor with brake (kgm²)182.4Constant for calculating the circular frequency and SI units

8.1.13 Technical data and characteristics 1FK2 High Dynamic

8.1.13.1 1FK2102-0AG

Technical data (in SINAMICS S210 system)	Symbol	Unit	Value
Static torque	Mo	Nm	0.16
Stall current	I _o	A	0.75
Maximum permissible speed	n _{max}	rpm	8000
Maximum torque	M _{max}	Nm	0.56
Maximum current	I _{max}	А	3.1
Thermal time constant	T _{th}	rpm	14
Rotor moment of inertia	J _{mot}	kgcm ²	0.0245
Rotor moment of inertia (with brake)	J _{mot br}	kgcm ²	0.0285
Weight	m _{mot}	kg	0.47
Weight (with brake)	m _{mot br}	kg	0.73
Rated data for S210 on 230 V 1 AC			
Rated speed	n _{rated}	rpm	3000
Rated torque	M _{rated}	Nm	0.16
Rated current	I _{rated}	A	0.75
Rated power	P _{rated}	kW	0.05

The rated data applies when the converter is connected to 1AC 230V.



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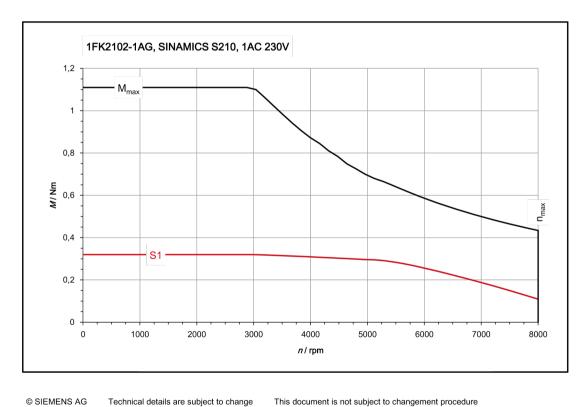
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8.1.13.2 1FK2102-1AG

Technical data (in SINAMICS S210 system)	Symbol	Unit	Value
Static torque	Mo	Nm	0.32
Stall current	I ₀	A	0.76
Maximum permissible speed	n _{max}	rpm	8000
Maximum torque	M _{max}	Nm	1.11
Maximum current	I _{max}	A	3.1
Thermal time constant	T _{th}	rpm	16
Rotor moment of inertia	J _{mot}	kgcm ²	0.036
Rotor moment of inertia (with brake)	J _{mot br}	kgcm ²	0.04
Weight	m _{mot}	kg	0.6
Weight (with brake)	m _{mot br}	kg	0.86
Rated data for S210 on 230 V 1 AC			
Rated speed	n _{rated}	rpm	3000
Rated torque	M _{rated}	Nm	0.32
Rated current	I _{rated}	A	0.76
Rated power	P _{rated}	kW	0.1

The rated data applies when the converter is connected to 230 V 1 AC.



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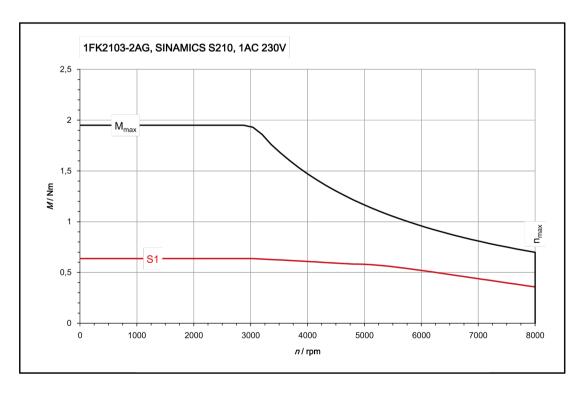
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8.1.13.3 1FK2103-2AG

Technical data (in SINAMICS S210 system)	Symbol	Unit	Value
Static torque	Mo	Nm	0.64
Stall current	I _o	A	1.36
Max. permissible speed	n _{max mech}	rpm	8000
Maximum torque	M _{max}	Nm	1.95
Maximum current	I _{max}	A	4.8
Thermal time constant	T _{th}	min	17
Moment of inertia	J _{mot}	kgcm ²	0.093
Moment of inertia (with brake)	J _{mot br}	kgcm ²	0.112
Weight	m _{mot}	kg	1.16
Weight (with brake)	m _{mot br}	kg	1.66
Rated data for S210 on 230 V 1 AC		•	
Rated speed	n _{rated}	rpm	3000
Rated torque	M _{rated}	Nm	0.64
Rated current	I _{rated}	A	1.36
Rated power	P _{rated}	kW	0.2

The rated data applies when the converter is connected to 230 V 1 AC.



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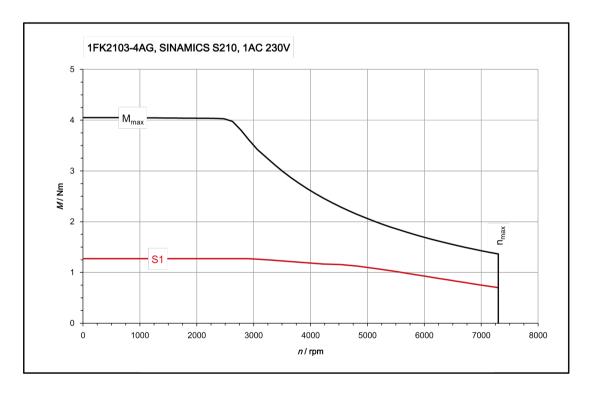
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8.1.13.4 1FK2103-4AG

Technical data (in SINAMICS S210 system)	Symbol	Unit	Value
Static torque	Mo	Nm	1.27
Stall current	I ₀	A	2.4
Max. permissible speed	n _{max mech}	rpm	7300
Maximum torque	M _{max}	Nm	4.05
Maximum current	I _{max}	A	8.7
Thermal time constant	T _{th}	min	21
Moment of inertia	J _{mot}	kgcm ²	0.139
Moment of inertia (with brake)	J _{mot br}	kgcm ²	0.158
Weight	m _{mot}	kg	1.63
Weight (with brake)	m _{mot br}	kg	2.15
Rated data for S210 on 230 V 1 AC	L.	,	
Rated speed	n _{rated}	rpm	3000
Rated torque	M _{rated}	Nm	1.27
Rated current	I _{rated}	A	2.4
Rated power	P _{rated}	kW	0.4

The rated data applies when the converter is connected to 230 V 1 AC.



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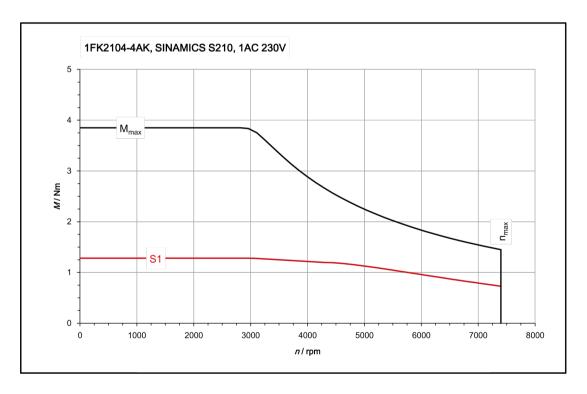
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8.1.13.5 1FK2104-4AK

Technical data (in SINAMICS S210 system)	Symbol	Unit	Value
Static torque	Mo	Nm	1.27
Stall current	I _o	A	2.4
Maximum permissible speed	n _{max}	rpm	7400
Maximum torque	M _{max}	Nm	3.85
Maximum current	I _{max}	A	8.7
Thermal time constant	T _{th}	rpm	27
Rotor moment of inertia	J _{mot}	kgcm ²	0.35
Rotor moment of inertia (with brake)	J _{mot br}	kgcm ²	0.43
Weight	m _{mot}	kg	2.05
Weight (with brake)	m _{mot br}	kg	2.9
Rated data for S210 on 230 V 1 AC		·	
Rated speed	n _{rated}	rpm	3000
Rated torque	M _{rated}	Nm	1.27
Rated current	I _{rated}	A	2.4
Rated power	P _{rated}	kW	0.4

The rated data applies when the converter is connected to 230 V 1 AC.



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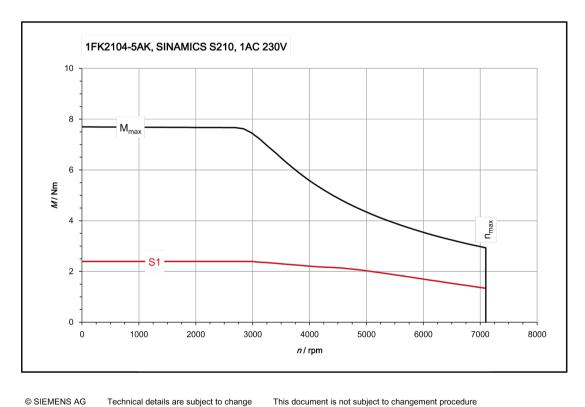
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8.1.13.6 1FK2104-5AK

Technical data (in SINAMICS S210 system)	Symbol	Unit	Value
Static torque	Mo	Nm	2.4
Stall current	I ₀	A	4.35
Maximum permissible speed	n _{max}	rpm	7100
Maximum torque	M _{max}	Nm	7.6
Maximum current	I _{max}	A	16
Thermal time constant	T _{th}	rpm	31
Rotor moment of inertia	J _{mot}	kgcm ²	0.56
Rotor moment of inertia (with brake)	J _{mot br}	kgcm ²	0.65
Weight	m _{mot}	kg	2.85
Weight (with brake)	m _{mot br}	kg	3.7
Rated data for S210 on 230 V 1 AC			
Rated speed	n _{rated}	rpm	3000
Rated torque	M _{rated}	Nm	2.4
Rated current	I _{rated}	A	4.35
Rated power	P _{rated}	kW	0.75

The rated data applies when the converter is connected to 230 V 1 AC.



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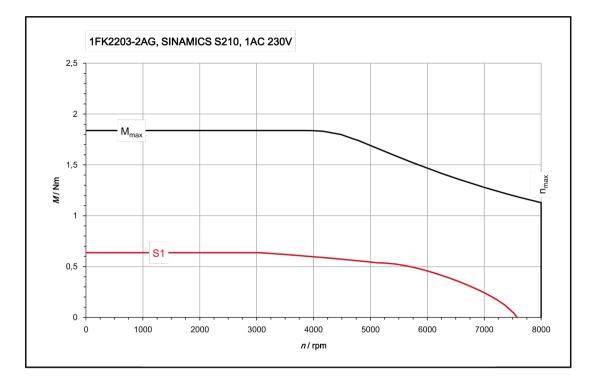
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8.1.14 Technical data and characteristics 1FK2 Compact

8.1.14.1 1FK2203-2AG

Technical data (in SINAMICS S210 system)	Symbol	Unit	Value
Static torque	Mo	Nm	0.64
Stall current	I _o	A	1.38
Maximum permissible speed	n _{max}	rpm	8000
Maximum torque	M _{max}	Nm	1.85
Maximum current	I _{max}	A	4.2
Thermal time constant	T _{th}	rpm	21
Rotor moment of inertia	J _{mot}	kgcm ²	0.2
Rotor moment of inertia (with brake)	J _{mot br}	kgcm ²	0.22
Weight	m _{mot}	kg	1.1
Weight (with brake)	m _{mot br}	kg	1.6
Rated data for S210 on 230 V 1 AC			
Rated speed	n _{rated}	rpm	3000
Rated torque	M _{rated}	Nm	0.64
Rated current	I _{rated}	A	1.38
Rated power	P _{rated}	kW	0.2

The rated data applies when the converter is connected to 230 V 1 AC.

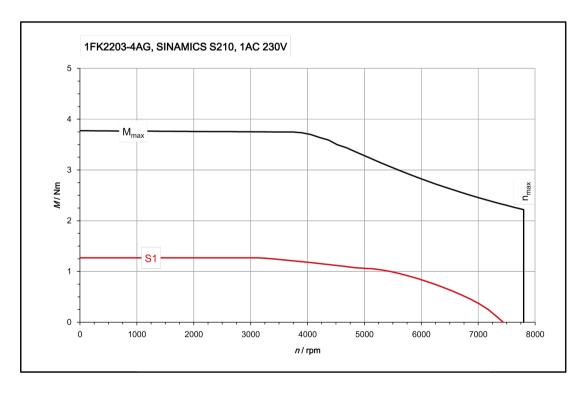


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8.1.14.2 1FK2203-4AG

Technical data (in SINAMICS S210 system)	Symbol	Unit	Value
Static torque	Mo	Nm	1.27
Stall current	I ₀	A	2.52
Maximum permissible speed	n _{max}	rpm	7800
Maximum torque	M _{max}	Nm	3.75
Maximum current	I _{max}	A	7.8
Thermal time constant	T _{th}	rpm	28
Rotor moment of inertia	J _{mot}	kgcm ²	0.35
Rotor moment of inertia (with brake)	J _{mot br}	kgcm ²	0.37
Weight	m _{mot}	kg	1.57
Weight (with brake)	m _{mot br}	kg	2.1
Rated data for S210 on 230 V 1 AC	•	1	
Rated speed	n _{rated}	rpm	3000
Rated torque	M _{rated}	Nm	1.27
Rated current	I _{rated}	A	2.52
Rated power	P _{rated}	kW	0.4

The rated data applies when the converter is connected to 230 V 1 AC.



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8.2 Technical specifications of the converter

Overload capability and shutdown behavior of the converter

For a short time, the servomotors are able to withstand maximum current.

The values for the individual motors can be found in the following sections:

Technical data and characteristics 1FK2 Compact (Page 194).

When the load exceeds the rated current, the thermal protection of the converter starts and switches the motor off in accordance with the overload characteristics shown below.

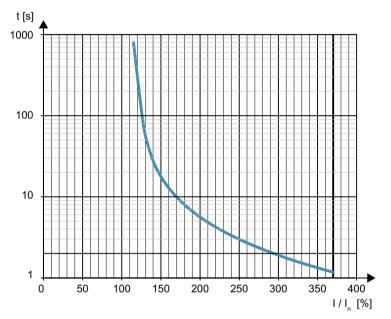


Figure 8-4 Overload characteristics for motor shutdown

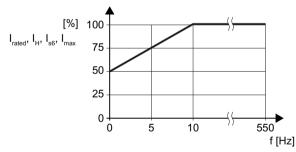


Figure 8-5 Permitted output current at low frequencies

Technical specifications

8.2 Technical specifications of the converter

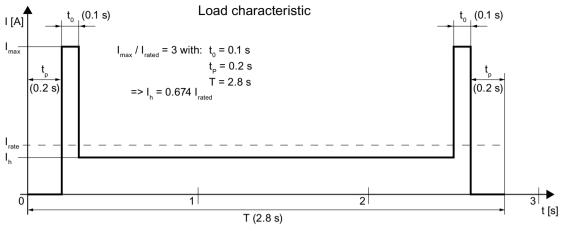


Figure 8-6 Load characteristic - example

8.2.1 Electromagnetic compatibility

Converters are equipment used on a professional basis, deployed in certain areas of business and industry – and are not operated in the general public domain.



For an EMC-compliant installation, observe the information provided in the Configuration Manual: EMC installation guideline (<u>http://support.automation.siemens.com/WW/view/en/60612658</u>).

The devices described there are intended for operation in the first and second environments.

The drive system must be installed by appropriately qualified personnel in compliance with EMC regulations - and the installation notes provided in the manual.

Electromagnetic compatibility according to EN61800-3

Property	Version	
Interference immunity	The converter	s are suitable for use in the first and second environments without restrictions
Interference emission	Category C2	Up to a motor cable length of 10 m ¹⁾
- second environment		Up to a motor cable length of 25 m with additional external line filter
	Category C3	Up to a motor cable length of 25 m
		Up to a motor cable length of 50 m with additional external line filter

¹⁾ Converters of frame size FSB require a ferrite core for the motor cable to reach category C2.

Connecting the converter (Page 93).

Note

Installation in Category C2 environments

Converters that are installed in environments of category C2 require a connection approval for the low-voltage supply system. In this regard, contact your power system operator.

8.2.2 Converter ambient conditions

Property	Version
Ambient conditions for transp	port in the transport packaging
Climatic ambient conditions	-40 °C +70 °C, according to Class 2K4 to EN 60721-3-2
	maximum humidity 95 % at 40 °C
Mechanical ambient condi- tions	Shock and vibration permissible according to 2M3 to EN 60721-3-2
Protection against chemical substances	Protected according to Class 2C2 to EN 60721-3-2
Biological environmental conditions	Suitable according to Class 2B2 to EN 60721-3-2
Ambient conditions for long-t	erm storage in the product packaging
Climatic ambient conditions	-25 °C +55 °C, according to Class 1K4 to EN 60721-3-1
Protection against chemical substances	Protected according to Class 1C2 to EN 60721-3-1
Biological environmental conditions	Suitable according to Class 1B2 to EN 60721-3-1
Ambient conditions in operat	ion
Installation altitude	Up to 1000 m above sea level without restrictions
	Up to 4000 m, restrictions, see the following table
Climatic ambient conditions	• Temperature range: 0 °C +50 °C
	Relative humidity: 5 95%, condensation not permitted
	• Oil mist, salt mist, ice formation, condensation, dripping water, spraying water, splashing water and water jets are not permitted
	Increased ruggedness regarding temperature range and relative humidity; therefore better than 3K3 according to EN 60721-3-3
Mechanical ambient condi- tions	 Vibration levels permissible according to Class 3M2 to EN 60721-3-3 Vibration test in operation according to IEC 60068-2-6 Test Fc (sinusoidal)
	 10 Hz … 13 Hz: 0.075 mm deflection amplitude
	 13 Hz 150 Hz: 1 g acceleration amplitude
	 10 frequency cycles per axis
	 Shock permissible according to Class 3M2 to EN 60721-3-3 Shock test in operation according to IEC 60068-2-27 Test Ea (half sinusoidal)
	 5 g peak acceleration
	 30 ms duration
	 3 shocks in all three axes in both directions
Protection against chemical substances	Protected according to 3C2 to EN 60721-3-3
Biological environmental conditions	Suitable according to 3B2 to EN 60721-3-3
Pollution	Suitable for environments with degree of pollution 2 according to EN 61800-5-1

tempera				
	Ambient temperature [° C]			
Installation altitude	50	45	40	
[m] up to		Output current [%]		
1000		100		
2000	90	90 100		
3000	80	90	100	
4000	70	80	90	

Table 8-5 Maximum permissible output current depending on the installation altitude and ambient temperature

An isolating transformer is required above an installation altitude of 2000 m.

8.2.3 General data, converter

Property	Version
Line voltage	200 V 240 V 1 AC, ±10 %
Output voltage	0 V 3 AC input voltage
Input frequency	50 Hz 60 Hz, ±10%
Output frequency	0 550 Hz
Relative supply short-circuit power	RSC ≥ 25
Power factor λ	> 0.9
Overvoltage category to IEC/ EN 61800-5-1	• Up to 2000 m: The converter insulation is designed for surge voltages of overvoltage category III.
	• More than 2000 m: The surge voltages must be limited to values of overvoltage category II, using an isolation transformer, for example.
Pulse frequency	8 kHz
Short-circuit current rating (SCCR) and branch protection	≤ 65 kA rms Branch protection and short-circuit strength according to UL and IEC Protective devices (<u>https://support.industry.siemens.com/cs/ww/en/view/109748999</u>)
Degree of protection according to EN 60529	IP20 Must be installed in a control cabinet
Electronics power supply	24 V DC, -15% +20%, I _{max} = 1.6 A (PELV or SELV)
Control mode	Servo control
Protection functions	Ground fault protection, output short-circuit protection, overvoltage/undervoltage protection, I2t detection, IGBT overtemperature protection

Technical data of the digital inputs

Туре	High-speed digital inputs for probe or reference marks	Fail-safe input (F-DI)	Digital input for monitoring the temperature of an ex- ternal braking resistor
Number	2 (DI 0, DI 1)	1 (DI 2 and DI 3)	1 (DI 4)
Low level	-30 V +5 V and ≤ 2 mA	-30 V +5 V and ≤ 2 mA	-30 V +5 V and ≤ 2 mA
High level	15 V 30 V	15 V 30 V	15 V 30 V
Current consumption	6 mA	5 mA	6 mA
• Delay time, typ. L → H	5 µs	50 µs	5 µs
 Delay time, typ. H → L 	50 µs	100 µs	50 µs
Electrical isolation	No	Yes	No
Conductor cross section, max.	1.5 mm ²	1.5 mm ²	1.5 mm²

8.2.4 Specific data, converter

Table 8-6 S210, IP20, Frame Size A, 200 V ... 240 V 1 AC

Article no.	6SL3210-5HB10-1UF0	6SL3210-5HB10-2UF0
Rated output current	0.8 A	1.36 A
Maximum output current	3.1 A	4.8 A
Rated power	100 W	200 W
Maximum power	142 W	303 W
Rated input current	1.4 A	2.7 A
Inrush current	8 A	8 A
Fuse according to IEC Fuse according to UL, class J	3NA3 801 (6 A) 6 A	3NA3 801 (6 A) 6 A
Cooling air requirement	Convection cooling without fan	Convection cooling without fan
Weight	1 kg	1.1 kg

Table 8-7 S210, IP20, Frame Size B, 200 V ... 240 V 1 AC

Article no. with filter	6SL3210-5HB10-4UF0	
Rated output current	2.4 A	
Maximum output current	8.7 A	
Rated power	400 W	
Maximum power	559 W	
Rated input current	5 A	
Inrush current	8 A	
Fuse according to IEC Fuse according to UL, class J	3NA3 803 (10 A) 10 A	
Cooling air requirement	Convection cooling without fan	
Weight	1.2 kg	

Table 8-8	S210, IP20, Frame Size C, 200 V 240 V 1 AC

Article no. with filter	6SL3210-5HB10-8UF0	
Rated output current	4.4 A	
Maximum output current	16 A	
Rated power	750 W	
Maximum power	961 W	
Rated input current	9.3 A	
Inrush current	8 A	
Fuse according to IEC Fuse according to UL, class J	3NA3 805 (16 A) 20 A	
Cooling air requirement	Convection cooling without fan	
Weight	1.8 kg	

8.3 Technical data and properties of the connection system

8.3 Technical data and properties of the connection system

MOTION-CONNECT connection cables between the motor and the converter

The following technical data applies to the MOTION-CONNECT OCC cables.

Designation and use	Cable type	Connector size	Outer diame- ter	Minimum bending ra- dius, static	For con- nection to motor	Article number ¹⁾
			D _{max} / mm	<i>R</i> /mm		
Motor connection cable		M12	9.7	23.5	1FK2□02	6FX5002-8QN04-
MC500 OCC for predom-					1FK2□03	
inantly fixed installation	at the second se	M17	10.5	25.5	1FK2□04	6FX5002-8QN08-
Motor connection cable		M12	9.7	28.2	1FK2□02	6FX8002-8QN04-
MC800 OCC for use in a					1FK2□03	
cable carrier		M17	10.5	30.6	1FK2□04	6FX8002-8QN08-
Extension cable		M12	9.7	23.5	1FK2□02	6FX5002-8QE04-
MC500 OCC for predom- inantly fixed installation					1FK2□03	
		M17	10.5	25.5	1FK2⊡04	6FX5002-8QE08-
Extension cable	\$2 ¹	M12	9.7	28.2	1FK2□02	6FX8002-8QE04-
MC800 OCC for use in a					1FK2□03	
cable carrier		M17	10.5	30.6	1FK2□04	6FX8002-8QE08-

Table 8-9 MOTION-CONNECT OCC cable with SPEED-CONNECT connector

¹⁾ The last 4 positions (□□□□) define the cable length corresponding to the length code.

The length code can be found in Chapter:

Connection cables between the motor and the converter (Page 217)

Technical data and notes for cable carrier use with MC800 PLUS

Note

You require an MC800 PLUS cable to connect the motor using a cable carrier.

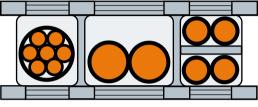
8.3 Technical data and properties of the connection system

- When inserting prefabricated cables in the cable carrier, do not pull the connector, as this may damage the strain relief or cable clamping.
- Lay the cables loosely in the carrier. They must be free to move. The cables must be free to move in particular in the bending radii of the carrier. Observe the specified minimal bending radii.

The cable fixings must be attached at both

ends at an appropriate distance away from the end points of the moving parts in a dead

Strain relief in a cable carrier



Cable routed in a cable carrier

zone. When laying cables, comply with the instructions given by the cable carrier manufacturer.

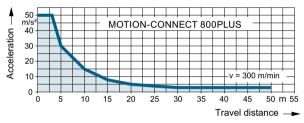


Figure 8-7 Permissible acceleration levels for MOTION-CONNECT 800 PLUS cables

Note

Additional fixing of the cable

If between the cable strain relief on the cable carrier and the terminal at the motor, part of the cable is hanging loose or is not routed, we recommend that the cable is additionally fixed for vibration load and with horizontal or vertical cable entries.

• Also fix the cable where the motor is fixed so that machine vibrations are not transferred to the connector.

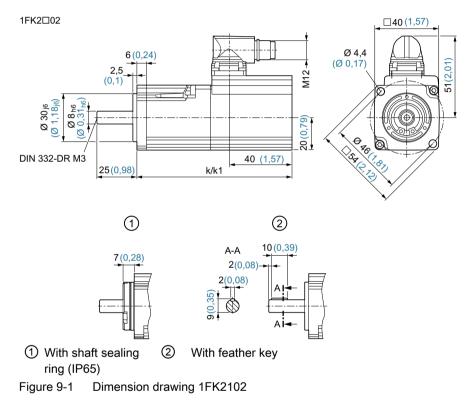
8.3 Technical data and properties of the connection system

Dimension drawings

9.1 Dimension drawings of motor

Dimension drawing 1FK2, shaft height 20

All dimensions in mm (inches).

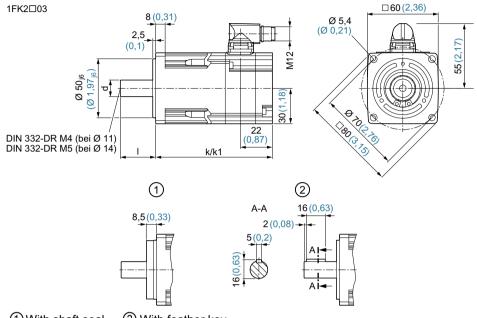


SIMOTICS S-1FK2 shaft height 20		Dimensions		
		Without brake	With brake	
	DIN	k	k1	
	IEC	LB	LB1	
1FK2102-0A□ (50 W)		97 (3.82)	128 (5.04)	
1FK2102-1A□ (100 W)		113 (4.45)	144 (5.67)	

9.1 Dimension drawings of motor

Dimension drawing 1FK2, shaft height 30

All dimensions in mm (inches).



With shaft seal-With feather key ing ring (IP65)

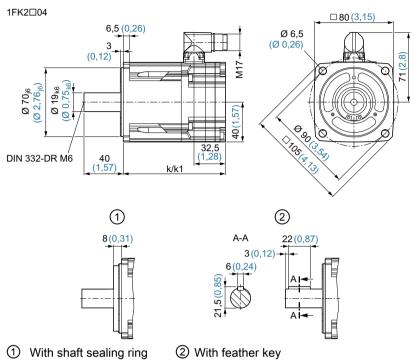
Figure 9-2 Dimension drawing 1FK2D03

SIMOTICS S-1FK2 shaft		Dimensions					
height 30		WithoutWithShaft 14 x 30 mmbrakebrake		Shaft 11 x 23 mm			
	DIN	k	k1	d	I	d	I
	IEC	LB	LB1	D	L	D	L
1FK2=03-2A===-0=== (200 W), plain shaft							
1FK2003-2A00-1000 (200 W), shaft with feather key		99 (3.9)	130 (5.12)	14 _{h6} (0.55 _{h6})	30 (1.18)		
1FK2□03-2A□□□-2□□□ (200 W), plain shaft						11 _{k6} (0.43 _{k6})	23 (0.91)
1FK2□03-4A□□-0□□□ (400 W), plain shaft							
1FK2□03-4A□□-1□□□ (400 W), shaft with feather key		123 (4.84)	154 (6.06)	14 _{h6} (0.55 _{h6})	30 (1.18)		
1FK2□03-4A□□-2□□□ (400 W), plain shaft						11 _{k6} (0.43 _{k6})	23 (0.91)

9.1 Dimension drawings of motor

Dimension drawing 1FK2, shaft height 40

All dimensions in mm (inches).



(IP65)

Figure 9-3 Dimension drawing 1FK2D04

SIMOTICS S-1FK2 shaft height 40		Dimensions		
		Without brake	With brake	
	DIN	k	k1	
	IEC	LB	LB1	
1FK2□04-4A□ (400 W)		104 (4.09)	148 (5.83)	
1FK2□04-5A□ (750 W)		132 (5.2)	176 (6.93)	

9.2 Dimension drawings of converter

9.2 Dimension drawings of converter

SINAMICS S210 FSA

6SL3210-5HB10-1UF0 (100 W) 6SL3210-5HB10-2UF0 (200 W)

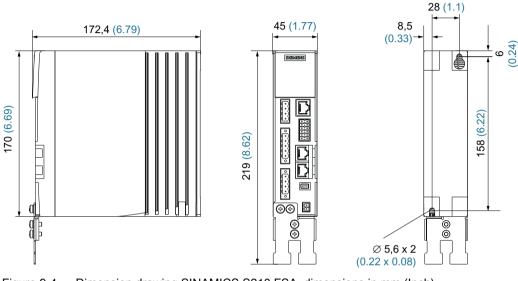


Figure 9-4 Dimension drawing SINAMICS S210 FSA, dimensions in mm (Inch)

SINAMICS S210 FSB

6SL3210-5HB10-4UF0 (400 W)

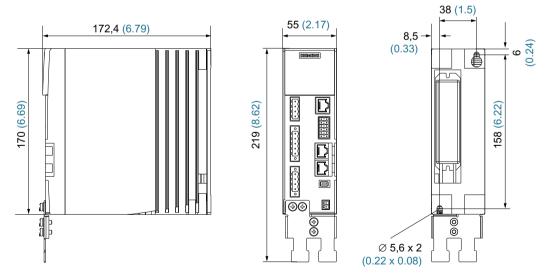


Figure 9-5 Dimension drawing SINAMICS S210 FSB, dimensions in mm (inches)

9.2 Dimension drawings of converter

SINAMICS S210 FSC

6SL3210-5HB10-8UF0 (750 W)

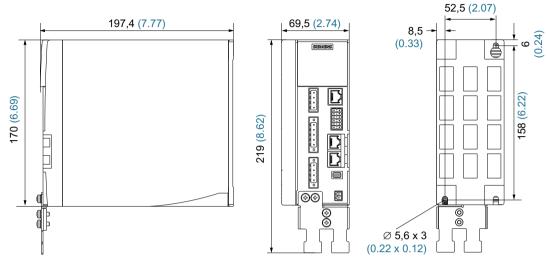


Figure 9-6 Dimension drawing SINAMICS S210 FSC, dimensions in mm (inches)

9.2 Dimension drawings of converter

Decommissioning and disposal

10.1 Removing and disposing of the motor

Risk of injury through falling motors or machine components

Motors and machine components can fall when being dismantled from the machine. They can cause serious injury or property damage.

• Secure the machine components being dismantled to prevent them falling.

The removal of the motor must be performed and/or supervised by qualified personnel with appropriate expert knowledge.

Removing the motor from the machine

- 1. Check that all parts of the motor are in a no voltage condition.
- 2. Let the motor cool down enough so that you are not burnt.
- 3. Disconnect all electrical connections.
- 4. Remove the fixing elements from the motor.
- 5. Transport the motor to a suitable location for disposal.

You have removed the motor.

Dispose of the motor in accordance with the local legal requirements.



10.2 Disposing of converter

10.2 Disposing of converter

Observe the following disposal instructions:

- Be sure to comply with local disposal regulations.
- Separate the housing parts according to their material.
- Dispose of the parts in accordance with the applicable legal regulations.
- Dispose of the packaging material in accordance with the applicable legal regulations.

Components

Sort the components for recycling according to whether they are:

- Electronic waste
- Scrap iron, e.g. shield plates
- Aluminum
- Insulating materials and plastics

Ordering data

11.1 Ordering data of the motor

You can configure the motor with the aid of the article number: The article number comprises a combination of digits and letters. It is divided into three hyphenated blocks.

Description				Data digits of the article number																	
				1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16
SIMOTICS M-1FK2 synchronous servomotors			1	F	к	2															
Version				Hig	h Dyr	amic		1													
				Cor	npact			2													
Frame size /	shaft heigl	nt		SH	20				0	2											
				SH	30				0	3											
				SH	40				0	4											
Power range)									-											
High	SH 20	230 V 1 AC	M_0	0.16	6 Nm	P _{rat}	50 \	Ν	0	2		0									
Dynamic		230 V 1 AC		0.32	2 Nm	ed	100	W	0	2		1									
	SH 30	230 V 1 AC		0.64	1 Nm		200	W	0	3		2									
		230 V 1 AC		1.27	7 Nm		400	W	0	3		4									
	SH 40	230 V 1 AC		1.27	7 Nm		400	W	0	4		4									
		230 V 1 AC		2.4	Nm]	750	W	0	4		5									
Compact	SH 30	230 V 1 AC	M ₀	0.64	1 Nm	P _{rat}	200	W	0	3		2									
		230 V 1 AC		1.27	7 Nm	ed	400	W	0	3		4									
Cooling		Natural cooling											Α								
Winding, rate	ed speed	For converters max. 2																			
		3000 rpm	at 23	30 V					- G												
		1500 rpm	at 23	30 V			30	000 I	rpm a	at 40	0 \	/		F							
		3000 rpm	at 23	30 V 6000 rpm at 400 V							К										
Holding brak	æ	Without										0									
		With											1								
Protection cl	ass	IP64											0								
	IP65 with shaft seal			ling ring										1							
Shaft geometry Plain shaft														0							
Shaft with feather ke Plain shaft, alternati (D x l; 11 mm x 23 r			ey														1				
										0		2									
Encoder		Absolute encod	der, s	single	eturn,	20 b	it (en	code	r AS	20D	QC)							С		
		Absolute encod	der 2	20 bit + 12 bit multiturn (encoder AM20DQC)											D						
Type of conr	nection	OCC (one cabl	e co	nnection) for S210								Α									
Revision nur																					0

11.2 Ordering data of the converter

11.2 Ordering data of the converter

An overview of the available converters is provided below.

Converter - supply voltage: 200 V 240 V 1 AC						
Article number	Frame size	Rated power				
6SL3210-5HB10-1UF0	FSA	100 W				
6SL3210-5HB10-2UF0	FSA	200 W				
6SL3210-5HB10-4UF0	FSB	400 W				
6SL3210-5HB10-8UF0	FSC	750 W				

You can find further details regarding motors and converters here:

Technical specifications (Page 175).

11.3 Connection cables between the motor and the converter

11.3 Connection cables between the motor and the converter

OCC MOTION-CONNECT cables can only be ordered as prefabricated cables.

OCC MOTION-CONNECT cable with SPEED-CONNECT connector

Designation and use	Cable type	For connection to motor	Connector size	Article number ¹⁾
Motor connection cable OCC		1FK2□02	M12	6FX5002-8QN04-000
MC 500 for predominantly fixed in-		1FK2□03		
stallation	1	1FK2□04	M17	6FX5002-8QN08-000
Motor connection cable OCC		1FK2□02	M12	6FX8002-8QN04-000
MC 800PLUS for use in cable carrier		1FK2□03		
		1FK2□04	M17	6FX8002-8QN08-000
Extension cable OCC MC 500 for		1FK2□02	M12	6FX5002-8QE04-000
predominantly fixed installation		1FK2□03		
		1FK2□04	M17	6FX5002-8QE08-000
Extension cable OCC MC 800PLUS	1	1FK2□02	M12	6FX8002-8QE04-000
for use in cable carriers		1FK2□03		
		1FK2□04	M17	6FX8002-8QE08-000

¹⁾ The last 4 positions (□□□□) define the cable length corresponding to the length code

Determining the article number of a prefabricated OCC MOTION-CONNECT cable

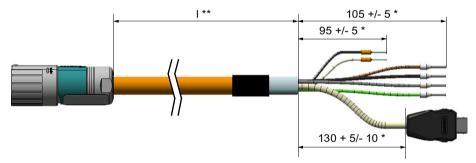


Figure 11-1 Lengths of an OCC MOTION-CONNECT cable

Procedure

- 1. Determine the required cable length I **. Consider having cable in reserve for strain-free routing.
- 2. Determine the length code for the required length I ** corresponding to the following overview. The stretched lengths (*) are added automatically for the prefabricated cables.

11.3 Connection cables between the motor and the converter

- 6 F X 🗆 0 0 2 8 Q 🗆 0 🗆 🗆 🗆 🗆 OCC MOTION-CONNECT Cable type Code MC 500 5 MC 800PLUS 8 Cable version Code Motor connection cable Ν Connector size Code Е Extension cable M12 4 M17 8 Examples for length code 1.0 m Length 1AB0 Code 2.3 m 1AC3 0 m 1 36.0 m 1DG0 max. 50.0 m 1FA0 Length Code 0 m А 10 m в 20 m С 30 m D Е 40 m 50 m F Length Code 0 m Α В 1 m С 2 m 3 m D 4 m Е 5 m F G 6 m 7 m н 8 m J 9 m κ Length Code 0 m 0 0.1 m 1 0.2 m 2 0.3 m 3 0.4 m 4 5 0.5 m 0.6 m 6 0.7 m 7 0.8 m 8
- 3. Also select the cable type, the desired cable version, and the required connectors for the article number

Figure 11-2 Structure of the article number with length code for an OCC MOTION-CONNECT cable

4. Order the required cable with the article number thus determined.

11.4 Accessories

11.4.1 Memory cards

Memory card for data backup and series commissioning

Use the following memory cards to backup data and for series commissioning:

Card type	Article number			
Empty SD card	6SL3054-4AG00-2AA0			
SD card with firmware V5.1	6SL3054-4FB00-2BA0			

These SD cards are also required to save licenses of functions that require a license. It is not possible to use commercially available SD cards.

Note

Permissible memory cards

The integrated card reader supports SD cards up to a memory capacity of 2 GB.

SDHC or SDXC cards are not supported.

11.4.2 PROFINET patch cable

PROFINET patch cable

Use the following patch cable to network converters located adjacent one another via PROFINET:

Cable type	Length	Article number
Industrial Ethernet TP cord, CAT 6A,	0.3 m	6XV1870-3QE30
TP cable 4 x 2 conductors,	0.5 m	6XV1870-3QE50
prefabricated with 2 RJ45 connectors		

11.4.3 External line filter

The following external line filter is available for the converter:

Article number	Rated current	Type of connec- tion	Conductor cross- section	Degree of protection	Dimensions ($W \times H \times D$)
6SL3203-0BB21-8VA0	18 A	200 V 240 V 1 AC	0.3 mm 10 mm ²	IP20	59 x 153 x 55

11.4 Accessories

11.4.4 Cabinet bushing via mounting flange

Mounting accessories for connection system

Accessories	Diagram	For con- nector size	For motor	Article number
Mounting flange as cabinet bushing (with installation in-	9°.	M12	1FK2⊡02 1FK2⊡03	6FX2003-7JX00
structions) Packing unit: 1 item		M17	1FK2⊡04	6FX2003-7HX00

The mounting flange is installed on the external wall of the control cabinet. It ensures the degree of protection of the control cabinet.

• Install the mounting flange as specified in the enclosed installation instructions.

11.4.5 Degree of protection kit IP65 for the motor

Shaft sealing ring - IP65 degree of protection kit for the motor

The shaft sealing ring can be used as spare part or for retrofitting.

Note

You can order a motor with shaft sealing ring (degree of protection IP65) directly.

Additional information about ordering degree of protection IP65 can be found in Chapter:

The motor satisfies degree of protection IP65 when the shaft sealing ring is installed.

Motor article number	Figure of the shaft sealing ring	Article number of the degree of pro- tection kit
1FK2□02		1FK2902-0GC00
1FK2□03		1FK2903-0GC00
1FK2⊡04		1FK2904-0GC00

11.5 Spare parts

Connector set 230 V 1 AC - 6SL3260-2DB00-0AA0

Under this article number, you will receive a spare parts package for the frame sizes FSA, FSB and FSC with the following content:

- Connectors
 - X1: Connector for line connection and external braking resistor (jumper for internal braking resistor is enclosed.)
 - X2: Connector for motor connection
 - X107: Connector for motor holding brake
 - X124: Connector for 24 V DC supply voltage
 - X130: Connector for digital inputs
- Ferrite core
- Shield plate for FSA
- Shield plate for FSB and FSC

Terminal X1: Line connection and connection for external braking resistor

	Pin	Pin assignment	Explanation						
	L1	Phase L1 line system							
3	Ν	Neutral conductor							
B	DCP	Braking resistor, external Braking resistor, internal	If you are using the internal braking resistor, DCP and R2 must be jumpered.						
, V	R2	Internal braking resistor	If you are using the external braking resistor, remove						
	R1	External braking resistor	the jumper between DCP and R2.						
			Connect the external braking resistor via the DCP and R1 terminals.						
Weidmüller: E	Weidmüller: BLF 5.08HC/05/180F SN BK BX, article number 1012670000								
As daisy chai	As daisy chain: BLDF 5.08/05/180F SN BK BX, article number 1000970000								

The terminals are spring-loaded terminals.

Permissible conductor cross-sections for single-core connection or for connecting flexible cables with end sleeves:

• 0.2 mm² ... 2.5 mm², AWG: 26 ... 12

11.5 Spare parts

Terminal X2: Power connections of the motor

	Pin	Pin assignment	Color coding for Siemens OCC cables	
	U	Motor phase U	Brown	
	V	Motor phase V	Black	
B	W	Motor phase W	Gray	
0	PE	Protective ground	Green-yellow	
Weidmüller: BLF 5.08HC/04/180F SN BK BX. article number 1012660000				

The terminals are spring-loaded terminals.

Permissible conductor cross-sections for single-core connection or for connecting flexible cables with end sleeves:

• 0.2 mm² ... 2.5 mm², AWG: 26 ... 12

X100, Siemens IX connector: Encoder connection *

	Pin	Pin assignment	Explanation			
	1	ТХР	Sending data + / encoder power supply M			
6	2	TXN	Sending data - / encoder power supply M			
7 -2	3 Reserved					
	4	Reserved				
	5	Reserved				
	6	RXP	Receiving data + / encoder power supply P24+			
	7	RXN	Receiving data - / encoder power supply P24+			
	8	Reserved				
	9	Reserved				
	10	Reserved				
Siemens IX connector, article number 6FX2003-0DE01						

* Probably available from spring 2018

Terminal X107: Motor holding brake

		Pin	Pin assignment	Explanation			
Γ	EB	🐘 BR- B-		Voltage for motor holding brake, 0 V (white)			
		BR+	B+	Voltage for motor holding brake, 24 V (black)			
	Phoenix 1745894 FMC 1.5 / 2-ST-3.81, article number 1745894						

The terminals are spring-loaded terminals.

Permissible conductor cross-sections:

- For single-conductor cables or for flexible cables with end sleeves without plastic protection: 0.25 mm² ... 1.5 mm², AWG: 24 ... 16
- For flexible cables with end sleeves with plastic protection: 0.25 mm² ... 0.75 mm², AWG: 24 ... 19

Also connect the conductors for the motor holding brake to the connector at X107, even when you are using a motor without holding brake.

Terminal X124: 24 VDC external control voltage

		Pin	Pin assignment	Explanation
		М	0 V	Power supply for the converter electronics
	3	М	0 V	
		L+	24 V	
		L+	24 V	
D	inkle: Article	numbe	r A000101686	

The terminals are spring-loaded terminals.

Permissible conductor cross-sections for single-core connection or for connecting flexible cables with end sleeves:

• 0.2 mm² ... 2.5 mm², AWG: 26 ... 12

Terminal X130: Connector for digital inputs

	Pin	Pin assignment	Pin assignment	Pin
123	L+	24 V supply		DI 2+
1221	DI 0	High-speed DI, measuring input		DI 2-
	М	Ground	Fail-safe digital input	DI 3+
	L+	24 V supply		DI 3-
	DI 1	High-speed DI, measuring input	24 V supply	L+
	М	Ground	Digital input	DI 4
Phoenix 179	90140 DF	MC 1.5 / 6-ST-3.5, article number 17	90140	

The terminals are spring-loaded terminals.

Permissible conductor cross-sections:

- For single-conductor connection: 0.2 mm² ... 1.5 mm², AWG: 24 ... 16
- For flexible cables with end sleeves: 0.25 mm² ... 1.5 mm², AWG: 24 ... 16
- For flexible cables with end sleeves with plastic protection: 0.25 mm² ... 0.75 mm², AWG: 24 ... 19

Ordering data

11.5 Spare parts

12.1 Parameter overview

Structure of the parameter descriptions

Some variables and settings of the converter are displayed via parameters. There are adjustable parameters and display parameters.

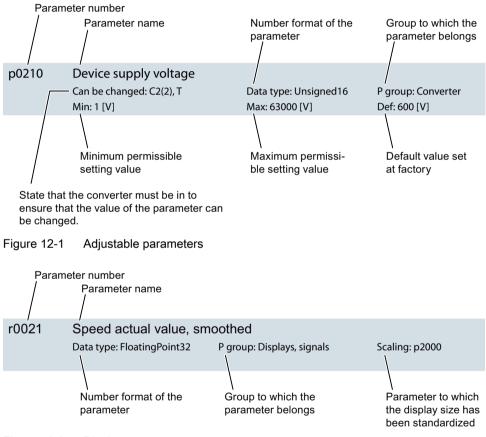


Figure 12-2 Display parameters

These components of the parameter description are explained below.

Parameter number

The parameter number is made up of a "p" or "r", followed by the parameter number and optionally the index or bit array.

12.1 Parameter overview

Examples of how parameters are shown in the parameter list:

- p... Adjustable parameters (read and write)
- r... Display parameters (read-only)
- p0918 Adjustable parameter 918
- p0099[0...3] Adjustable parameter 99, indices 0 to 3
- r0944 Display parameter 944
- **r2129.0...15** Display parameter 2129 with bit array from bit 0 (lowest bit) to bit 15 (highest bit)

Further examples of the notation in the documentation:

- p1070[1] Adjustable parameter 1070, index 1
- p2098[1].3 Adjustable parameter 2098 index 1 bit 3
- p0795.4 Adjustable parameter 795, bit 4

Can be changed

The "-" sign indicates that the parameter can be changed in any object state and that the change will be effective immediately.

The information "C1(x), C2(x), T, U" ((x): optional) means that the parameter can be changed only in this drive unit state and that the change will not take effect until switching to another state. One or more states are possible.

The following states are possible:

- C1(x) Device commissioning C1: Commissioning 1
 The device is being commissioned (p0009 > 0). The pulses cannot be enabled.
 The parameter can only be changed in the following device commissioning settings (p0009 > 0):
 - C1: Can be changed for all settings p0009 > 0.
 - C1(x): Can only be changed for settings p0009 = x.

A changed parameter value does not take effect until the device commissioning is exited with p0009=0.

- C2(x) Drive object commissioning C2: Commissioning 2
 The drive is being commissioned (p0009 = 0 and p0010 > 0). The pulses cannot be enabled.
 The parameter can only be changed in the following drive commissioning settings (p0010 > 0):
 - C2: Can be changed for all settings p0010 > 0.
 - C2(x): Can only be changed for settings p0010 = x.

A changed parameter value does not take effect until drive commissioning mode is exited with p0010=0.

- U Operation U: Run The pulses have been enabled.
- T ready T: Ready to run The pulses have not been enabled and the state "C1(x)" or "C2(x)" is not active.

Data type

•

•

•

The following data types are available for the parameters:

- Integer8
 I8
 8-bit integer
 - Integer16 I16 16-bit integer
- Integer32 I32 32-bit integer
- Unsigned8 U8 8-bit without sign
 - Unsigned16 U16 16-bit without sign
 - Unsigned32 U32 32-bit without sign
- FloatingPoint32 Float 32-bit floating-point number

P group

Specifies the functional group to which this parameter belongs.

Scaling

Specification of the reference variable with which a signal value is automatically converted with a BICO interconnection.

The following reference variables are available:

- p2000 ... p2003: Reference speed, reference voltage, etc.
- PERCENT: 1.0 = 100%
- 4000H: 4000 hex = 100% (word) or 4000 0000 hex = 100% (double word)

Parameter values

• Min

Minimum value of the parameter [unit]

- Max Maximum value of the parameter [unit]
- Def Value when delivered [unit]

12.2 List of parameters

12.2 List of parameters

Product: SINAMICS S210, version: 5101800

All objects: S210

r0002	Opera	ating display					
	Data ty	pe: Integer16	P group: -				
Description:	Operati	ng display for the drive.					
Value:	0:	Operation - everyth	ng enabled				
	10:	Operation - set "ena	able setpoint" = "1"				
	11:	Operation - set "Ena	able speed controller" = "1"				
	12:	Operation - RFG fro	zen, set "RFG start" = "1"				
	13:	13: Operation - set "enable RFG" = "1"					
	14: Operation - speed setpoint not enabled						
	15:	Operation - open br	ake (p1215)				
	16:	Operation - withdraw	w braking with OFF1 using "ON/OFF	1" = "1"			
	17:	Operation - braking	with OFF3 can only be interrupted w	vith OFF2			
	18:	Operation - brake o	n fault, remove fault, acknowledge				
	21: Ready for operation - set "Enable operation" = "1"						
	31: Ready for switching on - set "ON/OFF1" = "0/1"						
	41: Switching-on inhibited - set "ON/OFF1" = "0"						
	42: Switching on inhibited - set "OC/OFF2" = "1"						
	43: Switching on inhibited - set "OC/OFF3" = "1"						
	44: Switching on inhibited - supply STO terminal w/ 24 V (hardware)						
	45: Switching on inhibited - rectify fault, acknowledge fault, STO						
	46: Switching-on inhibited - exit commissioning mode (p0009, p0010)						
	70: Initialization						
	200:	0: Wait for booting/partial booting					
	250: Device signals a topology error						
Dependency:	See also: r0046						
	NOTICE						
	For a display not equal to 0, the drive is either powering up or an enable signal is missing. The control sends these						
	enable signals.						
	For several missing enable signals, the corresponding value with the highest number is displayed.						
	Note						
	The drive only controls the motor speed in the "Operation" state (r0002 = 0).						
	OC: Operating condition						
	EP: Enable Pulses (pulse enable)						
	RFG: Ramp-function generator COMM: Commissioning						
	MotID: Motor data identification						
	SS2: Safe Stop 2						
	STO: S	afe Torque Off					
p0009	Drivo	commissioning par	ameter filter 1				
h0009		•••					
	Change Min: 0	eable: C1, T	Data type: Integer16 Max: 30	P group: All groups Def: 1			
Description:		paramotor filtor 1 to com					
Description:		parameter filter 1 to com					
Value:	0:	Ready					

	1: Device configurat	ion			
	30: Parameter reset				
	Note	ad an whan in the "Deady" state (n0000 -			
	The drive can only be switche	ed on when in the "Ready" state (p0009 =	0).		
p0010	Drive commissioning p	arameter filter 2			
•	Changeable: C2(1), T	Data type: Integer16	P group: All groups		
	Min: 0	Max: 95	Def: 1		
Description:	Setting parameter filter 2 for o	commissioning the drive.			
Value:	0: Ready				
	1: Only Siemens int	ernal			
	3: Motor commissio	ning			
	95: Safety Integrated	commissioning			
	NOTICE				
	For p0010 = 95:				
	The safety commissioning Wizard must be carried out in the web server after changing safety parameters. These changes become effective after carry out all of the commissioning steps of the wizards.				
	Note				
	The drive can only be switche	ed on when in the "Ready" state (p0010 =	0).		
r0020	Speed setpoint smooth	ed			
	Data type: FloatingPoint32	P group: Displays, signals	Scaling: p2000		
Description:	Displays the smoothed speed	I setpoint at the speed controller input.			
r0021	Actual speed smoothed	1			
	Data type: FloatingPoint32	P group: Displays, signals	Scaling: p2000		
Description:	Displays the smoothed actua	value of the motor speed.			
Dependency:	See also: r0063				
r0026	DC link voltage smooth	ed			
	Data type: FloatingPoint32	P group: Displays, signals	Scaling: p2001		
Description:	Displays the smoothed actua	value of the DC link voltage.			
Dependency:	See also: r0070				
r0027	Absolute actual current	smoothed			
	Data type: FloatingPoint32	P group: Displays, signals	Scaling: p2002		
Description:	Displays the smoothed absol	ute actual current value.			
Dependency:	See also: r0068				
r0031	Actual torque smoothe	d			
	Data type: FloatingPoint32	P group: Displays, signals	Scaling: p2003		
Description:	Displays the smoothed torque	e actual value.			
Dependency:	See also: r0080				
r0032	Active power actual val	ue smoothed			
	Data type: FloatingPoint32	P group: Displays, signals	Scaling: r2004		
	·· -		-		

Dependency:	See also: r0082				
r0034	Motor utilization the	rmal			
	Data type: FloatingPoint3	32 P group: Display	vs, signals So	aling: PERCENT	
Description:	Displays the thermal moto	or utilization taking into accour	nt the ambient temperatu	re set in p0613.	
Dependency:	See also: p0613				
	See also: F07011, A0701	12			
	NOTICE				
		d on, the system starts to dete e for the motor utilization is on			I model value.
r0037[020]	Drive temperatures				
	Data type: FloatingPoint3	B2 P group: Display	vs, signals So	aling: p2006	
Description:	Displays the temperature:	s of the drive components.			
Index:	[0] = Inverter maximum va	alue			
	[1] = Depletion layer maxi	imum value			
	[2] = Reserved				
	[3] = Reserved				
	[4] = Interior of power unit	t			
	[5] = Inverter 1				
	[612] = Reserved				
	[13] = Depletion layer 1				
	[1420] = Reserved				
	Note The value of -200 indicate	es that there is no measuring s	signal.		
	For index [0]:				
		verter temperatures (r0037[5	10]).		
	For index [1]:	nlation lover temperatures (r0)	107[40 40]		
		pletion layer temperatures (r00 e temperature of the hottest in			
		particular shutdown threshold		nit, and cannot be rea	ad out.
		•			
r0039[02]	Energy display				
	Data type: FloatingPoint3	• • • •	-		
Description:		lues at the drive output termina	als.		
Index:	[0] = Energy balance (sun	n)			
	[1] = Energy drawn				
	[2] = Energy fed back				
	Note				
	For index [0]:				
	Difference between the er	nergy drawn and energy that is	s fed back.		
r0046	Enable signals statu	IS			
	Data type: Unsigned32	P group: Display	vs, signals		
Description:	Displays the status of the	enable signals.			
	All enable signals are req	uired to operate the drive. The	e enable signals are set b	y the control.	
Bit field:	Bit Signal name		1 signal	0 signal	FP
	00 OFF1 enable missi	ng	Yes	No	7954
	01 OFF2 enable missi		Yes	No	-
	02 OFF3 enable missi	ng	Yes	No	-
		-			

12.2 List of parameters

03	Operation enable missing	Yes	No	-
04	Armature short-circuit / DC braking enable missing	Yes	No	701 701
05	STOP2 enable missing	Yes	No	-
08	Safety enable missing	Yes	No	-
09	Infeed enable missing	Yes	No	-
10	Ramp-function generator enable missing	Yes	No	-
11	Ramp-function generator start missing	Yes	No	-
12	Setpoint enable missing	Yes	No	-
16	OFF1 enable internal missing	Yes	No	-
17	OFF2 enable internal missing	Yes	No	-
18	OFF3 enable internal missing	Yes	No	-
19	Pulse enable internal missing	Yes	No	-
20	Armature short-circuit/DC braking internal enable missing	Yes	No	701 701
21	STOP2 enable internal missing	Yes	No	-
25	Function bypass active	Yes	No	-
26	Drive inactive or not operational	Yes	No	-
27	De-magnetizing not completed	Yes	No	-
28	Brake open missing	Yes	No	-
29	Cooling unit ready signal missing	Yes	No	-
30	Speed controller inhibited	Yes	No	-
	Jog setpoint active	Yes	No	

Dependency:

12.2 List of parameters

Note

The value r0046 = 0 indicates that all enable signals for this drive are present.

Bit 00 = 1 (enable signal missing), if:

- the signal source in p0840 is a 0 signal.

- there is a "switching-on inhibited".

Bit 01 = 1 (enable signal missing), if:

- the signal source in p0844 or p0845 is a 0 signal.

Bit 02 = 1 (enable signal missing), if:

- the signal source in p0848 or p0849 is a 0 signal.

Bit 03 = 1 (enable signal missing), if:

- the signal source in p0852 is a 0 signal.

Bit 04 =1 (armature short-circuit active), if:

- the signal source in p1230 has a 1 signal

Bit 05, Bit 06: Being prepared

Bit 08 = 1 (enable signal missing), if:

- safety functions have been enabled and STO is active.

- a safety-relevant signal is present with a STOP A response.

STO enabled via terminals:

- the pulse enable via terminal EP is missing (booksize: X21, chassis: X41), or the signal source in p9620 is for a 0 signal.

STO enabled via PROFIsafe or TM54F:

- STO is selected via PROFIsafe or TM54F.

Bit 09 = 1 (enable signal missing), if:

- the signal source in p0864 is a 0 signal.

Bit 10 = 1 (enable signal missing), if:

- the signal source in p1140 is a 0 signal.

Bit 11 = 1 (enable signal missing) if the speed setpoint is frozen, because:

- the signal source in p1141 is a 0 signal.

- the speed setpoint is entered from jogging and the two signal sources for jogging, bit 0 (p1055) and bit 1 (p1056) have a 1 signal.

Bit 12 = 1 (enable signal missing), if:

- the signal source in p1142 is a 0 signal.

- When activating the function module "basic positioner" (r0108.4 = 1), the signal source in p1142 is set to a 0 signal. Bit 16 = 1 (enable signal missing), if:

- there is an OFF1 fault response. The system is only enabled if the fault is removed and was acknowledged and the "switching-on inhibited" withdrawn with OFF1 = 0.

Bit 17 = 1 (enable signal missing), if:

- commissioning mode is selected (p0009 > 0 or p0010 > 0).

- there is an OFF2 fault response.

- the drive is inactive (p0105 = 0) or is not operational (r7850[DO-Index]=0).

Bit 18 = 1 (enable signal missing), if:

- OFF3 has still not been completed or an OFF3 fault response is present.

Bit 19 = 1 (internal pulse enable missing), if:

- synchronization is running between the basic clock cycle, DRIVE-CLiQ clock cycle and application clock cycle.

Bit 20 =1 (internal armature short-circuit active), if:

- the drive is not in the state "S4: Operation" or "S5x" (refer to function diagram 2610).

- the internal pulse enable is missing (r0046.19 = 0).

Bit 21 = 1 (enable signal missing), if:

The pulses have been enabled and the speed setpoint has still not been enabled, because:

- the holding brake opening time (p1216) has still not expired.

- the motor has still not been magnetized (induction motor).

- the encoder has not been calibrated (U/f vector and synchronous motor)

Bit 22: Being prepared

Bit 26 = 1 (enable signal missing), if:

- the drive is inactive (p0105 = 0) or is not operational (r7850[DO-Index]=0).

- the function "parking axis" is selected (BI: p0897 = 1 signal)...

- all power units of a parallel connection are deactivated (p0125, p0895).

	 Bit 27 = 1 (enable signal missing), if: de-magnetizing has still not been completed (only for vector). Bit 28 = 1 (enable signal missing), if: the holding brake is closed or has still not been opened. Bit 29 = 1 (enable signal missing), if: the cooling unit ready signal via binector input p0266[1] missing. Bit 30 = 1 (speed controller inhibited), if one of the following reasons is present of the function generator with current input p0856. the function generator with current controller reference frequency charactere the pole position identification is active. motor data identification is active (only certain steps). Bit 31 = 1 (enable signal missing), if: the speed setpoint from jog 1 or 2 is entered. 	
r0062	Speed setpoint after the filter	
Description:	Data type: FloatingPoint32P group: Displays, signalsDisplay for the speed setpoint after the setpoint filters.	Scaling: p2000
r0063	Speed actual value	
	Data type: FloatingPoint32 P group: Displays, signals	Scaling: p2000
Description:	Display for the speed actual value.	
Dependency:	See also: r0021, p1441	
r0068 Description: Dependency:	Absolute current actual valueData type: FloatingPoint32P group: Displays, signalsDisplays actual absolute current.See also: r0027	Scaling: p2002
	NOTICE	
	The value is updated with a sampling time of 1 ms.	
	Note Absolute current value = sqrt(Iq^2 + Id^2) The absolute current actual value is available smoothed (r0027) and uns	moothed (r0068).
r0070	Actual DC link voltage Data type: FloatingPoint32 P group: Displays, signals	Scaling: p2001
Description: Dependency:	Display for the measured actual value of the DC link voltage. See also: r0026	
	Note The DC link voltage is available smoothed (r0026) and unsmoothed (r007	70).
r0076	Current actual value field-generating	
	Data type: FloatingPoint32 P group: Displays, signals	Scaling: p2002
Description:	Display for the actual value of the field-generating current ld.	
r0078[01]	Current actual value torque-generating	
Description:	Data type: FloatingPoint32 P group: Displays, signals Display for the actual value of the torque-generating current Iq.	Scaling: p2002
·		

Index:	[0] = Unsmoothed [1] = Smoothed with p0045					
r0079[01]	Torque setpoint total					
	Data type: FloatingPoint32	P group: Displays, signals	Scaling: p2003			
Description:	Display for the torque setpoint a	t the output of the speed controller.				
Index:	[0] = Unsmoothed [1] = Smoothed with p0045					
r0080	Torque actual value					
	Data type: FloatingPoint32	P group: Displays, signals	Scaling: p2003			
Description:	Display for the actual torque.					
Dependency:	See also: r0031					
	Note					
	The value is available smoothed	d (r0031) and unsmoothed (r0080).				
r0082[03]	Active power actual value	9				
	Data type: FloatingPoint32	P group: Displays, signals	Scaling: r2004			
Description:	Displays the actual active powe	r.				
Index:	[0] = Unsmoothed					
	[1] = Smoothed with p0045					
	[2] = Power drawn					
	[3] = Power drawn smoothed					
Dependency:	See also: r0032					
	Note The mechanical active power is (r0082[0]). For index [3]: Smoothing time constant = 4 ms		s, r0082[1] with p0045) and unsmoothed			
p0210	Drive unit line supply volt	age				
	Changeable: C2(2), T	Data type: Unsigned16	P group: Converter			
	Min: 1 [V]	Max: 63000 [V]	Def: 600 [V]			
Description:	Sets the drive unit supply voltage	le.				
	The voltage between two phases should be entered as the device supply voltage.					
	This setting is important for ope	rating with voltages that are less than the	ne voltage range intended for the drive.			
	NOTICE					
	If, in the switched-off state (pulse inhibit), the supply voltage is higher than the entered value, the Vdc controller may be automatically deactivated in some cases to prevent the motor from accelerating the next time the system is switched on. In this case, an appropriate alarm A07401 is output.					

	Note				
	Setting ranges for p0210 as a functi	ion of the rated power unit voltage:			
	U_rated = 400 V:				
	- p0210 = 380 480 V (AC/AC), 51	0 720 V (DC/AC)			
	U_rated = 500 V:				
	- p0210 = 500 600 V (AC/AC), 67 U_rated = 660 690 V:	5 900 V (DC/AC)			
	- p0210 = 660 690 V.				
	U_rated = 500 690 V:				
	- p0210 = 500 690 V (AC/AC), 67	75 1035 V (DC/AC)			
		I for the DC link voltage (Vdc) is calculated from p0210:			
	Vdc_pre = p0210 * 0.82 * 1.35 (AC/				
	Vdc_pre = p0210 * 0.82 (DC/AC)	·			
	The undervoltage thresholds for the	DC link voltage (Vdc) are calculated from p0210 as a function of the rated power			
	unit voltage:				
	U_rated = 400 V:				
		330 V, p0210 * 0.60 (DC/AC) > 380 V			
	$U_{\rm rated} = 500 V$:				
	- U_min = p0210 * 0.76 (AC/AC) > 4 U_rated = 660 690 V:	410 V			
	—	565 V, p0210 * 0.63 (DC/AC) > 650 V			
	U_rated = 500 690 V:	000 V, pozito (DOINO) - 000 V			
	_	420 V, p0210 * 0.63 (DC/AC) > 480 V			
r0302[0]	motor code DRIVE-CLiQ				
	Data type: Unsigned16	P group: Motor			
Description:	Displays the number of the motor with DRIVE-CLiQ				
	When the drive powers up, the motor code is read out the motor.				
	For r0302 = 0, the motor was not ide	entified.			
r0304[0]	Rated motor voltage				
	Data type: FloatingPoint32	P group: Motor			
Description:	Displays the rated motor voltage.				
-0205101	Deted meters comment				
r0305[0]	Rated motor current				
	Data type: FloatingPoint32	P group: Motor			
Description:	Displays the rated motor current.				
r0307[0]	Rated motor power				
	Data type: FloatingPoint32	P group: Motor			
Description:	Displays the rated motor power.				
r0311[0]	Rated motor speed				
	Data type: FloatingPoint32	P group: Motor			
Description:	Displays the rated motor speed.				
r0312[0]	Rated motor torque				
	Data type: FloatingPoint32	P group: Motor			
Description					
Description:	Displays the rated motor torque.				

r0318[0]	Motor stall current		
	Data type: FloatingPoint32	P group: Motor	
Description:	Displays the rated motor stall cur	rent.	
r0319[0]	Motor stall torque		
	Data type: FloatingPoint32	P group: Motor	
Description:	Displays the motor standstill/stall	torque.	
r0322[0]	Maximum motor speed		
	Data type: FloatingPoint32	P group: Motor	
Description:	Displays the maximum motor spe	ed.	
Dependency:	See also: p1082, r1082		
r0323[0]	Maximum motor current		
	Data type: FloatingPoint32	P group: Motor	
Description:	Displays the maximum permissib	le motor current.	
r0341[0]	Motor moment of inertia		
	Data type: FloatingPoint32	P group: Motor	
Description:	Displays the motor moment of ine	ertia (without load).	
r0479[02]	Diagnostics encoder posit	ion actual value Gn_XIST1	
	Data type: Integer32	P group: Encoder	
Description:		sition value Gn_XIST1 according to each DRIVE-CLiQ basic clock cycle	
Index:	[0] = Encoder 1		
	[1] = Reserved		
	[2] = Reserved		
p0488[02]	Activate measuring probe	1	
	Changeable: T, U	Data type: Integer16	P group: Encoder
	Min: 0	Max: 210	Def: 0
Description:	Setting to activate/de-activate me		
	The inversion of probe 1 is set in	p0490.0.	
Value:	0: No measuring probe		
	210: DI 0 (X130 / 1.2)		
Index:	[0] = Encoder 1		
	[1] = Reserved		
Dependerov <i>i</i>	[2] = Reserved		
Dependency:	See also: p0489, p0490		
	In order to prevent incorrect mea measurement.	surement values, these parameters	s may not be written during an active
	Note		
	DI: Digital Input	DDOEldrivo	
	Refer to the encoder interface for	PROFIGRIVE.	

p0489[02]	Activate measuring prol	be 2					
	Changeable: T, U	Data type: Integer16	Рg	roup: Encoder			
	Min: 0 Max: 211 Def: 0						
Description:	Setting to activate/de-activate measuring probe 2. The inversion of probe 2 is set in p0490.1.						
/alue:	0: No measuring probe 211: DI 1 (X130 / 1.5)						
ndex:	[0] = Encoder 1						
	[1] = Reserved						
	[2] = Reserved						
Dependency:	See also: p0488, p0490						
	In order to prevent incorrect n measurement.	neasurement values, these parame	eters may not be	written during an activ	e		
	Note						
	DI: Digital Input						
	Refer to the encoder interface	for PROFIdrive.					
p0490	Invert measuring probe						
	Changeable: T, U	Data type: Unsigned32	-	roup: Encoder			
	Min: -	Max: -	Def	: 0000 bin			
Description:	Setting to invert digital input 0	or 1 (probe 1, 2).					
Bit field:	Bit Signal name		1 signal	0 signal	FP		
	00 DI 0 (X130 / 1.2)		Inverted	Not inverted	-		
	01 DI 1 (X130 / 1.5)		Inverted	Not inverted	-		
Dependency:	See also: p0488, p0489						
	Note						
	DI: Digital Input						
	The inversion has no effect or	n the status display of the digital inp	outs (r0722).				
0550[0]	Brake status						
	Data type: Integer16	P group: Motor					
Description:	Displays the status of the brak						
	The value of r0550 is read wh	en the drive powers up.					
/alue:	0: No data						
	1: Holding brake						
Dependency:	See also: p1215, p1216, r121	i6, p1217, r1217					
p0613[0]	Motor temperature model ambient temperature						
	Changeable: C2(3), T, U	Data type: FloatingPoint3	2 Pg	roup: Motor			
		Max: 100 [°C]	Def	: 20 [°C]			
	Min: -40 [°C]	Wax. 100[C]					
	Min: -40 [°C] Sets the motor ambient tempe						
	Sets the motor ambient tempe		thermal motor u	tilization (r0034).			
Description:	Sets the motor ambient tempe	erature.	thermal motor u	tilization (r0034).			
Description:	Sets the motor ambient tempe Based on this value, the moto	erature.	thermal motor u	tilization (r0034).			
Description: Dependency: r0722	Sets the motor ambient tempe Based on this value, the moto See also: r0034	erature.	thermal motor u	tilization (r0034).			

Description:	Displays the status of the digital inputs.			
Bit field:	Bit Signal name	1 signal	0 signal	FP
	00 DI 0 (X130 / 1.2)	High	Low	-
	01 DI 1 (X130 / 1.5)	High	Low	-
	02 DI 2 (X130 / 2.1-2)	High	Low	-
	03 DI 3 (X130 / 2.3-4)	High	Low	-
	04 DI 4 (X130 / 2.6)	High	Low	-
Dependency:	See also: p0488, p0489			
	Note			
	DI: Digital Input			
	For bit 00, 01:	to connect a magauring proba	(20499 20490)	
	DI 0 and DI 1 are fast digital inputs and can be used For bits 02, 03:	to connect a measuring probe	,p0466, p0469).	
	DI 2 and DI 3 form a fail-safe digital input.			
	For bit 04:			
	DI 4 is intended to monitor the temperature of the ext	ternal brake resistor.		
r0898	Control word sequence control			
	Data type: Unsigned16 P group: Disp	lays, signals		
Description:	Display for the control word of the sequence control.			
	The higher-level control cyclically sends the control w	vord to the drive.		
Bit field:	Bit Signal name	1 signal	0 signal	FP
	00 ON/OFF1	Yes	No	-
	01 OC / OFF2	Yes	No	-
	02 OC / OFF3	Yes	No	-
	03 Enable operation	Yes	No	-
	04 Enable ramp-function generator	Yes	No	-
	05 Continue ramp-function generator	Yes	No	-
	06 Enable speed setpoint	Yes	No	-
	07 Command open brake	Yes	No	-
	08 Jog 1	Yes	No	3001
	09 Jog 2	Yes	No	3001
	10 Master control by PLC	Yes	No	-
	12 Speed controller enable	Yes	No	-
	14 Command close brake	Yes	No	-
r0899	Status word sequence control			
	Data type: Unsigned16 P group: Disp	lavs. signals		
Description:	Display for the status word of the sequence control.	, , - u - -		
	The status word is cyclically sent from the drive to the	e higher-level control.		
Bit field:	Bit Signal name	1 signal	0 signal	FP
	00 Ready for switching on	Yes	No	_
	01 Ready	Yes	No	-
	02 Operation enabled	Yes	No	-
	03 Jog active	Yes	No	-
	04 No coasting active	OFF2 inactive	OFF2 active	-
				-
		OFF3 inactive	OFE3 active	_
	05 No Quick Stop active 06 Switching-on inhibited active	OFF3 inactive Yes	OFF3 active No	-

	08	Controller enable		Yes	No	-
	09	Control request		Yes	No	-
	11	Pulses enabled		Yes	No	-
	12	Open holding brake		Yes	No	-
	13	Command close holding b	brake	Yes	No	-
	14	Pulse enable from the bra	ake control	Yes	No	-
	15	Setpoint enable from the I	brake control	Yes	No	-
	For Pl For bi When	ts 00, 01, 02, 04, 05, 06, 0 ROFIdrive, these signals a t 13: the "Safe Brake Control" (t 14, 15:	are used for status word		no longer controlled u	sing this signal.
		signals are only of signific	cance when the "extend	ed brake control" func	tion module is activate	ed (r0108.14 = 1
r0922	Tele	gram selection				
	Data	type: Unsigned16	P group: Commu	unications		
Description:	Displa	ays the send and receive te	elegram.			
	When	commissioning the drive,	the telegram settings of	f the higher-level conti	ol are used.	
Value:	3:	Standard telegram 3	3, PZD-5/9			
	5:	Standard telegram 5	5, PZD-9/9			
	102:	SIEMENS telegram	102, PZD-6/10			
	105:	SIEMENS telegram	105, PZD-10/10			
		SIEMENS telegram	105, PZD-10/10			
	Note			utomatically set interco	onnections in the telec	gram are inhibited
	Note If a va	SIEMENS telegram lue is not equal to 999, a te hibited interconnections c	elegram is set and the au			gram are inhibite
 r0924[01]	Note If a va The ir	lue is not equal to 999, a te	elegram is set and the au			gram are inhibite
r0924[01]	Note If a va The ir ZSW	lue is not equal to 999, a te	elegram is set and the au	ain after setting value		gram are inhibite
r0924[01] Description:	Note If a va The ir ZSW Data	lue is not equal to 999, a te hibited interconnections c / bit pulses enabled type: Unsigned16	elegram is set and the au can only be changed aga P group: Commu	ain after setting value	999.	gram are inhibite
	Note If a va The ir ZSW Data Displa	lue is not equal to 999, a te hibited interconnections c / bit pulses enabled type: Unsigned16 ays the position of the "Puls	elegram is set and the au can only be changed aga P group: Commu	ain after setting value	999.	gram are inhibite
Description:	Note If a va The ir ZSW Data Displa [0] = \$	lue is not equal to 999, a te hibited interconnections c / bit pulses enabled type: Unsigned16	elegram is set and the au can only be changed aga P group: Commu	ain after setting value	999.	gram are inhibite
Description:	Note If a va The ir ZSW Data Displa [0] = \$ [1] = \$	lue is not equal to 999, a te hibited interconnections c / bit pulses enabled type: Unsigned16 ays the position of the "Puls Signal number	elegram is set and the au an only be changed aga P group: Commu lses enabled" status sigr	ain after setting value unications nal in the PROFIdrive	999.	gram are inhibite
Description: Index:	Note If a va The ir ZSW Data Displa [0] = \$ [1] = E	lue is not equal to 999, a te hibited interconnections co / bit pulses enabled type: Unsigned16 ays the position of the "Puls Signal number Bit position	elegram is set and the au an only be changed aga P group: Commu lses enabled" status sigr	ain after setting value unications nal in the PROFIdrive Dierance	999.	
Description: Index:	Note If a va The ir ZSW Data Displa [0] = \$ [1] = E	lue is not equal to 999, a te hibited interconnections c / bit pulses enabled type: Unsigned16 ays the position of the "Puls Bignal number Bit position DFIdrive clock synchro geable: T, U	elegram is set and the au an only be changed aga P group: Commu ises enabled" status sign ronous sign-of-life to	ain after setting value unications nal in the PROFIdrive Dierance	999. telegram.	
Description: Index: p0925	Note If a va The ir ZSW Data Displa [0] = S [1] = E PRC Chan Min: 0	lue is not equal to 999, a te hibited interconnections c / bit pulses enabled type: Unsigned16 ays the position of the "Puls Signal number Bit position DFIdrive clock synchro geable: T, U	elegram is set and the au can only be changed aga P group: Commu lses enabled" status sign conous sign-of-life to Data type: Unsig Max: 65535	ain after setting value unications nal in the PROFIdrive Dlerance gned16	999. telegram. P group: Communica Def: 1	
Description: Index: p0925	Note If a va The ir ZSW Data Displa [0] = S [1] = E PRC Chan Min: 0 Sets t	lue is not equal to 999, a te hibited interconnections c / bit pulses enabled type: Unsigned16 ays the position of the "Puls Bignal number Bit position DFIdrive clock synchro geable: T, U	elegram is set and the au an only be changed aga P group: Commu Ises enabled" status sign conous sign-of-life to Data type: Unsig Max: 65535 nsecutive sign-of-life err	ain after setting value unications nal in the PROFIdrive Dierance gned16	999. telegram. P group: Communica Def: 1 s controller.	
Description: Index: p0925 Description:	Note If a va The ir ZSW Data Displa [0] = \$ [1] = E PRC Chan Min: 0 Sets t The s	lue is not equal to 999, a te hibited interconnections ca / bit pulses enabled type: Unsigned16 ays the position of the "Puls Signal number Bit position DFIdrive clock synchro geable: T, U D	elegram is set and the au an only be changed aga P group: Commu Ises enabled" status sign conous sign-of-life to Data type: Unsig Max: 65535 nsecutive sign-of-life err	ain after setting value unications nal in the PROFIdrive Dierance gned16	999. telegram. P group: Communica Def: 1 s controller.	
Description: Index: p0925 Description:	Note If a va The ir ZSW Data Displa [0] = S [1] = E PRC Chan Min: 0 Sets t The s See a Note	lue is not equal to 999, a technibited interconnections contractions contractions contractions of the position of the "Pulses and the position of the "Pulses and number and position and the pos	elegram is set and the au an only be changed aga P group: Commu ises enabled" status sign conous sign-of-life to Data type: Unsig Max: 65535 nsecutive sign-of-life err ly received in PZD4 (cor	ain after setting value unications nal in the PROFIdrive Dierance gned16 fors of the isochronous ntrol word 2) from the	999. telegram. P group: Communica Def: 1 s controller.	
Description: Index: p0925 Description: Dependency:	Note If a va The ir ZSW Data Displa [0] = S [1] = E PRC Chan Min: 0 Sets t The s See a Note The s	lue is not equal to 999, a te hibited interconnections ca / bit pulses enabled type: Unsigned16 ays the position of the "Puls Signal number Bit position DFIdrive clock synchro geable: T, U D he number of tolerated cor ign-of-life signal is normally lso: F01912	elegram is set and the au an only be changed aga P group: Commu- ises enabled" status sign conous sign-of-life to Data type: Unsig Max: 65535 nsecutive sign-of-life err ly received in PZD4 (cor sabled for p0925 = 6553	ain after setting value unications nal in the PROFIdrive Dierance gned16 fors of the isochronous ntrol word 2) from the	999. telegram. P group: Communica Def: 1 s controller.	
Description: Index: p0925 Description: Dependency:	Note If a va The ir ZSW Data Displa [0] = S [1] = E PRC Chan Min: 0 Sets t The s See a Note The s	lue is not equal to 999, a te hibited interconnections c / bit pulses enabled type: Unsigned16 ays the position of the "Puls Bignal number Bit position DFIdrive clock synchro geable: T, U D he number of tolerated cor ign-of-life signal is normally lso: F01912	elegram is set and the au an only be changed aga P group: Commu- ises enabled" status sign conous sign-of-life to Data type: Unsig Max: 65535 nsecutive sign-of-life err ly received in PZD4 (cor sabled for p0925 = 6553	ain after setting value unications nal in the PROFIdrive plerance gned16 fors of the isochronous ntrol word 2) from the 5.	999. telegram. P group: Communica Def: 1 s controller.	
Description: Index: p0925 Description: Dependency: r0930	Note If a va The ir ZSW Data Displa [0] = S [1] = E PRC Chan Min: 0 Sets t The s See a Note The s See a Note	lue is not equal to 999, a te hibited interconnections ca / bit pulses enabled type: Unsigned16 ays the position of the "Puls Signal number Bit position DFIdrive clock synchro geable: T, U bhe number of tolerated con ign-of-life signal is normally lso: F01912 ign-of-life monitoring is dis DFIdrive operating mo	elegram is set and the au an only be changed aga P group: Commu- lses enabled" status sign conous sign-of-life to Data type: Unsig Max: 65535 Insecutive sign-of-life err ly received in PZD4 (cor sabled for p0925 = 65533 Dde	ain after setting value unications nal in the PROFIdrive plerance gned16 fors of the isochronous ntrol word 2) from the 5.	999. telegram. P group: Communica Def: 1 s controller.	
Description: Index:	Note If a va The ir ZSW Data Displa [0] = \$ [1] = E PRC Chan Min: 0 Sets t The s See a Note The s See a Displa	lue is not equal to 999, a te hibited interconnections ca / bit pulses enabled type: Unsigned16 ays the position of the "Puls Bignal number Bit position DFIdrive clock synchro geable: T, U D he number of tolerated cor ign-of-life signal is normally lso: F01912 ign-of-life monitoring is dis DFIdrive operating mot type: Unsigned16 ays the operating mode.	elegram is set and the au an only be changed aga P group: Commu- lses enabled" status sign conous sign-of-life to Data type: Unsig Max: 65535 nsecutive sign-of-life err ly received in PZD4 (cor sabled for p0925 = 65533 code P group: Setpoir	ain after setting value unications nal in the PROFIdrive Dierance gned16 fors of the isochronous htrol word 2) from the 5.	999. telegram. P group: Communica Def: 1 s controller.	
Description: Index: p0925 Description: Dependency: r0930	Note If a va The ir ZSW Data Displa [0] = S [1] = E PRC Chan Min: (Sets t The s See a Note The s See a Displa The s	lue is not equal to 999, a te hibited interconnections ca / bit pulses enabled type: Unsigned16 ays the position of the "Puls Bignal number Bit position DFIdrive clock synchro geable: T, U bhe number of tolerated cor ign-of-life signal is normally lso: F01912 ign-of-life monitoring is dis DFIdrive operating mo type: Unsigned16	elegram is set and the au an only be changed aga P group: Commu ises enabled" status sign conous sign-of-life to Data type: Unsig Max: 65535 nsecutive sign-of-life err ly received in PZD4 (cor sabled for p0925 = 6553 code P group: Setpoir	ain after setting value unications nal in the PROFIdrive Dierance gned16 fors of the isochronous htrol word 2) from the 5.	999. telegram. P group: Communica Def: 1 s controller.	

r0944	Fault buffer counter
	Data type: Unsigned16 P group: Messages
Description:	Display for the fault buffer counter
	This counter is incremented every time that a fault occurs.
Recommendation:	This is used to check whether an additional fault has occurred while reading out the fault buffer.
Dependency:	See also: r0945, r0947, r0948, r0949, r2109
r0945[063]	Fault code
	Data type: Unsigned16 P group: Messages
Description:	Displays the numbers of faults that have occurred.
Dependency:	See also: r0947, r0948, r0949, r2109, r2130, r2133, r2136
	NOTICE
	The properties of the fault buffer should be taken from the corresponding product documentation.
	Note
	The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
	Drive faults are signaled using parameters r0945, r0947, r0948 and r0949.
r0947[063]	Fault code
	Data type: Unsigned16 P group: Messages
Description:	This parameter is identical to r0945.
r0948[063]	Fault received in milliseconds
	Data type: Unsigned32 P group: Messages
Description:	Displays the system runtime in milliseconds referred to the day that the fault occurred.
Dependency:	See also: r0945, r0947, r0949, r2109, r2130, r2133, r2136
	NOTICE
	The time comprises r2130 (complete days) and r0948 (milliseconds, incomplete day).
r0949[063]	Fault value
	Data type: Integer32 P group: Messages
Description:	Displays additional information about the fault that occurred (as integer number).
	The fault causes can be found under the fault values of the particular fault number.
Dependency:	See also: r0945, r0947, r0948, r2109, r2130, r2133, r2136
	Note
	The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
	The structure of the fault buffer and the assignment of the indices is shown in r0945.
p0952	Fault cases counter
	Changeable: T, U Data type: Unsigned16 P group: Messages
	Min: 0 Max: 65535 Def: 0
Description:	Number of fault situations since the last reset.
Dependency:	The counter is reset with p0952 = 0.
	See also: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136
r0964[06]	Device identification
	Data type: Unsigned16 P group: Communications

Description	Displays the device identification
Description:	Displays the device identification.
	The drive internally comprises components, device and drive object. Both components require their own identification parameters according to PROFIdrive
Index:	[0] = Company (Siemens = 42)
	[1] = Device type
	[2] = Firmware version
	[3] = Firmware date (year)
	[4] = Firmware date (day/month)
	[5] = Number of drive objects
	[6] = Firmware patch/hot fix
Dependency:	See also: r0975
	Note
	Example:
	r0964[0] = 42> SIEMENS
	r0964[1] = 5410> SINAMICS S210 PN
	r0964[2] = 409> first part of the firmware version V04.09 (for second part, refer to index 6)
	r0964[3] = 2017> year 2017
	r0964[4] = 1705> 17th of May
	r0964[5] = 1> 1 drive object
	r0964[6] = 100> second part, firmware version (complete version: V04.09.01.00)
r0965	PROFIdrive profile number
	Data type: Unsigned16 P group: Communications
Description:	Displays the PROFIdrive profile number and profile version.
•	Constant value = 0329 hex.
	Byte 1: Profile number = 03 hex = PROFIdrive profile
	Byte 2: Profile version = 29 hex = Version 4.1
	Note
	When the parameter is read via PROFIdrive, the Octet String 2 data type applies.
-007510 401	Drive object identification
r0975[010]	Drive object identification Data type: Unsigned16 P group: Communications
Description:	Displays the identification of the drive object.
Description.	The drive internally comprises components, device and drive object. Both components require their own identification parameters according to PROFIdrive
Index:	[0] = Company (Siemens = 42)
	[1] = Drive object type [2] = Firmware version
	[2] = Firmware version
	[2] = Firmware version [3] = Firmware date (year)
	[2] = Firmware version [3] = Firmware date (year) [4] = Firmware date (day/month)
	 [2] = Firmware version [3] = Firmware date (year) [4] = Firmware date (day/month) [5] = PROFIdrive drive object type class
	 [2] = Firmware version [3] = Firmware date (year) [4] = Firmware date (day/month) [5] = PROFIdrive drive object type class [6] = PROFIdrive drive object sub-type Class 1
	 [2] = Firmware version [3] = Firmware date (year) [4] = Firmware date (day/month) [5] = PROFIdrive drive object type class [6] = PROFIdrive drive object sub-type Class 1 [7] = Drive object number
	 [2] = Firmware version [3] = Firmware date (year) [4] = Firmware date (day/month) [5] = PROFIdrive drive object type class [6] = PROFIdrive drive object sub-type Class 1 [7] = Drive object number [8] = Reserved
	 [2] = Firmware version [3] = Firmware date (year) [4] = Firmware date (day/month) [5] = PROFIdrive drive object type class [6] = PROFIdrive drive object sub-type Class 1 [7] = Drive object number [8] = Reserved [9] = Reserved
Dependency:	 [2] = Firmware version [3] = Firmware date (year) [4] = Firmware date (day/month) [5] = PROFIdrive drive object type class [6] = PROFIdrive drive object sub-type Class 1 [7] = Drive object number [8] = Reserved

	r0975[3] = 2003> year 200 r0975[4] = 1401> 14th of J r0975[5] = 1> PROFIdrive r0975[6] = 9> PROFIdrive r0975[7] = 2> drive object r0975[8] = 0 (reserved) r0975[9] = 0 (reserved)	firmware version V01.02 (second part, ref 3 anuary drive object, type class drive object sub-type class 1	
p0976	Reset all parameters		
poaro	Changeable: C1(30) Min: 0	Data type: Unsigned16 Max: 1	P group: Factory settings Def: 0
Description: Value:	Resets all parameters of the 0: Inactive 1: Start reset of all	drive system. parameters to factory setting	
Dependency:	See also: p0977		
	NOTICE After changing the value, it i	s not possible to change parameters until	the operation has been completed.
	again. Reset is realized in the non-v Procedure: 1. Set p0009 = 30 (paramete 2. Set p0976 = 1 The system	volatile memory. er reset).	system must be commissioned for the first time er this has been carried out.
p0977	Save all parameters		
	Changeable: T, U Min: 0	Data type: Unsigned16 Max: 1	P group: Factory settings Def: 0
Description:	·	drive system to the non-volatile memory.	
Value:	0: Inactive	table parameters intended to be saved an tile memory - loaded at POWER ON	e taken into account.
Dependency:	See also: p0976		
	NOTICE The drive power supply may wait until the parameter aga Writing to parameters is inhi	in has the value 0).	saved (i.e. after data save has been started,
r0979[030]	PROFIdrive encoder for		
Description:	Data type: Unsigned32	P group: Encoder encoder used according to PROFIdrive.	
	Displays the actual position (encoder used according to FROFIGHVE.	

Index:	[0] = Header [1] = Type encoder 1				
	[1] = Type encoder 1 [2] = Resolution encoder 1				
	[3] = Shift factor G1_XIST1				
	[4] = Shift factor G1_XIST2				
	[5] = Distinguishable revolution	s encoder 1			
	[630] = Reserved				
	Note				
		l indices can be taken from the following	literature:		
	PROFIdrive Profile Drive Techr	nology			
p1082[0]	Maximum speed				
	Changeable: C2(1), T	Data type: FloatingPoint32	P group: Setpoints		
	Min: 0.000 [rpm]	Max: 210000.000 [rpm]	Def: 1500.000 [rpm]		
Description:	Sets the maximum motor speed	d to a value less than or equal to the max	kimum motor speed (r0322).		
	The set value is valid for both d	lirections of rotation.			
Dependency:	See also: p0322, r0322				
p1083[0]	Speed limit positive				
	Changeable: T, U	Data type: FloatingPoint32	P group: Setpoints		
	Scaling: p2000				
	Min: 0.000 [rpm]	Max: 210000.000 [rpm]	Def: 210000.000 [rpm]		
Description:	Sets the maximum speed for th	e positive direction.			
	The set value must be less that	n or equal to the maximum speed (p1082	2).		
p1086[0]	Speed limit negative				
	Changeable: T, U	Data type: FloatingPoint32	P group: Setpoints		
	Scaling: p2000				
	Min: -210000.000 [rpm]	Max: 0.000 [rpm]	Def: -210000.000 [rpm]		
Description:	Sets the maximum speed for th	e negative direction.			
	The set value must be less that	n or equal to the maximum speed (p1082	2).		
p1121[0]	OFF1 ramp-down time				
	Changeable: C2(1), T, U	Data type: FloatingPoint32	P group: Setpoints		
	Min: 0.000 [s]	Max: 999999.000 [s]	Def: 10.000 [s]		
Description:	Sets the ramp-down time after	an OFF1 command.			
	The value is referred to the max	ximum speed (p1082).			
	After an OFF1 command, within standstill.	n this time, the speed setpoint is ramped	down from the maximum speed (p1082) to		
Dependency:	See also: p1082, r1082				
p1135[0]	OFF3 ramp-down time				
	Changeable: C2(1), T, U	Data type: FloatingPoint32	P group: Setpoints		
	Min: 0.000 [s]	Max: 600.000 [s]	Def: 0.000 [s]		
Description:	Sets the ramp-down time for qu	uick stop.			
	In this time, after an OFF3, the	speed setpoint is reduced from the maxi	mum speed (p1082) down to standstill.		
	Note This time can be exceeded if th	e DC link voltage reaches its maximum v			
		ie de link voltage reaches its maximum	value.		

r1196	DSC position setpoint			
	Data type: Integer32	P group: Encoder		
Description:		of Dynamic Servo Control in fine pulses.		
	Note			
	DSC: Dynamic Servo Control			
p1215	Motor holding brake co	nfiguration		
	Changeable: ⊤	Data type: Integer16	P group: Functions	
	Min: 0	Max: 2	Def: 0	
Description:	Sets the configuration for the	motor holding brake.		
	Re value 2: This setting allows the motor	shaft to be rotated for installation purpose	20	
Value:	0: No motor holding		5.	
value.	-	ake acc. to sequence control		
	2: Motor holding bra			
Dependency:	0	17, r1217, p1226, p1227, p1228		
		, if it it it		
	$ \underline{\bigwedge} CAUTION $	a brake is used, it remains closed. If the m	poter moves, this will destroy the brake	
		nissible if the brake is used to hold loads.		
r1216	Motor holding brake op	ening time		
	Data type: FloatingPoint32	P group: Functions		
Description:	Displays the opening time for	the motor holding brake.		
	The speed setpoint is kept at	0 for this time. The speed setpoint is then	enabled.	
Recommendation:	This time should be set longer when the brake is applied.	r than the actual opening time of the brake.	This ensures that the drive cannot accelerate	
Dependency:	See also: p1215, p1217, r12	17		
	Note			
	For p1216 = 0 ms, the monito	pring and the message A07931 "Brake doe	es not open" are deactivated.	
 r1217	Motor holding brake clo	osina time		
	Data type: FloatingPoint32	P group: Functions		
Description:	Displays the time to close the	• •		
·		otor is at a standstill, if the holding brake is prevents the load from sagging, for exam	activated, after the closing time has expired, nple.	
Recommendation:	This time should be set longe suppressed after the brake has a suppressed after the brake has been been been been been been been bee	er than the actual closing time of the brake as closed.	. This ensures that the pulses are only	
Dependency:	See also: p1215, p1216, r12	16		
	NOTICE			
		too short with respect to the actual closin	g time of the brake, then the load can sag.	
	If the closing time is selected against the brake and therefore	÷ .	closing time of the brake, the control works	
	Note			
	For p1217 = 0 ms, the monitor $\frac{1}{2}$	oring and the message A07932 "Brake doe	es not close" are deactivated.	
p1226[0]	Threshold for zero spe	ed detection		
	Changeable: T, U Data type: FloatingPoint32 P group: Functions			
	Min: 0.00 [rpm]	Max: 210000.00 [rpm]	Def: 20.00 [rpm]	

Description:	Sets the speed threshold for the	standstill identification.			
	The following applies when the m	notor holding brake is activated:			
	The motor is shut down and held	by the brake after the closing time for the	brake in p1217 has elapsed.		
	The following applies when the m	notor holding brake is not activated:			
	The motor is shut down and it the	en coasts down.			
Dependency:	See also: p1215, p1216, r1216,	p1217, r1217, p1227			
	Note				
	In order that standstill is identified	d, the speed threshold in p1226 must be s	omewhat higher than the speed actual		
	value noise level.				
p1227	Zero speed detection mor	nitoring time			
p1227	Changeable: T, U	Data type: FloatingPoint32	P group: Functions		
	Min: 0.000 [s]	Max: 300.000 [s]	Def: 4.000 [s]		
Description:	Sets the monitoring time for the s	••			
Description.	•	allen below after OFF1 or OFF3, after the	monitoring time that has been set expires		
	the drive signals that the motor is		nomening time that has been set expires,		
Dependency:	See also: p1215, p1216, r1216,	p1217, r1217, p1226			
	Note				
	The monitoring is deactivated wit	h p1227 = maximum value.			
		ime			
p1228	Pulse suppression delay t				
		Data type: FloatingPoint32	P group: Functions		
	Min: 0.000 [s]	Max: 299.000 [s]	Def: 0.000 [s]		
Description:	Sets the delay time for pulse sup		delay there that has been as to show the		
	drive signals that the motor at a s	fallen below after OFF1 or OFF3, after the standstill	delay time that has been set expires, the		
Dependency:	See also: p1226, p1227				
p1416[0]	Speed setpoint filter 1 time	e constant			
	Changeable: T, U	Data type: FloatingPoint32	P group: Closed-loop control		
	Min: 0.00 [ms]	Max: 5000.00 [ms]	Def: 0.00 [ms]		
Description:	Sets the time constant for the speed setpoint filter 1 (PT1).				
	Note				
		f the filter is set as a PT1 low pass.			
p1441[0]	Actual speed smoothing ti				
	Changeable: T, U	Data type: FloatingPoint32	P group: Closed-loop control		
	Min: 0.00 [ms]	Max: 50.00 [ms]	Def: 0.00 [ms]		
Description:	Sets the smoothing time constan	t (PT1) for the speed actual value.			
Dependency:	See also: r0063				
p1460[0]	Speed controller P gain				
L [0]	Changeable: T, U	Data type: FloatingPoint32	P group: Closed-loop control		
	Min: 0.0000 [Nms/rad]	Max: 500000000.0000 [Nms/rad]	Def: 0.3000 [Nms/rad]		
Description:	Sets the P gain of the speed con				
_ 000.1pu01.		for One Button Tuning and writes the valu	e to p1460.		
	The value can be changed.				
Dependency:	See also: p1462				
1 A A A A A A A A A A A A A A A A A A A					

	Note		
	The higher the set P gain, the fa	aster and more unstable the control.	
o1462[0]	Speed controller integral	time	
51102[0]	Changeable: T, U	Data type: FloatingPoint32	P group: Closed-loop control
	Min: 0.00 [ms]	Max: 100000.00 [ms]	Def: 20.00 [ms]
Description:	Sets the integral time for the sp		
		al time for One Button Tuning - and write	es the value to p1462.
ependency:	See also: p1460	,	
	Note		
	The shorter the integral time, the	e faster and more unstable the control.	
01498[0]	Load moment of inertia		
1100[0]	Changeable: T, U	Data type: FloatingPoint32	P group: Closed-loop control
	Min: - [kgm²]	Max: - [kgm²]	Def: - [kgm ²]
Description:	Sets the load moment of inertia		
		missioning while the One Button Tuning	is being performed.
o1520[0]	Torque limit motoring		
	Changeable: T, U	Data type: FloatingPoint32	P group: Closed-loop control
	Scaling: p2003		
	Min: -1000000.00 [Nm]	Max: 20000000.00 [Nm]	Def: 0.00 [Nm]
Description:	Sets the torque limit value when	n motoring.	
	This setting is made as part of t	he basic commissioning.	
)ependency:	See also: p1521, p1532, r1538	, r1539	
01521[0]	Torque limit regenerating	l	
	Changeable: T, U	Data type: FloatingPoint32	P group: Closed-loop contro
	Scaling: p2003		• • •
	Min: -20000000.00 [Nm]	Max: 1000000.00 [Nm]	Def: 0.00 [Nm]
Description:	Setting the regenerative torque		
	This setting is made as part of t		
Dependency:	See also: p1520, p1532, r1538	, r1539	
o1532[0]	Torque limit offset		
1002[0]	Changeable: T, U	Data type: FloatingPoint32	P group: Closed-loop control
	Scaling: p2003	Dua (ypor houring) office	
	Min: -100000.00 [Nm]	Max: 100000.00 [Nm]	Def: 0.00 [Nm]
Description:	Sets the offset for the torque lin		Boll 9:00 fring
vesenpuon.	•	eight equalization to be used for vertical a	axes
	-	ire offset by the set value in the same di	
Dependency:	See also: p1520, p1521		
opondonoy.	000 000. p1020, p1021		
1538	Torque limit motoring act	ive	
	Data type: FloatingPoint32	P group: Closed-loop control	Scaling: p2003
Description:	Displays the currently active tor	que limit when motoring.	
	Note		
	The value in p1538 may not exe	ceed the value in p1521.	

r1539	Torque limit when regenerating active				
	Data type: FloatingPoint32	P group: Closed-loop control	Scaling: p2003		
Description:	Displays the currently effective	torque limit when regenerating.			
	Note				
	The value in p1539 may not ex	ceed the value in p1521.			
p1703[0]	lsq current controller pre	control scaling			
	Changeable: T, U	Data type: FloatingPoint32	P group: Closed-loop control		
	Min: 0.0 [%]	Max: 200.0 [%]	Def: 0.0 [%]		
Description:	Sets the scaling of the dynamic	current controller precontrol for the torqu	e-generating current component lsq.		
p1821[0]	Direction of rotation				
	Changeable: C2(3)	Data type: Integer16	P group: Motor		
	Min: 0	Max: 1	Def: 0		
Description:	Setting to change the direction	of rotation.			
	If the parameter is changed, it is changing the setpoint.	reverses the direction of rotation of the mo	otor and the encoder actual value without		
Value:	0: Clockwise				
	1: Counter-clockwise				
Dependency:	See also: F07434				
	NOTICE				
	parameters can be used to set	the direction of rotation for safety monito	ally adapted in the safety area. The following ring: sign change (p9516.1/p9316.1, only active		
p2000	Reference speed				
	Changeable: ⊤	Data type: FloatingPoint32	P group: Communications		
	Min: 6.00 [rpm]	Max: 210000.00 [rpm]	Def: 3000.00 [rpm]		
Description:	Sets the reference quantity for	the speed values.			
	All speeds specified as relative	values refer to this reference quantity.			
	The reference quantity corresp	onds to 100% or 4000 hex (word) or 4000) 0000 hex (double word).		
Dependency:	See also: p2003				
p2003	Reference torque				
	Changeable: ⊤	Data type: FloatingPoint32	P group: Communications		
	Min: 0.01 [Nm]	Max: 20000000.00 [Nm]	Def: 1.00 [Nm]		
Description:	Sets the reference quantity for the torque values.				
	All torques specified as relative value are referred to this reference quantity.				
	The reference quantity corresp	onds to 100% or 4000 hex (word) or 4000	0000 hex (double word).		
r2050[019]	PZD receive word				
_	Data type: Integer16	P group: Communications	Scaling: 4000H		
Description:	Interconnection of the receiving	process data in the word format.			

12.2 List of parameters

	Data type: Unsigned16	P group: Communications
r2053[027]	Diagnostics PZD send word	
Dependency:	See also: r2060	
Dependency	[19] = PZD 20	
	[18] = PZD 19	
	[17] = PZD 18	
	[16] = PZD 17	
	[15] = PZD 16	
	[14] = PZD 15	
	[13] = PZD 14	
	[12] = PZD 13	
	[11] = PZD 12	
	[10] = PZD 11	
	[9] = PZD 10	
	[8] = PZD 9	
	[7] = PZD 8	
	[6] = PZD 7	
	[5] = PZD 6	
	[4] = PZD 5	
	[3] = PZD 4	
	[2] = PZD 3	
	[1] = PZD 2	
Index:	[0] = PZD 1	

Description:

Displays the send process data (actual values) in the word format.

12.2 List of parameters

Index:	
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[0] = F	PZD 1
[1] = F	
[2] = F	PZD 3
[3] = F	
[4] = F	
[5] = F	
[6] = F	
[7] = F	
[8] = F	
	PZD 10
	PZD 11
	PZD 12
	PZD 13
	PZD 14
	PZD 15
	PZD 16
	PZD 17
	PZD 18
	PZD 19
	PZD 20
[20] =	PZD 21
[21] =	PZD 22
	PZD 23
	PZD 24
[24] =	PZD 25
[25] =	PZD 26
[26] =	PZD 27
[27] =	PZD 28
Bit	Signal name
00	Bit 0
00 01	Bit 0 Bit 1
01	Bit 1
01 02	Bit 1 Bit 2
01 02 03	Bit 1 Bit 2 Bit 3
01 02 03 04	Bit 1 Bit 2 Bit 3 Bit 4
01 02 03 04 05	Bit 1 Bit 2 Bit 3 Bit 4 Bit 5
01 02 03 04 05 06	Bit 1 Bit 2 Bit 3 Bit 4 Bit 5 Bit 6
01 02 03 04 05 06 07 08	Bit 1 Bit 2 Bit 3 Bit 4 Bit 5 Bit 6 Bit 7
01 02 03 04 05 06 07 08 09	Bit 1 Bit 2 Bit 3 Bit 4 Bit 5 Bit 6 Bit 7 Bit 8
01 02 03 04 05 06 07 08	Bit 1 Bit 2 Bit 3 Bit 4 Bit 5 Bit 6 Bit 7 Bit 8 Bit 9
01 02 03 04 05 06 07 08 09 10 11	Bit 1 Bit 2 Bit 3 Bit 4 Bit 5 Bit 6 Bit 7 Bit 8 Bit 9 Bit 10 Bit 11
01 02 03 04 05 06 07 08 09 10	Bit 1 Bit 2 Bit 3 Bit 4 Bit 5 Bit 6 Bit 7 Bit 8 Bit 9 Bit 10

0 signal	FP
OFF	-
	OFF OFF OFF OFF OFF OFF OFF OFF OFF OFF

r2060[0...18]

PZD receive double word Data type: Integer32

Bit 14

Bit 15

per32 P group: Communications

Scaling: 4000H

Description:

Bit field:

Interconnection of the receiving process data (setpoints) in the double word format.

14

15

Index:	[0] = PZD 1 + 2			
	[1] = PZD 2 + 3			
	[2] = PZD 3 + 4			
	[3] = PZD 4 + 5			
	[4] = PZD 5 + 6			
	[5] = PZD 6 + 7			
	[6] = PZD 7 + 8			
	[7] = PZD 8 + 9			
	[8] = PZD 9 + 10			
	[9] = PZD 10 + 11			
	[10] = PZD 11 + 12			
	[11] = PZD 12 + 13			
	[12] = PZD 13 + 14			
	[13] = PZD 14 + 15			
	[14] = PZD 15 + 16			
	[15] = PZD 16 + 17			
	[16] = PZD 17 + 18			
	[17] = PZD 18 + 19			
	[18] = PZD 19 + 20			
Dependency:	See also: r2050			
r2063[026]	Diagnostics PZD send double word			
]	Data type: Unsigned32 P group: Commun	ications		
Description:	Displays the send process data (actual values) in the dou			
Index:	[0] = PZD 1 + 2	bie word format.		
IIIdox.	[1] = PZD 2 + 3			
	[2] = PZD 3 + 4			
	[3] = PZD 4 + 5			
	[4] = PZD 5 + 6			
	[5] = PZD 6 + 7			
	[6] = PZD 7 + 8			
	[7] = PZD 8 + 9			
	[8] = PZD 9 + 10			
	[9] = PZD 10 + 11			
	[10] = PZD 11 + 12			
	[11] = PZD 12 + 13			
	[12] = PZD 13 + 14			
	[13] = PZD 14 + 15			
	[14] = PZD 15 + 16			
	[15] = PZD 16 + 17			
	[16] = PZD 17 + 18			
	[17] = PZD 18 + 19			
	[18] = PZD 19 + 20			
	[19] = PZD 20 + 21			
	[20] = PZD 21 + 22			
	[21] = PZD 22 + 23			
	[22] = PZD 23 + 24			
	[23] = PZD 24 + 25			
	[24] = PZD 25 + 26			
	[25] = PZD 26 + 27			
	[26] = PZD 27 + 28			
Bit field:	Bit Signal name	1 signal	0 signal	FP

	Min: 0	Max: 65535	Def: 0	
02111	Alarm counter Changeable: T, U	Data type: Unsigned16	P group: Messages	
	The structure of the fault buf	yclically updated in the background (refer fer and the assignment of the indices is sl	• ,	
		aays, and 12 103 (miniseconds).		
		days) and r2109 (milliseconds).		
	NOTICE	, ., .,,		
ependency:		48, r0949, r2130, r2133, r2136		
escription:		onds referred to the day that the fault was	resolved.	
	Data type: Unsigned32	P group: Messages		
2109[063]	Fault removed in millis	econds		
	31 Bit 31	10	N OFF	-
	30 Bit 30	10		-
	29 Bit 29	10		-
	28 Bit 28	10		-
	27 Bit 27	10		-
	26 Bit 26	10		-
	25 Bit 25	10	N OFF	-
	24 Bit 24	10	N OFF	-
	23 Bit 23	10		-
	22 Bit 22	10		-
	21 Bit 21	10	N OFF	-
	20 Bit 20	10	N OFF	-
	19 Bit 19	10		-
	18 Bit 18	10		-
	17 Bit 17	10		-
	16 Bit 16	10		-
	15 Bit 15	10		-
	14 Bit 14	10		-
	13 Bit 13	10		-
	12 Bit 12	10		-
	11 Bit 11	10		-
	10 Bit 10	10 10		-
	08 Bit 8 09 Bit 9	10		-
	07 Bit 7 08 Bit 8	10 10		-
	06 Bit 6	10		-
	05 Bit 5	10		-
	04 Bit 4	10		-
	03 Bit 3	10		-
	02 Bit 2	10		-
	01 Bit 1	10		-

Dependency:	When setting p2111 = 0, all of the alarms that have been removed from the alarm buffer [07] are transferred into the alarm history [863] - and alarm buffer [07] is deleted.
	See also: r2122, r2123, r2124, r2125
	Note
	The parameter is reset to 0 at POWER ON.
r2121	Counter alarm buffer changes
	Data type: Unsigned16 P group: Messages
Description:	This counter is incremented every time the alarm buffer changes.
Dependency:	See also: r2122, r2123, r2124, r2125
r2122[063]	Alarm number
	Data type: Unsigned16 P group: Messages
Description:	Displays the number of the last 64 alarms.
Dependency:	See also: r2123, r2124, r2125, r2134, r2145, r2146
	NOTICE
	The properties of the alarm buffer should be taken from the corresponding product documentation.
	Note The buffer parameters are cyclically updated in the background (refer to status signal in r2139). Alarm buffer structure (general principle): r2122[0], r2124[0], r2123[0], r2125[0]> alarm 1 (the oldest)
	r2122[7], r2124[7], r2123[7], r2125[7]> Alarm 8 (the latest) When the alarm buffer is full, the alarms that have gone are entered into the alarm history: r2122[8], r2124[8], r2123[8], r2125[8]> Alarm 1 (the latest)
	r2122[63], r2124[63], r2123[63], r2125[63]> alarm 56 (the oldest)
r2123[063]	Alarm received in milliseconds
	Data type: Unsigned32 P group: Messages
Description:	Displays the time in milliseconds referred to the day that the alarm occurred.
Dependency:	See also: r2122, r2124, r2125, r2134, r2145, r2146
	NOTICE
	The time comprises r2145 (days) and r2123 (milliseconds).
	Note The buffer parameters are cyclically updated in the background (refer to status signal in r2139). The structure of the alarm buffer and the assignment of the indices is shown in r2122.
r2124[063]	Alarm value
	Data type: Integer32 P group: Messages
Description:	Displays additional information about the active alarm (as integer number).
Dependency:	See also: r2122, r2123, r2125, r2134, r2145, r2146
	Note The buffer parameters are cyclically updated in the background (refer to status signal in r2139). The structure of the alarm buffer and the assignment of the indices are shown in r2122.
r2125[063]	Alarm removed in milliseconds
	Data type: Unsigned32 P group: Messages

Description: Dependency:	Displays the time in milliseconds referred to the day that the alarm was resolved. See also: r2122, r2123, r2124, r2134, r2145, r2146
	NOTICE
	The time comprises r2146 (days) and r2125 (milliseconds).
	Note The buffer parameters are cyclically updated in the background (refer to status signal in r2139). The structure of the alarm buffer and the assignment of the indices is shown in r2122.
r2130[063]	Fault received in days
	Data type: Unsigned16 P group: Messages
Description:	Displays the time in days referred to the day that the fault occurred.
Dependency:	See also: r0945, r0947, r0948, r0949, r2109, r2133, r2136
	NOTICE
	The time comprises r2130 (days) and r0948 (milliseconds).
	Note
	The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
r2131	Actual fault number
	Data type: Unsigned16 P group: Messages
Description:	Displays the number of the active fault that occurred last.
	Note 0: No fault present.
r2132	Actual alarm value
	Data type: Unsigned16 P group: Messages
Description:	Displays the alarm that last occurred.
	Note 0: No alarm present.
r2133[063]	Fault value for float values
Deserved	Data type: FloatingPoint32 P group: Messages
Description:	Displays the additional information about the fault that occurred for float values. Refer to the fault for the interpretation of the fault value.
Dependency:	See also: r0945, r0947, r0948, r0949, r2109, r2130, r2136
	Note
	The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
r2134[063]	Alarm value for float values
	Data type: FloatingPoint32 P group: Messages
Description:	Displays the additional information about the alarm that occurred for float values.
	Refer to the alarm for an interpretation of the alarm value.
Dependency:	See also: r2122, r2123, r2124, r2125, r2145, r2146
	Note The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

r2136[063]	Fault removed in days				
	Data type:Unsigned16P group:Displays the time in days referred to the day when the fault was rectified.				
Description:					
Dependency:	See also: r0945, r0947, r094	8, r0949, r2109, r2130, r2133			
	NOTICE				
	The time comprises r2136 (days) and r2109 (milliseconds).				
	Note				
		clically updated in the background (refer t	o status signal in r2139).		
	· · · · ·				
r2145[063]	Alarm received in days				
	Data type: Unsigned16	P group: Messages			
Description:	Displays the time in days refe	rred to the day that the alarm occurred.			
Dependency:	See also: r2122, r2123, r212	4, r2125, r2134, r2146			
	NOTICE				
	The time comprises r2145 (d	ays) and r2123 (milliseconds).			
	Note				
		clically updated in the background (refer t	o status signal in r2139).		
r2146[063]	Alarm removed in days				
	Data type: Unsigned16	P group: Messages			
Description:	Displays the time in days refe	rred to the day when the alarm was clear	ed.		
Dependency:	See also: r2122, r2123, r212	4, r2125, r2134, r2145			
	NOTICE				
	The time comprises r2146 (days) and r2125 (milliseconds).				
	Note The buffer parameters are cyclically updated in the background (refer to status signal in r2139).				
			,		
p2175[0]	Motor blocked speed threshold				
	Changeable: T, U	Data type: FloatingPoint32	P group: Messages		
	Min: 0.00 [rpm]	Max: 210000.00 [rpm]	Def: 120.00 [rpm]		
Description:	Sets the speed threshold for the message "Motor locked".				
	Monitoring is deactivated with $p2175 = 0$.				
Dependency:	See also: F07900				
	Note				
	If the motor speed is less than the threshold value set in p2175 - and the motor is operated for longer than 200 ms at				
	the torque limit - then the mot	or is shut down and a fault is output.			
p3103	UTC synchronization p		_		
	Changeable: T, U	Data type: Integer16	P group: -		
	Min: 4	Max: 99	Def: 4		
Description:	Setting the synchronization p				
Value:	4: Network Time Pro				
	99: No synchronizatio	וונ			
	Note				
	If value = 4: Synchronization of the time in	the drive with the time specified by the h	aber-level control system		
		and arrest mar and arrest specified by the h			

p3106	NTP	time zone		
	Chang	eable: T, U	Data type: Integer16	P group: -
	Min: 0		Max: 38	Def: 14
Description:	Sets the	e local time zone for NTP (N	etwork Time Protocol).	
Value:	0:	UTC-12 (AOE)		
	1:	UTC-11 (NURT)		
	2:	UTC-10 (HAST)		
	3:	UTC-9:30 (MART)		
	4:	UTC-9 (AKST)		
	5:	UTC-8 (PST)		
	6:	UTC-7 (MST)		
	7:	UTC-6 (CST)		
	8:	UTC-5 (EST)		
	9:	UTC-4 (VET)		
	10:	UTC-3:30 (NST)		
	11:	UTC-3 (ART)		
	12:	UTC-2 (GST)		
	13:	UTC-1 (CVT)		
	14:	UTC+0 (GMT)		
	15:	UTC+1 (CET)		
	16:	UTC+2 (EEK)		
	17:	UTC+3 (MISK)		
	18:	UTC+3:30 (IRST)		
	19:	UTC+4 (GST)		
	20:	UTC+4:30 (AFT)		
	21:	UTC+5 (UZT)		
	22:	UTC+5:30 (IST)		
	23:	UTC+5:45 (NPT)		
	24:	UTC+6 (BST)		
	25:	UTC+6:30 (MMT)		
	26:	UTC+7 (WIB)		
	27:	UTC+8 (CST)		
	28:	UTC+8:30 (PYT)		
	29:	UTC+8:45 (ACWST)		
	30:	UTC+9 (JST)		
	31:	UTC+9:30 (ACST)		
	32:	UTC+10 (AEST)		
	33:	UTC+10:30 (ACDT)		
	34:	UTC+11 (AEDT)		
	35:	UTC+12 (ANAT)		
	36:	UTC+13 (NZDT)		
	37:	UTC+13:45 (CHADT)		
	38:	UTC+14 (LINT)		
Dependency:	See als	so: p3103		
-5271[0]	0.000		ation 1	
p5271[0]		Button Tuning configura eable: ⊤	Data type: Unsigned16	P group: -
	Min: -		Max: -	Def: 0001 1100 bin

Description:	Sets the configuration for One Button Tuning.							
Bit field:	Bit Signal name	1 signal	0 signal	FP				
	03 Speed precontrol	Yes	No	504				
	04 Torque precontrol	Yes	No	504				
	07 Voltage feedforward control	Yes	No	-				
Dependency:	See also: r5274							
	Note							
	For bit 03: Activation of speed feedforward control.							
	For bit 04:							
	Activation of speed/torque feedforward control in the drive.							
	For bit 07:							
	Activation of the voltage precontrol.							
r5274	One Button Tuning dynamic response estimated							
	Data type: FloatingPoint32 P group: -							
Description:	Displays the estimated dynamic response of the speed control loc	op as PT1 time	e constant for One But	ton Tunina				
	The lower the time constant, the higher the dynamic performance							
Dependency:	See also: p5271							
r5276[0]	One Button Tuning Kv factor estimated							
	Data type: FloatingPoint32 P group: -							
Description:	Displays the estimated position controller gain (Kv factor) for One	Button Tuning] .					
Dependency:	See also: p5271							
Dependency	Note							
	Note							
	Note The value for the closed-loop position control is required by a high	ner-level contr	ol system.					
r5277[0]	The value for the closed-loop position control is required by a high		ol system.					
r5277[0]	The value for the closed-loop position control is required by a high One Button Tuning precontrol symmetrizing time est		ol system.					
	The value for the closed-loop position control is required by a high One Button Tuning precontrol symmetrizing time est Data type: FloatingPoint32 P group: -	timated	ol system.					
	The value for the closed-loop position control is required by a high One Button Tuning precontrol symmetrizing time est Data type: FloatingPoint32 P group: - Displays the estimated precontrol symmetrizing time for One Button	timated		control sys				
Description:	The value for the closed-loop position control is required by a high One Button Tuning precontrol symmetrizing time est Data type: FloatingPoint32 P group: -	timated		control sys				
Description: Dependency:	The value for the closed-loop position control is required by a high One Button Tuning precontrol symmetrizing time est Data type: FloatingPoint32 P group: - Displays the estimated precontrol symmetrizing time for One Butt This is required to symmetrize the position controller if the closed-l See also: p5271	timated		control sys				
Description: Dependency:	The value for the closed-loop position control is required by a high One Button Tuning precontrol symmetrizing time est Data type: FloatingPoint32 P group: - Displays the estimated precontrol symmetrizing time for One Button This is required to symmetrize the position controller if the closed-lose See also: p5271 FFT tuning configuration	timated on Tuning. oop position c	ontrol is in an external	control sys				
Description: Dependency:	The value for the closed-loop position control is required by a high One Button Tuning precontrol symmetrizing time estimated Data type: FloatingPoint32 P group: - Displays the estimated precontrol symmetrizing time for One Butt This is required to symmetrize the position controller if the closed-lose See also: p5271 FFT tuning configuration Changeable: T, U Data type: Unsigned16	timated on Tuning. oop position c	ontrol is in an external group: -					
Description: Dependency: p5291	The value for the closed-loop position control is required by a high One Button Tuning precontrol symmetrizing time est Data type: FloatingPoint32 P group: - Displays the estimated precontrol symmetrizing time for One Butto This is required to symmetrize the position controller if the closed-lose See also: p5271 FFT tuning configuration Changeable: T, U Data type: Unsigned16 Min: - Max: -	timated on Tuning. oop position c	ontrol is in an external					
Description: Dependency: p5291	The value for the closed-loop position control is required by a high One Button Tuning precontrol symmetrizing time estimated Data type: FloatingPoint32 P group: - Displays the estimated precontrol symmetrizing time for One Butto This is required to symmetrize the position controller if the closed-lose See also: p5271 FFT tuning configuration Changeable: T, U Data type: Unsigned16 Min: - Max: - Sets the configuration for the "FFT tuning" function.	timated on Tuning. oop position c	ontrol is in an external group: -					
Description: Dependency: p5291 Description:	The value for the closed-loop position control is required by a high One Button Tuning precontrol symmetrizing time est Data type: FloatingPoint32 P group: - Displays the estimated precontrol symmetrizing time for One Butto This is required to symmetrize the position controller if the closed-lose See also: p5271 FFT tuning configuration Changeable: T, U Data type: Unsigned16 Min: - Max: - Sets the configuration for the "FFT tuning" function. This function is used for One Button Tuning (p5300 = 1).	timated on Tuning. oop position c P D	ontrol is in an external group: - ef: 0000 0000 0011 10	001 bin				
Description: Dependency: p5291 Description:	The value for the closed-loop position control is required by a high One Button Tuning precontrol symmetrizing time estimated Data type: FloatingPoint32 P group: - Displays the estimated precontrol symmetrizing time for One Button This is required to symmetrize the position controller if the closed-lose See also: p5271 FFT tuning configuration Changeable: T, U Data type: Unsigned16 Min: - Max: - Sets the configuration for the "FFT tuning" function. This function is used for One Button Tuning (p5300 = 1). Bit Signal name	timated on Tuning. oop position c P D	ontrol is in an external group: - ef: 0000 0000 0011 10 0 signal					
Description: Dependency: p5291 Description:	The value for the closed-loop position control is required by a high One Button Tuning precontrol symmetrizing time estimated Data type: FloatingPoint32 P group: - Displays the estimated precontrol symmetrizing time for One Butt This is required to symmetrize the position controller if the closed-lose See also: p5271 FFT tuning configuration Changeable: T, U Data type: Unsigned16 Min: - Max: - Sets the configuration for the "FFT tuning" function. This function is used for One Button Tuning (p5300 = 1). Bit Signal name 00 Noise excitation after pulse enable	timated on Tuning. oop position c P D 1 signal Yes	ontrol is in an external group: - ef: 0000 0000 0011 10 0 signal No	001 bin				
Description: Dependency: p5291 Description:	The value for the closed-loop position control is required by a high One Button Tuning precontrol symmetrizing time est Data type: FloatingPoint32 P group: - Displays the estimated precontrol symmetrizing time for One Button This is required to symmetrize the position controller if the closed-I See also: p5271 FFT tuning configuration Changeable: T, U Data type: Unsigned16 Min: - Max: - Sets the configuration for the "FFT tuning" function. This function is used for One Button Tuning (p5300 = 1). Bit Signal name 00 Noise excitation after pulse enable 01 Set current setpoint filter (HF)	timated on Tuning. oop position c P D 1 signal Yes Yes	ontrol is in an external group: - ef: 0000 0000 0011 10 0 signal No No	001 bin				
Description: Dependency: p5291 Description:	The value for the closed-loop position control is required by a high One Button Tuning precontrol symmetrizing time est Data type: FloatingPoint32 P group: - Displays the estimated precontrol symmetrizing time for One Button This is required to symmetrize the position controller if the closed-I See also: p5271 P FFT tuning configuration Changeable: T, U Data type: Unsigned16 Min: - Max: - Sets the configuration for the "FFT tuning" function. This function is used for One Button Tuning (p5300 = 1). Bit Signal name 00 00 Noise excitation after pulse enable 01 Set speed controller gain (HF)	timated on Tuning. oop position c P D 1 signal Yes Yes Yes	ontrol is in an external group: - ef: 0000 0000 0011 10 0 signal No No No	001 bin				
Description: Dependency: p5291 Description:	The value for the closed-loop position control is required by a high One Button Tuning precontrol symmetrizing time est Data type: FloatingPoint32 P group: - Displays the estimated precontrol symmetrizing time for One Butt This is required to symmetrize the position controller if the closed-lese also: p5271 FFT tuning configuration Changeable: T, U Data type: Unsigned16 Min: - Max: - Sets the configuration for the "FFT tuning" function. This function is used for One Button Tuning (p5300 = 1). Bit Signal name 00 00 Noise excitation after pulse enable 01 01 Set current setpoint filter (HF) 02 02 Set speed controller gain (HF) 03 03 Length of FFT window bit 0 (LF, HF)	timated on Tuning. oop position c P D 1 signal Yes Yes Yes Yes Yes	ontrol is in an external group: - ef: 0000 0000 0011 10 No No No No No	001 bin				
Description: Dependency: p5291 Description:	The value for the closed-loop position control is required by a high One Button Tuning precontrol symmetrizing time est Data type: FloatingPoint32 P group: - Displays the estimated precontrol symmetrizing time for One Butt This is required to symmetrize the position controller if the closed-l See also: p5271 FFT tuning configuration Changeable: T, U Data type: Unsigned16 Min: - Max: - Sets the configuration for the "FFT tuning" function. This function is used for One Button Tuning (p5300 = 1). Bit Signal name 00 Noise excitation after pulse enable 01 Set current setpoint filter (HF) 02 Set speed controller gain (HF) 03 Length of FFT window bit 0 (LF, HF) 04 Length of FFT window bit 1 (LF, HF)	timated on Tuning. oop position c P D 1 signal Yes Yes Yes Yes Yes Yes Yes	ontrol is in an external group: - ef: 0000 0000 0011 10 No No No No No No No	001 bin				
Description: Dependency: p5291 Description:	The value for the closed-loop position control is required by a high One Button Tuning precontrol symmetrizing time est Data type: FloatingPoint32 P group: - Displays the estimated precontrol symmetrizing time for One Butt This is required to symmetrize the position controller if the closed-lese also: p5271 FFT tuning configuration Changeable: T, U Data type: Unsigned16 Min: - Max: - Sets the configuration for the "FFT tuning" function. This function is used for One Button Tuning (p5300 = 1). Bit Signal name 00 00 Noise excitation after pulse enable 01 01 Set current setpoint filter (HF) 02 02 Set speed controller gain (HF) 03 03 Length of FFT window bit 0 (LF, HF)	timated on Tuning. oop position c P D 1 signal Yes Yes Yes Yes Yes	ontrol is in an external group: - ef: 0000 0000 0011 10 No No No No No	001 bin				
Description: Dependency: p5291 Description:	The value for the closed-loop position control is required by a high One Button Tuning precontrol symmetrizing time estimated Data type: FloatingPoint32 P group: - Displays the estimated precontrol symmetrizing time for One Butt This is required to symmetrize the position controller if the closed-lose See also: p5271 FFT tuning configuration Changeable: T, U Data type: Unsigned16 Min: - Max: - Sets the configuration for the "FFT tuning" function. This function is used for One Button Tuning (p5300 = 1). Bit Signal name 00 Noise excitation after pulse enable 01 Set speed controller gain (HF) 02 Set speed controller gain (HF) 03 Length of FFT window bit 0 (LF, HF) 04 Length of FFT window bit 1 (LF, HF) 05 Windowing the time signals using a Hamming window (LF,	timated on Tuning. oop position c P D 1 signal Yes Yes Yes Yes Yes Yes Yes	ontrol is in an external group: - ef: 0000 0000 0011 10 No No No No No No No	001 bin				
r5277[0] Description: Dependency: p5291 Description: Bit field:	The value for the closed-loop position control is required by a high One Button Tuning precontrol symmetrizing time estimated precontrol symmetrizing time for One Butt Displays the estimated precontrol symmetrizing time for One Butt This is required to symmetrize the position controller if the closed-lose See also: p5271 FFT tuning configuration Changeable: T, U Data type: Unsigned16 Min: - Max: - Sets the configuration for the "FFT tuning" function. This function is used for One Button Tuning (p5300 = 1). Bit Signal name 00 Noise excitation after pulse enable 01 Set current setpoint filter (HF) 02 Set speed controller gain (HF) 03 Length of FFT window bit 0 (LF, HF) 04 Length of FFT window bit 1 (LF, HF) 05 Windowing the time signals using a Hamming window (LF, HF)	timated on Tuning. oop position c oop position c P D 1 signal Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes	ontrol is in an external group: - ef: 0000 0000 0011 10 No No No No No No No No No No	001 bin				

09 Bandwidth bit 2 (LF)10 Measuring periods bit 0	Yes Yes	No No	
11 Measuring periods bit 1	Yes	No	
12 Inject noise onto speed setpoint	Yes	No	
13 Do not reduce Kp for measurement	Yes	No	
	Yes		
14 Current setpoint filter that inverts the control loop See also: r5293, p5296	res	No	
Note			
HF: High Frequency			
LF: low frequency			
For bit 00:			
A PRBS signal (pseudo random binary signal) is superimposed	d on the current se	etpoint to be able to I	better ide
mechanical controlled system.			
For bit 01:			
The identified mechanical resonance points are suppressed us	sing current setpo	oint filters.	
For bit 02:	a set if in all some all a set in		
The maximum speed controller gain is determined from the ide	entified mechanic	al controlled system	1.
For bits 03, 04: The measured value buffer length is set using these bits:			
Bit $04 = 0$ and bit $03 = 0 \rightarrow$ buffer length = 256			
Bit $04 = 0$ and bit $03 = 1 \rightarrow$ buffer length = 512			
Bit $04 = 1$ and bit $03 = 0$ -> buffer length = 1024			
Bit $04 = 1$ and bit $03 = 1 \rightarrow$ buffer length = 2048			
For bit 05:			
A Hamming window is used to filter the measured time signals For bit 06:	3 .		
The measurement checks the current controller frequency res	ponse and this is	taken into account i	n the spe
controller loop. For high amplitudes in p5298, it is possible that			
reaches its voltage limit.			
For bits 07, 08, 09:			
The measurement bandwidth is set using these bits:			
Bit 09 = 0, bit 08 = 0, bit 07 = 0 -> bandwidth = 50 Hz			
Bit 09 = 0, bit 08 = 0, bit 07 = 1 -> bandwidth = 100 Hz			
Bit 09 = 0, bit 08 = 1, bit 07 = 0 -> bandwidth = 200 Hz			
Bit 09 = 0, bit 08 = 1, bit 07 = 1 -> bandwidth = 400 Hz Bit 09 = 1, bit 08 = 0, bit 07 = 0 -> bandwidth = 800 Hz			
Bit 09 = 1, bit 08 = 0, bit 07 = 0 -> bandwidth = 360 Hz Bit 09 = 1, bit 08 = 0, bit 07 = 1 -> bandwidth = 1600 Hz			
Zu Bit 10, 11:			
Number of measuring periods.			
Bit 11 = 0 and bit 10 = 0 -> number of measurements = 1			
Bit 11 = 0 and bit 10 = 1 -> number of measurements = 2			
Bit 11 = 1 and bit 10 = 0 -> number of measurements = 4			
Bit 11 = 1 and bit 10 = 1 -> number of measurements = 8			
For bit 12:			
The DDDC signal is switched to the speed establish (in front of	the filter).		
The PRBS signal is switched to the speed setpoint (in front of			
For bit 13:		etnointe filtere	
	ont of the current s		
For bit 13:	ont of the current s		

	Onangeable. 1, 0	Data type. I loating ontoz	i group.
	Min: 25.0 [%]	Max: 125.0 [%]	Def: 80.0 [%]
Description:	Sets the dynamic factor for optin	nizing the speed controller when One Bu	tton Tuning is activated (p5300 = 1).
Dependency:	The higher the value in p5292, the	he lower the value in r5274.	
	See also: p5291		

p5292

Dependency:

	Note				
	The higher the dynamic factor	, the faster and more unstable the contro	l.		
r5293	FFT tuning speed control	oller P gain identified			
10200	Data type: FloatingPoint32	P group: Closed-loop control			
Description:		ortional gain Kp of the speed controller be	afore FET tuning		
Description.	This function is used for One E		elore i i i tuning.		
Dependency:	See also: p5291				
Dependency.	000 000 00201				
p5296[02]	Controller optimization r	noise amplitude			
	Changeable: T, U	Data type: FloatingPoint32	P group: -		
	Min: 1.0 [%]	Max: 300.0 [%]	Def: [0] 10.0 [%] [1] 30.0 [%] [2] 5.0 [%		
Description:		e amplitude for One Button Tuning and w			
Dependency:	See also: p5291	, and the second s			
p5300[0]	One Button Tuning sele	ction			
h[-]	Changeable: ⊺	Data type: Integer16	P group: -		
	Min: -1	Max: 1	Def: 0		
Description:					
Description.	Setting to activate/de-activate the One Button Tuning function.				
	If p5300 = 1: The One Button Tuning function is configured using p5271 and p5301.				
Value:	-				
value.	-1: Reset controller parameters				
	0: Inactive				
	1: One Button Tuning	-	-		
Dependency:	•	been commissioned so that One Button	I uning functions perfectly.		
		on is configured using p5271 and p5301.			
		ance of the control loop is set in p5292.			
	• ·	t signal is parameterized in p5308.			
	Additional relevant parameters p5309, p5296, p5297, r5274	, ,			
		2 5203 55206 55301 55308 55300			
	See also: p5271, r5274, p5292, r5293, p5296, p5301, p5308, p5309				
	Note If p5300 = -1:				
	•	ted and p5300 is automatically set = 0. F	urther, the presetting values for the speed		
	One Button Tuning is deactivated and p5300 is automatically set = 0. Further, the presetting values for the speed controller are restored.				
	lf p5300 = 0:				
	To permanently save the values for the speed controller that have been determined, the parameters must be saved				
	in a non-volatile memory.				
	If p5300 = 1: One Butten Tuning is active				
	One Button Tuning is active. The moment of inertia is determined once using a test signal. The controller parameters and current setpoint filters				
			e. The steps to be executed can be configured		
	One Button Tuning cont	iguration 2			
p5301[0]					
p5301[0]	Changeable: T, U	Data type: Unsigned32	P group: -		
p5301[0]	-		• •		
	Min: -	Max: -	Def: 0000 0000 0000 0111 bin		
p5301[0] Description:	Min: - Setting the functions for One E	Max: - Button Tuning (p5300 = 1).	• •		

	00 Sotting the propertional	aoin Kn	Vee	No		
	00 Setting the proportional01 Setting current setpoint		Yes Yes	No No	-	
	02 Activating the moment of		Yes	No	-	
	07 Activating synchronized		Yes	No	-	
		nination from frequency respons		No	-	
Dependency:		e configuration if One Button Tu			-	
Dependency.	See also: p5292, r5293, p529	-	ining is not active (j	10000 – 0) .		
	Note					
	For bit 00:					
	For bit 01:	etermined and set using a noise	signal.			
		oint filters are determined and se	et using a noise sig	nal		
		ynamic performance can be ach				
	For bit 02:	,				
	÷	nertia is determined using a test sing parameter p1498. The test s	-			
	For bit 07:					
		are adapted to the dynamic resp	•	-	or interpolat	
	axes. The time in p5275 shou	d be set according to the axis wi	ith the lowest dyna	mic response.		
r5306[0]	One Button Tuning stat	JS				
[0]	Data type: Unsigned16	P group: -				
Description:		tions performed using One Butto	on Tuning			
Bit field:	Bit Signal name	tions performed using one ball	1 signal	0 signal	FP	
	00 Proportional gain Kp se	ł	Yes	No	16	
	01 Current setpoint filter se				-	
	•		Yes	No	-	
	02 Moment of inertia estim		Yes	No	-	
	13 One Button Tuning succ		Yes	No	-	
Dependency	14 Controller parameters re		Yes	No	-	
Dependency:	See also: p5300, p5301					
	Note For bit 00 = 1: The speed controller gain was set using One Button Tuning					
	For bit 00 = 1: The speed controller gain was set using One Button Tuning. For bit 01 = 1: The current setpoint filter was set using One Button Tuning					
	For bit $02 = 1$: The moment of inertia was determined.					
p5308[0]	One Button Tuning dista	-	_			
		Data type: Integer32	-			
	Min: -30000 [°]	Max: 30000 [°]		f: 0 [°]		
Description:	Setting the distance limiting (permissible traversing range des motor).					
	The traversing range is limited in the positive and negative directions.					
	Note					
	A value of 360 degrees corresponds to one motor revolution.					
	The position before the pulse	enable is used as zero point.				
p5309[0]	One Button Tuning dura	ation				
F[0]	Changeable: T	Data type: Unsigned32	Pa	roup: -		
	Min: 0 [ms]	Max: 5000 [ms]	-	: 2000 [ms]		
Description:		on Tuning (several acceleration		. 2000 [110]		
		Button Tuning (Several acceleration	• •	of inertia of the drive	a train	

This function is used for One Button Tuning p5300=1 to identify the total moment of inertia of the drive train.

Dependency:	See also: F07093 Note If, within this time, no setting values can be determined, then the drive is shut down with the corresponding fault.						
r5600	Pe energy-saving mode ID						
	Data t	ype: Integer16	P group: Communicatior	IS			
Description:	Display	ys the PROFlenergy mod	de ID of the effective energy-savi	ng mode.			
Value:	0:	POWER OFF					
	2: Energy-saving mode						
	240: Operation						
	255: Ready						
	Note Pe: PF	ROFlenergy profiles					
	De e		tion nonoral				
p5611		nergy-saving proper	-	D .			
	Changeable: T Data type: Unsigned32			group: Communicatio	ns		
Deserintions		Min: - Max: -		De	f: 0000 bin		
Description:		ne general properties for	energy-saving.	4	0 sizes al		
Bit field:		Signal name Inhibit PROFlenergy con	trol commands	1 signal Yes	0 signal No	FP -	
	Note						
	Pe: PROFlenergy profiles						
r8936[01]	PN c	cyclic connection sta	te				
	Data t	ype: Integer16	P group: -				
Description:	Display	ys the state of the cyclic	PROFINET connections.				
Value:	0:	Interrupted					
	1:	Not connected					
	2:	Connection starts to	o be established				
	3:	Module information	expected				
	4:	Module information	received				
	5:	Module address ex	pected				
	6:	Module address red	ceived				
	7:	Parameterization d	ata expected				
	8:	Parameterization d	ata received				
	9:	Evaluate paramete	rization data				
	10:	Connection being e	established completion expected				
	11:	Configured controll	er RUN expected				
	12:	Configured controll					
	13:	Configured controll	er RUN				
Index:	[0] = C	Controller 1					
	[1] = C	controller 2					

	Note	d Device or system redundancy) the display in t	ne index depends on the secure	nce ir		
	which the connections are e		ie maex depends on the sequer			
	The IP addresses of controllers 1 and 2 are displayed in r8961 and r8962. The following states are displayed for system redundancy:					
	Primary controller: r8936[x]					
	Backup controller: r8936[x] = 11 If value = 10: If the connection remains in this state, then when using PROFINET IRT the following can apply:					
	- topology error (incorrect p	-				
	- synchronization missing.					
8937[05]	PN diagnostics					
	Data type: Unsigned32	P group: -				
escription:	Display to diagnose the cyc	lic PROFINET connections.				
ndex:	[0] = Number of cyclic conn	ections				
	[1] = Number of send subsid					
		ata (bytes) of all connections				
	[3] = Number of receive sub					
	[4] = Number of receive net	data (bytes) of all connections				
	[5] = Connection type (RT, IRT)					
	Note					
	For index [5]:					
	Bit 0 = 1: there is at least one RT connection.					
	Bit 1 = 1: there is an IRT connection.					
8984[01]	BI: Web server interfa	ace enable				
	Changeable: ⊺	Data type: Unsigned32 / Binary	P group: -			
	Min: -	Max: -	Def: [0] 1 [1] 0			
escription:	Setting to enable the interfa	ace for access via the web server.				
dex:	[0] = Reserved					
	[1] = PROFINET X150					
Dependency:	See also: p8986					
	Note					
epenuency.						
еренценсу.	BI:p8984[1] = 1 signal:					
יסףפוועפוונץ.	BI:p8984[1] = 1 signal: PROFINET interface X150 i	is enabled for access to the web server.				
ерениенсу.	BI:p8984[1] = 1 signal: PROFINET interface X150 i BI:p8984[1] = 0 signal:					
араниансу.	BI:p8984[1] = 1 signal: PROFINET interface X150 i BI:p8984[1] = 0 signal:	is enabled for access to the web server.				
8986	BI:p8984[1] = 1 signal: PROFINET interface X150 i BI:p8984[1] = 0 signal:	is enabled for access to the web server.				
	BI:p8984[1] = 1 signal: PROFINET interface X150 i BI:p8984[1] = 0 signal: PROFINET interface X150 i Web server configurat Changeable: T	is enabled for access to the web server. tion Data type: Unsigned16	P group: -			
	BI:p8984[1] = 1 signal: PROFINET interface X150 i BI:p8984[1] = 0 signal: PROFINET interface X150 i Web server configurat Changeable: T Min: -	is enabled for access to the web server. tion Data type: Unsigned16 Max: -	P group: - Def: 1101 bin			
8986	BI:p8984[1] = 1 signal: PROFINET interface X150 i BI:p8984[1] = 0 signal: PROFINET interface X150 i Web server configurat Changeable: T Min: -	is enabled for access to the web server. tion Data type: Unsigned16				
8986	BI:p8984[1] = 1 signal: PROFINET interface X150 i BI:p8984[1] = 0 signal: PROFINET interface X150 i Web server configuration Changeable: T Min: - Setting to activate and confi	is enabled for access to the web server. tion Data type: Unsigned16 Max: - igure the "Web server" function in the drive. web server via the integrated Ethernet and PRO	Def: 1101 bin	ne		
8986 escription:	BI:p8984[1] = 1 signal: PROFINET interface X150 i BI:p8984[1] = 0 signal: PROFINET interface X150 i Web server configurat Changeable: T Min: - Setting to activate and confi It is possible to access the v addressing is realized via the	tion Data type: Unsigned16 Max: - igure the "Web server" function in the drive. web server via the integrated Ethernet and PRO ne set IP address.	Def: 1101 bin FINET interfaces of the drive. Th	ne		
8986 escription:	BI:p8984[1] = 1 signal: PROFINET interface X150 is BI:p8984[1] = 0 signal: PROFINET interface X150 is Web server configurat Changeable: T Min: - Setting to activate and confil It is possible to access the vir addressing is realized via the Bit Signal name	is enabled for access to the web server. tion Data type: Unsigned16 Max: - igure the "Web server" function in the drive. web server via the integrated Ethernet and PRO he set IP address. 1 signal	Def: 1101 bin FINET interfaces of the drive. Th 0 signal			
8986 escription:	BI:p8984[1] = 1 signal: PROFINET interface X150 i BI:p8984[1] = 0 signal: PROFINET interface X150 i Web server configuration Changeable: T Min: - Setting to activate and confil It is possible to access the visit addressing is realized visit Bit Signal name 00 Activating	is enabled for access to the web server. tion Data type: Unsigned16 Max: - igure the "Web server" function in the drive. web server via the integrated Ethernet and PRO he set IP address. 1 signal Yes	Def: 1101 bin FINET interfaces of the drive. Th 0 signal No			
	BI:p8984[1] = 1 signal: PROFINET interface X150 i BI:p8984[1] = 0 signal: PROFINET interface X150 i Web server configurat Changeable: T Min: - Setting to activate and confil It is possible to access the v addressing is realized via the Bit Signal name	is enabled for access to the web server. tion Data type: Unsigned16 Max: - igure the "Web server" function in the drive. web server via the integrated Ethernet and PRO he set IP address. 1 signal Yes ia https Yes	Def: 1101 bin FINET interfaces of the drive. Th 0 signal			

p9370	SI Motion acceptance to	est mode				
	Changeable: T, U Data type: Integer16		Р	P group: Safety Integrated		
	Min: 0000 hex	Max: 00AC hex	D	ef: 0000 hex		
Description:	Setting to select and de-select	t the acceptance test mode.				
Value:	0: [00 hex] De-selec	t the acceptance test mode				
	172: [AC hex] Select th	ne acceptance test mode				
Dependency:	See also: C01799					
	Note The acceptance test mode ca (p9601.2).	n only be selected if the motion moni	itoring functior	s integrated in the dri	ve are enable	
r9371	SI Motion acceptance t	est status (Motor Module)				
	Data type: Integer16	P group: Safety Integrated				
Description:	Displays the status of the acc					
Value:	0: [00 hex] Acc_mod	•				
		de not possible due to POWER ON f	ault			
	• • • -	de not possible due to incorrect ID in				
		le not possible due to expired Acc_ti				
	172: [AC hex] Acc_mo					
Dependency:	See also: p9370					
	See also: C01799					
p9501	SI Motion enable safety functions					
	Changeable: C2(95)	Data type: Unsigned32	Р	group: Safety Integra	ted	
	Min: -	Max: -		ef: 0000 0000 0000 0000 00	000 0000 000	
Description:	Sets the enable signals for the	e safe motion monitoring.				
Bit field:	Bit Signal name		1 signal	0 signal	FP	
	00 Enable SOS/SLS		Enable	Inhibit	-	
	16 Enable SSM hysteresis	and filtering	Enable	Inhibit	2823	
	17 Enable SDI		Enable	Inhibit	2824	
	18 Enable SS2E		Enable	Inhibit	-	
	24 Enable transfer SLS lim	it value via PROFIsafe	Enable	Inhibit	-	
Dependency:	See also: F01682, F01683					
			ne speed mon	toring)		
p9502	SI Motion axis type					
	Changeable: C2(95)	Data type: Integer16	Р	group: Safety Integra	ted	
	Min: 0	Max: 1	D	əf: 0		
	Sets the axis type (linear axis	or rotary axis/spindle)				
Description:		of rotary axis/spinale).				
Description: Value:	0: Linear axis					

	Note For the commissioning tool, after changing over the axis type, the units dependent on the axis type are only updated after a project upload. A change only becomes effective after a POWER ON.					
09505	SI Motion SP modulo va	lue is				
	Changeable: C2(95)	Data type: FloatingPoint32	Pgi	roup: Safety Integrate	ed	
	Min: 0 [°]	Max: 737280 [°]	-	: 0 [°]		
escription:		ees for rotary axes of the "Safe position"				
·		account when safely referencing as w		transferring the safe	position via	
	(+/-2048) overflows, this does	at it is precisely at 2 [^] n revolutions, so the not cause the position actual value to ju		range that can be re	epresented	
_	The modulo function is deactiv	ated for a value = 0.				
ependency:	See also: p9501					
	See also: F01681					
	NOTICE					
	When the "SLP" function is activated, the modulo function must be deactivated as otherwise fault F01681 will be output. If the absolute position is not enabled, then the parameterized modulo value is not taken into account.					
	SLP: Safely Limited Position SP: Safe Position					
9506	SI Motion function speci		_			
	Changeable: C2(95)	Data type: Integer16	-	roup: Safety Integrate	ed	
	Min: 0	Max: 2	Def	: 0		
escription:	Sets the function specification	-				
alue:		er and accel_monitoring (SAM) / delay t	ime			
		er with brake ramp (SBR)				
ependency:	See also: C01711					
	Note A change only becomes effective after a POWER ON.					
9507	SI Motion function config	guration				
	Changeable: C2(95)	Data type: Unsigned32	P ai	roup: Safety Integrate	ed	
	Min: -	Max: -		: 0100 0001 bin		
escription:		for the safe motion monitoring function				
it field:	Bit Signal name		signal	0 signal	FP	
il neia.	•		•	No	-	
it neid.	UU Extended messade ackr					
it heid.	00 Extended message ackr 01 Setpoint velocity limit for)	Yes	-	
it neid.	00 Extended message ackr 01 Setpoint velocity limit for 03 SS1 with OFF3 (brake re	STOP F No		Yes stop_SS1 with OFF3	- 3 -	

	Note					
	SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204) SS1E: Safe Stop 1 external (Safe Stop 1 with external stop)					
	For bit 00: When the function is activa	ated, a safety-relevant acknowledgment (inte	ernal event a	acknowledge) can be	performed b	
	selecting/deselecting STC For bit 01:).				
	When the function is activ For bit 03:	ated, the active setpoint velocity limit (CO: r	9733) is set	to zero when STOP	F is active.	
	which should be externally	- when selecting function SS1 or activating a / initiated, is triggered instead of SS1 with a toring (SBR, SAM) is deactivated.				
p9513	SI Motion non safety	r-relevant measuring steps POS1				
	Changeable: C2(95)	Data type: Unsigned32	Pg	roup: Safety Integrat	ed	
	Min: 0	Max: 4294967295	Def	: 22000		
Description:	Sets the non safety-releva	ant measuring steps of position value POS1.				
	The encoder that is used the	for the safe motion monitoring function must	be paramet	terized in this parame	eter.	
Dependency:	See also: F01670					
	Note					
	For safe functions that are not enabled (p9501 = 0), the following applies:					
		et when the system powers up.				
	•	re enabled (p9501 > 0), the following applie	S:			
	- p9513 is checked to see	that it matches the encoder.				
p9515	SI Motion encoder coarse position value configuration					
	Changeable: C2(95)	Data type: Unsigned32	P g	P group: Safety Integrated		
	Min: -	Max: -		: 0000 0000 0000 00 0 0000 bin	00 0000 000	
Description:	-	ation for the redundant coarse position valu				
		for the safe motion monitoring function must	•			
Bit field:	Bit Signal name		signal	0 signal	FP	
	00 Incrementer	Ye		No	-	
	01 Encoder CRC least			No	-	
		position val. most significant bit left-alignedYe		No	-	
	04 Binary comparison	•		No	-	
	05 Single-channel enco			No	-	
	16 DRIVE-CLiQ encod	er Ye	es	No	-	
	For safe functions that are - p9515.16 is automaticall For safety functions that a	nction (p9700 = 57 hex), p9515.05 are set e not enabled (p9501 = 0), the following app y set when the system powers up. re enabled (p9501 > 0), the following applie see that it matches the encoder.	lies:	o the encoder.		
p9516	- after starting the copy fu For safe functions that are - p9515.16 is automaticall For safety functions that a - p9515.16 is checked to s	e not enabled (p9501 = 0), the following app y set when the system powers up. re enabled (p9501 > 0), the following applie	lies:	o the encoder.		
p9516	- after starting the copy fu For safe functions that are - p9515.16 is automaticall For safety functions that a - p9515.16 is checked to s	e not enabled ($p9501 = 0$), the following app y set when the system powers up. re enabled ($p9501 > 0$), the following applie see that it matches the encoder.	lies: s:	o the encoder.	ed	
p9516	- after starting the copy fur For safe functions that are - p9515.16 is automaticall For safety functions that a - p9515.16 is checked to s	e not enabled (p9501 = 0), the following app y set when the system powers up. re enabled (p9501 > 0), the following applie see that it matches the encoder.	lies: s: Pg		ed	
	- after starting the copy fu For safe functions that are - p9515.16 is automaticall For safety functions that a - p9515.16 is checked to s SI Motion encoder c Changeable: C2(95) Min: - Sets the configuration for	e not enabled (p9501 = 0), the following app y set when the system powers up. re enabled (p9501 > 0), the following applie see that it matches the encoder. onfiguration safety functions Data type: Unsigned16 Max: - the motor encoder and position actual value	lies: s: P gi Def	roup: Safety Integrat : 0000 0000 bin		
p9516 Description: Bit field:	- after starting the copy fu For safe functions that are - p9515.16 is automaticall For safety functions that a - p9515.16 is checked to s SI Motion encoder c Changeable: C2(95) Min: - Sets the configuration for	e not enabled (p9501 = 0), the following app y set when the system powers up. re enabled (p9501 > 0), the following applie see that it matches the encoder. onfiguration safety functions Data type: Unsigned16 Max: - the motor encoder and position actual value for the safe motion monitoring function must	lies: s: P gi Def	roup: Safety Integrat : 0000 0000 bin		

	01 Position actual value s		Yes	No	-		
Dependency:	04 No STOP A after enco See also: F01671	der fault for 1 encoder safety	Yes	No	-		
p9518	SI Motion encoder pulses per revolution						
	Changeable: C2(95) Min: 0	Data type: Unsigned32 Max: 16777215		P group: Safety Integra Def: 2048	ted		
Description:	Sets the number of encoder p The encoder that is used for See also: F01671	oulses per revolution. the safe motion monitoring functio	n must be pa	rameterized in this param	neter.		
Dependency:	Note For safe functions that are no - p9518 is automatically set v	enabled (p9501 > 0), the following					
p9519	SI Motion fine resolution	n G1 XIST1					
•	Changeable: C2(95) Min: 2	Data type: Unsigned32 Max: 18		P group: Safety Integra Def: 11	ted		
Description: Dependency:	Sets the fine resolution for G1_XIST1 in bits. The encoder that is used for the safe motion monitoring function must be parameterized in this parameter.						
	For safe functions that are no - p9519 is automatically set v	enabled (p9501 > 0), the following					
p9520	SI Motion spindle pitch						
Description:	Changeable: C2(95) Min: 0.1000 [mm]	Data type: FloatingPoin Max: 8388.0000 [mm] he encoder and load in mm/revolu		P group: Safety Integra Def: 10.0000 [mm] ar axis with rotary encod			
	NOTICE The fourth decimal point can be rounded-off depending on the size of the entered number (from 3 places before the decimal point).						
p9521[07]	SI Motion gearbox encoder (motor)/load denominator						
	Changeable: C2(95) Min: 1	Data type: Unsigned32 Max: 2147000000		P group: Safety Integra Def: 1	ted		
Description: Index:	Sets the denominator for the [0] = Gearbox 1 [17] = Reserved	gearbox between the encoder and	d load.				
Dependency:	See also: p9522						
	SI Motion gearbox enc	oder (motor)/load numerato	or				
· · ·	Changeable: C2(95) Min: 1	Data type: Unsigned32 Max: 2147000000		P group: Safety Integra Def: 1	ted		
Description:	Sets the numerator for the ge	earbox between the encoder and le	oad.				

Index:	[0] = Gearbox 1				
Dependency "	[17] = Reserved				
Dependency:	See also: p9521				
p9523	SI Motion redundant co	parse position value valid bits			
	Changeable: C2(95) Min: 0	Data type: Unsigned16 Max: 16	P group: Safety Integrated Def: 9		
Description:		of the redundant coarse position value. the safe motion monitoring function must	be parameterized in this parameter.		
	Note After starting the SI Motion ca	opy function, this parameter is set after th	e encoder.		
p9524	SI Motion Redundant of	coarse position value fine resolution	on bits		
	Changeable: C2(95) Min: -16	Data type: Integer16 Max: 16	P group: Safety Integrated Def: -2		
Description:		for the fine resolution of the redundant co the safe motion monitoring function must			
	Note After starting the SI Motion co	opy function, this parameter is set after th	e encoder.		
p9525	SI Motion Redundant coarse position value relevant bits				
	Changeable: C2(95)	Data type: Unsigned16	P group: Safety Integrated		
Description:	Min: 0 Max: 16 Def: 16 Sets the number of relevant bits for the redundant coarse position value. The encoder that is used for the safe motion monitoring function must be parameterized in this parameter.				
	- p9525 is automatically set v For safety functions that are	Note For safe functions that are not enabled (p9501 = 0), the following applies: - p9525 is automatically set when the system powers up. For safety functions that are enabled (p9501 > 0), the following applies: - p9525 is checked to see that it matches the encoder.			
p9529	SI Motion Gx_XIST1 coarse position safe most significant bit				
F	Changeable: C2(95) Min: 0	Data type: Unsigned16 Max: 31	P group: Safety Integrated Def: 14		
Description:	Sets the bit number for the safe most significant bit (MSB) of the Gx_XIST1 coarse position. The encoder that is used for the safe motion monitoring function must be parameterized in this parameter.				
	Note MSB: Most Significant Bit For safe functions that are not enabled (p9501 = 0), the following applies: - p9529 is automatically set when the system powers up. For safety functions that are enabled (p9501 > 0), the following applies: - p9529 is checked to see that it matches the encoder.				
p9530	SI Motion standstill tole	erance			
Description: Dependency:	Changeable: C2(95) Min: 0.000 [mm] Sets the tolerance for the "S0 See also: C01707	Data type: FloatingPoint32 Max: 100.000 [mm] DS" function.	P group: Safety Integrated Def: 1.000 [mm]		

Note SOS: Safe Operating Stop p9531[0...3] SI Motion SLS limit values Changeable: C2(95) Data type: FloatingPoint32 P group: Safety Integrated Min: 0.00 [mm/min] Max: 1000000.00 [mm/min] Def: 2000.00 [mm/min] Sets the limit values for the function "SLS" function. **Description:** Index: [0] = Limit value SLS1 [1] = Limit value SLS2 [2] = Limit value SLS3 [3] = Limit value SLS4 Dependency: See also: p9563 See also: C01714 Note SLS: Safely Limited Speed p9533 SI Motion SLS setpoint speed limiting Changeable: T, U Data type: FloatingPoint32 P group: Safety Integrated Min: 0.000 [%] Max: 100.000 [%] Def: 80.000 [%] **Description:** This is an evaluation factor to define the setpoint limit from the selected actual speed limit. The active SLS limit value is evaluated with this factor and is made available as setpoint limit in r9733. Dependency: This parameter only has to be parameterized for the motion monitoring functions integrated in the drive (p9601.2 = 1) r9733[0] = p9531[x] x p9533 (converted from the load side to the motor side) r9733[1] = - p9531[x] x p9533 (converted from the load side to the motor side) [x] = Selected SLS stage Conversion factor from the motor side to the load side: - motor type = rotary and axis type = linear: p9522 / (p9521 x p9520) - otherwise: p9522 / p9521 See also: p9501, p9531, p9601 Note The active actual speed limit is selected via safety-relevant inputs. When selecting SOS or a STOP A ... D, setpoint 0 is specified in r9733. SLS: Safely Limited Speed p9539[0...7] SI Motion gearbox direction of rotation reversal Changeable: C2(95) Data type: Integer16 P group: Safety Integrated Min: 0 Max: 1 Def: 0 **Description:** Sets the direction of rotation reversal for the gearbox. 0: No direction of rotation reversal 1: Direction of rotation reversal Index: [0] = Gearbox 1 [1...7] = Reserved Dependency: See also: p9521 p9542 SI Motion actual value comparison tolerance (cross-check) Changeable: C2(95) Data type: FloatingPoint32 P group: Safety Integrated Min: 0.0010 [mm] Max: 360.0000 [mm] Def: 0.1000 [mm] **Description:** Sets the tolerance for the data cross-check of the actual position between the two monitoring channels. Dependency: See also: C01711

		motor" and factory setting of p9520, p952 rance of 36 ° on the motor side.	1 and p9522, the factory setting of p954		
p9545	SI Motion SSM filter tim	e			
	Changeable: C2(95)	Data type: FloatingPoint32	P group: Safety Integrated		
	Min: 0.00 [ms]	Max: 500.00 [ms]	Def: 0.00 [ms]		
Description:	Sets the filter time for the SSM	I feedback signal to detect standstill.			
	Note				
	The parameter is included in t The set time is rounded intern	if the function is enabled (p9501.16 = 1). he data cross-check of the two monitoring ally to an integer multiple of the monitoring fety-relevant feedback signal from the spe	g clock cycle.		
p9546	SI Motion SSM velocity	limit			
	Changeable: C2(95)	Data type: FloatingPoint32	P group: Safety Integrated		
	Min: 0.00 [mm/min]	Max: 1000000.00 [mm/min]	Def: 20.00 [mm/min]		
Description:		SM feedback signal to detect standstill.			
	•	shot, the signal "SSM feedback signal activ	ve" is set.		
	For p9568 = 0, the value in p9	546 is also applicable for SAM/SBR.			
p9547	SSM: Safe Speed Monitor (safety-relevant feedback signal from the speed monitoring) SI Motion SSM velocity hysteresis				
	Changeable: C2(95)	Data type: FloatingPoint32	P group: Safety Integrated		
	Min: 0.0010 [mm/min]	Max: 500.0000 [mm/min]	Def: 10.0000 [mm/min]		
Description:		Max: 500.0000 [mm/min] r the SSM feedback signal to detect stands			
-					
Description: Dependency:	Sets the velocity hysteresis fo				
-	Sets the velocity hysteresis fo See also: C01711 Note The velocity hysteresis is effe The parameter is included in t		still. .16 = 1). channels.		
Dependency:	Sets the velocity hysteresis fo See also: C01711 Note The velocity hysteresis is effe The parameter is included in t	r the SSM feedback signal to detect stands ctive only if the function is enabled (p9501 he data cross-check of the two monitoring fety-relevant feedback signal from the spe	still. .16 = 1). channels.		
Dependency:	Sets the velocity hysteresis fo See also: C01711 Note The velocity hysteresis is effe The parameter is included in t SSM: Safe Speed Monitor (sa	r the SSM feedback signal to detect stands ctive only if the function is enabled (p9501 he data cross-check of the two monitoring fety-relevant feedback signal from the spe	still. .16 = 1). channels.		
Dependency:	Sets the velocity hysteresis for See also: C01711 Note The velocity hysteresis is effer The parameter is included in the SSM: Safe Speed Monitor (sates of the second seco	r the SSM feedback signal to detect stands ctive only if the function is enabled (p9501 he data cross-check of the two monitoring fety-relevant feedback signal from the spe peed tolerance	still. .16 = 1). channels. ed monitoring)		
Dependency:	Sets the velocity hysteresis for See also: C01711 Note The velocity hysteresis is effer The parameter is included in the SSM: Safe Speed Monitor (satisfied SI Motion SAM actual states Changeable: C2(95)	r the SSM feedback signal to detect stands ctive only if the function is enabled (p9501 he data cross-check of the two monitoring fety-relevant feedback signal from the spe peed tolerance Data type: FloatingPoint32 Max: 120000.00 [mm/min]	still. .16 = 1). channels. ed monitoring) P group: Safety Integrated		
Dependency: p9548 Description:	Sets the velocity hysteresis for See also: C01711 Note The velocity hysteresis is effer The parameter is included in the SSM: Safe Speed Monitor (satisfied SI Motion SAM actual states Changeable: C2(95) Min: 0.00 [mm/min]	r the SSM feedback signal to detect stands ctive only if the function is enabled (p9501 he data cross-check of the two monitoring fety-relevant feedback signal from the spe peed tolerance Data type: FloatingPoint32 Max: 120000.00 [mm/min]	still. .16 = 1). channels. ed monitoring) P group: Safety Integrated		
Dependency: p9548 Description:	Sets the velocity hysteresis for See also: C01711 Note The velocity hysteresis is effer The parameter is included in the SSM: Safe Speed Monitor (satisfied SI Motion SAM actual states Changeable: C2(95) Min: 0.00 [mm/min] Sets the velocity tolerance for See also: C01706 Note	r the SSM feedback signal to detect stands ctive only if the function is enabled (p9501 he data cross-check of the two monitoring fety-relevant feedback signal from the spe peed tolerance Data type: FloatingPoint32 Max: 120000.00 [mm/min]	still. .16 = 1). channels. ed monitoring) P group: Safety Integrated		
Dependency: p9548 Description: Dependency:	Sets the velocity hysteresis for See also: C01711 Note The velocity hysteresis is effer The parameter is included in t SSM: Safe Speed Monitor (sat SI Motion SAM actual s Changeable: C2(95) Min: 0.00 [mm/min] Sets the velocity tolerance for See also: C01706 Note SAM: Safe Acceleration Monit	r the SSM feedback signal to detect stands ctive only if the function is enabled (p9501 he data cross-check of the two monitoring fety-relevant feedback signal from the spe peed tolerance Data type: FloatingPoint32 Max: 120000.00 [mm/min] the "SAM" function.	still. .16 = 1). channels. ed monitoring) P group: Safety Integrated		
•	Sets the velocity hysteresis for See also: C01711 Note The velocity hysteresis is effer The parameter is included in the SSM: Safe Speed Monitor (satisfied SI Motion SAM actual states Changeable: C2(95) Min: 0.00 [mm/min] Sets the velocity tolerance for See also: C01706 Note	r the SSM feedback signal to detect stands ctive only if the function is enabled (p9501 he data cross-check of the two monitoring fety-relevant feedback signal from the spe peed tolerance Data type: FloatingPoint32 Max: 120000.00 [mm/min] the "SAM" function.	still. .16 = 1). channels. ed monitoring) P group: Safety Integrated		

Description:	Sets the delay time for the SLS changeover and for the activation of SOS for the "SLS" and "SOS" functions. When transitioning from a higher to a lower safely limited speed level, and when activating SOS, within this delay time, the "old" speed level remains active.						
	This delay is also applicable when activating SLS from the state "SOS and SLS inactive" and activating SOS from the state "SOS inactive".						
	Note The set time is rounded intern SLS: Safely Limited Speed SOS: Safe Operating Stop	nally to an integer multiple of the monitoring	g clock cycle.				
p9552	SI motion, transition tin	SI motion, transition time STOP C to SOS					
	Changeable: C2(95) Min: 0.00 [ms]	Data type: FloatingPoint32 Max: 600000.00 [ms]	P group: Safety Integrated Def: 100.00 [ms]				
Description:	Sets the transition time from	STOP C to "SOS".					
	Note The set time is rounded intern SOS: Safe Operating Stop	nally to an integer multiple of the monitoring	g clock cycle.				
 p9553	SI motion transition tim	e STOP D to SOS					
	Changeable: C2(95) Min: 0.00 [ms]	Data type: FloatingPoint32 Max: 600000.00 [ms]	P group: Safety Integrated Def: 100.00 [ms]				
Description:	Sets the transition time from STOP D to "SOS".						
	Note The set time is rounded internally to an integer multiple of the monitoring clock cycle. SOS: Safe Operating Stop						
p9555	SI Motion transition time STOP F to STOP B						
	Changeable: C2(95) Min: 0.00 [ms]	Data type: FloatingPoint32 Max: 600000.00 [ms]	P group: Safety Integrated Def: 0.00 [ms]				
Description: Dependency:	Sets the transition time from STOP F to STOP B. See also: C01711						
	Note The set time is rounded internally to an integer multiple of the monitoring clock cycle.						
p9556	SI Motion STOP A delay time						
	Changeable: C2(95) Min: 0.00 [ms]	Data type: FloatingPoint32 Max: 3600000.00 [ms]	P group: Safety Integrated Def: 100.00 [ms]				
Description: Dependency:	Sets the delay time for STOP A after STOP B. See also: p9560 See also: C01701						
	Note The set time is rounded intern	nally to an integer multiple of the monitoring	g clock cycle.				
p9557	SI Motion STO test tim	9					
	Changeable: C2(95)	Data type: FloatingPoint32	P group: Safety Integrated				
Description: Dependency:	Min: 0.00 [ms] Sets the time after which STO See also: C01798	Max: 10000.00 [ms] O must be active when initiating the test sto	Def: 100.00 [ms] op.				

		time is rounded interr afe Torque Off	nally to an integer multiple of the monitoring	g clock cycle.		
p9558	SI Mo	tion acceptance t	est mode, time limit			
	Change	eable: C2(95) 000.00 [ms]	Data type: FloatingPoint32 Max: 100000.00 [ms]	P group: Safety Integrated Def: 40000.00 [ms]		
Description:	Sets the maximum time for the acceptance test mode. If the acceptance test mode takes longer than the selected time limit, then the mode is automatically terminated					
Dependency:		o: C01799				
	Note The set	time is rounded interr	nally to an integer multiple of the monitoring	g clock cycle.		
p9559	SI Mo	tion forced check	ing procedure timer			
	Change	eable: C2(95)	Data type: FloatingPoint32	P group: Safety Integrated		
	Min: 0.0		Max: 9000.00 [h]	Def: 8.00 [h]		
Description:	Sets the		ing out the forced checking procedure and t	testing the safety motion monitoring functions		
	"STO" f	Within the parameterized time, the safety functions must have been tested at least once (including de-selection of the "STO" function).				
		-	each time the test is carried out.			
Dependency:	•	nal source to initiate tr o: A01697, C01798	ne forced checking procedure is set in p97	05.		
	Note STO: Safe Torque Off					
p9560	SI Mo	tion STO shutdov	vn speed			
	Change	eable: C2(95)	Data type: FloatingPoint32	P group: Safety Integrated		
	Min: 0.0	00 [mm/min]	Max: 6000.00 [mm/min]	Def: 0.00 [mm/min]		
Description:		e shutdown velocity fo his velocity "standstill"	r activating STO. ' is assumed and for STOP B / SS1, STO i	s selected.		
Dependency:	See also: p9556					
	Note					
	The shutdown velocity has no effect for a value = 0. SS1: Safe Stop 1					
		afe Torque Off				
-0562[0 2]		tion CLC on origin	- den men en e			
p9563[03]		tion, SLS-specific				
	Min: 0	eable: C2(95)	Data type: Integer16 Max: 13	P group: Safety Integrated Def: 1		
Description:			sponse for the "SLS" function.			
	These settings apply to the individual limit values for SLS.					
			signifies personnel protection, from 10 and	upwards, machine protection.		
Value:	0:	STOP A				
	1:	STOP B				
	2:	STOP C				
	3:	STOP D				
	10:		ayed stop response when the bus fails			
	11: STOP B with delayed stop response when the bus fails					

		C with delayed stop response when the b				
In days.		D with delayed stop response when the b	us fails			
Index:	[0] = Limit value SL [1] = Limit value SL					
	[1] = Limit value SL [2] = Limit value SL					
	[3] = Limit value SL					
Dependency:	See also: p9531, p					
	Note					
		se, bus failure is interpreted here as a co	mmunication error in the control signals of the safety			
	functions (e.g. via F	,				
	SLS: Safely Limited	Speed				
 p9564	SI Motion SDI 1	olerance				
-	Changeable: C2(9	5) Data type: FloatingPo	int32 P group: Safety Integrated			
	Min: 0.001 [mm]	Max: 360.000 [mm]	Def: 12.000 [mm]			
Description:	Sets the tolerance f	or the "SDI" function.				
	This motion in the r	nonitored direction is still permissible before	pre safety message C01716 is initiated.			
Dependency:	See also: p9565, p	9566				
	See also: C01716					
	Note					
	SDI: Safe Direction	(safe motion direction)				
p9565	SI Motion SDI	•				
	Changeable: C2(9		•••••			
Description	Min: 0.00 [ms]	Max: 600000.00 [ms]	Def: 100.00 [ms]			
Description:	After selecting the S	for the "SDI" function. SDI function, then for a maximum of this tir be used for braking any motion.	ne, motion in the monitored direction is permissible. This			
Dependency:	See also: p9564, p					
	See also: C01716					
	Note					
	The set time is rounded internally to an integer multiple of the monitoring clock cycle.					
	SDI: Safe Direction	(safe motion direction)				
p9566	SI Motion SDI	stop response				
	Changeable: C2(9	Data type:Integer16	P group: Safety Integrated			
	Min: 0	Max: 13	Def: 1			
Description:	Sets the stop respo	nse for the "SDI" function.				
	This setting applies	to both directions of motion.				
Value:	0: STOP	A				
	1: STOP I	3				
	2: STOP (C				
	3: STOP I)				
		A with delayed stop response when the b				
		3 with delayed stop response when the b				
		C with delayed stop response when the b				
Danasi		D with delayed stop response when the b	us fails			
Dependency:	See also: p9564, p See also: C01716	9995				

	Note In an extended sense, bus fai functions (e.g. via PROFIsafe SDI: Safe Direction (safe moti		on fault in the control signals of the safety		
p9568	SI Motion SAM/SBR sp	eed limit			
•	Changeable: C2(95)	Data type: FloatingPoint32	P group: Safety Integrated		
	Min: 0.00 [mm/min]	Max: 1000.00 [mm/min]	Def: 0.00 [mm/min]		
Description:	Sets the velocity limit for the "	SAM" and "SBR" functions.			
	If the drive is being ramped do a STOP A is initiated.	wn, but accelerates by the tolerance in p9	548, then the SAM function identifies this and		
	The monitoring operates as fo	ollows:			
		ted for SS1 (or STOP B) and SS2 (or STC	,		
		a after the velocity limit in p9568 is underso uted until the transition time to SOS/STO b			
	SBR: Safe Brake Ramp (safe SSM: Safe Speed Monitor (sa For p9568 = 0, the following a	fety-relevant feedback signal from the spe	eed monitoring)		
p9570	SI Motion acceptance test mode				
	Changeable: T, U	Data type: Integer16	P group: Safety Integrated		
	Min: 0000 hex	Max: 00AC hex	Def: 0000 hex		
Description:	Setting to select and de-selec	t the acceptance test mode.			
Value:	0: [00 hex] De-selec	t the acceptance test mode			
	172: [AC hex] Select th	ne acceptance test mode			
Dependency:	See also: p9558, r9571, p960 See also: C01799	01			
	Note Acceptance test mode can only be selected if the safe motion monitoring functions are enabled.				
r9571	SI Motion acceptance to	est status			
	Data type: Integer16	P group: Safety Integrated			
Description:	Displays the status of the acc	•			
Value:	0: [00 hex] Acc_mod				
		de not possible due to POWER ON fault			
		de not possible due to incorrect ID in p957	70		
	• • -	de not possible due to expired Acc_timer			
Denendener	172: [AC hex] Acc_mo	de active			
Dependency:	See also: p9558, p9570 See also: C01799				
p9580	SI Motion stop respons	e delay bus failure			
	Changeable: C2(95)	Data type: FloatingPoint32	P group: Safety Integrated		
	Min: 0.00 [ms]	Max: 800.00 [ms]	Def: 0.00 [ms]		
	Sets the delay time, after which the stop response parameterized in p9612 for bus failure is executed.				
Description:	Sets the delay time, after which	ch the stop response parameterized in pae	o12 for bus failure is executed.		

	Note In an extended sense, bus failure is interpreted here as a communication error in the control signals of the safety functions (e.g. via PROFIsafe). The main use of the wait time is the function "Extended stopping and retraction" (ESR). The set time is rounded internally to an integer multiple of the monitoring clock cycle.				
p9581	SI Motion brake ramp re	ference value			
	Changeable: C2(95)	Data type: FloatingPoint32	P group: Safety Integrated		
	Min: 600.0000 [mm/min]	Max: 240000.0000 [mm/min]	Def: 1500.0000 [mm/min]		
Description:	Sets the reference value to define the brake ramp.				
	The rate of rise of the brake ramp depends upon p9581 (reference value) and p9583 (monitoring time).				
Dependency:	See also: p9582, p9583				
p9582	SI Motion brake ramp de	elay time			
	Changeable: C2(95)	Data type: FloatingPoint32	P group: Safety Integrated		
	Min: 10.00 [ms]	Max: 99000.00 [ms]	Def: 250.00 [ms]		
Description:	Sets the delay time for monitor	ing the brake ramp.	-		
	·	tarts once the delay time has elapsed.			
Dependency:	See also: p9581, p9583				
-	Note				
		ally to an integer multiple of the monitoring	a clock cvcle.		
		d (lower limit) to 2 safety monitoring clock			
09583	SI Motion brake ramp monitoring time				
	Changeable: C2(95)	Data type: FloatingPoint32	P group: Safety Integrated		
	Min: 0.50 [s]	Max: 3600.00 [s]	Def: 10.00 [s]		
Description:	Sets the monitoring time to def				
	-	mp depends upon p9581 (reference value	e) and p9583 (monitoring time).		
Dependency:	See also: p9581, p9582				
	Note				
	The set time is rounded internally to an integer multiple of the monitoring clock cycle.				
9590[03]	SI Motion version safe	motion monitoring functions			
	Data type: Unsigned16	P group: Safety Integrated			
Description:		version for the safe monitoring functions.			
ndex:		-			
	[0] = Safety Version (major release) [1] = Safety Version (minor release)				
	[2] = Safety Version (haselevel				
	[3] = Safety Version (baselever of patch)				
Dependency:	See also: r9770				
, . ,.					
	Note Example:				
	Example: r9590[0] = 5, r9590[1] = 10, r9	590[2] = 1, r9590[3] = 0> SI Motion vers	sion V05.10.01.00		
09601	SI enable, functions inte	grated in the drive			
19001	•	•	D groups Cofety Internets d		
	Changeable: C2(95)	Data type: Unsigned32	P group: Safety Integrated		
	Min: -	Max: -	Def: 0000 bin		

Description:	Sets the enable signals for the	e safety functions integrated in the dri	ive and the type	e of selection.			
	Only a selection of the subsec	uently listed settings is permissible:					
	0000 hex:						
	, ,	the drive inhibited (no safety function).				
	0001 hex:						
	Basis functions are enabled vi	a the onboard terminals.					
	0008 hex:						
	Basis functions are enabled vi 0009 hex:	a PROFISAIE.					
		a PROFIsafe and onboard terminals.					
Dit field					FP		
Bit field:	Bit Signal name		1 signal	0 signal	FF		
	00 STO enabled via termin	als.	Enable	Inhibit	-		
	03 Enable PROFIsafe		Enable	Inhibit	-		
	Note						
		ective only after a POWER ON. Exce	eption: change	to p9601.0 becomes	s immediately		
	effective.						
	STO: Safe Torque Off SS1: Safe Stop 1 (correspond	s to Stop Category 1 acc. to EN6020	4)				
	SI: Safety Integrated		(+)				
p9602	SI enable safe brake co	ntrol					
	Changeable: C2(95)	Data type: Integer16	P gr	oup: Safety Integrat	ted		
	Min: 0	Max: 1	Def:	0			
Description:	Sets the enable for the "SBC"	function.					
Value:	0: Inhibit SBC						
	1: Enable SBC						
	Nata						
	Note	ated until at least one safety monitorir	na function has	heen enabled (i.e. n	9501 not equal		
	to 0 and/or p9601 not equal to		ig fullotion has		ooo i not equal		
	-	or holding brake available" and "Safe	e Brake Control	" enabled (p1215 =	0, p9602 = 1)		
		or holding brake is not being used.					
	SBC: Safe Brake Control						
	SI: Safety Integrated						
p9610	SI PROFIsafe address						
	Changeable: C2(95)	Data type: Unsigned16	P ar	oup: Safety Integrat	ted		
	Min: 0	Max: 65534	Def:				
Description:	Sets the PROFIsafe address.						
	Note						
	A change only becomes effective after a POWER ON. The PROFIsafe address in the drive must be identical with the address in the control.						
p9611	SI PROFIsafe telegram	selection					
	Changeable: C2(95)	Data type: Unsigned16	P gr	oup: Safety Integrat	ted		
	Min: 0	Max: 901	Def:	0			
Description:	Sets the PROFIsafe telegram	number.					
Value:	0: No PROFIsafe tel						
		ard telegram 30, PZD-1/1					
		ENS telegram 901, PZD-3/5					
Dependency:	See also: p60022, r60022	0.00, 120 0/0					
Lopondonoy.	000 000. p00022, 100022						

	Note A change only becomes effec To select the PROFIdrive tele	ctive after a POWER ON. egram, PROFIsafe must have been enable	d (p9601.3 = 1).
p9612	SI PROFIsafe failure re	esponse	
	Changeable: C2(95) Min: 0	Data type: Integer16 Max: 1	P group: Safety Integrated Def: 0
Description:	Sets the stop response when	PROFIsafe communication fails.	
Value:	0: STOP A 1: STOP B		
	For p9612 = 1 (STOP B): The drive brakes the motor w The following must be observ	the motor, the motor coasts down. ith OFF3 ramp-down time until standstill is ed: o STOP A (p9658) must be set longer or e	
 p9650	SI F-DI discrepancy tim		
pagao	Changeable: C2(95)	Data type: FloatingPoint32	P group: Safety Integrated
	Min: 0.00 [ms]	Max: 2000.00 [ms]	Def: 500.00 [ms]
Description:		e drive tolerates different signal states of t	• •
	Note F-DI: Fail-safe Digital Input		
p9651	SI STO/SBC/SS1 t_del	pounce time	
-	Changeable: C2(95)	Data type: FloatingPoint32	P group: Safety Integrated
	Min: 0.00 [ms]	Max: 100.00 [ms]	Def: 0.00 [ms]
Description:	Sets the debounce time for th	e fail-safe digital input used to control STC	D/SBC/SS1.
			il-safe digital input that does not change the
	Note The debounce time is rounde Example:	d to whole milliseconds.	
	Debounce time = 3 ms: Fault	pulses of 1 ms are tolerated; only pulses I pulses of 3 ms are tolerated; only pulses I tts the response time of the safety function	onger than 4 ms result in a response.
p9652	SI SS1 delay time		
	Changeable: C2(95)	Data type: FloatingPoint32	P group: Safety Integrated
	Min: 0.00 [s]	Max: 300.00 [s]	Def: 0.00 [s]
Description:			function to brake along the OFF3 down ramp
Recommendation:	In order that the drive can con available can close, then the Motor holding brake parameter	delay time should be set as follows: erized: delay time >= p1135 + p1228 + p12	and a motor holding brake that is possibly 217
	Motor holding brake not para	meterized: delay time >= p1135 + p1228	

		e of PROFIsafe communication is delayed ds to Stop Category 1 acc. to EN60204)	by this time if "STOP B" is set (p9612 = 1).
p9653	SI SS1 drive-based bra	aking response	
p9000	Changeable: C2(95)	Data type: Integer16	P group: Safety Integrated
		Max: 1	Def: 0
Description:		response for the "SS1" function.	
Description.	In the factory setting, SS1 us		
Value:	0: SS1 with OFF3		
	1: SS1E external st	on	
		~P	
	SS1E requires the externally SS1: Safe Stop 1		the SS1 response is transferred to the control. with stop Category 1 according to EN60204.
p9658	SI transition time STO		
p0000	Changeable: C2(95)	Data type: FloatingPoint32	P group: Safety Integrated
	Min: 0.00 [ms]	Max: 30000.00 [ms]	Def: 0.00 [ms]
Description:	Sets the transition period fror		
Dependency:	See also: r9795		
Dopondonoyi	See also: F01611		
		ng channel (error in the data cross-check) a fault detected by Safety Integrated	
p9659	SI forced checking pro	cedure timer	
	Changeable: C2(95)	Data type: FloatingPoint32	P group: Safety Integrated
	Min: 0.00 [h]	Max: 9000.00 [h]	Def: 8760.00 [h]
Description:	Setting the time interval in or	der to test safe torque off (STO).	
			hen again de-selected, e.g. by activating and
	deactivating Emergency Stop	is reset each time that STO is de-selected	
Dependency:	See also: A01699		
	Note STO: Safe Torque Off		
r9660	SI forced checking pro	cedure remaining time	
	Data type: FloatingPoint32	P group: Safety Integrated	
Description:	•••	until the next forced checking procedure of	the safety functions.
Dependency:	See also: A01699		
p9670	SI module identification	n drive	
	Changeable: ⊺	Data type: Unsigned32	P group: -
	Min: 0	Max: 4294967295	Def: 0
Description:	Safety Integrated module ide		
/p		dentified when the safety functions are acti	ivated.

Dependency:	See also: F01641		
	Note After replacement, when the d	rive powers up a fault is output.	
p9673	SI module identifier mot	or encoder evaluation	
	Changeable: C2(95), T Min: 0	Data type: Unsigned32 Max: 4294967295	P group: Safety Integrated Def: 0
Description:	, ,	tifier for the encoder in the motor. Jentified when the safety functions are a	ctivated.
Dependency:	See also: F01641		
	Note After replacement, when the d	rive powers up a fault is output.	
p9675	SI module identifier mot	or encoder	
	Changeable: C2(95), T Min: 0	Data type: Unsigned32 Max: 4294967295	P group: Safety Integrated Def: 0
Description:		tifier for the encoder in the motor. Jentified when the safety functions are a	ctivated.
Dependency:	See also: F01641		
	Note After replacement, when the d	rive powers up a fault is output.	
p9702	SI Acknowledge compo	nent replacement	
	Changeable: T, U	Data type: Integer16	P group: Safety Integrated
Description	Min: 0	Max: 29	Def: 0
Description:		component has been replaced. r, the unique identifier of a safety-releva	nt component is transferred into the drive
Value:	0: [00 hex] hardware	replacement acknowledge ready	
	29: [1D hex] hardware	e replacement acknowledgment	
	NOTICE		
	It is not permissible that the s	afety commissioning mode is set in orde	er to write to this parameter.
	Note		
	After successful execution, thi Parameters must be saved.	s parameter is automatically reset to zer	⁻ 0.
		en to using a project download, and car	not be set in an offline project.
r9708[05]	SI Motion diagnostics sa	afe position	
	Data type: FloatingPoint32	P group: Safety Integrated	
Description:		actual values of both monitoring channel	s and their difference.
Index:	[0] = Load-side actual value or		
	[1] = Load-side actual value or[2] = Load-side actual value di		
		lue difference CU - second channel	
	[4] = Reserved		
	[5] = Reserved		
Dependency:	See also: r9713		

	Note					
		index [0]:				
	The	display of the load-side pos	ition actual value on the	first channel is updated in	n the monitoring cloc	k cycle.
	The	index [1]: display of the load-side pos		second channel is update	ed in the KDV clock	cycle (r9724)
		delayed by one KDV clock of	cycle.			
		index [2]: difference between the load	l-side position actual va	lue in the first channel and	load-side position a	actual value in
	the s	second channel is updated i index [3]:	•		•	
	actu	maximum difference betwee al value in the second chan /: Data cross-check	•	n actual value in the first c	hannel and the load-	side position
r9710[01]		Motion diagnostics res	ult liet 1			
19710[01]		-		lata anata d		
Descriptions		a type: Unsigned32	P group: Safety	-		
Description:		plays result list 1 that, for the	data cross-check betwo	een the monitoring channe	els, led to the fault.	
Index:		Result list channel 2				
D% 5 1 1		Result list channel 1			<u></u>	
Bit field:	Bit	Signal name		1 signal	0 signal	FP
	00	Actual value > upper limit		Yes	No	-
	01 Actual value > lower limit SOS			Yes	No	-
	06 Actual value > upper limit SLS1		Yes	No	-	
	07 Actual value > lower limit SLS1		Yes	No	-	
	08 Actual value > upper limit SLS2		Yes	No	-	
	09 Actual value > lower limit SLS2		Yes	No	-	
	10	Actual value > upper limit	SLS3	Yes	No	-
	11	Actual value > lower limit	SLS3	Yes	No	-
	12	Actual value > upper limit	SLS4	Yes	No	-
	13	Actual value > lower limit	SLS4	Yes	No	-
	16	Actual value > upper limit	SAM/SBR	Yes	No	-
	17	Actual value > lower limit	SAM/SBR	Yes	No	-
	18	Actual value > upper limit	SDI positive	Yes	No	-
	19	Actual value > lower limit	SDI positive	Yes	No	-
	20	Actual value > upper limit	SDI negative	Yes	No	-
	21	Actual value > lower limit	SDI negative	Yes	No	-
Dependency:	See	also: C01711				
	SDI: SLS	e R: Safe Brake Ramp (safe br : Safe Direction (safe motior S: Safely Limited Speed S: Safe Operating Stop	•			
r9711[01]		Motion diagnostics res				
Descriptions		a type: Unsigned32	P group: Safety	•	ala laska (b. f. f.	
Description:		plays result list 2 that, for the	e data cross-check betwo	een the monitoring channe	eis, led to the fault.	
Index:		Result list channel 2				
Dit fold.		Result list channel 1		4 -!	0 0 0	
Bit field:	Bit	Signal name	0014	1 signal	0 signal	FP
	16	Actual value > upper limit		Yes	No	-
	17	Actual value > lower limit	SSM+	Yes	No	-

	18 Actual value > upper limit SSM-	Yes	No	-
	19 Actual value > lower limit SSM-	Yes	No	-
	20 Actual value > upper limit modulo	Yes	No	-
	21 Actual value > lower limit modulo	Yes	No	-
Dependency:	See also: C01711			
	Note			
	SSM: Safe Speed Monitor (safety-relevant feed	lback signal from the speed mo	nitoring)	
r9712	SI Motion diagnostics position actual	value motor side		
	Data type: Unsigned32 P group:	: Safety Integrated		
Description:	Displays the position actual value on the motor		tions.	
	Note The display is updated in the safety monitoring	clock cycle.		
r9713[05]	SI Motion diagnostics position actual	value load side		
	· ·	: Safety Integrated		
Description:	Display and connector output for the actual load		nitoring channels and	their difference
Index:	[0] = Load-side actual value on the CU			
	[1] = Load-side actual value on the second char	nnel		
	[1] = Load-side actual value of the second char [2] = Load-side actual value difference CU - sec			
	[3] = Load-side max. actual value difference CU			
	[4] = Reserved			
	[4] - Reserved [5] = Reserved			
Demendence				
Dependency:	See also: r9708			
	Note			
	Regarding the units, this parameter should be in	nterpreted as follows:		
	- linear axis: µm			
	- rotary axis: mdegrees			
	The value of this parameter is displayed in r970			
	The display is updated in the safety monitoring	clock cycle.		
	For index [0]:	and the Cost shares of the second state	d fa dha an aite dha da an al	
	The display of the load-side position actual valu	le on the first channel is update	a in the monitoring ci	оск сусіе.
	For index [1]: The display of the load-side position actual valu	is on the second shannel is und	atad in the KDV alas	(0.000)
	and delayed by one KDV clock cycle.			(19724)
	For index [2]:			
	The difference between the load-side position a the second channel is updated in the KDV clock		•	actual value in
	For index [3]:			
	The maximum difference between the load-side	e position actual value in the firs	t channel and the loa	d-side position
	actual value in the second channel. KDV: Data cross-check			
-074 4[0 0]				
r9714[03]	SI motion diagnostics velocity			
		: Safety Integrated		
D 1 11	Displays the velocity actual values for motion m	nonitoring functions.		
Description:				
•	[0] = Load side speed actual value			
Description: Index:	[0] = Load side speed actual value [1] = Actual SAM/SBR speed limit			
Description: Index:				

Note

Data type: Unsigned32

The display is updated in the safety monitoring clock cycle. For linear axes, the following unit applies: millimeters per minute For rotary axes, the following unit applies: revolutions per minute

r9720

SI Motion control signals integrated in the drive

P group: Safety Integrated

Description: Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	De-select STO	Yes	No	-
01	De-select SS1	Yes	No	-
02	De-select SS2	Yes	No	-
03	De-select SOS	Yes	No	-
04	De-select SLS	Yes	No	-
07	Acknowledgment	Signal edge active	No	-
09	Select SLS bit 0	Set	Not set	-
10	Select SLS bit 1	Set	Not set	-
12	Deselect SDI positive	Yes	No	2824
13	Deselect SDI negative	Yes	No	2824
24	Select gearbox bit 0	Set	Not set	-
28	Deselect SS2E	Yes	No	-

Note

This parameter is only supplied with actual values in the case of Safety Integrated Extended Functions. For Safety Integrated Basic Functions (SBC, SS1, STO), the value is equal to zero.

r9722

SI M

Description:

Bit field:

<i>lotio</i>	n dr	ive-i	ntegra	ted s	tatus	signal	S
--------------	------	-------	--------	-------	-------	--------	---

Data type: Unsigned32 P group: Safety Integrated

Status signal for	or safety-relevant	motion m	nonitorina fu	unctions in	tearated in	the drive.
0.0.00 0.9.10. 10						

Bit	Signal name	1 signal	0 signal	FP
00	STO or safe pulse suppression active	Yes	No	-
01	SS1 active	Yes	No	-
02	SS2 active	Yes	No	-
03	SOS active	Yes	No	-
04	SLS active	Yes	No	-
07	Internal event	No	Yes	-
09	Active SLS stage bit 0	Set	Not set	-
10	Active SLS stage bit 1	Set	Not set	-
11	SOS selected	Yes	No	-
12	SDI positive active	Yes	No	2824
13	SDI negative active	Yes	No	2824
15	SSM (speed below limit value)	Yes	No	2823
28	SS2E active	Yes	No	-

For bit 07:

The signal state behaves in an opposite way to the PROFIsafe Standard.

	Note This parameter is only supplied with actual values in the Integrated Basic Functions (SBC, SS1, STO), the value For bit 07: An internal event is displayed if a STOP A F is active.		d Extended Functions.	For Safet			
-0700	Ol Mation dia mantia simala intermetad in the						
r9723	SI Motion diagnostic signals integrated in the						
Descriptions	Data type: Unsigned32 P group: Safety I						
Description:	Displays the diagnostic signals for safety-relevant motion						
Bit field:	Bit Signal name	1 signal	0 signal	FP			
	00 Forced checking procedure required	Yes	No	-			
	01 STOP F and then STOP B active	Yes	No	2819			
	02 Communication failure	Yes	No	-			
	03 Actual value sensing supplies valid value	Yes	No	2821			
	12 Test stop active	Yes	No	-			
	16 SAM/SBR active	Yes	No	2820			
	Note For bit 00:						
	A required dynamization is also displayed via alarm A01	679.					
	For bit 01:						
	This bit can be used, to execute a drive-based or control-based ESR.						
	For bit 12: An active test stop is also displayed using the safety message C01798. ESR: Extended Stop and Retract						
	SAM: Safe Acceleration Monitor (safe acceleration monitoring)						
	SBR: Safe Brake Ramp (safe brake ramp monitoring)						
9725[02]	SI Motion diagnostics STOP F						
	Data type: Unsigned32 P group: Safety I	ntegrated					
Description:	For index [0]:						
	Displays the message value that resulted in the STOP F	on the drive.					
	Value = 0:						
	STOP F was signaled from the first channel.						
	Value = 1 999:						
	Number of the incorrect date in the data cross-check be	tween the monitoring cha	annels.				
	Value >= 1000:						
	Additional diagnostic values of the drive.						
	For index [1]:						
	Displays the value from the first channel that resulted in	the STOP F.					
	For index [2]:						
	Displays the value from the second channel that resulted	d in the STOP F.					
ndex:	[0] = Message value for KDV						
	[1] = Channel 1 KDV actual value						
	[2] = Channel 2 KDV actual value						
	See also: C01711						
ependency:	See also: C01711						
Dependency:	Note						
Dependency:	Note The significance of the individual message values is des	cribed in message C017	/11.				
)ependency:		cribed in message C017	/11.				
ependency:	The significance of the individual message values is des	scribed in message C017	/11.				

	SI	Motion setpoint speed I	imit effective					
	Data	a type: FloatingPoint32	P group: Safety Integrated	Sca	aling: p2000			
Description:	Disp	plays the necessary setpoint s	speed limit as a result of the sele	cted motion mo	nitoring functions.			
		trary to the parameterization I-side limit value.	of the SI limit values, this parame	eter specifies the	e motor-side limit val	ue and not the		
ndex:	[0] =	 Setpoint limiting positive 						
	[1] = Setpoint limiting negative							
	[2] =	 Setpoint limit absolute 						
ependency:	For	SLS: r9733[0] = p9531[x] x p	9533 (converted from the load sid	de to the motor	side)			
	For SDI negative: r9733[0] = 0							
			p9533 (converted from the load s	side to the moto	or side)			
		SDI positive: r9733[1] = 0						
		Selected SLS stage						
		version factor from the motor		20)				
			e = linear: p9522 / (p9521 x p952	20)				
		nerwise: p9522 / p9521 also: p9531, p9533						
		aiso. p3551, p3555						
	Note							
		•	by setting the axis type (p9502).	20 and r0722[1]	abowa n1092			
			ot selected, r9733[0] shows p108 /ed by up to one Safety monitorii		•	ienlav in r971		
		20 and r9721/r9722.		ng clock cycle a				
	Whe	When selecting SOS or a STOP A D, setpoint 0 is specified in r9733.						
9734	SI	Safety Info Channel sta	tus word S_ZSW1B					
	D-4	- f						
	Data	a type: Unsigned16	P group: Safety Integrated					
Description:		a type: Unsigned16 blay for the status word of safe	• • • •					
-			• • • •	1 signal	0 signal	FP		
-	Disp	play for the status word of safe	• • • •		0 signal No	FP -		
-	Disp Bit	blay for the status word of safe Signal name	• • • •	1 signal	•	FP - -		
-	Disp Bit 00	blay for the status word of safe Signal name STO active	• • • •	1 signal Yes	No	FP - -		
-	Disp Bit 00 01	Signal name STO active SS1 active	• • • •	1 signal Yes Yes	No No	FP - - -		
-	Disp Bit 00 01 02	Signal name STO active SS1 active SS2 active	• • • •	1 signal Yes Yes Yes	No No No	FP - - - - -		
-	Disp Bit 00 01 02 03	Signal name STO active SS1 active SS2 active SOS active	• • • •	1 signal Yes Yes Yes Yes	No No No	FP - - - - - -		
-	Disp Bit 00 01 02 03 04	Signal name STO active SS1 active SS2 active SOS active SLS active	• • • •	1 signal Yes Yes Yes Yes Yes	No No No No	FP - - - - - - -		
-	Disp Bit 00 01 02 03 04 05	Signal name STO active SS1 active SS2 active SOS active SLS active SOS selected	• • • •	1 signal Yes Yes Yes Yes Yes	No No No No No	FP - - - - - - - - - -		
-	Disp Bit 00 01 02 03 04 05 06	Signal name STO active SS1 active SS2 active SOS active SLS active SOS selected SLS selected	• • • •	1 signal Yes Yes Yes Yes Yes Yes	No No No No No No	FP - - - - - - - - - -		
-	Disp Bit 00 01 02 03 04 05 06 07	Signal name STO active SS1 active SS2 active SOS active SLS active SOS selected SLS selected Internal event Select SLS bit0	• • • •	1 signal Yes Yes Yes Yes Yes Yes Yes Yes	No No No No No No No	FP - - - - - - - - - - - -		
-	Disp Bit 00 01 02 03 04 05 06 07 09	Signal name STO active SS1 active SS2 active SOS active SUS active SUS selected SLS selected Internal event Select SLS bit0 Select SLS bit1	• • • •	1 signal Yes Yes Yes Yes Yes Yes Yes	No No No No No No No	FP - - - - - - - - - - - - - -		
-	Disp Bit 00 01 02 03 04 05 06 07 09 10	Signal name STO active SS1 active SS2 active SOS active SDS active SDS selected SLS selected Internal event Select SLS bit0 Select SLS bit1 SDI positive selected	• • • •	1 signal Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes	No No No No No No No No No	FP - - - - - - - - - - - - -		
-	Disp Bit 00 01 02 03 04 05 06 07 09 10 12 13	Signal name STO active SS1 active SS2 active SS2 active SDS active SDS selected SLS selected Internal event Select SLS bit0 Select SLS bit1 SDI positive selected SDI negative selected	• • • •	1 signal Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes	No No No No No No No No No No	FP - - - - - - - - - - - - - -		
-	Disp Bit 00 01 02 03 04 05 06 07 09 10 12 13 15	Signal name STO active SS1 active SS1 active SS2 active SOS active SOS selected SLS selected Internal event Select SLS bit0 Select SLS bit1 SDI positive selected SDI negative selected Safety message present	• • • •	1 signal Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes	No No No No No No No No No	FP - - - - - - - - - - - - - - - - - - -		
-	Disp Bit 00 01 02 03 04 05 06 07 09 10 12 13 15 Note	Signal name STO active SS1 active SS2 active SOS active SDS active SDS selected SLS selected Internal event Select SLS bit0 Select SLS bit1 SDI positive selected SDI negative selected Safety message present	• • • •	1 signal Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes	No No No No No No No No No No	FP - - - - - - - - - - - - - - - - -		
-	Disp Bit 00 01 02 03 04 05 06 07 09 10 12 13 15 Note For 1	Signal name STO active SS1 active SS2 active SS2 active SDS active SDS selected SLS selected Internal event Select SLS bit0 Select SLS bit1 SDI positive selected SDI negative selected Safety message present e bit 07:	ety functions (S_ZSW1B).	1 signal Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes	No No No No No No No No No No	FP - - - - - - - - - - - - - - -		
-	Disp Bit 00 01 02 03 04 05 06 07 09 10 12 13 15 Note For 1	Signal name STO active SS1 active SS2 active SOS active SDS active SDS selected SLS selected Internal event Select SLS bit0 Select SLS bit1 SDI positive selected SDI negative selected Safety message present	ety functions (S_ZSW1B).	1 signal Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes	No No No No No No No No No No	FP - - - - - - - - - - - - - - -		
Bit field:	Disp Bit 00 01 02 03 04 05 06 07 09 10 12 13 15 Note For I An in	Signal name STO active SS1 active SS2 active SS2 active SDS active SDS selected SLS selected Internal event Select SLS bit0 Select SLS bit1 SDI positive selected SDI negative selected Safety message present e bit 07:	STOP A F is active.	1 signal Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes	No No No No No No No No No No	FP - - - - - - - - - - - - - -		
Bit field:	Disp Bit 00 01 02 03 04 05 06 07 09 10 12 13 15 Note For I An in	Signal name STO active SS1 active SS2 active SOS active SUS active SOS selected SLS selected Internal event Select SLS bit0 Select SLS bit1 SDI positive selected SDI negative selected SDI negative selected Safety message present e bit 07: nternal event is displayed if a	STOP A F is active.	1 signal Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes	No No No No No No No No No No	FP - - - - - - - - - - - - -		
3it field: 9743	Disp Bit 00 01 02 03 04 05 06 07 09 10 12 13 15 Note For I An ir SI 5 Data	Signal name STO active SS1 active SS2 active SS2 active SDS active SDS selected SLS active SOS selected Internal event Select SLS bit0 Select SLS bit1 SDI positive selected SDI negative selected Safety message present bit 07: nternal event is displayed if a Safety Info Channel stata a type: Unsigned 16	STOP A F is active.	1 signal Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes	No No No No No No No No No No	FP - - - - - - - - - - - - -		
Description: Bit field: '9743 Description: Bit field:	Disp Bit 00 01 02 03 04 05 06 07 09 10 12 13 15 Note For I An ir SI 5 Data	Signal name STO active SS1 active SS2 active SS2 active SDS active SDS selected SLS active SOS selected Internal event Select SLS bit0 Select SLS bit1 SDI positive selected SDI negative selected Safety message present bit 07: nternal event is displayed if a Safety Info Channel stata a type: Unsigned 16	STOP A F is active. tus word S_ZSW2B P group: Safety Integrated	1 signal Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes	No No No No No No No No No No	FP - - - - - - - - - - - - - -		

	09 SDI negative selected	Yes	No	_			
	12 Test stop active	Yes	No	-			
	13 Test stop required	Yes	No	-			
r9765	SI Motion forced checking procedure remaining time						
		Safety Integrated					
Description:	Displays the time remaining until the next dynamiz in the drives.	ation and testing of the safety mo	ption monitoring funct	ions integra			
	The signal source to initiate the forced checking p	procedure is parameterized in p	9705.				
Dependency:							
r9767	SI safety password status						
		Safety Integrated					
Description:	Display and binector output for the status of the s	afety password.					
Bit field:	Bit Signal name	1 signal	0 signal	FP			
	00 Assign password	Yes	No	-			
	01 Password entered	Yes	No	-			
	Note						
	Note For bit $00 = 1$:						
	- a valid safety password was assigned.						
	For bit $01 = 1$:						
	- a valid safety password was assigned (bit 0 = 1).						
	- safety parameters can be set.						
r9768[07]	Receive SI PROFIsafe control words						
	Data type: Unsigned16 P group: S	Safety Integrated					
Description:	Displays the received PROFIsafe telegram from t	the control.					
Index:	[0] = PZD 1						
	[1] = PZD 2						
	[2] = PZD 3						
	[3] = PZD 4						
	[4] = PZD 5						
	[5] = PZD 6						
	[6] = PZD 7						
	[7] = PZD 8						
Dependency:	See also: r9769						
	Note						
	The PROFIsafe trailer at the end of the telegram is also displayed (2 words).						
r9769[07]	Send SI PROFIsafe status words						
		Safety Integrated					
Description:	Displays the PROFIsafe telegram to be sent to the control.						
Index:	[0] = PZD 1						
	[1] = PZD 2						
	[1] = PZD 2 [2] = PZD 3						
	[3] = PZD 4						
	[3] = PZD 4 [4] = PZD 5						
	[3] = PZD 4						

Dependency:	See also: r9768						
	Note The PROFIsafe trailer at the end of the telegram is also displayed (2 words).						
r9770[03]	SI version safety functions integrated in the drive	•					
	Data type: Unsigned16 P group: Safety Integra	ated					
Description:	Displays the Safety Integrated version for the drive-integrated	safety functions					
Index:	[0] = Safety Version (major release)						
	[1] = Safety Version (minor release)						
	[2] = Safety Version (baselevel or patch)	[2] = Safety Version (baselevel or patch)					
	[3] = Safety Version (hotfix)						
	Note						
	Example:						
	r9770[0] = 5, r9770[1] = 10, r9770[2] = 1, r9770[3] = 0> safe	ety version V05.10.0)1.00				
r9776	SI diagnostics						
	Data type: Unsigned32 P group: Safety Integra	ated					
Description:	Displays the operating state, referred to the safety functions.						
Bit field:	Bit Signal name	1 signal	0 signal	FP			
	00 Safety parameter changed POWER ON required	Yes	No	-			
	01 Safety functions enabled	Yes	No	-			
	02 Safety component replaced and data save required	Yes	No	-			
	03 Safety component replaced and acknowledge/save req	uired Yes	No	-			
	Note						
	For bit 00 = 1:						
	At least one Safety parameter has been changed that will only take effect after a POWER ON. For bit 01 = 1:						
	Safety functions (basic functions or extended functions) have been enabled and are active. For bit 02 = 1: A safety-relevant component has been replaced. Saving required (p0977 = 1).						
	For bit 03 = 1: A safety-relevant component has been replaced. Acknowledging (p9702 = 29) and saving (p0977 = 1) required.						
							 r9781[01]
19/01[01]	SI checksum to check changes Data type: Unsigned32 P group: Safety Integra	ated					
Description:	Displays the checksum to track changes for safety functions.						
Index:	[0] = SI checksum to track functional changes						
muex.	[1] = SI checksum to track hardware-specific changes						
Dependency:	See also: p9601						
Depondonoy.	See also: F01690						
	Note						
	The checksum changes when configuring safety functions.						
r9782[01]	SI change control time stamp						
L	Data type: FloatingPoint32 P group: Safety Integra	ated					
Description:	Displays the time stamps for the checksums for tracking chan		ions.				
	Each new checksum is assigned a time stamp (r9781).						
Index:	[0] = SI time stamp for checksum to track functional changes						
	[1] = SI time stamp for checksum to track hardware-specific c	hanges					
	· Pro	-					

Dependency:	See also: p9601 See also: F01690					
r9795	SI diagnostics STOP F					
	Data type: Unsigned32	P group: Safety Integrated				
Description:	Displays the number of the cross	-checked data item, which cause	d STOP F.			
Dependency:	See also: F01611					
	Note					
	A complete list of numbers for cro	oss-checked data items appears	in fault F01611.			
p10201	SI Motion SBT enable					
	Changeable: C2(95)	Data type: Unsigned32	Рg	roup: Safety Integrate	d	
	Min: -	Max: -	Def	: 0000 bin		
Description:	Sets the enable for the safe brake	e test.				
Bit field:	Bit Signal name		1 signal	0 signal	FP	
	00 Enable safe brake test		Yes	No	-	
	Note					
	SBT: Safe Brake Test					
	SI Motion SBT brake					
p10202[01]		Dete times Integer16	Π	nouna Cofota Intograta	٩	
	Changeable: C2(95)	Data type: Integer16	•	roup: Safety Integrate	a	
Deservet	Min: 0	Max: 1	Def	:0		
Description:	Selecting the brake to be tested. $p_{10202[0]}$ must be set = 1 to test	the broke				
Value:	p10202[0] must be set = 1 to test 0: Inhibit	the blake.				
value.	1: Test motor holding bi	rako				
Index:	[0] = Brake 1	are				
IIIUEX.	[0] = Brake 1 [1] = Reserved					
Dependency:	See also: A01785					
p10208[01]	SI Motion SBT test torque ramp time					
	Changeable: C2(95)	Data type: FloatingPoint32	2 Pg	roup: Safety Integrate	d	
	Min: 20 [ms]	Max: 10000 [ms]	Def	: 1000 [ms]		
Description:						
	The test torque is then ramped do	own after the safe brake test.				
Index:	[0] = Brake 1					
	[1] = Reserved					
	Note					
	The set time is rounded internally to an integer multiple of the monitoring clock cycle.					
p10209[01]	SI Motion SBT brake hold	ing torque				
	Changeable: C2(95)	Data type: FloatingPoint32	2. Pg	roup: Safety Integrate	d	
	Min: 1.00 [Nm]	Max: 60000.00 [Nm]	Def	: 10.00 [Nm]		
Description:	Sets the effective holding torque	on the motor side of the brake to	be tested.			
Index:	[0] = Brake 1					
	[1] = Reserved					
Dependency:	See also: p10210, p10220					

Index:	[0] = Brake 1 [1] = Reserved			
Indow		olding torque of the brake (p10209).		
Description:	Sets the factor for the test torque of sequence 2 for the safe brake test. The factor is referred to the holding torque of the brake (p10209).			
	Min: 0.30	Max: 1.00	Def: 1.00	
	Changeable: C2(95)	Data type: FloatingPoint32	P group: Safety Integrated	
p10220[01]	SI Motion SBT test torq	•		
	1: Negative			
Value:	0: Positive			
Description:	ption: Sets the sign for the test torque for the safe brake test.			
	Min: 0	Max: 1	Def: 0	
	Changeable: C2(95)	Data type: Integer16	P group: Safety Integrated	
p10218	SI Motion SBT test torq	•		
	[1] = Reserved			
Index:	[0] = Brake 1			
Description:		viation for sequence 1 for the safe brake test.		
	Min: 0.001 [mm]	Max: 360.000 [mm]	Def: 1.000 [mm]	
	Changeable: C2(95)	Data type: FloatingPoint32	P group: Safety Integrated	
p10212[01]	SI Motion SBT position	tolerance sequence 1		
	I ne set time is rounded intern	ally to an integer multiple of the monitoring clo	оск сусіе.	
	Note			
Index:	[0] = Brake 1 [1] = Reserved			
Indexa	The test torque is available fo	I unis ume at the closed brake.		
Description:		ence 1 for the safe brake test.		
Description	Min: 20 [ms]	Max: 10000 [ms]	Def: 1000 [ms]	
	Changeable: C2(95)	Data type: FloatingPoint32	P group: Safety Integrated	
p10211[01]	SI Motion SBT test dura	•		
-40044[0 4]				
Dependency:	See also: p10209			
	[1] = Reserved			
Index:	[0] = Brake 1			
		olding torque of the brake (p10209).		
Description:	Sets the factor for the test tore	que of sequence 1 for the safe brake test.		
	Min: 0.30	Max: 1.00	Def: 1.00	
	Changeable: C2(95)	Data type: FloatingPoint32	P group: Safety Integrated	
p10210[01]		ue factor sequence 1		

Description: Sets the test duration for sequence 2 for the safe brake test.							
la desu	The test torque is available for this time at the closed brake.						
Index:	[0] = Brake 1 [1] = Reserved						
	Note						
	The	set time is rounded internal	ly to an integer multiple of the r	monitoring clock cycle.			
o10222[01]	SI	Motion SBT position to	blerance sequence 2				
	Cha	angeable: C2(95)	Data type: FloatingPoin	int32 P group: Safety Integrated			
	Min	: 0.001 [mm]	Max: 360.000 [mm]	Def: 1.0	00 [mm]		
Description:	Sets	the tolerated position devia	ation for sequence 2 for the safe	e brake test.			
ndex:	[0] =	Brake 1					
	[1] =	Reserved					
10231	SI	Motion SBT control wo	ord diagnostics				
	Dat	a type: Unsigned32	P group: Safety Integra	ited			
Description:			he control word of the safe bra				
Bit field:	Bit	Signal name		1 signal	0 signal	FP	
	00	Select brake test		Yes	No	-	
	01	Start brake test		Yes	No	-	
	03	Select test torque sign		Negative	Positive	-	
	04	Select test sequence		Test sequence 2	Test sequence 1	-	
10234	SI Safety Info Channel status word S_ZSW3B						
		a type: Unsigned32	P group: Safety Integra	ited			
Description:		•••	e safety functions (S_ZSW3B).				
Bit field:	Bit	Signal name	, , ,	1 signal	0 signal	FP	
	00	Brake test selected		Yes	No	-	
	01	Setpoint input drive/exter	nal	Drive	External	-	
	03	Brake test active		Yes	No	-	
	04	Brake test result		Successful	Erroneous/not	-	
	05	Brake test completed		Yes	No	-	
	07	Actual load sign		Negative	Positive	-	
	11	SS2E active		Yes	No	-	
	15	Acceptance test mode se	lected	Yes	No	-	
	Not						
	Note SS2E: Safe Stop 2 external (Safe Stop 2 with external stop, external STOP D)						
	For bits 05, 04:						
	For r10234.4 = 0 signal, it is possible to make a distinction as to whether the brake test was executed with error - or						
	has still not been executed - using bit 5.						
	Bit 5/4 = 0/0: The brake test has still not been executed since the last warm restart or POWER ON. Bit 5/4 = 1/0: The last brake test that was executed had an error.						
		5/4 = 1/0. The last brake test	t that was executed had an end	01.			
10240		Motion SBT test torque	•				
		a type: FloatingPoint32	P group: Safety Integra				
Description:	Disp	plays the effective maximum	test torque on the motor side f	for a safe brake test.			
Dependency:	See	also: p10210, p10220					
	Note	9	Note				
		value remains displayed un					

Parameters

12.2 List of parameters

r10241	SI Motion SBT load torque diagnostics						
	Data type: FloatingPoint32 P group: Safety Integrated						
Description:	Displays the load torque for a safe brake test. When initializing the brake test, this load torque is available at the drive.						
	The value remains d	splayed until the brake test is deselected	1.				
r10242	SI Motion SBT state diagnostics						
	Data type: Integer16	P group: Safety Integra	ated				
Description:	Displays the actual s	tate of the safe brake test.					
Value:	0: Brake te	st inactive, wait for SBT selection					
	1: Setpoint input drive						
	2: Determin	ing the load					
	3: Brake te	st is initialized, wait for start of test seque	ence				
	4: Start tes	tsequence					
	5: Closing t	he brake, establishing the test torque					
	6: Brake te	st active, wait for test duration sequence					
	7: Reduce	test torque					
	8: Wait for the brake to open						
	9: Brake test successfully completed, wait for start deselection						
	10: Change to brake test initialized - fault acknowledgment						
	11: Brake test canceled, torque is reduced						
	12: Brake test canceled, wait for brake to open						
	Brake test ended with error, wait for acknowledgmentBrake opening timer elapsed						
	15: Error when initializing the brake test, wait for acknowledgment						
	16: Change	to brake test inactive, acknowledgment a	ictive				
r10251	SI Safety Control Channel control word S_STW1B diagnostics						
	Data type: Unsigned	32 P group: -					
Description:	Displays the diagnos	tics of control word S_STW1 of the safety	y control channel.				
Bit field:	Bit Signal name		1 signal	0 signal	FP		
	08 Extended func	tions test stop selection	Selected	Not selected	2837		
	12 Extended Fund	ctions premature SOS after STOP D	Selected	Not selected	-		
	Note						
	SCC: Safety Control Channel						
p60000	PROFIdrive refe	rence speed					
	Changeable: T	Data type: FloatingPoi	nt32 P gro	oup: Communications			
	Min: 6.00 [rpm]	Max: 210000.00 [rpm]	Def:	3000.00 [rpm]			
Description:	Sets the reference quantity for the speed values.						
	All speeds specified as relative values refer to this reference quantity.						
_	•	ty corresponds to 100% or 4000 hex (wo	ord) or 4000 0000 hex	(double word).			
Dependency:	See also: p2000						
	Note						
	Parameter p60000 is an image of parameter p2000 in conformance with PROFIdrive.						
	A change always effe	ects both parameters.					

r60022	PROFIsafe telegram selection		
	Data type: Unsigned16 P group: Safety Integrated		
Description:	Displays the number of the PROFIsafe send and receive telegrams.		
	The drive takes this number from the higher-level control system.		
Value:	0: No PROFIsafe telegram selected		
	30: PROFIsafe standard telegram 30, PZD-1/1		
	901: PROFIsafe SIEMENS telegram 901, PZD-3/5		
Dependency:	See also: p9611		
r60122	PROFIdrive SIC/SCC telegram selection		
	Data type: Unsigned16 P group: Communications		
Description:	Displays the telegram for the safety information channel (SIC) / safety control channel (SCC).		
	SIC/SCC telegram p60122 is attached directly to the PZD telegram p0922.		
Value:	700: Supplementary telegram 700, PZD-0/3		
	701: Supplementary telegram 701, PZD-2/5		
	999: No telegram		
Dependency:	For p8864 equal to 999, then p60122 is locked.		
r61000[0239]	PROFINET Name of Station		
	Data type: Unsigned8 P group: -		
Description:	Displays PROFINET Name of Station.		
r61001[03]	PROFINET IP of Station		
	Data type: Unsigned8 P group: -		
Description:	Displays PROFINET IP of Station.		

Parameters

12.2 List of parameters

13.1 Overview of faults and alarms

Explanations for the list of faults and alarms

A message comprises a letter followed by the relevant number.

The letters have the following meaning:

- A means "Alarm"
- F means "Fault"
- N means "No message" or "Internal message"
- C means "Safety message"

Information about reaction and acknowledgment is specified independently for a message with changeable message type (e.g. reaction to F, acknowledgment to F).

Detailed examples:

Αχχχχ	Alarm xxxxx
Fxxxx	Fault xxxxx
NXXXXX	No message
Cxxxxx	Safety message xxxxx

13.2 List of faults and alarms

Product: SINAMICS S210, version: 5101800

All objects: S210

F01000	Internal software error		
Message value:	Module: %1, line: %2		
Drive object:	All objects		
Reaction:	OFF2		
Acknowledge:	POWER ON		
Cause:	An internal software error has occurred.		
	Fault value (r0949, interpret hexadecimal):		
	Only for internal Siemens troubleshooting.		
Remedy:	- evaluate fault buffer (r0945).		
	- carry out a POWER ON (switch-off/switch-on) for all components.		
	- if required, check the data on the non-volatile memory (e.g. memory card).		
	- upgrade firmware to later version.		
	- contact Technical Support.		
	- replace the Control Unit.		
F01001	FloatingPoint exception		
Message value:	%1		
Drive object:	All objects		
Reaction:	OFF2		
Acknowledge:	POWER ON		
Cause:	An exception occurred during an operation with the FloatingPoint data type.		
	The error may be caused by the basic system or a technology function (e.g. FBLOCKS, DCC, TEC).		
	Fault value (r0949, interpret hexadecimal):		
	Only for internal Siemens troubleshooting.		
	Note:		
	Refer to r9999 for further information about this fault.		
	r9999[0]: Fault number.		
	r9999[1]: Program counter at the time when the exception occurred.		
	r9999[2]: Cause of the FloatingPoint exception.		
	Bit 0 = 1: Operation invalid		
	Bit 1 = 1: Division by zero		
	Bit 2 = 1: Overflow		
	Bit 3 = 1: Underflow		
	Bit 4 = 1: Inaccurate result		
Remedy:	- carry out a POWER ON (switch-off/switch-on) for all components.		
	- check configuration and signals of the blocks in FBLOCKS.		
	- check configuration and signals of DCC charts.		
	- check configuration and signals of TEC charts.		
	- upgrade firmware to later version.		
	- contact Technical Support.		
F01002	Internal software error		
Message value:	%1		
Drive object:	All objects		

Acknowledge:	IMMEDIATELY
Cause:	An internal software error has occurred.
	Fault value (r0949, interpret hexadecimal):
	Only for internal Siemens troubleshooting.
Remedy:	- carry out a POWER ON (switch-off/switch-on) for all components.
	- upgrade firmware to later version.
	- contact Technical Support.

F01003 Acknowledgment delay when accessing the memory

Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A memory area was accessed that does not return a "READY".
	Fault value (r0949, interpret hexadecimal):
	Only for internal Siemens troubleshooting.
Remedy:	- carry out a POWER ON (switch-off/switch-on) for all components.
	- contact Technical Support.

N01004 (F, A) Internal software error

F01005	Firmware download for DRIVE-CLiQ component unsuccessful
Acknowl. upon A:	NONE
Reaction upon A:	NONE
Acknowl. upon F:	POWER ON
Reaction upon F:	OFF2
	- contact Technical Support.
Remedy:	- read out diagnostics parameter (r9999).
	Only for internal Siemens troubleshooting.
	Fault value (r0949, hexadecimal):
Cause:	An internal software error has occurred.
Acknowledge:	NONE
Reaction:	NONE
Drive object:	All objects
Message value:	%1

101000	
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY

13.2 List of faults and alarms

Cause:	It was not possible to download the firmware to a DRIVE-CLiQ component.		
	Fault value (r0949, interpret hexadecimal):		
	yyxxxx hex: yy = component number, xxxx = fault cause		
	xxxx = 000B hex = 11 dec:		
	DRIVE-CLiQ component has detected a checksum error.		
	xxxx = 000F hex = 15 dec:		
	The selected DRIVE-CLiQ component did not accept the contents of the firmware file.		
	xxxx = 0012 hex = 18 dec:		
	Firmware version is too old and is not accepted by the component.		
	xxxx = 0013 hex = 19 dec:		
	Firmware version is not suitable for the hardware release of the component.		
	xxxx = 0065 hex = 101 dec:		
	After several communication attempts, no response from the DRIVE-CLiQ component.		
	xxxx = 008B hex = 139 dec:		
	Initially, a new boot loader is loaded (must be repeated after POWER ON).		
	xxxx = 008C hex = 140 dec:		
	Firmware file for the DRIVE-CLiQ component not available on the memory card.		
	xxxx = 008D hex = 141 dec:		
	An inconsistent length of the firmware file was signaled. The firmware download may have been caused by a loss of connection to the firmware file. This can occur during a project download/reset in the case of a SINAMICS Integrated Control Unit, for example.		
	xxxx = 008F hex = 143 dec: Component has not changed to the mode for firmware download. It was not possible to delete the existing firmware.		
	xxxx = 0090 hex = 144 dec:		
	When checking the firmware that was downloaded (checksum), the component detected a fault. It is possible that the file on the memory card is defective. xxxx = 0091 hex = 145 dec:		
	Checking the loaded firmware (checksum) was not completed by the component in the appropriate time.		
	xxxx = 009C hex = 156 dec:		
	Component with the specified component number is not available (p7828).		
	xxxx = Additional values:		
	Only for internal Siemens troubleshooting.		
Remedy:	- check the selected component number (p7828).		
	- check the DRIVE-CLiQ wiring.		
	- save suitable firmware file for download in the directory "/siemens/sinamics/code/sac/".		
	- use a component with a suitable hardware version		
	- after POWER ON has been carried out again for the DRIVE-CLiQ component, download firmware again. Depending on p7826, the firmware will be automatically downloaded.		
A01006	Firmware update for DRIVE-CLiQ component required		
Message value:	Component number: %1		
Drive object:	All objects		
Reaction:	NONE		
Acknowledge:	NONE		
Cause:	The firmware of a DRIVE-CLiQ component must be updated as there is no suitable firmware or firmware version in the component for operation with the Control Unit.		
	Alarm value (r2124, interpret decimal):		

Component number of the DRIVE-CLiQ component.

Remedy:	Update the firmware using the commissioning tool: The firmware version of all of the components on the "Version overview" page can be read in the Project Navigator under "Configuration" of the associated drive unit and an appropriate firmware update can be carried out. Firmware update via parameter: - take the component number from the alarm value and enter into p7828.
	- start the firmware download with p7829 = 1.
A01007	POWER ON for DRIVE-CLiQ component required
Message value:	Component number: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	A DRIVE-CLiQ component must be switched on again (POWER ON) (e.g. due to a firmware update).
	Alarm value (r2124, interpret decimal):
	Component number of the DRIVE-CLiQ component.
	Note: For a component number = 1, a POWER ON of the Control Unit is required.
Remedy:	- Switch off the power supply of the specified DRIVE-CLiQ component and switch it on again.
remouy.	- For SINUMERIK, auto commissioning is prevented. In this case, a POWER ON is required for all components and the auto commissioning must be restarted.
A01009 (N)	CU: Control module overtemperature
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The temperature (r0037[0]) of the control module (Control Unit) has exceeded the specified limit value.
Remedy:	- check the air intake for the Control Unit.
	- check the Control Unit fan.
	Note:
Desetter and N	The alarm is automatically withdrawn once the limit value has been fallen below.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
F01010	Drive type unknown
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	
Cause:	An unknown drive type was found.
	Fault value (r0949, interpret decimal): Drive object number (refer to p0101, p0107).
Remedy:	- replace Power Module.
. contrag.	- carry out a POWER ON (switch-off/switch-on) for all components.
	- upgrade firmware to later version.
	- contact Technical Support.
	Download interrupted
Message value:	%1

13.2 List of faults and alarms

Reaction:	NONE		
Acknowledge:	IMMEDIATELY		
Cause:	The project download was interrupted.		
	Fault value (r0949, interpret decimal):		
	1: The user prematurely interrupted the project download.		
	2: The communication cable was interrupted (e.g. cable breakage, cable withdrawn).		
	3: The project download was prematurely terminated by the commissioning tool (e.g. STARTER, SCOUT).		
	100: Different versions between the firmware version and project files which were loaded by loading into the file system "Download from memory card".		
	Note:		
	The response to an interrupted download is the state "first commissioning".		
Remedy:	- check the communication cable.		
	- download the project again.		
	- boot from previously saved files (switch-off/switch-on or p0976).		
	- when loading into the file system (download from memory card), use the matching version.		
Reaction upon N:	NONE		
Acknowl. upon N:	NONE		
F01012 (N)	Project conversion error		
Message value:	%1		
Drive object:	All objects		
Reaction:	OFF2 (NONE)		
Acknowledge:	IMMEDIATELY		
Cause:	When converting the project of an older firmware version, an error occurred.		
	Fault value (r0949, interpret decimal):		
	Parameter number of the parameter causing the error.		
	For fault value = 600, the following applies:		
	The temperature evaluation is no longer assigned to the power unit but to the encoder evaluation.		
	Notice:		
	Monitoring of the motor temperature is no longer ensured.		
Remedy:	Check the parameter indicated in the fault value and correctly adjust it accordingly.		
	For fault value = 600:		
	Parameter p0600 must be set to the values 1, 2 or 3 in accordance with the assignment of the internal encoder evaluation to the encoder interface.		
	Value 1 means: The internal encoder evaluation is assigned to the encoder interface 1 via p0187.		
	Value 2 means: The internal encoder evaluation is assigned to the encoder interface 2 via p0188.		
	Value 3 means: The internal encoder evaluation is assigned to the encoder interface 3 via p0189.		
	- if necessary, the internal encoder evaluation must be assigned to an encoder interface via parameters p0187, p0188 or p0189 accordingly.		
	- if necessary, upgrade the firmware to a later version.		
Peaction upon N:	NONE		

Reaction upon N: NONE Acknowl. upon N: NONE

F01015	Internal software error
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	POWER ON
Cause:	An internal software error has occurred.
	Fault value (r0949, interpret decimal):
	Only for internal Siemens troubleshooting.

Remedy:	 carry out a POWER ON (switch-off/switch-on) for all components. upgrade firmware to later version.
	- contact Technical Support.
A01016 (F)	Firmware changed
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	At least one firmware file in the directory was illegally changed on the non-volatile memory (memory card/device memory) with respect to the version when shipped from the factory.
	Alarm value (r2124, interpret decimal):
	0: Checksum of one file is incorrect.
	1: File missing.
	2: File too many.
	3: Incorrect firmware version.
	4: Incorrect checksum of the back-up file.
Remedy:	For the non-volatile memory for the firmware (memory card/device memory), restore the delivery condition.
	Note:
	The file involved can be read out using parameter r9925.
	The status of the firmware check is displayed using r9926.
Reaction upon F:	OFF2
Acknowl. upon F:	POWER ON
A01017	Component lists changed
Message value:	%1

A01017	Component lists changed
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE

13.2 List of faults and alarms

Cause:	On the memory card, one file in the directory /SIEMENS/SINAMICS/DATA or /ADDON/SINAMICS/DATA has been illegally
	changed with respect to that supplied from the factory. No changes are permitted in this directory.
	Alarm value (r2124, interpret decimal):
	zyx dec: x = Problem, y = Directory, z = File name
	x = 1: File does not exist.
	x = 2: Firmware version of the file does not match the software version.
	x = 3: File checksum is incorrect.
	y = 0: Directory /SIEMENS/SINAMICS/DATA/
	y = 1: Directory /ADDON/SINAMICS/DATA/
	z = 0: File MOTARM.ACX
	z = 1: File MOTSRM.ACX
	z = 2: File MOTSLM.ACX
	z = 3: File ENCDATA.ACX
	z = 4: File FILTDATA.ACX
	z = 5: File BRKDATA.ACX
	z = 6: File DAT_BEAR.ACX
	z = 7: File CFG_BEAR.ACX
	z = 8: File ENC_GEAR.ACX
	z = 9: File CFG_BRK.ACX
	z = 10: File THERMMOTMOD.ACX
	z = 11: File MAPPING.ACX
	z = 12: File LOADGEAR.ACX
	z = 13: File MOTRSM.ACX
Remedy:	For the file on the memory card involved, restore the status originally supplied from the factory.
F01018	Booting has been interrupted several times
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	POWER ON
Cause:	Module booting was interrupted several times. As a consequence, the module boots with the factory setting.
	Possible reasons for booting being interrupted:
	- power supply interrupted.
	- CPU crashed.
	- parameterization invalid.
Remedy:	
-	- carry out a POWER ON (switch-off/switch-on). After switching on, the module reboots from the valid parameterization (if available).
-	
-	available).
-	available). - restore the valid parameterization.
	available). - restore the valid parameterization. Examples:
	available). - restore the valid parameterization. Examples: a) Carry out a first commissioning, save, carry out a POWER ON (switch-off/switch-on).
	 available). restore the valid parameterization. Examples: a) Carry out a first commissioning, save, carry out a POWER ON (switch-off/switch-on). b) Load another valid parameter backup (e.g. from the memory card), save, carry out a POWER ON (switch-off/switch-on).
A01019	 available). restore the valid parameterization. Examples: a) Carry out a first commissioning, save, carry out a POWER ON (switch-off/switch-on). b) Load another valid parameter backup (e.g. from the memory card), save, carry out a POWER ON (switch-off/switch-on). Note:
A01019 Message value:	 available). - restore the valid parameterization. Examples: a) Carry out a first commissioning, save, carry out a POWER ON (switch-off/switch-on). b) Load another valid parameter backup (e.g. from the memory card), save, carry out a POWER ON (switch-off/switch-on). Note: If the fault situation is repeated, then this fault is again output after several interrupted boots.
	 available). - restore the valid parameterization. Examples: a) Carry out a first commissioning, save, carry out a POWER ON (switch-off/switch-on). b) Load another valid parameter backup (e.g. from the memory card), save, carry out a POWER ON (switch-off/switch-on). Note: If the fault situation is repeated, then this fault is again output after several interrupted boots.
Message value:	 available). - restore the valid parameterization. Examples: a) Carry out a first commissioning, save, carry out a POWER ON (switch-off/switch-on). b) Load another valid parameter backup (e.g. from the memory card), save, carry out a POWER ON (switch-off/switch-on). Note: If the fault situation is repeated, then this fault is again output after several interrupted boots. Writing to the removable data medium unsuccessful -
Message value: Drive object:	 available). - restore the valid parameterization. Examples: a) Carry out a first commissioning, save, carry out a POWER ON (switch-off/switch-on). b) Load another valid parameter backup (e.g. from the memory card), save, carry out a POWER ON (switch-off/switch-on). Note: If the fault situation is repeated, then this fault is again output after several interrupted boots. Writing to the removable data medium unsuccessful All objects
Message value: Drive object: Reaction:	 available). - restore the valid parameterization. Examples: a) Carry out a first commissioning, save, carry out a POWER ON (switch-off/switch-on). b) Load another valid parameter backup (e.g. from the memory card), save, carry out a POWER ON (switch-off/switch-on). Note: If the fault situation is repeated, then this fault is again output after several interrupted boots. Writing to the removable data medium unsuccessful - All objects NONE

Remedy: Remove and check the removable data medium. Then run the data backup again.

A01020	Writing to RAM disk unsuccessful	
Message value:	-	
Drive object:	All objects	
Reaction:	NONE	
Acknowledge:	NONE	
Cause:	A write access to the internal RAM disk was unsuccessful.	
Remedy:	Adapt the file size for the system logbook to the internal RAM disk (p9930).	
F01023	Software timeout (internal)	
Message value:	%1	
Drive object:	All objects	
Reaction:	NONE	
Acknowledge:	IMMEDIATELY	
Cause:	An internal software timeout has occurred.	
	Fault value (r0949, interpret decimal):	
	Only for internal Siemens troubleshooting.	
Remedy:	- carry out a POWER ON (switch-off/switch-on) for all components.	
	- upgrade firmware to later version.	
	- contact Technical Support.	
F01030	Sign-of-life failure for master control	
Message value:	-	
Drive object:	All objects	
Reaction:	Servo: OFF3 (IASC/DCBRK, NONE, OFF1, OFF2, STOP2)	
Acknowledge:	IMMEDIATELY	
Cause:	For active PC master control, no sign-of-life was received within the monitoring time. The master control was returned to the active BICO interconnection.	
Remedy:	Set the monitoring time higher at the PC or, if required, completely disable the monitoring function.	
	The monitoring time is set as follows using the commissioning tool:	
	<drive> -> Commissioning -> Control panel -> Button "Fetch master control" -> A window is displayed to set the monitoring time in milliseconds.</drive>	
	Notice:	
	The monitoring time should be set as short as possible. A long monitoring time means a late response when the communication fails!	
	Sign-of-life failure for OFF in REMOTE	
Message value:	-	
Drive object:	All objects	
Reaction:	Servo: OFF3 (IASC/DCBRK, NONE, OFF1, OFF2, STOP2)	
Acknowledge:	IMMEDIATELY	
Cause:	With the "OFF in REMOTE" mode active, no sign-of-life was received within 3 seconds.	
Remedy:	- check the data cable connection at the serial interface for the Control Unit (CU) and operator panel.	
· · · · · · · · · · · · · · · · · · ·	- check the data cable between the Control Unit and operator panel.	
A01032 (F)	ACX: all parameters must be saved	
	%1	
Message value:		
Drive object: Reaction:	All objects NONE	
Acknowledge:	NONE	
Actionicage.		

13.2 List of faults and alarms

Cause:	The parameters of an individual drive object were saved (p0971 = 1), although there is still no backup of all drive syste parameters.
	The saved object-specific parameters are not loaded the next time that the system powers up.
	For the system to successfully power up, all of the parameters must have been completely backed up.
	Alarm value (r2124, interpret decimal):
	Only for internal Siemens troubleshooting.
Remedy:	Save all parameters (p0977 = 1 or "copy RAM to ROM").
	See also: p0977 (Save all parameters)
Reaction upon F:	Servo: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY
F01033	Units changeover: Reference parameter value invalid
Message value:	Parameter: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	When changing over the units to the referred representation type, it is not permissible for any of the required reference parameters to be equal to 0.0
	Fault value (r0949, parameter):
	Reference parameter whose value is 0.0.
Remedy:	Set the value of the reference parameter to a number different than 0.0.
	See also: p0304, r0304, p0305, r0305, p2000, p2003
F01034	Units changeover: Calculation parameter values after reference value change unsuccessful
Message value:	Parameter: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The change of a reference parameter meant that for an involved parameter the selected value was not able to be re- calculated in the per unit representation. The change was rejected and the original parameter value restored. Fault value (r0949, parameter):
	Parameter whose value was not able to be re-calculated.
	See also: p0304, r0304, p0305, r0305, p2000, p2003
Remedy:	- Select the value of the reference parameter such that the parameter involved can be calculated in the per unit representation.
	- Technology unit selection (p0595) before changing the reference parameter p0596, set p0595 = 1.
A01035 (F)	ACX: Parameter back-up file corrupted
Message value:	%1
Drive object:	All objects
Reaction:	NONE

Acknowledge:

NONE

Cause:	When the Control Unit is booted, no complete data set was found from the parameter back-up files. The last time that the parameterization was saved, it was not completely carried out.
	It is possible that the backup was interrupted by switching off or withdrawing the memory card.
	Alarm value (r2124, interpret hexadecimal):
	ddccbbaa hex:
	aa = 01 hex:
	Power up was realized without data backup. The drive is in the factory setting.
	aa = 02 hex:
	The last available backup data record was loaded. The parameterization must be checked. It is recommended that the parameterization is downloaded again.
	dd, cc, bb:
	Only for internal Siemens troubleshooting.
	See also: p0977
Remedy:	- download the project again using the commissioning tool.
	- save all parameters (p0977 = 1 or "copy RAM to ROM").
	See also: p0977 (Save all parameters)
Reaction upon F:	Servo: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY

F01036 (A)	ACX: Parameter back-up file missing
Message value:	%1
Drive object:	All objects
Reaction:	Servo: NONE (OFF1, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	When downloading the device parameterization, a parameter back-up file PSxxxyyy.ACX associated with a drive object cannot be found.
	Fault value (r0949, interpret hexadecimal):
	Byte 1: yyy in the file name PSxxxyyy.ACX
	yyy = 000> consistency back-up file
	yyy = 001 062> drive object number
	yyy = 099> PROFIBUS parameter back-up file
	Byte 2, 3, 4:
	Only for internal Siemens troubleshooting.
Remedy:	If you have saved your project data using the commissioning tool, carry-out a new download for your project. Save using the function "Copy RAM to ROM" or with p0977 = 1.
	This means that the parameter files are again completely written into the non-volatile memory.
	Note:
	If the project data have not been backed up, then a new first commissioning is required.
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F01038 (A)	ACX: Loading the parameter back-up file unsuccessful

	Non. Louding the parameter back up
Message value:	%1
Drive object:	All objects
Reaction:	Servo: NONE (OFF1, OFF2, OFF3)
Acknowledge:	IMMEDIATELY

E01020 (A)	ACX: Writing to the peremeter back up file was unsuccessful
Acknowl. upon A:	NONE
Reaction upon A:	NONE
	- correct the drive object type (see p0107).
	For byte 2 = 255:
	- replace the memory card or Control Unit.
	memory.
···· · ·	"Copy RAM to ROM" or with p0977 = 1. This means that the parameter files are again completely written to the non-volatile
Remedy:	- if you have saved the project data using the commissioning tool, download the project again. Save using the function
	Only for internal Siemens troubleshooting.
	Byte 4, 3:
	Only for internal Siemens troubleshooting.
	Additional values:
	- Component not active.
	- Component does not exist in the actual topology.
	- incorrect component type in the actual topology
	Reasons could be:
	253. Theoreet the object type. 254: Topology comparison unsuccessful -> drive object type was not able to be identified.
	255: Incorrect drive object type.
	yyy = 099> PROFIBUS parameter back-up file Bvte 2:
	yyy = 001 062> drive object number
	yyy = 000> consistency back-up file
	Byte 1: yyy in the file name PSxxxyyy.ACX
	Fault value (r0949, interpret hexadecimal):
	Fault unlike (2010) interpret have designed)

F01039 (A)	ACX: Writing to the parameter back-up file was unsuccessful
Message value:	%1
Drive object:	All objects
Reaction:	Servo: NONE (OFF1, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	Writing to at least one parameter back-up file PSxxxyyy.*** in the non-volatile memory was unsuccessful.
	- in the directory /USER/SINAMICS/DATA/ at least one parameter back-up file PSxxxyyy.*** has the "read only" file attribute and cannot be overwritten.
	- there is not sufficient free memory space available.
	- the non-volatile memory is defective and cannot be written to.
	Fault value (r0949, interpret hexadecimal):
	dcba hex
	a = yyy in the file names PSxxxyyy.***
	a = 000> consistency back-up file
	a = 001 062> drive object number
	a = 070> FEPROM.BIN
	a = 080> DEL4BOOT.TXT
	a = 099> PROFIBUS parameter back-up file
	b = xxx in the file names PSxxxyyy.***
	b = 000> data save started with p0977 = 1 or p0971 = 1
	b = 010> data save started with p0977 = 10
	b = 011> data save started with p0977 = 11
	b = 012> data save started with p0977 = 12
	d, c:
	Only for internal Siemens troubleshooting.

Remedy:	- check the file attribute of the files (PSxxxyyy.***, CAxxxyyy.***, CCxxxyyy.***) and, if required, change from "read only" to "writeable".
	- check the free memory space in the non-volatile memory. Approx. 80 kbyte of free memory space is required for every drive object in the system.
	- replace the memory card or Control Unit.
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F01040	Save parameter settings and carry out a POWER ON
Message value:	-
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	POWER ON
Cause:	A parameter was changed in the drive system which means that it is necessary to save the parameters and re-boot.
Remedy:	- save parameters (p0971, p0977).
•	- carry out a POWER ON (switch-off/switch-on) for all components.
	Then:
	- upload the drive unit (commissioning tool).
F01041	Parameter save necessary
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	Defective or missing files were detected on the memory card when booting.
	Fault value (r0949, interpret decimal):
	1: Source file cannot be opened.
	2: Source file cannot be read.
	3: Target directory cannot be set up.
	4. Target file cannot be set up/opened.
	5. Target file cannot be written to.
	Additional values:
	Only for internal Siemens troubleshooting.
Remedy:	- save the parameters.
	- download the project again to the drive unit.
	- update the firmware
	- if required, replace the Control Unit and/or memory card card.
F01042	Parameter error during project download

Message value:	Parameter: %1, Index: %2, fault cause: %3
Drive object:	All objects
Reaction:	Servo: OFF2 (NONE, OFF1, OFF3)
Acknowledge:	IMMEDIATELY
Acknowledge:	IMMEDIATELY

Cause: An error was detected when downloading a project using the commissioning software (e.g. incorrect parameter value). It is possible that the parameter limits are dependent on other parameters. The detailed cause of the fault can be determined using the fault value. Fault value (r0949, interpret hexadecimal): ccbbaaaa hex aaaa = Parameter bb = Indexcc = fault cause 0: Parameter number illegal. 1: Parameter value cannot be changed. 2: Lower or upper value limit exceeded. 3: Sub-index incorrect. 4: No array, no sub-index. 5: Data type incorrect. 6: Setting not permitted (only resetting). 7: Descriptive element cannot be changed. 9: Descriptive data not available. 11. No master control 15: No text array available. 17: Task cannot be executed due to operating state. 20: Illegal value. 21: Response too long. 22: Parameter address illegal. 23: Format illegal. 24: Number of values not consistent. 25: Drive object does not exist. 101: Presently deactivated. 104: Illegal value. 107: Write access not permitted when controller enabled. 108: Unit unknown. 109: Write access only in the commissioning state, encoder (p0010 = 4). 110: Write access only in the commissioning state, motor (p0010 = 3). 111: Write access only in the commissioning state, power unit (p0010 = 2). 112: Write access only in the quick commissioning mode (p0010 = 1). 113: Write access only in the ready mode (p0010 = 0). 114: Write access only in the commissioning state, parameter reset (p0010 = 30). 115: Write access only in the Safety Integrated commissioning state (p0010 = 95). 116: Write access only in the commissioning state, technological application/units (p0010 = 5). 117: Write access only in the commissioning state (p0010 not equal to 0). 118: Write access only in the commissioning state, download (p0010 = 29). 119: Parameter may not be written in download. 120: Write access only in the commissioning state, drive basic configuration (device: p0009 = 3). 121: Write access only in the commissioning state, define drive type (device: p0009 = 2). 122: Write access only in the commissioning state, data set basic configuration (device: p0009 = 4). 123: Write access only in the commissioning state, device configuration (device: p0009 = 1). 124: Write access only in the commissioning state, device download (device: p0009 = 29). 125: Write access only in the commissioning state, device parameter reset (device: p0009 = 30). 126: Write access only in the commissioning state, device ready (device: p0009 = 0). 127: Write access only in the commissioning state, device (device: p0009 not equal to 0). 129: Parameter may not be written in download. 130: Transfer of the master control is inhibited via binector input p0806. 131: Required BICO interconnection not possible because BICO output does not supply floating value

Remedy:	 132: Free BICO interconnection inhibited via p0922. 133: Access method not defined. 200: Below the valid values. 201: Above the valid values. 202: Cannot be accessed from the Basic Operator Panel (BOP). 203: Cannot be read from the Basic Operator Panel (BOP). 204: Write access not permitted. - correct the parameterization in the commissioning tool and download the project again. - enter the correct value in the specified parameter. - identify the parameter that restricts the limits of the specified parameter.
F01043	Fatal error at project download
Message value:	Fault cause: %1
-	
Drive object:	
Reaction:	Servo: NONE (OFF1, OFF2, OFF3)
Acknowledge:	
Cause:	A fatal error was detected when downloading a project using the commissioning tool.
	Fault value (r0949, interpret decimal):
	1: Device status cannot be changed to Device Download (drive object ON?).
	 2: Incorrect drive object number. 3: A drive object that has already been deleted is deleted again.
	4: Deleting of a drive object that has already been registered for generation.
	5: Deleting a drive object that does not exist.
	6: Generating an undeleted drive object that already existed.
	7: Regenerating a drive object already registered for generation.
	8: Maximum number of drive objects that can be generated exceeded.
	9: Error while generating a device drive object.
	10: Error while generating target topology parameters (p9902 and p9903).
	11: Error while generating a drive object (global component).
	12: Error while generating a drive object (drive component).
	13: Unknown drive object type.
	14: Drive status cannot be changed to "ready for operation" (r0947 and r0949).
	15: Drive status cannot be changed to drive download.
	16: Device status cannot be changed to "ready for operation".
	17: It is not possible to download the topology. The component wiring should be checked, taking into account the various messages/signals.
	18: A new download is only possible if the factory settings are restored for the drive unit.
	19: The slot for the option module has been configured several times (e.g. CAN and COMM BOARD)
	20: The configuration is inconsistent (e.g. CAN for Control Unit, however no CAN configured for drive objects A_INF, SERVO or VECTOR).
	21: Error when accepting the download parameters.
	22: Software-internal download error.
	23: download not possible when know-how protection is activated.
	24: download not possible during a partial power up after inserting a component.
	25: The configuration is inconsistent. Know-how protection is either not activated or only partially.
	Additional values:
	Only for internal Siemens troubleshooting.

Bomodu:	use the surrent version of the commissioning tool
Remedy:	 use the current version of the commissioning tool. modify the offline project and carry out a new download (e.g. compare the number of drive objects, motor, encoder, power
	unit in the offline project and at the drive).
	- change the drive state (is a drive rotating or is there a message/signal?).
	- carefully note any other active messages/signals and remove their cause (e.g. correct any incorrectly set parameters).
	- automatically calculate the control parameters (p0340). Then set p0010 = 0.
	- boot from previously saved files (switch-off/switch-on or p0976).
	- before a new download, restore the factory setting if the know-how protection was not activated on all drive objects.
F01044	CU: Descriptive data error
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	POWER ON
Cause:	An error was detected when loading the descriptive data saved in the non-volatile memory.
Remedy:	Replace the memory card or Control Unit.
Komody.	
A01045	CU: Configuring data invalid
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	An error was detected when evaluating the parameter files PSxxxyyy.ACX, PTxxxyyy.ACX, CAxxxyyy.ACX, or CCxxxyyy.ACX saved in the non-volatile memory. Because of this, under certain circumstances, several of the saved parameter values were not able to be accepted. Also see r9406 up to r9408.
	Alarm value (r2124, interpret hexadecimal):
	Only for internal Siemens troubleshooting.
Remedy:	- check the parameters displayed in r9406 up to r9408, and correct these if required.
	- Restore the factory setting using (p0976 = 1) and re-load the project into the drive unit.
	Then save the parameterization in STARTER using the function "Copy RAM to ROM" or with p0977 = 1. This overwrites the incorrect parameter files in the non-volatile memory – and the alarm is withdrawn.
A01049	CU: It is not possible to write to file
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	It is not possible to write into a write-protected file (PSxxxxx.acx). The write request was interrupted.
	Alarm value (r2124, interpret decimal):
	Drive object number.
Remedy:	Check whether the "write protected" attribute has been set for the files in the non-volatile memory under/USER/ SINAMICS/DATA/
	When required, remove write protection and save again (e.g. set p0977 to 1).
F01050	Memory card and device incompatible
Message value:	
Drive object:	All objects
Reaction:	Servo: OFF2 (NONE, OFF1, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The memory card and the device type do not match (e.g. a memory card for SINAMICS S is inserted in SINAMICS G).

 Remedy:
 - insert the matching memory card.

 - use the matching Control Unit or power unit.

F01054	CU: System limit exceeded
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	At least one system overload has been identified.
	Fault value (r0949, interpret decimal):
	1: Computing time load too high (r9976[1]).
	5: Peak load too high (r9976[5]).
	Note:
	As long as this fault is present, it is not possible to save the parameters (p0971, p0977).
Remedy:	For fault value = 1, 5:
	- reduce the computing time load of the drive unit (r9976[1] and r9976[5]) to under 100 %.
	- check the sampling times and adjust if necessary (p0115, p0799, p4099).
	- deactivate function modules.
	- deactivate drive objects.
	- remove drive objects from the target topology.
	- note the DRIVE-CLiQ topology rules and if required, change the DRIVE-CLiQ topology.
	When using the Drive Control Chart (DCC) or free function blocks (FBLOCKS), the following applies:
	- the computing time load of the individual run-time groups on a drive object can be read out in r21005 (DCC) or r20005 (FBLOCKS).
	- if necessary, the assignment of the run-time group (p21000, p20000) can be changed in order to increase the sampling time (r21001, r20001).
	- if necessary, reduce the number of cyclically calculated blocks (DCC) and/or function blocks (FBLOCKS).
A01064 (F)	CU: Internal error (CRC)

· · ·	
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	A checksum error (CRC error) has occurred in the Control Unit program memory
Remedy:	- carry out a POWER ON (switch-off/switch-on) for all components.
	- upgrade firmware to later version.
	- contact Technical Support.
Reaction upon F:	Servo: NONE (OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY (POWER ON)

F01068	CU: Data memory memory overflow
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY

Message value:	Parameter: %1, Index: %2, fault cause: %3
F01082	Parameter error when powering up from data backup
Acknowl. upon N:	NONE
Reaction upon N:	NONE
-	- carry out a hardware reset (RESET button, p0972).
Remedy:	- carry out a POWER ON (switch-off/switch-on) for the Control Unit.
	It is possible that a new POWER ON is requested via this alarm (e.g. after saving with p0971 = 1).
	Note:
	In order that the backup copy on the memory card is updated on the non-visible partition, it is necessary to carry out a POWER ON or hardware reset (p0972) of the Control Unit.
Cause:	The parameter assignment on the visible partition of the memory card has changed.
Acknowledge:	NONE
Reaction:	NONE
Drive object:	All objects
Message value:	-
A01073 (N)	POWER ON required for backup copy on memory card
Remedy:	After switching on, the data from the non-visible partition (backup copy) were written to the visible partition. Check that the firmware and parameterization is up-to-date.
Cause:	The Control Unit was switched-off while writing to the memory card. This is why the visible partition became defective.
Acknowledge:	IMMEDIATELY
Reaction:	NONE
Drive object:	All objects
Message value:	
F01072	Memory card restored from the backup copy
	- save the parameters (p0977 = 1).
	- insert a memory card without parameter backup and carry out a POWER ON.
Remedy:	- insert a memory card with compatible parameter backup and carry out a POWER ON.
	Devices A and B. are not compatible and a memory card with the parameter backup for device A is inserted in device B.
	Example:
	The module boots with the factory settings.
Cause:	The parameter backup on the memory card and the drive unit do not match.
Acknowledge:	NONE
Reaction:	NONE
Drive object:	All objects
Message value:	-
A01069	Parameter backup and device incompatible
	 deactivate drive object. remove the drive object from the target topology.
Remedy:	- deactivate the function module.
Demoder	Bit 3 = 1: High-speed data memory 4 overloaded
	Bit 2 = 1: High-speed data memory 3 overloaded
	Bit 1 = 1: High-speed data memory 2 overloaded
	Bit 0 = 1: High-speed data memory 1 overloaded
	Fault value (r0949, interpret binary):

Reaction:Servo: OFF2 (NONE, OFF1, OFF3)Acknowledge:IMMEDIATELY

Cause:	Parameterizing errors have been detected (e.g. incorrect parameter value). It is possible that the parameter limits are dependent on other parameters.
	The detailed cause of the fault can be determined using the fault value.
	Fault value (r0949, interpret hexadecimal):
	ccbbaaaa hex
	aaaa = Parameter
	bb = Index
	cc = fault cause
	0: Parameter number illegal.
	1: Parameter value cannot be changed.
	2: Lower or upper value limit exceeded.
	3: Sub-index incorrect.
	4: No array, no sub-index.
	5: Data type incorrect.
	6: Setting not permitted (only resetting).
	7: Descriptive element cannot be changed.
	9: Descriptive data not available.
	11: No master control.
	15: No text array available.
	17: Task cannot be executed due to operating state.
	20: Illegal value.
	21: Response too long.
	22: Parameter address illegal.
	23: Format illegal.
	24: Number of values not consistent.
	25: Drive object does not exist.
	101: Presently deactivated.
	104: Illegal value.
	107: Write access not permitted when controller enabled.
	108: Unit unknown.
	109: Write access only in the commissioning state, encoder (p0010 = 4).
	110: Write access only in the commissioning state, motor (p0010 = 3).
	111: Write access only in the commissioning state, power unit (p0010 = 2).
	112: Write access only in the quick commissioning mode (p0010 = 1).
	113: Write access only in the ready mode (p0010 = 0).
	114: Write access only in the commissioning state, parameter reset (p0010 = 30).
	115: Write access only in the Safety Integrated commissioning state (p0010 = 95).
	116: Write access only in the commissioning state, technological application/units (p0010 = 5).
	117: Write access only in the commissioning state (p0010 not equal to 0).
	118: Write access only in the commissioning state, download (p0010 = 29).
	119: Parameter may not be written in download.
	120: Write access only in the commissioning state, drive basic configuration (device: p0009 = 3).
	121: Write access only in the commissioning state, define drive type (device: p0009 = 2).
	122: Write access only in the commissioning state, data set basic configuration (device: p0009 = 4).
	123: Write access only in the commissioning state, device configuration (device: p0009 = 1).
	124: Write access only in the commissioning state, device download (device: p0009 = 29).
	125: Write access only in the commissioning state, device parameter reset (device: p0009 = 30).
	126: Write access only in the commissioning state, device ready (device: p0009 = 0).
	127: Write access only in the commissioning state, device (device: p0009 not equal to 0).
	129: Parameter may not be written in download.
	130: Transfer of the master control is inhibited via binector input p0806.
	131: Required BICO interconnection not possible because BICO output does not supply floating value

	132: Free BICO interconnection inhibited via p0922.
	133: Access method not defined.
	200: Below the valid values.
	201: Above the valid values.
	202: Cannot be accessed from the Basic Operator Panel (BOP).
	203: Cannot be read from the Basic Operator Panel (BOP).
	204: Write access not permitted.
Remedy:	- correct the parameterization in the commissioning tool and download the project again.
	- enter the correct value in the specified parameter.
	- identify the parameter that restricts the limits of the specified parameter.
A01097 (N)	NTP server cannot be accessed
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The selected NTP server (p3105[03]) cannot be accessed. Time synchronization cannot be performed.
	Note:
	NTP: Network Time Protocol
Remedy:	Correctly set the IP address of the NTP server, and check the connection to the NTP server.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A01099 (N)	UTC synchronization tolerance violated
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The tolerance (p3109) set for UTC synchronization was violated.
00000.	Note:
	UTC: Universal Time Coordinates
Remedy:	Select the synchronization intervals shorter so that the deviation between the time of day master and drive system lies
	within the tolerance.
	Note:
	The deviation when synchronizing is shown in r3107.
Reaction upon N:	
Acknowl. upon N:	NONE
F01105 (A)	CU: Insufficient memory
Message value:	%1
Drive object:	All objects
Reaction:	OFF1
Acknowledge:	POWER ON
Cause:	Too many functions have been configured on this Control Unit (e.g. too many drives, function modules, data sets, Technology Extensions, blocks, etc).
	Fault value (r0949, interpret decimal):
	Only for internal Siemens troubleshooting.
Remedy:	- change the configuration on this Control Unit (e.g. fewer drives, function modules, data sets, Technology Extensions, blocks, etc).
	- use an additional Control Unit.

13.2 List of faults and alarms

Reaction upon A: NONE Acknowl. upon A: NONE

F01107	CU: Save to memory card unsuccessful
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	A data save in the non-volatile memory was not able to be successfully carried out.
	- non-volatile memory is defective.
	- insufficient space in the non-volatile memory.
	Fault value (r0949, interpret decimal):
	Only for internal Siemens troubleshooting.
Remedy:	- try to save again.
	- replace the memory card or Control Unit.
F01110	CU: More than one SINAMICS G on one Control Unit
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	More than one SINAMICS G type power unit is being operated from the Control Unit.
	Fault value (r0949, interpret decimal):
	Number of the second drive with a SINAMICS G type power unit.
Remedy:	Only one SINAMICS G drive type is permitted.
F01111	CU: Mixed operation of drive units illegal
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	Illegal operation of various drive units on one Control Unit:
	- SINAMICS S together with SINAMICS G
	- SINAMICS S together with SINAMICS S Value or Combi
	Fault value (r0949, interpret decimal):
	Number of the first drive object with a different power unit type.
Remedy:	Only power units of one particular drive type may be operated with one Control Unit.
 F01112	CU: Power unit not permissible
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The connected power unit cannot be used together with this Control Unit.
	Fault value (r0949, interpret decimal):
	1: Power unit is not supported (e.g. PM240).
	2: DC/AC power unit connected to CU310 not permissible.
	3: Power unit (S120M) not permitted for vector control.
Remedy:	Replace the power unit that is not permissible by a component that is permissible.

F01120 (A)	Terminal initialization has failed
Message value:	%1
Drive object:	All objects
Reaction:	OFF1 (OFF2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	An internal software error occurred while the terminal functions were being initialized.
	Fault value (r0949, interpret hexadecimal):
	Only for internal Siemens troubleshooting.
Remedy:	- carry out a POWER ON (switch-off/switch-on) for all components.
	- upgrade firmware to later version.
	- contact Technical Support.
	- replace the Control Unit.
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F01122 (A)	Frequency at the measuring probe input too high
Message value:	%1
Drive object:	All objects
Reaction:	OFF1 (OFF2)
Acknowledge:	IMMEDIATELY
Cause:	The frequency of the pulses at the measuring probe input is too high.
	Fault value (r0949, interpret decimal):
	1: DI/DO 9 (X122.8)
	2: DI/DO 10 (X122.10)
	4: DI/DO 11 (X122.11)
	8: DI/DO 13 (X132.8)
	16: DI/DO 14 (X132.10)
	32: DI/DO 15 (X132.11)
	64: DI/DO 8 (X122.7)
	128: DI/DO 12 (X132.7)
Remedy:	Reduce the frequency of the pulses at the measuring probe input.
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F01150	CU: Number of instances of a drive object type exceeded
Message value:	Drive object type: %1, number permitted: %2, actual number: %3
Message value: Drive object:	Drive object type: %1, number permitted: %2, actual number: %3 All objects
-	
Drive object:	All objects
Drive object: Reaction:	All objects NONE
Drive object: Reaction: Acknowledge:	All objects NONE IMMEDIATELY
Drive object: Reaction: Acknowledge:	All objects NONE IMMEDIATELY The maximum permissible number of instances of a drive object type was exceeded.
Drive object: Reaction: Acknowledge:	All objects NONE IMMEDIATELY The maximum permissible number of instances of a drive object type was exceeded. Drive object type:
Drive object: Reaction: Acknowledge:	All objects NONE IMMEDIATELY The maximum permissible number of instances of a drive object type was exceeded. Drive object type: Drive object type (p0107), for which the maximum permissible number of instances was exceeded.
Drive object: Reaction: Acknowledge:	All objects NONE IMMEDIATELY The maximum permissible number of instances of a drive object type was exceeded. Drive object type: Drive object type (p0107), for which the maximum permissible number of instances was exceeded. Number permitted:
Drive object: Reaction: Acknowledge:	All objects NONE IMMEDIATELY The maximum permissible number of instances of a drive object type was exceeded. Drive object type: Drive object type (p0107), for which the maximum permissible number of instances was exceeded. Number permitted: Max. permissible number of instances for this drive object type.
Drive object: Reaction: Acknowledge:	All objects NONE IMMEDIATELY The maximum permissible number of instances of a drive object type was exceeded. Drive object type: Drive object type (p0107), for which the maximum permissible number of instances was exceeded. Number permitted: Max. permissible number of instances for this drive object type. Actual number: Current number of instances for this drive object type. Note regarding the message value:
Drive object: Reaction: Acknowledge:	All objects NONE IMMEDIATELY The maximum permissible number of instances of a drive object type was exceeded. Drive object type: Drive object type (p0107), for which the maximum permissible number of instances was exceeded. Number permitted: Max. permissible number of instances for this drive object type. Actual number: Current number of instances for this drive object type.

Remedy: - switch off the unit. - suitably restrict the number of instances of a drive object type by reducing the number of inserted components. - re-commission the unit. F01151 CU: Number of drive objects of a category exceeded Drive object category: %1, number permitted: %2, actual number: %3 Message value: Drive object: All objects Reaction: NONE Acknowledge: IMMEDIATELY Cause: The maximum permissible number of drive objects of a category was exceeded. Drive object category: Drive object category, for which the maximum permissible number of drive objects was exceeded. Number permitted: Max. permissible number for this drive object category. Actual number: Actual number for this drive object category. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): ddccbbaa hex: aa = drive object category, bb = number limited, cc = actual number, dd = no significance Remedy: - switch off the unit. - suitably restrict the number of drive objects of the specified category by reducing the number of inserted components. - re-commission the unit. F01152 CU: Invalid constellation of drive object types Message value: Drive object: All objects NONE Reaction: Acknowledge: POWER ON Cause: It is not possible to simultaneously operate drive object types SERVO, VECTOR and HLA. A maximum of 2 of these drive object types can be operated on a Control Unit. - switch off the unit. Remedy: - restrict the use of drive object types SERVO, VECTOR, HLA to a maximum of 2. - re-commission the unit. F01200 CU: Time slice management internal software error Message value: %1 Drive object: All objects OFF2 Reaction: **IMMEDIATELY (POWER ON)** Acknowledge: Cause: A time slice management error has occurred. It is possible that the sampling times have been inadmissibly set. Fault value (r0949, interpret hexadecimal): 998: Too many time slices occupied by technology functions (e.g. DCC). 999: Too many time slices occupied by the basic system. Too many different sampling times may have been set. Additional values: Only for internal Siemens troubleshooting. - check the sampling time setting (p0112, p0115, p4099, p9500, p9511). Remedy: - contact Technical Support.

F01205	CU: Time slice overflow
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	POWER ON
Cause:	Insufficient processing time is available for the existing topology.
Cause.	Fault value (r0949, interpret hexadecimal):
	Only for internal Siemens troubleshooting.
Remedy:	- reduce the number of drives.
	- increase the sampling times.
F01221	CU: Basic clock cycle too low
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The closed-loop control / monitoring cannot maintain the envisaged clock cycle.
	The runtime of the closed-loop control/monitoring is too long for the particular clock cycle or the computing time remaining in the system is not sufficient for the closed-loop control/monitoring.
	Fault value (r0949, interpret hexadecimal):
	Only for internal Siemens troubleshooting.
Remedy:	Increase the basic clock cycle of DRIVE-CLiQ communication.
A01223	CU: Sampling time inconsistent
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE

Cause:

When changing a sampling time (p0115[0], p0799 or p4099), inconsistency between the clock cycles has been identified. Alarm value (r2124, interpret decimal):

1: Value lower than minimum value.

2: Value higher than maximum value.

3: Value not a multiple of 1.25 µs.

4: Value does not match isochronous PROFIBUS operation.

5: Value not a multiple of 125 µs.

6: Value not a multiple of 250 µs.

7: Value not a multiple of 375 $\mu s.$

8: Value not a multiple of 400 µs.

10: Special restriction of the drive object violated.

20: On a SERVO with a sampling time of 62.5 µs, more than two drive objects or one drive object of a type other than SERVO have been detected on the same DRIVE-CLiQ line (a maximum of two SERVO type drive objects are permitted). 21: Value can be a multiple of the current controller sampling time of a servo or vector drive in the system (e.g. for TB30, the values of all of the indices should be taken into account).

30: Value less than 31.25 $\mu s.$

31: Value less than 62.5 µs (31.25 µs is not supported for SMC10, SMC30, SMI10 and Double Motor Modules).

32: Value less than 125 µs.

33: Value less than 250 $\mu s.$

40: Nodes have been identified on the DRIVE-CLiQ line whose highest common denominator of the sampling times is less than 125 μ s. Further, none of the nodes has a sampling time of less than 125 μ s.

41: A chassis unit was identified on the DRIVE-CLiQ line as a node. Further, the highest common denominator of the sampling times of all of the nodes connected to the line is less than 250 µs.

42: An Active Line Module was identified on the DRIVE-CLiQ line as a node. Further, the highest common denominator of the sampling times of all of the nodes connected to the line is less than 125 μ s.

43: A Voltage Sensing Module (VSM) was identified on the DRIVE-CLiQ line as a node. Further, the highest common denominator of the sampling times of all of the nodes connected to the line is not equal to the current controller sampling time of the drive object of the VSM.

44: The highest common denominator of the sampling times of all of the components connected to the DRIVE-CLiQ line is not the same for all components of this drive object (e.g. there are components on different DRIVE-CLiQ lines on which different highest common denominators are generated).

45: A chassis parallel unit was identified on the DRIVE-CLiQ line as a node. Further, the highest common denominator of the sampling times of all of the nodes connected to the line is less than 162.5 μ s or 187.5 μ s (for a 2x or 3x parallel connection).

46: A node has been identified on the DRIVE-CLiQ line whose sampling time is not a multiple of the lowest sampling time on this line.

52: Nodes have been identified on the DRIVE-CLiQ line whose highest common denominator of the sampling times is less than $31.25 \ \mu s$.

54: Nodes have been identified on the DRIVE-CLiQ line whose highest common denominator of the sampling times is less than 62.5 μ s.

56: Nodes have been identified on the DRIVE-CLiQ line whose highest common denominator of the sampling times is less than 125 μ s.

58: Nodes have been identified on the DRIVE-CLiQ line whose highest common denominator of the sampling times is less than 250 μs.

99: Inconsistency of cross drive objects detected.

116: Recommended clock cycle in r0116[0...1].

General note:

The topology rules should be noted when connecting up DRIVE-CLiQ (refer to the appropriate product documentation). The parameters of the sampling times can also be changed with automatic calculations.

Example for highest common denominator: 125 s, 125 µs, 62.5 µs --> 62.5 µs

check the DRIVE-CLiQ cables.

- set a valid sampling time.

Remedy:

A01224	CU: Pulse frequency inconsistent
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	When changing the minimum pulse frequency (p0113) inconsistency between the pulse frequencies was identified.
	Alarm value (r2124, interpret decimal):
	1: Value lower than minimum value.
	2: Value higher than maximum value.
	3: Resulting sampling time is not a multiple of 1.25 μs.
	4: Value does not match isochronous PROFIBUS operation.
	10: Special restriction of the drive object violated.
	99: Inconsistency of cross drive objects detected.
	116: Recommended clock cycle in r0116[01].
Remedy:	Set a valid pulse frequency.
F01250	CU: CU-EEPROM incorrect read-only data
Message value:	%1
Drive object:	All objects
Reaction:	NONE (OFF2)
Acknowledge:	POWER ON
Cause:	Error when reading the read-only data of the EEPROM in the Control Unit.
	Fault value (r0949, interpret decimal):
	Only for internal Siemens troubleshooting.
Remedy:	- carry out a POWER ON (switch-off/switch-on).
	- replace the Control Unit.
A01251	CU: CU-EEPROM incorrect read-write data
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Error when reading the read-write data of the EEPROM in the Control Unit.
	Alarm value (r2124, interpret decimal):
	Only for internal Siemens troubleshooting.
Remedy:	For alarm value r2124 < 256, the following applies:
	- carry out a POWER ON (switch-off/switch-on).
	- replace the Control Unit.
	For alarm value r2124 >= 256, the following applies:
	- for the drive object with this alarm, clear the fault memory ($p0952 = 0$).
	- as an alternative, clear the fault memory of all drive objects (p2147 = 1).
	- replace the Control Unit.
F01255	CU: Option Board EEPROM read-only data error
Message value:	%1
messaye value.	
-	All objects
Drive object: Reaction:	All objects NONE (OFF2)

Cause:	Error when reading the read-only data of the EEPROM in the Option Board.
	Fault value (r0949, interpret decimal):
	Only for internal Siemens troubleshooting.
Remedy:	- carry out a POWER ON (switch-off/switch-on).
	- replace the Control Unit.
A01256	CU: Option Board EEPROM read-write data error
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Error when reading the read-write data of the EEPROM in the Option Board.
	Alarm value (r2124, interpret decimal):
	Only for internal Siemens troubleshooting.
Remedy:	- carry out a POWER ON (switch-off/switch-on).
	- replace the Control Unit.
A01302	Error in the component trace
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	An error has occurred in the component trace.
Cause.	The message appears in the following cases:
	- upload trace data (p7792 = 1).
	- change factory setting (p7790, p7791) for missing property "component trace" (r0193.1 = 0).
	Alarm value (r2124, interpret decimal):
	1: The DRIVE-CLiQ component does not support the component trace (r0193.1 = 0).
	101: Data from trace 1 cannot be read.
	102: Data from trace 2 cannot be read.
	103: Data from trace 3 cannot be read.
	104: Data from trace 4 cannot be read.
	105: Data from trace 5 cannot be read.
Remedy:	For alarm value = 1:
	Upgrade the firmware of the DRIVE-CLiQ component involved.
F01303	Component does not support the required function
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
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Cause:	A function requested by the Control Unit is not supported by a DRIVE-CLiQ component.
	Fault value (r0949, interpret decimal):
	1: The component does not support the deactivation.
	101: The Motor Module does not support an internal armature short-circuit.
	102: The Motor Module does not support the deactivation.
	201: The Sensor Module does not support actual value inversion (p0410.0 = 1) when using a Hall sensor (p0404.6 = 1) for the commutation.
	202: The Sensor Module does not support parking/unparking.
	203: The Sensor Module does not support the deactivation.
	204: The firmware of this Terminal Module 15 (TM15) does not support the application TM15DI/DO.
	205: The Sensor Module does not support the selected temperature evaluation (r0458, r0459).
	206: The firmware of this Terminal Modules TM41/TM31/TM15 refers to an old firmware version. It is urgently necessary to upgrade the firmware to ensure disturbance-free operation.
	207: The power unit with this hardware version does not support operation with device supply voltages of less than 380 V.
	208: The Sensor Module does not support de-selection of commutation with zero mark (via p0430.23).
	211: The Sensor Module does not support single-track encoders (r0459.10).
	212: The Sensor Module does not support LVDT sensors (p4677.0).
	213: The Sensor Module does not support the characteristic type (p4662).
	214: The power unit does not support the temperature evaluation via PT1000 (r0193).
	215: The Terminal Module does not support the temperature evaluation via PT1000
	216: The Voltage Sensing Module (VSM) does not support operation with a PT1000 temperature sensor.
Remedy:	Upgrade the firmware of the DRIVE-CLiQ component involved.
	For fault value = 205, 214, 215:
	- check parameter p0600 and p0601 and if required, adapt.
	For fault value = 207:
	- replace the power unit or if required set the device supply voltage higher (p0210).
	For fault value = 208:
	- check parameter p0430.23 and reset if necessary.
	For fault value = 216:
	- check the setting of the sensor type (p3665).
	- use a Voltage Sensing module that supports operation with PT1000 (MLFBxxx1).
A01304 (F)	Firmware version of DRIVE-CLiQ component is not up-to-date
Message value:	%1

Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The non-volatile memory has a more recent firmware version than the one in the connected DRIVE-CLiQ component. Alarm value (r2124, interpret decimal):
	Component number of the DRIVE-CLiQ component involved.
Remedy:	Update the firmware (p7828, p7829 - or commissioning tool).
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY
F01305	Topology: Component number missing
Message value:	%1
Drive object:	All objects

Drive object: All objects Reaction: NONE Acknowledge: IMMEDIATELY

Cause:	The component number from the topology was not parameterized (p0121 (for power unit, refer to p0107), p0131 (for servo/
	vector drives, refer to p0107), p0141, p0151, p0161).
	Fault value (r0949, interpret decimal):
	Data set number.
	Note:
	The fault also occurs if encoders have been configured (p0187 to p0189) but no component numbers exist for them. In this case, the fault value includes the drive data set number plus 100 * encoder number (e.g. 3xx, if a component number
	was not entered in p0141 for encoder 3 (p0189)).
Remedy:	- enter missing component number.
	- if required, remove the component and restart commissioning.
A01306	Firmware of the DRIVE-CLiQ component being updated
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Firmware update is active for at least one DRIVE-CLiQ component.
	Alarm value (r2124, interpret decimal):
	Component number of the DRIVE-CLiQ component.
Remedy:	Not necessary.
·	This alarm is automatically withdrawn after the firmware update has been completed.
A01314	Topology: Component must not be present
Message value:	%1, to %2, %3, connection: %4
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	For a component, "deactivate and not present" is set but this component is still in the topology.
	Alarm value (r2124, interpret hexadecimal):
	ddccbbaa hex:
	aa = component number
	bb = component class of the component
	cc = connection number
	Note:
	Component class and connection number are described in F01375.
Remedy:	- remove the corresponding component.
	- change the setting "deactivate and not present".
	Note:
	Under "Topology> Topology view", the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).
A01317 (N)	Deactivated component again present
Message value:	Deachvaled component again present
•	
Drive object:	All objects
Reaction:	NONE
Acknowledge:	
Cause:	If a component of the target topology for an active drive object is inserted and the associated parameter of the component is set to "deactivate" (p0125, p0145, p0155, p0165).
	Note:
	This is the only message that is displayed for a deactivated component.

Remedy:	The alarm is automatically withdrawn for the following actions:
	- activate the components involved ($p0125 = 1$, $p0145 = 1$, $p0155 = 1$, $p0165 = 1$).
Desetion on an No	- again withdraw the component involved.
Reaction upon N:	
Acknowl. upon N:	NONE
A01318	BICO: Deactivated interconnections present
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	This alarm is used in the following cases:
	- if an inactive/non-operational drive object is active again/ready for operation
	- if there are items in the list of BI/CI parameters (r9498[029], r9499[029])
	- if the BICO interconnections saved in the list of BI/CI parameters (r9498[029], r9499[029]) have actually been changed
Remedy:	Reset alarm:
	- set p9496 to 1 or 2
	or
	- deactivate the drive object again.
A01319	Inserted component not initialized
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Initialization is required for at least one inserted component.
	This is only possible if the pulses are inhibited for all the drive objects.
Remedy:	Activate pulse inhibit for all drive objects.
A01320	Topology: Drive object number does not exist in configuration
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	A drive object number is missing in p0978
	Alarm value (r2124, interpret decimal):
	Index of p0101 under which the missing drive object number can be determined.
Remedy:	Set p0009 to 1 and change p0978:
•	Rules:
	- p0978 must include all of the drive object numbers (p0101).
	- it is not permissible for a drive object number to be repeated.
	- by entering a 0, the drive objects with PZD are separated from those without PZD.
	- only 2 partial lists are permitted. After the second 0, all values must be 0.
	- dummy drive object numbers (255) are only permitted in the first partial list.
A01321	Topology: Drive object number does not exist in configuration
Message value:	%1

Message value:%1Drive object:All objectsReaction:NONE

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13.2 List of faults and alarms

Acknowledge:	NONE
Cause:	p0978 contains a drive object number that does not exist.
04450.	Alarm value (r2124, interpret decimal):
	Index of p0978 under which the drive object number can be determined.
Remedy:	Set p0009 to 1 and change p0978:
·····	Rules:
	- p0978 must include all of the drive object numbers (p0101).
	- it is not permissible for a drive object number to be repeated.
	- by entering a 0, the drive objects with PZD are separated from those without PZD.
	- only 2 partial lists are permitted. After the second 0, all values must be 0.
	- dummy drive object numbers (255) are only permitted in the first partial list.
 A01322	Topology: Drive object number present twice in configuration
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	A drive object number is present more than once in p0978.
	Alarm value (r2124, interpret decimal):
	Index of p0978 under which the involved drive object number is located.
Remedy:	Set parameter p0009 = 1 and change p0978:
-	Rules:
	- p0978 must include all of the drive object numbers (p0101).
	- it is not permissible for a drive object number to be repeated.
	- by entering a 0, the drive objects with PZD are separated from those without PZD.
	- only 2 partial lists are permitted. After the second 0, all values must be 0.
	- dummy drive object numbers (255) are only permitted in the first partial list.
A01323	Topology: More than two partial lists created
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Partial lists are available more than twice in p0978. After the second 0, all must be 0.
	Alarm value (r2124, interpret decimal):
	Index of p0978 under which the illegal value is located.
Remedy:	Set p0009 to 1 and change p0978:
	Rules:
	- p0978 must include all of the drive object numbers (p0101).
	- it is not permissible for a drive object number to be repeated.
	- by entering a 0, the drive objects with PZD are separated from those without PZD.
	- only 2 partial lists are permitted. After the second 0, all values must be 0.
	- dummy drive object numbers (255) are only permitted in the first partial list.
A01324	Topology: Dummy drive object number incorrectly created
Message value:	%1
Drive object:	All objects
Reaction:	NONE

Reaction:NONEAcknowledge:NONE

Cause:	In p0978, dummy drive object numbers (255) are only permitted in the first partial list. Alarm value (r2124, interpret decimal):
	Index of p0978 under which the illegal value is located.
Remedy:	Set p0009 to 1 and change p0978:
	Rules:
	- p0978 must include all of the drive object numbers (p0101).
	- it is not permissible for a drive object number to be repeated.
	- by entering a 0, the drive objects with PZD are separated from those without PZD.
	- only 2 partial lists are permitted. After the second 0, all values must be 0.
	- dummy drive object numbers (255) are only permitted in the first partial list.
F01325	Topology: Component number not present in target topology
Message value:	Component number: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The component configured in a parameter (e.g. p0121, p0131, etc.) is not present in the target topology.
	Fault value (r0949, interpret decimal):
	Configured component number that is not present in target topology.
Remedy:	Establish topology and DO configuration consistency.
A01330	Topology: Commissioning not possible
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Unable to carry out commissioning. The actual topology does not fulfill the requirements.
Remedy:	- check the OCC cable between the converter and motor.
	- carry out a POWER ON (switch-off/switch-on).
	Note:
	OCC: One Cable Connection (one cable system)
A01331	Topology: At least one component not assigned to a drive object
Message value:	Component number: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	At least one component is not assigned to a drive object.
	- when commissioning, a component was not able to be automatically assigned to a drive object.
	- the parameters for the data sets are not correctly set.
	Alarm value (r2124, interpret decimal):
	Component number of the unassigned component.

Remedy:	This component is assigned to a drive object. Check the parameters for the data sets. Examples: - power unit (p0121). - motor (p0131, p0186). - encoder interface (p0140, p0141, p0187 p0189). - encoder (p0140, p0142, p0187 p0189). - Terminal Module (p0151). - option board (p0161).
F01340 Message value: Drive object: Reaction: Acknowledge: Cause:	Topology: Too many components on one line Component number or connection number: %1, fault cause: %2 All objects NONE IMMEDIATELY For the selected communications clock cycle, too many DRIVE-CLIQ components are connected to one line of the Control Unit. Fault value (r0949, interpret hexadecimal): xyy hex: x = fault cause, yy = component number or connection number. 1yy: The communications clock cycle of the DRIVE-CLiQ connection on the Control Unit is not sufficient for all read transfers. 2yy: The communications clock cycle of the DRIVE-CLiQ connection on the Control Unit is not sufficient for all write transfers. 3yy: Cyclic communications shully utilized. 4yy: The DRIVE-CLiQ cycle starts before the earliest end of the application. An additional dead time must be added to the control. Sign-of-life errors can be expected. The conditions of operation with a current controller sampling time of 31.25 µs have not been maintained. 5yy: Internal buffer overflow for net data of a DRIVE-CLiQ connection. 6yy: Internal buffer overflow for send data of a DRIVE-CLiQ connection. 6yy: Internal buffer overflow for send data of a DRIVE-CLiQ connection. 8yy: The component clock cycles cannot be co
	Internal buffer overflow for send data of a DRIVE-CLiQ connection. 8yy: The component clock cycles cannot be combined with one another

Remedy: - check the DRIVE-CLiQ wiring.

- reduce the number of components on the DRIVE-CLiQ line involved and distribute these to other DRIVE-CLiQ sockets of the Control Unit. This means that communication is uniformly distributed over several lines.

For fault value = 1yy - 4yy in addition:

- increase the sampling times (p0112, p0115, p4099). If necessary, for DCC or FBLOCKS, change the assignment of the run-time group (p21000, p20000) so that the sampling time (r21001, r20001) is increased.

- if necessary, reduce the number of cyclically calculated blocks (DCC) and/or function blocks (FBLOCKS).

- reduce the function modules (r0108).

- establish the conditions for operation with a current controller sampling time of 31.25 µs (at the DRIVE-CLiQ line, only operate Motor Modules and Sensor Modules with this sampling time and only use a permitted Sensor Module (e.g. SMC20, this means a 3 at the last position of the Article No.)).

- For an NX, the corresponding Sensor Module for a possibly existing second measuring system should be connected to a free DRIVE-CLiQ socket of the NX.

For fault value = 8yy in addition:

- check the clock cycles settings (p0112, p0115, p4099). Clock cycles on a DRIVE-CLiQ line must be perfect integer multiples of one another. As clock cycle on a line, all clock cycles of all drive objects in the previously mentioned parameters apply, which have components on the line involved.

For fault value = 9yy in addition:

- check the clock cycles settings (p0112, p0115, p4099). The lower the numerical value difference between two clock cycles, the higher the lowest common multiple. This behavior has a significantly stronger influence, the higher the numerical values of the clock cycles.

F01341	Topology: Maximum number of DRIVE-CLiQ components exceeded
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	Too many DRIVE-CLiQ components were defined in the actual topology.
	Note:
	Pulse enable is withdrawn and prevented.
Remedy:	- check the DRIVE-CLiQ wiring.
-	- reduce the number components on the DRIVE-CLiQ line involved in order to maintain the maximum quantity structure
F01354	Topology: Actual topology indicates an illegal component
Message value:	Fault cause: %1, component number: %2
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The actual topology indicates at least one illegal component.
	Fault value (r0949, interpret hexadecimal):
	yyxx hex: yy = component number, xx = cause.
	xx = 1: Component at this Control Unit not permissible.
	xx = 2: Component in combination with another component not permissible.
	Note:
	Pulse enable is prevented.
Remedy:	Remove the illegal components and restart the system.
F01355	Topology: Actual topology changed
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY

Cause:	The device target topology (p0099) does not correspond to the device actual topology (r0098).
	The fault only occurs if the topology was commissioned using the automatic internal device mechanism and not using the
	commissioning tool.
	Fault value (r0949, interpret decimal):
. .	Only for internal Siemens troubleshooting.
Remedy:	One of the following counter-measures can be selected if no faults have occurred in the topology detection itself:
	If commissioning is still not completed:
	- carry out a self-commissioning routine (starting from p0009 = 1).
	In general:
	Set p0099 = r0098, set p0009 = 0; for existing Motor Modules, this results in servo drives being automatically generated (p0107).
	Generating servo drives: Set p0097 to 1, set p0009 to 0.
	Generating vector drives: Set p0097 to 2, set p0009 to 0.
	Generating vector drives with parallel circuit: Set p0097 to 12, set p0009 to 0.
	In order to set configurations in p0108, before setting p0009 to 0, it is possible to first set p0009 to 2 and modify p0108. The index corresponds to the drive object (p0107).
	If commissioning has already been completed:
	- re-establish the original connections and re-connect power to the Control Unit.
	- restore the factory setting for the complete equipment (all of the drives) and allow automatic self-commissioning again.
	- change the device parameterization to match the connections (this is only possible using the commissioning tool).
	Notice:
	Topology changes that result in this fault being generated cannot be accepted by the automatic function in the device, but
	must be transferred using the commissioning tool and parameter download. The automatic function in the device only
	allows constant topology to be used. Otherwise, when the topology is changed, all of the previous parameter settings are lost and replaced by the factory setting.
F01356	Topology: There is a defective DRIVE-CLiQ component
Message value:	Fault cause: %1, Component number: %2, Connection number: %3
Drive object:	All objects
Reaction:	NONE (OFF2)
Acknowledge:	IMMEDIATELY
Cause:	The actual topology indicates at least one defective DRIVE-CLiQ component.
	Fault value (r0949, interpret hexadecimal):
	zzyyxx hex:
	zz = connection number of the component at which the defective component is connected
	yy = component number of the component at which the defective component is connected
	xx = fault cause
	xx = 1: Component at this Control Unit not permissible.
	xx = 2: component with communication defect.
	Note:
	Pulse enable is withdrawn and prevented.
Remedy:	Replace the defective component and restart the system.
-	
F01357	Topology: Two Control Units identified on the DRIVE-CLiQ line
Message value:	component number: %1, connection number: %2
Drive object:	All objects
Reaction:	NONE (OFF2)
Acknowledge:	IMMEDIATELY
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Cause:	In the actual topology, 2 Control Units are connected with one another through DRIVE-CLiQ. As standard, this is not permitted. It is only permitted if the Technology Extension OALINK has already been installed and activated on both Control Units.
	Fault value (r0949, interpret hexadecimal): yyxx hex:
	yy = connection number of the Control Unit at which the second Control Unit is connected
	xx = component number of the Control Unit at which the second Control Unit is connected
	Note:
	Pulse enable is withdrawn and prevented.
Remedy:	In general:
-	- remove the connection to the second Control Unit and restart.
	- for the S120M component DRIVE-CLiQ extension, interchange the hybrid cable (IN/OUT).
	When using OALINK:
	- remove the DRIVE-CLiQ connection and restart the systems.
	- install OALINK on both Control Units and activate.
	- check the configuration of the DRIVE-CLiQ ports in OALINK.
A01358	Topology: Line termination not available
Message value:	CU connection number: %1, component number: %2, connection number: %3
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	At least one line with distributed drives is not terminated. The last participant on the line must be terminated with a line termination connector.
	This therefore ensures the degree of protection of the distributed drives.
	Alarm value (r2124, interpret hexadecimal):
	zzyyxx hex:
	zz = connection number of the distributed drive where there is no terminating connector
	yy = component number
	xx = CU connection number
Remedy:	Install the line terminating connector for the last distributed drive.
F01359	Topology: DRIVE-CLiQ performance not sufficient
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The DRIVE-CLiQ performance is not sufficient at one line in order to identify an inserted component.
	Fault value (r0949, interpret hexadecimal):
	Only for internal Siemens troubleshooting.
Remedy:	- carry out a POWER ON (switch-off/switch-on).
nonody.	- Distribute components across several DRIVE-CLiQ lines.
	Note:
	For this topology, do not withdraw and insert components in operation.
F01360	Topology: Actual topology not permissible
Message value:	Fault cause: %1, preliminary component number: %2
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY

13.2 List of faults and alarms

Cause:	The detected actual topology is not permissible.
Jaugo.	Fault value (r0949, interpret hexadecimal):
	ccccbbaa hex:
	cccc = preliminary component number, bb = no significance, aa = fault cause
	aa = 01 hex = 1 dec:
	Too many components were detected at the Control Unit. A maximum of 199 components is permissible.
	aa = 02 hex = 2 dec:
	The component type of a component is not known.
	aa = 03 hex = 3 dec:
	It is illegal to combine ALM and BLM.
	aa = 04 hex = 4 dec:
	It is illegal to combine ALM and SLM.
	aa = 05 hex = 5 dec:
	It is illegal to combine BLM and SLM.
	aa = 06 hex = 6 dec:
	A CX32 was not directly connected to a permitted Control Unit.
	aa = 07 hex = 7 dec:
	An NX10 or NX15 was not directly connected to a permitted Control Unit.
	aa = 08 hex = 8 dec:
	A component was connected to a Control Unit that is not permitted for this purpose.
	aa = 09 hex = 9 dec:
	A component was connected to a Control Unit with out-of-date firmware.
	aa = 0A hex = 10 dec:
	Too many components of a particular type detected.
	aa = 0B hex = 11 dec:
	Too many components of a particular type detected on a single line.
	Note:
	The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.
Remedy:	For fault cause = 1:
	Change the configuration. Connect less than 199 components to the Control Unit.
	For fault cause = 2:
	Remove the component with unknown component type.
	For fault cause = 3, 4, 5:
	Establish a valid combination.
	For fault cause = 6, 7:
	Connect the expansion module directly to a permitted Control Unit.
	For fault cause = 8:
	Remove component or use a permissible component.
	For fault cause = 9:
	Upgrade the firmware of the Control Unit to a later version.
	For fault cause = 10, 11:
	Reduce the number of components.

A01361 Topology: Actual topology contains SINUMERIK and SIMOTION components

Message value:%1Drive object:All objectsReaction:NONEAcknowledge:NONE

Cause:	The detected actual topology contains SINUMERIK and SIMOTION components. The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.
	Alarm value (r2124, interpret hexadecimal):
	ddccbbaa hex: cc = fault cause, bb = component class of the actual topology, aa = component number of the component
	cc = 01 hex = 1 dec:
	An NX10 or NX15 was connected to a SIMOTION control.
	cc = 02 hex = 2 dec:
	A CX32 was connected to a SINUMERIK control.
Remedy:	For alarm value = 1:
	Replace all NX10 or NX15 by a CX32.
	For alarm value = 2:
	Replace all CX32 by an NX10 or NX15.
A01362	Topology: Topology rule(s) broken
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	At least one topology rule for the SINAMICS S120 Combi has been broken.
	In the event of a fault, the ramping up of the drive system is aborted and closed-loop drive control is not enabled.
	Alarm value (r2124, interpret decimal):
	The alarm value indicates which rule has been violated.
	1: The S120 Combi may only be wired via DRIVE-CLiQ socket X200 to X100 on the NCU.
	2: Only one Single Motor Module (SMM) or one Double Motor Module (DMM) may be connected via X200 to the DRIVE- CLiQ socket X101 on the NCU.
	3: Only one Terminal Module 54F (TM54F) or one DRIVE-CLiQ Hub Module (Hub) may be connected via X500 to the DRIVE-CLiQ socket X102 on the NCU.
	4: Only Sensor Modules may be connected to DRIVE-CLiQ sockets X201 up to X203 (3-axis) or X204 (4-axis) on the S120 Combi.
	5: Only one Sensor Module, type SMC20 or SME20 may be connected to DRIVE-CLiQ socket X205 (X204 is not available for 3-axis).
	6: If a Single Motor Module is being used as the first expansion axis, only one more Single Motor Module may be connected (via X200 to X201 on the first Single Motor Module).
	7: Only Sensor Modules may be connected to the corresponding DRIVE-CLiQ socket X202 on any Single Motor Modules which may be present.
	8: For a second Single Motor Module or for a Double Motor Module, it is not permissible to connect anything at X201.
	9: If a Double Motor Module is used as an expansion axis, only Sensor Modules may be connected to X202 and X203.
	10: If a Terminal Module 54F (TM54F) is configured, only one DRIVE-CLiQ Hub Module (DMC20, DME20) may be connected to X501 of the TM54F module via DRIVE-CLiQ socket X500.
	11: On the DRIVE-CLiQ Hub Module, only Sensor Modules Cabinet (SMC) and Sensor Modules External (SME) may be connected to X501 through X505.
	12: Only certain Motor Modules may be used for expansion axes.
	13: For an S120 Combi with 3 axes, nothing must be connected at the DRIVE-CLiQ Hub Module at X503.
Remedy:	Evaluate the alarm value and ensure compliance with the corresponding topology rule(s).
F01375	Topology: Connection duplicated between two components
Message value:	Component: %1, %2, connection: %3
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY

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Cause:	When checking the actual topology, a ring-type connection was detected.
	The fault value describes a component contained in the ring.
	Fault value (r0949, interpret hexadecimal): ccbbaaaa hex:
	cc = connection number (%3)
	bb = component class (% 2)
	aaaa = preliminary component number (%1)
	Component class:
	0: Component unknown.
	1: Control Unit
	2: Motor Module
	3: Line Module
	4: Sensor Module
	5: Voltage Sensing Module
	6: Terminal Module
	7: DRIVE-CLiQ Hub Module
	8: Controller Extension
	9: Filter Module
	10: Hydraulic Module.
	49: DRIVE-CLiQ component
	50: Option slot
	60: Encoder
	70: DRIVE-CLiQ motor
	71: Hydraulic cylinder
	72: Hydraulic valve
	80: Motor Connection number:
	0: Port 0, 1: Port 1, 2: Port 2, 3: Port 3, 4: Port 4, 5: Port 5
	10: X100, 11: X101, 12: X102, 13: X103, 14: X104, 15: X105
	20: X200, 21: X201, 22: X202, 23: X203
	50: X500, 51: X501, 52: X502, 53: X503, 54: X504, 55: X505
Remedy:	Output the fault value and remove the specified connection.
Remouy.	Note:
	Under "Topology> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g.
	setpoint/actual value comparison).
F01380	Topology: Actual topology EEPROM defective
Message value:	Preliminary component number: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	POWER ON
Cause:	When detecting the actual topology, a component with a defective EEPROM was detected.
	Fault value (r0949, interpret hexadecimal):
	bbbbaaaa hex:
	bbbb = reserved
	aaaa = preliminary component number of the defective components
Remedy:	Output the fault value and remove the defected component.
A01381	Topology: Motor Module incorrectly inserted
Message value:	Component: %1, to %2, %3, connection: %4
Drive object:	All objects
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Reaction:	NONE
Acknowledge:	NONE
Cause:	The topology comparison has detected a Motor Module in the actual topology that has been incorrectly inserted with respect to the target technology.
	Alarm value (r2124, interpret hexadecimal):
	ddccbbaa hex:
	dd = connection number (%4)
	cc = component number (%3)
	bb = component class (% 2)
	aa = component number of the incorrectly inserted component (% 1)
	Note:
	The component is described in dd, cc and bb, where the component involved is incorrectly inserted.
	Component class and connection number are described in F01375.
	The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.
Remedy:	Adapting topologies:
	- insert the components involved at the right connection (correct the actual topology).
	- adapt the project/parameterizing in the commissioning tool (correct the target topology).
	- automatically remove the topology error (p9904).
	Note: Under "Topology> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g.
	setpoint/actual value comparison).
A01382	Topology: Sensor Module incorrectly inserted
Message value:	Component: %1, to %2, %3, connection: %4
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The topology comparison has detected a Sensor Module in the actual topology that has been incorrectly inserted with respect to the target technology.
	Alarm value (r2124, interpret hexadecimal):
	ddccbbaa hex:
	dd = connection number (%4)
	cc = component number (%3)
	bb = component class (% 2)
	aa = component number of the incorrectly inserted component (% 1)
	Note:
	The component is described in dd, cc and bb, where the component involved is incorrectly inserted.
	Component class and connection number are described in F01375.
	The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.
Remedy:	Adapting topologies:
	- insert the components involved at the right connection (correct the actual topology).
	- adapt the project/parameterizing in the commissioning tool (correct the target topology).
	- automatically remove the topology error (p9904).
	Note:
	Under "Topology> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).
A01383	Topology: Terminal Module incorrectly inserted
Message value:	Component: %1, to %2, %3, connection: %4
Drive object:	All objects

Acknowledge:	NONE
Cause:	The topology comparison has detected a Terminal Module in the actual topology that has been incorrectly inserted with
Cause.	respect to the target technology.
	Alarm value (r2124, interpret hexadecimal):
	ddccbbaa hex:
	dd = connection number (%4)
	cc = component number (%3)
	bb = component class (% 2)
	aa = component number of the incorrectly inserted component (% 1)
	Note:
	The component is described in dd, cc and bb, where the component involved is incorrectly inserted.
	Component class and connection number are described in F01375.
	The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.
Remedy:	Adapting topologies:
	- insert the components involved at the right connection (correct the actual topology).
	- adapt the project/parameterizing in the commissioning tool (correct the target topology).
	- automatically remove the topology error (p9904).
	Note:
	Under "Topology> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g.
	setpoint/actual value comparison).
A01384	Topology: DRIVE-CLiQ Hub Module incorrectly inserted
Message value:	Component: %1, to %2, %3, connection: %4
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The topology comparison has detected a DRIVE-CLiQ Hub Module in the actual topology that has been incorrectly inserted with respect to the target topology.
	Alarm value (r2124, interpret hexadecimal):
	ddccbbaa hex:
	dd = connection number (%4)
	cc = component number (%3)
	bb = component class (% 2)
	aa = component number of the incorrectly inserted component (% 1)
	Note:
	The component is described in dd, cc and bb, where the component involved is incorrectly inserted.
	Component class and connection number are described in F01375.
	The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.
Remedy:	Adapting topologies:
	- insert the components involved at the right connection (correct the actual topology).
	- adapt the project/parameterizing in the commissioning tool (correct the target topology).
	- automatically remove the topology error (p9904).
	Note: Under "Topology> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g.
	setpoint/actual value comparison).
404205	
A01385	Topology: Controller Extension incorrectly inserted
Message value:	Component: %1, to %2, %3, connection: %4
Drive object:	All objects
Hogotion	NONE
Reaction: Acknowledge:	NONE

Cause:	The topology comparison has detected a controller extension 32 (CX32) in the actual topology that has been incorrectly inserted with respect to the target topology.
	Alarm value (r2124, interpret hexadecimal):
	ddccbbaa hex:
	dd = connection number (%4)
	cc = component number (%3)
	bb = component class (% 2)
	aa = component number of the incorrectly inserted component (% 1)
	Note:
	The component is described in dd, cc and bb, where the component involved is incorrectly inserted.
	Component class and connection number are described in F01375.
	The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.
Remedy:	Adapting topologies:
	- insert the components involved at the right connection (correct the actual topology).
	- adapt the project/parameterizing in the commissioning tool (correct the target topology).
	- automatically remove the topology error (p9904).
	Note:
	Under "Topology> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g.
	setpoint/actual value comparison).
 A01386	Topology: DRIVE-CLiQ component incorrectly inserted
Message value:	Component: %1, to %2, %3, connection: %4
Drive object:	All objects
Reaction:	NONE
	NONE
Acknowledge:	
Cause:	The topology comparison has detected a DRIVE-CLiQ component in the actual topology that has been incorrectly inserted with respect to the target topology.
	Alarm value (r2124, interpret hexadecimal):
	ddccbbaa hex:
	dd = connection number (%4)
	cc = component number (%3)
	bb = component class (% 2)
	aa = component number of the incorrectly inserted component (% 1)
	Note:
	The component is described in dd, cc and bb, where the component involved is incorrectly inserted.
	Component class and connection number are described in F01375.
	The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.
Remedy:	Adapting topologies:
	- insert the components involved at the right connection (correct the actual topology).
	- adapt the project/parameterizing in the commissioning tool (correct the target topology).
	- automatically remove the topology error (p9904).
	Under "Topology> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).
A01389	Topology: Motor with DRIVE-CLiQ incorrectly inserted
Message value:	Component: %1, to %2, %3, connection: %4
Dubra able -t-	All objects
Drive object:	-
Drive object: Reaction: Acknowledge:	NONE

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Cause:	The topology comparison has detected a motor with DRIVE-CLiQ in the actual topology that has been incorrectly inserted with respect to the target topology.
	Alarm value (r2124, interpret hexadecimal):
	ddccbbaa hex:
	dd = connection number (%4)
	cc = component number (%3)
	bb = component class (% 2)
	aa = component number of the incorrectly inserted component (% 1)
	Note:
	The component is described in dd, cc and bb, where the component involved is incorrectly inserted.
	Component class and connection number are described in F01375.
	The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.
Remedy:	Adapting topologies:
Remedy.	- insert the components involved at the right connection (correct the actual topology).
	- adapt the project/parameterizing in the commissioning tool (correct the actual topology).
	- automatically remove the topology error (p9904).
	Note:
	Under "Topology> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g.
	setpoint/actual value comparison).
A01416	Topology: Component additionally inserted
Message value:	%1, to %2, %3, connection: %4
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
	The topology comparison has found a component in the actual topology which is not specified in the target topology.
Cause:	Alarm value (r2124, interpret hexadecimal):
	ddccbbaa hex:
	dd = component class (% 2)
	cc = connection number (%4)
	bb = component class of the additional component (%1)
	aa = component number (%3)
	Note:
	The component class of the additional component is contained in bb.
	The component is described in dd, cc and aa, where the additional component is inserted.
	Component class and connection number are described in F01375.
Remedy:	Adapting topologies:
Remedy.	- remove the additional component (correct the actual topology).
	- adapt the project/parameterizing in the commissioning tool (correct the target topology).
	Note:
	Under "Topology> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g.
	setpoint/actual value comparison).
A01420	Topology: Component different
Message value:	Component: %1, target: %2, actual: %3, difference: %4
Drive object:	All objects
Reaction:	NONE

Cause:	The topology comparison has detected differences in the actual topology and target topologies in the electronic rating plate.
	Alarm value (r2124, interpret hexadecimal):
	ddccbbaa hex: aa = component number (%1), bb = component class of the target topology (%2), cc = component class of the actual topology (%3), dd = difference (%4)
	dd = 01 hex = 1 dec:
	Different component type.
	dd = 02 hex = 2 dec:
	Different article number.
	dd = 03 hex = 3 dec:
	Different manufacturer.
	dd = 04 hex = 4 dec:
	For a multi-component slave, the incorrect subcomponent (index) is connected (e.g. Double Motor Module X201 instead of X200) - or only a part of a multi-component slave is set to "deactivate and not available".
	dd = 05 hex = 5 dec:
	NX10 or NX15 used instead of CX32.
	dd = 06 hex = 6 dec:
	NX10 or NX15 used instead of CX32.
	dd = 07 hex = 7 dec:
	Different number of connections.
	Note:
	The component class is described in F01375.
	The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.
Remedy:	Adapting topologies:
	- connect the expected component (correct the actual topology).
	- adapt the project/parameterizing in the commissioning tool (correct the target topology).
	Topology comparison - if required, adapt the comparison level:
	- parameterize the topology comparison of all components (p9906).
	- parameterize the topology comparison of one components (p9907, p9908).
	Note:
	Under "Topology> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).
A01425	Topology: Serial number different
Message value:	Component: %1, %2, differences: %3
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The topology comparison has detected differences in the actual and target topologies in relation to one component. The serial number is different.
	Alarm value (r2124, interpret hexadecimal):
	ddccbbaa hex:
	dd = reserved
	cc = number of differences (%3)
	bb = component class (% 2)
	aa = component number (%1)
	Note:
	The component class is described in F01375.
	The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.

Remedy:	Adapting topologies: - change over the actual topology to match the target topology.
	- load the target topology that matches the actual topology (commissioning tool).
	For byte cc:
	cc = 1> can be acknowledged using p9904 or p9905.
	cc > 1> can be acknowledged using p9905 and can be deactivated using p9906 or p9907/p9908.
	Note:
	Under "Topology> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).
A01428	Topology: Incorrect connection used
Message value:	Component: %1, %2, connection (actual): %3, connection (target): %4
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The topology comparison has detected differences in the actual and target topologies in relation to one component. For a component, another connection was used.
	The different connections of a component are described in the alarm value.
	Alarm value (r2124, interpret hexadecimal):
	ddccbbaa hex:
	dd = connection number of the target topology (%4)
	cc = connection number of the actual topology (%3)
	bb = component class (% 2)
	aa = component number (%1)
	Note: Component class and connection number are described in F01375.
	The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.
Remedy:	Adapting topologies:
Romody.	- reinsert the DRIVE-CLiQ cable to the component (correct the actual topology).
	- adapt the project/parameterizing in the commissioning tool (correct the target topology).
	- automatically remove the topology error (p9904).
	Note:
	Under "Topology> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).
F01451	Topology: Target topology is invalid
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	An error was detected in the target topology.
	The target topology is invalid.
	Fault value (r0949, interpret hexadecimal):
	ccccbbaa hex: cccc = index error, bb = component number, aa = fault cause
	aa = 1B hex = 27 dec: Error not specified.
	aa = 1C hex = 28 dec: Value illegal.
	aa = 1D hex = 29 dec: Incorrect ID.
	aa = 1E hex = 30 dec: Incorrect ID length.
	aa = 1F hex = 31 dec: Too few indices left.
	aa = 20 hex = 32 dec: component not connected to Control Unit.
Remedy:	Download the target topology again using the commissioning tool.

A01481 (N)	Topology: Motor Module not connected
Message value:	Topology: Motor Module not connected Component: %1, to %2, %3, connection: %4
-	•
Drive object: Reaction:	All objects NONE
Acknowledge:	NONE
Cause:	The topology comparison has detected a Motor Module that is missing in the actual topology with respect to the target topology. Alarm value (r2124, interpret hexadecimal):
	ddccbbaa hex:
	dd = connection number (%4)
	cc = component number (%3)
	bb = component class (% 2)
	aa = component number of the component that has not been inserted (% 1)
	Note:
	The component is described in dd, cc and bb, where the component has not been inserted.
	Component class and connection number are described in F01375.
Remedy:	Adapting topologies:
	- insert the components involved at the right connection (correct the actual topology).
	- adapt the project/parameterizing in the commissioning tool (correct the target topology).
	Check the hardware:
	- check the 24 V supply voltage.
	- check DRIVE-CLiQ cables for interruption and contact problems.
	- check that the component is working properly.
	Note:
	Under "Topology> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).
Reaction upon N:	
Acknowl. upon N:	
A01482	Topology: Sensor Module not connected
Message value:	Component: %1, to %2, %3, connection: %4
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The topology comparison has detected a Sensor Module that is missing in the actual topology with respect to the target topology.
	Alarm value (r2124, interpret hexadecimal):
	ddccbbaa hex:
	dd = connection number (%4)
	cc = component number (%3)
	bb = component class (% 2)
	aa = component number of the component that has not been inserted (% 1)
	Note:

The component is described in dd, cc and bb, where the component has not been inserted. Component class and connection number are described in F01375.

13.2 List of faults and alarms

Remedy:	Adapting topologies:
	- insert the components involved at the right connection (correct the actual topology).
	- adapt the project/parameterizing in the commissioning tool (correct the target topology).
	Check the hardware:
	- check the 24 V supply voltage.
	 check DRIVE-CLiQ cables for interruption and contact problems.
	- check that the component is working properly.
	Note:
	Under "Topology> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).
A01483	Topology: Terminal Module not connected
Message value:	Component: %1, to %2, %3, connection: %4
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The topology comparison has detected a Terminal Module that is missing in the actual topology with respect to the target topology.
	Alarm value (r2124, interpret hexadecimal):
	ddccbbaa hex:
	dd = connection number (%4)
	cc = component number (%3)
	bb = component class (% 2)
	aa = component number of the component that has not been inserted (% 1)
	Note:
	The component is described in dd, cc and bb, where the component has not been inserted.
	Component class and connection number are described in F01375.
Remedy:	Adapting topologies:
	- insert the components involved at the right connection (correct the actual topology).
	- adapt the project/parameterizing in the commissioning tool (correct the target topology).
	Check the hardware:
	- check the 24 V supply voltage.
	- check DRIVE-CLiQ cables for interruption and contact problems.
	- check that the component is working properly.
	Note:
	Under "Topology> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).
A01494	Tanalamu DRIVE CLIO Hub Madula not connected

Topology: DRIVE-CLiQ Hub Module not connected A01484

Message value:	Component: %1, to %2, %3, connection: %4
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE

Alarm value (r2124, interpret hexadecimal): diadcobaa hax: diadcobaa diadcobaa a a = component number (%4) ciac = component number of the component that has not been inserted (% 1) Note: The component is described in dd, cc and bb, where the component has not been inserted. Component class and connection number are described in F01375. Remedy: Adapting topologies: - insert the components involved at the right connection (correct the actual topology). - check the hardware: - check the 24 v supply voltage. - check the 24 v supply voltage. - check the 24 v supply voltage. - check the 24 v supply voltage. - check that the component is working properly. Note: Under "Topology: Controller Extension not connected Message value: Component: %1, to %2, %3, connection: %4 Drive object:	
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Reaction: NONE Acknowledge: NONE Cause: The topology comparison has detected a Control Extension (CX32) missing in the actual topology with respect to the topology. Alarm value (r2124, interpret hexadecimal): ddccbbaa hex: dd = connection number (%4) cc = component number (%3) bb = component class (% 2) aa = component class (% 2) aa = component number of the component that has not been inserted (% 1) Note: The component is described in dd, cc and bb, where the component has not been inserted. Component class and connection number are described in F01375.	
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Component class and connection number are described in F01375.	
- insert the components involved at the right connection (correct the actual topology).	
- adapt the project/parameterizing in the commissioning tool (correct the target topology).	
Check the hardware:	
- check the 24 V supply voltage.	
- check DRIVE-CLiQ cables for interruption and contact problems.	
- check that the component is working properly.	
Note:	
Under "Topology> Topology view" the commissioning tool where relevant offers improved diagnostics capabili	v (e.a
setpoint/actual value comparison).	, (0.9.
Under "Topology> T setpoint/actual value c	
Topology: DRIVE-CLiQ component not connected	

Message value:Component: %1, to %2, %3, connection: %4Drive object:All objects

Reaction:	NONE
Acknowledge:	NONE
Cause:	The topology comparison has detected a DRIVE-CLiQ component missing in the actual topology with respect to the target topology.
	Alarm value (r2124, interpret hexadecimal):
	ddccbbaa hex:
	dd = connection number (%4)
	cc = component number (%3)
	bb = component class (% 2)
	aa = component number of the component that has not been inserted (% 1)
	Note:
	The component is described in dd, cc and bb, where the component has not been inserted.
	Component class and connection number are described in F01375.
Remedy:	Adapting topologies:
	- insert the components involved at the right connection (correct the actual topology).
	- adapt the project/parameterizing in the commissioning tool (correct the target topology).
	Check the hardware:
	- check the 24 V supply voltage.
	- check DRIVE-CLiQ cables for interruption and contact problems.
	- check that the component is working properly.
	Note:
	Under "Topology> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).
A01487	Topology: Option slot component not inserted
Message value:	Component: %1, to %2, %3, connection: %4
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The topology comparison has detected an option slot component missing in the actual topology with respect to the target topology.
	Alarm value (r2124, interpret hexadecimal):
	ddccbbaa hex:
	dd = connection number (%4)
	cc = component number (%3)
	bb = component class (% 2)
	aa = component number of the component that has not been inserted (% 1) Note:
	The component is described in dd, cc and bb, where the component has not been inserted.
	Component class and connection number are described in F01375.
Remedy:	Adapting topologies:
	- insert the components involved at the right connection (correct the actual topology).
	- adapt the project/parameterizing in the commissioning tool (correct the target topology).
	Check the hardware:
	- check the 24 V supply voltage.
	- check DRIVE-CLiQ cables for interruption and contact problems.
	- check that the component is working properly.
	Note:
	Under "Topology> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01489	Topology: motor with DRIVE-CLiQ not connected
Message value:	Component: %1, to %2, %3, connection: %4
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The topology comparison has detected a motor with DRIVE-CLiQ missing in the actual topology with respect to the target topology.
	Alarm value (r2124, interpret hexadecimal):
	ddccbbaa hex:
	dd = connection number (%4)
	cc = component number (%3)
	bb = component class (% 2)
	aa = component number of the component that has not been inserted (% 1)
	Note:
	The component is described in dd, cc and bb, where the component has not been inserted.
	Component class and connection number are described in F01375.
Remedy:	Adapting topologies:
•	- insert the components involved at the right connection (correct the actual topology).
	- adapt the project/parameterizing in the commissioning tool (correct the target topology).
	Check the hardware:
	- check the 24 V supply voltage.
	- check DRIVE-CLiQ cables for interruption and contact problems.
	- check that the component is working properly.
	Note:
	Under "Topology> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).
A01507 (F, N)	BICO: Interconnections to inactive objects present
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
_	
Cause:	There are BICO interconnections to an inactive/inoperable drive object.
	The BI/CI parameters involved are listed in r9498.
	The associated BO/CO parameters are listed in r9499.
	The list of the BICO interconnections to other drive objects is displayed in r9491 and r9492 of the deactivated drive object
	Note:
	r9498 and r9499 are only written to, if p9495 is not set to 0.
	Alarm value (r2124, interpret decimal):
	Number of BICO interconnections found to inactive drive objects.
Remedy:	- set all open BICO interconnections centrally to the factory setting with p9495 = 2.
	- make the non-operational drive object active/operational again (re-insert or activate components).
Reaction upon F:	Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A01508	BICO: Interconnections to inactive objects exceeded
Message value:	,

Message value: Drive object:

- All objects

13.2 List of faults and alarms

Reaction:	NONE
Acknowledge:	NONE
Cause:	The maximum number of BICO interconnections (signal sinks) when deactivating a drive object was exceeded.
	When deactivating a drive object, all BICO interconnections (signal sinks) are listed in the following parameters:
	- r9498[029]: List of the BI/CI parameters involved.
	- r9499[029]: List of the associated BO/CO parameters.
Remedy:	Not necessary.
	This alarm is automatically withdrawn as soon as no BICO interconnection is entered in r9498[29] and r9499[29] (value =
	0).
	When re-activating the drive object, all BICO interconnections should be checked and if required, re-established.
F01510	BICO: Signal source is not float type
Message value:	Parameter: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The requested connector output does not have the correct data type. This interconnection is not established.
	Fault value (r0949, interpret decimal):
	Parameter number to which an interconnection should be made (connector output).
Remedy:	Interconnect this connector input with a connector output having a float data type.
F01511 (A)	BICO: Interconnection with different scalings
Message value:	Parameter: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The requested BICO interconnection was established. However, a conversion is made between the BICO output and BICO input using the reference values.
	- the BICO output has different normalized units than the BICO input.
	- message only for interconnections within a drive object.
	Example:
	The BICO output has, as normalized unit, voltage and the BICO input has current.
	This means that the factor p2002/p2001 is calculated between the BICO output and the BICO input.
	p2002: contains the reference value for current
	p2001: contains the reference value for voltage
	Fault value (r0949, interpret decimal):
	Parameter number of the BICO input (signal sink).
Remedy:	Not necessary.
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F01512	BICO: No scaling available
Message value:	%1
Drive object:	All objects
Reaction:	Servo: OFF2
Acknowledge:	POWER ON
Cause:	An attempt was made to determine a conversion factor for a scaling that does not exist.
	Fault value (r0949, interpret decimal):
	Unit (e.g. corresponding to SPEED) for which an attempt was made to determine a factor

Unit (e.g. corresponding to SPEED) for which an attempt was made to determine a factor.

Remedy: Apply scaling or check the transfer value.

F01513 (N, A)	BICO: Interconnection cross DO with different scalings
Message value:	Parameter: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The requested BICO interconnection was established. However, a conversion is made between the BICO output and BICO input using the reference values.
	An interconnection is made between different drive objects and the BICO output has different normalized units than the BICO input or the normalized units are the same but the reference values are different.
	Example 1:
	BICO output with voltage normalized unit, BICO input with current normalized unit, BICO output and BICO input lie in different drive objects. This means that the factor p2002/p2001 is calculated between the BICO output and the BICO input
	p2002: contains the reference value for current
	p2001: contains the reference value for voltage
	Example 2:
	BICO output with voltage normalized unit in drive object 1 (DO1), BICO input with voltage normalized unit in drive object 2 (DO2). The reference values for voltage (p2001) of the two drive objects have different values. This means that the facto p2001(DO1)/p2001(DO2) is calculated between the BICO output and the BICO input.
	p2001: contains the reference value for voltage, drive objects 1, 2
	Fault value (r0949, interpret decimal):
	Parameter number of the BICO input (signal sink).
Remedy:	Not necessary.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
	NOO. Emanuhan writing dwing a recomment
A01514 (F)	BICO: Error when writing during a reconnect
Message value:	Parameter: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	During a reconnect operation (e.g. while booting or downloading - but can also occur in normal operation) a parameter was not able to be written to.
	Example:
	When writing to BICO input with double word format (DWORD), in the second index, the memory areas overlap (e.g. p8861). The parameter is then reset to the factory setting.
	Alarm value (r2124, interpret decimal):
Description	Parameter number of the BICO input (signal sink).
Remedy:	Not necessary.

Reaction upon F: NONE Acknowl. upon F: IMMEDIATELY

F01515 (A) BICO: Writing to parameter not permitted as the master control is active

-
All objects
NONE
IMMEDIATELY
When changing the number of CDS or when copying from CDS, the master control is active.

13.2 List of faults and alarms

Remedy:If required, return the master control and repeat the operation.Reaction upon A:NONEAcknowl. upon A:NONE

A01590 (F)	Drive: Motor maintenance interval expired
Message value:	Fault cause: %1 bin
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The selected service/maintenance interval for this motor was reached.
	Alarm value (r2124, interpret decimal):
	Motor data set number.
Remedy:	carry out service/maintenance and reset the service/maintenance interval (p0651).
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY
-	
F01600	SI P1 (CU): STOP A initiated
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The drive-integrated "Safety Integrated" function in monitoring channel 1 has detected a fault and initiated a STOP A (STO via the safety switch-off signal path of monitoring channel 1).
	 forced checking procedure (test stop) of the safety switch-off signal path of monitoring channel 1 unsuccessful. subsequent response to fault F01611 (defect in a monitoring channel).
	Fault value (r0949, decimal interpretation):
	0: Stop request from monitoring channel 2.
	1005: STO active although STO not selected and there is no internal STOP A present.
	1010: STO inactive although STO is selected or an internal STOP A is present.
	9999: Subsequent response to fault F01611.
Remedy:	- select Safe Torque Off and de-select again.
	- replace drive.
	For fault value = 9999:
	- carry out diagnostics for fault F01611.
	Note:
	SI: Safety Integrated
	STO: Safe Torque Off

F01611 (A) SI P1 (CU): Defect in a monitoring channel

Message value:	%1
Drive object:	All objects
Reaction:	NONE (OFF1, OFF2, OFF3)
Acknowledge:	IMMEDIATELY (POWER ON)

Cause:

The drive-integrated "Safety Integrated" function on monitoring channel 1 has detected a fault in the crosswise data comparison between the two monitoring channels and has initiated a STOP F.

As a result of this fault, after the parameterized transition has expired (p9658), fault F01600 (SI CU: STOP A initiated) is output.

Fault value (r0949, interpret decimal):

0: Stop request from the other monitoring channel.

1 ... 999:

Number of the cross-compared data that resulted in this fault. This number is also displayed in r9795.

2: SI enable safety functions (p9601). Crosswise data comparison is only carried out for the supported bits.

3: SI SGE changeover discrepancy time (p9650).

4: SI transition time STOP F to STOP A (p9658).

5: SI enable Safe Brake Control (p9602)

6: SI Motion enable safety functions (p9501).

7: SI delay time of STO for Safe Stop 1 (p9652).

8: SI PROFIsafe address (p9610).

9: SI debounce time for STO/SBC/SS1 (p9651).

14: SI PROFIsafe telegram selection (p9611).

15: SI PROFIsafe bus failure response (p9612).

1000: Watchdog timer has expired.

Within the time of approx. 5 x p9650, alternatively, the following was defined:

- the signal at F-DI for STO/SS1 continually changes with time intervals less than or equal to the discrepancy time (p9650).

- via PROFIsafe, STO (also as subsequent response) was continually selected and deselected with time intervals less than or equal to the discrepancy time (p9650).

1001, 1002: Initialization error, change timer / check timer.

1900: CRC error in the SAFETY sector.

1901: CRC error in the ITCM sector.

1902: Overloading in the ITCM sector has occurred in operation.

1903: Internal parameterizing error for CRC calculation.

2000: Status of the STO selection for both monitoring channels different.

2001: Feedback signal of STO shutdown for both monitoring channels different.

2002: Status of the delay timer SS1 on both monitoring channels are different (status of the timer in p9650).

2003: Status of the STO terminal for both monitoring channels different.

6000 ... 6999:

Error in the PROFIsafe control.

For these fault values, the fail-safe control signals (fail-safe values) are transferred to the safety functions. If "STOP B after failure of the PROFIsafe communication" (p9612) is parameterized, the transfer of the fail-safe value is delayed.

6000: A fatal PROFIsafe communication error has occurred.

6064 ... 6071: error when evaluating the F parameter. The values of the transferred F parameters do not match the expected values in the PROFIsafe driver.

6064: Destination address and PROFIsafe address are different (F_Dest_Add).

6065: Destination address not valid (F_Dest_Add).

6066: Source address not valid (F_Source_Add).

6067: Watchdog time not valid (F_WD_Time).

6068: Incorrect SIL level (F_SIL).

6069: Incorrect F-CRC length (F_CRC_Length).

6070: Incorrect F parameter version (F_Par_Version).

6071: CRC error for the F parameters (CRC1). The transferred CRC value of the F parameters does not match the value calculated in the PROFIsafe driver.

6072: F parameterization is inconsistent.

6165: A communications error was identified when receiving the PROFIsafe telegram. The fault can also occur if an inconsistent or out-of-date PROFIsafe telegram has been received after switching the drive off and on or after plugging in the PROFINET cable.

6166: A time monitoring error (timeout) was identified when receiving the PROFIsafe telegram.

Remedy: For fault value = 1 ... 5 and 7 ... 999:

- check the cross data comparison that resulted in a STOP F.

- carry out a POWER ON (switch-off/switch-on) for all components.

- upgrade the drive software.

For fault value = 6:

- carry out a POWER ON (switch-off/switch-on) for all components.

- upgrade the drive software.

For fault value = 1000:

Check the wiring of the F-DI for STO/SS1 (contact problems).

- PROFIsafe: Resolve contact problems/faults at the PROFINET controller.

- check the discrepancy time, and if required, increase the value (p9650).

For fault value = 1001, 1002:

- carry out a POWER ON (switch-off/switch-on) for all components.

- upgrade the drive software.

For fault value = 1900, 1901, 1902:

- carry out a POWER ON (switch-off/switch-on) for all components.

- replace drive.

- upgrade the drive software.

For fault value = 2000, 2001, 2002, 2003:

- check the discrepancy time, and if required, increase the value (p9650, p9652).

- check the wiring of the safety-relevant inputs (SGE) (contact problems).

- replace drive.

Note:

This fault can be acknowledged after removing the cause of the error and after correct selection/deselection of STO. For fault value = 6000:

- carry out a POWER ON (switch-off/switch-on) for all components.

- check whether there is a DRIVE-CLiQ communication error between the two monitoring channels and, if required, carry out a diagnostics routine for the faults identified.

- upgrade firmware to later version.

- contact Technical Support.

- replace drive.

For fault value = 6064:

- check the setting of the value in the F parameter F_Dest_Add at the PROFIsafe slave.

- check the setting of the PROFIsafe address (p9610). Using the commissioning tool, copy the safety parameters and confirm the data change.

For fault value = 6065:

- check the setting of the value in the F parameter F_Dest_Add at the PROFIsafe slave. It is not permissible for the destination address to be either 0 or FFFF!

For fault value = 6066:

- check the setting of the value in the F parameter F_Source_Add at the PROFIsafe slave. It is not permissible for the source address to be either 0 or FFFF!

For fault value = 6067:

- check the setting of the value in the F parameter F_WD_Time at the PROFIsafe slave. It is not permissible for the watch time to be 0!

For fault value = 6068:

- check the setting of the value in the F parameter F_SIL at the PROFIsafe slave. The SIL level must correspond to SIL2! For fault value = 6069:

- check the setting of the value in the F parameter F_CRC_Length at the PROFIsafe slave. The setting of the CRC2 length is 2-byte CRC in the V1 mode and 3-byte CRC in the V2 mode!

For fault value = 6070:

- check the setting of the value in the F parameter F_Par_Version at the PROFIsafe slave. The value for the F parameter version is 0 in the V1 mode and 1 in the V2 mode!

For fault value = 6071:

- check the settings of the values of the F parameters and the F parameter CRC (CRC1) calculated from these at the PROFIsafe slave and, if required, update.

For fault value = 6072:

- check the settings of the values for the F parameters and, if required, correct.

The following combinations are permissible for F parameters F_CRC_Length and F_Par_Version:

F_CRC_Length = 2-byte CRC and F_Par_Version = 0

F_CRC_Length = 3-byte CRC and F_Par_Version = 1

For fault value = 6165:

- if the fault occurs after powering up or after inserting the PROFINET cable, acknowledge the fault.

- check the configuration and communication at the PROFIsafe slave.

- check the setting of the value for F parameter F_WD_Time on the PROFIsafe slave and increase if necessary.

- check whether there is a DRIVE-CLiQ communication error between the two monitoring channels and, if required, carry out a diagnostics routine for the faults identified.

- check whether all F parameters of the drive match the F parameters of the F host.

For fault value = 6166:

- check the configuration and communication at the PROFIsafe slave.

- check the setting of the value for F parameter F_WD_Time on the PROFIsafe slave and increase if necessary.

- evaluate diagnostic information in the F host.

- check PROFIsafe connection.

- check whether all F parameters of the drive match the F parameters of the F host.

Note:

CU: Control Unit

F-DI: Fail-safe Digital Input SGE: Safety-relevant input

SI: Safety Integrated

SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)

STO: Safe Torque Off

Reaction upon A: NONE Acknowl. upon A: NONE

F01612 SI P1 (CU): STO inputs for power units connected in parallel different

Message value:	Fault cause: %1 bin
Drive object:	All objects
Reaction:	NONE (OFF1, OFF2, OFF3)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The drive-integrated "Safety Integrated" function on the Control Unit (CU) has identified different states of the AND'ed STO inputs for power units connected in parallel and has initiated a STOP F.
	As a result of this fault, after the parameterized transition has expired (p9658), fault F01600 (SI CU: STOP A initiated) is output.
	Fault value (r0949, interpret binary):
	Binary image of the digital inputs of the Control Unit that are used as signal source for the function "Safe Torque Off".
Remedy:	- check the tolerance time SGE changeover and if required, increase the value (p9650).
	- check the wiring of the safety-relevant inputs (SGE) (contact problems).
	Note:
	CU: Control Unit
	SGE: Safety-relevant input
	SI: Safety Integrated
	STO: Safe Torque Off / SH: Safe standstill

N01620 (F, A) SI P1 (CU): Safe Torque Off active

Message value:

Drive object: All objects

Reaction:	NONE
Acknowledge:	NONE
Cause:	The "Safe Torque Off" (STO) function of the basic functions has been selected in monitoring channel 1 using the input
00000.	terminal and is active.
	Note:
	- this message does not result in a safety stop response.
	- this message is not output when STO is selected using the Extended Functions.
Remedy:	Not necessary.
	Note:
	SI: Safety Integrated
	STO: Safe Torque Off
Reaction upon F:	OFF2
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon A:	NONE
Acknowl. upon A:	NONE
	OLD4 (OLIN: Onfo Otom 4 anti-in
	SI P1 (CU): Safe Stop 1 active
Message value:	
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The "Safe Stop 1" function (SS1) was selected in monitoring channel 1 and is active.
	Note:
D	This message does not result in a safety stop response.
Remedy:	Not necessary.
	Note: SI: Safety Integrated
	SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)
Reaction upon F:	NONE (OFF3)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon A:	
Acknowl. upon A:	
F01625	SI P1 (CU): Sign-of-life error in safety data
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The drive-integrated "Safety Integrated" function in monitoring channel 1 has detected an error in the sign-of-life of the safety data between the two monitoring channels and initiated a STOP A.
	- there is either a DRIVE-CLiQ communication error or communication has failed.
	- a time slice overflow of the safety software has occurred.
	Fault value (r0949, decimal interpretation):
	Only for internal Siemens troubleshooting.

Remedy: - select STO and then de-select again.

- carry out a POWER ON (switch-off/switch-on) for all components.

- check whether there is a DRIVE-CLiQ communication error between the two monitoring channels and, if required, carry out a diagnostics routine for the faults identified.

- de-select all drive functions that are not absolutely necessary.
- check the electrical cabinet design and cable routing for EMC compliance

Note:

SI: Safety Integrated STO: Safe Torque Off

F01630	SI P1 (CU): Brake control error
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The drive-integrated "Safety Integrated" function in monitoring channel 1 has detected a brake control error and initiated a STOP A.
	- OCC cable shield is not correctly connected.
	- defect in the brake control circuit of the drive.
	Fault value (r0949, decimal interpretation):
	10, 11:
	Fault in "open brake" operation.
	- brake not closed or interrupted cable.
	- ground fault in brake cable.
	20:
	Fault in "brake open" state.
	- short-circuit in brake winding.
	30, 31:
	Fault in "close brake" operation.
	- brake not closed or interrupted cable.
	- short-circuit in brake winding.
	40:
	Fault in "brake closed" state.
	50:
	Fault in the brake control of the drive or a communication error (brake control diagnostics).
Remedy:	- select STO and then de-select again.
	- check the motor holding brake connection.
	- check the function of the motor holding brake.
	- carry out a diagnostics routine for the faults involved.
	- check for EMC-compliant control cabinet design and cable routing (e.g. shield OCC cable with shield terminal and shield plate, check the connection of the brake conductors).
	- replace drive.
	Note:
	OCC: One Cable Connection (one cable system)
	SBC: Safe Brake Control
	SI: Safety Integrated
	STO: Safe Torque Off
	See also: p1215

A01631 (F, N) SI P1 (CU): motor holding brake/SBC configuration not practical

Message value:

Drive object:	All objects
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13.2 List of faults and alarms

Reaction:	NONE
Acknowledge:	NONE
Cause:	A configuration of motor holding brake and SBC was detected that is not practical. The following configurations can result in this message:
	- "No motor holding brake available" (p1215 = 0) and "SBC" enabled (p9602 = 1). Note:
	SBC: Safe Brake Control
Remedy:	Check the parameterization of the motor holding brake and SBC and correct. See also: p1215, p9602
Reaction upon F:	NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A01637 (F, N)	SI: Safety password not assigned
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Safety Integrated is parameterized and enabled. However, a valid safety password has still not been entered.
	See also: r9767 (SI safety password status)
Remedy:	- assign a valid safety password.
	- carry out data save.
Reaction upon F:	Servo: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A01638 (F, N) SI: Safety password entered

Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	A valid safety password has been entered. It is possible to change safety parameters in the safety commissioning mode.
	See also: r9767 (SI safety password status)
Remedy:	Not necessary.
	This alarm is automatically withdrawn with "Delete password" (e.g. after exiting the web server - or after a Power on). The password remains assigned.
Reaction upon F:	Servo: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F01640 (N, A) SI P1 (CU): component replacement identified and acknowledgment/save required

Message value:Fault cause: %1Drive object:All objectsReaction:NONEAcknowledge:IMMEDIATELY

Cause:	"Safety Integrated" has identified that a component has been replaced.
	It is no longer possible to operate the particular drive without fault.
	When safety functions are active, after a component has been replaced it is necessary to carry out a partial acceptance test.
	Fault value (r0949, interpret binary):
	Bit 0 = 1:
	It has been identified that the drive has been replaced. Bit 3 = 1:
	It has been identified that the Sensor Module has been replaced. Bit 5 = 1:
	It has been identified that the sensor has been replaced.
Remedy:	- acknowledge component replacement or "Copy RAM to ROM".
•	- save all parameters
	- acknowledge fault.
	Note:
	In addition to the fault, diagnostics bits r9776.2 and r9776.3 are set.
	See also: r9776 (SI diagnostics)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	
Acknowl. upon A:	
 F01641 (Ν_Δ)	SI P1 (CU): component replacement identified and save required
Message value:	Fault cause: %1
-	
Drive object:	All objects
Reaction:	NONE
Acknowledge:	
Cause:	"Safety Integrated" has identified that a component has been replaced.
	No additional fault response is initiated, therefore operation of the particular drive is not restricted.
	When safety functions are active, after a component has been replaced it is necessary to carry out a partial acceptance test.
	Fault value (r0949, interpret binary):
	Bit $0 = 1$:
	It has been identified that the drive has been replaced.
	Bit 3 = 1:
	It has been identified that the Sensor Module has been replaced.
	Bit 5 = 1:
	It has been identified that the sensor has been replaced.
Remedy:	- save all parameters or "Copy RAM to ROM".
	- acknowledge fault.
	See also: r9776 (SI diagnostics)
Reaction upon N:	
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	
	SI P1 (CU): Internal software error
Message value:	%1
Drive object:	All objects
Reaction:	OFF2

13.2 List of faults and alarms

Cause:	An internal error in the Safety Integrated software in monitoring channel 1 has occurred. Note: This fault results in a STOP A that cannot be acknowledged. Fault value (r0949, interpret hexadecimal):
Remedy:	 Only for internal Siemens troubleshooting. - carry out a POWER ON (switch-off/switch-on) for all components. - re-commission the "Safety Integrated" function and carry out a POWER ON. - upgrade the drive firmware to a later version. - contact Technical Support. - replace drive. Note:

SI: Safety Integrated

F01650	SI P1 (CU): Acceptance test required
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The drive-integrated "Safety Integrated" function on monitoring channel 1 requires an acceptance test.
	Note:
	This fault results in a STOP A that can be acknowledged.
	Fault value (r0949, interpret decimal):
	130: Safety parameters for monitoring channel 2 not available.
	Note:
	This fault value is always output when Safety Integrated is commissioned for the first time.
	1000: Reference and actual checksum on monitoring channel 1 are not identical (booting).
	- at least one checksum-checked piece of data is defective.
	- safety parameters set offline and loaded to the drive.
	2000: Reference and actual checksum on monitoring channel 1 are not identical (commissioning mode).
	- when de-activating the safety functions, p9501 or p9503 were not deleted.
	2001: Reference and actual checksum on monitoring channel 2 are not identical (commissioning mode).
	- when de-activating the safety functions, p9501 or p9503 are not deleted.
	2002: Enable of safety-related functions between the two monitoring channels differ.
	2003: Acceptance test is required as a safety parameter has been changed.
	2004: An acceptance test is required because a project with enabled safety-functions has been downloaded.
	2005: The Safety logbook has identified that a functional safety checksum has changed. An acceptance test is required
	2010: Safe brake control enable different between both monitoring channels.
	2020: Error when saving the safety parameters for the monitoring channel 2.
	3003: Acceptance test is required as a hardware-related safety parameter has been changed.
	3005: The Safety logbook has identified that a hardware-related safety checksum has changed. An acceptance test is required.
	9999: Subsequent response of another safety-related fault that occurred when booting that requires an acceptance tes

Remedy:	For fault value = 130:
	- carry out safety commissioning routine.
	For fault value = 1000:
	- again carry out safety commissioning routine.
	- replace the memory card or drive.
	For fault value = 2000:
	- confirm the data change using the commissioning tool.
	For fault value = 2001:
	- confirm the data change using the commissioning tool.
	For fault value = 2002:
	- using the commissioning tool, copy the safety parameters and confirm the data change.
	For fault value = 2003, 2004, 2005:
	- carry out an acceptance test and generate an acceptance report.
	Note:
	The fault with fault value 2005 can only be acknowledged when the "STO" function is de-selected.
	For fault value = 2010:
	- check that safe brake control is enabled.
	- using the commissioning tool, copy the safety parameters and confirm the data change.
	For fault value = 2020:
	- again carry out safety commissioning routine.
	- replace the memory card or drive.
	For fault value = 3003:
	- carry out the function checks for the modified hardware and generate an acceptance report.
	For fault value = 3005:
	- carry out the function checks for the modified hardware and generate an acceptance report.
	The fault with fault value 3005 can only be acknowledged when the "STO" function is de-selected.
	For fault value = 9999:
	- carry out diagnostics for the other safety-related fault that is present.
	Note:
	CU: Control Unit
	SI: Safety Integrated
	STO: Safe Torque Off
F01651	SI P1 (CU): Synchronization safety time slices unsuccessful
Message value:	%1
Drive object:	All objects
Reaction:	OFF2

Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The "Safety Integrated" function requires a synchronization of the safety time slices between the two monitoring channels and between the drive and the higher-level control. This synchronization routine was unsuccessful. Note:
	This fault results in a STOP A that cannot be acknowledged.
Remedy:	 carry out a POWER ON (switch-off/switch-on) for all components. upgrade the drive software. upgrade the software of the higher-level control. Note: CU: Control Unit SI: Safety Integrated

F01652

SI P1 (CU): Illegal monitoring clock cycle $_{\%1}^{\%1}$

Message value:

Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)

13.2 List of faults and alarms

Cause:

One of the Safety Integrated monitoring clock cycles is not permissible.

- the monitoring clock cycle integrated in the drive cannot be maintained due to the communication conditions required in the system.

- the monitoring clock cycle for safe motion monitoring functions is not permissible (p9500).

- the actual value sensing clock cycle for safe motion monitoring functions is not permissible (p9511).

- the sampling time for the current controller (p0112, p0115[0]) cannot be supported.

Note:

This fault results in a STOP A that cannot be acknowledged.

Fault value (r0949, interpret decimal):

For motion monitoring functions that are not enabled (p9601.2 = p9801.2 = 0, p9501 = 0), the following applies:

Minimum setting for the monitoring clock cycle (in µs).

For motion monitoring functions that are enabled (p9601.2 = p9801.2 = 1 and/or p9501 > 0), the following applies: 100:

- no matching monitoring clock cycle was able to be found.

- an illegal actual value sensing clock cycle was set for S120M (p9511).

101:

- the monitoring clock cycle is not an integer multiple of the actual value sensing clock cycle.

- SINAMICS S120M: the monitoring clock cycle (p9500) is not an integer multiple of 2 ms.

102:

- An error has occurred when transferring the actual value sensing clock cycle to the Motor Module. 103:

- An error has occurred when transferring the actual value sensing clock cycle to the Sensor Module.

104, 105:

- four times the current controller sampling time (p0115[0]) is greater than 1 ms when operating with a non-isochronous PROFIBUS.

- four times the current controller sampling time (p0115[0]) is greater than the DP clock cycle when operating with an isochronous PROFIBUS.

- the DP clock cycle is not an integer multiple of the sampling time of the current controller (p0115[0]). 106:

- the monitoring clock cycle does not match the monitoring clock cycle of the TM54F.

107:

- the actual value sensing clock cycle (p9511) is less than four times the current controller sampling time (p0115[0]).

- the actual value sensing clock cycle (p9511) is not an integer multiple of the sampling time of the current controller (p0115[0]).

108:

- the parameterized actual value sensing clock cycle cannot be set on this component

109:

- if the motion monitoring functions have been parameterized as encoderless (p9506), the actual value sensing clock cycle (p9511) and the current controller clock cycle (p0115[0]) must be identical.

- SINAMICS S110: if the motion monitoring functions have been parameterized as encoderless (p9506), the actual value sensing clock cycle p9511 must be = $250 \ \mu$ s.

110:

- the actual value sensing clock cycle (p9511) for safety with encoder (p9506 = 0) is less than 2 ms for this Control Unit (e.g. CU305).

111:

- the monitoring clock cycle is not an integer multiple of the sampling time of the current controller (p0115[0]).

112:

- An actual value sensing clock cycle p9511 = 0 on a drive object of a Double Motor Module is not permissible in the existing configuration.

200, 201:

- S120M: the monitoring clock cycle cannot be maintained as a result of the conditions required in the system. 202:

- the current controller sampling time is set to zero (p0115[0]).

13.2 List of faults and alarms

Remedy:

For enabled SI monitoring integrated in the drive (p9601/p9801 > 0):

- upgrade the firmware of the Control Unit to a later version.

For enabled motion monitoring function (p9501 > 0):

- correct the monitoring clock cycle (p9500) and carry out POWER ON.

For fault value = 100:

- for S120M, set the actual value sensing clock cycle to p9511 = 0.

For fault value = 101:

- actual value sensing clock cycle corresponds to position control clock cycle/DP clock cycle (factory setting).

- for motion monitoring functions integrated in the drive (p9601/p9801bit 2 = 1) the actual value sensing clock cycle can be directly parameterized in p9511/p9311.

- SINAMICS S120M: set the monitoring clock cycle (p9500) to an integer multiple of 2 ms.

For fault value = 104, 105:

- set a separate actual value sensing clock cycle in p9511.

- restrict operation to a maximum of two vector drives. For the standard setting in p0112, p0115, the current controller sampling time is automatically reduced to 250 µs. If the standard values were changed, then the current controller sampling time (p0112, p0115) should be appropriately set.

- increase the DP clock cycle for operation with an isochronous PROFIBUS so that there is a multiple clock cycle ratio of at least 4:1 between the DP clock cycle and the current controller sampling time. A clock cycle ratio of at least 8:1 is recommended.

- With firmware version 2.5, please ensure that parameter p9510 is set to 1 in the drive (clock cycle synchronous operation). For fault value = 106:

- set the parameters for the monitoring clock cycles the same (p10000 and p9500 / p9300).

For fault value = 107:

- set an actual value sensing clock cycle that matches the current controller clock cycle (p9511 >= 4 * p0115[0], 8 * p0115[0]) is recommended.

Note:

An actual value sensing clock cycle (p9511) that is set too low, can sporadically mean that safety messages C01711/C30711 are output with message value 1020 or 1021.

For fault value = 108:

- set a suitable actual value sensing clock cycle in p9511.

- if the DP clock cycle is used as the actual value sensing clock cycle for operation with isochronous PROFIBUS (p9511 = 0), then a suitable DP clock cycle must be configured. This must be set to less than 8 ms. If this is not possible, then p9511 must be set to the required actual value sensing clock cycle (< 8 ms).

- For SIMOTION D410-2, a suitable multiple of the DP clock cycle (e.g. 1, 2, 3, 4, 5, 6, 8, 10) must be parameterized. Otherwise, the clock cycle must be set to less than 8 ms.

For fault value = 109:

- set the actual value sensing clock cycle in p9511 to the same value as the current controller clock cycle (p0115[0]).

- SINAMICS S110: set the actual value sensing clock cycle to p9511 = 250 µs.

For fault value = 110:

- set the actual value sensing clock cycle in p9511 to 2 ms or higher.

For fault value = 111:

- set the monitoring clock cycle in p9500 as an integer multiple of the sampling time of the current controller (p0115[0]). For fault value = 112:

- set the actual value sensing clock cycle p9511 to the required value (not equal to zero).

For fault value = 200, 201:

- increase the current controller sampling time (p0115[0]).

- if required, reduce the number of components connected to the corresponding DRIVE-CLiQ line, or distribute the components across several DRIVE-CLiQ sockets.

For fault value = 202:

- set the current controller sampling time to a sensible value (p0115[0]).

Note:

CU: Control Unit

MM: Motor Module

SI: Safety Integrated

F01653	SI P1 (CU): PROFIBUS/PROFINET configuration error	
Message value:	%1	
Drive object:	All objects	
Reaction:	NONE (OFF1, OFF2, OFF3)	
Acknowledge:	IMMEDIATELY (POWER ON)	
Cause:	There is a PROFINET configuration error for using Safety Integrated monitoring functions with a higher-level control (F-PLC).	
	Note:	
	For safety functions that have been enabled, this fault results in a STOP A that cannot be acknowledged.	
	Fault value (r0949, interpret decimal):	
	200: A safety slot for receive data from the control has not been configured.	
	210, 220: The configured safety slot for the receive data from the control has an unknown format.	
	230: The configured safety slot for the receive data from the F-PLC has the incorrect length.	
	231: The configured safety slot for the receive data from the F-PLC has the incorrect length.	
	250: A PROFIsafe slot is configured in the higher-level F control, however PROFIsafe is not enabled in the drive.	
	300: A safety slot for the send data to the control has not been configured.	
	310, 320: The configured safety slot for the send data to the control has an unknown format.	
	330: The configured safety slot for the send data to the F-PLC has the incorrect length.	
	331: The configured safety slot for the send data to the F-PLC has the incorrect length.	
	400: The telegram number in the F-PLC does not match the parameterization in the drive.	
Remedy:	The following generally applies:	
	- check and, if necessary, correct the PROFINET configuration of the safety slot on the master side.	
	- upgrade the drive software.	
	For fault value = 250:	
	- remove the PROFIsafe configuring in the higher-level F control or enable PROFIsafe in the drive.	
	For fault value = 231, 331:	
	- in the drive, parameterize the appropriate PROFIsafe telegram (p9611) to be set on the F-PLC.	
	- configure the PROFIsafe telegram matching the parameterization (p9611) in the F-PLC.	

A01654 (F, N) SI P1 (CU): Deviating PROFIsafe configuration

Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The configuration of a PROFIsafe telegram in the higher-level control (F-PLC) does not match the parameterization in the drive.
	Note:
	This message does not result in a safety stop response.
	Alarm value (r2124, interpret decimal):
	1:
	A PROFIsafe telegram is configured in the higher-level control, however PROFIsafe is not enabled in the drive (p9601.3).
	2:
	PROFIsafe is parameterized in the drive; however, a PROFIsafe telegram has not been configured in the higher-level control.
Remedy:	The following generally applies:
	- check and, if necessary, correct the PROFIsafe configuration in the higher-level control.
	For alarm value = 1:
	- remove the PROFIsafe configuring in the higher-level F control or enable PROFIsafe in the drive.
	For alarm value = 2:
	- configure the PROFIsafe telegram to match the parameterization in the higher-level F-control.
Reaction upon F:	NONE (OFF1, OFF2, OFF3)

13.2 List of faults and alarms

Acknowl. upon F:IMMEDIATELY (POWER ON)Reaction upon N:NONEAcknowl. upon N:NONE

F01655	SI P1 (CU): Align monitoring functions	
Message value:	%1	
Drive object:	All objects	
Reaction:	OFF2	
Acknowledge:	IMMEDIATELY (POWER ON)	
Cause:	An error has occurred when aligning the Safety Integrated monitoring functions of both monitoring channels. No commo set of supported SI monitoring functions was able to be determined. - there is either a DRIVE-CLiQ communication error or communication has failed. - no POWER ON after upgrading the firmware. Note: This fault results in a STOP A that cannot be acknowledged. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.	
Remedy:	- carry out a POWER ON (switch-off/switch-on) for all components.	
	 check the electrical cabinet design and cable routing for EMC compliance upgrade the drive software. Note: CU: Control Unit SI: Safety Integrated 	
F01656	SI CU: Parameter monitoring channel 2 error	
Message value:	%1	
Drive object:	All objects	
Reaction:	OFF2	
Acknowledge:	IMMEDIATELY (POWER ON)	
Cause:	 When accessing the Safety Integrated parameters for monitoring channel 2 in the non-volatile memory, an error has occurred. Note: This fault results in a STOP A that can be acknowledged. Fault value (r0949, interpret decimal): 129: safety parameters for monitoring channel 2 corrupted. drive with enabled safety functions was possibly copied offline using the commissioning tool and the project downloader 131: Internal software error on monitoring channel 2. 132: Communication errors when uploading or downloading the safety parameters for monitoring channel 2. 255: Internal software error on monitoring channel 1. 	

Remedy:	 re-commission the safety functions. upgrade the drive software. replace the memory card or drive. For fault value = 129: activate the safety commissioning mode (p0010 = 95). adapt the PROFIsafe address (p9610). using the commissioning tool, copy the safety parameters and confirm the data change. exit the safety commissioning mode (p0010 = 0). save all parameters (copy RAM to ROM). carry out a POWER ON (switch-off/switch-on) for all components. For fault value = 132: check the electrical cabinet design and cable routing for EMC compliance Note: CU: Control Unit SI: Safety Integrated 		
F01657	SI P1 (CU): PROFIsafe telegram number invalid		
Message value:	-		
Drive object:	All objects		
Reaction:	OFF2		
Acknowledge:	POWER ON		
Cause:	The PROFIsafe telegram number set in p9611 is not valid.		
	When PROFIsafe is enabled (p9601.3 = 1), then a telegram number greater than zero must be entered in p9611.		
	Note:		
	This fault does not result in a safety stop response.		
	See also: p9611, p60022, r60022		
Remedy:	Check the telegram number setting (p9611).		
F01658	SI P1 (CU): PROFIsafe telegram number differ		
Message value:			
Drive object:	All objects		
Reaction:	OFF2		
Acknowledge:	IMMEDIATELY (POWER ON)		
Cause:	The PROFIsafe telegram number is set differently in p9611 and r60022.		
	The telegram number must be identically set in both parameters.		
	Note:		
	This fault does not result in a safety stop response.		
	See also: p9611, p60022, r60022		
Remedy:	Align the telegram number in both parameters so that they are the same (p9611, r60022).		
F01659	SI P1 (CU): Write request for parameter rejected		
Message value:	%1		
Drive object:	All objects		
Reaction:	OFF2		
Acknowledge:	IMMEDIATELY (POWER ON)		
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13.2 List of faults and alarms

Drive object:	All objects
Message value:	-
F01660	SI P1 (CU): Safety-related functions not supported
	See also: p9501, p9601, p9612
	STO: Safe Torque Off
	SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)
	SI: Safety Integrated
	SBC: Safe Brake Control
	F-DI: Fail-safe Digital Input
	CU: Control Unit
	Note:
	- parameterize STOP A as the stop response for PROFIsafe failure (p9612 = 0).
	- establish communications with PROFIsafe (p9601).
	For fault value = 9612:
	- correct the enable setting (p9601.7 = 0).
	For fault value = 28:
	- correct the telegram number setting (p9611).
	For fault value = 25:
	- correct the enable setting (p9601).
	For fault value = 20:
	- upgrade the drive software.
	- check whether there are faults in the safety function alignment between the two monitoring channels (F01655, F30655) and if required, carry out diagnostics for the faults involved.
	For fault value = 14, 23, 27:
	- set the Safety Integrated password.
Remedy:	For fault value = 1:
Demodu	enabled.
	9612: An attempt was made to parameterize STOP B as stop response for PROFIsafe failure, although PROFIsafe is not
	28: An attempt was made to enable the "STO via terminals at the Power Module" function although this cannot be supported.
	27: An attempt was made to activate the Basic Functions by controlling via TM54F although this is not supported.
	25: An attempt was made to parameterize a PROFIsafe telegram although this cannot be supported.
	23: For ESR, an attempt was made to enable the delay of STO, although this cannot be supported.
	20: An attempt was made to enable the motion monitoring functions integrated in the drive and the STO function, both controlled via F-DI.
	14: An attempt was made to enable the PROFIsafe communication - although the version of the PROFIsafe driver used on both monitoring channels is different.
	1: The Safety Integrated password is not set.
	Fault value (r0949, interpret decimal):
	This fault does not result in a safety stop response.
	Note:
	NL L

J Reaction: OFF2 IMMEDIATELY (POWER ON) Acknowledge: The Motor Module/Hydraulic Module does not support the safety-related functions (e.g. the Motor Module/Hydraulic Module Cause: version is not the correct one). Safety Integrated cannot be commissioned. Note:

This fault does not result in a safety stop response.

SI: Safely Integrated F01663 SI P1 (CU): Copying the SI parameters rejected Message value: - Drive object: All objects Reaction: OFF2 Aknowledge: IMMEDIATELY (POWER ON) Cause: Using the commissioning tool, copy the Safety Integrated parameters - or were entered offline. This is the reason that when booting, an attempt is made to copy Safety Integrated parameters from monitoring channel 1. (p9501 = 0, p9601 = 0). (Copying was rejected for safety reasons. As a consequence, inconsistent parameterization can occur in both monitoring channels, fault F30625 is output. Note: This fault does not result in a safety stop response. SI: Safety Integrated Remedy: - check p9501 and p9601 and if required, correct. - perform copy function using the commissioning tool. - save all parameters or "Copy RAM to ROM". - carry out a POWER ON (switch-off/switch-on). F01664 SI P1 (CU): No automatic firmware update Message value: %1 Drive object: All objects Reactor:: OFF2 Acknowledge: MIMEDIATELY (POWER ON) Cause: During booting, the system detected that the "Firmware update automatic" function (p7826 = 1) was not activated. This fu	Remedy:	 use a Motor Module/Hydraulic Module that supports the safety-related functions. upgrade the Motor Module/Hydraulic Module software. Note: CU: Control Unit 		
Message value: - Drive object: All objects Reaction: OFF2 Acknowledge: IMMEDIATELY (POWER ON) Cause: Using the commissioning tool, copy the Safety Integrated parameters - or were entered offline. This is the reason that when botting, an attempt is made to copy Safety Integrated parameters from monitoring channel 1 to monitoring channel 2. However, no safety-relevant function has been selected in monitoring channel 1 (p9501 = 0, p9601 = 0, copying was rejected for safety reasons. As a consequence, inconsistent parameterization can occur in both monitoring channels, which in turn results in additional error messages. Especially for inconsistent parameterization can occur in both monitoring channels, fault F30625 is output. Note: This fault does not result in a safety stop response. Si: Safety Integrated Remedy: - check p9501 and p9601 and if required, correct. - perform copy function using the commissioning tool. - save all parameters or "Copy FAM to ROM". - carry out a POWER ON (switch-off/switch-on). F01664 SI P1 (CU): No automatic firmware update Message value: %1 Drive object: All objects Reaction: OFF2 Acknowledge: Uming booting, the system detected that the "Firmware update automatic" function (p7826 = 1) was not activated. This function must be activated for automatic firmware updates/downgrades to prevent impermissible version combinations when safety functions are enabled. Note: This fault doces not result in a safety stop response.		SI: Safety Integrated		
Drive object: All objects Reactor: OFF2 Acknowledge: IMMEDIATELY (POWER ON) Cause: Using the commissioning tool, copy the Safety Integrated parameters - or were entered offline. This is the reason that when booting, an attempt is made to copy Safety Integrated parameters from monitoring channel 1 to monitoring channel 2. However, no safety-relevant function has been selected in monitoring channel 1 (p9501 = 0, p9601 = 0). Copying was rejected for safety reasons. As a consequence, inconsistent parameterization can occur in both monitoring channels, which in turn results in additional error messages. Especially for inconsistent enabling of the safety functions on both monitoring channels, fault F30625 is output. Note: This fault does not result in a safety stop response. SI: Safety Integrated Remedy: - check p9601 and p8601 and if required, correct. - perform copy function using the commissioning tool. - save all parameters or "Copy RAM to ROM". - carry out a POWER ON (switch-off): Pd1664 SI P1 (CU): No automatic firmware update Message value: %1 Drive object: All objects Reaction: OFF2 Acknowledge: IMMEDIATELY (POWER ON) Cause: During booting, the system detected that the "Firmware update automatic" function (p7826 = 1	F01663	SI P1 (CU): Copying the SI parameters rejected		
Reaction: OFF2 Acknowledge: IMMEDIATELY (POWER ON) Cause: Using the commissioning tool, copy the Safety Integrated parameters - or were entered offline. This is the reason that when booting, an attempt is made to copy Safety Integrated parameters from monitoring channel 1 to monitoring channel 2. However, no safety-relevant function has been selected in monitoring channel 1 (p9501 = 0, p9601 = 0). Copying was rejected for safety reasons. As a consequence, inconsistent parameterization can occur in both monitoring channels, which in turn results in additional error messages. Especially for inconsistent enabling of the safety functions on both monitoring channels, fault F30625 is output. Note: This fault does not result in a safety stop response. SI: Safety Integrated Remedy: - ocheck p9501 and p9601 and if required, correct. - perform copy function using the commissioning tool. - save all parameters or "Copy RAM to ROM". - carry out a POWER ON (switch-off/switch-on). F01664 SI P1 (CU): No automatic firmware update Message value: %1 Drive object: All objects Reaction: Reaction: OFF2 Acknowledge: IMMEDIATELY (POWER ON) Cause: During booting, the system detected that the "Firmware update sutomatic" function (p7826 = 1) was not activated. This functions must be activated for automatic firmware update/s/downgrades to prevent impermissible version combinations when safety functions are enabled. Note: This fault does not result in a safety stop response. Remedy: When safety functions are enabled (p9501 <> 0 and/or p9601 <> 0); 1. Activate the "Firmware update automatic"	Message value:	-		
Acknowledge: IMMEDIATELY (POWER ON) Cause: Using the commissioning tool, copy the Safety Integrated parameters - or were entered offline. This is the reason that when booting, an attempt is made to copy Safety Integrated parameters from monitoring channel 1 (p9501 = 0, p9601 = 0). Copying was rejected for safety relevant function has been selected in monitoring channel 1 (p9501 = 0, p9601 = 0). Copying was rejected for safety reasons. As a consequence, inconsistent parameterization can occur in both monitoring channels, which in turn results in additional error messages. Especially for inconsistent enabling of the safety functions on both monitoring channels, fault F30625 is output. Note: This fault does not result in a safety stop response. SI: Safety Integrated Remedy: - check p9501 and p9601 and if required, correct. - perform copy function using the commissioning tool. - save all parameters or "Copy RAM to ROM". - carry out a POWER ON (switch-off/switch-on). F01664 SI P1 (CU): No automatic firmware update Message value: %1 Drive object. All objects Reaction: OFF2 Acknowledge: MMEDIATELY (POWER ON) Cause: During booting, the system detected that the "Firmware update automatic" function (p7826 = 1) was not activated. This function must be activated for automatic firmware update/sdowngrades to prevent impermissible version combinations when safety functions are enabled. Note: Poing booting, the system detected that the "Firmware update/sdowngrades to prevent impermissible version combinations when safety functions are enabled. Note: Note:	Drive object:	All objects		
Cause: Using the commissioning tool, copy the Safety Integrated parameters - or were entered offline. This is the reason that when booting, an attempt is made to copy Safety Integrated parameters from monitoring channel 1 (p9501 = 0), Copying was rejected for safety-relevant function has been selected in monitoring channel 1 (p9501 = 0), p9601 = 0). Copying was rejected for safety relevant function has been selected in monitoring channel 1 (p9501 = 0), p9601 = 0). Copying was rejected for safety reasons. As a consequence, inconsistent parameterization can occur in both monitoring channels, which in turn results in additional error messages. Especially for inconsistent enabling of the safety functions on both monitoring channels, fault F30625 is output. Note: This fault does not result in a safety stop response. SI: Safety Integrated Remedy: - check p9501 and p9601 and if required, correct. - perform copy function using the commissioning tool. - save all parameters or "Copy RAM to ROM". - carry out a POWER ON (switch-off/switch-on). F01664 SI P1 (CU): No automatic firmware update Message value: %1 Drive object: All objects Remedy: - Uning booting, the system detected that the "Firmware update automatic" function (p7826 = 1) was not activated. This function must be activated for automatic firmware updates/downgrades to prevent impermissible version combinations when safety functions are enabled. Note: This fault does not result in a safety stop response. Remedy: Mhen safety functions are enabled (p9501 <> 0): 1. Activate the "Firmware update automatic" function (p7826 = 1). 2. Backup the parameters (p0977 = 1) and carry out a POWER ON. When deactivating the safety functions (p9501 <> 0): 1. Activate the "Firmware update automatic" function (p7826 = 1). 2. Backup the parameters (p0977 = 1) and carry out a POWER ON. When deactivating the safety fu	Reaction:	OFF2		
This is the reason that when booting, an attempt is made to copy Safety Integrated parameters from monitoring channel 1 (p9501 = 0, p9601 = 0), Opping was rejected for safety reasons. As a consequence, inconsistent parameterization can occur in both monitoring channels, which in turn results in additional error messages. Especially for inconsistent enabling of the safety functions on both monitoring channels, fault F30625 is output. Note: Note: This fault does not result in a safety stop response. SI: Safety Integrated Remedy: - check p9501 and p9601 and if required, correct. - perform copy function using the commissioning tool. - save all parameters or "Copy RAM to ROM". - carry out a POWER ON (switch-off/switch-on). F01664 SI P1 (CU): No automatic firmware update Message value: %1 Drive object: All objects Remedy: This fault does not result in a safety stop response. SI: Safety Integrated Si P1 (CU): No automatic firmware update Message value: %1 Drive object: All objects Remedy: Unstring booting, the system detected that the "Firmware update automatic" function (p7826 = 1) was not activated. This fault does not result in a safety stop response. This fault does not result in a safety stop response. <td< th=""><th>Acknowledge:</th><th>IMMEDIATELY (POWER ON)</th></td<>	Acknowledge:	IMMEDIATELY (POWER ON)		
1 to monitoring channel 2. However, no safety-relevant function has been selected in monitoring channel 1 (p9501 = 0, p9601 = 0). Copying was rejected for safety reasons. As a consequence, inconsistent parameterization can occur in both monitoring channels, which in turn results in additional error messages. Especially for inconsistent enabling of the safety functions on both monitoring channels, fault F30625 is output. Note: This fault does not result in a safety stop response. SI: Safety Integrated Remedy: - check p9501 and p6601 and if required, correct. - perform copy function using the commissioning tool. - save all parameters or "Copy RAM to ROM". - carry out a POWER ON (switch-off/switch-on). F01664 SI P1 (CU): No automatic firmware update Message value: %1 Drive object: All objects Remedy: Using booting, the system detected that the "Firmware update automatic" function (p7826 = 1) was not activated. This function must be activated for automatic firmware updates/downgrades to prevent impermissible version combinations when safety functions are enabled. Note: This fault does not result in a safety stop response. Remedy: When safety functions are enabled (p8501 <> 0 and/or p8601 <> 0): 1. Activate the "Firmware updates/downgrades to prevent impermissible version combinations when safety functions are enabled (p8501 <> 0 and/or p8601 <> 0):	Cause:	Using the commissioning tool, copy the Safety Integrated parameters - or were entered offline.		
error messages. Especially for inconsistent enabling of the safety functions on both monitoring channels, fault F30625 is output. Note: This fault does not result in a safety stop response. SI: Safety Integrated Remedy: - check p501 and p9601 and if required, correct. - perform copy function using the commissioning tool. - save all parameters or "Copy RAM to ROM". - carry out a POWER ON (switch-off/switch-on). F01664 SI P1 (CU): No automatic firmware update Message value: %1 Drive object: All objects Reaction: OFF2 Acknowledge: IMMEDIATELY (POWER ON) Cause: During booting, the system detected that the "Firmware update automatic" function (p7826 = 1) was not activated. This function must be activated for automatic firmware updates/downgrades to prevent impermissible version combinations when safety functions are enabled. Note: This fault does not result in a safety stop response. Remedy: When safety functions are enabled (p9501 <> 0 and/or p9601 <> 0): 1. Activate the "Firmware update automatic" function (p7826 = 1). 2. Backup the parameters (p0977 = 1) and carry out a POWER ON. When deactivating the safety functions (p9501 = 0, p9601 <> 0): 1. Activate the safety functions (p9501 = 0, p9601 <> 0): 1. Activate the safety functions (p9501 = 0, p9601 = 0), the fault can be acknowledged after exiting the safety commissioning mode. F01665 SI P1 (CU): System is defective Message value: %1 Dive object: All obj		1 to monitoring channel 2. However, no safety-relevant function has been selected in monitoring channel 1 (p9501 = 0,		
Note: This fault does not result in a safety stop response. SI: Safety Integrated SI: Safety Integrated Remedy: - check p9501 and p9601 and if required, correct. - perform copy function using the commissioning tool. - save all parameters or "Copy RAM to ROM" - carry out a POWER ON (switch-off/switch-on). F01664 SI P1 (CU): No automatic firmware update Message value: %1 Drive object: All objects Reaction: OFF2 Acknowledge: IMMEDIATELY (POWER ON) Cause: During booting, the system detected that the "Firmware update automatic" function (p7826 = 1) was not activated. This function must be activated for automatic firmware updates/downgrades to prevent impermissible version combinations when safety functions are enabled. Note: This fault does not result in a safety stop response. Remedy: When safety functions are enabled (p9501 <> 0 and/or p9601 <> 0): 1. Activate the "Firmware update automatic" function (p7826 = 1). 2. Backup the parameters (p0977 = 1) and carry out a POWER ON. When safety functions (p9501 = 0, p9601 = 0), the fault can be acknowledged after exiting the safety commissioning mode. F01665 SI P1 (CU): System is defective Message value: %1 Drive object: <td< td=""><td></td><td></td></td<>				
SI: Safety Integrated Remedy: - check p9501 and p8601 and if required, correct. - perform copy function using the commissioning tool. - save all parameters or "Copy RAM to ROM". - carry out a POWER ON (switch-off/switch-on). F01664 SI P1 (CU): No automatic firmware update Message value: %1 Drive object: All objects Reaction: OFF2 Acknowledge: IMMEDIATELY (POWER ON) Cause: During booting, the system detected that the "Firmware update automatic" function (p7826 = 1) was not activated. This function must be activated for automatic firmware updates/downgrades to prevent impermissible version combinations when safety functions are enabled. Note: This fault does not result in a safety stop response. Remedy: When safety functions are enabled (p9501 <> 0 and/or p9601 <> 0): 1. Activate the "Firmware update automatic" function (p7826 = 1). 2. Backup the parameters (p0977 = 1) and carry out a POWER ON. When deactivating the safety functions (p9501 = 0, p9601 <> 0): 1. Activate the "Firmware update automatic" function (p7826 = 1). 2. Backup the parameters (p0977 = 1) and carry out a POWER ON. When deactivating the safety functions (p9501 = 0, p9601 = 0); the fault can be acknowledged after exiting the safety commissioning mod				
Remedy: - check p9501 and p9601 and if required, correct. - perform copy function using the commissioning tool. - save all parameters or "Copy RAM to ROM". - carry out a POWER ON (switch-off/switch-on). F01664 SI P1 (CU): No automatic firmware update Message value: %1 Drive object: All objects Reaction: OFF2 Acknowledge: IMMEDIATELY (POWER ON) Cause: During booting, the system detected that the "Firmware update automatic" function (p7826 = 1) was not activated. This function must be activated for automatic firmware updates/downgrades to prevent impermissible version combinations when safety functions are enabled. Note: This fault does not result in a safety stop response. Remedy: When safety functions are enabled (p9501 <> 0 and/or p9601 <> 0): 1. Activate the "Firmware update automatic" function (p7826 = 1). 2. Backup the parameters (p0977 = 1) and carry out a POWER ON. When deactivating the safety functions (p9501 = 0, p9601 = 0), the fault can be acknowledged after exiting the safety commissioning mode. F01665 SI P1 (CU): System is defective Message value: %1 Drive object: All objects Reaction: 0FF2		This fault does not result in a safety stop response.		
 perform copy function using the commissioning tool. save all parameters or "Copy RAM to ROM". carry out a POWER ON (switch-off/switch-on). F01664 SI P1 (CU): No automatic firmware update Message value: %1 Drive object: All objects Reaction: OFF2 Acknowledge: IMMEDIATELY (POWER ON) Cause: During booting, the system detected that the "Firmware update automatic" function (p7826 = 1) was not activated. This function must be activated for automatic firmware update automatic" function (p7826 = 1) was not activated. This function must be activated for automatic firmware update so prevent impermissible version combinations when safety functions are enabled. Note: This fault does not result in a safety stop response. Remedy: When safety functions are enabled (p9501 <> 0 and/or p9601 <> 0): Activate the "Firmware update automatic" function (p7826 = 1). Backup the parameters (p0977 = 1) and carry out a POWER ON. When deactivating the safety functions (p9501 = 0, p9601 = 0), the fault can be acknowledged after exiting the safety commissioning mode. F01665 SI P1 (CU): System is defective Message value: %1 Drive object: All objects Reaction: OFF2 				
 - save all parameters or "Copy RAM to ROM". - carry out a POWER ON (switch-off/switch-on). F01664 SI P1 (CU): No automatic firmware update Message value: %1 Drive object: All objects Reaction: OFF2 Acknowledge: IMMEDIATELY (POWER ON) Cause: During booting, the system detected that the "Firmware update automatic" function (p7826 = 1) was not activated. This function must be activated for automatic firmware update automatic" function (p7826 = 1) was not activated. This function must be activated for automatic firmware updates/downgrades to prevent impermissible version combinations when safety functions are enabled. Note: This fault does not result in a safety stop response. Remedy: When safety functions are enabled (p9501 <> 0 and/or p9601 <> 0): Activate the "Firmware update automatic" function (p7826 = 1). Backup the parameters (p0977 = 1) and carry out a POWER ON. When deactivating the safety functions (p9501 = 0, p9601 = 0), the fault can be acknowledged after exiting the safety commissioning mode. F01665 SI P1 (CU): System is defective Message value: %1 Drive object: All objects Reaction: OFF2 	Remedy:	- check p9501 and p9601 and if required, correct.		
 - carry out a POWER ON (switch-off/switch-on). F01664 SI P1 (CU): No automatic firmware update Message value: %1 Drive object: All objects Reaction: OFF2 Acknowledge: IMMEDIATELY (POWER ON) Cause: During booting, the system detected that the "Firmware update automatic" function (p7826 = 1) was not activated. This function must be activated for automatic firmware updates/downgrades to prevent impermissible version combinations when safety functions are enabled. Note: This fault does not result in a safety stop response. Remedy: When safety functions are enabled (p9501 <> 0 and/or p9601 <> 0): Activate the "Firmware update automatic" function (p7826 = 1). Backup the parameters (p0977 = 1) and carry out a POWER ON. When deactivating the safety functions (p9501 = 0, p9601 = 0), the fault can be acknowledged after exiting the safety commissioning mode. F01665 SI P1 (CU): System is defective Message value: %1 Drive object: All objects Reaction: OFF2 		- perform copy function using the commissioning tool.		
F01664 SI P1 (CU): No automatic firmware update Message value: %1 Drive object: All objects Reaction: OFF2 Acknowledge: IMMEDIATELY (POWER ON) Cause: During booting, the system detected that the "Firmware update automatic" function (p7826 = 1) was not activated. This function must be activated for automatic firmware updates/downgrades to prevent impermissible version combinations when safety functions are enabled. Note: This fault does not result in a safety stop response. Remedy: When safety functions are enabled (p9501 <> 0 and/or p9601 <> 0): 1. Activate the "Firmware update automatic" function (p7826 = 1). 2. Backup the parameters (p0977 = 1) and carry out a POWER ON. When deactivating the safety functions (p9501 = 0, p9601 = 0), the fault can be acknowledged after exiting the safety commissioning mode. F01665 SI P1 (CU): System is defective Message value: %1 Drive object: All objects Reaction: OFF2		- save all parameters or "Copy RAM to ROM".		
Message value: %1 Drive object: All objects Reaction: OFF2 Acknowledge: IMMEDIATELY (POWER ON) Cause: During booting, the system detected that the "Firmware update automatic" function (p7826 = 1) was not activated. This function must be activated for automatic firmware updates/downgrades to prevent impermissible version combinations when safety functions are enabled. Note: This fault does not result in a safety stop response. Remedy: When safety functions are enabled (p9501 <> 0 and/or p9601 <> 0): 1. Activate the "Firmware update automatic" function (p7826 = 1). 2. Backup the parameters (p0977 = 1) and carry out a POWER ON. When deactivating the safety functions (p9501 = 0, p9601 = 0), the fault can be acknowledged after exiting the safety commissioning mode. F01665 SI P1 (CU): System is defective Message value: %1 Drive object: All objects Reaction: OFF2		- carry out a POWER ON (switch-off/switch-on).		
Drive object: All objects Reaction: OFF2 Acknowledge: IMMEDIATELY (POWER ON) Cause: During booting, the system detected that the "Firmware update automatic" function (p7826 = 1) was not activated. This function must be activated for automatic firmware updates/downgrades to prevent impermissible version combinations when safety functions are enabled. Note: This fault does not result in a safety stop response. Remedy: When safety functions are enabled (p9501 <> 0 and/or p9601 <> 0): 1. Activate the "Firmware update automatic" function (p7826 = 1). 2. Backup the parameters (p0977 = 1) and carry out a POWER ON. When deactivating the safety functions (p9501 = 0, p9601 = 0), the fault can be acknowledged after exiting the safety commissioning mode. F01665 SI P1 (CU): System is defective Message value: %1 Drive object: All objects Reaction: OFF2	F01664	SI P1 (CU): No automatic firmware update		
Reaction: OFF2 Acknowledge: IMMEDIATELY (POWER ON) Cause: During booting, the system detected that the "Firmware update automatic" function (p7826 = 1) was not activated. This function must be activated for automatic firmware updates/downgrades to prevent impermissible version combinations when safety functions are enabled. Note: This fault does not result in a safety stop response. Remedy: When safety functions are enabled (p9501 <> 0 and/or p9601 <> 0): 1. Activate the "Firmware update automatic" function (p7826 = 1). 2. Backup the parameters (p0977 = 1) and carry out a POWER ON. When deactivating the safety functions (p9501 = 0, p9601 = 0), the fault can be acknowledged after exiting the safety commissioning mode. SI P1 (CU): System is defective Message value: %1 Drive object: All objects Reaction: OFF2 OFF2	Message value:	%1		
Acknowledge: IMMEDIATELY (POWER ON) Cause: During booting, the system detected that the "Firmware update automatic" function (p7826 = 1) was not activated. This function must be activated for automatic firmware updates/downgrades to prevent impermissible version combinations when safety functions are enabled. Note: This fault does not result in a safety stop response. Remedy: When safety functions are enabled (p9501 <> 0 and/or p9601 <> 0): 1. Activate the "Firmware update automatic" function (p7826 = 1). 2. Backup the parameters (p0977 = 1) and carry out a POWER ON. When deactivating the safety functions (p9501 = 0, p9601 = 0), the fault can be acknowledged after exiting the safety commissioning mode. F01665 SI P1 (CU): System is defective Message value: %1 Drive object: All objects Reaction: OFF2	Drive object:	All objects		
Cause: During booting, the system detected that the "Firmware update automatic" function (p7826 = 1) was not activated. This function must be activated for automatic firmware updates/downgrades to prevent impermissible version combinations when safety functions are enabled. 	Reaction:	OFF2		
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when safety functions are enabled. Note: This fault does not result in a safety stop response. Remedy: When safety functions are enabled (p9501 <> 0 and/or p9601 <> 0): 1. Activate the "Firmware update automatic" function (p7826 = 1). 2. Backup the parameters (p0977 = 1) and carry out a POWER ON. When deactivating the safety functions (p9501 = 0, p9601 = 0), the fault can be acknowledged after exiting the safety commissioning mode. F01665 SI P1 (CU): System is defective Message value: %1 Drive object: All objects Reaction: OFF2	Cause:	During booting, the system detected that the "Firmware update automatic" function (p7826 = 1) was not activated.		
Remedy: This fault does not result in a safety stop response. When safety functions are enabled (p9501 <> 0 and/or p9601 <> 0): 1. Activate the "Firmware update automatic" function (p7826 = 1). 2. Backup the parameters (p0977 = 1) and carry out a POWER ON. When deactivating the safety functions (p9501 = 0, p9601 = 0), the fault can be acknowledged after exiting the safety commissioning mode. F01665 SI P1 (CU): System is defective Message value: %1 Drive object: All objects Reaction: OFF2		when safety functions are enabled.		
Remedy: When safety functions are enabled (p9501 <> 0 and/or p9601 <> 0): 1. Activate the "Firmware update automatic" function (p7826 = 1). 2. Backup the parameters (p0977 = 1) and carry out a POWER ON. When deactivating the safety functions (p9501 = 0, p9601 = 0), the fault can be acknowledged after exiting the safety commissioning mode. F01665 SI P1 (CU): System is defective Message value: %1 Drive object: All objects Reaction: OFF2				
1. Activate the "Firmware update automatic" function (p7826 = 1). 2. Backup the parameters (p0977 = 1) and carry out a POWER ON. When deactivating the safety functions (p9501 = 0, p9601 = 0), the fault can be acknowledged after exiting the safety commissioning mode. F01665 SI P1 (CU): System is defective Message value: %1 Drive object: All objects Reaction: OFF2	_ .			
2. Backup the parameters (p0977 = 1) and carry out a POWER ON. When deactivating the safety functions (p9501 = 0, p9601 = 0), the fault can be acknowledged after exiting the safety commissioning mode. F01665 SI P1 (CU): System is defective Message value: %1 Drive object: All objects Reaction: OFF2	Remedy:			
When deactivating the safety functions (p9501 = 0, p9601 = 0), the fault can be acknowledged after exiting the safety commissioning mode. F01665 SI P1 (CU): System is defective Message value: %1 Drive object: All objects Reaction: OFF2				
commissioning mode. F01665 SI P1 (CU): System is defective Message value: %1 Drive object: All objects Reaction: OFF2				
Message value:%1Drive object:All objectsReaction:OFF2				
Drive object: All objects Reaction: OFF2	F01665	SI P1 (CU): System is defective		
Drive object: All objects Reaction: OFF2	Message value:	%1		
		All objects		
	Reaction:	OFF2		
	Acknowledge:	IMMEDIATELY		

13.2 List of faults and alarms

Cause:	A system defect was detected before the last boot or in the actual one. The system might have been rebooted (reset).
	Fault value (r0949, interpret hexadecimal):
	200000 hex, 400000 hex, 8000yy hex (yy any):
	- fault in the actual booting/operation.
	800004 hex:
	- parameters p9500/p9300 are, under certain circumstances, not the same. In addition, Safety message C01711/C30711 is displayed.
	Additional values:
	- defect before the last time that the system booted.
Remedy:	- carry out a POWER ON (switch-off/switch-on).
	- upgrade firmware to later version.
	- contact Technical Support.
	For fault value = 200000 hex, 400000 hex, 8000yy hex (yy any):
	- ensure that the Control Unit is connected to the Power Module.
	For fault value = 800004 hex:
	- check that parameters p9500/p9300 are the same.
	Note:
	PM: Power Module
	STO: Safe Torque Off
A01669 (F, N)	SI Motion: Unfavorable combination of motor and power unit
Message value:	%1
Drive object:	All objects

wessage value.	/01
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The combination of motor and power unit used is not suitable for using safe motion monitoring functions without an encoder.
	The ratio between the power unit rated current (r0207[0]) and rated motor current (p0305) is greater than 5.
	Alarm value (r2124, interpret decimal):
	Number of the motor data set, which caused the fault.
	Notice:
	If this alarm is not observed, then message C01711 or C30711 – with the value 1041 1044 – can sporadically occur.
Remedy:	Use a suitable power unit with a lower power rating or a motor with a higher power rating.
Reaction upon F:	NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F01670 SI Motion: Invalid parameterization Sensor Module

Message value:%1Drive object:All objectsReaction:OFF2Acknowledge:IMMEDIATELY (POWER ON)

13.2 List of faults and alarms

Cause:	The parameterization of a Sensor Module used for Safety Integrated is not permissible.		
	Note:		
	This fault results in a STOP A that cannot be acknowledged.		
	Fault value (r0949, interpret decimal):		
	1: No encoder was parameterized for Safety Integrated.		
	2: An encoder was parameterized for Safety Integrated that does not have an A/B track (sine/cosine).		
	3: The encoder data set selected for Safety Integrated is still not valid.		
	4: A communication error with the encoder has occurred.		
	5: Number of relevant bits in the encoder coarse position invalid.		
	6: DRIVE-CLiQ encoder configuration invalid.		
	8: Parameterized Safety comparison algorithm not supported.		
Remedy:	For fault value = 1, 2:		
•	- use and parameterize an encoder that Safety Integrated supports (encoder with track A/B sine-wave, p0404.4 = 1).		
	For fault value = 3:		
	- check whether the drive or drive commissioning function is active and if required, exit this (p0009 = p00010 = 0), save		
	the parameters (p0971 = 1) and carry out a POWER ON		
	For fault value = 4:		
	- check whether there is a DRIVE-CLiQ communication error between the Control Unit and the Sensor Module involved		
	and if required, carry out a diagnostics routine for the faults identified.		
	For fault value = 5:		
	- p9525 = 0 (not permissible). Check the encoder parameterization on the Sensor Modules involved.		
	For fault value = 6:		
	- check p9515.0 (for DRIVE-CLiQ encoders, the following applies: p9515.0 = 1). Check the encoder parameterization on the Sensor Modules involved.		
	For fault value = 8:		
	- use and parameterize an encoder that implements an algorithm supported by Safety Integrated.		
	Note:		
	SI: Safety Integrated		
F01671	SI Motion: Parameterization encoder error		
Message value:	%1		
-			
Drive object:	All objects		
Reaction:	OFF2		
Acknowledge:	IMMEDIATELY (POWER ON)		
Cause:	The parameterization of the encoder used by Safety Integrated is different to the parameterization of the standard encoder. Note:		
	This fault does not result in a safety stop response.		
	Fault value (r0949, interpret decimal):		
	Parameter number of the non-corresponding safety parameter.		
Remedy:	Align the encoder parameterization between the safety encoder and the standard encoder.		
-	Note:		
	SI: Safety Integrated		
F01672	SI P1 (CU): Motor Module software/hardware incompatible		
Message value:	%1		
-			
Drive object:	All objects		
Reaction:	OFF2		

Acknowledge: IMMEDIATELY (POWER ON)

13.2 List of faults and alarms

Note:

SI: Safety Integrated

Cause:	The existing monitoring channel 2 software does not support safe motion monitoring, is not compatible to the software on monitoring channel 1 - or there is a communications error between monitoring channels 1 and 2. Note:
	This fault results in a STOP A that cannot be acknowledged.
	Fault value (r0949, decimal interpretation):
	1:
	The existing monitoring channel 2 software does not support the safe motion monitoring function.
	2, 3, 6, 8:
	There is a communication error between monitoring channel 1 and 2.
	4, 5, 7:
	The software on monitoring channel 2 is not compatible with the software on monitoring channel 1.
Remedy:	- check whether there are faults in the safety function alignment between monitoring channel 1 and monitoring channel 2 (F01655, F30655) and if required, carry out diagnostics for the faults involved.
	For fault value = 1:
	- upgrade the drive software.
	For fault value = 2, 3, 6, 8:
	- check whether there are communication errors between monitoring channel 1 and monitoring channel 2 - and if required, carry out diagnostics for the faults involved.
	For fault value = 4, 5, 7:
	- upgrade the drive software.
	Note:
	SI: Safety Integrated
F01673	SI Motion: Sensor Module software/hardware incompatible
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The existing Sensor Module software and/or hardware does not support the safe motion monitoring function with the higher-
04450.	level control.
	Note:
	This fault does not result in a safety stop response.
	Fault value (r0949, interpret decimal):
	Only for internal Siemens troubleshooting.
Remedy:	- upgrade the Sensor Module software.
Romouy.	- use a Sensor Module that supports the safe motion monitoring function.

F01674	SI Motion P1 (CU): Safety function not supported by PROFIsafe telegram		
Message value:	%1		
Drive object:	All objects		
Reaction:	OFF2		
Acknowledge:	POWER ON		

Cause:	The monitoring function enabled in p9501 and p9601 is not supported by the currently set PROFIsafe telegram (p9611). Note:		
	This fault results in a STOP A that cannot be acknowledged.		
	Fault value (r0949, interpret bitwise binary):		
	Bit 18 = 1:		
	SS2E via PROFIsafe is not supported (p9501.18).		
	Bit 24 = 1:		
	Transfer SLS (SG) limit value via PROFIsafe not supported (p9501.24).		
	Bit 25 = 1:		
	Transfer safe position (SP) via PROFIsafe is not supported (p9501.25).		
	Bit 26 = 1:		
	Gearbox stage switchover via PROFIsafe is not supported (p9501.26).		
	Bit 28 = 1:		
	SCA via PROFIsafe is not supported (p9501.28).		
Remedy:	- Deselect the monitoring function involved (p9501, p9601).		
	- set the matching PROFIsafe telegram (p9611).		
	Note:		
	SCA: Safe Cam		
	SI: Safety Integrated		
	SLS: Safely Limited Speed SP: Safe Position		
	SF. Sale Position SS2E: Safe Stop 2 external (Safe Stop 2 with external stop, external STOP D)		
	332L. Sale $310p$ 2 external (Sale $310p$ 2 with external $310p$, external $310r$ D)		
F01675	SI Motion P1: settings in the PROFIBUS/PROFINET controller not permissible		
Message value:	%1		
Drive object:	All objects		
Reaction:	OFF2		
Acknowledge:	IMMEDIATELY (POWER ON)		
Cause:	For the "Safe synchronous position via PROFIsafe" function, an incorrect configuration setting was identified.		
	Note:		
	This fault results in a STOP A that can be acknowledged in the following way.		
	- select STO and then de-select again.		
	- internal event acknowledge (if the "Extended message acknowledgment" is active, p9507.0 = 1).		
	Fault value (r0949, decimal interpretation):		
	1: "Supply a point of a position via DROE labor" is analysis (p 0501.20 = 1) and is not act associating to the rule. The = 2 × p × p		
	"Synchronous safe position via PROFIsafe" is enabled (p9501.29 = 1) and is not set according to the rule Tdp = 2 x n x p9500 (n = 1, 2, 3,).		
	2:		
	"Synchronous safe position via PROFIsafe" is enabled (p9501.29 = 1) and isochronous operation is not set.		
	Note:		
	STO: Safe Torque Off		
Remedy:	STO: Safe Torque Off For fault value = 1:		
Remedy:			
Remedy:	For fault value = 1: - set Tdp and monitoring clock cycle p9500 according to the rule Tdp = 2 x n x p9500. (n = 1, 2, 3,) For fault value = 2:		
Remedy:	For fault value = 1: - set Tdp and monitoring clock cycle p9500 according to the rule Tdp = 2 x n x p9500. (n = 1, 2, 3,)		
	For fault value = 1: - set Tdp and monitoring clock cycle p9500 according to the rule Tdp = 2 x n x p9500. (n = 1, 2, 3,) For fault value = 2: - set "Isochronous mode" on the PROFIBUS/PROFINET controller.		
F01679	For fault value = 1: - set Tdp and monitoring clock cycle p9500 according to the rule Tdp = 2 x n x p9500. (n = 1, 2, 3,) For fault value = 2:		
F01679 Message value:	For fault value = 1: - set Tdp and monitoring clock cycle p9500 according to the rule Tdp = 2 x n x p9500. (n = 1, 2, 3,) For fault value = 2: - set "Isochronous mode" on the PROFIBUS/PROFINET controller. SI CU: Safety parameter settings and topology changed, warm restart/POWER ON required		
F01679	For fault value = 1: - set Tdp and monitoring clock cycle p9500 according to the rule Tdp = 2 x n x p9500. (n = 1, 2, 3,) For fault value = 2: - set "Isochronous mode" on the PROFIBUS/PROFINET controller.		

Drive object:All objectsReaction:OFF2 (OFF1, OFF3)Acknowledge:POWER ON

Faults	and	alarms

Cause:	Safety parameters have been changed; these will only take effect following a warm restart or POWER ON (see alarr A01693).		
	A partial power up (boot) with modified configuration was then performed.		
Remedy:	- carry out a warm restart		
	- carry out a POWER ON (switch-off/switch-on).		
F01680	SI Motion P1 (CU): Checksum error safety monitoring functions		
Message value:	%1		
Drive object:	All objects		
Reaction:	OFF2		
Acknowledge:	IMMEDIATELY (POWER ON)		
Cause:	The actual checksum over the safety-relevant parameters, calculated and entered by the drive, does not match the reference checksum last saved for the last machine acceptance.		
	Safety-relevant parameters have been changed or a fault is present.		
	Note:		
	This fault results in a STOP A that can be acknowledged.		
	Fault value (r0949, decimal interpretation):		
	0: Checksum error for SI parameters for motion monitoring.		
	1: Checksum error for SI parameters for actual values.		
	2: Checksum error for SI parameters for component assignment.		
Remedy:	- check the safety-relevant parameters and if required, correct.		
	- execute the function "Copy RAM to ROM".		
	- perform a POWER ON if safety parameters requiring a POWER ON have been modified.		
	- carry out an acceptance test.		
F01681	SI Motion P1 (CU): Incorrect parameter value		
Message value:	Parameter: %1, supplementary information: %2		
Drive object:	All objects		
Reaction:	OFF2		

Acknowledge: IMMEDIATELY (POWER ON)

The parameter cannot be parameterized with this value.

Note:

This message does not result in a safety stop response.

Fault value (r0949, interpret decimal):

yyyyxxxx dec: yyyy = supplementary information, xxxx = parameter

yyyy = 0:

No additional information available.

xxxx = 9501:

It is not permissible to enable the function "SSM hysteresis and filtering" (p9501.16) in conjunction with the function "Extended functions without selection" (p9601.5).

xxxx = 9501 and yyyy = 10:

Referencing via SCC (p9501.27 = 1) and epos (r0108.4 = 1) are simultaneously enabled.

xxxx = 9506 and yyyy = 1:

Parameter p9506 differs between the monitoring channels

xxxx = 9522:

The gear stage was set too high.

xxxx = 9547:

The hysteresis tolerance is not permissible.

xxxx = 9601 and yyyy = 1:

If motion monitoring functions integrated in the drive (p9601.2 = 1) and extended functions without selection (p9601.5 = 1) are enabled, then PROFIsafe (p9601.3 = 1) or onboard F-DI (p9601.4 = 1) is not possible.

xxxx = 9601 and yyyy = 2:

Extended functions without selection (p9601.5 = 1) are enabled without enabling motion monitoring functions integrated in the drive (p9601.2).

```
xxxx = 9601 and yyyy = 3:
```

Onboard F-DI are enabled without enabling motion monitoring functions integrated in the drive (p9601.2).

xxxx = 9601 and yyyy = 4:

Onboard F-DI are enabled. Then, it is not permissible to simultaneously set PROFIsafe and F-DI via PROFIsafe (p9501.30). xxxx = 9601 and yyyy = 5:

Transfer of the SLS limit value via PROFIsafe (p9501.24) has been enabled, without enabling PROFIsafe. xxxx = 9601 and yyyy = 6:

Transfer of the safe position via PROFIsafe (p9501.25) has been enabled, without enabling PROFIsafe.

```
xxxx = 9601 and yyyy = 7:
```

Safe switchover of the gearbox stages (p9501.26) has been enabled without enabling PROFIsafe.

```
xxxx = 9601 and yyyy = 11:
```

SS2E (p9501.18 = 1) is enabled without PROFIsafe being enabled.

xxxx = 9601 and yyyy = 12:

SCA (p9501.28 = 1) is enabled without enabling PROFIsafe.

xxxx = 9601 and yyyy = 13:

Extended functions (p9601.2 = 1) have been enabled without enabling PROFIsafe (p9601.3).

13.2 List of faults and alarms

Remedy:	Correct parameter (if required, also on another monitoring channel, p9801).
	lf xxxx = 9501:
	 de-select extended functions without selection (p9601.5).
	If $xxxx = 9501$ and $yyyy = 10$:
	De-select referencing via SCC (p9501.27).
	For xxxx = 9501 and yyyy = 11:
	De-select SS2E (p9501.18) - or enable PROFIsafe
	For xxxx = 9501 and yyyy = 12:
	De-select SCA (p9501.28).
	lf xxxx = 9507:
	Set synchronous motor.
	lf xxxx = 9506:
	Using the commissioning tool, copy the safety parameters, confirm the data change, backup the parameters and carry out a power on.
	lf xxxx = 9522:
	Correct the corresponding parameter.
	lf xxxx = 9547:
	With hysteresis/filtering enabled (p9501.16 = 1), the following applies:
	 set parameters p9546 and p9547 according to the following rule: p9547 <= 0.75 x p9546;
	- the following rule must also be adhered to when actual value synchronization (p9501.3 = 1) is enabled: p9547 >= p9549;
	lf xxxx = 9601:
	уууу = 1:
	Only enable motion monitoring functions integrated in the drive ($p9601.2 = 1$) and PROFIsafe ($p9601.3 = 1$). yvyy = 2:
	De-select Extended Functions without selection (p9601.5 = 0)
	yyyy = 3:
	De-select F-DI (p9601.4)
	yyyy = 4
	yyyy – 4. De-select onboard F-DI (p9601.4) and F-DI via PROFIsafe (p9501.30).
	yyyy = 5: To transfer the SLS limit values via PROFIsafe (p9501.24 = 1), also enable PROFIsafe (p9601.3 =1) and motion monitoring
	functions integrated in the drive (p9601.2 = 1).
	yyyy = 6:
	Deselect the transfer of the safe position via PROFIsafe (p9501.25 = 0)
	уууу = 7:
	Deselect the safe switchover of gearbox stages (p9501.26 = 1)
	уууу = 13:
	Also enable PROFIsafe (p9601.3) for the extended functions (p9601.2)
	Note:
	SSM: Safe Speed Monitor (safety-relevant feedback signal from the speed monitoring)

F01682 SI Motion P1 (CU): Monitoring function not supported

Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)

Cause:	The monitoring function enabled in p9501, p9601, p9507 is not supported in this firmware version. Note:
	This fault results in a STOP A that cannot be acknowledged.
	Fault value (r0949, interpret decimal):
	1: Monitoring function SLP not supported (p9501.1).
	2: Monitoring function SCA not supported (p9501.7 and p9501.8 15).
	3: Monitoring function SLS override not supported (p9501.5).
	4: Monitoring function external ESR activation not supported (p9501.4).
	5: Monitoring function F-DI in PROFIsafe not supported (p9501.30).
	6: Enable actual value synchronization not supported (p9501.3).
	9: Monitoring function not supported by the firmware or enable bit not used.
	11: Encoderless monitoring functions (p9506.1) only supported for motion monitoring integrated in the drive (p9601.2).
	20: Motion monitoring functions integrated in the drive are only supported in conjunction with PROFIsafe (p9501, p9601.1 2 and p9801.1 2).
	21: Enable a safe motion monitoring function (in p9501), not supported for enabled basic functions via PROFIsafe (p9601.2 = 0, p9601.3 = 1).
	26: Hysteresis and filtering for SSM monitoring function without an encoder not supported (p9501.16). 27: This hardware does not support onboard F-DI and F-DO.
	28: Encoderless monitoring functions are not supported for synchronous motors (p9507.2).
	33: Safety functions without selection not supported (p9601.5, p9801.5).
	34: This module does not support safe position via PROFIsafe.
	39: This module or software version of the CU/MM does not support safe gearbox stage switchover (p9501.26).
	43: Motion monitoring functions SLP and SP as well as PROFIsafe telegrams 31/901/902 not supported for D410-2 (p9501.1/24/25/30, p9611).
	44: This module/this software version does not support referencing via the safety control channel (p9501.27).
	45: Deactivating SOS/SLS during an external STOP A is not supported (p9501.23).
	46: This software version does not support control of the basis functions via TM54F and the simultaneous enable of the extended functions or ncSI.
	54: SCA function not supported (p9501.28).
	9612: An attempt was made to parameterize STOP B as stop response for PROFIsafe failure, although PROFIsafe is not enabled.
	See also: p9612
Remedy:	- de-select the monitoring functions involved (p9501, p9506, p9601, p9507). For fault value = 9612:
	- establish communications with PROFIsafe (p9601).
	- parameterize STOP A as the stop response for PROFIsafe failure (p9612 = 0).
	Note:
	ESR: Extended Stop and Retract
	SBR: Safe Brake Ramp (safe brake ramp monitoring)
	SCA: Safe Cam
	SDI: Safe Direction (safe motion direction)
	SI: Safety Integrated
	SLP: Safely Limited Position
	SLS: Safely Limited Speed
	SP: Safe Position
	SS1E: Safe Stop 1 External (Safe Stop 1 with external stop)
	SS2E: Safe Stop 2 external (Safe Stop 2 with external stop, external STOP D)
	SOS: Safe Operating Stop
	See also: p9501, p9601, p9612
F01683	SI Motion P1 (CU): SOS/SLS enable missing

SI Motion P1 (CU): SOS/SLS enable missing

Message value:

Drive object: All objects

_

Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The safety-relevant basic function "SOS/SLS" is not enabled in p9501 although other safety-relevant monitoring functions are enabled.
	Note:
	This fault does not result in a safety stop response.
Remedy:	Enable the function "SOS/SLS" (p9501.0) and carry out a POWER ON.
	Note:
	SI: Safety Integrated
	SLS: Safely Limited Speed
	SOS: Safe Operating Stop See also: p9501
F01684	SI Motion P1 (CU): Safely limited position limit values interchanged
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	For the function "Safely Limited Position" (SLP), a lower value is in p9534 than in p9535.
	Note:
	This fault does not result in a safety stop response.
	Fault value (r0949, interpret decimal): 1: Limit values SLP1 interchanged.
	2: Limit values SLP2 interchanged.
Remedy:	- correct the lower and upper limit values (p9535, p9534).
Remedy.	- carry out a POWER ON (switch-off/switch-on).
	Note:
	SI: Safety Integrated
	SLP: Safely Limited Position / SE: Safe software limit switches
F01685	SI Motion P1 (CU): Safely limited speed limit value too high
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The limit value for the function "Safely Limited Speed" (SLS) is greater than the speed that corresponds to an encoder limit frequency of 500 kHz.
	Note:
	This fault does not result in a safety stop response.
	Fault value (r0949, interpret decimal):
	Maximum permissible speed.
Remedy:	Correct the limit values for SLS and carry out a POWER ON.
	Note:
	SI: Safety Integrated SLS: Safely Limited Speed
	See also: p9531
F01686	SI Motion: Illegal parameterization cam position
Message value:	%1
Drive object:	All objects

Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	For dbSI:
	 at least one enabled "Safe cam" (SCA) is parameterized in p9536 or p9537 too close to the tolerance range around the modulo position: the minus position value of a cam must be greater than the lower modulo limit + cam tolerance (p9540) + position tolerance (p9542); the plus position value of a cam must be less than the modulo limit - can tolerance (p9540) - position tolerance (p9542). For a parameterized modulo position (p9505>0), the lower modulo limit = 0, the upper modulo limit = p9505.
	- the cam length of cam $x = p9536[x]-p9537[x]$ is less than the cam tolerance + the position tolerance (= p9540 + p9542).
	This also means that cams of the minus position value must be less than the plus position value.
	For ncSI:
	At least one enabled "Safety Cam" (SCA) is parameterized in p9536 or p9537 too close to the tolerance range around the modulo position.
	The following conditions must be complied with to assign cams to a cam track:
	- the cam length of cam x = p9536[x]-p9537[x] must be greater or equal to the cam tolerance + the position tolerance (= p9540 + p9542). This also means that for cams on a cam track, the minus position value must be less than the plus position value.
	- the distance between 2 cams x and y (minus position value[y] - plus position value[x] = p9537[y] - p9536[x]) on a cam track must be greater than or equal to the cam tolerance + position tolerance (= p9540 + p9542). Note:
	This fault does not result in a safety stop response.
	Fault value (r0949, interpret decimal):
	Number of the "Safe Cam" with an illegal position.
	See also: p9501
Remedy:	Correct the cam position and carry out a POWER ON.
	Note:
	SCA: Safe Cam / SN: Safe software cam
	SI: Safety Integrated
F01687	SI Motion: Illegal parameterization modulo value SCA (SN)
Message value:	-
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The parameterized modulo value for the "Safe Cam" (SCA) function is not a multiple of 360 000 mDegrees.
	Note:
Demedia	This fault does not result in a safety stop response.
Remedy:	Correct the modulo value for SCA and carry out a POWER ON.
Komody.	Note: SCA: Safe Cam / SN: Safe software cam
Nonouy.	Note:
i conocy.	Note: SCA: Safe Cam / SN: Safe software cam
	Note: SCA: Safe Cam / SN: Safe software cam SI: Safety Integrated See also: p9505
F01688	Note: SCA: Safe Cam / SN: Safe software cam SI: Safety Integrated
F01688 Message value:	Note: SCA: Safe Cam / SN: Safe software cam SI: Safety Integrated See also: p9505 SI Motion CU: Actual value synchronization not permissible
F01688 Message value: Drive object:	Note: SCA: Safe Cam / SN: Safe software cam SI: Safety Integrated See also: p9505 SI Motion CU: Actual value synchronization not permissible - All objects
F01688 Message value:	Note: SCA: Safe Cam / SN: Safe software cam SI: Safety Integrated See also: p9505 SI Motion CU: Actual value synchronization not permissible

13.2 List of faults and alarms

Cause:	- it is not permissible to enable actual value synchronization for a 1-encoder system.
	 - it is not permissible to simultaneously enable actual value synchronization and a monitoring function with absolute reference (SCA/SLP).
	- it is not permissible to simultaneously enable actual value synchronization and safe position via PROFIsafe.
	Note:
_	This fault results in a STOP A that cannot be acknowledged.
Remedy:	- Either select the "actual value synchronization" function or parameterize a 2-encoder system.
	- either deselect the function "actual value synchronization" or the monitoring functions with absolute reference (SCA/SLP) and carry out a POWER ON.
	- either deselect the "actual value synchronization" function or do not enable "Safe position via PROFIsafe".
	Note:
	SCA: Safe Cam / SN: Safe software cam
	SI: Safety Integrated
	SLP: Safely Limited Position / SE: Safe software limit switches SP: Safe Position
	See also: p9501
C01689	SI Motion: Axis re-configured
Message value:	Parameter: %1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	POWER ON
Cause:	The axis configuration was changed (e.g. changeover between linear axis and rotary axis).
	Parameter p0108.13 is internally set to the correct value.
	Note:
	This fault does not result in a safety stop response.
	Fault value (r0949, interpret decimal):
Romodur.	Parameter number of parameter that initiated the change.
Remedy:	The following should be carried out after the changeover: - exit the safety commissioning mode (p0010).
	- save all parameters
	- carry out a POWER ON.
	Once the drive has been switched on, safety message F01680 or F30680 indicates that the checksums have changed in the drive. The following must, therefore, be carried out:
	- activate safety commissioning mode again.
	- complete safety commissioning of the drive.
	- exit the safety commissioning mode (p0010).
	- save all parameters
	- carry out a POWER ON.
	Note:
	For the commissioning tool, the units are only consistently displayed after a project upload.
F01690	SI Motion: Data save problem for the NVRAM
Message value:	%1
Drive object:	All objects
Reaction:	NONE (OFF1, OFF2, OFF3)

Acknowledge:

POWER ON

Cause:	There is not sufficient memory space in the NVRAM on the drive to save parameters r9781 and r9782 (safety logbook). Note: This fault does not result in a safety stop response. Fault value (r0949, interpret decimal): 1: There is no longer any free memory space in the NVRAM.
Remedy:	For fault value = 1: - de-select functions that are not required and that take up memory space in the NVRAM. - contact Technical Support. Note: NVRAM: Non-Volatile Random Access Memory (non-volatile read and write memory)

A01691 (F)	SI Motion: Ti and To unsuitable for PN cycle
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The configured times for PROFINET communication are not permitted and the PN cycle is used as the actual value acquisition cycle for the safe movement monitoring functions:
	Isochronous PROFINET:
	The sum of Ti and To is too high for the selected PN cycle. The PN clock cycle should be at least 1 current controller cycle greater than the sum of Ti and To.
	No isochronous PROFINET:
	The PN clock cycle must be at least 4x the current controller clock cycle.
	Notice:
	If this alarm is not observed, then message C01711 or C30711 – with the value 1020 1021 – can sporadically occur.
Remedy:	Configure Ti and To low so that they are suitable for the PN cycle or increase the PN cycle time.
Reaction upon F:	NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY (POWER ON)

F01692	SI Motion P1 (CU): Parameter value not permitted for encoderless	
Message value:	Parameter: %1	
Drive object:	All objects	
Reaction:	OFF2	
Acknowledge:	IMMEDIATELY (POWER ON)	
Cause:	The parameter cannot be set to this value if encoderless motion monitoring functions have been selected in p9506. Note:	
	This fault does not result in a safety stop response.	
	Fault value (r0949, interpret decimal):	
	Parameter number with the incorrect value.	
	See also: p9501	
Remedy:	- correct the parameter specified in the fault value.	
	- if necessary, de-select encoderless motion monitoring functions (p9506).	
	See also: p9501	
A01693 (F)	SI P1 (CU): Safety parameter setting changed, warm restart/POWER ON required	
Message value:	%1	
Drive object:	All objects	
Reaction:	NONE	

Acknowledge: NONE

A01696 (F)	SI Motion: Test stop for the motion monitoring functions selected when booting
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon F:	NONE (OFF1, OFF2, OFF3)
	- carry out an acceptance test.
	- carry out a POWER ON (switch-off/switch-on).
	- save all parameters
	- confirm the hardware CRC on the drive.
	- start the copy function for the node identifier on the drive.
	Alternative steps:
	- carry out a POWER ON (switch-off/switch-on).
Nomeuy.	- execute "Acknowledge hardware replacement" and "Copy RAM to ROM".
Remedy:	Carry out the following steps using the commissioning tool:
	This message does not result in a safety stop response.
	acknowledged. An acceptance test must be subsequently performed. Note:
Cause:	A Sensor Module, which is used for safe motion monitoring functions, was replaced. The hardware replacement must be
Acknowledge:	NONE
Reaction:	NONE
Drive object:	All objects
Message value:	%1
A01695 (F)	SI Motion: Sensor Module was replaced
Acknowl. upon A:	NONE
Reaction upon A:	NONE
-	See also: r9590
Remedy:	A POWER ON must be carried out at the drive.
	This message can occur, if after an automatic firmware update, a POWER ON was not carried out (Alarm A01007).
	This message does not result in a safety stop response.
	Note:
Cause:	The firmware version of monitoring channel 2 is older than that of monitoring channel 1
Acknowledge:	IMMEDIATELY (POWER ON)
Reaction:	OFF2
Drive object:	All objects
Message value:	
F01694 (A)	SI Motion CU: firmware version monitoring channel 2 older than monitoring channel 1
Acknowi. upon F:	POWER ON
Acknowl. upon F:	POWER ON
Reaction upon F:	Before performing an acceptance test, a POWER ON must be carried out for all components. NONE (OFF1, OFF2, OFF3)
	Note: Refere performing an accordance test, a POWER ON must be carried out for all components
	- carry out a POWER ON (switch-off/switch-on) for all components.
Remedy:	- carry out a warm restart
	Parameter number of the safety parameter which has changed, necessitating a warm restart or POWER ON.
	Alarm value (r2124, interpret decimal):

Cause:	The forced checking procedure (test stop) for the safe motion monitoring functions is already selected when booting, which is not permissible.
	This is the reason that the test is only carried out again after first selecting the forced checking procedure.
	Note:
	This message does not result in a safety stop response.
Remedy:	De-select the forced checking procedure for the safe motion monitoring functions and then select again.
	Note:
	The signal source to select the forced checking procedure is set via binector input p9705.
	SI: Safety Integrated
Reaction upon F:	NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY (POWER ON)

A01697 (F)	SI Motion: Test stop for motion monitoring functions required
Message value:	
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The time set in p9559 for the forced checking procedure (test stop) for the safe motion monitoring functions has been exceeded. A new forced checking procedure is required.
	After the next time the forced checking procedure is selected, the message is withdrawn and the monitoring time is reserved. Note:
	- this message does not result in a safety stop response.
	- As the switch-off signal paths are not automatically checked during booting, an alarm is always issued once booting is complete.
	- the test must be performed within a defined, maximum time interval (p9559, maximum of 9000 hours) in order to comply with the requirements as laid down in the standards for timely fault detection and the conditions to calculate the failure rates of safety functions (PFH value). Operation beyond this maximum time period is permissible if it can be ensured that the forced checking procedure is performed before persons enter the hazardous area and who are depending on the safety functions correctly functioning.
	See also: p9559, r9765
Remedy:	Carry out the forced checking procedure of the safety motion monitoring functions.
	The signal source to select the forced checking procedure is set via binector input p9705.
	Note:
	SI: Safety Integrated
Reaction upon F:	NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY (POWER ON)

A01698 (F)	SI P1 (CU): Commissioning mode active
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The commissioning of the "Safety Integrated" function is selected.
	This message is withdrawn after the safety functions have been commissioned.
	Note:
	- this message does not result in a safety stop response.
	- in the safety commissioning mode, the "STO" function is internally selected.
	See also: p0010
Remedy:	Not necessary.
	Note:
	CU: Control Unit
	SI: Safety Integrated

13.2 List of faults and alarms

Reaction upon F:Servo: NONE (OFF1, OFF2, OFF3)Acknowl. upon F:IMMEDIATELY (POWER ON)

A01699 (F)	SI P1 (CU): Test stop for STO required
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The time set in p9659 for the forced checking procedure (test stop) for the "STO" function has been exceeded. A new forced checking procedure is required.
	After the next time the "STO" function is de-selected, the message is withdrawn and the monitoring time is reset. Note:
	- this message does not result in a safety stop response.
	- the test must be performed within a defined, maximum time interval (p9659) in order to comply with the requirements as laid down in the standards for timely fault detection and the conditions to calculate the failure rates of safety functions (PFF value). Operation beyond this maximum time period is permissible if it can be ensured that the forced checking procedure is performed before persons enter the hazardous area and who are depending on the safety functions correctly functioning.
	See also: p9659, r9660
Remedy:	Select STO and then de-select again.
	Note:
	CU: Control Unit
	SI: Safety Integrated
	STO: Safe Torque Off / SH: Safe standstill
Reaction upon F:	NONE (OFF1, OFF2, OFF3)
Acknowl, upon F:	IMMEDIATELY (POWER ON)

C01700	SI Motion P1 (CU): STOP A initiated
Message value:	-
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The drive is stopped via a STOP A (STO via the safety switch-off signal path of the first monitoring channel).
	Possible causes:
	- stop request from the second monitoring channel.
	- STO not active after a parameterized time (p9557) after test stop selection.
	- subsequent response to the message C01706 "SI Motion CU: SAM/SBR limit exceeded".
	- subsequent response to the message C01714 "SI Motion CU: Safely Limited Speed exceeded".
	- subsequent response to the message C01701 "SI Motion CU: STOP B initiated".
	- subsequent response to the message C01716 "SI Motion CU: tolerance for safe motion direction exceeded".

Remedy:

- remove the cause of the fault on the second monitoring channel.
 - carry out a diagnostics routine for message C01706.
 - carry out a diagnostics routine for message C01714.
 - carry out a diagnostics routine for message C01701.
 - carry out a diagnostics routine for message C01716.
 - check the value in p9557 (where available), increase the value if necessary, and carry out a POWER ON
 - check the switch-off signal path of monitoring channel 1 (check DRIVE-CLiQ communication if it has been implemented) replace drive.
 - replace drive.
 - This message can be acknowledged without a POWER ON as follows (safe acknowledgment):
 - PROFIsafe.
 - machine control panel.
 - Note:

SAM: Safe Acceleration Monitor (safe acceleration monitoring)

- SBR: Safe Brake Ramp (safe brake ramp monitoring)
- SI: Safety Integrated

C01701 SI Motion P1 (CU): STOP B initiated

Message value:	-
Drive object:	All objects
Reaction:	NONE (OFF3)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The drive is stopped via a STOP B (braking along the OFF3 deceleration ramp).
	As a result of this fault, after the time parameterized in p9556 has expired, or the speed threshold parameterized in p9560 has been undershot, message C01700 "STOP A initiated" is output.
	Possible causes:
	- stop request from the second monitoring channel.
	- subsequent response to the message C01714 "SI Motion CU: Safely Limited Speed exceeded".
	- subsequent response to the message C01711 "SI Motion CU: Defect in a monitoring channel".
	- subsequent response to the message C01707 "SI Motion CU: tolerance for safe operating stop exceeded".
	- subsequent response to the message C01716 "SI Motion CU: tolerance for safe motion direction exceeded".
Remedy:	- remove the cause of the fault on the second monitoring channel.
	- carry out a diagnostics routine for message C01714.
	- carry out a diagnostics routine for message C01711.
	- carry out a diagnostics routine for message C01707.
	- carry out a diagnostics routine for message C01716.
	This message can be acknowledged without a POWER ON as follows (safe acknowledgment):
	- PROFIsafe.
	- machine control panel.
	Note:
	SI: Safety Integrated

C01706 SI Motion P1 (CU): SAM/SBR limit exceeded

Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	Motion monitoring functions with SAM (p9506 = 0):
	- after initiating STOP B (SS1) or STOP C (SS2), the speed has exceeded the selected tolerance.
	Motion monitoring functions with SBR (p9506 = 2):
	- after initiating STOP B (SS1) or SLS changeover to the lower speed stage, the speed has exceeded the selected tolerance.
	The drive is shut down by the message C01700 "SI Motion: STOP A initiated".

Remedy:	Check the braking behavior and, if necessary, adapt the parameterization of the parameter settings of the "SAM" or the "SBR" function.
	This message can be acknowledged without a POWER ON as follows (safe acknowledgment): - PROFIsafe.
	- machine control panel.
	Note:
	SAM: Safe Acceleration Monitor (safe acceleration monitoring)
	SBR: Safe Brake Ramp (safe ramp monitoring)
	SI: Safety Integrated
	See also: p9548, p9581, p9582, p9583
C01707	SI Motion P1 (CU): Tolerance for safe operating stop exceeded
Message value:	- · · · · · · · · · · · · · · · · · · ·
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The actual position has distanced itself further from the target position than the standstill tolerance.
	The drive is shut down by the message C01701 "SI Motion: STOP B initiated".
Remedy:	- check whether safety faults are present and if required carry out the appropriate diagnostic routines for the particular faults.
	 check whether the standstill tolerance matches the accuracy and control dynamic performance of the axis. carry out a POWER ON.
	This message can be acknowledged without a POWER ON as follows (safe acknowledgment):
	- PROFIsafe.
	- machine control panel.
	Note:
	SI: Safety Integrated
	SOS: Safe Operating Stop
	See also: p9530
C01708	SI Motion P1 (CU): STOP C initiated
Message value:	
Drive object:	
Reaction:	All objects STOP2
Acknowledge:	
-	IMMEDIATELY (POWER ON)
Cause:	The drive is stopped via a STOP C (braking along the OFF3 deceleration ramp). "Safe Operating Stop" (SOS) is activated after the parameterized time has expired.
	Possible causes:
	- stop request from the higher-level control.
	- subsequent response to the message C01714 "SI Motion CU: Safely Limited Speed exceeded".
	- subsequent response to the message C01716 "SI Motion CU: tolerance for safe motion direction exceeded".
	See also: p9552
Remedy:	- remove the cause of the fault at the control.
•	- carry out a diagnostics routine for message C01714/C01716.
	This message can be acknowledged without a POWER ON as follows (safe acknowledgment):
	- PROFIsafe.
	- machine control panel.
	Note:
	SI: Safety Integrated
	SOS: Safe Operating Stop

C01709	SI Motion P1 (CU): STOP D initiated	
Message value:	-	
Drive object:	All objects	
Reaction:	NONE	
Acknowledge:	IMMEDIATELY (POWER ON)	
Cause:	The drive is stopped via a STOP D (braking along the path).	
	"Safe Operating Stop" (SOS) is activated after the parameterized time has expired.	
	Possible causes:	
	- stop request from the higher-level control.	
	- subsequent response to the message C01714 "SI Motion CU: Safely Limited Speed exceeded".	
	- subsequent response to the message C01716 "SI Motion CU: tolerance for safe motion direction exceeded".	
	See also: p9553	
Remedy:	- remove the cause of the fault at the control.	
	- carry out a diagnostics routine for message C01714/C01716.	
	This message can be acknowledged without a POWER ON as follows (safe acknowledgment):	
	- PROFIsafe.	
	- machine control panel.	
	Note:	
	SI: Safety Integrated	
	SOS: Safe Operating Stop	
C01710	SI Motion P1 (CU): STOP E initiated	
Message value:	-	
Drive object:	All objects	
Reaction:	NONE	
Acknowledge:	IMMEDIATELY (POWER ON)	
-		

The drive is stopped via a STOP E (retraction motion).

"Safe Operating Stop" (SOS) is activated after the parameterized time has expired.

- Possible causes: - stop request from the higher-level control.
- subsequent response to the message C01714 "SI Motion CU: Safely Limited Speed exceeded".
- subsequent response to the message C01715 "SI Motion CU: Safely Limited Position exceeded".
- subsequent response to the message C01716 "SI Motion CU: tolerance for safe motion direction exceeded".
- **Remedy:** remove the cause of the fault at the control.
 - carry out a diagnostics routine for message C01714/C01715/C01716.
 - This message can be acknowledged without a POWER ON as follows (safe acknowledgment):
 - Terminal Module 54F (TM54F).
 - onboard F-DI (only CU310-2).
 - PROFIsafe.

Cause:

- machine control panel.
- Note:
- SI: Safety Integrated
- SOS: Safe Operating Stop / SBH: Safe operating stop

C01711 SI Motion P1 (CU): Defect in a monitoring channel

Message value:%1Drive object:All objectsReaction:NONEAcknowledge:IMMEDIATELY (POWER ON)

13.2 List of faults and alarms

Cause: When cross-comparing the two monitoring channels, the drive detected a difference between the input data or results of the monitoring functions and initiated a STOP F. One of the monitoring functions no longer reliably functions - i.e. safe operation is no longer possible. If at least one monitoring function is active, then after the parameterized timer has expired, the message C01701 "SI Motion: STOP B initiated" is output. The message value that resulted in a STOP F is displayed in r9725. The following described message values involve the data cross-check between the two monitoring channels (safety functions integrated in the drive). The message values may also occur in the following cases if the cause that is explicitly mentioned does not apply: - For message values 3, 44 ... 57, 232 and 1-encoder system, differently set encoder parameters. - incorrect synchronization. Message value (r2124, interpret decimal): 0 to 999: number of the cross-compared data that resulted in this fault. Message values that are not subsequently listed are only for internal Siemens troubleshooting. 0: Stop request from the other monitoring channel. 1: Status image of monitoring functions SOS, SLS, SAM/SBR or SDI (result list 1) (r9710[0], r9710[1]). 2: Status image of monitoring function SSM (result list 2) (r9711[0], r9711[1]). 3: The position actual value differential (r9713[0/1]) between the two monitoring channels is greater than the tolerance in p9542. 4: Error when synchronizing the data cross-check between the two channels. 5: Function enable signals (p9501/p9301) Safety monitoring clock cycle too small (p9500/p9300). 6: Limit value for SLS1 (p9531[0]). 7: Limit value for SLS2 (p9531[1]). 8: Limit value for SLS3 (p9531[2]). 9: Limit value for SLS4 (p9531[3]). 10: Standstill tolerance (p9530). 31: Position tolerance (p9542/p9342) or (p9549/p9349) when actual value synchronization is enabled (p9501.3) 33: Time, speed switchover (p9551) 35: Delay time, STOP A (p9556). 36: Test time, STO (p9557). 37: Transition time, STOP C to SOS (p9552). 38: Transition time STOP D to SOS (p9553) 40: Stop response for SLS (p9561). 42: Shutdown speed STO (p9560). 43: Memory test, stop response (STOP A). 44 ... 57: General Possible cause 1 (during commissioning or parameter modification) The tolerance value for the monitoring function is not the same on the two monitoring channels. Possible cause 2 (during active operation) The limit values are based on the actual value (r9713[0/1]). If the safe actual values on the two monitoring channels do not match, the limit values, which have been set at a defined interval, will also be different (i.e. corresponding to message value 3). This can be ascertained by checking the safe actual positions. Permissible deviation between the two monitoring channels: p9542. 44: Position actual value (r9713[0/1]) + limit value SLS1 (p9531[0]) * safety monitoring clock cycle. 45: Position actual value (r9713[0/1]) + limit value SLS1 (p9531[0]) * safety monitoring clock cycle. 46: Position actual value (r9713[0/1]) + limit value SLS2 (p9531[1]) * safety monitoring clock cycle. 47: Position actual value (r9713[0/1]) + limit value SLS2 (p9531[1]) * safety monitoring clock cycle. 48: Position actual value (r9713[0/1]) + limit value SLS3 (p9531[2]) * safety monitoring clock cycle. 49: Position actual value (r9713[0/1]) - limit value SLS3 (p9531[2]) * safety monitoring clock cycle. 50: Position actual value (r9713[0/1]) + limit value SLS4 (p9531[3]) * safety monitoring clock cycle. 51: Position actual value (r9713[0/1]) - limit value SLS4 (p9531[3]) * safety monitoring clock cycle. 52: Standstill position + tolerance (p9530). 53: Standstill position - tolerance (p9530).

54: Position actual value (r9713[0/1]) + limit value of SSM (p9546) * safety monitoring clock cycle + tolerance (p9542).

55: Position actual value (r9713[0/1]) + limit value of SSM (p9546) * safety monitoring clock cycle.

56: Position actual value (r9713[0/1]) - limit value of SSM (p9546) * safety monitoring clock cycle.

57: Position actual value (r9713[0/1]) - limit value of SSM (p9546) * safety monitoring clock cycle - tolerance (p9542).

58: Actual stop request.

75: Velocity limit of SSM (p9546).

When the function "SSM: hysteresis and filtering" (p9501.16 = 1) is enabled, this message value is also output for a different hysteresis tolerance (p9547).

76: Stop response for SLS1 (p9563[0]).

77: Stop response for SLS2 (p9563[1]).

78: Stop response for SLS3 (p9563[2]).

79: Stop response for SLS4 (p9563[3]).

81: Velocity tolerance for SAM (p9548).

82: SGEs for SLS correction factor.

83: Acceptance test timer (p9558).

84: Transition time STOP F (p9555).

85: Transition time bus failure (p9580).

89: Encoder limit frequency.

230: Filter time constant for SSM.

231: Hysteresis tolerance for SSM.

232: Smoothed velocity actual value.

233: Limit value of SSM / safety monitoring clock cycle + hysteresis tolerance.

234: Limit value of SSM / safety monitoring clock cycle.

235: -Limit value of SSM / safety monitoring clock cycle.

236: -Limit value of SSM / safety monitoring clock cycle - hysteresis tolerance.

237: SGA SSM.

238: Speed limit value for SAM (p9568 or p9546).

239: Acceleration for SBR (p9581 and p9583).

240: Inverse value of acceleration for SBR (p9581 and p9583).

241: Deceleration time for SBR (p9582).

242: Encoderless safety (p9506).

243: Function configuration (p9507).

247: SDI tolerance (p9564).

248: SDI positive upper limit (7FFFFFF hex).

249: Position actual value (r9713[0/1]) - SDI tolerance (p9564).

250: Position actual value (r9713[0/1]) + SDI tolerance (p9564).

251: SDI negative lower limit (80000001 hex).

252: SDI stop response (p9566).

253: SDI delay time (p9565).

256: Status image of monitoring functions SOS, SLS, test stop, SBR, SDI (result list 1 ext) (r9710).

259: PROFIsafe telegram (p9611) is different between the monitoring channels.

261: Scaling factor for acceleration for SBR different.

262: Scaling factor for the inverse value of the acceleration for SBR different.

265: Status image of all change functions (results list 1) (r9710).

268: SLP delay time differs (p9577).

270: Screen form for SGE image: all functions, which are not supported/enabled for the actual parameterization (p9501, p9601 and p9506).

273: speed limit value for flattening the ramp for SAM/SBR different.

1000: Watchdog timer has expired. Too many signal changes have occurred at safety-relevant inputs.

1001: Initialization error of watchdog timer.

1005: STO already active for test stop selection.

1011: Acceptance test status between the monitoring channels differ.

1012: Plausibility violation of the actual value from the encoder.

1020: Cyc. communication failure between the monit. channels.

1021: Cyc. communication failure between the monit. channel and Sensor Module.

1022: Sign-of-life error for DRIVE-CLiQ encoders monitoring channel 1.

1023: Error in the effectiveness test in the DRIVE-CLiQ encoder

1032: Sign-of-life error for DRIVE-CLiQ encoders monitoring channel 2.

1033: Error when checking the offset between POS1 and POS2 for DRIVE-CLiQ encoder monitoring channel 1.

1034: Error checking offset between POS1 and POS2 for DRIVE-CLiQ encoder monitoring channel 2.

1035: offset between POS1 and POS2 for DRIVE-CLiQ encoder on one of the monitoring channels has changed since the last commissioning.

1039: Overflow when calculating the position.

5000 ... 5140:

PROFIsafe message values.

For these message values, the fail-safe control signals (fail-safe values) are transferred to the safety functions.

5000, 5014, 5023, 5024, 5030 ... 5032, 5042, 5043, 5052, 5053, 5068, 5072, 5073, 5082 ... 5087, 5090, 5091, 5122 ... 5125, 5132 ... 5135, 5140:

An internal software error has occurred (only for internal Siemens troubleshooting).

5012: Error when initializing the PROFIsafe driver.

5013: The result of the initialization is different for the two controllers.

5022: Error when evaluating F parameters. The values of the transferred F parameters do not match the expected values in the PROFIsafe driver.

5025: The result of the F parameterization is different for the two controllers.

5026: CRC error for the F parameters. The transferred CRC value of the F parameters does not match the value calculated in the PST.

5065: A communications error was identified when receiving the PROFIsafe telegram.

5066: A time monitoring error (timeout) was identified when receiving the PROFIsafe telegram. 6000 ... 6166:

PROFIsafe message values (PROFIsafe driver for PROFIBUS DP V1/V2 and PROFINET).

For these message values, the fail-safe control signals (fail-safe values) are transferred to the safety functions. If "Stop B after failure of the PROFISafe communication" (p9612) is parameterized, the transfer of the fail-safe value is delayed. The significance of the individual message values is described in safety fault F01611.

7000: Difference of the safe position is greater than the parameterized tolerance (p9542/p9342).

7002: Cycle counter for transferring the safe position is different in both monitoring channels.

See also: p9555, r9725

Remedy: For message value = 0:

- no error was identified in this monitoring channel. Observe the error message of the other monitoring channel (C30711) For message value = 3:

Commissioning phase:

- check encoder parameters, and if required, correct (p9516, p9517, p9518, p9520, p9521, p9522, p9526).

In operation:

- check the mechanical design and the encoder signals.

For message value = 232:

- increase the hysteresis tolerance (p9547). Possibly set the filtering higher (p9545).

For message value = 1 ... 999:

- if the message value is listed under cause: Check the cross-checked parameters to which the message value refers.

- copy the safety parameters.

- carry out a POWER ON (switch-off/switch-on) for all components.

- upgrade the drive software.

- correction of the encoder evaluation. The actual values differ as a result of mechanical faults (V belts, travel to a mechanical endstop, wear and window setting that is too narrow, encoder fault, ...).

For message value = 1001:

- carry out a POWER ON (switch-off/switch-on) for all components.

- upgrade the drive software.

For message value = 1005:

- check the conditions for deselecting STO.

For message value = 1007:

- check the PLC for the correct operating state (run state, basic program).

For message value = 1011:

- for diagnostics, refer to parameter (r9571).

For message value = 1012:

- upgrade the Sensor Module firmware to a more recent version.

- check encoder parameters to ensure that they are the same (p9515, p9519, p9523, p9524, p9525, p9529).

- to correctly copy the encoder parameters from p04xx, p9700 must be set = 46 and p9701 = 172.

- for DQI encoders the following applies: If required, upgrade the firmware version of the Control Unit to a more recent version, which is released for DQI encoders.

- check the electrical cabinet design and cable routing for EMC compliance

- carry out a POWER ON (power off/on) for all components or a warm restart (p0009 = 30, p0976 = 2, 3).

- replace the hardware.

For message value = 1020, 1021:

- check the communication link.

- carry out a POWER ON (power off/on) for all components or a warm restart (p0009 = 30, p0976 = 2, 3).

- replace the hardware.

For message value = 1033, 1034:

- if required, upgrade the firmware version of the Control Unit to a more recent version, which is released for DQI encoders. For message value = 1035, if one of the safety encoders was replaced:

- acknowledge hardware replacement.

- save all parameters

- acknowledge fault (e.g. BI: p2103).

For message value = 1039:

- check the conversion factors such as spindle pitch or gearbox ratios.

For message value = 5000, 5014, 5023, 5024, 5030, 5031, 5032, 5042, 5043, 5052, 5053, 5068, 5072, 5073, 5082 ... 5087, 5090, 5091, 5122 ... 5125, 5132 ... 5135, 5140:

- carry out a POWER ON (switch-off/switch-on) for all components.

- upgrade firmware to later version.

- contact Technical Support.

- replace drive.

For message value = 5012:

- check the setting of the PROFIsafe address of the drive (p9610). It is not permissible for the PROFIsafe address to be 0 or FFFF!

- using the commissioning tool, copy the safety parameters and confirm the data change.

- carry out a POWER ON (switch-off/switch-on) for all components.

For message value = 5013, 5025:

- carry out a POWER ON (switch-off/switch-on) for all components.

- check the setting of the PROFIsafe address of the drive (p9610).

For message value = 5022:

- check the setting of the values of the F parameters at the PROFIsafe slave (F_SIL, F_CRC_Length, F_Par_Version, F_Source_Add, F_Dest_add, F_WD_Time).

For message value = 5026:

- check the settings of the values of the F parameters and the F parameter CRC (CRC1) calculated from these at the PROFIsafe slave and update.

For message value = 5065:

- check the configuration and communication at the PROFIsafe slave (cons. No. / CRC).

- check the setting of the value for F parameter F_WD_Time on the PROFIsafe slave and increase if necessary.

For message value = 5066:

- check the setting of the value for F parameter F_WD_Time on the PROFIsafe slave and increase if necessary.

- evaluate diagnostic information in the F host.

- check PROFIsafe connection.

For message value = 6000 ... 6999:

Refer to the description of the message values in safety fault F01611.

For message value = 7000:

- increase the parameterized tolerance (p9542).

- determine the actual position of CU (r9713[0] and the second channel r9713[1], and check the difference for plausibility. For message value = 7002:

- carry out a POWER ON (switch-off/switch-on) for all components.

This message can be acknowledged without a POWER ON as follows (safe acknowledgment):

- PROFIsafe.

- machine control panel.

C01712 SI Motion P1 (CU): Defect in F-IO processing

 Message value:
 %1

 Drive object:
 All objects

 Reaction:
 NONE

 Acknowledge:
 IMMEDIATELY (POWER ON)

Cause:

When cross checking and comparing the two monitoring channels, the drive detected a difference between parameters or results of the F-IO processing and initiated a STOP F. One of the monitoring functions no longer reliably functions - i.e. safe operation is no longer possible.

The safety message C01711 with message value 0 is also displayed due to initiation of STOP F.

If at least one monitoring function is active, the safety message C01701 "SI Motion: STOP B initiated" is output after the parameterized timer has expired.

Message value (r9749, interpret decimal):

Number of the cross-compared data that resulted in this message.

- 1: SI discrepancy monitoring time inputs (p10002, p10102).
- 2: SI acknowledgment internal event input terminal (p10006, p10106).

3: SI STO input terminal (p10022, p10122).

- 4: SI SS1 input terminal (p10023, p10123).
- 5: SI SS2 input terminal (p10024, p10124).
- 6: SI SOS input terminal (p10025, p10125).
- 7: SI SLS input terminal (p10026, p10126).
- 8: SI SLS_Limit(1) input terminal (p10027, p10127).
- 9: SI SLS_Limit(2) input terminal (p10028, p10128).
- 10: SI Safe State signal selection (p10039, p10139).

11 SI F-DI input mode (p10040, p10140).

12: SI F-DO 0 signal sources (p10042, p10142).

13: Different states for static inactive signal sources (p10006, p10022 ... p10031).

14: SI discrepancy monitoring time outputs (p10002, p10102).

15: SI acknowledgment internal event (p10006, p10106).

16: SI test sensor feedback signal test mode selected for test stop (p10046, p10146, p10047, p10147).

17: SI delay time for test stop at DOs (p10001).

18 ... 25: SI test sensor feedback signal (p10046, p10146, p10047, p10147). Expected state of internal readback signal, generated from the selected test stop mode.

26 ... 33: SI test sensor feedback signal (p10046, p10146, p10047, p10147). Expected state of external readback signal, generated from the selected test stop mode.

34 ... 41: SI test sensor feedback signal (p10046, p10146, p10047, p10147). Expected state of second internal readback signal, generated from the selected test stop mode.

42: Internal data for processing the second internal readback signal, generated from the selected test stop mode (p10047, p10147).

- 43: Internal data for processing the internal readback signal, generated from the selected test stop mode (p10047, p10147).
- 44: Internal data for processing the external readback signal, generated from the selected test stop mode (p10047, p10147).

45: Internal data for initialization state of test stop mode, dependent upon test stop parameters.

- 46: SI digital inputs debounce time (p10017, p10117)
- 47: Selection F-DI for PROFIsafe (p10050, p10150)
- 48: Screen form of the F-DIs used (p10006, p10022 ... p10031).
- 49: SI SDI positive input terminal (p10030, p10130).
- 50: SI SDI negative input terminal (p10031, p10131).
- 51: SI SLP input terminal (p10032, p10132).
- 52: SI SLP select input terminal (p10033, p10133).
- 53: Internal data for retraction logic (p10009, p100109).
- 54: SI F-DI for retraction SLP (p10009, p100109).

Remedy:

- check parameterization in the parameters involved and correct if required.
 - ensure equality by copying the SI data to the second channel and then carry out an acceptance test.
 - check monitoring clock cycle in p9500 and p9300 for equality.

This message can be acknowledged without a POWER ON as follows (safe acknowledgment):

- onboard F-DI (only CU310-2).
- PROFIsafe.
- machine control panel.

13.2 List of faults and alarms

C01714	SI Motion P1 (CU): Safely Limited Speed exceeded
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The drive has moved faster than that specified by the velocity limit value (p9531). The drive is stopped as a result of the configured stop response (p9563).
	Message value (r2124, interpret decimal):
	100: SLS1 exceeded.
	200: SLS2 exceeded.
	300: SLS3 exceeded.
	400: SLS4 exceeded.
	1000: Encoder limit frequency exceeded.
Remedy:	- check the traversing/motion program in the control.
	- check limits for SLS and if required adapt accordingly (p9531).
	This message can be acknowledged without a POWER ON as follows (safe acknowledgment):
	- PROFIsafe.
	- machine control panel.
	Note:
	SI: Safety Integrated
	SLS: Safely Limited Speed
	See also: p9531, p9563
<u></u>	SI Metion D1 (CIII): Safely Limited Depition exceeded
C01715	SI Motion P1 (CU): Safely Limited Position exceeded
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The axis has moved past a parameterized position that is monitored by the "SLP" function.
	Message value (r9749, interpret decimal):
	10: SLP1 violated.
	20: SLP2 violated.
Remedy:	- check the traversing/motion program in the control.
	- check the limits for "SLP" function and if required, adapt (p9534, p9535).
	This message can be acknowledged without a POWER ON as follows (safe acknowledgment):
	Prerequisite:
	- deselect "SLP" function and retract the axis into the permitted position range.
	Carry out a safe acknowledgment using one of the following options:
	- Terminal Module 54F (TM54F).
	- onboard F-DI (only CU310-2).
	- PROFIsafe.
	- machine control panel.
	Note:
	SI: Safety Integrated
	SLP: Safely Limited Position / SE: Safe software limit switches

C01716 SI Motion P1 (CU): Tolerance for safe motion direction exceeded

Message value:%1Drive object:All objectsReaction:NONE

Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The tolerance for the "safe motion direction" function was exceeded. The drive is stopped as a result of the configured stop response (p9566).
	Message value (r2124, interpret decimal):
	0: Tolerance for the "safe motion direction positive" function exceeded.
	1: Tolerance for the "safe motion direction negative" function exceeded.
Remedy:	- check the traversing/motion program in the control.
	- check the tolerance for "SDI" function and if required, adapt (p9564).
	This message can be acknowledged without a POWER ON as follows (safe acknowledgment):
	Prerequisite:
	- deselect the "SDI" function and if required select again.
	Carry out a safe acknowledgment using one of the following options: - PROFIsafe.
	- machine control panel.
	Note:
	SDI: Safe Direction (safe motion direction)
	SI: Safety Integrated
	See also: p9564, p9565, p9566
C01717	SI Motion P1 (CU): SLA limit exceeded
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The acceleration limit for the "Safely limited acceleration" function was exceeded. The drive is stopped as a result of the configured stop response (p9579).
Remedy:	- check the traversing/motion program in the control.
	- check the acceleration limit for the "SLA" function and if required, adapt (p9578).
	- carry out a safe acknowledgment.
	Note:
	SI: Safety Integrated
	SLA: Safely-Limited Acceleration
C01730	SI Motion P1 (CU): Reference block for dynamic safely limited speed invalid
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The reference block transferred via PROFIsafe is negative.
	A reference block is used to generate a referred velocity limit value based on the reference quantity "Velocity limit value SLS1" (p9531[0]).
	The drive is stopped as a result of the configured stop response (p9563[0]).
	Message value (r2124, interpret decimal):
	requested, invalid reference block.
Remedy:	In the PROFIsafe telegram, input data S_SLS_LIMIT_IST must be corrected.
	This message can be acknowledged without a POWER ON as follows (safe acknowledgment): - PROFIsafe.
	Note:

Note:

SI: Safety Integrated SLS: Safely Limited Speed

C01745	SI Motion P1 (CU): Checking braking torque for the brake test
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	POWER ON (IMMEDIATELY)
Cause:	The scaling of the brake torque for the brake test can be changed using parameter p2003.
	An acceptance test must be carried out again for the braking test. This determines whether the braking test is still carried out with the correct braking torque.
Remedy:	- carry out a POWER ON (switch-off/switch-on) for all components.
	- repeat the acceptance test for the safe brake test if the brake test is used.
	See also: p2003
C01750	SI Motion P1 (CU): Hardware fault safety-relevant encoder
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The encoder that is used for the safety-relevant motion monitoring functions signals a hardware fault.
	Message value (r2124, interpret decimal):
Domodu //	Encoder status word 1, encoder status word 2 that resulted in the message.
Remedy:	- check the encoder connection. - replace encoder.
	This message can be acknowledged without a POWER ON as follows (safe acknowledgment):
	- PROFIsafe.
	- machine control panel.
 C01751	SI Motion P1 (CU): Effectivity test fault safety-relevant encoder
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The DRIVE-CLIQ encoder for safe motion monitoring signals an error for the effectivity tests.
04450.	Message value (r2124, interpret decimal):
	Only for internal Siemens troubleshooting.
Remedy:	- check the encoder connection.
	- replace encoder.
	This message can be acknowledged without a POWER ON as follows (safe acknowledgment):
	- PROFIsafe.
	- machine control panel.
 C01752	SI Motion P1 (CU): reference position invalid
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The transferred reference position is invalid.
	Message value (r9749, interpret decimal):
	1: It is not possible to directly transfer the reference position (p9573=89).
	· · · · · · · · · · · · · · · · · · ·

Remedy:	 unpark axis/encoder. acknowledge encoder fault deactivate gearbox stage switchover. when referencing via the Safety Control Channel (SCC), enable the function "Referencing via SCC" (p9501.27/9301.27). This message can be acknowledged as follows: motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe
A01780	SBT When selected, the brake is closed
Message value:	Following brakes are closed: %1 bin
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	When selecting the brake test or starting the brake test, the brake was not open.
	Alarm value (r2124, interpret binary):
	Bit 0 = 1:
	The internal brake is closed.
	Note:
	The alarm is also issued if a brake has not been configured in p10202.
	SBT: Safe Brake Test
Bomodu <i>i</i>	See also: p10202
Remedy:	Open the brake and reselect the brake test.
A01781	SBT brake opening time exceeded
Message value:	Fault cause: %1 bin
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The maximum time (11 s) to open the brake during the brake test was exceeded.
	Possible causes:
	- during the brake test the drive went into a fault condition, and therefore the brake was closed by the drive.
	Alarm value (r2124, interpret binary):
	Bit 0 = 1:
	Internal brake was not able to be opened.
	Note: SBT: Safe Brake Test
Remedy:	
Remedy:	- carry out a safe acknowledgment. - restart the brake test.
A01782	SBT brake test incorrect control
Message value:	Fault cause: %1 bin
Drive object:	All objects
Reaction:	NONE

NONE

Acknowledge:

A01784	SBT brake test canceled with fault
	- restart the brake test.
	- carry out a safe acknowledgment.
Remedy:	- when using an internal brake with external feedback signal, check whether the feedback signal is correctly interconnected with the extended brake control.
	SBT: Safe Brake Test
	Note:
	The brake was not able to be closed.
	Bit 0 = 1:
	Alarm value (r2124, interpret binary):
Cause:	The maximum time (11 s) to close the brake during the brake test was exceeded.
Acknowledge:	NONE
Reaction:	NONE
Drive object:	All objects
Message value:	Fault cause: %1 bin
A01783	SBT brake closing time exceeded
	- if required, restart the brake test.
	- carry out a safe acknowledgment.
	- check as to whether alarm A01785 is present, and if so, evaluate.
Remedy:	- check parameterization of the brake test (p10202).
	See also: p10202
	SBT: Safe Brake Test
	Note:
	There is a brake test configuration error. In this case, alarm A01785 is also output.
	The brake is not configured in configured p10202.
	Bit 2:
	The safe brake test was canceled by resetting the brake test start.
	Bit 1:
	The safe brake test was canceled by resetting the brake test selection.
	Bit 0:
	The brake test was canceled as a result of a fault (brake opening time or brake closing time exceeded).
	Alarm value (r2124, evaluate binary): Alarm value 0:
	Alarm value (r2121 avaluate hiner)

ODT DIAKE lest canceled with lau
Fault cause: %1
All objects
NONE
NONE

Cause:	The safe brake test was canceled as a result of a fault.
	Alarm value (r2124, interpret binary):
	Bit $17 = 1$: fault in the brake test sequence (cause, see bits 0 10).
	Bit 20 = 1: the brake is not opened (p10202).
	Bit 21 = 1: axis position during the brake test not valid due to parking axis.
	Bit 22 = 1: internal software error.
	Bit 23 = 1: the permissible position range of the axis was violated with the brake closed (p10212/p10222).
	Bit 24 = 1: the tested internal brake was opened while the brake test was active.
	Bit 26 = 1: during the active brake test, the test torque left its tolerance bandwidth (20 %). Cause for alarm value bit 17:
	Bit 1 = 1: external fault occurred (e.g. the brake test that has already started is canceled by the user).
	Bit 2 = 1: when selecting the brake test a brake is closed.
	Bit 3 = 1: when determining the load torque a brake is closed.
	Bit 4 = 1: a fault with a stop response has occurred (e.g. OFF1, OFF2 or OFF3) - or pulse enable was withdrawn (e.g. STO selected or operation no longer enabled).
	Bit 5 = 1: when selecting the brake test the axis speed setpoint is too high.
	Bit 6 = 1: the actual speed (r0063) of the axis is too high (e.g. brake does not hold during the brake test).
	Bit 8 = 1: closed-loop control not enabled or function generator active.
	Bit 9 = 1: control does not switch over to the brake test (e.g. because PI speed control has not been parameterized).
	Bit 10 = 1: torque limit reached (r1407.7, r1408.8).
	Note:
	SBT: Safe Brake Test
Remedy:	- remove the fault cause.
	- carry out a safe acknowledgment.
	- if required, restart the brake test.
	For bit 17 = 1 with bit 6 = 1 or bit 23 = 1:
	If the brake closing time of the motor holding brake (p1217) has been set too low, then at the start of the brake test, the brake is closed too late. The brake closing time should be adapted (p1217).
A01785	SBT brake test configuration error
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Error when parameterizing the brake test.
	In this configuration, the brake test cannot be started or cannot be started without error.
	Alarm value (r2124, interpret decimal):
	1:
	No motion monitoring functions have been enabled.

4:

No brake was configured (p10202).

8:

The brake test is configured for an internal brake, however the safety brake control is not enabled (p9602).

16:

The safe brake test and Safety without encoder are simultaneously enabled (p9306/p9506). This is not permissible. Note:

SBT: Safe Brake Test

Remedy: Check parameterization of the brake test.

F01786	SCC signal source changed
Message value:	
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The signal source in p10235 or p10250 was changed.
	The new signal source is effective immediately.
	Note:
	SCC: Safety Control Channel
Remedy:	Acknowledge fault.
F01787	SBT motor type different
Message value:	-
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The motor type set for the safe brake test (p10204) does not match the motor type set via the function module (r0108.12).
Remedy:	Adapt the motor type set for the safe brake test.
	Note:
	All of the parameters for the brake test, whose unit depends on the motor type, should be checked.
	See also: p10209
A01788	SI: Automatic test stop waits for STO deselection via motion monitoring functions
Message value:	
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The automatic test stop (forced checking procedure) was not able to be carried out after powering up.
	Possible causes:
	- the STO function is selected via safe motion monitoring functions.
	- a safety message is present, that resulted in a STO. Note:
	STO: Safe Torque Off
Remedy:	- deselect STO via safe motion monitoring functions.
rtemedy.	- remove the cause of the safety messages and acknowledge the messages.
	Note:
	The automatic test stop is performed after removing the cause.
 A01789	SI: Automatic test stop and brake test when test stop is selected not permitted
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The parameterization of the automatic test stop (p9507.6/p9307.6) and the brake test when a test stop is selected (p10203 = 2) are not permissible.
	The test stop is not automatically carried out when the powering up.
Remedy:	- correct the parameter assignment.
. contody.	- set p10203 not equal to 2 or deactivate the automatic test stop.
	Note:

A01794 (N)	SI Motion: check modulo value for safe position via PROFIsafe
Message value:	· ·
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	When parameterizing the modulo value for safe position via PROFIsafe (p9505) the position actual value can jump when the range that can be represented overflows.
	Range that can be represented:
	- 32-bit value: +/- 2048 revolutions
	- 16-bit value: +/- 2048 revolutions (depending on p9574)
Remedy:	Correct the parameter assignment.
	Set p9505 to 2^n revolutions - and to complete revolutions (i.e. a multiple of 360 °). Note:
	This alarm can be hidden for the case that the possible position actual value jump can be tolerated for the particular application, or does not represent a problem; for example because the parameterized modulo range fits "almost as intege number" in the range of +/- 2048 revolutions that can be represented.
	To re-parameterize the alarm to "NO REPORT", it is not permissible that the alarm is present. As a consequence, the following sequence is required for the re-parameterization:
	- correct p9505 to "2^n".
	- re-parameterize the alarm using p2118 and p2119.
	- set p9505 back to the required value.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A01795	SI Motion P1 (CU): Wait time after exiting the safe pulse cancellation expired
Message value:	
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	After exiting safe pulse cancellation, within the wait time of 5 seconds, encoderless actual value sensing was not able to be activated for the extended functions without selection.
	A change is again made into the "safe pulse cancellation" state.
Remedy:	- check missing enable signals, which prevent the drive control from being commissioned (r0046).
	- evaluate possible fault messages of the encoderless actual value sensing and remove.
	SI P1 (CU): Wait for communication
Message value:	%1
Drive object:	All objects
Drive Object.	-
-	NONE
Reaction:	NONE
-	NONE The drive waits for communication to be established to execute the safety-relevant motion monitoring functions.
Reaction: Acknowledge:	NONE

Alarm value (r2124, interpret decimal):

3: Wait for communication to be established to PROFIsafe F-Host.

Reaction upon F: Acknowl. upon F: Reaction upon N: Acknowl. upon N:	NONE
C01797	SI Motion P1 (CU): Axis not safely referenced
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The standstill position saved before switching off does not match the actual position determined at switch-on. Message value (r9749, interpret decimal):
	1: Axis not safely referenced.
Remedy:	2: User agreement missing.If safe automatic referencing is not possible the user must issue a user agreement for the new position using the softkey.This mean that this position is then designated as safety-relevant.
	Note: SI: Safety Integrated
C01798	SI Motion P1 (CU): Test stop for motion monitoring functions running
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The forced checking procedure (test stop) for the safe motion monitoring functions is currently in progress.
Remedy:	Not necessary.
	The message is automatically withdrawn when the test stop has been completed.
	Note: SI: Safety Integrated
C01799	SI Motion P1 (CU): Acceptance test mode active
Message value:	-
Drive object:	All objects
•	NONE
Reaction:	
-	IMMEDIATELY (POWER ON)
Reaction:	The acceptance test mode is active. This means the following:
Reaction: Acknowledge:	The acceptance test mode is active.

operation. The cause may be an CLiQ cable was withdrawn from the only be acknowledged in cyclic n cyclic communication.
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been incremented.
Jeen incremented.
n of the Control Unit is faulted.
sfer error has occurred.
5

Cause:

13.2 List of faults and alarms

Cause:	An Smi/DQI without motor data has been found (e.g. Smi installed as replacement part).
	Alarm value (r2124, interpret decimal):
	Component number from target topology.
Remedy:	1. Download the SMI/DQI data (motor/encoder data) from the data backup again (p4690, p4691).
	2. Carry out a POWER ON (switch-off/switch-on) for this component.
	Note:
	DQI: DRIVE-CLiQ Sensor Integrated
	SMI: SINAMICS Sensor Module Integrated
A01900 (F)	PB/PN: Configuration telegram error
Message value:	%1
Drive object:	All objects
•	
Reaction:	NONE
Acknowledge:	NONE
Cause:	A controller attempts to establish a connection using an incorrect configuring telegram.
	Alarm value (r2124, interpret decimal):
	1:
	Connection established to more drive objects than configured in the device. The drive objects for process data exchange
	and their sequence are defined in p0978.
	2:
	Too many PZD data words for output or input to a drive object. The number of possible PZD items in a drive object is
	determined by the number of indices in r2050/p2051.
	3:
	Uneven number of bytes for input or output.
	4:
	Setting data for synchronization not accepted. For more information, see A01902.
	Unknown parameterizing block.
	Clock synchronization for the PZD interface set in p8815[0] is not permissible.
	More than one PZD interface is operated in clock synchronism.
	253:
	PN Shared Device: Illegal mixed configuration of PROFIsafe and PZD.
	254:
	PN Shared Device: Illegal double assignment of a slot/subslot.
	255:
	PN: Configured drive object and existing drive object do not match.
	256:
	PN: configured telegram cannot be set.
	500:
	Illegal PROFIsafe configuration for the interface set in p8815[1].
	More than one PZD interface is operated with PROFIsafe.
	501:
	PROFIsafe parameter error (e.g. F_dest).
	502:
	PROFIsafe telegram does not match.
	503:
	PROFIsafe connection is rejected as long as there is no isochronous connection (p8969).
	Additional values:
	Only for internal Siemens troubleshooting.

An SMI/DQI without motor data has been found (e.g. SMI installed as replacement part).

Remedy:	Check the bus configuration on the master and the slave sides.		
	For alarm value = 1, 2:		
	- check the list of the drive objects with process data exchange (p0978).		
	Note:		
	With p0978[x] = 0, all of the following drive objects in the list are excluded from the process data exchange.		
	For alarm value = 2:		
	 check the number of data words for output and input to a drive object. 		
	For alarm value = 211:		
	- Ensure offline version <= online version.		
	For alarm value = 223, 500:		
	- check the setting in p8839 and p8815.		
	- check for inserted but not configured CBE20.		
	- ensure that only one PZD interface is operated in clock synchronism or with PROFIsafe.		
	For alarm value = 255:		
	- check configured drive objects.		
	For alarm value = 256:		
	- check the configured telegram.		
	For alarm value = 501:		
	- check the set PROFIsafe address (p9610).		
	For alarm value = 502:		
	- check the set PROFIsafe telegram (p60022, p9611).		
Reaction upon F:	NONE (OFF1)		
Acknowl. upon F: IMMEDIATELY			
A01902	PB/PN: clock cycle synchronous operation parameterization not permissible		
Message value:	%1		
Drive object:	All objects		
Reaction:	NONE		
Acknowledge:	NONE		
Cause:	Parameterization for isochronous operation is not permissible.		
	Alarm value (r2124, interpret decimal):		
	0: Bus cycle time Tdp < 0.5 ms.		
	1: Bus cycle time Tdp > 32 ms.		
	2: Bus cycle time Tdp is not an integer multiple of the current controller sampling time.		
	3: Instant of the actual value sensing Ti > Bus cycle time Tdp or Ti = 0.		
	4: Instant of the actual value sensing Ti is not an integer multiple of the current controller sampling time.		

5: Instant of the setpoint acceptance To >= Bus cycle time Tdp or To = 0.

6: Instant of the setpoint acceptance To is not an integer multiple of the current controller sampling time.

7: Master application cycle time Tmapc is not an integer multiple of the speed controller sampling time.

8: Bus reserve bus cycle time Tdp - data exchange time Tdx less than two current controller sampling times.

10: Instant of the setpoint acceptance To <= data exchange time Tdx + current controller sampling time

11: Master application cycle time Tmapc > $14 \times Tdp$ or Tmapc = 0.

12: PLL tolerance window Tpll_w > Tpll_w_max.

13: Bus cycle time Tdp is not a multiple of all basic clock cycles p0110[x].

16: For COMM BOARD, the instant in time for the actual value sensing Ti is less than two current controller sampling times.

Remedy:

- Adapt the bus parameterization Tdp, Ti, To.

adapt the sampling time for the current controller or speed controller.
For alarm value = 10:
reduce Tdx by using fewer bus participants or shorter telegrams.
Note:
PB: PROFIBUS
PN: PROFINET

F01911 (N, A) PB/PN: clock cycle synchronous operation clock cycle failure

Message value:	-
Drive object:	All objects
Reaction:	Servo: OFF1 (OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The global control telegram to synchronize the clock cycles has failed - in cyclic operation - for several DP clock cycles or has violated the time grid specified in the parameterizing telegram over several consecutive DP clock cycles (refer to the bus cycle time, Tdp and Tpllw).
Remedy:	 - check the physical bus configuration (cable, connector, terminating resistor, shielding, etc.). - check whether communication was briefly or permanently interrupted. - check the bus and controller for utilization level (e.g. bus cycle time Tdp was set too short). PB: PROFIBUS PN: PROFINET
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F01912 (N, A) PB/PN: clock cycle synchronous operation sign-of-life failure

Message value:	-
Drive object:	All objects
Reaction:	Servo: OFF1 (OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The maximum permissible number of errors in the controller sign-of-life (clock synchronous operation) has been exceeded in cyclic operation.
Remedy:	- physically check the bus (cables, connectors, terminating resistor, shielding, etc.).
	- correct the interconnection of the controller sign-of-life (p2045).
	- check whether the controller correctly sends the sign-of-life (e.g. create a trace with STW2.12 STW2.15 and trigger signal ZSW1.3).
	- check the permissible telegram failure rate (p0925).
	- check the bus and controller for utilization level (e.g. bus cycle time Tdp was set too short).
	Note:
	PB: PROFIBUS
	PN: PROFINET
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F01915 (N, A) PB/PN: clock cycle synchronous operation sign-of-life failure drive object 1

Message value:

Drive object: All objects

Reaction:	NONE			
Acknowledge:	IMMEDIATELY			
Cause:	Group display for problems with the sign-of-life of the master (isochronous operation) on the drive object 1 (Control Unit).			
	For central measurements, synchronism with the central master is lost.			
Remedy:	Note:			
,	PB: PROFIBUS			
	PN: PROFINET			
Reaction upon N:	NONE			
Acknowl. upon N:	NONE			
Reaction upon A:				
Acknowl. upon A:				
•				
A01921 (F)	PROFIBUS: Receive setpoints after To			
Message value:				
Drive object:	All objects			
Reaction:	NONE			
Acknowledge:	NONE			
Cause:	Output data of PROFIBUS master (setpoints) received at the incorrect instant in time within the PROFIBUS clock cycle.			
Remedy:	- check bus configuration.			
	- check parameters for clock cycle synchronization (ensure To > Tdx).			
	Note:			
	To: Time of setpoint acceptance			
	Tdx: Data exchange time			
Reaction upon F:	NONE (OFF1)			
Acknowl. upon F:	IMMEDIATELY			
A01930	PB/PN: current controller sampling time clock cycle synch. not equal			
Message value:	%1			
Drive object:	All objects			
Reaction:	NONE			
Acknowledge:	NONE			
Cause:	The current controller sampling time of all drives must be set the same for the clock cycle synchronous operation.			
	Alarm value (r2124, interpret decimal):			
	Number of the drive object with different current controller sampling time.			
Remedy:	Set current controller sampling time to identical values (p0115[0]).			
	Note:			
	PB: PROFIBUS			
	PN: PROFINET			
A01931	PB/PN: speed controller sampling time clock cycle synch. not equal			
Message value:	%1			
Drive object:	All objects			
Reaction:	NONE			
Acknowledge:	NONE			
Cause:	The speed controller sampling time of all drives must be set the same for the clock cycle synchronous operation.			
54455	Alarm value (r2124, interpret decimal):			
	Number of the drive object with the different speed controller sampling time.			

Remedy:	Set the speed controller sampling times to identical values (p0115[1]).
	Note:
	PB: PROFIBUS
	PN: PROFINET
A01932	PB/PN: clock cycle synchronization missing for DSC
Message value:	
Drive object:	All objects
Reaction:	NONE
	NONE
Acknowledge:	
Cause:	There is no clock synchronization or clock synchronous sign of life and DSC is selected. Note:
	DSC: Dynamic Servo Control
Demedu	See also: p0922, r0922
Remedy:	Set clock synchronization across the bus configuration and transfer clock synchronous sign-of-life.
A01940	PB/PN: clock cycle synchronism not reached
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The bus is in the data exchange state and clock synchronous operation has been selected using the parameterizing telegram. It was not possible to synchronize to the clock cycle specified by the master.
	- the master does not send a clock synchronous global control telegram although clock synchronous operation was selected when configuring the bus.
	- the master is using another clock synchronous DP clock cycle than was transferred to the slave in the parameterizing telegram.
	- at least one drive object has a pulse enable (not controlled from PROFIBUS/PROFINET either).
Remedy:	- check the master application and bus configuration.
	- check the consistency between the clock cycle input when configuring the slave and clock cycle setting at the master.
	- check that no drive object has a pulse enable. Only enable the pulses after synchronizing the PROFIBUS/PROFINET drives.
	Note:
	PB: PROFIBUS
	PN: PROFINET
 A01941	PB/PN: clock cycle signal missing when establishing bus communication
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The bus is in the data exchange state and clock synchronous operation has been selected using the parameterizing
	telegram. The global control telegram for synchronization is not being received.
Remedy:	Check the master application and bus configuration.
	PN: PROFINET
A01943	PB/PN: clock cycle signal error when establishing bus communication
Message value:	-
Drive object:	All objects

Reaction:	NONE			
Acknowledge:	NONE The bus is in the data exchange state and clock supersonaus experition has been calculated using the personatorizing			
Cause:	The bus is in the data exchange state and clock synchronous operation has been selected using the parameterizing telegram.			
	The global control telegram for synchronization is being irregularly received.			
	- the master is sending an irregular global control telegram.			
	 the master is using another clock synchronous DP clock cycle than was transferred to the slave in the parameterizing telegram. 			
Remedy:	- check the master application and bus configuration.			
	- check the consistency between the clock cycle input when configuring the slave and clock cycle setting at the master. Note:			
	PB: PROFIBUS			
	PN: PROFINET			
A01944	PB/PN: sign-of-life synchronism not reached			
Message value:	-			
Drive object:	All objects			
Reaction:	NONE			
Acknowledge:	NONE			
Cause:	The bus is in the data exchange state and clock synchronous operation has been selected using the parameterizing telegram.			
	Synchronization with the master sign-of-life (STW2.12 STW2.15) could not be completed because the sign-of-life is changing differently to how it was configured in the Tmapc time grid.			
Remedy:	- ensure that the master correctly increments the sign-of-life in the master application clock cycle Tmapc.			
	- correct the interconnection of the master sign-of-life (p2045).			
	Note: PB: PROFIBUS			
	PN: PROFINET			
A01945	PROFIBUS: Connection to the Publisher failed			
Message value:	Fault cause: %1 bin			
Drive object:	All objects			
Reaction:	NONE			
Acknowledge:	NONE			
Cause:	For PROFIBUS peer-to-peer data transfer, the connection to at least one Publisher has failed.			
	Alarm value (r2124, interpret binary): Bit 0 = 1: Publisher with address in r2077[0], connection failed.			
	Bit 15 = 1: Publisher with address in r2077[15], connection failed.			
Remedy:	- check the PROFIBUS cables.			
	- carry out a first commissioning of the Publisher that has the failed connection.			
F01946 (A)	PROFIBUS: Connection to the Publisher aborted			
Message value:	Fault cause: %1 bin			
Drive object:	All objects			
Reaction:	Servo: OFF1 (NONE, OFF2, OFF3)			
Acknowledge:	IMMEDIATELY (POWER ON)			

Cause:	At this drive object, the connection to at least one Publisher for PROFIBUS peer-to-peer data transfer in cyclic operation				
	has been aborted.				
	Fault value (r0949, interpret binary):				
	Bit 0 = 1: Publisher with address in r2077[0], connection aborted.				
	 Bit 15 = 1: Publisher with address in r2077[15], connection aborted.				
Remedy:	- check the PROFIBUS cables.				
Romody.	- check the state of the Publisher that has the aborted connection.				
Reaction upon A:	NONE				
Acknowl. upon A:					
· · · · · · · · · · · · · · · · · · ·					
F01950 (N, A)	PB/PN: clock cycle synchronous operation synchronization unsuccessful				
Message value:	-				
Drive object:	All objects				
Reaction:	OFF1 (NONE)				
Acknowledge:	IMMEDIATELY (POWER ON)				
Cause:	Synchronization of the internal clock cycle to the global control telegram has failed. The internal clock cycle exhibits an unexpected shift.				
Remedy:	Only for internal Siemens troubleshooting.				
	Note:				
	PB: PROFIBUS				
	PN: PROFINET				
Reaction upon N:	NONE				
Acknowl. upon N:	NONE				
Reaction upon A:	NONE				
Acknowl. upon A:	NONE				
F01951	CU SYNC: Synchronization application clock cycle missing				
Message value:	%1				
Drive object:	All objects				
Reaction:	OFF2 (NONE)				
Acknowledge:	IMMEDIATELY (POWER ON)				
Cause:	If DRIVE-CLiQ components with different application clock cycle are operated on a DRIVE-CLiQ port, this requires				
04400.	synchronization with the Control Unit. This synchronization routine was unsuccessful.				
	Fault value (r0949, interpret decimal):				
	Only for internal Siemens troubleshooting.				
Remedy:	- carry out a POWER ON (switch-off/switch-on) for all components.				
	- upgrade the software of the DRIVE-CLiQ components.				
	- upgrade the Control Unit software.				
	Note:				
	If a Controller Extension is being used (e.g. CX32, NX10), then the following applies:				
	Check whether the Controller Extension is issuing error messages, and if required, remove these.				
F01952	CU DRIVE-CLiQ: Synchronization of component not supported				
	%1				
Messade value:					
Message value: Drive object:					
Drive object:	All objects				
•					

Cause:	The existing system configuration requires that the connected DRIVE-CLiQ components support the synchronization between the basic clock cycle, DRIVE-CLiQ clock cycle and the application clock cycle.				
	However, not all DRIVE-CLiQ components have this functionality.				
	Fault value (r0949, interpret decimal):				
	Component number of the first faulty DRIVE-CLiQ component.				
Remedy:	Upgrade the firmware of the component specified in the fault value.				
	Note:				
	If required, also upgrade additional components in the DRIVE-CLiQ line.				
A01953	CU SYNC: Synchronization not completed				
Message value:	%1				
Drive object:	All objects				
Reaction:	NONE				
Acknowledge:	NONE				
Cause:	After the drive system is switched on, the synchronization between the basic clock cycle, DRIVE-CLiQ clock cycle and application clock cycle was started but was not completed within the selected time tolerance.				
	Alarm value (r2124, interpret decimal):				
	Only for internal Siemens troubleshooting.				
Remedy:	Carry out a POWER ON (switch-off/switch-on) for all components.				
	If the error occurs after the drive sampling times were changed, and if a Terminal Module 31 (TM31) is being used, the sampling times (p0115, p4099) should be set as integer multiples to the drive clock cycles (p0115).				
F01954	CU DRIVE-CLiQ: Synchronization unsuccessful				
Message value:	%1				
Drive object:	All objects				
Reaction:	OFF2				

Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	Synchronization between the basic clock cycle, DRIVE-CLiQ clock cycle and application clock cycle was started and was not able to be successfully completed (e.g. after switch-on).
	Fault value (r0949, interpret decimal):
	Only for internal Siemens troubleshooting.
Remedy:	1. Remove the cause of a possible DRIVE-CLiQ fault.

edy:	1. Remove the cau	ise of a possible	DRIVE-CLiQ fault.

- 2. Initiate a new synchronization, e.g. as follows:
 - remove the PROFIBUS master and re-insert again.
 - restart the PROFIBUS master.

- switch off the Control Unit and switch on again.
- carry out a Control Unit hardware reset (RESET button, p0972).
- carry out a parameter reset and download the saved parameters (p0009 = 30, p0976 = 2, 3).

A01955	CU DRIVE-CLiQ: Synchronization DO not completed
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	After the drive system is switched on, the synchronization between the basic clock cycle, DRIVE-CLiQ clock cycle and application clock cycle was started but was not completed within the selected time tolerance.
	Alarm value (r2124, interpret decimal):
	Only for internal Siemens troubleshooting.
Remedy:	Carry out a POWER ON (switch-off/switch-on) for all components of the DO.

A01980	PN: cyclic connection interrupted
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The cyclic connection to the PROFINET controller is interrupted.
	See also: r8936 (PN cyclic connection state)
Remedy:	Establish the PROFINET connection and activate the PROFINET controller in the cyclic mode.
A01981	PN: Maximum number of controllers exceeded
Message value:	Info. 1: %1, info. 2: %2
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	A controller attempts to establish a connection to the drive, and as a consequence exceeds the permitted number of PROFINET connections.
	The alarm disappears automatically after approx. 30 seconds.
	Alarm value (r2124, interpret hexadecimal):
	yyyyxxxx hex: yyyy = info. 1, xxxx = info. 2
	Info 1 = 0: number of RT connections exceeded
	Info 1 > 0: number of IRT connections exceeded
	Info 2: permitted number of connections
Remedy:	Check the configuration of the PROFINET controllers.
A01982	PN: second controller missing
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Connections to two PROFINET controllers are expected. However, only the connection to a PROFINET controller is present.
	- there is only one connection to the F controller.
	- system redundancy is activated.
Remedy:	Check the configuration of the PROFINET controllers.
A01983	PN: system redundancy switchover running
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The "PROFINET system redundancy" function is configured and the connection between the primary control and drive
	device is interrupted. The backup controller assumes control of the drive device.
Remedy:	Not necessary. The alarm is automatically withdrawn after switchover has been successfully completed.
A01989	PN: internal cyclic data transfer error
Message value:	%1
Drive object:	All objects
Reaction:	NONE

Acknowledge:	NONE
Cause:	The cyclic actual values and/or setpoints were not transferred within the specified times.
	Alarm value (r2124, interpret hexadecimal):
	Only for internal Siemens troubleshooting.
Remedy:	Correctly set T_io_input or T_io_output.
A02000	Eurotion concreter: Start not possible
	Function generator: Start not possible
Message value:	
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The function generator has already been started.
Remedy:	Stop the function generator and restart again if necessary.
	Note:
	The alarm is reset as follows:
	- remove the cause of this alarm.
	- restart the function generator.
A02005	Function generator: Drive does not exist
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The drive object specified for connection does not exist.
Remedy:	Use the existing drive object with the corresponding number.
	Note:
	The alarm is reset as follows:
	- remove the cause of this alarm.
	- restart the function generator.
A02006	Function generator: No drive specified for connection
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	No drive specified for connection in p4815.
Remedy:	At least one drive to be connected must be specified in p4815.
-	Note:
	The alarm is reset as follows:
	- remove the cause of this alarm.
	- restart the function generator.
A02007	Function generator: Drive not SERVO / VECTOR / DC_CTRL
Message value:	%1
Drive object:	All objects
Reaction:	NONE
	NONE
Acknowledge: Cause:	NONE The drive object specified for connection is not a SERVO / VECTOR or DC_CTRL.
	THE OWNE CONFICT SPECIFIED TO CONFICTION IS NOT 2 NERVO / VECTOR OF DUCIDING THE CONFICT SPECIFIED TO CONFICTION IS NOT 2 NERVO / VECTOR OF DUCIDING TO CONFICT SPECIFIED TO CONF

Remedy:	Use a SERVO / VECTOR / DC_CTRL drive object with the corresponding number.
	Note:
	The alarm is reset as follows:
	- remove the cause of this alarm.
	- restart the function generator.
A02008	Function generator: Drive specified a multiple number of times
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The drive object specified for connection is already specified.
	Alarm value (r2124, interpret decimal):
	Drive object number of the drive object that is specified a multiple number of times.
Remedy:	Specify a different drive object.
	Note:
	The alarm is reset as follows:
	- remove the cause of this alarm.
	- restart the function generator.
A02009	Function generator: Illegal mode
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The set operating mode (p1300) of the drive object is not permissible when using the function generator.
	Alarm value (r2124, interpret decimal):
	Number of the drive object involved.
Remedy:	Change the operating mode for this drive object to p1300 = 20 (encoderless speed control) or p1300 = 21 (speed control with encoder).
	Note:
	The alarm is reset as follows:
	- remove the cause of this alarm.
	- restart the function generator.
A02010	Function generator: Speed setpoint from the drive is not zero
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The speed setpoint of a drive selected for connection is greater than the value for the standstill detection set using p1226.
Remedy:	For all of the drives specified for connection, set the speed setpoints to zero.
-	Note:
	The alarm is reset as follows:
	- remove the cause of this alarm.
	- restart the function generator.
 A02011	Function generator: The actual drive speed is not zero
Message value:	-
Drive chiest	

Drive object: All objects

Reaction:	NONE
Acknowledge: Cause:	NONE The speed actual value of a drive selected for connection is greater than the value for the standstill detection set using p1226.
Remedy:	Set the relevant drives to zero speed before starting the function generator.
	Note: The alarm is reset as follows:
	- remove the cause of this alarm.
	- restart the function generator.
A02015	Function generator: Drive enable signals missing
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The master control and/or enable signals are missing to connect to the specified drive.
Remedy:	Fetch the master control to the specified drive object and set all enable signals.
lionouyi	Note:
	The alarm is reset as follows:
	- remove the cause of this alarm.
	- restart the function generator.
A02016	Function generator: Magnetizing running
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Magnetizing has not yet been completed on a drive object specified for connection.
	Alarm value (r2124, interpret decimal):
	Number of the drive object involved.
Remedy:	Wait for magnetizing of the motor (r0056.4).
. tonioù ji	Note:
	The alarm is reset as follows:
	- restart the function generator.
A02020	Function generator: Parameter cannot be changed
Message value:	- · ·
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	This parameter setting cannot be changed when the function generator is active (p4800 = 1).
Remedy:	- stop the function generator before parameterizing ($p4800 = 0$).
· · · · · · · · ·	- if required, start the function generator ($p4800 = 1$).
	Note:
	The alarm is reset as follows:
	- remove the cause of this alarm.
	- restart the function generator.
A02025	Function generator: Period too short
	✓

Message value:

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13.2 List of faults and alarms

Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The value for the period is too short.
Remedy:	Check and adapt the value for the period.
	Note:
	The alarm is reset as follows:
	- remove the cause of this alarm.
	- restart the function generator.
A02026	Function generator: Pulse width too high
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The selected pulse width is too high.
	The pulse width must be less than the period duration.
Remedy:	Reduce pulse width.
-	Note:
	The alarm is reset as follows:
	- remove the cause of this alarm.
	- restart the function generator.
A02030	Function generator: Physical address equals zero
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The specified physical address is zero.
Remedy:	Set a physical address with a value other than zero.
•	Note:
	The alarm is reset as follows:
	- remove the cause of this alarm.
	- restart the function generator.
A02040	Function generator: Illegal value for offset
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The value for the offset is higher than the value for the upper limit or lower than the value for the lower limit.
Remedy:	Adjust the offset value accordingly.
-	Note:
	The alarm is reset as follows:
	- remove the cause of this alarm.
	- restart the function generator.

A02041 Function generator: Illegal value for bandwidth

Message value:

-

Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The bandwidth referred to the time slice clock cycle of the function generator has either been set too low or too high.
	Depending on the time slice clock cycle, the bandwidth is defined as follows:
	Bandwidth_max = 1 / (2 x time slice clock cycle)
	Bandwidth_min = Bandwidth_max / 100000
	Example:
	Assumption: p4830 = 125 µs
	> Bandwidth_max = 1 / (2 x 125 µs) = 4000 Hz
	> Bandwidth_min = 4000 Hz / 100000 = 0.04 Hz
	Note:
	p4823: Function generator bandwidth
	p4830: Function generator time slice clock cycle
Remedy:	Check the value for the bandwidth and adapt accordingly.
	Note:
	The alarm is reset as follows:
	- remove the cause of this alarm.
	- restart the function generator.
A02047	Function generator: Time slice clock cycle invalid
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The time slice clock cycle selected does not match any of the existing time slices.
Remedy:	Enter an existing time slice clock cycle. The existing time slices can be read out via p7901.
	Note:
	The alarm is reset as follows:
	- remove the cause of this alarm.
	- restart the function generator.
A02050	Trace: Start not possible
Message value:	· · · · · · · · · · · · · · · · · · ·
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The trace has already been started.
Remedy:	Stop the trace and, if necessary, start again.
A02051	Trace: recording not possible as a result of know-how protection
Message value:	initiating recorder: %1, parameter %2
Drive object:	All objects
Beaction:	NONE

Reaction:NONEAcknowledge:NONE

13.2 List of faults and alarms

Cause:	TRACE recording is not possible as at least one signal or trigger signal being used is under know-how protection.
	Alarm value (r2124, interpret hexadecimal):
	bbbbaaaa hex:
	aaaa = 1: recorder 0
	aaaa = 2: recorder 1
	aaaa = 3: recorders 0 and 1
	bbbb = parameter number (hexadecimal), that was not able to be written to.
Remedy:	- Temporarily activate or deactivate know-how protection (p7766).
	- include the signal in the OEM exception list (p7763, p7764).
	- Where relevant do not record the signal.
A02055	Trace: Recording time too short
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The trace duration is too short.
	The minimum is twice the value of the trace clock cycle.
Remedy:	Check the selected recording time and, if necessary, adjust.
A02056	Trace: Recording cycle too short
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The selected recording cycle is shorter than the selected basic clock cycle 0 (p0110[0]).
Remedy:	Increase the value for the trace cycle.
A02057	Trace: Time slice clock cycle invalid
Message value:	
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The time slice clock cycle selected does not match any of the existing time slices.
Remedy:	Enter an existing time slice clock cycle. The existing time slices can be read out via p7901.
A02058	Trace: Time slice clock cycle for endless trace not valid
Message value: Drive object:	- All objects
Reaction:	NONE
Acknowledge:	NONE
-	
Cause: Romodur	The selected time slice clock cycle cannot be used for the endless trace Enter the clock cycle of an existing time slice with a cycle time $\sum 2$ ms for up to 4 recording channels or $\sum 4$ ms from f
Remedy:	Enter the clock cycle of an existing time slice with a cycle time >= 2 ms for up to 4 recording channels or >= 4 ms from 5 recording channels per trace.
	The existing time slices can be read out via p7901.
A02059	Trace: Time slice clock cycle for 2 x 8 recording channels not valid
Message value:	-
Drive object:	All objects

Drive object: All objects

Reaction:	NONE
Acknowledge:	NONE
Cause:	The selected time slice clock cycle cannot be used for more than 4 recording channels.
Remedy:	Enter the clock cycle of an existing time slice with a cycle time >= 4 ms or reduce the number of recording channels to 4 per trace.
	The existing time slices can be read out via p7901.
A02060	Trace: Signal to be traced missing
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	- a signal to be traced was not specified.
	- the specified signals are not valid.
Remedy:	- specify the signal to be traced.
	- check whether the relevant signal can be traced.
A02061	Trace: Invalid signal
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	- the specified signal does not exist.
	- the specified signal can no longer be traced (recorded).
Remedy:	- specify the signal to be traced.
	- check whether the relevant signal can be traced.
A02062	Trace: Invalid trigger signal
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	- a trigger signal was not specified.
	- the specified signal does not exist.
	- the specified signal is not a fixed-point signal.
	- the specified signal cannot be used as a trigger signal for the trace.
Remedy:	Specify a valid trigger signal.
A02063	Trace: Invalid data type
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The specified data type to select a signal using a physical address is invalid.
Remedy:	Use a valid data type.
A02070	Trace: Parameter cannot be changed
Message value:	· ·

Reaction:	NONE
Acknowledge:	NONE
Cause:	The trace parameter settings cannot be changed when the trace is active.
Remedy:	- stop the trace before parameterization.
	- if required, start the trace.
A02075	Trace: Pretrigger time too long
Message value:	
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The selected pretrigger time must be shorter than the trace time.
Remedy:	Check the pretrigger time setting and change if necessary.
F02080	Trace: Parameterization deleted due to unit changeover
Message value:	- -
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The trace parameterization in the drive unit was deleted due to a unit changeover or a change in the reference parameters.
Remedy:	Restart trace.
A02085	Message function: Parameterization error
Message value:	Parameter: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	A parameterization error was identified when starting the variable message function.
	Alarm value (r2124, interpret decimal):
	Incorrectly set parameter.
Remedy:	Correct the parameter and restart.
	Note:
	The alarm is automatically withdrawn when stopping, or when successfully starting the variable message function (p3290.0).
A02095	MTrace 0: multiple trace cannot be activated
Message value:	
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
	-
	- trigger condition "immediate recording start" (IMMEDIATE)
	- trigger condition "start with function generator" (FG_START)
Remedy:	- if required, deactivate the multiple trace (p4840[0] = 0).
-	- deactivate function or setting that is not permissible
Cause: Remedy:	 trigger condition "start with function generator" (FG_START) if required, deactivate the multiple trace (p4840[0] = 0).

A02096	MTrace 0: cannot be saved
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	It is not possible to save the measurement results of a multiple trace on the memory card (trace recorder 0).
	A multiple trace is not started or is canceled.
	Alarm value (r2124, interpret decimal):
	1: Memory card cannot be accessed.
	- card is not inserted or is blocked by a mounted USB drive.
	3: data save operation to slow.
	- a second trace has been completed before the measurement results of the first trace were able to be saved.
	- writing the measurement result files to the card is blocked by the parameter save.
	4: Data save operation canceled.
	- for instance, the file required for the data save operation was not able to be found.
Remedy:	- insert or remove the memory card.
	- use a larger memory card.
	- configure a longer trace time or use an endless trace.
	- avoid saving parameters while a multiple trace is running.
	- check whether other functions are presently accessing measurement result files.
A02097	MTrace 1: multiple trace cannot be activated
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	
Cause.	The following functions or settings are not permissible in conjunction with a multiple trace (trace recorder 1): - measuring function
	- long-time trace
	- trigger condition "immediate recording start" (IMMEDIATE)
	- trigger condition "start with function generator" (FG_START)
Permedy:	- if required, deactivate the multiple trace (p4840[1] = 0).
Remedy:	- deactivate function or setting that is not permissible
A02098	MTrace 1: cannot be saved
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	It is not possible to save the measurement results of a multiple trace on the memory card (trace recorder 1).
	A multiple trace is not started or is canceled.
	Alarm value (r2124, interpret decimal):
	1: Memory card cannot be accessed.
	- card is not inserted or is blocked by a mounted USB drive.
	3: data save operation to slow.
	- a second trace has been completed before the measurement results of the first trace were able to be saved.
	- writing the measurement result files to the card is blocked by the parameter save.
	4: Data save operation canceled.
	- for instance, the file required for the data save operation was not able to be found.

Remedy:	 insert or remove the memory card. use a larger memory card. configure a longer trace time or use an endless trace. avoid saving parameters while a multiple trace is running. check whether other functions are presently accessing measurement result files.
A02099	Trace: Insufficient Control Unit memory
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The memory space still available on the Control Unit is no longer sufficient for the trace function.
Remedy:	Reduce the memory required, e.g. as follows:
	- reduce the trace time.
	- increase the trace clock cycle.
	- reduce the number of signals to be traced.
A02100	Drive: Computing dead time current controller too short
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The value in p0118 produces a dead time of one clock cycle because it is prior to setpoint availability.
	Possible causes:
	- a parameter backup with a version higher than 4.3 was loaded to a version less than or equal to 4.3.
	- the system properties after replacing a component no longer match the parameter assignment.
	Alarm value (r2134, floating point):
B	Minimum value for p0118 where dead time no longer occurs.
Remedy:	- set p0118 to zero.
	 set p0118 to a value greater than or equal to the alarm value (for p1810.11 = 1) set p0117 (from the device) to an automatic setting (p0117 = 1).
	- check the firmware versions of the components involved.
A02150	TEC: Technology Extension cannot be loaded
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The system was not able to load a Technology Extension.
	Alarm value (r2124, interpret hexadecimal):
	10 hex (16 dec):
	The interface version in the DCB user library is not compatible to the DCC standard library that has been loaded.
	12 hex (18 dec):
	A technology package was not able to be downloaded to a Control Unit because the warm restart necessary was not able to be performed.
	Only for internal Siemens troubleshooting.
	· · ·

Remedy:	 carry out a warm restart (p0009 = 30, p0976 = 2, 3). carry out a POWER ON (switch-off/switch-on) for all components. upgrade firmware to later version. contact Technical Support. For alarm value = 10 hex (16 dec): Load a compatible DCB user library (compatible to the interface of the DCC standard library). For alarm value = 12 hex (18 dec): Carry out a POWER ON (switch-off/switch-on) for all components. Note: DCB: Drive Control Block DCC: Drive Control Chart TEC: Technology Extension
F02151 (A)	TEC: internal software error
Message value:	%1
Drive object:	All objects
Reaction:	Servo: OFF2 (NONE, OFF1, OFF3)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	An internal software error has occurred within a Technology Extension.
	Fault value (r0949, interpret hexadecimal):
	Only for internal Siemens troubleshooting.
Remedy:	- carry out a POWER ON (switch-off/switch-on) for all components.
	- upgrade firmware to later version.
	- contact Technical Support.
	- replace the Control Unit.
	Note:
	TEC: Technology Extension
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F02152 (A)	TEC: insufficient memory
Message value:	%1
Drive object:	All objects
Reaction:	OFF1
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	Too many functions have been configured on this Control Unit (e.g. too many drives, function modules, data sets, Technology Extensions, blocks, etc). Fault value (r0949, interpret decimal):
Remedy:	Only for internal Siemens troubleshooting. - change the configuration on this Control Unit (e.g. fewer drives, function modules, data sets, Technology Extensions,
Remedy.	blocks, etc).
	- use an additional Control Unit.
	Note: TEC: Technology Extension
Reaction upon A:	NONE
-	
Acknowl. upon A:	NONE
F02153	TEC: technology function does not exist
Message value:	-

Drive object: All objects

Reaction:	NONE
Acknowledge:	
Cause:	A technology function (e.g. Technology Extension, DCB library) does not exist on the drive device. When configuring, a technology function is activated, which does not exist on the drive device. This can occur when downloading a project or when powering up.
Remedy:	- load the required technology function to the drive device.
	- if required, deactivate the technology function not required in the configuration.
	Note:
	DCB: Drive Control Block
	TEC: Technology Extension
F03000	NVRAM fault on action
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	A fault occurred during execution of action p7770 = 1 or 2 for the NVRAM data.
	Fault value (r0949, interpret hexadecimal):
	yyxx hex: yy = fault cause, xx = application ID
	yy = 1:
	The action p7770 = 1 is not supported by this version if Drive Control Chart (DCC) is activated for the drive object concerned.
	yy = 2:
	The data length of the specified application is not the same in the NVRAM and the backup.
	yy = 3:
	The data checksum in p7774 is not correct.
	yy = 4:
Domodu"	No data available to load.
Remedy:	 Perform the remedy according to the results of the troubleshooting. if necessary, start the action again.
F03001	NVRAM checksum incorrect
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	A checksum error occurred when evaluating the non-volatile data (NVRAM) on the Control Unit.
	The NVRAM data affected was deleted.
Remedy:	Carry out a POWER ON (switch-off/switch-on) for all components.
F03500 (A)	TM: Initialization
Message value:	%1
Drive object:	All objects
Reaction:	OFF1 (OFF2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	When initializing the Terminal Modules, the terminals of the Control Unit or the Terminal Board 30, an internal software error has occurred.
	Fault value (r0949, interpret decimal):
	yxxx dex
	y = Only for internal Siemens troubleshooting
	xxx = component number (p0151)

Remedy:	- switch-off/switch-on the power supply for the Control Unit.	
	- check the DRIVE-CLiQ connection.	
	- if required, replace the Terminal Module.	
	The Terminal Module should be directly connected to a DRIVE-CLiQ socket of the Control Unit.	
	If the fault occurs again, replace the Terminal Module.	
Reaction upon A:	NONE	
Acknowl. upon A:	NONE	

A03501	TM: Sampling time change
Messarie value:	_

message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The sampling times of the inputs/outputs were changed.
	This change only becomes valid after the next boot.
Remedy:	Carry out a POWER ON.

F03505 (N, A) Analog input wire breakage

Message value:	%1
Drive object:	All objects
Reaction:	OFF1 (NONE, OFF2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The wire-break monitoring for an analog input has responded.
Remedy:	Check the wiring for interruptions.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A03506 (F, N) 24 V power supply missing

Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The 24 V power supply for the digital outputs (X124) is missing.
Remedy:	Check the terminals for the power supply voltage (X124, L1+, M).
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A03507 (F, N)	Digital output not set
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE

Cause:	Despite specification by the signal source the digital output has not been set.
	Possible causes:
	- power supply missing.
	- the digital output is in current limiting (e.g. due to short-circuit).
	- the digital output is being used for Safety Extended Functions.
	- the control has authority to access the digital output by means of direct access (see also r0729).
	Alarm value (r2124, interpret bitwise binary):
Remedy:	Digital output involved (structured the same as r0747). - check the 24 V power supply (e.g. X131.7 for CU305, ground is X131.8).
Remedy.	- check the output terminals for short-circuits.
	- reset the signal source of the digital output for use by Safety Extended functions.
	- carry out a POWER ON (switch-off/switch-on).
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	
Acknowl. upon N:	
A03510 (F, N)	Calibration data not plausible
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	During ramp-up, the Terminal Module 31 (TM31) calibration data is read in and checked for plausibility.
	At least one calibration data point was determined to be invalid.
	Alarm value (r2124, interpret binary):
	Bit 1: 10 V value, analog input 0 invalid.
	Bit 3: 10 V value, analog input 1 invalid.
	Bit 4: Offset, analog output 0 invalid. Bit 5: 10 V value, analog output 0 invalid.
	Bit 6: Offset, analog output 1 invalid.
	Bit 7: 10 V value, analog input 1 invalid.
Remedy:	- switch-off/switch-on the power supply for the Control Unit.
	- check the DRIVE-CLiQ wiring.
	Note:
	If it reoccurs, then replace the module.
	In principle, operation could continue.
	The analog channel involved possibly does not achieve the specified accuracy.
Reaction upon F:	NONE (OFF1, OFF2)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	
Acknowl. upon N:	NONE
A02550	TM: Speed astroint filter natural fraguency > Shannan fraguency
A03550	TM: Speed setpoint filter natural frequency > Shannon frequency
Message value:	
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The natural filter frequency of the speed setpoint filter (p1417) is greater than or equal to the Shannon frequency.
	The Shannon frequency is calculated according to the following formula: 0.5 / p4099[3]

Remedy:	Reduce the natural frequency of the speed setpoint filter (PT2 low pass) (p1417).
F03590 (N, A)	TM: Module not ready
Message value:	%1
Drive object:	All objects
Reaction:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The Terminal Module involved does not send a ready signal and no valid cyclic data.
	Fault value (r0949, interpret decimal):
	Drive object number of the Terminal Module involved.
Remedy:	- check the 24 V power supply.
	- check the DRIVE-CLiQ wiring.
	- check whether the sampling time of the drive object involved is not equal to zero (p4099[0]).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
A05000 (N)	Power unit: Overtemperature heat sink AC inverter
Message value:	
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The alarm threshold for overtemperature at the inverter heat sink has been reached. The response is set using p0290.
	If the heat sink temperature exceeds the value set in p0292[0], then fault F30004 is output.
Remedy:	Check the following:
	- is the ambient temperature within the defined limit values?
	- have the load conditions and the load duty cycle been appropriately dimensioned?
Departien unen Nu	- has the cooling failed?
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A05001 (N)	Power unit: Overtemperature depletion layer chip
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Alarm threshold for overtemperature of the power semiconductor in the AC converter has been reached.
	Note:
	- the response is set using p0290.
	- if the temperature of the barrier layer increases by the value set in p0292[1], then fault F30025 is initiated.
Remedy:	Check the following:
	- is the ambient temperature within the defined limit values?
	- have the load conditions and the load duty cycle been appropriately dimensioned?
	- has the cooling failed?
	- pulse frequency too high?
	See also: r0037
Reaction upon N:	
Acknowl. upon N:	NONE

A05002 (N)	Power unit: Air intake overtemperature
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The alarm threshold for the air intake overtemperature has been reached. For air-cooled power units, the threshold is 42 °C (hysteresis 2 K). The response is set using p0290.
	If the air intake temperature increases by an additional 13 K, then fault F30035 is output.
Remedy:	Check the following:
	- is the ambient temperature within the defined limit values?
	- has the fan failed? Check the direction of rotation.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A05003 (N)	Power unit: Internal overtemperature

-
All objects
NONE
NONE
The alarm threshold for internal overtemperature has been reached.
If the temperature inside the power unit increases by an additional 5 K, then fault F30036 is triggered.
Check the following:
- is the ambient temperature within the defined limit values?
- has the fan failed? Check the direction of rotation.
NONE
NONE

A05004 (N)	Power unit: Rectifier overtemperature
Message value:	-
Orive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
ause:	The alarm threshold for the overtemperature of the rectifier has been reached. The response is set using p0290.
	If the temperature of the rectifier increases by an additional 5 K, then fault F30037 is triggered.
Remedy:	Check the following:
	- is the ambient temperature within the defined limit values?
	- have the load conditions and the load duty cycle been appropriately dimensioned?
	- has the fan failed? Check the direction of rotation.
	- has a phase of the line supply failed?
	- is an arm of the supply (incoming) rectifier defective?
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A05005	Cooling unit: Cooling medium flow rate too low
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Cooling unit: Alarm - flow rate has fallen below the alarm value

Remedy:	- check the feedback signals and parameter assignment (p0260 p0267). - check the coolant feed.
A05006 (N)	Power unit: Overtemperature thermal model
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The temperature difference between the chip and heat sink has exceeded the permissible limit value (blocksize power units only). Depending on p0290, an appropriate overload response is initiated.
Bomody:	See also: r0037
Remedy:	Not necessary. This alarm is automatically withdrawn once the limit value has been fallen below. Note: If the alarm is not automatically withdrawn and the temperature continues to rise, this can result in fault F30024.
Reaction upon N:	NONE
Acknowl. upon N:	
N05007 (A)	Power unit: Overtemperature thermal model (chassis PU)
Message value:	
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The temperature difference between the chip and heat sink has exceeded the permissible limit value (r0293) (chassis
	power units only). Depending on p0290, an appropriate overload response is initiated.
	See also: r0037
Remedy:	Not necessary. This alarm is automatically withdrawn once the limit value has been fallen below.
Reaction upon A:	NONE
Acknowl. upon A:	NONE
A05054	Parallel circuit: Power unit deactivated
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	For the drive object involved, fewer power units connected in parallel are active than exist in the target topology. Operation is only possible at reduced power (power derating).
Remedy:	Re-activate the deactivated power units if required.
F05055	Parallel connection: Power units with illegal code numbers
Message value:	Parameter: %1
Drive object:	All objects
Reaction:	OFF2 (NONE)
Acknowledge:	IMMEDIATELY
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Cause:	The code numbers of the power units do not match.
-	The code numbers of the power units do not match. Fault value (r0949, interpret decimal):

Remedy:	Use power units with the same code number. For parallel circuit configurations, only power units with identical power unit data may be used.
F05056	Parallel circuit: Power unit EEPROM versions differ
Message value:	Parameter: %1
Drive object:	All objects
Reaction:	OFF2 (NONE)
Acknowledge:	IMMEDIATELY
Cause:	The EEPROM versions of the power units do not match.
	Fault value (r0949, interpret decimal):
	Parameter in which the first different version number was detected.
Remedy:	Use power units with the same EEPROM version.
	Note:
	For parallel circuit configurations, only power units with identical EEPROM versions may be used.
F05057	Parallel circuit: Power unit firmware versions differ
Message value:	Parameter: %1
Drive object:	All objects
Reaction:	OFF2 (NONE)
Acknowledge:	IMMEDIATELY
Cause:	The firmware versions of the power units connected in parallel do not match.
	Fault value (r0949, interpret decimal):
	Parameter in which the first different version number was detected.
Remedy:	Use power units with the same firmware version. For parallel circuit configurations, only power units with identical firmware versions may be used.
 F05058	Parallel circuit: VSM EEPROM versions differ
Message value:	Parameter: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The EEPROM versions of the Voltage Sensing Modules (VSM) do not match.
	Fault value (r0949, interpret decimal):
	Parameter in which the first different version number was detected.
Remedy:	For parallel circuit configurations, only Voltage Sensing Modules (VSM) with identical EEPROM versions may be used.
F05059	Parallel circuit: VSM firmware versions differ
Message value:	Parameter: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The firmware versions of the Voltage Sensing Module (VSM) do not match.
	Fault value (r0949, interpret decimal):
	Parameter in which the first different version number was detected.
Remedy:	For parallel circuit configurations, only Voltage Sensing Modules (VSM) with identical firmware versions may be used.
F05060	Parallel circuit: Power unit firmware version does not match
Message value:	Parameter: %1

Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	Firmware from version V02.30.01.00 is required when connecting the power units in parallel.
Remedy:	Update the firmware of the power units (at least V02.30.01.00).
F05061	Infeed VSM count
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The number of active Voltage Sensing Modules (VSM) for the drive object infeed with chassis power units is not correct.
	For A_Infeed, each active power unit must be assigned an active VSM also for a parallel circuit configuration.
	For S_Infeed, the active drive object, must be assigned at least one active VSM.
	Fault value (r0949, interpret decimal):
	Number of VSMs that are currently assigned to the drive object.
Remedy:	Adapts the number of active Voltage Sensing Modules (VSM).
F05118 (A)	Precharging contactor simultaneity monitoring time exceeded
Message value:	fault cause: %1, additional information: %2
Drive object:	All objects
Reaction:	OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	A feedback signal for the precharging contactor (ALM, SLM, BLM diode) or the line contactor (BLM thyristor) interconnected and the simultaneity monitoring (p0255[4, 6]) activated.
	After opening or closing a contactor of the parallel connection, after a monitoring time has elapsed, not all of the contactors have assumed the same state.
	Fault value (r0949, interpret binary):
	yyyyxxxx hex: yyyy = supplementary information, xxxx = fault cause
	Fault cause:
	Bit 0 = 1: simultaneity error when closing the contactors.
	Bit 1 = 1: simultaneity error when opening the contactors.
	Supplementary information:
	Bit 0 = 1: PDS0 contactor is closed.
	Bit 1 = 1: PDS1 contactor is closed. Bit 2 = 1: PDS2 contactor is closed.
	Bit 3 = 1: PDS2 contactor is closed.
	Bit 4 = 1: PDS4 contactor is closed.
	Bit 5 = 1: PDS5 contactor is closed.
	Bit 6 = 1: PDS6 contactor is closed.
	Bit 7 = 1: PDS7 contactor is closed.
	Note:
	ALM: Active Line Module
	BLM: Basic Line Module
	PDS: Power unit Data Set
	SLM: Smart Line Module
Remedy:	- check the monitoring time setting (p0255[4, 6]).
	- check the wiring and control of the contactor.
	- if required, replace the contactor.
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F05119 (A)	Bypass contactor simultaneity monitoring time exceeded
Message value:	fault cause: %1, additional information: %2
Drive object:	All objects
Reaction:	OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	A feedback signal for the bypass contactor is interconnected and the simultaneity monitoring (p0255[5, 7]) activated.
	After opening or closing a contactor of the parallel connection, after a monitoring time has elapsed, not all of the contactors have assumed the same state.
	Fault value (r0949, interpret binary):
	yyyyxxxx hex: yyyy = supplementary information, xxxx = fault cause
	Fault cause:
	Bit 0 = 1: simultaneity error when closing the contactors.
	Bit 1 = 1: simultaneity error when opening the contactors.
	Supplementary information:
	Bit 0 = 1: PDS0 contactor is closed.
	Bit 1 = 1: PDS1 contactor is closed.
	Bit 2 = 1: PDS2 contactor is closed.
	Bit 3 = 1: PDS3 contactor is closed.
	Bit 4 = 1: PDS4 contactor is closed.
	Bit 5 = 1: PDS5 contactor is closed.
	Bit 6 = 1: PDS6 contactor is closed.
	Bit 7 = 1: PDS7 contactor is closed.
	Note:
	PDS: Power unit Data Set
Remedy:	- check the monitoring time setting (p0255[5, 7]).
•	- check the wiring and control of the contactor.
	- if required, replace the contactor.
Reaction upon A:	NONE
Acknowl. upon A:	
F06310 (A)	Supply voltage (p0210) incorrectly parameterized
Message value:	-
Drive object:	All objects
Reaction:	NONE (OFF1, OFF2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	For AC/AC drive units, the measured DC voltage lies outside the tolerance range after precharging has been completed. The following applies for the tolerance range: 1.16 * p0210 < r0070 < 1.6 * p0210
	Note:
	The fault can only be acknowledged when the drive is switched off. See also: p0210
Remedy:	- check the parameterized supply voltage and if required change (p0210).
- y-	- check the line supply voltage.
	See also: p0210
Reaction upon A:	
Acknowl. upon A:	
E07014	
F07011	Drive: Motor overtemperature
Message value:	%1
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Message value:	%1
Drive object:	All objects
Reaction:	OFF2 (NONE, OFF1, OFF3, STOP2)

Acknowledge:	IMMEDIATELY
Cause:	KTY84/PT1000:
	The motor temperature has exceeded the fault threshold (p0605) or the timer (p0606) after the alarm threshold was exceeded (p0604) has expired.
	PTC, bimetallic NC contact:
	The response threshold of 1650 Ohm was exceeded (for SME p4600 p4603 or for TM120 p4610 p4613 = 10, 30), or the timer (p0606) has expired after 1650 Ohm has been exceeded (for SME p4600 p4603 or for TM120 p4610 p4613 = 12, 32).
	Motor temperature model:
	The calculated motor temperature is too high.
	Possible causes:
	- motor overloaded.
	- motor ambient temperature too high.
	- PTC / bimetallic NC contact: Wire breakage or sensor not connected.
	- motor temperature model incorrectly parameterized.
	Hysteresis:2K
	Fault value (r0949, interpret decimal):
	1, 2, 3, 4:
	Number of the temperature channel leading to the message (for SME/TM120 (p0601 = 10, 11)).
	200:
	Motor temperature model 1 (I2t): temperature too high.
	300:
	Motor temperature model 3: after the monitoring time has expired, the temperature is still higher than the alarm threshold. 301:
	Motor temperature model 3: temperature is too high, or the model has not been parameterized. 302:
	Motor temperature model 3: Encoder temperature is not within the valid range.
	See also: p0613
Remedy:	- reduce the motor load.
-	- check the ambient temperature and the motor ventilation.
	- check the wiring and temperature sensor connection.
	- check monitoring limits.
	- check the encoder type (p0404).
	- check the motor type (p0300, p0301).
	- check activation of the motor temperature model (p0612).
	- check the motor temperature model parameters.
	- check the encoder (p0404).

A07012 (N) Drive: Motor temperature model 1/3 overtemperature

Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The motor temperature model 1/3 identified that the alarm threshold was exceeded.
	Hysteresis:2K.
	Alarm value (r2124, interpret decimal):
	200:
	Motor temperature model 1 (I2t): temperature too high.
	300:
	Motor temperature model 3: temperature too high.
	See also: r0034, p0613

Remedy:	- check the motor load and if required, reduce.
	- check the motor ambient temperature.
	- check activation of the motor temperature model (p0612).
	Motor temperature model 1 (I2t):
	- check the thermal time constant (p0611).
	- check alarm threshold.
	Motor temperature model 3: - check the motor type.
	- check alarm threshold.
	- check the model parameters.
	See also: r0034
Reaction upon N:	
Acknowl. upon N:	
Acknowl. upon N.	NONE
F07013	Drive: Motor temperature model configuration fault
Message value:	%1
Drive object:	All objects
Reaction:	OFF2 (NONE, OFF1, OFF3, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	A fault has occurred in the configuration of the motor temperature model.
	Fault value (r0949, interpret decimal):
	300:
	Motor temperature model 3: The sensor does not supply the necessary sensor temperature for the thermal model.
	301:
	Motor temperature model 3: The sensor type is unknown.
	302:
	Motor temperature model 3: At least one other temperature model was simultaneously activated.
	303:
	Motor temperature model unknown in the actual firmware version.
Remedy:	- check the encoder type.
	- check the motor type.
	- check activation of the motor temperature model (p0612).
	- check the parameters of the motor temperature model (p5350 and following).
A07014 (N)	Drive: Motor temperature model configuration alarm
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	A fault has occurred in the configuration of the motor temperature model.
Cause.	Alarm value (r2124, interpret decimal):
	1:
	All motor temperature models: It is not possible to save the model temperature
	300:
	Motor temperature model 3: Threshold value for alarm (r5398) is higher than the threshold value for fault (r5399).
Remedy:	- set the response for motor overtemperature to "Alarm and fault, no reduction of I_max" (p0610 = 2).
Koniody.	- check and correct the threshold values (r5398, r5399).
Reaction upon N:	NONE
INCOUNT UDUIT N.	
Acknowl. upon N:	NONE

A07015	Drive: Motor temperature sensor alarm
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	An error was detected when evaluating the temperature sensor set in p0600 and p0601. With the fault, the time in p0607 is started. If the fault is still present after this time has expired, then fault F07016 is output however, at the earliest, 50 ms after alarm A07015.
	Possible causes:
	- wire breakage or sensor not connected (KTY: R > 1630 Ohm, PT1000: R > 1720 Ohm).
	- measured resistance too low (PTC: R < 20 Ohm, KTY: R < 50 Ohm, PT1000: R < 603 Ohm).
	Alarm value (r2124, interpret decimal):
	- if SME/TM120 is selected (p0601 = 10, 11),
	this is the number of the temperature channel leading to the message.
Remedy:	- make sure that the sensor is connected correctly.
	- check the parameterization (p0600, p0601).
F07016	Drive: Motor temperature sensor fault
Message value:	%1
Drive object:	All objects
Reaction:	OFF1 (NONE, OFF2, OFF3, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	An error was detected when evaluating the temperature sensor set in p0600 and p0601.
	Possible causes:
	- wire breakage or sensor not connected (KTY: R > 1630 Ohm, PT1000: R > 1720 Ohm).
	- measured resistance too low (PTC: R < 20 Ohm, KTY: R < 50 Ohm, PT1000: R < 603 Ohm).
	Note:
	If alarm A07015 is present, the time in p0607 is started. If the fault is still present after this time has expired, then fault F07016 is output; however, at the earliest, 50 ms after alarm A07015.
	Fault value (r0949, interpret decimal):
	- if SME/TM120 is selected (p0601 = 10, 11),
	this is the number of the temperature channel leading to the message.
Remedy:	- make sure that the sensor is connected correctly.
	- check the parameterization (p0600, p0601).
	 - induction motors: Deactivate temperature sensor fault (p0607 = 0). - When TM120 and SMC/SME (p0601 = 10, 11) are being used, set the same sensor type on the drive (p4610 p4613 as for TM120.
F07080	Drive: Incorrect control parameter
Message value:	Parameter: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The closed-loop control parameters have been parameterized incorrectly (e.g. p0356 = L_spread = 0). Fault value (r0949, interpret decimal):
	The fault value includes the parameter number involved.

See also: p0311, r0311, p0341, r0341, p1082, r1082

See also: p0311, r0311, p0341, r0341, p1082, r1082

Remedy: Modify the parameter indicated in the fault value (r0949) (e.g. p0640 = current limit > 0).

13.2 List of faults and alarms

F07082	Macro: Execution not possible
Message value:	Fault cause: %1, supplementary information: %2, preliminary parameter number: %3
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The macro cannot be executed.
	Fault value (r0949, interpret hexadecimal):
	ccccbbaa hex:
	cccc = preliminary parameter number, bb = supplementary information, aa = fault cause
	Fault causes for the trigger parameter itself:
	19: Called file is not valid for the trigger parameter.
	20: Called file is not valid for parameter 15.
	21: Called file is not valid for parameter 700.
	22: Called file is not valid for parameter 1000.
	23: Called file is not valid for parameter 1500.
	24: Data type of a TAG is incorrect (e.g. Index, number or bit is not U16).
	Fault causes for the parameters to be set:
	25: Error level has an undefined value.
	26: Mode has an undefined value.
	27: A value was entered as string in the tag value that is not "DEFAULT".
	31: Entered drive object type unknown.
	32: A device was not able to be found for the determined drive object number.
	34: A trigger parameter was recursively called.
	35: It is not permissible to write to the parameter via macro.
	36: Check, writing to a parameter unsuccessful, parameter can only be read, not available, incorrect data type, value range or assignment incorrect.
	37: Source parameter for a BICO interconnection was not able to be determined.
	38: An index was set for a non-indexed (or CDS-dependent) parameter.
	39: No index was set for an indexed parameter.
	41: A bit operation is only permissible for parameters with the parameter format DISPLAY_BIN.
	42: A value not equal to 0 or 1 was set for a BitOperation.
	43: Reading the parameter to be changed by the BitOperation was unsuccessful.
	51: Factory setting for DEVICE may only be executed on the DEVICE.
	61: The setting of a value was unsuccessful.
Remedy:	- check the parameter involved.
	- check the macro file and BICO interconnection.
F07083	Macro: ACX file not found
Message value:	Parameter: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The ACX file (macro) to be executed was not able to be found in the appropriate directory.
	Fault value (r0949, interpret decimal):
	Parameter number with which the execution was started.
Remedy:	- check whether the file is saved in the appropriate directory on the memory card.
-	Example:
	If a DOALE is a state AEDA, the anti-state AEDX file as a state to state it to the failer time the state of

If p0015 is set to 1501, then the selected ACX file must be located in the following directory:

... /PMACROS/DEVICE/P15/PM001501.ACX

F07084	Macro: Condition for WaitUntil not fulfilled
Message value:	Parameter: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The WaitUntil condition set in the macro was not fulfilled in a certain number of attempts.
	Fault value (r0949, interpret decimal):
	Parameter number for which the condition was set.
Remedy:	Check and correct the conditions for the WaitUntil loop.
F07085	Drive: Open-loop/closed-loop control parameters changed
Message value:	Parameter: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	Open-loop/closed-loop control parameters have had to be changed.
	Possible causes:
	1. As a result of other parameters, they have exceeded the dynamic limits.
	2. They cannot be used due to the fact that the hardware detected not having certain features.
	3. The value is estimated as the thermal time constant is missing.
	4. Motor temperature model 1 is activated as thermal motor protection is missing.
	Fault value (r0949, interpret decimal):
	Changed parameter number.
	340:
	The motor and control parameters were automatically calculated (p0340 = 1), because the vector control was subsequently activated as configuration (r0108.2).
	611:
	The time constant for thermal motor model 1 was estimated.
	612:
	Thermal motor model 1 was activated (p0612.0 = 1).
	See also: p1082, r1082
Remedy:	Not necessary.
	It is not necessary to change the parameters as they have already been correctly limited.
F07086	Units changeover: Parameter limit violation due to reference value change
Message value:	Parameter: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	A reference parameter was changed in the system. This resulted in the fact that for the parameters involved, the selected value was not able to be written in the per unit notation.
	The values of the parameters were set to the corresponding violated minimum limit/maximum limit or to the factory setting. Possible causes:
	- the steady-state minimum limit/maximum limit or that defined in the application was violated.
	Fault value (r0949, parameter):
	Diagnostics parameter to display the parameters that were not able to be re-calculated.
	See also: p0304, r0304, p0305, r0305, p2000, p2003
Remedy:	Check the adapted parameter value and if required correct.

F07087	Drive: Encoderless operation not possible for the selected pulse frequency
Message value:	Parameter: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	Encoderless operation is not possible for the selected pulse frequency (p1800).
Remedy:	Encoderless operation is activated under the following conditions:
	- the changeover speed for encoderless operation (p1404) is less than the maximum speed (p0322).
	- a control type with encoderless operation has been selected (p1300).
	 encoder faults of the motor encoder result in a fault response with encoderless operation (p0491). Increase the pulse frequency (p1800). Note:
	F07088
Message value:	Parameter: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	A changeover of units was initiated. This resulted in a violation of a parameter limit
	Possible causes for the violation of a parameter limit: - When rounding off a parameter corresponding to its decimal places, the steady-state minimum limit or maximum limit was violated.
	- inaccuracies for the data type "FloatingPoint".
	In these cases, when the minimum limit is violated then the parameter value is rounded up and when the maximum limited is violated the parameter value is rounded down.
	Fault value (r0949, interpret decimal): Diagnostics parameter r9451 to display all parameters whose value had to be adapted.
A07089	Changing over units: Function module activation is blocked because the units have been changed over
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	An attempt was made to activate a function module. This is not permissible if the units have already been changed over.
Remedy:	Restore units that have been changed over to the factory setting.
F07090	Drive: Upper torque limit less than the lower torque limit
Message value:	
Drive object:	All objects
Reaction:	OFF2 (NONE, OFF1, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The upper torque limit is lower than the lower torque limit.
Remedy:	P1 must be >= P2 if parameter P1 is connected to p1522 and parameter P2 to p1523.
 A07091	Drive: determined current controller dynamic response invalid

Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	When one button tuning is activated (p5300 = 1), the current controller is measured after the pulses have been enabled. Evaluation has indicated that the current control loop was not appropriately set.
	Possible causes:
	- incorrectly set current controller.
	- PRBS amplitude set too high (p5296).
	Alarm value (r2124, interpret hexadecimal):
	1: Dynamic response too low. 2: Current controller unstable.
	Note:
	PRBS: Pseudo Random Binary Signal (binary noise)
Remedy:	- the measurement can be repeated with a smaller excitation amplitude (p5296).
Remouy.	- if required, adapt the current controller proportional gain (p1715).
A07092	Drive: moment of inertia estimator still not ready
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The moment of inertia estimator has still not determined any valid values.
	The acceleration cannot be calculated.
	The moment of inertia estimator has stabilized, if the frictional values (p1563, p1564) as well as the moment of inertia value (p1493) have been determined and the appropriate status signal is set (r1407.26 = 1).
	The following parameters influence the response of the moment of the inertia estimator:
	p1560, p1561, p1562
Remedy:	Traverse the axis until the moment of inertia estimator has stabilized.
	This alarm is automatically withdrawn after the moment of inertia estimator has stabilized.
F07093 (A)	Drive: Test signal error
Message value:	%1
Drive object:	All objects
Reaction:	OFF3 (NONE, OFF1, OFF2)
Acknowledge:	IMMEDIATELY
Cause:	An error was identified when executing the "Test signal" function (p5307.1 = 1).
	The function was not executed or was canceled.
	Fault value (r0949, interpret decimal):
	1: No distance limit has been defined (p5308 = 0).
	2: The moment of inertia estimator has not stabilized in the parameterized time (p5309) (r1407.26).
	3: The parameterized distance (p5308) was exceeded.
	4: no motor encoder parameterized (closed-loop speed control without encoder).

5: Offset (p5297) is too high for the parameterized distance (p5308).

6: Pulse enable was withdrawn while traversing.

7: speed setpoint not equal to zero.

See also: p5308, p5309

Remedy:	For fault value = 1:
	- Define distance limiting (p5308).
	For fault value = 2:
	- increase the duration or distance limiting (p5309, p5308).
	For fault value = 3:
	- check distance limiting (p5308).
	For fault value = 4: - configure speed control with encoder.
	For fault value = 5:
	- increase distance limit p5308 or reduce offset p5297.
	- the fault can only be acknowledged after $p5300$ was set = 0.
	- for the factory setting, a test signal duration of approximately 1.3 s is obtained. If an offset (p5297) of 60 rpm is set, for
	example, then this results in a distance of approximately 1.3 revolutions. As a consequence, a value must be parameterized in parameter p5308, which is longer than this distance + 10% controller reserve (e.g. p5308=515°). Further, the distance depends on the speed controller sampling time (p0115[1] and the controller configuration (p5271).
	For fault value = 6:
	- keep the drive switched on until the "Test signal" function has been completely exited.
	For fault value = 7:
	- set the speed setpoint to zero.
Reaction upon A:	NONE
Acknowl. upon A:	NONE
A07094	General parameter limit violation
Message value:	Parameter: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	As a result of the violation of a parameter limit, the parameter value was automatically corrected.
	Minimum limit violated> parameter is set to the minimum value.
	Maximum limit violated> parameter is set to the maximum value.
	Alarm value (r2124, interpret decimal):
	Parameter number, whose value had to be adapted.
Remedy:	Check the adapted parameter values and if required correct.
Remedy: 	Check the adapted parameter values and if required correct. Drive: One Button Tuning activated

Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The One Button Tuning function is active.
	One Button Tuning is performed at the next switch-on command.
	See also: p5300
Remedy:	Not necessary.
	The alarm is automatically withdrawn after One Button Tuning has been exited (p5300 = 0).
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F07097 (A)	Drive: Test signal error distance limiting
Message value:	Fault cause: %1, traversing distance: %2
Drive object:	All objects
Reaction:	OFF3 (NONE, OFF1, OFF2)

Acknowledge:	IMMEDIATELY
Cause:	An error was identified when executing the "Test signal" function (p5307.1 = 1) or auto tuning was selected (p5300 = 1).
	The function was not executed or was canceled.
	Fault value (r0949, interpret decimal):
	yyyyxxxx hex: yyyy = error cause, xxxx = traversing distance
	See also: p5308, p5309
Remedy:	- enter the traversing path in parameter p5308 - or deselect the function involved in p5301.
	- for fault cause = 1, 2, shorter traversing paths may be possible.
	For fault cause = 1:
	- deselect bit 0 and bit 1 in parameter p5301.
	For fault cause = 2:
	- deselect bit 2 in parameter p5301.
	For fault cause= 3:
	- deselect bit 4 and bit 5 in parameter p5301.
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F07098 (A)	Drive: One Button Tuning configuration error
Message value:	Fault cause: %1 bin
Drive object:	All objects
Reaction:	OFF3 (NONE, OFF1, OFF2)
Acknowledge:	IMMEDIATELY
Cause:	The requested One Button Tuning configuration (p5301) is not supported.
	Fault value (r0949, interpret binary):
	Bit 5:
	The function requires that the "Advanced Positioning Control" function module (APC) is activated.
	See also: p5301
Remedy:	For bit 5 = 1:
	- activate the "APC" function module (r0108.7 = 1).
	- activate the "APC without sensor on the load side" function (p3700.2 = 1).
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F07100	Drive: Sampling times cannot be reset
Message value:	Parameter: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	When resetting drive parameter (p0976) sampling times cannot be reset using p0111, p0112, p0115.
	Fault value (r0949, interpret decimal):
	Parameter whose setting prevents the sampling times being reset.
Remedy:	- continue to work with the set sampling times.
	- before resetting the drive parameters, set the basic clock cycle p0110[0] to the original value.
F07110	Drive: Sampling times and basic clock cycle do not match
Message value:	Parameter: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY

Faults and alarms

Cause:	The parameterized sampling times do not match the basic clock cycle.
	Fault value (r0949, interpret decimal):
	The fault value specifies the parameter involved.
Remedy:	Enter the current controller sampling times so that they are identical to the basic clock cycle, e.g. by selecting p0112. Note which basic clock cycle is selected in p0111.
	The sampling times in p0115 can only be changed manually in the sampling times pre-setting "Expert" (p0112).
A07200	Drive: Master control ON command present
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The ON/OFF1 command is present (no 0 signal).
	The command is either influenced via binector input p0840 (current CDS) or control word bit 0 via the master control.
Remedy:	Switch the signal via binector input p0840 (current CDS) or control word bit 0 via the master control to 0.
F07220 (N, A)	Drive: Master control by PLC missing
Message value:	-
Drive object:	All objects
Reaction:	Servo: OFF1 (NONE, OFF2, OFF3, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	The "master control by PLC" signal was missing in operation.
	- interconnection of the binector input for "master control by PLC" is incorrect (p0854).
	- the higher-level control has withdrawn the "master control by PLC" signal.
	- data transfer via the fieldbus (master/drive) was interrupted.
Remedy:	- check the interconnection of the binector input for "master control by PLC" (p0854).
	- check the "master control by PLC" signal and, if required, switch in.
	- check the data transfer via the fieldbus (master/drive).
	Note: If the drive should continue to operate after withdrawing "master control by PLC" then fault response must be parameterized
	to NONE or the message type should be parameterized as alarm.
Reaction upon N:	NONE
Acknowl. upon N:	
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F07300 (A)	Drive: Line contactor feedback signal missing
Message value:	-
Drive object:	All objects
Reaction:	OFF2 (NONE)
Acknowledge:	IMMEDIATELY
Cause:	- the line contactor was not able to be closed within the time in p0861.
	- the line contactor was not able to be opened within the time in p0861.
	- the line contactor dropped out during operation
_ .	- the line contactor has closed although the drive converter is switched off.
Remedy:	- check the setting of p0860.
	- check the feedback circuit from the line contactor.
Possion upon A-	- increase the monitoring time in p0861.
Reaction upon A: Acknowl. upon A:	NONE
AGRIDWI. UPUH A:	

F07320	Drive: Automatic restart interrupted
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	 the specified number of restart attempts (p1211) has been completely used up because within the monitoring time (p1213) the faults were not able to be acknowledged. The number of restart attempts (p1211) is decremented at each new start attempt. the monitoring time for the power unit has expired (p0857).
	 when exiting commissioning or at the end of the motor identification routine or the speed controller optimization, the drive unit is not automatically switched on again.
	Fault value (r0949, interpret hexadecimal):
	Only for internal Siemens troubleshooting.
Remedy:	 increase the number of restart attempts (p1211). The actual number of starting attempts is displayed in r1214. increase the delay time in p1212 and/or the monitoring time in p1213.
	- either increase or disable the monitoring time of the power unit (p0857).
A07321	Drive: Automatic restart active
Message value:	
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The automatic restart (AR) is active. When the line supply returns and/or the causes of the existing faults are removed the drive is automatically restarted. The pulses are enabled and the motor starts to rotate.
Remedy:	- the automatic restart (AR) should, if required, be inhibited (p1210 = 0).
	- an automatic restart can be directly interrupted by withdrawing the switch-on command (BI: p0840).
A07329 (N)	Drive: kT estimator, kT(iq) characteristic or voltage compensation does not function
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	A function of the function module "extended torque control" (r0108.1) was activated - however the (complete) function is not available.
	Alarm value (r2124, interpret decimal):
	1 3: The kT estimator is active (p1780.3 = 1) without a functioning compensation of the voltage emulation error in the drive converter. This means that the accuracy is severely restricted.
	1: The drive converter voltage emulation error "final value" is 0 (p1952).
	2: The drive converter voltage emulation error "current offset" is 0 (p1953).
	3: The compensation of the voltage emulation error is disabled ($p1780.8 = 0$).
	4: The kT estimator (p1780.3 = 1), the kT(iq) characteristic (p1780.9 = 1) or the compensation of the voltage emulation error (p1780.8 = 1) was activated without activating the function module "extended torque control" (when the function module is activated, the following must apply: r0108.1 = 1).
	5: the kT(iq) characteristic has been activated (p1780.9 = 1). However, the kT characteristic value kT1 is 0 (p0645). The function is not active.

Remedy:	For alarm value = 1, 2:
	- carry out an identification of the voltage emulation error in the drive converter (p1909.14 = 1, p1910 = 1).
	- set the parameter to compensate the voltage emulation error in the drive converter (p1952, p1953).
	For alarm value = 3:
	- enable the compensation of the voltage emulation error in the drive converter (p1780.8 = 1).
	For alarm value = 4:
	- activate the function module "extended torque control" (r0108.1 = 1) or deactivate the corresponding functions (p1780.3 = 0, p1780.8 = 0, p1780.9 = 0).
	For alarm value = 5:
	- determine the parameters of the kT characteristic (p0645 p0648) using the rotating measurement (p1959.6, p1960).
	- enter the parameters of the kT characteristic (p0645 p0648) (if known).
	- if necessary, deactivate the kT characteristic (p1780.9 = 0).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A07350 (F)	Drive: Measuring probe parameterized to a digital output
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The measuring probe is connected to a bi-directional digital input/output and the terminal is set as output.
	Alarm value (r2124, interpret decimal):
	8: DI/DO 8 (X122.9/X132.1)
	9: DI/DO 9 (X122.10/X132.2)
	10: DI/DO 10 (X122.12/X132.3)
	11: DI/DO 11 (X122.13/X132.4)
	12: DI/DO 12 (X132.9)
	13: DI/DO 13 (X132.10)
	14: DI/DO 14 (X132.12)
	15: DI/DO 15 (X132.13)
	Regarding the terminal designation:
	The first designation is valid for CU320, the second for CU305.
Remedy:	- set the terminal as input (p0728).
	- de-select the measuring probe (p0488, p0489, p0580).
Reaction upon F:	
Acknowl. upon F:	
A07354	Drive: cogging torque compensation not possible
Message value:	Fault cause: %1, drive data set: %2
Drive object:	All objects
Reaction:	NONE

Acknowledge:

NONE

Cause:	Cogging torque compensation is selected and is not (completely) supported.
	Alarm value (r2124, interpret hexadecimal):
	yyyyxx hex: yyyy = fault cause, xx = drive data set
	уууу = 1:
	The encoder evaluation does not support this function.
	уууу = 2:
	The encoder has no absolute information.
	уууу = 3:
	The motor has no encoder (p0187 = 99).
	уууу = 3:
	The motor has no encoder (p0187 = 99).
	уууу = 4:
	Learning was activated (p5251) for closed-loop control without encoder (p1300 = 20 or p1404 < 12 rpm or 12 m/min - or p1317 = 1).
	уууу = 5:
	The internal table is active; however, period p5253 has not been set equal to 1.
Remedy:	If required, deselect the cogging torque compensation (p5250 = 0).
	For fault cause = 1:
	Use an absolute encoder or an encoder evaluation that supports the function (r0459.13 = 1). If required, upgrade the firmware to a newer version (version 04.50.30.01 or higher is required).
	For fault cause = 2:
	Use an encoder with absolute information (absolute track, unique zero mark, resolver with one pole pair). The function cannot be tested as long as the encoder is not reset after learning (encoder fault, parking, POWER ON). Continuous use is not recommended.
	For fault cause = 3:
	Only select cogging torque compensation for operation with motor encoder.
	For fault cause = 4:
	Activate learning, only for operation with encoder (p1300, p1404, p1317).
	For fault cause = 5:
	- set period p5253 = 1.
	- activate the external table and learning (p5250.0 = 1, p5251).

F07355 (N, A) Drive: cogging torque compensation error when learning

Message value:	%1
Drive object:	All objects
Reaction:	OFF1 (NONE, OFF2)
Acknowledge:	IMMEDIATELY
Cause:	A cogging torque compensation error has occurred while learning. Fault value (r0949, interpret decimal): 1: The learning velocity is too high. - rotating: absolute value greater than 5 [rpm] - linear: absolute value greater than 0.5 [m/min]
Remedy:	For fault value = 1: Repeat learning with the lower velocity setpoint. Recommended speeds: - rotating 2 [rpm] - linear 0.1 [m/min]
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A07400 (N)	Drive: DC link voltage maximum controller active
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The DC link voltage controller has been activated because of the upper switch-in threshold (p1244). A system deviation can occur between the setpoint and actual speed.
Remedy:	Not necessary.
	This alarm is automatically withdrawn after the upper threshold has been distinctly exceeded.
	Otherwise, apply the following measures:
	- use a Braking Module or regenerative feedback unit.
	- increase the ramp-down times (p1121, p1135).
	- shut down the Vdc_max controller (p1240 = 0).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A07402 (N)	Drive: DC link voltage minimum controller active
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The DC link voltage controller has been activated due to the lower switch-in threshold (p1248).
00000	A system deviation can occur between the setpoint and actual speed.
	A possible cause can be e.g. that the line supply has failed.
Remedy:	Not necessary.
······	This alarm is automatically withdrawn after the lower threshold has been distinctly exceeded.
	Otherwise, apply the following measures:
	- check the line supply and infeed.
	- increase the ramp-up times (p1120).
	- shut down the Vdc_min controller (p1240 = 0).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
E07403 (N. A)	Drive: Lower DC link voltage threshold reached
Message value:	
Drive object:	All objects
Reaction:	OFF1 (NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The DC link voltage monitoring is active (p1240 = 5, 6) and the lower DC link voltage threshold (p1248) was reached in the "Operation" state.
Remedy:	- check the line supply voltage.
- ,·	- check the infeed.
	- reduce the lower DC link threshold (p1248).
	- switch out (disable) the DC link voltage monitoring (p1240 = 0).
Reaction upon N:	
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	
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F07404	Drive: Upper DC link voltage threshold reached
Message value:	-
Drive object:	All objects
Reaction:	OFF2 (NONE, OFF1, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The DC link voltage monitoring is active (p1240 = 4, 6) and the upper DC link voltage threshold (p1244) was reached in the "Operation" state.
Remedy:	 check the line supply voltage. check the infeed unit or the Braking Module. increase the upper DC link voltage threshold (p1244).
	- if necessary, deactivate the DC link voltage monitoring (p1240 = 0).
F07405 (N, A)	Drive: Kinetic buffering minimum speed fallen below
Message value:	-
Drive object:	All objects
Reaction:	OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	During kinetic buffering the speed fell below minimum speed (p1257 or p1297 for vector drives with U/f control) and the line supply did not return.
Remedy:	Check the speed threshold for the Vdc_min controller (kinetic buffering) (p1257, p1297).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F07410	Drive: Current controller output limited
Message value:	-
Drive object:	All objects
Reaction:	OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY
Cause:	The condition "I_act = 0 and Uq_set_1 longer than 16 ms at its limit" is present and can be caused by the following: - motor not connected or motor contactor open. - no DC link voltage present. - Motor Module defective.
Remedy:	 connect the motor or check the motor contactor. check the DC link voltage (r0070). check the Motor Module.
F07411	Drive: Flux controller output limited
Message value:	-
Drive object:	All objects
Reaction:	OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY
Cause:	The specified flux setpoint cannot be reached, although the set maximum field current is specified (p1603). - incorrect motor data.
	 motor data and motor configuration (star-delta) do not match. the current limit has been set too low for the motor (p0640, p0323, p1603). induction motor (encoderless, open-loop controlled) in I2t limiting.
	- the Motor Module is too small.

Remedy:	- correct the motor data.
, -	- check the motor configuration.
	- correct the current limits (p0640, p0323, p1603).
	- reduce the induction motor load.
	- if required, use a larger Motor Module.
F07412	Drive: Commutation angle incorrect (motor model)
Message value:	%1
Drive object:	All objects
Reaction:	ENCODER (NONE, OFF2)
Acknowledge:	IMMEDIATELY
•	
Cause:	An incorrect commutation angle was detected that can result in a positive coupling in the speed controller. Possible causes:
	 the phase sequence of the output phases for the motor is incorrect (e.g. the phases are interchanged). the motor encoder is incorrectly adjusted with respect to the magnet position.
	- the motor encoder is damaged.
	- the angular commutation offset is incorrectly set (p0431).
	- data to calculate the motor model has been incorrectly set (p0356 (motor-stator leakage inductance) and/or p0350 (motor- stator resistance) and/or p0352 (cable resistance).
	- the changeover speed for the motor model is too low (p1752). The monitoring function only becomes effective above the changeover speed.
	- pole position identification might have calculated an incorrect value when activated (p1982 = 1).
	- the motor encoder speed signal is faulted.
	- the control loop is instable due to incorrect parameterization.
	Fault value (r0949, interpret decimal):
	SERVO:
	0: The comparison of the pole position angle from the encoder and motor model resulted in an excessively high value (> 80 ° electrical).
	1: -
	VECTOR:
	0: The comparison of the pole position angle from the encoder and motor model resulted in an excessively high value (> 45 ° electrical).
	1: The change in the speed signal from the motor encoder has changed by > p0492 within a current controller clock cycle.
Remedy:	- check the phase sequence for the motor, and if required, correct (wiring, p1820).
	- if the encoder mounting was changed - re-adjust the encoder.
	- replace the defective motor encoder.
	- correctly set the angular commutation offset (p0431). If required, determine using p1990.
	- correctly set the motor stator resistance, cable resistance and motor-stator leakage inductance (p0350, p0352, p0356).
	Calculate the cable resistance from the cross-section and length, check the inductance and stator resistance using the
	motor data sheet, measure the stator resistance, e.g. using a multimeter - and if required, again identify the values using the stationary motor data identification (p1910).
	- increase the changeover speed for the motor model (p1752). The monitoring is completely deactivated for p1752 > p1082 (maximum speed).
	- with pole position identification activated (p1982 = 1) check the procedure for pole position identification (p1980) and force a new pole position identification procedure by means of de-selection followed by selection (p1982 = 0 -> 1). Note:
	For High Dynamic Motors (1FK7xxx-7xxx), for applications with a higher current, if necessary, the monitoring should be disabled.
F07413	Drive: Commutation angle incorrect (pole position identification)
Message value:	
Drive object:	All objects

Reaction:	ENCODER (NONE, OFF2)
Acknowledge:	IMMEDIATELY
Cause:	An incorrect commutation angle was detected that can result in a positive coupling in the speed controller.
	Within the pole position identification routine (p1982 = 2):
	- a difference of > 45 ° electrical to the encoder angle was determined.
	For VECTOR, within the encoder adjustment (p1990 = 2):
	- a difference of > 6 ° electrical to the encoder angle was determined.
Remedy:	- correctly set the angular commutation offset (p0431).
	- re-adjust the motor encoder after the encoder has been replaced.
	- replace the defective motor encoder.
	 - check the pole position identification routine. If the pole position identification routine is not suitable for this motor type, then disable the plausibility check (p1982 = 0).

F07414 (N, A)	Drive: Encoder serial number changed
Message value:	-
Drive object:	All objects
Reaction:	ENCODER (NONE, OFF2)
Acknowledge:	IMMEDIATELY
Cause:	The serial number of the motor encoder of a synchronous motor has changed. The change was only checked for encoders with serial number (e.g. EnDat encoders) and build-in motors (e.g. p0300 = 401) or third-party motors (p0300 = 2).
	Cause 1:
	- the encoder was replaced.
	Cause 2:
	- a third-party, built-in or linear motor was re-commissioned.
	Cause 3:
	- the motor with integrated and adjusted encoder was replaced.
	Cause 4:
	- the firmware was updated to a version that checks the encoder serial number.
	Note:
	With closed-loop position control, the serial number is accepted when starting the adjustment (p2507 = 2).
	When the encoder is adjusted (p2507 = 3), the serial number is checked for changes and if required, the adjustment is reset (p2507 = 1).
	Proceed as follows to hide serial number monitoring:
	- set the following serial numbers for the corresponding Encoder Data Set: p0441= FF, p0442 = 0, p0443 = 0, p0444 = 0, p0445 = 0.
	- parameterize F07414 as message type N (p2118, p2119).
Remedy:	For causes 1, 2:
	Carry out an automatic adjustment using the pole position identification routine. Acknowledge fault. Initiate the pole position identification routine with p1990 = 1. Then check that the pole position identification routine is correctly executed. SERVO:
	If a pole position identification technique is selected in p1980, and if p0301 does not contain a motor type with an encoder adjusted in the factory, then p1990 is automatically activated.
	or
	Set the adjustment via p0431. In this case, the new serial number is automatically accepted.
	or
	Mechanically adjust the encoder. Accept the new serial number with p0440 = 1.
	For causes 3, 4:
	Accept the new serial number with p0440 = 1.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

N07415 (F)	Drive: Angular commutation offset transfer running
Message value:	
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	NONE
Cause:	The angular commutation offset was automatically determined using p1990 = 1.
	This fault causes the pulses to be suppressed - this is necessary to transfer the angular commutation offset to p0431.
Remedy:	The fault can be acknowledged without any additional measures.
Reaction upon F:	OFF2
Acknowl. upon F:	IMMEDIATELY
F07419	Drive: Current setpoint filter adaptation error
Message value:	%1
Drive object:	All objects
Reaction:	OFF1 (OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	An error has occurred when configuring or when using the "Current setpoint filter adaptation" function.
	Fault value (r0949, interpret binary):
	Bit 0: a filter has still not been assigned (p5281).
	Bit 1: the assigned filter belongs to the "Extended current setpoint filter" function module that has not been activated (r0108.21).
	Bit 2: the assigned filter is a type or has a characteristic, which is unsuitable for adaptation.
	Bit 3: the assigned filter has not been activated (p1656, p5200).
	Bit 4 15: internal fault occurred.
	Bit 16 31: number of the drive data set with fault.
Remedy:	The message can always be removed by deactivating adaptation ($p5280 = 0, -1$). If adaptation is to remain active, then the countermeasure should be applied depending on the particular fault value.
	For bit 0:
	Assign the filter (p5281).
	For bit 1:
	activate the "Extended current setpoint filter" function module (r0108.21). For bit 2:
	Set the filter type "General filter 2nd order" and set the characteristic of a bandstop filter.
	For bit 3:
	Activate filter (p1656, p5200).
	For bits 4 15:
	- carry out a POWER ON (switch-off/switch-on) for all components.
	- upgrade firmware to later version.
	···
507400	

F07420 Drive: Current setpoint filter natural frequency > Shannon frequency

Message value:	%1
Drive object:	All objects
Reaction:	NONE (OFF1, OFF2, OFF3)
Acknowledge:	IMMEDIATELY (POWER ON)

Cause:	One of the filter natural frequencies is greater than the Shannon frequency. The Shannon frequency is calculated according to the following formula: 0.5 / p0115[0] Fault value (r0949, interpret hexadecimal): Bit 0: Filter 1 (p1658, p1660) Bit 1: Filter 2 (p1663, p1665) Bit 2: Filter 3 (p1668, p1670) Bit 3: Filter 4 (p1673, p1675) Bit 8 15: Data set number (starting from zero) Bit 16: Filter 5 (p5202, p5204) - extended current setpoint filter (r0108.21) Bit 17: Filter 6 (p5207, p5209) - extended current setpoint filter (r0108.21) Bit 18: Filter 7 (p5212, p5214) - extended current setpoint filter (r0108.21) Bit 19: Filter 8 (p5217, p5219) - extended current setpoint filter (r0108.21) Bit 20: Filter 9 (p5222, p5224) - extended current setpoint filter (r0108.21) Bit 21: Filter 10 (p5227, p5229) - extended current setpoint filter (r0108.21)
Remedy:	 reduce the numerator or denominator natural frequency of the current setpoint filter involved. reduce the current controller sampling time (p0115[0]). switch out the filter involved (p1656).
F07421	Drive: Speed filter natural frequency > Shannon frequency
Message value:	%1
Drive object:	All objects
Reaction:	NONE (OFF1, OFF2, OFF3)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	One of the filter natural frequencies is greater than the Shannon frequency. The Shannon frequency is calculated according to the following formula: 0.5 / p0115[1] Fault value (r0949, interpret hexadecimal): Bit 0: Filter 1 (p1417, p1419) Bit 1: Filter 2 (p1423, p1425) Bit 4: Actual value filter (p1447, p1449) Bit 8 15: Data set number (starting from zero)
Remedy:	 reduce the numerator or denominator natural frequency of the speed setpoint filter involved. reduce the speed controller sampling time (p0115[1]). switch off the filter involved (p1413, p1414).
F07422	Drive: Reference model natural frequency > Shannon frequency
Message value:	-
Drive object:	All objects
Reaction:	NONE (OFF1, OFF2, OFF3)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The natural filter frequency of the PT2 element for the reference model (p1433) is greater than the Shannon frequency. The Shannon frequency is calculated according to the following formula: 0.5 / p0115[1]
Remedy:	 reduce the natural frequency of PT2 element for reference model (p1433). reduce the speed controller sampling time (p0115[1]).
F07429	Drive: DSC without encoder not possible
Message value:	-
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The function DSC (Dynamic Servo Control) was activated although there is no encoder.

Remedy:	Check the encoder selection configuration (p1192). Note:
	If there is no encoder and connector input p1191 (DSC position controller gain) is interconnected, then connector inpu p1191 must have a 0 signal.
F07430	Drive: Changeover to open-loop torque controlled operation not possible
Message value:	-
Drive object:	All objects
Reaction:	OFF2 (NONE, OFF1, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	For encoderless operation, the converter cannot change over to closed-loop torque-controlled operation (BI: p1501).
Remedy:	Do not attempt to cover over to closed-loop torque-controlled operation.
F07431	Drive: Changeover to encoderless operation not possible
Message value:	-
Drive object:	All objects
Reaction:	OFF2 (OFF1)
Acknowledge:	IMMEDIATELY
Cause:	For closed-loop torque control, the converter cannot change over to encoderless operation (p1404).
Remedy:	Do not attempt to change over to encoderless operation.
F07432	Drive: Motor without overvoltage protection
Message value:	%1
Drive object:	All objects
Reaction:	OFF2 (OFF1)
Acknowledge:	IMMEDIATELY
Cause:	In the case of a fault at maximum speed, the motor can generate an overvoltage that can destroy the drive system.
	Fault value (r0949, interpret hexadecimal):
	Associated Drive Data Set (DDS).

Remedy:	Overvoltage protection can be implemented in the following ways:
	1. Limit the maximum speed (p1082) without any additional protection.
	The maximum speed without protection is calculated as follows:

Rotary synchronous motors: p1082 [rpm] <= 11.695 * r0297/p0316 [Nm/A]

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Linear motors: p1082 [m/min] <= 73.484 * r0297/p0316 [N/A]

Rotary synchronous motor connected to the high-frequency converter:

p1082 [rpm] <= 4.33165E9 * (-p0316 + root(p0316^2 + 4.86E-9 * (r0297 * r0313)^2 * (r0377 - p0233) [mH] * p0234 [µF]) / (r0297 * r0313^2 * (r0377 - p0233) [mH] * p0234 [µF])

Linear motor connected to the high-frequency converter:

p1082 [m/min] <= 689.403 * p0315 * (root(p0316^2 * p0315^2 + 0.191865 * r0297^2 * (r0377 - p0233) [mH] * p0234 [µF]) / (r0297 * (r0377 - p0233) [mH] * p0234 [µF])

Rotary induction motor connected to the high-frequency converter:

p1082 [rpm] <= maximum (2.11383E5 / (r0313 * root((r0377 [mH] + r0382 [mH]) * p0234 [µF])); 0.6364 * r0297 * p0311[rpm] / p0304)

2. Use a Voltage Protection Module (VPM) in conjunction with the function "Safe Torque Off" (p9601, p9801 - only for synchronous motors).

When using a synchronous motor with VPM at the high-frequency converter, the following must apply: p1082 [rpm] <= p0348 * (r0377 + p0233) / p0233

When a fault condition exists, the VPM short-circuits the motors. During the short-circuit, the pulses must be suppressed - this means that the terminals for the function "Safe Torque Off" (STO) must be connected to the VPM.

When using a VPM, p0643 must be set to 1.

3. Activate the internal voltage protection (p1231 = 3, only for synchronous motors).

In so doing, the following hardware preconditions must be fulfilled:

- the infeed of the group must be capable of energy recovery (Active Line Module, Smart Line Module), and the energy recovery power of the infeed must not be less than the maximum utilized S1 power of the synchronous motor.

- For Control Unit and infeed, a 24 V power supply other than that for the Motor Module must be used with the voltage protection activated. The 24 V power supply of this Motor Module must be DC link buffered (e.g. CSM).

- a Braking Module with a correspondingly configured braking resistor must be available at the DC link.

⁻ the synchronous motor must be short-circuit proof.

F07433	Drive: Closed-loop control with encoder is not possible as the encoder has not been unparked
Message value:	%1
Drive object:	All objects
Reaction:	NONE (OFF1, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The changeover to closed-loop control with encoder is not possible as the encoder has not been unparked.
Remedy:	 check whether the encoder firmware supports the "parking" function (r0481.6 = 1). upgrade the firmware. Note:
	For long-stator motors (p3870.0 = 1), the following applies:
	The encoder must have completed the unparking procedure ($r_{3875.0} = 1$) before a changeover can be made to closed-loop control with encoder. The encoder is unparked using binector input p3876 = 0/1 signal and remains until a 0 signal in this state.

F07434 Drive: It is not possible to change the direction of rotation with the pulses enabled

Message value:	-
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A drive data set was selected - with the pulses enabled - which has a different parameterized direction of rotation (p1821).
	It is only possible to change the motor direction of rotation using p1821 when the pulses are inhibited.

Remedy:	 change over the drive data set with the pulses inhibited. ensure that the changeover to a drive data set does not result in the motor direction of rotation being changed (i.e. for
	these drive data sets, the same value must be in p1821).
	See also: p1821
F07439	Drive: Function not supported
Message value:	%1
Drive object:	All objects
Reaction:	OFF2 (NONE)
Acknowledge:	IMMEDIATELY
Cause:	The power unit does not support the selected function.
	Fault value (r0949, interpret decimal):
	1:
	The function "Current controller dynamic response higher" is selected (p1810.11 = 1), however, this is not supported by the power unit (r0192.27 = 0).
	- firmware of the booksize power unit is not up-to-date.
	- blocksize power unit was used.
	2:
	The function "Current controller dynamic response higher" is selected (p1810.11 = 1), however, this is not supported by the safety technology without encoder (9506 = 1, 3).
	3:
	The function "DC link voltage compensation in the power unit" is selected ($p1810.1 = 1$), however, this is not supported by the power unit ($r0192.28 = 0$).
Remedy:	For fault value = 1:
	- if necessary, upgrade the firmware of the booksize power unit to a later version (version >= 4.4).
	Note:
	If the firmware has already been automatically upgraded, then only a POWER ON (switch-off/switch-on) is required.
	- Use a booksize power unit (version >= 4.4). For fault value = 2:
	 - if an encoder with Safety position actual values sensing is available (r0458[02].19 = 1), reparameterize the encoderless
	safety technology ($p9506 = 1, 3$) to safety technology with encoder ($p9506 = 0$).
	For fault value = 1, 2:
	- Deselect the function "Current controller dynamics higher" (p1810.11 = 0) and if required, set the current, speed and position controller again or calculate (p0340 = 4).
	For fault value = 3:
	- if necessary, upgrade the firmware of the blocksize power unit to a later version (version >= 4.6).
	- deselect the "DC link voltage compensation in the power unit" function (p1810.1 = 0).
	See also: p9506
F07447	Load gear: Position tracking, maximum actual value exceeded
Message value:	Component number: %1, encoder data set: %2, drive data set: %3
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	When the position tracking of the load gear is configured, the drive/encoder (motor encoder) identifies a maximum possible absolute position actual value (r2723) that can no longer be represented within 32 bits.
	Maximum value: p0408 * p2721 * 2^p0419
	Fault value (r0949, interpret hexadecimal):
	ccbbaa hex
	aa = encoder data set
	bb = component number
	cc = drive data set

Remedy:- reduce the fine resolution (p0419).- reduce the multiturn resolution (p2721).

F07448 (A)	Load gear: Position tracking, linear axis has exceeded the maximum range
Message value:	- ·
Drive object:	All objects
Reaction:	Servo: OFF1 (NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	For a configured linear axis/no modulo axis, the currently effective motor encoder (encoder 1) has exceeded the maximum possible traversing range.
	For the configured linear axis, the maximum traversing range is defined to be 64x (+/- 32x) of p0421. It should be read in p2721 and interpreted as the number of load revolutions.
	Note:
	Only the motor encoder in the currently effective drive data set is monitored here. The actual effective drive data set is displayed in $x = r0051$ and the corresponding motor encoder is specified in in p0187[x].
Remedy:	The fault should be resolved as follows:
	- select encoder commissioning (p0010 = 4).
	- reset position tracking, position (p2720.2 = 1).
	- deselect encoder commissioning (p0010 = 0).
	The fault should then be acknowledged and the absolute encoder adjusted.
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F07449 (A)	Load gear: Position tracking actual position outside tolerance window
Message value:	%1
Drive object:	All objects
Reaction:	Servo: OFF1 (NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	When switched off, the currently effective motor encoder was moved through a distance greater than was parameterized in the tolerance window. It is possible that there is no longer any reference between the mechanical system and encoder.
	Note:
	Only the motor encoder in the currently effective drive data set is monitored here. The actual effective drive data set is displayed in $x = r0051$ and the corresponding motor encoder is specified in in p0187[x].
	Fault value (r0949, interpret decimal):
	Deviation (difference) to the last encoder position in increments of the absolute value after the measuring gear - if one is being used. The sign designates the traversing direction.
	Note:
	The deviation (difference) found is also displayed in r2724.
Remedy:	Reset the position tracking as follows:
	- select encoder commissioning (p0010 = 4).
	- reset position tracking, position (p2720.2 = 1).
	- deselect encoder commissioning (p0010 = 0).
	The fault should then be acknowledged and, if necessary, the absolute encoder adjusted (p2507).
	See also: p0010
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F07500 Drive: Power unit data set PDS not configured

Message value:Drive data set: %1Drive object:All objectsReaction:NONE

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Faults and alarms

13.2 List of faults and alarms

Acknowledge:	IMMEDIATELY
Cause:	Only for controlled line supply infeed/regenerative feedback units:
	The power unit data set was not configured - this means that a data set number was not entered into the drive data set.
	Fault value (r0949, interpret decimal):
	Drive data set number of p0185.
Remedy:	The index of the power unit data set associated with the drive data set should be entered into p0185.
F07501	Drive: Motor Data Set MDS not configured
Message value:	Drive data set: %1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	Only for power units:
	The motor data set was not configured - this means that a data set number was not entered into the associated drive data set.
	Fault value (r0949, interpret decimal):
	The fault value includes the drive data set number of p0186.
Remedy:	The index of the motor data set associated with the drive data set should be entered into p0186.
F07502	Drive: Encoder Data Set EDS not configured
Message value:	Drive data set: %1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	Only for power units:
	The encoder data set was not configured - this means that a data set number was not entered into the associated drive data set.
	Fault value (r0949, interpret decimal):
	The fault value includes the drive data set number of p0187, p0188 and p0189.
	The fault value is increased by 100 * encoder number (e.g. for p0189: Fault value 3xx with xx = data set number).
Remedy:	The index of the encoder data set associated with the drive data set should be entered into p0187 (1st encoder), p0188 (2nd encoder) and p0189 (3rd encoder).
A07504	Drive: Motor data set is not assigned to a drive data set
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	A motor data set is not assigned to a drive object.
	All of the existing motor data sets in the drive data sets must be assigned using the MDS number (p0186[0n]). There must be at least as many drive data sets as motor data sets.
	Alarm value (r2124, interpret decimal):
	Number of the motor data set that has not been assigned.
Remedy:	In the drive data sets, assign the non-assigned motor data set using the MDS number (p0186[0n]).
	- check whether all of the motor data sets are assigned to drive data sets.
	- if required, delete superfluous motor data sets.
	- if required, set up new drive data sets and assign to the corresponding motor data sets.
F07509	Drive: Component assignment missing

F07509 Drive: Component assignment missing

Message value: %1

Drive object:	All objects
Reaction:	All objects OFF2
Acknowledge:	IMMEDIATELY
Cause:	A Drive Data Set (DDS) is assigned to a Motor Data Set (MDS) or Encoder Data Set (EDS) that does not have a component number.
	Fault value (r0949, interpret decimal):
	nnmmxxyyy
	nn: Number of the MDS/EDS.
	mmm: Parameter number of the missing component number.
	xx: Number of the DDS that is assigned to the MDS/EDS.
	yyy: Parameter number that references the MDS/EDS.
	Example:
	p0186[7] = 5: DDS 7 is assigned MDS 5.
	p0131[5] = 0: There is no component number set in MDS 5.
	Alarm value = 0513107186
Remedy:	In the drive data sets, no longer assign MDS/EDS using p0186, p0187, p0188, p0189 or set a valid component number.
F07510	Drive: Identical encoder in the drive data set
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	More than one encoder with identical component number is assigned to a single drive data set. In one drive data set, it is not permissible that identical encoders are operated together.
	Fault value (r0949, interpret decimal):
	1000 * first identical encoder + 100 * second identical encoder + drive data set.
	Example:
	Fault value = 1203 means:
Pomodu //	In drive data set 3, the first (p0187[3]) and second encoder (p0188[3]) are identical.
Remedy:	Assign the drive data set to different encoders.
F07511	Drive: Encoder used a multiple number of times
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	Each encoder may only be assigned to one drive and within a drive must - in each drive data set - either always be encoder 1, always encoder 2 or always encoder 3. This unique assignment has been violated. Fault value (r0949, interpret decimal):
	The two parameters in coded form, that refer to the same component number.
	First parameter:
	Index: First and second decimal place (99 for EDS, not assigned DDS)
	Parameter number: Third decimal place (1 for p0187, 2 for p0188, 3 for p0189, 4 for EDS not assigned DDS)
	Drive number: Fourth and fifth decimal place
	Second parameter:
	Index: Sixth and seventh decimal place (99 for EDS, not assigned DDS)
	Parameter number: Eighth decimal place (1 for p0187, 2 for p0188, 3 for p0189, 4 for EDS, not assigned DDS)
	Drive number: Ninth and tenth decimal place
Remedy:	Correct the double use of a component number using the two parameters coded in the fault value.

Faults and alarms

F07512	Drive: Encoder data set changeover cannot be parameterized
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	Using p0141, a changeover of the encoder data set is prepared that is illegal. In this firmware release, an encoder data
Cause.	set changeover is only permitted for the components in the actual topology.
	Fault value (r0949, interpret decimal): Incorrect EDS data set number.
Remedy:	Every encoder data set must be assigned its own dedicated DRIVE-CLiQ socket. The component numbers of the encode
,	interfaces (p0141) must have different values within a drive object.
	The following must apply:
	p0141[0] not equal to p0141[1] not equal to not equal to p0141[n]
A07514 (N)	Drive: Data structure does not correspond to the interface module
Message value:	
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The interface mode "SIMODRIVE 611 universal" was set (p2038 = 1) and the data structure does not correspond to this mode.
	The following settings are possible, depending on the number of data sets:
	Number of DDS/MDS (p0180/p0130): p0186
	1/1: p0186[0] = 0
	2/2: p0186[0] = 0, p0186[1] = 1
	4/4: p0186[0] = 0, p0186[1] = 1, p0186[2] = 2, p0186[3] = 3
	8/8: p0186[0] = 0, p0186[1] = 1, p0186[2] = 2 p0186[7] = 7
	16/16: p0186[0] = 0, p0186[1] = 1, p0186[2] = 2 p0186[15] = 15
	32/32: p0186[0] = 0, p0186[1] = 1, p0186[2] = 2 p0186[31] = 31
	2/1: p0186[0, 1] = 0
	4/2: p0186[0, 1] = 0, p0186[1, 2] = 1
	8/4: p0186[0, 1] = 0, p0186[1, 2] = 1, p0186[3, 4] = 2, p0186[5, 6] = 3
	16/8: p0186[0, 1] = 0, p0186[1, 2] = 1, p0186[3, 4] = 2 p0186[14, 15] = 7
	32/16: p0186[0, 1] = 0, p0186[1, 2] = 1, p0186[3, 4] = 2 p0186[30, 31] = 15
	4/1: p0186[0, 1, 2, 3] = 0
	8/2: p0186[0, 1, 2, 3] = 0, p0186[4, 5, 6, 7] = 1
	16/4: p0186[0, 1, 2, 3] = 0, p0186[4, 5, 6, 7] = 1, p0186[8, 9, 10, 11] = 2, p0186[12, 13, 14, 15] = 3
	32/8: p0186[0, 1, 2, 3] = 0, p0186[4, 5, 6, 7] = 1, p0186[8, 9, 10, 11] = 2 p0186[28, 29, 30, 31] = 7 8/1: p0186[07] = 0
	16/2: p0186[07] = 0, p0186[815] = 1
	32/4: p0186[07] = 0, p0186[815] = 1, p0186[1623] = 2, p0186[2431] = 3
	16/1: p0186[015] = 0
	32/2: p0186[015] = 0, p0186[1631] = 1
	32/1: p0186[031] = 0
	9/2: p0186[07] = 0, p0186[8] = 1
	10/2: p0186[07] = 0, p0186[8, 9] = 1
	12/2: p0186[07] = 0, p0186[811] = 1
Remedy:	- check the data structure according to the possible settings mentioned in the cause.
-	- check the interface mode (p2038).
Reaction upon N:	NONE

F07515	Drive: Power unit and motor incorrectly connected
Message value:	%1
Orive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A power unit (via PDS) was assigned to a motor (via MDS) in a drive data set that is not connected in the target topology It is possible that a motor has not been assigned to the power unit (p0131). Fault value (r0949, interpret decimal):
D	Number of the incorrectly parameterized drive data set.
Remedy:	 assign the drive data set to a combination of motor and power unit permitted by the target topology. adapt the target topology.
	- if required, for a missing motor, recreate the component (drive Wizard).
F07516	Drive: Re-commission the data set
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The assignment between the drive data set and motor data set (p0186) or between the drive data set and the encoder data set was modified (p0187). This is the reason that the drive data set must re-commissioned. Fault value (r0949, interpret decimal): Drive data set to be re-commissioned.
Remedy:	Commission the drive data set specified in the fault value (r0949).
F07517	Drive: Encoder data set changeover incorrectly parameterized
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	In at least two drive data sets (DDS), the same motor data set (MDS) is assigned different encoder data sets (EDS) for the motor encoder. In various DDSs, it is not permissible for an MDS to have different motor encoders. The following parameterization therefore results results in an error: DDS0: p0186[0] = 0, p0187[0] = 0 DDS1: p0186[1] = 0, p0187[1] = 1 Fault value (r0949, interpret decimal): The lower 16 bits indicate the first DDS. The upper 16 bits indicate the second DDS.
Remedy:	Create two MDS with the same motor data in order to operate one motor with different motor encoders. Example: DDS0: p0186[0] = 0, p0187[0] = 0 DDS1: p0186[1] = 1, p0187[1] = 1
F07518	Drive: Motor data set changeover incorrectly parameterized
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY

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Cause:	The system has identified that two motor data sets were incorrectly parameterized. Parameter r0313 (calculated from p0314, p0310, p0311), r0315 and p1982 may only have different values if the motor
	data sets are assigned different motors. p0827 is used to assign the motors and/contactors.
	It is not possible to toggle between motor data sets.
	Fault value (r0949, interpret hexadecimal):
	ххххуууу:
	xxxx: First DDS with assigned MDS, yyyy: Second DDS with assigned MDS
Remedy:	Correct the parameterization of the motor data sets.
A07519	Drive: Motor changeover incorrectly parameterized
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	With the setting p0833.0 = 1, a motor changeover via the application is selected. This is the reason that p0827 must have different values in the appropriate motor data set.
	Alarm value (r2124, interpret hexadecimal):
	ххххуууу:
	xxxx: First MDS, yyyy: Second MDS
Remedy:	- parameterize the appropriate motor data sets differently (p0827).
	- select the setting p0833.0 = 0 (motor changeover via the drive).
A07520	Drive: Motor cannot be changed over
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The motor cannot be changed over.
	Alarm value (r2124, interpret decimal): 1:
	The contactor for the motor that is presently active cannot be opened, because for a synchronous motor, the speed (r0063) is greater than the speed at the start of field weakening (p0348). As long as r0063 > p0348, the current in the motor does not decay in spite of the pulses being suppressed.
	2:
	The "contactor opened" feedback signal was not detected within 1 s.
	3:
	The "contactor closed" feedback signal was not detected within 1 s.
Remedy:	For alarm value = 1:
	Set the speed lower than the speed at the start of field weakening (r0063 < p0348).
	For alarm value = 2, 3:
	Check the feedback signals of the contactor involved.
A07530	Drive: Drive Data Set DDS not present
A07530 Message value:	Drive: Drive Data Set DDS not present
	Drive: Drive Data Set DDS not present - All objects
Message value:	- ·
Message value: Drive object: Reaction:	- All objects
Message value: Drive object:	- All objects NONE NONE
Message value: Drive object: Reaction: Acknowledge:	- All objects NONE

 A07531	Drive: Command Data Set CDS not present
Message value:	
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The selected command data set is not available (p0836 > p0170). The command data set was not changed over.
Remedy:	- select the existing command data set.
Remouy.	- set up additional command data sets.
A07541	Drive: Data set changeover not possible
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The selected drive data set changeover and the assigned motor changeover are not possible and are not carried out.
	For synchronous motors, the motor contactor may only be switched for actual speeds less than the speed at the start of field weakening (r0063 < p0348). See also: r0063
Remedy:	Reduce the speed to below the speed at the start of field weakening (r0063 < p0348).
rtomody.	
A07550 (F, N)	Drive: Not possible to reset encoder parameters
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	When carrying out a factory setting (e.g. using p0970 = 1), it was not possible to reset the encoder parameters. The encoder parameters are directly read out of the encoder via DRIVE-CLiQ. Alarm value (r2124, interpret decimal):
	Component number of the encoder involved.
Remedy:	- repeat the operation.
	- check the DRIVE-CLiQ connection.
Reaction upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
F07551	Drive encoder: No commutation angle information
Message value:	Fault cause: %1, drive data set: %2
Drive object:	All objects
Reaction:	Servo: OFF2 (IASC/DCBRK)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The commutation angle information is missing. This means that synchronous motors cannot be controlled (closed-loop control)
	Fault value (r0949, interpret decimal):
	yyyyxxxx dec: yyyy = fault cause, xxxx = drive data set
	yyyy = 1 dec:
	yyyy = 1 dec:

Remedy:	For fault cause = 1: - check the encoder parameterization (p0404). - use an encoder with track C/D, EnDat interface of Hall sensors. - use an encoder with sinusoidal A/B track for which the motor pole pair number (r0313) multiplied by the gear ratio (p0432/ p0433) is less than the encoder pulse number (p0408) – or is an integer multiple of the encoder pulse number (p0408). - activate the pole position identification routine (p1982 = 1). For fault cause = 2:
	- the quotient of the pole pair number divided by the ratio of the measuring gear must be an integer number: (p0314 * p0433) / p0432. Note:
	For operation with track C/D, this quotient must be less than 8.
F07552 (A)	Drive encoder: Encoder configuration not supported
Message value:	Fault cause: %1, component number: %2, encoder data set: %3
Drive object:	All objects
Reaction:	Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The requested encoder configuration is not supported. Only bits may be requested in p0404 that are signaled as being supported by the encoder evaluation in r0456. Fault value (r0949, interpret decimal):
	ccccbbaa hex: cccc = fault cause, bb = component number, aa = encoder data set
	cccc = 1: encoder sin/cos with absolute track (is supported by SME25).
	cccc = 3: Squarewave encoder (this is supported by SMC30).
	cccc = 4: sin/cos encoder (this is supported by SMC20, SMI20, SME20, SME25).
	cccc = 10: DRIVE-CLiQ encoder (is supported by DQI).
	cccc = 12: sin/cos encoder with reference mark (this is supported by SME20).
	cccc = 15: Commutation with zero mark for separately excited synchronous motors with VECTORMV.
	cccc = 23: Resolver (this is supported by SMC10, SMI10).
	cccc = 65535: Other function (compare r0456 and p0404).
Remedy:	- check the encoder parameterization (p0400, p0404).
	- use the matching encoder evaluation (r0456).
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F07553 (A)	Drive encoder: Sensor Module configuration not supported
Message value:	Encoder data set: %1, first incorrect bit: %2, incorrect parameter: %3
Drive object:	All objects
Reaction:	Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)

Acknowledge: IMMEDIATELY (POWER ON)

Causas	
Cause:	The Sensor Module does not support the requested configuration.
	For incorrect $p0430$ (cc = 0), the following applies:
	- in p0430 (requested functions), at least 1 bit was set that is not set in r0458 (supported functions) (exception: Bit 19, 28 29, 30, 31).
	- p1982 > 0 (pole position identification requested), but r0458.16 = 0 (pole position identification not supported).
	For incorrect p0437 (cc = 1), the following applies:
	- in p0437 (requested functions), at least 1 bit was set that is not set in r0459 (supported functions).
	Fault value (r0949, interpret hexadecimal):
	ddccbbaa hex
	aa: encoder data set number
	bb: first incorrect bit
	cc: incorrect parameter
	cc = 0: incorrect parameter is p0430
	cc = 1: incorrect parameter is p0437
	cc = 2: incorrect parameter is r0459
	dd: reserved (always 0)
Remedy:	- check the encoder parameterization (p0430, p0437).
	- check the pole position identification routine (p1982).
	- use the matching encoder evaluation (r0458, r0459).
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F07555 (A)	Drive encoder: Configuration position tracking
	Component number: 9/1, oncoder data act: 9/2, drive data act: 9/2, foult acuse: 9/4
Message value:	Component number: %1, encoder data set: %2, drive data set: %3, fault cause: %4
Message value: Drive object:	All objects
-	
Drive object:	All objects
Drive object: Reaction:	All objects Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Drive object: Reaction: Acknowledge:	All objects Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2) IMMEDIATELY (POWER ON)
Drive object: Reaction: Acknowledge:	All objects Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2) IMMEDIATELY (POWER ON) For position tracking, the configuration is not supported.
Drive object: Reaction: Acknowledge:	All objects Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2) IMMEDIATELY (POWER ON) For position tracking, the configuration is not supported. Position tracking can only be activated for absolute encoders.
Drive object: Reaction: Acknowledge:	All objects Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2) IMMEDIATELY (POWER ON) For position tracking, the configuration is not supported. Position tracking can only be activated for absolute encoders. For linear axes, it is not possible to simultaneously activate the position tracking for load and measuring gears.
Drive object: Reaction: Acknowledge:	All objects Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2) IMMEDIATELY (POWER ON) For position tracking, the configuration is not supported. Position tracking can only be activated for absolute encoders. For linear axes, it is not possible to simultaneously activate the position tracking for load and measuring gears. Fault value (r0949, interpret hexadecimal):
Drive object: Reaction: Acknowledge:	All objects Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2) IMMEDIATELY (POWER ON) For position tracking, the configuration is not supported. Position tracking can only be activated for absolute encoders. For linear axes, it is not possible to simultaneously activate the position tracking for load and measuring gears. Fault value (r0949, interpret hexadecimal): ddccbbaa hex
Drive object: Reaction: Acknowledge:	All objects Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2) IMMEDIATELY (POWER ON) For position tracking, the configuration is not supported. Position tracking can only be activated for absolute encoders. For linear axes, it is not possible to simultaneously activate the position tracking for load and measuring gears. Fault value (r0949, interpret hexadecimal): ddccbbaa hex aa = encoder data set
Drive object: Reaction: Acknowledge:	All objects Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2) IMMEDIATELY (POWER ON) For position tracking, the configuration is not supported. Position tracking can only be activated for absolute encoders. For linear axes, it is not possible to simultaneously activate the position tracking for load and measuring gears. Fault value (r0949, interpret hexadecimal): ddccbbaa hex aa = encoder data set bb = component number
Drive object: Reaction: Acknowledge:	All objects Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2) IMMEDIATELY (POWER ON) For position tracking, the configuration is not supported. Position tracking can only be activated for absolute encoders. For linear axes, it is not possible to simultaneously activate the position tracking for load and measuring gears. Fault value (r0949, interpret hexadecimal): ddccbbaa hex aa = encoder data set bb = component number cc = drive data set
Drive object: Reaction: Acknowledge:	All objects Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2) IMMEDIATELY (POWER ON) For position tracking, the configuration is not supported. Position tracking can only be activated for absolute encoders. For linear axes, it is not possible to simultaneously activate the position tracking for load and measuring gears. Fault value (r0949, interpret hexadecimal): ddccbbaa hex aa = encoder data set bb = component number cc = drive data set dd = fault cause
Drive object: Reaction: Acknowledge:	All objects Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2) IMMEDIATELY (POWER ON) For position tracking, the configuration is not supported. Position tracking can only be activated for absolute encoders. For linear axes, it is not possible to simultaneously activate the position tracking for load and measuring gears. Fault value (r0949, interpret hexadecimal): ddccbbaa hex aa = encoder data set bb = component number cc = drive data set dd = fault cause dd = 00 hex = 0 dec
Drive object: Reaction: Acknowledge:	All objects Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2) IMMEDIATELY (POWER ON) For position tracking, the configuration is not supported. Position tracking can only be activated for absolute encoders. For linear axes, it is not possible to simultaneously activate the position tracking for load and measuring gears. Fault value (r0949, interpret hexadecimal): ddccbbaa hex aa = encoder data set bb = component number cc = drive data set dd = fault cause dd = fault cause dd = 00 hex = 0 dec An absolute encoder is not being used.
Drive object: Reaction: Acknowledge:	All objects Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2) IMMEDIATELY (POWER ON) For position tracking, the configuration is not supported. Position tracking can only be activated for absolute encoders. For linear axes, it is not possible to simultaneously activate the position tracking for load and measuring gears. Fault value (r0949, interpret hexadecimal): ddccbbaa hex aa = encoder data set bb = component number cc = drive data set dd = fault cause dd = fault cause dd = 00 hex = 0 dec An absolute encoder is not being used. dd = 01 hex = 1 dec Position tracking cannot be activated because the memory of the internal NVRAM is not sufficient or a Control Unit does
Drive object: Reaction: Acknowledge:	All objects Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2) IMMEDIATELY (POWER ON) For position tracking, the configuration is not supported. Position tracking can only be activated for absolute encoders. For linear axes, it is not possible to simultaneously activate the position tracking for load and measuring gears. Fault value (r0949, interpret hexadecimal): ddccbbaa hex aa = encoder data set bb = component number cc = drive data set dd = fault cause dd = fault cause dd = 00 hex = 0 dec An absolute encoder is not being used. dd = 01 hex = 1 dec Position tracking cannot be activated because the memory of the internal NVRAM is not sufficient or a Control Unit does not have an NVRAM.
Drive object: Reaction: Acknowledge:	All objects Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2) IMMEDIATELY (POWER ON) For position tracking, the configuration is not supported. Position tracking can only be activated for absolute encoders. For linear axes, it is not possible to simultaneously activate the position tracking for load and measuring gears. Fault value (r0949, interpret hexadecimal): ddccbbaa hex aa = encoder data set bb = component number cc = drive data set dd = fault cause dd = fault cause dd = 00 hex = 0 dec An absolute encoder is not being used. dd = 01 hex = 1 dec Position tracking cannot be activated because the memory of the internal NVRAM is not sufficient or a Control Unit does not have an NVRAM. dd = 02 hex = 2 dec
Drive object: Reaction: Acknowledge:	All objects Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2) IMMEDIATELY (POWER ON) For position tracking, the configuration is not supported. Position tracking can only be activated for absolute encoders. For linear axes, it is not possible to simultaneously activate the position tracking for load and measuring gears. Fault value (r0949, interpret hexadecimal): ddccbbaa hex aa = encoder data set bb = component number cc = drive data set dd = fault cause dd = 00 hex = 0 dec An absolute encoder is not being used. dd = 01 hex = 1 dec Position tracking cannot be activated because the memory of the internal NVRAM is not sufficient or a Control Unit does not have an NVRAM. dd = 02 hex = 2 dec For a linear axis, the position tracking was activated for the load and measuring gear.
Drive object: Reaction: Acknowledge:	All objects Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2) IMMEDIATELY (POWER ON) For position tracking, the configuration is not supported. Position tracking can only be activated for absolute encoders. For linear axes, it is not possible to simultaneously activate the position tracking for load and measuring gears. Fault value (r0949, interpret hexadecimal): ddccbbaa hex aa = encoder data set bb = component number cc = drive data set dd = fault cause dd = 00 hex = 0 dec An absolute encoder is not being used. dd = 01 hex = 1 dec Position tracking cannot be activated because the memory of the internal NVRAM is not sufficient or a Control Unit does not have an NVRAM. dd = 02 hex = 2 dec For a linear axis, the position tracking was activated for the load and measuring gear. dd = 03 hex = 3 dec

Drive, encoder: Position tracking, incremental encoder not possible
- upgrade the Sensor Module firmware if necessary
- check the parameterization (p0421, p0404.1, r0458.5).
The fault value includes the encoder data set number involved.
The multiturn resolution in p0421 must be to the power of two. Fault value (r0949, interpret decimal):
IMMEDIATELY (POWER ON)
Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
All objects
Encoder data set: %1
Drive encoder: Number of multiturn pulses is not to the power of two
- check the parameterization (p0408, p0404.1, r0458.5). - upgrade the Sensor Module firmware if necessary
The fault value includes the encoder data set number involved.
Fault value (r0949, interpret decimal):
For rotary absolute encoders, the pulse number in p0408 must be to the power of two.
IMMEDIATELY (POWER ON)
Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
All objects
Encoder data set: %1
Drive encoder: Number of pulses is not to the power of two
- reduce the multiturn resolution (p0412).
- reduce the fine resolution (p0419).
aaaayyxx hex: yy = component number, xx = encoder data set
Fault value (r0949, interpret decimal):
Maximum value: p0408 * p0412 * 2^p0419
position actual value (r0483) that cannot be represented within 32 bits.
When the position tracking of the measuring gear is configured, the drive/encoder identifies a maximum possible absolute
IMMEDIATELY
NONE
All objects
Component number: %1, encoder data set: %2
Measuring gear: Position tracking, maximum actual value exceeded
NONE
(p2720.1) and tolerance window (p2722) are also the same. These parameters must be the same in all drive data sets, which use the same motor encoder (p187).
- Only activate position tracking of the load gear in the same encoder data set if the gear ratio (p2504, p2505), axis type
For fault value 3:
- if necessary, de-select the position tracking (p0411 for the measuring gear, p2720 for the load gear).
For fault value = 2, 4:
- use a Control Unit with sufficient NVRAM.
For fault value 1:
For fault value 0: - use an absolute encoder.

Message value: Fault cause: %1, component number: %2, encoder data set: %3

Drive object:	All objects
Reaction:	Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The requested position tracking for incremental encoders is not supported.
	Fault value (r0949, interpret hexadecimal):
	ccccbbaa hex
	aa = encoder data set
	bb = component number
	cccc = fault cause
	cccc = 00 hex = 0 dec
	The encoder type does not support the "Position tracking incremental encoder" function.
	cccc = 01 hex = 1 dec
	Position tracking cannot be activated because the memory of the internal NVRAM is not sufficient or a Control Unit does not have an NVRAM.
	cccc = 04 hex = 4 dec
	A linear encoder is used that does not support the "position tracking" function.
Remedy:	- check the encoder parameterization (p0400, p0404).
	- use a Control Unit with sufficient NVRAM.
	- if required, de-select position tracking for the incremental encoder (p0411.3 = 0).
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F07563 (A)	Drive encoder: XIST1_ERW configuration incorrect
Message value:	Fault cause: %1, encoder data set: %2
Drive object:	All objects
Reaction:	
	Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	An incorrect configuration was identified for the "Absolute position for incremental encoder" function.
	Fault value (r0949, interpret decimal): Fault cause:
	1 (= 01 hex):
	The "Absolute value for incremental encoder" function is not supported (r0459.13 = 0).
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	yyxx dec: yy = fault cause, xx = encoder data set
Remedy:	For fault value = 1:
	- upgrade the Sensor Module firmware version.
	- check the mode (p4652 = 1, 3 requires the property r0459.13 = 1).
Reaction upon A:	NONE
Acknowl. upon A:	NONE
A07565 (F, N)	Drive: Encoder error in PROFIdrive encoder interface 1
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE

Faults and alarms

Cause:	An encoder error was signaled for encoder 1 via the PROFIdrive encoder interface (G1_ZSW.15).
	Alarm value (r2124, interpret decimal):
	Error code from G1_XIST2, refer to the description regarding r0483.
	Note:
	This alarm is only output if p0480[0] is not equal to zero.
	Encoder control word Gn_STW signal source (p0480[02], n = encoder 1, 2, 3)
Damadan	Encoder status word Gn_ZSW (r0481[02], n = encoder 1, 2, 3)
Remedy:	Acknowledge the encoder error using the encoder control word ($G1_STW.15 = 1$).
Reaction upon F:	Servo: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A07566 (F, N)	Drive: Encoder error in PROFIdrive encoder interface 2
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	An encoder error was signaled for encoder 2 via the PROFIdrive encoder interface (G2_ZSW.15).
oudoo.	Alarm value (r2124, interpret decimal):
	Error code from G2_XIST2, refer to the description regarding r0483.
	Note:
	This alarm is only output if p0480[1] is not equal to zero.
	Encoder control word Gn_STW signal source (p0480[02], n = encoder 1, 2, 3)
	Encoder status word Gn_ZSW (r0481[02], n = encoder 1, 2, 3)
Remedy:	Acknowledge the encoder error using the encoder control word (G2_STW.15 = 1).
Reaction upon F:	NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A07567 (F, N)	Drive: Encoder error in PROFIdrive encoder interface 3
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	An encoder error was signaled for encoder 3 via the PROFIdrive encoder interface (G3_ZSW.15).
	Alarm value (r2124, interpret decimal):
	Error code from G3_XIST2, refer to the description regarding r0483.
	Note:
	This alarm is only output if p0480[2] is not equal to zero.
	Encoder control word Gn_STW signal source (p0480[02], n = encoder 1, 2, 3)
Domodur	Encoder status word Gn_ZSW (r0481[02], n = encoder 1, 2, 3)
Remedy:	Acknowledge the encoder error using the encoder control word (G3_STW.15 = 1).
Reaction upon F:	NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	
Reaction upon N:	
Acknowl. upon N:	

A07569 (F)	Enc identification active
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	During encoder identification (waiting) with p0400 = 10100, the encoder could still not be identified. Either the wrong encoder has been installed or no encoder has been installed, the wrong encoder cable has been connected or no encoder cable has been connected to the Sensor Module, or the DRIVE-CLiQ component has not been connected. Note: Encoder identification must be supported by the encoder and is possible in the following cases: - Encoder with EnDat interface.
	- Encoder with SSI interface. - Motor with DRIVE-CLiQ.
Remedy:	 - check and, if necessary, connect the encoder / encoder cable. - check and, if necessary, establish the DRIVE-CLiQ connection. - for SSI encoders, carry out the required operator actions (see the Function Manual). - in the case of encoders that cannot be identified (e.g. encoders without EnDat interface), enter the correct encoder type in p0400.
Reaction upon F:	Servo: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	
N07570 (F)	Encoder identification data transfer running
Message value:	-
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	NONE
Cause:	The encoder type was automatically determined using p0400 = 10100. Note:
	This fault causes the pulses to be suppressed - this is necessary to transfer the encoder parameterization to p0400 and the following.
Remedy:	Acknowledge the fault without taking additional measures.
Reaction upon F:	OFF2
Acknowl. upon F:	IMMEDIATELY
F07575	Drive: Motor encoder not ready
Message value:	-
Drive object:	All objects
Reaction:	Servo: OFF2 (ENCODER)
Acknowledge:	IMMEDIATELY
Cause:	 The motor encoder signals that it is not ready. - initialization of encoder 1 (motor encoder) was unsuccessful. - the function "parking encoder" is active (encoder control word G1_STW.14 = 1). - the encoder interface (Sensor Module) is deactivated (p0145). - the Sensor Module is defective.
Remedy:	Evaluate other queued faults via encoder 1.
A07576	Drive: Encoderless operation due to a fault active
Message value:	
Drive object:	All objects

Drive object: All objects

Faults and alarms

Reaction:	NONE
Acknowledge:	NONE
Cause:	Encoderless operation is active due to a fault (r1407.13 = 1).
	Note:
	The behavior for faults has been set to ENCODER fault response in p0491.
Remedy:	- remove the cause of a possible encoder fault.
	- carry out a POWER ON (switch-off/switch-on) for all components.
407590 (E NI)	Drive: No Sensor Module with metabing companent number
A07580 (F, N)	
Message value:	Encoder data set: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	A Sensor Module with the component number specified in p0141 was not found.
	Alarm value (r2124, interpret decimal):
	Encoder data set involved (index of p0141).
Remedy:	Correct parameter p0141.
Reaction upon F:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
 F07754	Drive: Incorrect shutoff valve configuration
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	An incorrect shutoff valve configuration was detected.
	Fault value (r0949, interpret decimal):
	Enable Safety Integrated (p9601/p9801), but p0218.0 = 0 (shutoff valve not available).
	101: The second black
	The manipulated variable inhibit time is set less than the wait time to evaluate the feedback signal contacts when switching on the shutoff valve (p0230 < p9625[0]/p9825[0]).
	102:
	The manipulated variable inhibit time is set less than the wait time to evaluate the feedback signal contacts when switching off the shutoff valve (p0230 < p9625[1]/p9825[1]).
Remedy:	For fault value = 100:
	Check the enable of Safety Integrated and the shutoff valve (p9601/p9801, p0218.0).
	For fault value = 101:
	Set the manipulated variable inhibit time higher than the wait time to evaluate the feedback signal contacts when switching
	on the shutoff valve (p0230 > p9625[0]/p9825[0]).
	For fault value = 102:
	Set the manipulated variable inhibit time higher than the wait time to evaluate the feedback signal contacts when switching off the shutoff valve (p0230 > p9625[1]/p9825[1]).
F07800	Drive: No power unit propert
	Drive: No power unit present
Message value:	-

Acknowledge:	
Cause:	The power unit parameters cannot be read or no parameters are stored in the power unit.
	It is possible that the DRIVE-CLiQ cable between the Control Unit and power unit is interrupted or defective. Note:
	This fault also occurs if an incorrect topology was selected in the commissioning tool and this parameterization is then downloaded to the Control Unit.
Remedy:	- carry out a POWER ON (switch-off/switch-on) for all components.
-	- check the DRIVE-CLiQ cable between the Control Unit and power unit.
	- check the power unit and replace if necessary.
	- check the Control Unit, and if required replace it.
	- after correcting the topology, the parameters must be again downloaded using the commissioning tool.
F07801	Drive: Motor overcurrent
Message value:	_
Drive object:	All objects
Reaction:	OFF2 (NONE, OFF1, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The permissible motor limit current was exceeded.
- 44001	- effective current limit set too low.
	- current controller not correctly set.
	- motor was braked with an excessively high stall torque correction factor.
	- U/f operation: Up ramp was set too short or the load is too high.
	- U/f operation: Short-circuit in the motor cable or ground fault.
	- U/f operation: Motor current does not match the current of Motor Module.
	Note:
	Synchronous motor: Limit current= 1.3 x p0323
	Induction motor: Limit current= 1.3 x r0209
Remedy:	- check the current limits (p0323, p0640).
	- check the current controller (p1715, p1717).
	- reduce the stall torque correction factor (p0326).
	- increase the up ramp (p1318) or reduce the load.
	- check the motor and motor cables for short-circuit and ground fault.
	- check the Motor Module and motor combination.
F07802	Drive: Infeed or power unit not ready
Message value:	-
Drive object:	All objects
Reaction:	OFF2 (NONE)
Acknowledge:	IMMEDIATELY
Cause:	After an internal switch-on command, the infeed or drive does not signal ready.
	- monitoring time is too short.
	- DC link voltage is not present.
	- associated infeed or drive of the signaling component is defective.
	- supply voltage incorrectly set.
Remedy:	- increase the monitoring time (p0857).
	- ensure that there is a DC link voltage. Check the DC link busbar. Enable the infeed.
	- replace the associated infeed or drive of the signaling component.
	- check the line supply voltage setting (p0210).

A07805 (N)	Drive: Power unit overload I2t
• •	Drive. Power unit overload 12t
Message value: Drive object:	- All objects
Reaction:	NONE
	NONE
Acknowledge:	
Cause:	The alarm threshold for I2t overload (p0294) of the power unit has been exceeded. The response parameterized in p0290 becomes active.
Remedy:	- reduce the continuous load.
Remedy.	- adapt the load duty cycle.
	- check the assignment of the rated currents of the motor and Motor Module.
Reaction upon N:	NONE
Acknowl. upon N:	
Addition. upon N.	
F07808 (A)	HF Damping Module: damping not ready
Message value:	New message: %1
Drive object:	All objects
Reaction:	OFF2 (NONE, OFF1, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	When switching on or in the switched-on state, the HF Damping Module does not return a ready signal.
Remedy:	- check the DRIVE-CLiQ wiring to the HF Damping Module.
rionioù).	- check the 24 V supply voltage.
	- if required, replace the HF Damping Module.
	Note:
	HF Damping Module
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F07810	Drive: Power unit EEPROM without rated data
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	No rated data are stored in the power unit EEPROM.
Remedy:	Replace the power unit or inform Siemens Customer Service.
 F07815	Drive: Power unit has been changed
Message value:	Parameter: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
AUNIOWICUYC.	The code number of the actual power unit does not match the saved number. This only occurs if the comparator in p9906
Causa	The code number of the actual power unit does not match the saved number. This only occurs if the comparator in pagoo
Cause:	
Cause:	or p9908 is not at 2 (low) or 3 (minimum). Fault value (r0949, interpret decimal):

Remedy:	Connect the original power unit and switch on the Control Unit again (POWER ON) or set p0201 to r0200 and exit commissioning with p0010 = 0.
	For infeeds, the following applies:
	Line reactors or line filters must be used that are specified for the new power unit. A line supply and DC link identification routine (p3410 = 5) must then be carried out. It is not possible to change the power unit without re-commissioning the system if the type of infeed (A_Infeed, B_Infeed, S_Infeed), the type of construction/design (booksize, chassis) or the voltage class differ between the old and new power units.
	For inverters, the following applies:
	If the new power unit is accepted, then if required, the current limit (p0640) can be reduced by a lower maximum current of the power unit (r0209) (torque limits stay the same).
	If not only the power unit is changed, but also the motor, then the motor must be re-commissioned (e.g. using p0010 = 1). This is also necessary if motor data is still to be downloaded via DRIVE-CLiQ.
	If the comparison stage in p9906 is set to 2, 3, then commissioning can be exited (p0010 = 0) and the fault acknowledged
A07820	Drive: Temperature sensor not connected
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The temperature sensor for monitoring the motor temperature, specified in p0600, is not available.
	Alarm value (r2124, interpret decimal): 1: p0601 = 10 (SME), but in p0600 - not evaluated via encoder is selected.
	2: p0600 = 10 (BICO), but the signal source (p0603) is not interconnected.
	3: p0601 = 11 (BICO), but in p0600 - not evaluated via BICO interconnection is selected (20 or 21).
	4: p0601 = 11 (BICO) and p4610-p4613 > 0, but the associated signal source (p0608, p0609) is not interconnected.
	5: Component with sensor evaluation not present or has been removed in the meantime.
	6: Evaluation via Motor Module not possible (r0192.21).
Remedy:	For alarm value = 1:
	- in p0600 set an encoder with temperature sensor.
	For alarm value = 2:
	- interconnect p0603 with the temperature signal.
	For alarm value = 3, 4:
	- set the available temperature sensor (p0600, p0601).
	- set p4610 p4613 = 0 (no sensor), or interconnect p0608 or p0609 with an external temperature signal.
	For alarm value = 5:
	 - connect the component with the temperature sensor. Check the DRIVE-CLiQ connection. For alarm value = 6:
	- update the Motor Module firmware. Connect temperature sensor via encoder.
F07840	Drive: Infeed operation missing
Message value:	-
Drive object:	All objects
Reaction:	OFF2 (NONE)
Acknowledge:	IMMEDIATELY
Cause:	The signal "infeed operation" is not present although the enable signals for the drive have been present for longer than the parameterized monitoring time (p0857).
	infeed not exertional

- infeed not operational.

- interconnection of the binector input for the ready signal is either incorrect or missing (p0864).

- infeed is presently carrying out a line supply identification routine.

Remedy:	- bring the infeed into an operational state. - check the interconnection of the binector input for the signal "infeed operation" (p0864). - increase the monitoring time (p0857).
	- wait until the infeed has completed the line supply identification routine.
F07841 (A)	Drive: Infeed operation withdrawn
Message value:	-
Drive object:	All objects
Reaction:	Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The signal "infeed operation" was withdrawn in operation.
	- interconnection of the binector input for the signal "infeed operation" is either incorrect or missing (p0864).
	- the enable signals of the infeed were disabled.
	- due to a fault, the infeed withdraws the signal "infeed operation".
Remedy:	- check the interconnection of the binector input for the "infeed operation" signal (p0864).
-	- check the enable signals of the infeed and if required, enable.
	- remove and acknowledge an infeed fault.
	Note:
	If this drive is intended to back up the DC link regeneratively, then the fault response must be parameterized for NONE, OFF1 or OFF3. so that the drive can continue to operate even after the infeed fails.
Reaction upon A:	NONE
Acknowl. upon A:	NONE
A07850 (F)	External alarm 1
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The condition for "External alarm 1" is satisfied.
	Note:
	Note: The "External alarm 1" is initiated by a 1/0 edge via binector input p2112.
Remedy:	
Remedy: Reaction upon F:	The "External alarm 1" is initiated by a 1/0 edge via binector input p2112. Eliminate the causes of this alarm.
•	The "External alarm 1" is initiated by a 1/0 edge via binector input p2112. Eliminate the causes of this alarm. Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Reaction upon F: Acknowl. upon F:	The "External alarm 1" is initiated by a 1/0 edge via binector input p2112. Eliminate the causes of this alarm. Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY (POWER ON)
Reaction upon F: Acknowl. upon F: A07851 (F)	The "External alarm 1" is initiated by a 1/0 edge via binector input p2112. Eliminate the causes of this alarm. Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Reaction upon F: Acknowl. upon F: A07851 (F) Message value:	The "External alarm 1" is initiated by a 1/0 edge via binector input p2112. Eliminate the causes of this alarm. Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY (POWER ON) External alarm 2
Reaction upon F: Acknowl. upon F: A07851 (F) Message value: Drive object:	The "External alarm 1" is initiated by a 1/0 edge via binector input p2112. Eliminate the causes of this alarm. Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY (POWER ON) External alarm 2 - All objects
Reaction upon F: Acknowl. upon F: A07851 (F) Message value: Drive object: Reaction:	The "External alarm 1" is initiated by a 1/0 edge via binector input p2112. Eliminate the causes of this alarm. Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY (POWER ON) External alarm 2 - All objects NONE
Reaction upon F: Acknowl. upon F: A07851 (F) Message value: Drive object: Reaction: Acknowledge:	The "External alarm 1" is initiated by a 1/0 edge via binector input p2112. Eliminate the causes of this alarm. Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY (POWER ON) External alarm 2 - All objects NONE NONE
Reaction upon F: Acknowl. upon F: A07851 (F) Message value: Drive object: Reaction:	The "External alarm 1" is initiated by a 1/0 edge via binector input p2112. Eliminate the causes of this alarm. Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY (POWER ON) External alarm 2 - All objects NONE NONE The condition for "External alarm 2" is satisfied.
Reaction upon F: Acknowl. upon F: A07851 (F) Message value: Drive object: Reaction: Acknowledge:	The "External alarm 1" is initiated by a 1/0 edge via binector input p2112. Eliminate the causes of this alarm. Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY (POWER ON) External alarm 2 - All objects NONE NONE NONE The condition for "External alarm 2" is satisfied. Note:
Reaction upon F: Acknowl. upon F: A07851 (F) Message value: Drive object: Reaction: Acknowledge: Cause:	The "External alarm 1" is initiated by a 1/0 edge via binector input p2112. Eliminate the causes of this alarm. Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY (POWER ON)
Reaction upon F: Acknowl. upon F: A07851 (F) Message value: Drive object: Reaction: Acknowledge: Cause: Remedy:	The "External alarm 1" is initiated by a 1/0 edge via binector input p2112. Eliminate the causes of this alarm. Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY (POWER ON) External alarm 2 - All objects NONE NONE NONE The condition for "External alarm 2" is satisfied. Note: The "External alarm 2" is initiated by a 1/0 edge via binector input p2116. Eliminate the causes of this alarm.
Reaction upon F: Acknowl. upon F: A07851 (F) Message value: Drive object: Reaction: Acknowledge: Cause:	The "External alarm 1" is initiated by a 1/0 edge via binector input p2112. Eliminate the causes of this alarm. Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY (POWER ON) External alarm 2 - All objects NONE NONE NONE The condition for "External alarm 2" is satisfied. Note: The "External alarm 2" is initiated by a 1/0 edge via binector input p2116. Eliminate the causes of this alarm. Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)

A07852 (F) External alarm 3 -

Message value:

Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The condition for "External alarm 3" is satisfied.
	Note:
	The "External alarm 3" is initiated by a 1/0 edge via binector input p2117.
Remedy:	Eliminate the causes of this alarm.
Reaction upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY (POWER ON)

F07860 (A) External fault 1

Message value:	-
Drive object:	All objects
Reaction:	Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The condition for "External fault 1" is satisfied.
	Note:
	The "External fault 1" is initiated by a 1/0 edge via binector input p2106.
	See also: p2106 (External fault 1)
Remedy:	- eliminate the causes of this fault.
	- acknowledge fault.
Reaction upon A:	NONE

Acknowl. upon A: NONE

F07861 (A)	External fault 2
Message value:	-
Drive object:	All objects
Reaction:	Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The condition for "External fault 2" is satisfied.
	Note:
	The "External fault 2" is initiated by a 1/0 edge via binector input p2107.
Remedy:	- eliminate the causes of this fault.
	- acknowledge fault.
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F07862 (A) External fault 3

-
All objects
Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
IMMEDIATELY (POWER ON)
The condition for "External fault 3" is satisfied.
Note:
The "External fault 3" is initiated by a 1/0 edge via the following parameters.
- AND logic operation, binector input p2108, p3111, p3112.
- switch-on delay p3110.
- eliminate the causes of this fault.
- acknowledge fault.

Reaction upon A: NONE Acknowl. upon A: NONE

F07890	Internal voltage protection / internal armature short-circuit with STO active		
Message value:	-		
Drive object: Reaction: Acknowledge:	All objects OFF2 IMMEDIATELY		
		Cause:	The internal armature short-circuit (p1231 = 4) is not possible as Safe Torque Off (STO) is enabled. The pulses cannot be enabled.
		Remedy:	Switch out the internal armature short-circuit (p1231=0) or deactivate Safe Torque Off (p9501 = p9561 = 0).
Note:			
STO: Safe Torque Off / SH: Safe standstill			
F07900 (N, A)	Drive: Motor blocked/speed controller at its limit		
Message value:	-		
Drive object:	All objects		
Reaction:	OFF2 (NONE, OFF1, OFF3, STOP2)		
Acknowledge:	IMMEDIATELY		
Cause:	Motor has been operating at the torque limit longer than the time specified in p2177 and below the speed threshold in p2175.		
	This signal can also be initiated if the speed actual value is oscillating and the speed controller output repeatedly goes to its limit.		
	See also: p2175		
Remedy:	- check that the motor can freely move.		
	- check the effective torque limits (r1538, r1539).		
	- check the parameter, message "Motor blocked" and if required, correct (p2175, p2177).		
	- check the inversion of the actual value (p0410).		
	- check the motor encoder connection.		
	- check the encoder pulse number (p0408).		
	- for SERVO with encoderless operation and motors with low power ratings (< 300 W), increase the pulse frequency (p1800)		
	- after de-selecting the "Basic positioner" (EPOS) function mode, check the motoring (p1528) and regenerative (p1529) torque limit and modify again.		
	- blocksize device: for encoderless operation and a current controller sampling time p0115[0] < 80 μ s, either set the pulse frequency of p1800 = 1 / p0115[0] or increase the switchover speed of the model p1755.		
Reaction upon N:	NONE		
Acknowl. upon N:	NONE		
Reaction upon A:	NONE		
Acknowl. upon A:	NONE		
F07901	Drive: Motor overspeed		
Message value:	- -		
Drive object:	All objects		

 Acknowledge:
 IMMEDIATELY

 Cause:
 The maximum permissible speed was either positively or negatively exceeded.

 The maximum permissible positive speed is formed as follows: Minimum (p1082, CI: p1085) + p2162

 The maximum permissible negative speed is formed as follows: Maximum (-p1082, CI: 1088) - p2162

Reaction:

Servo: OFF2 (IASC/DCBRK)

Message value:	-		
A07903	Drive: Motor speed deviation		
	<u></u>		
Acknowl. upon A:	NONE		
Reaction upon A:	NONE		
Acknowl. upon N:	NONE		
Reaction upon N:	NONE		
	If there is no fault, then the delay time can be increased (p2178).		
	- do not exceed the maximum speed (p2162).		
	- check the speed control for any tendency to oscillate and if resonance effects occur, use a bandstop filter.		
	- encoder the highest possible dynamic response of the closed-loop excitation current control.		
	- check the excitation equipment and the interface to the closed-loop control.		
	 check the speed signal (interrupted cable, polarity, pulse number). ensure the correct motor parameterization (rating plate and equivalent circuit diagram parameters). 		
	For separately excited synchronous motors (closed-loop control with speed encoder), the following applies:		
	If there is no fault, then the fault tolerance (p1745) or the delay time (p2178) can be increased.		
	to the motor that is controlled for the data set changeover.		
	- check the speed encoder, if another speed encoder was selected using the data set changeover. This must be connected		
	was significantly reduced, then this should be increased again.		
	 check the current limits (p0640, r0067). If the current limits are too low, then the drive cannot be magnetized. check the current controller (p1715, p1717) and the speed adaptation controller (p1764, p1767). If the dynamic response 		
	- if the motor excitation (magnetizing) time (r0346) was significantly reduced, then it should be increased again.		
	using p1610.		
	setpoint using p1610.check whether the drive stalls due to the load if the speed setpoint is still zero. If yes, then increase the current setpoint		
	- check whether the drive in the open-loop controlled mode (r1750.0) stalls under load. If yes, then increase the current setpoint using p1610		
	For closed-loop speed and torque control without speed encoder, the following applies:		
	If there is no fault, then the fault tolerance (p1744 and p0492) can be increased.		
	- check the speed encoder, if another speed encoder was selected using the data set changeover. This must be connected to the same motor that is controlled for the data set changeover.		
-	- check the speed signal (interrupted cable, polarity, pulse number, broken encoder shaft).		
Remedy:	For closed-loop speed and torque control with speed encoder, the following applies:		
	3: Stall detection using r0056.11 (only for separately excited synchronous motors).		
	2: Stall detection using r1408.12 (p1745) or via the flux difference (r0083 r0084).		
	1: Stall detection using r1408.11 (p1744, p0492).		
Cause:	The system has identified that the motor has stalled for a time longer than is set in p2178. Fault value (r0949, interpret decimal):		
Acknowledge:	IMMEDIATELY		
	OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)		
Drive object: Reaction:	All objects		
Message value:	%1		
	Drive: Motor stalled		
	- check r1087 and if required, correct p1082, CI:p1088 and p2162.		
	The following applies for a negative direction of rotation:		
•	- check r1084 and if required, correct p1082, CI:p1085 and p2162.		
Remedy:	The following applies for a positive direction of rotation:		

Drive object:All objectsReaction:NONEAcknowledge:NONE

13.2 List of faults and alarms

Cause:	The absolute value of the speed difference from the two setpoints (p2151, p2154) and the speed actual value (r2169) exceeds the tolerance threshold (p2163) longer than tolerated (p2164, p2166).
	The alarm is only enabled for $p2149.0 = 1$.
	Possible causes could be:
	- the load torque is greater than the torque setpoint.
	- when accelerating, the torque/current/power limit is reached. If the limits are not sufficient, then it is possible that the
	drive has been dimensioned too small.
	- for closed-loop torque control, the speed setpoint does not track the speed actual value.
	- for active Vdc controller.
	For U/f control, the overload condition is detected as the Imax controller is active.
Remedy:	- increase p2163 and/or p2166.
	- increase the torque/current/power limits.
	- for closed-loop torque control: The speed setpoint should track the speed actual value.
	- deactivate alarm with p2149.0 = 0.
F07904 (N, A)	External armature short-circuit: Contactor feedback signal "Closed" missing
Message value:	-
Drive object:	All objects
Reaction:	OFF2 (NONE)
Acknowledge:	IMMEDIATELY
Cause:	
Cause.	When closing, the contactor feedback signal (p1235) did not issue the signal "Closed" (r1239.1 = 1) within the monitoring time (p1236).
Remedy:	- check that the contactor feedback signal is correctly connected (p1235).
	- check the logic of the contactor feedback signal (r1239.1 = 1: "Closed", r1239.1 = 0: "Open").
	- increase the monitoring time (p1236).
	- if required, set the external armature short-circuit without contactor feedback signal (p1231 = 2).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F07905 (N, A)	External armature short-circuit: Contactor feedback signal "Open" missing
Message value:	-
Drive object:	All objects
Reaction:	OFF2 (NONE)
	IMMEDIATELY
Acknowledge:	
Cause:	When opening, the contactor feedback signal (p1235) did not issue the signal "Open" (r1239.1 = 0) within the monitoring time (p1236).
Remedy:	- check that the contactor feedback signal is correctly connected (p1235).
	- check the logic of the contactor feedback signal (r1239.1 = 1: "Closed", r1239.1 = 0: "Open").
	- increase the monitoring time (p1236).
	- if required, set the external armature short-circuit without contactor feedback signal (p1231 = 2).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
E07006	Armatura abort airquit (internal voltage protection: Decomptorization error
F07906	Armature short-circuit / internal voltage protection: Parameterization error
Message value:	Fault cause: %1, motor data set: %2
Drive object:	All objects

Drive object: All objects

Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The armature short-circuit is incorrectly parameterized.
oudoo.	Fault value (r0949, interpret decimal):
	zzzzyyxx: zzzz = fault cause, xx = motor data set
	zzzz = 0001 hex = 1 dec:
	A permanent-magnet synchronous motor has not been selected.
	zzzz = 0002 hex = 2 dec:
	No induction motor selected.
	zzzz = 0065 hex = 101 dec:
	External armature short-circuit: Output (r1239.0) not wired.
	zzzz = 0066 hex = 102 dec:
	External armature short-circuit with contactor feedback signal: No feedback signal connected (BI:p1235). The feedback signal must be interconnected in all command data sets (CDS).
	zzzz = 0067 hex = 103 dec:
	External armature short-circuit without contactor feedback signal: Wait time when opening (p1237) is 0.
	zzzz = 00C9 hex = 201 dec:
	Internal voltage protection: The maximum output current of the Motor Module (r0209) is less than 1.8 x motor short-circuit current (r0331).
	zzzz = 00CA hex = 202 dec:
	Internal voltage protection: A Motor Module in booksize or chassis format is not being used. zzzz = 00CB hex = 203 dec:
	Internal voltage protection: The motor short-circuit current (p0320) is greater than the maximum motor current (p0323).
	zzzz = 00CC hex = 204 dec:
	Internal voltage protection: The activation ($p1231 = 4$) is not given for all motor data sets with synchronous motors ($p0300 = 2xx, 4xx$).
Remedy:	For fault value = 1:
	- an armature short-circuit / voltage protection is only permissible for permanent-magnetic synchronous motors. The highest position of the motor type in p0300 must either be 2 or 4.
	For fault value = 101:
	- the contactor for the external armature short-circuit configuration should be controlled using output signal r1239.0. For instance, the signal can be connected to an output terminal via binector input p0738. Before this fault can be acknowledged, p1231 must be set again.
	For fault value = 102:
	- if the external armature short circuit is selected with contactor feedback signal (p1231 = 1), then the feedback signal must be connected to an input terminal (e.g. r0722.x) and then interconnected to binector input p1235.
	- alternatively, the external armature short-circuit without contactor feedback signal (p1231 = 2) can be selected.
	For fault value = 103:
	- if the external armature short-circuit without contactor feedback signal (p1231 = 2) is selected, then a delay time must be parameterized in p1237. This time must always be greater than the actual contactor opening time, as otherwise the Motor Module would be short-circuited!
	For fault value = 201:
	 a Motor Module with a higher maximum current or a motor with a lower short-circuit current must be used. The maximum Motor Module current must be higher than 1.8 x short-circuit current of the motor.
	For fault value = 202:
	- for internal voltage protection, use a Motor Module in booksize or chassis format.
	For fault value = 203:
	- for internal voltage protection, only use short-circuit proof motors.
	For fault value = 204:
	- the internal voltage protection must either be activated for all motor data sets with synchronous motors (p0300 = 2xx, 4xx) (p1231 = 3) or it must be deactivated for all motor data sets (p1231 not equal to 3). This therefore ensures that the protection cannot be accidentally withdrawn as a result of a data set changeover. The fault can only be acknowledged if this condition is fulfilled.

F07907	Internal armature short-circuit: Motor terminals are not at zero potential after pulse suppression
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The function "Internal voltage protection" (p1231 = 3) was activated. The following must be observed:
	- when the internal voltage protection is active, after pulse suppression, all of the motor terminals are at half of the DC link voltage (without an internal voltage protection, the motor terminals are at zero potential)!
	- it is only permissible to use motors that are short-circuit proof (p0320 < p0323).
	- the Motor Module must be able to continually conduct 180% short-circuit current (r0331) of the motor (r0289).
	- the internal voltage protection cannot be interrupted due to a fault response. If an overcurrent condition occurs during the active, internal voltage protection, then this can destroy the Motor Module and/or the motor.
	- if the Motor Module does not support the autonomous, internal voltage protection (r0192.10 = 0), in order to ensure safe reliable functioning when the line supply fails, an external 24 V power supply (UPS) must be used for the components.
	- if the Motor Module does support the autonomous, internal voltage protection (r0192.10 = 1), in order to ensure safe, reliable functioning when the line supply fails, the 24 V power supply for the components must be provided through a Control Supply Module.
	- if the internal voltage protection is active, it is not permissible that the motor is driven by the load for a longer period of time (e.g. as a result of loads that move the motor or another coupled motor).
Remedy:	Not necessary.
	This a note for the user.
A07908	Internal armature short-circuit active
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The Motor Module signals that the motor is short-circuited through the power semiconductors (r1239.5 = 1). The pulses cannot be enabled. The internal armature short-circuit is selected (p1231 = 4):
Remedy:	For synchronous motors, the armature short-circuit braking is activated with binector input p1230 = 1 signal.
F07909	Internal voltage protection: Deactivation only effective after POWER ON
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	POWER ON
Cause:	The deactivation of the internal voltage protection (p1231 not equal to 3) only becomes effective after POWER ON. The status signal r1239.6 = 1 indicates that the internal voltage protection is ready.
Remedy:	Not necessary.
·	This a note for the user.
A07910 (N)	Drive: Motor overtemperature
	%1
	/01
Message value: Drive object:	All objects
Message value:	

Cause:	KTY84/PT1000:
	The motor temperature has exceeded the alarm threshold (p0604, p0616).
	PTC: The response threshold of 1650 Ohm was exceeded.
	Alarm value (r2124, interpret decimal):
	this is the number of the temperature channel leading to the message.
Remedy:	- check the motor load.
Remedy.	- check the motor ambient temperature and cooling.
	- check PTC or bimetallic NC contact.
	- check the monitoring limits (p0604, p0605).
	- activate/check the parameters of the motor temperature model (p0612, p0626 and following).
Reaction upon N:	
Acknowl. upon N:	
F07913	Excitation current outside the tolerance range
Message value:	-
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The difference between the excitation current actual value and setpoint has exceeded the tolerance:
	abs(r1641 - r1626) > p3201 + p3202
	The cause of this fault is again reset for abs(r1641 - r1626) < p3201.
Remedy:	- check the parameterization (p1640, p3201, p3202).
	- check the interfaces to the excitation equipment (r1626, p1640).
	- check the excitation equipment.
F07914	Flux out of tolerance
Message value:	-
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The difference between the flux actual value and setpoint has exceeded the tolerance:
	abs(r0084 - r1598) > p3204 + p3205
	The cause of this fault is again reset for abs(r0084 - r1598) < p3204.
	The fault is only issued after the delay time in p3206 has expired.
Remedy:	- check the parameterization (p3204, p3205).
	- check the interfaces to the excitation equipment (r1626, p1640).
	- check the excitation equipment.
	- check the flux control (p1590, p1592, p1597).
	- check the control for oscillation and take the appropriate counter measures (e.g. optimize the speed control loop, parameterize a bandstop filter).
A07918 (N)	Three-phase setpoint generator operation selected/active
Message value:	-
Drive object:	All objects
Peaction:	NONE

Reaction:NONEAcknowledge:NONE

13.2 List of faults and alarms

Cause:	Only for separately excited synchronous motors (p0300 = 5):
	The actual open-loop/closed-loop control mode is I/f control (open-loop) with a fixed current (p1300 = 18).
	The speed is entered via the setpoint channel and the current setpoint is given by the minimum current (p1620).
	It must be ensured that in this mode, the control dynamic performance is very limited. This is the reason that longer ramp up times should be set for the setpoint speed than for normal operation.
Remedy:	Select another open-loop/closed-loop control mode
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A07927	DC braking active
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The motor is braked with DC current. DC braking is active.
	1)
	A message with response DCBRK is active. The motor is braked with the braking current set in p1232 for the duration set in p1233. If the standstill threshold p1226 is undershot, then braking is prematurely canceled.
	2)
	DC braking has been activated at binector input p1230 with the DC braking set (p1230 = 4). Braking current p1232 is injected until this binector input becomes inactive.
Remedy:	Not necessary.
	This alarm is automatically withdrawn after DC braking.
F07928	Internal voltage protection initiated
Message value:	-
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The Motor Module signals that the motor is short-circuited through the power semiconductors (r1239.5 = 1). The pulses cannot be enabled. The internal voltage protection is selected (p1231 = 3).
Remedy:	If the Motor Module supports the autonomous internal voltage protection (r0192.10 = 1), then the Motor Module automatically decides - using the DC link voltage - as to whether the armature short-circuit should be activated.
	The armature short-circuit is activated and response OFF2 is initiated if the DC link voltage exceeds 800 V. If the DC link voltage falls below 450 V, then the armature short-circuit is withdrawn.
	If the motor is still in a critical speed range, the armature short-circuit is re-activated once the DC link voltage exceeds the threshold of 800 V.
	If the autonomous (independent) internal voltage protection is active (r1239.5 = 1) and the line supply returns (450 V < DC link voltage < 800 V), the armature short-circuit is withdrawn after 3 minutes.
F07930	Drive: Brake control error
Message value:	%1
Drive object:	All objects
Reaction:	OFF1 (NONE, OFF2, OFF3)
A	

Acknowledge: IMMEDIATELY

Message value:	%1
F07934 (N)	Drive: S120 Combi motor holding brake configuration
	STO: Safe Torque Off See also: p1215
	SI: Safety Integrated
	SBC: Safe Brake Control
	OCC: One Cable Connection (one cable system)
	- replace drive.
	plate, check the connection of the brake conductors).
	- check for EMC-compliant control cabinet design and cable routing (e.g. shield OCC cable with shield terminal and shield
	- carry out a diagnostics routine for the faults involved.
	- check the function of the motor holding brake.
	- check the motor holding brake connection.
Remedy:	- select STO and then de-select again.
	Fault in the brake control of the drive or a communication error (brake control diagnostics).
	50:
	Fault in "brake closed" state.
	40:
	- short-circuit in brake winding.
	- brake not closed or interrupted cable.
	Fault in "close holding brake" operation.
	30, 31:
	- short-circuit in brake winding.
	Fault in "brake open" state.
	20:
	- ground fault in brake cable.
	- brake not closed or interrupted cable.
	10, 11: Fault in "open holding brake" operation.
	Fault value (r0949, interpret decimal):
	- defect in the brake control circuit of the drive.
	- OCC cable shield is not correctly connected.
	a STOP A.

Message value:	%1
Drive object:	All objects
Reaction:	NONE (OFF1, OFF2, OFF3)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	A connected motor holding brake has been detected with an S120 Combi. However, this brake has not been assigned to just one Combi feed drive and, therefore, brake control is not configured (correctly).
	Fault value (r0949, interpret decimal):
	0: No motor holding brake is assigned (p1215 = 0 or 3 on all S120 Combi feed drives).
	1: More than one motor holding brake has been assigned (p1215 = 1 or 2 on more than one S120 Combi feed drive) - or there is more than one DRIVE-CLiQ motor with motor holding brake.
	2: Brake was accidentally assigned to the spindle (p1215 = 1); this is not permitted for this software release.
	3: An attempt was made to enable the function "Safe brake control" (SBC, p9602 = p9802 = 1) for the spindle. This is not permitted for this software release.
Remedy:	Check whether the motor holding brake has been assigned to one S120 Combi feed drive exclusively (p1215 = 1 or 2).
	The fault will only be withdrawn once the motor holding brake has been assigned to just one of the S120 Combi feed drives (p1215 = 1 or 2 for this one drive). From this point, the motor holding brake will be controlled by this drive. See also: p1215

Reaction upon N: NONE Acknowl. upon N: NONE

F07935 (N)	Drive: Incorrect motor holding brake configuration
Message value:	%1
Drive object:	All objects
Reaction:	NONE (OFF1, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	An incorrect motor holding brake configuration was detected.
	Fault value (r0949, interpret decimal):
	0:
	A motor holding brake was detected where the brake control has not been configured (p1215 = 0).
	The brake control configuration was set to "motor holding brake the same as sequence control" (p1215 = 1) (only when commissioning for the first time).
	For a chassis unit with Safe Brake Adapter (SBA), the interconnection p9621 = r9872.3 was established (only when commissioning for the first time).
	For a parallel connection, the power unit was set in p7015, to which the motor holding brake is connected (only when commissioning for the first time).
	1:
	A motor holding brake was detected where the brake control has not been configured (p1215 = 0).
	The brake control configuration was left at "No motor holding brake available" (p1215 = 0). 11:
	The identification had detected more than one motor holding brake for a parallel connection. 12:
	For the parallel connection, in p0121 there is no valid component number for the power unit data set that is set in p7015. 13:
	With the "Safe brake control" (SBC) function activated, an attempt was made to change the value in p7015. 14:
	For a parallel connection, the power units set in p7015 cannot be addressed.
Remedy:	For fault value = 0:
tomouyi	- no remedy required.
	For fault value = 1:
	- if required change the motor holding brake configuration (p1215 = 1, 2).
	- if this fault value unexpectedly occurs, then the motor connections should be checked in order to rule out that they have been interchanged.
	For fault value = 11:
	For a parallel connection, only connect one motor holding brake.
	For fault value = 12:
	Check the setting of the power unit data set for a parallel connection (p7015).
	For fault value = 13:
	Before changing p7015, deactivate the "Safe brake control" function (SBC) (p9602).
	For fault value = 14:
	Check whether the power unit supports the brake control for a parallel connection (r9771.14).
	Check whether there is a DRIVE-CLiQ communication error between the Control Unit and the power unit involved and, if required, carry out a diagnostics routine for the faults identified.
	See also: p1215
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F07950 (A) Drive: Incorrect motor parameter

Message value:Parameter: %1Drive object:All objects

Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	- the motor parameters were incorrectly entered while commissioning (e.g. p0300 = 0, no motor)
	- the braking resistor has still not been parameterized - commissioning cannot be completed.
	Fault value (r0949, interpret decimal):
	Parameter number involved.
	300 (CU250S-2):
	For this control mode, the motor type is not supported.
	307: The fully increased and a little increased
	The following motor parameters could be incorrect:
	p0304, p0305, p0307, p0308, p0309
Demedia	See also: p0304, r0304, p0305, r0305, p0307, r0307, p0311, r0311, p0322, r0322, p0323, r0323
Remedy:	Compare the motor data with the rating plate data and if required, correct.
	For fault value = 300 (CU250S-2):
Desetion upon A.	Operate a motor type supported by the selected control mode.
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F07955	Drive: Motor has been changed
Message value:	Parameter: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The code number of the actual motor with DRIVE-CLiQ does not match the saved number.
	Fault value (r0949, interpret decimal):
	Number of the incorrect parameter.
	See also: r0302
Remedy:	Connect the original motor, switch on the Control Unit again (POWER ON) and exit quick commissioning with p0010 = 0.
	Or set p0300 = 10000 (load the parameters from the motor with DRIVE-CLiQ) and re-commission.
	Quick commissioning (p0010 = 1) is automatically exited with p3900 > 0.
	If quick commissioning was exited with p0010 = 0, then an automatic controller calculation (p0340 = 1) is not carried out.
F07956 (A)	Drive: Motor code does not match the list (catalog) motor
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The motor code of the connected motor with DRIVE-CLiQ does not match the possible list motor types (see selection in p0300).
	The connected motor with DRIVE-CLiQ might not be supported by this firmware version.
	Fault value (r0949, interpret decimal):
	Motor code of the connected motor with DRIVE-CLiQ.
	Note:
	The first three digits of the motor code generally correspond to the list motor type.
Remedy:	Use a motor with DRIVE-CLiQ and the matching motor code.
Reaction upon A:	NONE
Acknowl. upon A:	NONE
A07960	Drive: Incorrect friction characteristic

Message value: Parameter: %1

Drive object: All objects Reaction: NONE Cause: The friction characteristic is incorrect. Adam value (2124, interpret decimal): 1: Incorrect parameter format. 1538: The friction torque is greater than the maximum from the upper effective torque limit (p1538) and zero. This is the reason that the output of the friction characteristic (7341) is limited to this value. 1539: The friction torque is less than the minimum from the lower effective torque limit (p1538) and zero. This is the reason that the output of the friction characteristic (7341) is limited to this value. 3820		
Actionwindige: NONE Cause: The finction characteristic is incorrect. Atam value (r/214), interpret decimal): 1. Incorrect parameter format. 1538 The finction torque is greater than the maximum from the upper effective torque limit (p1538) and zero. This is the reason that the output of the finction characteristic (r3841) is limited to this value. 1538: The finction torque is less than the minimum from the lower effective torque limit (p1539) and zero. This is the reason that the output of the finction characteristic (r3841) is limited to this value. 330: 320: 3229: Incorrect parameter number. The speeds entered in the parameters for the finction characteristic do not correspond to the following condition: 0. 9.0 0.0 < p3820 + p3821 + < p3820 <= p0322 or p1082. (190322 = 0)	-	All objects
Cause: The friction characteristic is incorrect. Alarm value (x2124, interpret decimal): 1: Incorrect parameter format. 1538: The friction torque is greater than the maximum from the upper effective torque limit (p1538) and zero. This is the reason that the output of the friction characteristic (x341) is limited to this value. 3320: The friction torque is less than the maximum from the lower effective torque limit (p1539) and zero. This is the reason that the output of the friction characteristic (x341) is limited to this value. 3320:	Reaction:	NONE
Alarm value (r2124, interpret decimal): 1: Incorrect parameter format. 1538: The friction torque is greater than the maximum from the upper effective torque limit (p1538) and zero. This is the reason that the output of the friction characteristic (r3841) is limited to this value. 1539: The friction torque is less than the minimum from the lower effective torque limit (p1539) and zero. This is the reason that the output of the friction characteristic (r3841) is limited to this value. 1538: Incorrect parameter number. The speeds entered in the parameters for the friction characteristic do not correspond to the following condition: 0.0 < p3820 < p3821 < < p3829 <p>Incorrect parameter number. The speeds entered in the parameters for the friction characteristic do not correspond to the following condition: 0.0 < p3820 < p3821 < < p3829 <= p0322 or p1082, if p0322 = 0 Therefore the output of the friction characteristic (r3841) is set to zero. 330 3339. Incorrect parameter number. The torques entered in the parameters for the friction characteristic do not correspond to the following condition: 0 <= p3830, p3831 p3839 <= p0333 Therefore the output of the friction characteristic (r3841) is set to zero. Remedy: Fulfil the conditions for the friction characteristic. For alam value = 1539: Check the upper effective torque limit (e.g. in the field weakening range). For alam value = 1539: Check the upper effective torque limit (e.g. in the field weakening commissioning (p0010 = 1, 3), then the technological limits and threshold values, dependent on this, must be re-calculated by selecting p0340 = 5). A07961 Drive: Friction characteristic record activated. The fistion characteristic record is a</p>	Acknowledge:	NONE
1: Incorrect parameter format. 1538: The friction torque is greater than the maximum from the upper effective torque limit (p1538) and zero. This is the reason that the output of the friction characteristic (r3841) is limited to this value. 1538: The friction torque is less than the minimum from the lower effective torque limit (p1539) and zero. This is the reason that the output of the friction characteristic (r3841) is limited to this value. 3820: Incorrect parameter number. The speeds entered in the parameters for the friction characteristic do not correspond to the following condition: 0.0 < p3820 + op3821 ← < p3829 ← p0322 or p1082, if p0322 = 0 Therefore the output of the friction characteristic (r3841) is set to zero. 3830: Incorrect parameter number. The torques entered in the parameters for the friction characteristic do not correspond to the following condition: 0.4 ⊂ p3820 + op3831 ← p0333 Therefore the output of the friction characteristic (r3841) is set to zero. 8600: 0.4 ⊂ p3820 + 03833 Therefore the output of the friction characteristic (r3841) is set to zero. Remedy: Fulfill the conditions for the friction characteristic. For alarm value = 1538: Check the upper effective torque limit (e.g. in the field weakening range). For alarm value = 1320: Check the lower effective torque limit (e.g. in the field weakening range). For alarm value = 3820	Cause:	The friction characteristic is incorrect.
Incorrect parameter format. 1338: 1538: The friction torque is greater than the maximum from the upper effective torque limit (p1538) and zero. This is the reason that the output of the friction characteristic (r3841) is limited to this value. 1539: The friction torque is less than the minimum from the lower effective torque limit (p1539) and zero. This is the reason that the output of the friction characteristic (r3841) is limited to this value. 320: 3239: Incorrect parameter number. The speeds entered in the parameters for the friction characteristic do not correspond to the following condition: 0.0 c p3820 c p3821 c < p3829 c= p0322 or p1082, if p0322 = 0 Therefore the output of the friction characteristic (r3841) is set to zero. 3330: Incorrect parameter number. The torques entered in the parameters for the friction characteristic do not correspond to the following condition: 0.4 c p3830, p3831: p3838 Incorrect parameter number. The torques entered in the parameters for the friction characteristic. For alarm value = 1539: Check the upper effective torque limit (e.g. in the field weakening range). For alarm value = 3539: Fulfill the conditions to the parameters of the field on characteristic. If the motor data (e.g. the maximum speed goo22) are charaged during commissioning (p0010 = 1, 3), then the technological limits and threshold values, dependent on this, must be re-calculated by selecting p0340e 5). A07961		Alarm value (r2124, interpret decimal):
 1538: The friction torque is greater than the maximum from the upper effective torque limit (p1538) and zero. This is the reason that the output of the friction characteristic (r3841) is limited to this value. 1539: The friction torque is less than the minimum from the lower effective torque limit (p1539) and zero. This is the reason that the output of the friction characteristic (r3841) is limited to this value. 38203829: Incorrect parameter number. The speeds entered in the parameters for the friction characteristic do not correspond to the following condition: 0.0 < p3820 < p3821 < < p3829 <= p0322 or p1082, if p0322 = 0 Therefore the output of the friction characteristic (r3841) is set to zero. 38303839: Incorrect parameter number. The torques entered in the parameters for the friction characteristic do not correspond to the following condition: 0 <= p3820, p3821 < <p>93839 <= p0332</p> Therefore the output of the friction characteristic (r3841) is set to zero. 38303839: Therefore the output of the friction characteristic (r3841) is set to zero. Remedy: For alam value = 1538: Check the upper effective torque limit (e.g. in the field weakening range). For alam value = 1539: Check the upper effective torque limit (e.g. in the field weakening range). For alam value = 3530: Ever stam value = 3530: A07961 Drive: Friction characteristic record activated Message value: NONE Cause: NONE Cause: The automatic friction characteristic record activated Message value: NoNE Cause: The automatic friction characteristic record is activated. The friction characteristic is recorded at the next switch-on command. When plotting the friction characteristic record is activa		1:
The friction torque is greater than the maximum from the upper effective torque limit (p1538) and zero. This is the reason that the output of the friction characteristic (r3841) is limited to this value. 1539: The friction torque is less than the minimum from the lower effective torque limit (p1539) and zero. This is the reason that the output of the friction characteristic (r3841) is limited to this value. 3820		
that the output of the fraction characteristic (r3841) is limited to this value. 1539: The friction torque is less than the minimum from the lower effective torque limit (p1539) and zero. This is the reason that the output of the friction characteristic (r3841) is limited to this value. 3820 S820 3820 Incorrect parameter number. The speeds entered in the parameters for the friction characteristic do not correspond to the following condition: 0.0 < p3820 + p3821 < < p3829 <= p0322 or p1082, if p0322 = 0 Therefore the output of the friction characteristic (r3841) is set to zero. 3830 3839: Incorrect parameter number. The torques entered in the parameters for the friction characteristic do not correspond to the following condition: 0 0 0 0 p3830 p3839: Incorrect parameter number. The torques entered in the parameters for the friction characteristic do not correspond to the following condition: 0 0 p3830 p3831		
Arrendom The friction torque is less than the minimum from the lower effective torque limit (p1539) and zero. This is the reason that the output of the friction characteristic (73841) is limited to this value. S820 S829. Incorrect parameter number. The speeds entered in the parameters for the friction characteristic do not correspond to the following condition: 0. > p3820.		that the output of the friction characteristic (r3841) is limited to this value.
the output of the friction characteristic (/3841) is limited to this value. 38203820: Incorrect parameter number. The speeds entered in the parameters for the friction characteristic do not correspond to the following condition: 0.0 < p3820 < p3821 < < p3829 <= p0322 or p1082, if p0322 = 0 Therefore the output of the friction characteristic (/3841) is set to zero. 38303839: Incorrect parameter number. The torques entered in the parameters for the friction characteristic do not correspond to the following condition: 0 < e p38309339: Incorrect parameter number. The torques entered in the parameters for the friction characteristic do not correspond to the following condition: 0 < e p38309339: Incorrect parameter number. The torques entered in the parameters for the friction characteristic do not correspond to the following condition: 0 < e p38309339: Note the output of the friction characteristic. For alarm value = 1538: Check the upper effective torque limit (e.g. in the field weakening range). For alarm value = 1539: Check the upper effective torque limit (e.g. in the field weakening range). For alarm value = 320		
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Therefore the output of the friction characteristic (r3841) is set to zero. 33303339. Incorrect parameter number. The torques entered in the parameters for the friction characteristic do not correspond to the following condition: 0 <= p3830.p3831p3839 <= p0333 Therefore the output of the friction characteristic (r3841) is set to zero. Remedy: Fulfill the conditions for the friction characteristic (r3841) is set to zero. Remedy: Fulfill the conditions for the friction characteristic. For alarn value = 1538: Check the upper effective torque limit (e.g. in the field weakening range). For alarn value = 38203839: Fulfill the conditions to set the parameters of the friction characteristic. If the motor data (e.g. the maximum speed p0322) are changed during commissioning (p0010 = 1, 3), then the technological limits and threshold values, dependent on this, must be re-calculated by selecting p0340= 5). A07961 Drive: Friction characteristic record activated Message value: - Drive object: All objects Reaction: NONE Acknowledge: NONE Cause: The automatic friction characteristic record is activated. The friction characteristic is recorded at the next switch-on command. When plotting the friction characteristic record interrupted Message value: Porte: Friction characteristic record interrupted <t< th=""><th></th><th>Incorrect parameter number. The speeds entered in the parameters for the friction characteristic do not correspond to the</th></t<>		Incorrect parameter number. The speeds entered in the parameters for the friction characteristic do not correspond to the
3830 3839: Incorrect parameter number. The torques entered in the parameters for the friction characteristic do not correspond to the following condition: 0 <= p3830, p3831 p3839 <= p0333 Therefore the output of the friction characteristic (r3841) is set to zero. Remedy: Fuffill the conditions for the friction characteristic (r3841) is set to zero. For alarn value = 1538: Check the upper effective torque limit (e.g. in the field weakening range). For alarm value = 1539: Check the lower effective torque limit (e.g. in the field weakening range). For alarm value = 3820 3839: Futfill the conditions to set the parameters of the friction characteristic. If the motor data (e.g. the maximum speed p0322) are changed during commissioning (p0010 = 1, 3), then the technological limits and threshold values, dependent on this, must be re-calculated by selecting p0340= 5). A07961 Drive: Friction characteristic record activated Message value: - Drive objects All objects Reaction: NONE Acknowledge: NONE Cause: The friction characteristic record at the next switch-on command. When plotting the friction characteristic record is activated. The friction characteristic is recorded at the next switch-on command. When plotting the friction characteristic record is activated The ala		0.0 < p3820 < p3821 < < p3829 <= p0322 or p1082, if p0322 = 0
Incorrect parameter number. The torques entered in the parameters for the friction characteristic do not correspond to the following condition: 0 ≤= p3830, p3831 p3839 ≤= p0333 Therefore the output of the friction characteristic (r3841) is set to zero. Remedy: Fulfill the conditions for the friction characteristic. For alarm value = 1538: Check the upper effective torque limit (e.g. in the field weakening range). For alarm value = 1539: Check the lower effective torque limit (e.g. in the field weakening range). For alarm value = 38203839: Fulfill the conditions to set the parameters of the friction characteristic. If the motor data (e.g. the maximum speed p0322) are changed during commissioning (p0010 = 1, 3), then the technological limits and threshold values, dependent on this, must be re-calculated by selecting p0340= 5). A07961 Drive: Friction characteristic record activated Message value: - Drive object: All objects Reaction: NONE Cause: The automatic friction characteristic record is activated. The friction characteristic is recorded at the next switch-on command. When plotting the friction characteristic, it is not possible to save the parameters (p0971, p0977). Remedy: Not necessary. The alarm is automatically withdrawn after the friction characteristic recording has been successfully completed or recording has been de-activated (p3845 = 0). F07963		Therefore the output of the friction characteristic (r3841) is set to zero.
following condition: 0 <= p3830, p3831 p3839 <= p0333 Therefore the output of the friction characteristic (r3841) is set to zero. Remedy: Fuffill the conditions for the friction characteristic. For alarm value = 1538: Check the upper effective torque limit (e.g. in the field weakening range). For alarm value = 1539: Check the lower effective torque limit (e.g. in the field weakening range). For alarm value = 3820 3839: Fulfill the conditions to set the parameters of the friction characteristic. If the moor data (e.g. the maximum speed p0322) are changed during commissioning (p0010 = 1, 3), then the technological limits and threshold values, dependent on this, must be re-calculated by selecting p0340= 5). A07961 Drive: Friction characteristic record activated Message value: - Drive object: All objects Reaction: NONE Cause: The automatic friction characteristic record is activated. The friction characteristic is recorded at the next switch-on command. When plotting the friction characteristic, it is not possible to save the parameters (p0971, p0977). Remedy: Not necessary. The alarm is automatically withdrawn after the friction characteristic recording has been successfully completed or recording has been de-activated (p3845 = 0). F07963 Drive: Friction characteristic record interrupted Message value:		
Remedy: Fulfill the conditions for the friction characteristic. For alarm value = 1538: Check the upper effective torque limit (e.g. in the field weakening range). For alarm value = 1539: Check the lower effective torque limit (e.g. in the field weakening range). For alarm value = 3820		
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Reaction: NONE Acknowledge: NONE Cause: The automatic friction characteristic record is activated. The friction characteristic is recorded at the next switch-on command. When plotting the friction characteristic, it is not possible to save the parameters (p0971, p0977). Remedy: Not necessary. The alarm is automatically withdrawn after the friction characteristic recording has been successfully completed or recording has been de-activated (p3845 = 0). F07963 Drive: Friction characteristic record interrupted Message value: Parameter: %1 Drive object: All objects Reaction: OFF1	Message value:	-
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recording has been de-activated (p3845 = 0). F07963 Drive: Friction characteristic record interrupted Message value: Parameter: %1 Drive object: All objects Reaction: OFF1	Remedy:	Not necessary.
Message value: Parameter: %1 Drive object: All objects Reaction: OFF1		
Drive object: All objects Reaction: OFF1	F07963	Drive: Friction characteristic record interrupted
Reaction: OFF1	Message value:	Parameter: %1
	Drive object:	All objects
Acknowledge: IMMEDIATELY	Reaction:	OFF1
	Acknowledge:	IMMEDIATELY

Cause:	The conditions to record the friction characteristic are not fulfilled.
	Fault value (r0949, interpret decimal):
	0046: Missing enable signals (r0046).
	1082: The highest speed value to be approached (p3829) is greater than the maximum speed (p1082).
	1084: The highest speed value to be approached (p3829) is greater than the maximum speed (r1084, p1083, p1085).
	1087: The highest speed value to be approached (p3829) is greater than the maximum speed (r1087, p1086, p1088).
	1110: Friction characteristic record, negative direction selected (p3845) and negative direction inhibited (p1110).
	1111: Friction characteristic record, positive direction selected (p3845) and positive direction inhibited (p1111).
	1198: Friction characteristic record selected (p3845 > 0) and negative (p1110) and positive directions (p1111) inhibited (r1198).
	1300: The control mode (p1300) has not been set to closed-loop speed control.
	1755: For encoderless closed-loop control (p1300 = 20), the lowest speed value to be approached (p3820) is less than or equal to the changeover speed, open-loop controlled operation (p1755).
	1910: Motor data identification activated.
	1960: Speed controller optimization activated.
	3820 3829: speed (p382x) cannot be approached.
	3840: Friction characteristic incorrect.
	3845: Friction characteristic record de-selected.
Remedy:	Fulfill the conditions to record the friction characteristic.
	For fault value = 0046:
	- establish missing enable signals.
	For fault value = 1082, 1084, 1087:
	- Select the highest speed value to be approached (p3829) less than or equal to the maximum speed (p1082, r1084, r1087).
	- Re-calculate the speed points along the friction characteristic (p0340 = 5).
	For fault value = 1110:
	- Select the friction characteristic record, positive direction (p3845).
	For fault value = 1111:
	- Select the friction characteristic record, negative direction (p3845).
	For fault value = 1198:
	- Enable the permitted direction (p1110, p1111, r1198).
	For fault value = 1300:
	- set the control mode (p1300) on the closed-loop speed control (p1300 = 20, 21).
	For fault value = 1755:
	- For encoderless closed-loop speed control (p1300 = 20) select the lowest speed value to be approached (p3820) greater than the changeover speed of open-loop controlled operation (p1755).
	- Re-calculate the speed points along the friction characteristic (p0340 = 5).
	For fault value = 1910:
	- Exit the motor data identification routine (p1910).
	For fault value = 1960:
	- Exit the speed controller optimization routine (p1960).
	For fault value 3820 3829:
	- check the load at speed p382x.
	- check the speed signal (r0063) for oscillation at speed p382x. Check the settings of the speed controller if applicable.
	For fault value = 3840:
	- Make the friction characteristic error-free (p3820 p3829, p3830 p3839, p3840).
	For fault value = 3845:
	- Activate the friction characteristic record (p3845).

A07965 (N) Drive: Save required

Message value:-Drive object:All objectsReaction:NONE

13.2 List of faults and alarms

Acknowledge:	NONE
Cause:	The angular commutation offset (p0431) was re-defined and has still not been saved.
	In order to permanently accept the new value, it must be saved in a non-volatile fashion (p0971, p0977).
Remedy:	Not necessary.
	This alarm is automatically withdrawn after the data has been saved.
	See also: p0977
Reaction upon N:	NONE
Acknowl. upon N:	NONE
F07966	Drive: Check the commutation angle
Message value:	
Drive object:	All objects
Reaction:	OFF2 (NONE)
Acknowledge:	IMMEDIATELY
Cause:	The speed actual value was inverted and the associated angular commutation offset is not equal to zero and is therefore possibly incorrect.
Remedy:	Angular commutation offset after the actual value inversion or determine it again (p1990=1).
A07971 (N)	Drive: Angular commutation offset determination activated
Message value:	
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The automatic determination of the angular commutation offset (encoder adjustment) is activated (p1990 = 1). Note:
	The automatic determination is carried out at the next switch-on command.
	For SERVO and fault F07414 present, the following applies:
	The determination of the angular commutation offset is automatically activated (p1990 = 1), if a pole position identification technique is set in p1980.
Remedy:	Not necessary.
	The alarm is automatically withdrawn after successful determination or for the setting p1990 = 0.
Reaction upon N:	NONE
	NONE

A07979 (F, N) Drive: pole position identification calibration required

Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The pole position identification was not successful as the calibration values for the current measurement are not correct.
Remedy:	Replace the Motor Module involved.
Reaction upon F:	OFF2 (NONE)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A07980 Drive: Rotating measurement activated

Message value:

-

Drive object: All objects

Reaction:	NONE
Acknowledge:	NONE
Cause:	The rotating measurement is activated. For the rotating measurement, the motor can accelerate up to the maximum speed and with maximum torque. Only the parameterized current limit (p0640) and the maximum speed (p1082) are effective. The behavior of the motor can be influenced using the direction inhibit (p1959.14, p1959.15) and the ramp-up/ramp-down time (p1958).
	The rotating measurement is carried out at the next switch-on command.
Remedy:	Not necessary.
	The alarm is automatically withdrawn after the rotating measurement has been successfully completed or for the setting p1960 = 0.
	Note:
	If a POWER ON or a warm restart is performed with motor data identification selected, the motor data identification request will be lost. If motor data identification is required, it will need to be selected again manually following ramp-up.

F07990	Drive: Incorrect motor data identification
Message value:	%1
Drive object:	All objects
Reaction:	OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY

13.2 List of faults and alarms

Cause: A fault has occurred during the identification routine.

Fault value (r0949, interpret decimal):

- 10: Data set changeover during motor data identification.
- 101: Voltage amplitude even at 30% maximum current amplitude is too low to measure the inductance.
- 102, 104: Voltage limiting while measuring the inductance.
- 103: Maximum frequency exceeded during the rotating inductance measurement.
- 110: Motor not finely synchronized before the rotating measurement.
- 111: The zero mark is not received within 2 revolutions.
- 112: Fine synchronization is not realized within 8 seconds after the zero mark has been passed.

113: The power, torque or current limit is zero.

115: U/f control is active.

- 120: Error when evaluating the magnetizing inductance.
- 125: Cable resistance greater than the total resistance.
- 126: Series inductance greater than the total leakage inductance.
- 127: Identified leakage inductance negative.
- 128: Identified stator resistance negative.
- 129: Identified rotor resistance negative.
- 130: Drive data set changeover during the motor data identification routine.

140: The setpoint channel inhibits both directions.

160: Accelerating time when determining kT, moment of inertia or reluctance torque too short or too long.

161: When measuring the kT characteristic, constants kT1, kT3, kT5 and kT7 were not able to be determined (p0645 ... p0648), as too few points were measured.

165: The current limit was reduced below the measurement current while determining the reluctance torque.

173: Internal problem.

- 180: identification speed (maximum speed, rated speed, 0.9 x p0348) less than p1755 or no DC link voltage available.
- 181: Zero speed at the end of the measurement of periodic position errors.
- 182: No complete mechanical revolution at to the end of the measurement of periodic position errors.

190: Speed setpoint not equal to zero.

191: An actual speed of zero is not reached.

192: Speed setpoint not reached.

- 193: Inadmissible motion of the motor when identifying the voltage emulation error.
- 194: Supplementary torque (r1515) not equal to zero.
- 195: Closed-loop torque control active.

200, 201: Not possible to identify the voltage emulation error characteristic of the drive converter (p1952, p1953).

Remedy: For fault value = 10:

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- do not initiate a data set changeover during the motor data identification.
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For fault value = 101:

- increase current limit (p0640) or torque limit (p1520, p1521).

- check current controller gain (p1715).

- reduce current controller sampling time (p0115).

It may be impossible to completely identify the L characteristic, as required current amplitude is too high.

- suppress meas. (p1909, p1959).

For fault value = 102, 104:

- reduce current limit (p0640).

- check current controller P gain.

- suppress meas. (p1909, p1959).

For fault value = 103:

- increase external moment of inertia (if possible).

- reduce current controller sampling time (p0115).

- suppress meas. (p1909, p1959).

For fault value = 110:

- before rotating measurement, traverse motor over zero mark.

For fault value = 111:

- it is possible that encoder does not have zero mark. Correct setting in p0404.15.

- encoder pulse number was incorrectly entered. Correct setting in p0408.

- if zero mark signal is defective, replace encoder.

For fault value = 112:

- upgrade encoder software.

For fault value = 113:

- check the limits (p0640, p1520, p1521, p1530, p1531), correct the zero values.

For fault value = 115:

- de-select U/f control (p1317 = 0).

For fault value = 120:

- check current controller P gain (p1715) and if required, reduce.

- increase the pulse frequency (p1800).

For fault value = 125:

- reduce cable resistance (p0352).

For fault value = 126:

- reduce series inductance (p0353).

For fault = 127, 128, 129:

- it is possible that current controller is oscillating. Reduce the P gain (p1715).

- if required, reduce the current limit (p0640).

For fault value = 130:

- do not initiate a drive data set changeover during motor ident. routine.

For fault value = 140:

- before the measurement, enable at least one direction (p1110 = 0 or p1111 = 0 or p1959.14 = 1 or p1959.15 = 1). For fault value = 160:

- extend accelerating time when determining kT, moment of inertia and reluctance torque, e.g. by increasing max. speed (p1082), increasing moment of inertia or reducing max. current (p0640).

- in encoderless operation with load moment of inertia, parameterize the load moment of inertia (p1498).

- reduce the ramp-up time (p1958).

- increase speed controller P-gain (p1460).

- suppress meas. (p1959).

For fault value = 161:

- reduce the ramp-up time (p1958).

- increase max. speed (p1082).

- reduce current limit (p0640). - if required, do not activate the kT characteristic (p1780.9 = 0). For fault value = 165: - decrease max. current (p0640). For fault value = 173: For fault value = 180: - switch-on the infeed - increase max. speed (p1082). - reduce p1755. - suppress meas. (p1909, p1959). For fault value = 181, 182: - increase max. speed (p1082). - if required, deactivate the measurement (p1959.0 = 0). Note: - to measure periodic position errors, the encoder must have absolute position information (unique zero mark, distancecoded zero marks, absolute encoder, 1-pole resolver p5263.10). For fault value = 190: - set speed setpoint to zero. For fault value = 191: - do not start motor data identification routine while motor is still rotating. For fault value = 192: - check closed-loop speed control (motor rotor may be locked or closed-loop speed control is not functioning). - for p1215 = 1, 3 (brake the same as the sequence control) check the control sense (p0410.0). - ensure that enable signals are present during measurement. - remove any pulling loads from motor. - increase max. current (p0640). - reduce max, speed (p1082). - suppress meas. (p1959). For fault value = 193: - the motor has moved through more than 5 ° electrical (r0093). Lock motor rotor at one of these pole position angles (r0093): 90 °, 210 ° or 330 ° (+/-5 °) and then start identification. For fault value = 194: - switch out all supplementary torques (e.g. CI: p1511). - for hanging/suspended axes: Lock motor rotor at one of these pole position angles (r0093): 90 °, 210 ° or 330 ° (+/-1 °) and then start identification. For fault value = 195: - de-select closed-loop torque control (p1300 = 21 or 20, or set the signal source in p1501 to a 0 signal). For fault value = 200, 201: - set pulse frequency to 0.5 x current controller frequency (e.g. 4 kHz for a current controller sampling time = 125 us). - reduce cable length between Motor Module and motor. - read-out measured values (r1950, r1951) and therefore determine suitable values for p1952, p1953 according to your own estimation. Drive: Motor data identification activated

 Drive object:
 All objects

 Reaction:
 NONE

 Acknowledge:
 NONE

 Cause:
 The motor data identification routine is activated. The motor data identification routine is carried out at the next switch-on command.

A07991 (N) Message value:

Remedy:	Not necessary.
	The alarm is automatically withdrawn after the motor data identification routine has been successfully completed or for the setting p1910 = 0 or p1960 = 0.
	If a POWER ON or a warm restart is performed with motor data identification selected, the motor data identification request will be lost. If motor data identification is required, it will need to be selected again manually following ramp-up.
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F07993	Drive: Incorrect direction of rotation of the field or encoder actual value inversion
Message value:	-
Drive object:	All objects
Reaction:	OFF2 (NONE)
Acknowledge:	IMMEDIATELY
Cause:	Either the direction of the rotating field or the encoder actual value has an incorrect sign. The motor data identification automatically changed the actual value inversion (p0410) in order to correct the control sense. This can result in a direction of rotation change. Note:
	To acknowledge this fault, the correctness of the direction of rotation must first be acknowledged with p1910 = -2.
Remedy:	Check the direction of rotation (also for the position controller, if one is being used). If the direction of rotation is correct, the following applies: No additional measures are required (except set p1910 = -2 and acknowledge fault). If the direction of rotation is incorrect, the following applies: To change the direction of rotation, two phases must be interchanged and the motor identification routine must be repeated.

F07995Drive: Pole position identification not successfulMessage value:%1Drive object:All objectsReaction:OFF2Acknowledge:IMMEDIATELY

Cause: The pole position identification routine was unsuccessful.

Fault value (r0949, interpret decimal):

1: No current is established.

2: The starting current is not zero.

3: The selected max. distance was exceeded (p1981).

4x: The measuring signal does not permit a clear evaluation.

5: The max. current was exceeded during the measurement.

6: The current measurement must be re-calibrated.

7x: The Sensor Module does not support the pole position identification routine.

8: The pole position identification routine current required is greater than the max. current.

9: The set pole position identification routine current is zero.

10: Data set changeover during the pole position identification.

11: The encoder adjustment to determine the commutation angle is active (p1990 = 1) and the encoder without zero mark is not finely synchronized or does not have any valid data.

100: motion-based pole position identification, 1st and 2nd Measurements differ. Motor blocked or current (p1993) too low.

101: Motion-based position position identification, insufficient motion, motor blocked or current (p1993) too low.

102: Motion-based pole position identification, brake is being used and is closed. The motion-based position position identification in conjunction with the brake is not permitted.

103: Motion-based pole position identification without encoder.

104: Motion-based pole position identification, speed actual value not zero after stabilizing time.

200: Elasticity-based pole position identification, internal error in the arctan calculation (0/0).

201: Elasticity-based pole position identification, too few measuring points that can be evaluated.

202: Elasticity-based pole position identification, outliers in the measurement series.

203: Elasticity-based pole position identification, maximum rotation without current.

204: Elasticity-based pole position identification, no positive edge found.

205: Elasticity-based pole position identification, the result of the Fourier transformation differs by more than 480 °

electrical / p3093 from the rough estimate.

206: Elasticity-based pole position identification, plausibility test unsuccessful.

207: Elasticity-based pole position identification, no negative measured value found.

It is possible that all measured values are identical. The expected deflection was not able to be reached, either because the expectation is too high or not enough current was able to be established.

208: Elasticity-based pole position identification, measuring current is 0.

209: Elasticity-based pole position identification, the selected max. distance was exceeded (p3095).

210: Elasticity-based pole position identification without encoder.

250 ... 260:

Elasticity-based pole position identification, more than 3 attempts have been made and fault value 200 ... 210 output. Example:

Fault value= 253 --> more than 3 attempts have been made and fault value 203 output.

13.2 List of faults and alarms

Remedy: For fault value = 1:

- check the motor connection and DC link voltage.

- for the following parameters, set practical values that are not zero (p0325, p0329).

For fault value = 1, 2:

- in the case of a large computing time load (e.g. 6 drives with Safety Integrated), set the computing dead time of the current controller to late transfers (p0117 = 3).

For fault value = 3:

- increase the max. distance (p1981).

- reduce the currents for the pole position identification routine (p0325, p0329).

- stop the motor in order to carry out the pole position identification routine.

For fault value = 5:

- reduce the currents for the pole position identification routine (p0325, p0329).

For fault value = 6: - re-calibrate the Motor Module.

For fault value = 8:

- reduce the currents for the pole position identification routine (p0329, p0325, p1993).

- the power unit cannot provide the necessary pole position identification routine current (p0209 < p0329, p0325, p1993), replace the power unit with a power unit with a higher max. current.

For fault value = 9:

- enter a value not equal to zero in the pole position identification routine current (p0329, p0325, p1993).

For fault value = 10:

- do not initiate a data set changeover during the pole position identification.

For fault value = 11:

- for incremental encoders without commutation with zero mark (p0404.15 = 0), it does not make sense to adjust the encoder to determine the commutation angle (p1990 = 1). In this case, the function should be de-selected (p1990 = 0) or, for an encoder with suitable zero mark, commutation with zero mark should be selected (p0404.15 = 1).

- for absolute encoders, only adjust the encoder to determine the commutation angle (p1990 = 1) if the encoder supplies commutation information and is finely synchronized (p1992.8 = 1 and p1992.10 = 1). The encoder is possibly parked, deactivated (p0145), not ready for operation or signals a fault condition.

- de-select the encoder adjustment to determine the commutation angle (set p1990 to 0).

For fault value = 40 ... 49:

- increase the currents for the pole position identification routine (p0325, p0329).

- stop the motor in order to carry out the pole position identification routine.

- select another technique for pole position identification routine (p1980).

- use another motor, absolute encoder or Hall sensors.

For fault value = 70 ... 79:

- upgrade the software in the Sensor Module.

For fault value = 100, 101:

- check and ensure that the motor is free to move.

- increase the current for motion-based pole position identification (p1993).

For fault value = 102:

- if the motor is to be operated with a brake: Select a different technique to identify the pole position (p1980).

- if the motor can be operated without a brake: Open the brake (p1215 = 2).

For fault value = 103:

- the motion-based pole position identification can only be carried out using an encoder. Connect an encoder or select another technique for pole position identification routine (p1980).

For fault value = 104:

- pole position identification, increase the smoothing time, motion-based (p1997).

- pole position identification, increase the rise time, motion-based (p1994).

- pole position identification, check the gain, motion-based (p1995).

- pole position identification, check the integral time, motion-based (p1996).

- for motor encoders with track A/B sq-wave (p0404.3 = 1) and flank time measurement (p0430.20 = 0), disable the integral time (p1996 = 0).

For fault value = 200:

- check parameter setting (p3090 ... p3096). For fault value = 201: - check parameter setting (p3090 ... p3096). - reduce p3094. For fault value = 202: - check parameter setting (p3090 ... p3096). - fault has occurred during the identification. Repeat the measurement. - check the brake or brake control. For fault value = 203: - check the brake or brake control. - check the measuring current (p3096). - increase p3094. For fault value = 204: - check parameter setting (p3090 ... p3096). For fault value = 205: - check parameter setting (p3090 ... p3096). For fault value = 206: - check parameter setting (p3090 ... p3096). - fault has occurred during the identification. Repeat the measurement. - check the brake or brake control. For fault value = 207: - reduce the expected deflection (p3094). - increase the measuring current (p3096). For fault value = 208: - set the measuring current (p3096). For fault value = 209: - check parameter setting p3095. - check the brake or brake control. For fault value = 210° - the elasticity-based pole position identification can only be carried out using an encoder. Connect an encoder or select another technique for pole position identification routine (p1980). For fault value = 250 ... 260: - check parameter setting (p3090 ... p3096, p1980). Drive: Pole position identification routine not carried out All objects ENCODER (OFF2) IMMEDIATELY In operation, the operating mode that requires a pole position identification was changed over, which is not possible in this state.

- the drive was changed over, flying, from encoderless operation to operation with encoder without having previously carried out a pole position identification for the encoder. p1404 is then at a value between zero and the max. speed and the pulses in the speed range above p1404 were enabled without a pole position ident. routine having been previously carried out in operation with encoder.

- in operation, an EDS changeover was made to an encoder where it is necessary to carry out a pole position identification. However, this has still not been carried out (p1982 = 1 or 2 and p1992.7 = 0).

- for a flying changeover between operation with and without encoder with pole position identification after POWER ON
or commissioning (p0010 not equal to zero) enable the pulses once at zero speed. This means that the pole position
identification routine is carried out and the result is available for operation.

- carry out the EDS changeover with the pulses inhibited, or, before the changeover, carry out a pole position identification using this data set.

F07996

Reaction:

Cause:

Remedy:

Message value: Drive object:

Acknowledge:

A07998	Drive: Motor data identification active on another drive
lessage value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The motor data identification is activated on the drive object specified in the alarm value, and interlocks the other driv objects so they cannot be switched on.
	Alarm value (r2124, interpret decimal):
	Drive object with the active motor data identification.
Remedy:	 wait for the complete execution of the motor data identification of the drive object designated in the alarm value. deselect the motor data identification for the drive object designated in the alarm value (p1910 = 0 or p1960 = 0).
A07999	Drive: Motor data identification cannot be activated
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Closed-loop control is enabled on a SERVO drive object type. To select motor data identification, pulses must be suppressed for all SERVO drive objects.
	Alarm value (r2124, interpret decimal):
	Drive object with enabled closed-loop control.
Remedy:	Withdraw the pulse enable on all drives and re-activate the motor data identification.
F08000 (N, A)	TB: +/-15 V power supply faulted
Message value:	%1
Drive object:	All objects
Reaction:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	Terminal Board 30 detects an incorrect internal power supply voltage.
	Fault value (r0949, interpret decimal):
	0: Error when testing the monitoring circuit.
	1: Fault in normal operation.
Remedy:	- replace Terminal Board 30.
	- replace Control Unit.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F08010 (N, A)	TB: Analog-digital converter
Message value:	-
Drive object:	All objects
Reaction:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The analog/digital converter on Terminal Board 30 has not supplied any converted data.
	- check the power supply.
Remedv:	
Remedy:	- replace Terminal Board 30.
Remedy: Reaction upon N:	- replace Terminal Board 30. NONE

Reaction upon A: NONE Acknowl. upon A: NONE

A08550	PZD Interface Hardware assignment error
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The assignment of the hardware to the PZD interface has been incorrectly parameterized.
	Alarm value (r2124, interpret decimal):
	1: Only one of the two indices is not equal to 99 (automatic).
	2: Both PZD interfaces are assigned to the same hardware.
	3: Assigned COMM BOARD missing.
	4: CBC10 is assigned to interface 1.
Remedy:	Check the parameterization and if required, correct (p8839).
A08560	IE: Syntax error in configuration file
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	A syntax error has been detected in the ASCII configuration file for the Industrial Ethernet interface (X127). The saved configuration file has not been loaded.
	Note:
	IE: Industrial Ethernet
Remedy:	 Check the interface configuration (p8900 and following), correct if necessary, and activate (p8905 = 1). Save the parameters for interface configuration (e.g. p8905 = 2)
	or - reinitialize the station using the "Edit Ethernet node" screen form (e.g. with STARTER commissioning tool).
A08561	IE: Consistency error affecting adjustable parameters
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	A consistency error was detected when activating the configuration (p8905) for the Industrial Ethernet interface (X127). Alarm value (r2124, interpret decimal):
	0: general consistency error
	1: error in the IP configuration (IP address, subnet mask or standard gateway).
	2: Error in the station names.
	5: standard gateway is also set at the PROFINET onboard interface.
	6: the station name is also set at the PROFINET onboard interface.
	7: IP address is located in the same subnet as the IP address of the PROFINET onboard interface. Note:
	For alarm value = 0, 1, 2, 5, 7 the following applies: the configuration was not changed.
	For alarm value = 6 the following applies: The new configuration was however activated. IE: Industrial Ethernet
Remedy:	- check the required interface configuration (p8900 and following), correct if necessary, and activate (p8905). or
	- reinitialize the station using the "Edit Ethernet node" screen form (e.g. with STARTER commissioning tool).

A08562	PROFINET: Syntax error in configuration file
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	A syntax error has been detected in the ASCII configuration file for the onboard PROFINET interface. The saved configuration file has not been loaded.
Remedy:	- Check the interface configuration (p8920 and following), correct if necessary, and activate (p8925 = 1).
	- Save the parameters for interface configuration (e.g. p8925 = 2).
	or
	- reinitialize the station using the "Edit Ethernet node" screen form (e.g. with STARTER commissioning tool).
A08563	PROFINET: Consistency error affecting adjustable parameters
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	A consistency error was detected when activating the configuration (p8925) for the PROFINET interface.
	Alarm value (r2124, interpret decimal):
	0: general consistency error
	1: error in the IP configuration (IP address, subnet mask or standard gateway).
	2: Error in the station names.
	3: DHCP was not able to be activated, as a cyclic PROFINET connection already exists.
	4: a cyclic PROFINET connection is not possible as DHCP is activated.
	5: standard gateway is also set at the Industrial Ethernet interface (X127).
	6: standard station name is also set at the Industrial Ethernet interface (X127).
	7: IP address is located in the same subnet as the IP address of the Industrial Ethernet interface (X127).
	Note:
	For alarm value = 0, 1, 2, 3, 4, 5, 7, the following applies: the configuration was not changed.
	For alarm value = 6 the following applies: The new configuration was however activated. DHCP: Dynamic Host Configuration Protocol
Remedy:	- check the required interface configuration (p8940 and following), correct if necessary, and activate (p8945).
Remeuy.	or
	- reinitialize the station using the "Edit Ethernet node" screen form (e.g. with STARTER commissioning tool).
A00000	PPOFlenergy energy equing mode active
A08800 Message value:	PROFlenergy energy-saving mode active
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The PROFlenergy energy-saving mode is active
	Alarm value (r2124, interpret decimal):
	Mode ID of the active PROFlenergy energy-saving mode.
	See also: r5600 (Pe energy-saving mode ID)
Remedy:	The alarm is automatically withdrawn when the energy-saving mode is exited
Remedy:	The alarm is automatically withdrawn when the energy-saving mode is exited. Note:
Remedy:	Note:
Remedy:	Note: The energy-saving mode is exited after the following events:
Remedy:	Note:

A09000	Webserver security: password not set for administrator
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	A password must be allocated to activate an "Administrator" as user in the web server with extended rights. There is no password for the "Administrator".
Remedy:	Enter the password for user "Administrator"
F13000	License not adequate
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	- for the drive unit, the options that require a license are being used but the licenses are not sufficient.
	- an error occurred when checking the existing licenses.
	Fault value (r0949, decimal interpretation):
	0:
	The existing license is not sufficient.
	1:
	An adequate license was not able to be determined as the memory card with the required licensing data was withdrawn in operation.
	2:
	An adequate license was not able to be determined as there is no licensing data available on the memory card.
	3:
	An adequate license was not able to be determined as there is a checksum error in the license key.
	4:
	An internal error occurred when checking the license.
Remedy:	For fault value = 0:
	Additional licenses are required and these must be activated (p9920, p9921).
	For fault value = 1: With the system powered down, re-insert the memory cord that matches the system
	With the system powered down, re-insert the memory card that matches the system. For fault value = 2:
	Enter and activate the license key (p9920, p9921).
	For fault value = 3:
	Compare the license key (p9920) entered with the license key on the certificate of license.
	Re-enter the license key and activate (p9920, p9921).
	For fault value = 4:
	- carry out a POWER ON.
	- upgrade firmware to later version.
	- contact Technical Support.
A13001	Error in license checksum
Message value:	-
Drive object:	All objects

Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	When checking the checksum of the license key, an error was detected.
Remedy:	Compare the license key (p9920) entered with the license key on the certificate of license.
	Re-enter the license key and activate (p9920, p9921).

F13009	Licensing Technology Extension not licensed
Message value:	%1
Drive object:	All objects
Reaction:	OFF1
Acknowledge:	IMMEDIATELY
Cause:	At least one Technology Extension that requires a license does not have a license.
	Note:
	Refer to r4955 and p4955 for information about the installed Technology Extensions.
Remedy:	- enter and activate the license key for Technology Extensions that require a license (p9920, p9921).
	- if necessary, deactivate Technology Extensions that are not licensed (p4956).
F13010	Licensing function module not licensed
Message value:	%1
Drive object:	All objects
Reaction:	OFF1
Acknowledge:	IMMEDIATELY
Cause:	At least one function module requiring a license is not licensed.
	Fault value (r0949, interpret hexadecimal):
	Bit $x = 1$: The corresponding function module does not have a license.
	Note:
	Assigning bit number to function module, see p0108 or r0108.
Remedy:	- enter and activate the license key for function modules that require a license license (p9920, p9921).
	- if necessary, deactivate unlicensed function modules (p0108, r0108).
A13021	License for 600 Hz is not sufficient
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	You have parameterized speeds that result in output frequencies >550Hz. For SINAMICS drives, output frequencies >550Hz are only possible after enabling the corresponding high output frequency license. Without license, the SINAMICS output frequencies are limited to 550 Hz (independent of any other parameterization).
Remedy:	- enter and activate the license key for 600Hz.
-	- if required deactivate use of 600 Hz
F13100	Know-how protection: Copy protection error
Message value:	%1
Drive object:	All objects
	OFF1
Reaction:	
	IMMEDIATELY
Reaction: Acknowledge: Cause:	
Acknowledge:	IMMEDIATELY
Acknowledge:	IMMEDIATELY The know-how protection with copy protection for the memory card is active.
Acknowledge:	IMMEDIATELY The know-how protection with copy protection for the memory card is active. An error has occurred when checking the memory card.
Acknowledge:	IMMEDIATELY The know-how protection with copy protection for the memory card is active. An error has occurred when checking the memory card. Fault value (r0949, interpret decimal):
Acknowledge:	IMMEDIATELY The know-how protection with copy protection for the memory card is active. An error has occurred when checking the memory card. Fault value (r0949, interpret decimal): 0: A memory card is not inserted.
Acknowledge:	IMMEDIATELY The know-how protection with copy protection for the memory card is active. An error has occurred when checking the memory card. Fault value (r0949, interpret decimal): 0: A memory card is not inserted. 2: An invalid memory card is inserted.

Remedy:	 For fault value = 0: insert the correct memory card and carry out POWER ON. For fault value = 2, 3, 12, 13: contact the responsible OEM. Deactivate copy protection (p7765) and acknowledge the fault (p3981). Deactivate know-how protection (p7766 p7768) and acknowledge the fault (p3981). Note: In general, the copy protection can only be changed when know-how protection is deactivated. KHP: Know-How Protection
F13101	Know-how protection: Copy protection cannot be activated
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	An error occurred when attempting to activate the copy protection for the memory card.
	Fault value (r0949, interpret decimal):
	0: A memory card is not inserted.
	Note:
_ .	KHP: Know-How Protection
Remedy:	 insert the memory card and carry out POWER ON. Try to activate copy protection again (p7765).
	- Try to activate copy protection again (pr/ob).
F13102	Know-how protection: Consistency error of the protected data
Message value:	%1
Drive object:	All objects
Reaction:	OFF1
Acknowledge:	IMMEDIATELY
Cause:	An error was identified when checking the consistency of the protected files. As a consequence, the project on the memory card cannot be run.
	Fault value (r0949, interpret hexadecimal):
	yyyyxxxx hex: yyyy = object number, xxxx = fault cause xxxx = 1:
	A file has a checksum error.
	xxxx = 2:
	The files are not consistent with one another.
	xxxx = 3:
	The project files, which were loaded into the file system via load (download from the memory card), are inconsistent.
	Note:
	KHP: Know-How Protection
Remedy:	- Replace the project on the memory card or replace project files for download from the memory card.
	- Restore the factory setting and download again.
F30001	Power unit: Overcurrent
F30001 Message value:	Power unit: Overcurrent Fault cause: %1 bin
Message value:	Fault cause: %1 bin

Cause:	The power unit has detected an overcurrent condition. - closed-loop control is incorrectly parameterized. - motor has a short-circuit or fault to ground (frame). - U/f operation: Up ramp set too low. - U/f operation: Rated motor current is significantly greater than that of the Motor Module. - infeed: High discharge and post-charging currents for voltage dip. - infeed: High post-charging currents for overload when motoring and DC link voltage dip. - infeed: Short-circuit currents at switch-on due to the missing line reactor. - power cables are not correctly connected. - the power cables exceed the maximum permissible length. - power unit defective. - line phase interrupted. Additional causes for a parallel switching device (r0108.15 = 1): - a power unit has tripped (switched off) due to a ground fault. - the closed-loop circulating current control is either too slow or has been set too fast. Fault value (r0949, interpret bitwise binary): Bit 0: Phase U. Bit 1: Phase V. Bit 2: Phase W. Bit 3: Overcurrent in the DC link. Note: Fault value = 0 means that the phase with overcurrent is not recognized (e.g. for blocksize device).
Remedy:	 check the motor data - if required, carry out commissioning. check the motor circuit configuration (star/delta). U/f operation: Increase up ramp. U/f operation: Check the assignment of the rated currents of the motor and Motor Module. infeed: Check the line supply quality. infeed: Check the correct connection of the line filter and the line commutating reactor. check the power cables for short-circuit or ground fault. check the line supply phases. For a parallel switching device (r0108.15 = 1) the following additionally applies: check the setting of the closed-loop circulating current control (p7036, p7037).
F30002 Message value:	Power unit: DC link voltage overvoltage %1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY

The power unit has detected overvoltage in the DC link.

- motor regenerates too much energy.

- device connection voltage too high.

- when operating with a Voltage Sensing Module (VSM), the phase assignment L1, L2, L3 at the VSM differs from the phase assignment at the power unit.

- line phase interrupted.

Cause:

Fault value (r0949, interpret decimal):

DC link voltage at the time of trip [0.1 V].

Remedy:	 increase the ramp-down time activate the DC link voltage controller (p1240) use a brake resistor or Active Line Module increase the current limit of the infeed or use a larger module (for the Active Line Module) check the device supply voltage check and correct the phase assignment at the VSM and at the power unit check the line supply phases. See also: p0210
F30003	Power unit: DC link voltage undervoltage
Message value:	-
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The power unit has detected an undervoltage condition in the DC link.
	- line supply failure
	- line supply voltage below the permissible value.
	- line supply infeed failed or interrupted.
	- line phase interrupted. Note:
	The monitoring threshold for undervoltage in the DC link is indicated in r0296.
Remedy:	- check the line supply voltage
•	- check the line supply infeed and observe the fault messages relating to it (if there are any)
	- check the line supply phases.
	- check the line supply voltage setting (p0210).
	- booksize units: check the setting of p0278.
	Note:
	The ready signal for the infeed (r0863) must be interconnected to the associated drive inputs (p0864).
	See also: p0210
F30004	Power unit: Overtemperature heat sink AC inverter
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The temperature of the power unit heat sink has exceeded the permissible limit value.
	- insufficient cooling, fan failure.
	- overload.
	- ambient temperature too high.
	- pulse frequency too high.
	Fault value (r0949, interpret decimal):
Demoden	Temperature [0.01 °C].
Remedy:	- check whether the fan is running.
	- check the fan elements.
	 check whether the ambient temperature is in the permissible range. check the motor load.
	- reduce the pulse frequency if this is higher than the rated pulse frequency.
	Notice:
	This fault can only be acknowledged after the alarm threshold for alarm A05000 has been undershot.

F30005	Power unit: Overload I2t
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The power unit was overloaded (r0036 = 100 %).
Cause.	- the permissible rated power unit current was exceeded for an inadmissibly long time.
	- the permissible load duty cycle was not maintained.
	Fault value (r0949, interpret decimal):
	I2t [100 % = 16384].
Remedy:	- reduce the continuous load.
· · · · · · · · · · · · · · · · · · ·	- adapt the load duty cycle.
	- check the motor and power unit rated currents.
	See also: p0307, r0307
F30006	Power unit: Thyristor Control Board
Message value:	-
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The Thyristor Control Board (TCB) of the Basic Line Module signals a fault.
	- there is no line supply voltage.
	- the line contactor is not closed.
	- the line supply voltage is too low.
	- line supply frequency outside the permissible range (45 66 Hz).
	- there is a DC link short-circuit.
	- there is a DC link short-circuit (during the precharging phase).
	- the motor either has a short-circuit or insulation fault (from an inverter connected to the DC link).
	- voltage supply for the Thyristor Control Board outside the nominal range (5 18 V) and line voltage >30 V.
	- there is an internal fault in the Thyristor Control Board.
Remedy:	The faults must be saved in the Thyristor Control Board and must be acknowledged. To do this, the supply voltage of the Thyristor Control Board must be switched out for at least 10 s!
	- check the line supply voltage
	- check or energize the line contactor.
	- check the monitoring time and, if required, increase (p0857).
	- if required, observe additional power unit messages/signals.
	- check the DC link regarding short-circuit or ground fault.
	 check the motor regarding short-circuit or ground fault. evaluate diagnostic LEDs for the Thyristor Control Board.
F30008	Power unit: Sign-of-life error cyclic data
Message value:	
Drive object:	- All objects
Reaction:	Servo: NONE (OFF1, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
-	
Cause:	The Control Unit has not punctually updated the cyclic setpoint telegram to the power unit. The number of consecutive tolerated sign of life errors has exceeded the fault threshold (p7789) set in the power unit.
Remedy:	- for projects with the VECTOR drive object, check whether p0117 = 6 has been set on the Control Unit.
	- increase the fault threshold (p7789). - check the Motor Module, and if required replace.

A30010 (F)	Power unit: Sign-of-life error cyclic data
Message value:	
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	A DRIVE-CLiQ communication error has occurred between the Control Unit and the power unit involved.
	The cyclic setpoint telegrams of the Control Unit were not received on time by the power unit for at least one clock cycle
Remedy:	Check the Motor Module and if required, replace.
Reaction upon F:	Servo: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	
F30011	Power unit: Line phase failure in main circuit
Message value:	%1
Drive object:	All objects
Reaction:	OFF2 (OFF1)
Acknowledge:	IMMEDIATELY
Cause:	At the power unit, the DC link voltage ripple has exceeded the permissible limit value.
	Possible causes:
	- a line phase has failed.
	- the 3 line phases are inadmissibly asymmetrical.
	- the capacitance of the DC link capacitor forms a resonance frequency with the line inductance and the reactor integrated in the power unit.
	- the fuse of a phase of a main circuit has ruptured.
	- a motor phase has failed.
	Fault value (r0949, interpret decimal):
	Only for internal Siemens troubleshooting.
Remedy:	- check the main circuit fuses.
	 check whether a single-phase load is distorting the line voltages.
	- Detune the resonant frequency with the line inductance by using an upstream line reactor.
	- Dampen the resonant frequency with the line inductance by switching over the DC link voltage compensation in the software (see p1810) – or increase the smoothing (see p1806). However, this can have a negative impact on the torque ripple at the motor output.
	- check the motor feeder cables.
F30012	Power unit: Temperature sensor wire breakage
Message value:	%1
Drive object:	All objects

Drive object:All objectsReaction:OFF1 (OFF2)Acknowledge:IMMEDIATELY

Cause:	The connection to a temperature sensor in the power unit is interrupted.
	Fault value (r0949, interpret hexadecimal):
	Bit 0: Module slot (electronics slot)
	Bit 1: Air intake
	Bit 2: Inverter 1
	Bit 3: Inverter 2
	Bit 4: Inverter 3
	Bit 5: Inverter 4
	Bit 6: Inverter 5
	Bit 7: Inverter 6
	Bit 8: Rectifier 1
	Bit 9: Rectifier 2
	Bit14: capacitor air discharge
	Bit15: liquid intake
Remedy:	Contact Technical Support.

F30013 Power unit: Temperature sensor short circuit

Message value:	%1
Drive object:	All objects
Reaction:	OFF1 (OFF2)
Acknowledge:	IMMEDIATELY
Cause:	A temperature sensor in the power unit is short-circuited.
	Fault value (r0949, interpret hexadecimal):
	Bit 0: Module slot (electronics slot)
	Bit 1: Air intake
	Bit 2: Inverter 1
	Bit 3: Inverter 2
	Bit 4: Inverter 3
	Bit 5: Inverter 4
	Bit 6: Inverter 5
	Bit 7: Inverter 6
	Bit 8: Rectifier 1
	Bit 9: Rectifier 2
	Bit14: capacitor air discharge
	Bit15: liquid intake
Remedy:	Contact Technical Support.

F30015 (N, A) Power unit: Phase failure motor cable

Message value:	-
Drive object:	All objects
Reaction:	OFF2 (NONE, OFF1, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	A phase failure in the motor feeder cable was detected.
	The signal can also be output in the following case:
	- the motor is correctly connected, however the closed-speed control is instable and therefore an oscillating torque is generated.
	Note:
	Chassis power units do not feature phase failure monitoring.
Remedy:	- check the motor feeder cables.
	- check the speed controller settings.
Reaction upon N:	NONE

13.2 List of faults and alarms

Acknowl. upon N: NONE Reaction upon A: NONE Acknowl. upon A: NONE

A30016 (N)	Power unit: Load supply switched out
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The DC link voltage is too low.
	Alarm value (r2124, interpret decimal):
	DC link voltage at the time of trip [0.1 V].
Remedy:	- switch on load supply.
-	- check the line supply if necessary.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
	Power unit: Hardware current limit has responded too often
Message value:	Fault cause: %1 bin
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The hardware current limitation in the relevant phase (see A30031, A30032, A30033) has responded too often. The numbe of times the limit has been exceeded depends on the design and type of power unit.
	For infeed units, the following applies:
	- closed-loop control is incorrectly parameterized.
	- load on the infeed is too high.
	- Voltage Sensing Module incorrectly connected.
	- line reactor missing or the incorrect type.
	- power unit defective.
	The following applies to Motor Modules:
	- closed-loop control is incorrectly parameterized.
	- fault in the motor or in the power cables.
	- the power cables exceed the maximum permissible length.
	- motor load too high
	- power unit defective.
	Fault value (r0949, interpret binary):
	Bit 3: phase U
	Bit 4: phase V Bit 5: phase W
	Additional bits:
	Only for internal Siemens troubleshooting.
	Note:

13.2 List of faults and alarms

Remedy: For infeed units, the following applies:

- check the controller settings and reset and identify the controller if necessary (p0340 = 2, p3410 = 5)

- reduce the load and increase the DC link capacitance or use a higher-rating infeed if necessary
- check the connection of the optional Voltage Sensing Module
- check the connection and technical data of the line reactor
- check the power cables for short-circuit or ground fault.
- replace power unit.
- The following applies to Motor Modules:
- check the motor data and if required, recalculate the controller parameters (p0340 = 3). As an alternative, run a motor data identification (p1910 = 1, p1960 = 1).
- check the motor circuit configuration (star-delta).
- check the motor load.
- check the power cable connections.
- check the power cables for short-circuit or ground fault.
- check the length of the power cables.
- replace power unit.

F30020 Power unit: Configuration not supported

1 00010	r onor and oornigardion not capported
Message value:	fault cause: %1, additional information: %2
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A configuration is requested that is not supported by the power unit.
	Fault value (r0949, interpret hexadecimal):
	yyyyxxxx hex: xxxx = fault cause, yyyy = additional information (internal Siemens)
	xxxx = 0: Autonomous operation is requested but is not supported.
	xxxx = 1: The requested DRIVE-CLiQ timing is not permissible.
	xxxx = 2: A PM260 has been detected with PS-ASIC version 2. This combination is not supported.
	xxxx = 3: Initialization was not able to be successfully completed. It is possible that the Control Unit was withdrawn from the Power Module before or during power up.
	xxxx = 4: The combination of power unit and Control Unit or Control Unit Adapter is not supported.
	xxxx = 5: The higher current controller dynamic performance is not supported.
Remedy:	For fault cause = 0:
	If required, deactivate an active internal voltage protection (p1231).
	For fault cause = 1:
	Update the Control Unit firmware or change the DRIVE-CLiQ topology.
	For fault cause = 2:
	Replace the power unit with a PM260 with PS-ASIC version 3 (or higher).
	For fault cause = 3, 4:
	Insert a Control Unit or Control Unit Adapter (CUAxx) on an appropriate Power Module and perform a POWER ON for the Control Units Adapter.
	For fault cause = 5:
	- use a booksize format power unit.
	 for a Double Motor Module operate the two drive controls with the same current controller sampling time (p0115[0]). Otherwise, the higher current controller dynamics can only be activated on the drive with the longer sampling time. if required, de-select the higher current controller dynamic performance (p1810.11 = 0). After deselecting the computing
	dead time, recalculate the controller gains (p0340 = 4). If required, optimize the speed controller.

F30021Power unit: Ground faultMessage value:%1Drive object:All objects

Reaction: OFF2

Acknowledge:	IMMEDIATELY
Cause:	The power has detected a ground fault.
	Possible causes:
	- ground fault in the power cables.
	- ground fault at the motor.
	- CT defective.
	- when the brake closes, this causes the hardware DC current monitoring to respond.
	- short-circuit at the braking resistor.
	- the closed-loop circulating current control for devices connected in parallel (r0108.15 = 1) is either too slow or has been set too fast.
	Note:
	For power units, a ground fault is also emulated in r3113.5.
	Fault value (r0949, interpret decimal):
	0:
	- the hardware DC current monitoring has responded.
	- short-circuit at the braking resistor.
	> 0:
_ .	Absolute value, total current amplitude [20479 = r0209 * 1.4142].
Remedy:	- check the power cable connections.
	- check the motor.
	- check the CT.
	- check the cables and contacts of the brake connection (a wire is possibly broken).
	- check the braking resistor.
	For parallel switching devices (r0108.15 = 1) the following additionally applies: - check the ground fault monitoring thresholds (p0287).
	- check the setting of the closed-loop circulating current control (p7036, p7037).
	- check the setting of the closed-loop circulating current control (proso, prosr).
F30022	
	Power unit: Monitoring U_ce
Message value:	Power unit: Monitoring U_ce Fault cause: %1 bin
Message value: Drive object:	Power unit: Monitoring U_ce Fault cause: %1 bin All objects
Message value: Drive object: Reaction:	Power unit: Monitoring U_ce Fault cause: %1 bin All objects OFF2
Message value: Drive object: Reaction: Acknowledge:	Power unit: Monitoring U_ce Fault cause: %1 bin All objects OFF2 POWER ON
Message value: Drive object: Reaction:	Power unit: Monitoring U_ce Fault cause: %1 bin All objects OFF2 POWER ON In the power unit, the monitoring of the collector-emitter voltage (U_ce) of the semiconductor has responded.
Message value: Drive object: Reaction: Acknowledge:	Power unit: Monitoring U_ce Fault cause: %1 bin All objects OFF2 POWER ON In the power unit, the monitoring of the collector-emitter voltage (U_ce) of the semiconductor has responded. Possible causes:
Message value: Drive object: Reaction: Acknowledge:	Power unit: Monitoring U_ce Fault cause: %1 bin All objects OFF2 POWER ON In the power unit, the monitoring of the collector-emitter voltage (U_ce) of the semiconductor has responded. Possible causes: - fiber-optic cable interrupted.
Message value: Drive object: Reaction: Acknowledge:	Power unit: Monitoring U_ce Fault cause: %1 bin All objects OFF2 POWER ON In the power unit, the monitoring of the collector-emitter voltage (U_ce) of the semiconductor has responded. Possible causes:
Message value: Drive object: Reaction: Acknowledge:	Power unit: Monitoring U_ce Fault cause: %1 bin All objects OFF2 POWER ON In the power unit, the monitoring of the collector-emitter voltage (U_ce) of the semiconductor has responded. Possible causes: - fiber-optic cable interrupted. - power supply of the IGBT gating module missing.
Message value: Drive object: Reaction: Acknowledge:	Power unit: Monitoring U_ce Fault cause: %1 bin All objects OFF2 POWER ON In the power unit, the monitoring of the collector-emitter voltage (U_ce) of the semiconductor has responded. Possible causes: - fiber-optic cable interrupted. - power supply of the IGBT gating module missing. - short-circuit at the power unit output.
Message value: Drive object: Reaction: Acknowledge:	Power unit: Monitoring U_ce Fault cause: %1 bin All objects OFF2 POWER ON In the power unit, the monitoring of the collector-emitter voltage (U_ce) of the semiconductor has responded. Possible causes: - fiber-optic cable interrupted. - power supply of the IGBT gating module missing. - short-circuit at the power unit output. - defective semiconductor in the power unit.
Message value: Drive object: Reaction: Acknowledge:	Power unit: Monitoring U_ce Fault cause: %1 bin All objects OFF2 POWER ON In the power unit, the monitoring of the collector-emitter voltage (U_ce) of the semiconductor has responded. Possible causes: - fiber-optic cable interrupted. - power supply of the IGBT gating module missing. - short-circuit at the power unit output. - defective semiconductor in the power unit. Fault value (r0949, interpret binary):
Message value: Drive object: Reaction: Acknowledge:	Power unit: Monitoring U_ce Fault cause: %1 bin All objects OFF2 POWER ON In the power unit, the monitoring of the collector-emitter voltage (U_ce) of the semiconductor has responded. Possible causes: - fiber-optic cable interrupted. - power supply of the IGBT gating module missing. - short-circuit at the power unit output. - defective semiconductor in the power unit. Fault value (r0949, interpret binary): Bit 0: Short-circuit in phase U
Message value: Drive object: Reaction: Acknowledge:	Power unit: Monitoring U_ce Fault cause: %1 bin All objects OFF2 POWER ON In the power unit, the monitoring of the collector-emitter voltage (U_ce) of the semiconductor has responded. Possible causes: - fiber-optic cable interrupted. - power supply of the IGBT gating module missing. - short-circuit at the power unit output. - defective semiconductor in the power unit. Fault value (r0949, interpret binary): Bit 0: Short-circuit in phase U Bit 1: Short circuit in phase V
Message value: Drive object: Reaction: Acknowledge:	Power unit: Monitoring U_ce Fault cause: %1 bin All objects OFF2 POWER ON In the power unit, the monitoring of the collector-emitter voltage (U_ce) of the semiconductor has responded. Possible causes: - fiber-optic cable interrupted. - power supply of the IGBT gating module missing. - short-circuit at the power unit output. - defective semiconductor in the power unit. Fault value (r0949, interpret binary): Bit 0: Short-circuit in phase U Bit 1: Short circuit in phase W
Message value: Drive object: Reaction: Acknowledge:	Power unit: Monitoring U_ce Fault cause: %1 bin All objects OFF2 POWER ON In the power unit, the monitoring of the collector-emitter voltage (U_ce) of the semiconductor has responded. Possible causes: - fiber-optic cable interrupted. - power supply of the IGBT gating module missing. - short-circuit at the power unit output. - defective semiconductor in the power unit. Fault value (r0949, interpret binary): Bit 0: Short-circuit in phase U Bit 1: Short circuit in phase V Bit 2: Short-circuit in phase W Bit 3: Light transmitter enable defective
Message value: Drive object: Reaction: Acknowledge:	Power unit: Monitoring U_ce Fault cause: %1 bin All objects OFF2 POWER ON In the power unit, the monitoring of the collector-emitter voltage (U_ce) of the semiconductor has responded. Possible causes: - fiber-optic cable interrupted. - power supply of the IGBT gating module missing. - short-circuit at the power unit output. - defective semiconductor in the power unit. Fault value (r0949, interpret binary): Bit 0: Short-circuit in phase U Bit 1: Short circuit in phase V Bit 2: Short-circuit in phase W Bit 3: Light transmitter enable defective Bit 4: U_ce group fault signal interrupted
Message value: Drive object: Reaction: Acknowledge: Cause:	Power unit: Monitoring U_ce Fault cause: %1 bin All objects OFF2 POWER ON In the power unit, the monitoring of the collector-emitter voltage (U_ce) of the semiconductor has responded. Possible causes: - fiber-optic cable interrupted. - power supply of the IGBT gating module missing. - short-circuit at the power unit output. - defective semiconductor in the power unit. Fault value (r0949, interpret binary): Bit 0: Short-circuit in phase U Bit 1: Short circuit in phase V Bit 2: Short-circuit in phase W Bit 3: Light transmitter enable defective Bit 4: U_ce group fault signal interrupted See also: r0949 (Fault value)
Message value: Drive object: Reaction: Acknowledge: Cause:	Power unit: Monitoring U_ce Fault cause: %1 bin All objects OFF2 POWER ON In the power unit, the monitoring of the collector-emitter voltage (U_ce) of the semiconductor has responded. Possible causes: - fiber-optic cable interrupted. - power supply of the IGBT gating module missing. - short-circuit at the power unit output. - defective semiconductor in the power unit. Fault value (r0949, interpret binary): Bit 0: Short-circuit in phase U Bit 1: Short circuit in phase V Bit 2: Short-circuit in phase W Bit 3: Light transmitter enable defective Bit 4: U_ce group fault signal interrupted See also: r0949 (Fault value) - check the fiber-optic cable and if required, replace.
Message value: Drive object: Reaction: Acknowledge: Cause:	Power unit: Monitoring U_ce Fault cause: %1 bin All objects OFF2 POWER ON In the power unit, the monitoring of the collector-emitter voltage (U_ce) of the semiconductor has responded. Possible causes: - fiber-optic cable interrupted. - power supply of the IGBT gating module missing. - short-circuit at the power unit output. - defective semiconductor in the power unit. Fault value (r0949, interpret binary): Bit 0: Short-circuit in phase U Bit 1: Short circuit in phase V Bit 2: Short-circuit in phase W Bit 3: Light transmitter enable defective Bit 4: U_ce group fault signal interrupted See also: r0949 (Fault value) - check the fiber-optic cable and if required, replace. - check the power supply of the IGBT gating module (24 V).

F30024	Power unit: Overtemperature thermal model
Message value:	-
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The temperature difference between the heat sink and chip has exceeded the permissible limit value. - the permissible load duty cycle was not maintained. - insufficient cooling, fan failure. - overload. - ambient temperature too high. - pulse frequency too high.
	See also: r0037
Remedy:	 adapt the load duty cycle. check whether the fan is running. check the fan elements. check whether the ambient temperature is in the permissible range. check the motor load. reduce the pulse frequency if this is higher than the rated pulse frequency.
F30025	Power unit: Chip overtemperature
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The chip temperature of the semiconductor has exceeded the permissible limit value. - the permissible load duty cycle was not maintained. - insufficient cooling, fan failure. - overload. - ambient temperature too high. - pulse frequency too high. Fault value (r0949, interpret decimal): Temperature difference between the heat sink and chip [0.01 °C].
Remedy:	 adapt the load duty cycle. check whether the fan is running. check the fan elements. check whether the ambient temperature is in the permissible range. check the motor load. reduce the pulse frequency if this is higher than the rated pulse frequency. Notice: This fault can only be acknowledged after the alarm threshold for alarm A05001 has been undershot. See also: r0037
F30027	Power unit: Precharging DC link time monitoring
Message value:	Enable signals: %1, Status: %2
Drive object:	All objects
Reaction:	OFF2

13.2 List of faults and alarms

Cause: The power unit DC link was not able to be precharged within the expected time. 1) There is no line supply voltage connected. 2) The line contactor/line side switch has not been closed. 3) The line supply voltage is too low. 4) Line supply voltage incorrectly set (p0210). 5) The precharging resistors are overheated as there were too many precharging operations per time unit. 6) The precharging resistors are overheated as the DC link capacitance is too high. 7) The precharging resistors are overheated because when there is no "ready for operation" (r0863.0) of the infeed unit, power is taken from the DC link. 8) The precharging resistors are overheated as the line contactor was closed during the DC link fast discharge through the Braking Module. 9) The DC link has either a ground fault or a short-circuit. 10) The precharging circuit is possibly defective (only for chassis units). 11) Infeed is defective and/or fuse has ruptured in the Motor Module (only Booksize units). Fault value (r0949, interpret binary): yyyyxxxx hex: yyyy = power unit state 0: Fault status (wait for OFF and fault acknowledgment). 1: Restart inhibit (wait for OFF). 2: Overvoltage condition detected -> change into the fault state. 3: Undervoltage condition detected -> change into the fault state. 4: Wait for bridging contactor to open -> change into the fault state. 5: Wait for bridging contactor to open -> change into restart inhibit. 6: Wait for bypass contactor to open 7: Commissioning. 8: Ready for precharging. 9: Precharging started, DC link voltage lower than the minimum switch-on voltage 10: Precharging, DC link voltage end of precharging still not detected 11: Wait for the end of the de-bounce time of the main contactor after precharging has been completed. 12: Precharging completed, ready for pulse enable. 13: It was detected that the STO terminal was energized at the power unit xxxx = Missing internal enable signals, power unit (inverted bit-coded, FFFF hex -> all internal enable signals available) Bit 0: Power supply of the IGBT gating shut down. Bit 1: Ground fault detected. Bit 2: Peak current intervention. Bit 3: I2t exceeded. Bit 4. Thermal model overtemperature calculated. Bit 5: (heat sink, gating module, power unit) overtemperature measured. Bit 6: Reserved. Bit 7: Overvoltage detected. Bit 8: Power unit has completed precharging, ready for pulse enable. Bit 9: STO terminal missing. Bit 10: Overcurrent detected. Bit 11: Armature short-circuit active. Bit 12: DRIVE-CLiQ fault active. Bit 13: Vce fault detected, transistor de-saturated due to overcurrent/short-circuit. Bit 14: Undervoltage detected. See also: p0210

Remedy:	In general:
•	- check the line supply voltage at the input terminals.
	- check the line supply voltage setting (p0210).
	For booksize drive units, the following applies:
	- wait (approx. 8 minutes) until the precharging resistors have cooled down. For this purpose, preferably disconnect the infeed unit from the line supply.
	For 5):
	- carefully observe the permissible precharging frequency (refer to the appropriate Equipment Manual).
	For 6):
	- check the total capacitance of the DC link and reduce in accordance with the maximum permissible DC link capacitance if necessary (refer to the appropriate Equipment Manual)
	For 7):
	- interconnect the ready-for-operation signal from the infeed unit (r0863.0) in the enable logic of the drives connected to this DC link
	For 8):
	- check the connections of the external line contactor. The line contactor must be open during DC link fast discharge.
	For 9):
	- check the DC link for ground faults or short circuits.
	For 11): - check the DC link voltage of the infeed (r0070) and Motor Modules (r0070).
	If the DC link voltage generated by the infeed (roovo) and wolder modules (roovo).
	ruptured in the Motor Module.
	See also: p0210
A30030	Power unit: Internal overtemperature alarm
A30030 Message value:	Power unit: Internal overtemperature alarm %1
	•
Message value:	%1
Message value: Drive object: Reaction:	%1 All objects
Message value: Drive object:	%1 All objects NONE
Message value: Drive object: Reaction: Acknowledge:	%1 All objects NONE NONE
Message value: Drive object: Reaction: Acknowledge:	%1 All objects NONE NONE The temperature inside the drive converter has exceeded the permissible temperature limit.
Message value: Drive object: Reaction: Acknowledge:	%1 All objects NONE NONE The temperature inside the drive converter has exceeded the permissible temperature limit. - insufficient cooling, fan failure.
Message value: Drive object: Reaction: Acknowledge:	%1 All objects NONE NONE The temperature inside the drive converter has exceeded the permissible temperature limit. - insufficient cooling, fan failure. - overload.
Message value: Drive object: Reaction: Acknowledge:	%1 All objects NONE NONE The temperature inside the drive converter has exceeded the permissible temperature limit. - insufficient cooling, fan failure. - overload. - ambient temperature too high.
Message value: Drive object: Reaction: Acknowledge:	%1 All objects NONE NONE The temperature inside the drive converter has exceeded the permissible temperature limit. - insufficient cooling, fan failure. - overload. - ambient temperature too high. Alarm value (r2124, interpret decimal):
Message value: Drive object: Reaction: Acknowledge: Cause:	%1 All objects NONE NONE The temperature inside the drive converter has exceeded the permissible temperature limit. - insufficient cooling, fan failure. - overload. - ambient temperature too high. Alarm value (r2124, interpret decimal): Only for internal Siemens troubleshooting.
Message value: Drive object: Reaction: Acknowledge: Cause:	 %1 All objects NONE NONE The temperature inside the drive converter has exceeded the permissible temperature limit. - insufficient cooling, fan failure. - overload. - ambient temperature too high. Alarm value (r2124, interpret decimal): Only for internal Siemens troubleshooting. - possibly use an additional fan. - check whether the ambient temperature is in the permissible range. Notice:
Message value: Drive object: Reaction: Acknowledge: Cause:	 %1 All objects NONE NONE The temperature inside the drive converter has exceeded the permissible temperature limit. insufficient cooling, fan failure. overload. ambient temperature too high. Alarm value (r2124, interpret decimal): Only for internal Siemens troubleshooting. possibly use an additional fan. check whether the ambient temperature is in the permissible range.
Message value: Drive object: Reaction: Acknowledge: Cause:	 %1 All objects NONE NONE The temperature inside the drive converter has exceeded the permissible temperature limit. - insufficient cooling, fan failure. - overload. - ambient temperature too high. Alarm value (r2124, interpret decimal): Only for internal Siemens troubleshooting. - possibly use an additional fan. - check whether the ambient temperature is in the permissible range. Notice:
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy:	 %1 All objects NONE NONE The temperature inside the drive converter has exceeded the permissible temperature limit. insufficient cooling, fan failure. overload. ambient temperature too high. Alarm value (r2124, interpret decimal): Only for internal Siemens troubleshooting. possibly use an additional fan. check whether the ambient temperature is in the permissible range. Notice: This alarm is automatically withdrawn once the permissible temperature limit value has been fallen below minus 5 K.
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy: A30031	 %1 All objects NONE NONE The temperature inside the drive converter has exceeded the permissible temperature limit. insufficient cooling, fan failure. overload. ambient temperature too high. Alarm value (r2124, interpret decimal): Only for internal Siemens troubleshooting. possibly use an additional fan. check whether the ambient temperature is in the permissible range. Notice: This alarm is automatically withdrawn once the permissible temperature limit value has been fallen below minus 5 K.
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy: A30031 Message value:	%1 All objects NONE NONE The temperature inside the drive converter has exceeded the permissible temperature limit. - insufficient cooling, fan failure. - overload. - ambient temperature too high. Alarm value (r2124, interpret decimal): Only for internal Siemens troubleshooting. - possibly use an additional fan. - check whether the ambient temperature is in the permissible range. Notice: This alarm is automatically withdrawn once the permissible temperature limit value has been fallen below minus 5 K.
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy: A30031 Message value: Drive object:	%1 All objects NONE NONE The temperature inside the drive converter has exceeded the permissible temperature limit. - insufficient cooling, fan failure. - overload. - ambient temperature too high. Alarm value (r2124, interpret decimal): Only for internal Siemens troubleshooting. - possibly use an additional fan. - check whether the ambient temperature is in the permissible range. Notice: This alarm is automatically withdrawn once the permissible temperature limit value has been fallen below minus 5 K. Power unit: Hardware current limiting in phase U - All objects

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Cause:	Hardware current limit for phase U responded. The pulsing in this phase is inhibited for one pulse period.
	- closed-loop control is incorrectly parameterized.
	- fault in the motor or in the power cables.
	- the power cables exceed the maximum permissible length.
	- motor load too high
	- power unit defective.
	Note: Alarm A30031 is always output if, for a Power Module, the hardware current limiting of phase U, V or W responds.
Bomodur.	
Remedy:	- check the motor data and if required, recalculate the control parameters (p0340 = 3). As an alternative, run a motor data identification (p1910 = 1, p1960 = 1).
	- check the motor circuit configuration (star/delta).
	- check the motor load.
	- check the power cable connections.
	- check the power cables for short-circuit or ground fault.
	- check the length of the power cables.
A30032	Power unit: Hardware current limiting in phase V
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Hardware current limit for phase V responded. The pulsing in this phase is inhibited for one pulse period.
	- closed-loop control is incorrectly parameterized.
	- fault in the motor or in the power cables.
	- the power cables exceed the maximum permissible length.
	- motor load too high
	- power unit defective.
	Note:
D	Alarm A30031 is always output if, for a Power Module, the hardware current limiting of phase U, V or W responds.
Remedy:	Check the motor data and if required, recalculate the control parameters (p0340 = 3). As an alternative, run a motor data identification (p1910 = 1, p1960 = 1).
	- check the motor circuit configuration (star/delta).
	- check the motor load.
	- check the power cable connections.
	- check the power cables for short-circuit or ground fault.
	- check the length of the power cables.
A30033	Power unit: Hardware current limiting in phase W
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Hardware current limit for phase W responded. The pulsing in this phase is inhibited for one pulse period.
	- closed-loop control is incorrectly parameterized.
	- fault in the motor or in the power cables.
	- the power cables exceed the maximum permissible length.
	- motor load too high
	- power unit defective.
	Note:
	Alarm A30031 is always output if, for a Power Module, the hardware current limiting of phase U, V or W responds.

rtomouy.	identification (p1910 = 1, p1960 = 1).
	- check the motor circuit configuration (star/delta).
	- check the motor load.
	- check the power cable connections.
	- check the power cables for short-circuit or ground fault.
	- check the length of the power cables.
A30034	Power unit: Internal overtemperature
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The alarm threshold for internal overtemperature has been reached.
	If the temperature inside the unit continues to increase, fault F30036 may be triggered.
	- ambient temperature might be too high.
	- insufficient cooling, fan failure.
	Alarm value (r2124, interpret decimal):
	Only for internal Siemens troubleshooting.
Remedy:	- check the ambient temperature.
	- check the fan for the inside of the unit.
F30035	Power unit: Air intake overtemperature
Message value:	%1
Drive object:	All objects
Reaction:	OFF1 (OFF2)
Acknowledge:	IMMEDIATELY
Cause:	The air intake in the power unit has exceeded the permissible temperature limit.
	For air-cooled power units, the temperature limit is at 55 °C.
	- ambient temperature too high.
	- insufficient cooling, fan failure.
	Fault value (r0949, interpret decimal):
	Temperature [0.01 °C].
Remedy:	- check whether the fan is running.
	- check the fan elements.
	- check whether the ambient temperature is in the permissible range.
	Notice:
	This fault can only be acknowledged after the alarm threshold for alarm A05002 has been undershot.
F30036	Power unit: Internal overtemperature
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The temperature inside the drive converter has exceeded the permissible temperature limit.
	- insufficient cooling, fan failure.
	- overload.
	- ambient temperature too high.
	Fault value (r0949, interpret decimal):

- check the motor data and if required, recalculate the control parameters (p0340 = 3). As an alternative, run a motor data

Remedy:

Remedy:	- check whether the fan is running.
	- check the fan elements.
	 check whether the ambient temperature is in the permissible range. Notice:
	This fault can only be acknowledged once the permissible temperature limit minus 5 K has been fallen below.
F30037	Power unit: Rectifier overtemperature
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The temperature in the rectifier of the power unit has exceeded the permissible temperature limit. - insufficient cooling, fan failure. - overload.
	- ambient temperature too high.
	- line supply phase failure.
	Fault value (r0949, interpret decimal):
Demedia	Temperature [0.01 °C].
Remedy:	- check whether the fan is running. - check the fan elements.
	- check the fan elements. - check whether the ambient temperature is in the permissible range.
	- check the motor load.
	- check the line supply phases.
	Notice:
	This fault can only be acknowledged after the alarm threshold for alarm A05004 has been undershot.
F30040	Power unit: Undervolt 24/48 V
Message value:	Channel: %1, voltage: %2 [0.1 V]
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The undervoltage threshold of the 24 V power supply for the power unit was fallen below for longer than 3 ms. Note:
	- for booksize power units, the undervoltage threshold is 15 V.
	 - for CU310-2, CUA31 and CUA32 the undervoltage threshold is 16 V. - for all other power units (e.g. S120M), the undervoltage threshold depends on the power unit, and is not displayed.
	Fault value (r0949, interpret hexadecimal):
	yyxxx hex: yy = channel, xxxx = voltage $[0.1 V]$
	yy = 0: 24 V power supply
	yy = 1: 48 V power supply
Remedy:	- check the power supply of the power unit.
	- carry out a POWER ON (switch-off/switch-on) for the component.
A30041 (F)	Power unit: Undervolt 24/48 V alarm
Message value:	Channel: %1, voltage: %2 [0.1 V]
Drive object:	All objects
Reaction:	NONE

Cause:	For the power unit power supply, the lower threshold has been violated. Alarm value (r2124, interpret hexadecimal):
	yyxxxx hex: yy = channel, xxxx = voltage [0.1 V]
	yy = 0: 24 V power supply
	yy = 1: 48 V power supply
Remedy:	- check the power supply of the power unit.
	- carry out a POWER ON (switch-off/switch-on) for the component.
Reaction upon F:	NONE (OFF1, OFF2)
Acknowl. upon F:	IMMEDIATELY (POWER ON)

A30042	Power unit: Fan has reached the maximum operating hours
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The maximum operating time of at least one fan will soon be reached, or has already been exceeded.
	Alarm value (r2124, interpret binary):
	Bit 0 = 1:
	The operating hours counter of the heat sink fan will reach the maximum operating time in 500 hours. Bit 1 = 1:
	The wear counter of the heat sink fan has reached 99 %. The remaining service life is 1%.
	Bit 2 = 1:
	The operating hours counter of the heat sink fan has exceeded the maximum operating time - and/or the wear counter has exceeded 100%.
	Bit 8 = 1:
	The operating hours counter of the fan inside the device will reach the maximum operating time in 500 hours. Bit 10 = 1:
	The operating hours counter of the fan inside the device has exceeded the maximum operating time.
Remedy:	For the fan involved, carry out the following:
	- replace the fan.
	- reset the operating hours counter (p0251, p0254).
F30043	Power unit: Overvolt 24/48 V
Message value:	Channel: %1, voltage: %2 [0.1 V]
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	POWER ON
Cause:	For the power unit power supply, the upper threshold has been violated.
	Fault value (r0949, interpret hexadecimal):
	yyxxxx hex: yy = channel, xxxx = voltage [0.1 V]
	yy = 0: 24 V power supply
	yy = 1:48 V power supply
	Check the power supply of the power unit.
Remedy:	
Remedy: 	Power unit: Overvolt 24/48 V alarm
A30044 (F)	Power unit: Overvolt 24/48 V alarm Channel: %1, voltage: %2 [0.1 V]
A30044 (F) Message value:	Channel: %1, voltage: %2 [0.1 V]

13.2 List of faults and alarms

Cause:	For the power unit power supply, the upper threshold has been violated.
	Alarm value (r2124, interpret hexadecimal):
	yyxxxx hex: yy = channel, xxxx = voltage [0.1 V]
	yy = 0: 24 V power supply
	yy = 1: 48 V power supply
Remedy:	Check the power supply of the power unit.
Reaction upon F:	NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
F30045	Power unit: Supply undervoltage
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	Power supply fault in the power unit.
	- the voltage monitor signals an undervoltage fault on the module.
	The following applies for CU31x:
	- the voltage monitoring on the DAC board signals an undervoltage fault on the module.
	For S120M, the following applies:
	- this message is displayed for undervoltage or overvoltage.
Remedy:	- check the power supply of the power unit.
	- carry out a POWER ON (switch-off/switch-on) for the component.
	- replace the module if necessary.
A30046 (F)	Power unit: Undervoltage alarm
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Before the last restart, a problem occurred at the power unit power supply.
	The voltage monitor in the internal FPGA of the PSA signals an undervoltage fault on the module.
	Alarm value (r2124, interpret decimal):
	Register value of the voltage fault register.
Remedy:	- check the 24 V DC voltage supply to power unit.
	- carry out a POWER ON (switch-off/switch-on) for the component.
	- replace the module if necessary.
Reaction upon F:	Servo: NONE (OFF1, OFF2)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
A30048	Power unit: fan defective
Message value:	Fault cause: %1 bin
Drive object:	All objects

Reaction:NONEAcknowledge:NONE

Cause:	The feedback signal from a fan indicates a fault.
	- fan defective.
	- fan blocked.
	- feedback signal inaccurate.
	Alarm value (r2124, interpret binary): Bit 0 = 1: heat sink fan
	Bit 1 = 1: fan inside the device
	Note:
	- for firmware version < 5.1 of the power unit, the alarm value is always 0. The alarm then refers to the heat sink fan.
	 - for r0193.13 = 1, fault F30058 is output instead of this alarm for heat sink fans, if the pulses are inhibited or the fault occurs within 10 s after the fan runs up when the pulses are enabled.
	- for r0193.13 = 1, fault F30059 is output instead of this alarm for fans inside the unit, if the air intake temperature (r0037[3]) has exceeded a specific threshold.
Remedy:	- check the fan involved.
-	- if required, replace the fan.
A 000 40	
A30049	Power unit: Internal fan faulty
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The internal fan has failed.
Remedy:	Check the internal fan and replace if necessary.
F30050	Power unit: 24 V supply overvoltage
Message value:	-
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	POWER ON
Cause:	The voltage monitor signals an overvoltage fault on the module.
Remedy:	
rtomody.	- check the 24 V power supply.
Romody.	- cneck the 24 V power supply. - replace the module if necessary.
F30052	
F30052	- replace the module if necessary.
F30052 Message value:	- replace the module if necessary. EEPROM data error %1
F30052	- replace the module if necessary. EEPROM data error
F30052 Message value: Drive object: Reaction:	- replace the module if necessary. EEPROM data error %1 All objects
F30052 Message value: Drive object:	- replace the module if necessary. EEPROM data error %1 All objects OFF2 POWER ON
F30052 Message value: Drive object: Reaction: Acknowledge:	- replace the module if necessary. EEPROM data error %1 All objects OFF2 POWER ON EEPROM data error of the power unit module.
F30052 Message value: Drive object: Reaction: Acknowledge:	- replace the module if necessary. EEPROM data error %1 All objects OFF2 POWER ON
F30052 Message value: Drive object: Reaction: Acknowledge:	 replace the module if necessary. EEPROM data error %1 All objects OFF2 POWER ON EEPROM data error of the power unit module. Fault value (r0949, interpret decimal): 0, 2, 3, 4: The EEPROM data read in from the power unit module are incorrect.
F30052 Message value: Drive object: Reaction: Acknowledge:	 replace the module if necessary. EEPROM data error %1 All objects OFF2 POWER ON EEPROM data error of the power unit module. Fault value (r0949, interpret decimal): 0, 2, 3, 4: The EEPROM data read in from the power unit module are incorrect. 1:
F30052 Message value: Drive object: Reaction: Acknowledge:	 replace the module if necessary. EEPROM data error %1 All objects OFF2 POWER ON EEPROM data error of the power unit module. Fault value (r0949, interpret decimal): 0, 2, 3, 4: The EEPROM data read in from the power unit module are incorrect. 1: EEPROM data is not compatible to the firmware of the power unit application.
F30052 Message value: Drive object: Reaction: Acknowledge:	 replace the module if necessary. EEPROM data error %1 All objects OFF2 POWER ON EEPROM data error of the power unit module. Fault value (r0949, interpret decimal): 0, 2, 3, 4: The EEPROM data read in from the power unit module are incorrect. 1:

Remody: For taut value = 10, 23, 34: Replace the power unit module or update the EEPROM data. For fault value = 1: The following applies for CU3x and CUA31: Update the firmware ISIEMENSISINAMICSICODEISACLou31:i.ufw (cua31.ufw) F30053 FPGA data faulty Message value: %1 Drive object: All objects Reaction: NONE Actorwdoge: POWER ON Cause: The FPGA data of the power unit are faulty. This can be caused, for example, if a firmware update is interrupted. Remody: Replace the power unit or update of the FPGA data by updating the firmware. Note: If this fault occurs after a firmware update, then update the firmware again. A30054 (F, N) Power unit: Undervoltage when opening the brake Message value: %1 Drive object: All objects Reaction: NONE Cause: When the brake is being opened, it is detected that the power supply voltage is less than 21.4 V Alar value = 195 -> voltage = 19.5 V Remody: Check the 24 V voltage for stability and value. Reaction upon F: NONE Actorwduge: NONE F30055 Power unit: B		
For fault value = 1: The following applies for CU31x and CUA31: Update the firmware SiEMENS/SIAM/ICS/CODE/SAC/cu31xi ufw (cua31.ufw) F30053 FPGA data faulty Message value: %1 Drive object: All objects Reaction: NONE Acknowledge: POVER R0 Cause: The FPGA data of the power unit are faulty. This can be caused, for example, if a firmware update is interrupted. Remody: Replace the power unit or update of the FPGA data by updating the firmware. Note: If this fault occurs after a firmware update, then update the firmware again. A30054 (F, N) Power unit: Undervoltage when opening the brake Message value: %1 Drive object: All objects Acknowledge: NONE Acknowledge: NONE Cause: When the brake is being opened, it is detected that the power supply voltage is less than 21.4 V Alarm value (2124), interpret decimal): Supply voltage fault [0.1 V]. Example: Alarm value (2124), interpret decimal): Supply voltage for stability and value. Reaction upon F. Reaction upon F. NONE Acknowledge: NONE Fo3055 Power unit: Eraking chopper overcurrent	Remedy:	For fault value = 0, 2, 3, 4:
The following applies for CU311: Update the firmware ISIEMENSISINAMICS/CODEISAC/cu31xi.ufw (cua31.ufw) F30053 FCA data faulty Message value: %1 Drive object: All objects Reaction: NONE Admowledge: POWER ON Cause: The FPGA data of the power unit are faulty. This can be caused, for example, if a firmware update is interrupted. Remedy: Replace the power unit or update of the FPGA data by updating the firmware. Note: If this fault occurs after a firmware update, then update the firmware again. A30054 (F, N) Power unit: Undervoltage when opening the brake Message value: %1 Drive object: NONE Cause: Wohen the brake is being opened, it is detected that the power supply voltage is less than 21.4 V Alam value (r2124, interpret decimal): Supply voltage fault [D1 V]. Example: Alam value (r2124, interpret decimal): Supply voltage fault [D1 V]. Example: Alam value (r2124, interpret decimal): Supply voltage fault [D1 V]. Example: Alam value (r2124, interpret decimal): Supply voltage fault [D1 V]. Example: Alam value (r2124, interpret decimal): Supply voltage fault [D1 V]. Example: Alam value (r2124, interpret decimal): Supply voltage fault [D1 V]. Example: Alam value (r2124, interpret decimal): Supply voltage fault [D1 V]. Example: Alam value (r2124, interpret decimal): Supply voltage fault [D1 V]. Example: Alam value (r2124, interpret decimal): Supply voltage fault [D1 V]. Example: Alam value (r2124, interpret decimal): Supply voltage fault [D1 V]. Example: Alam value (r2124, interpret decimal): Supply voltage fault [D1 V]. Example: Alam value (r2124, interpret decimal): Supply voltage fault [D1 V]. Example: Alam value (r2124, interpret decimal): Supply voltage fault [D1 V]. Example: Alam value (r2124, interpret decimal): Supply voltage fault [D1 V]. Example: Alam value (r2124, interpret decimal): Supply voltage fault [D1 V]. Example: Alam value (r2124, interpret decimal): Supply voltage fault [D1 V]. Example: Alam value (r2124, interpret decimal): Supply voltage fault [D1 V]. Example: Alam value (r2124, interpret decimal		
Update the firmware \SIEMENSISINAMICS\CODE\SAC\cu31xi.ufw (cu31.ufw) F30053 FPCA data faulty Message value: %1 Driv object: All objects Reaction: NONE Adrowledge: POWER ON Cause: The FPCA data fully. Remdy: Replace the power unit or update of the FPCA data by updating the firmware. Note: If this fault occurs after a firmware update, then update the firmware again. A30054 (F, N) Power unit: Undervoltage when opening the brake Message value: %1 Drive object: All objects Reactor:: NONE Adknowledge: NONE Cause: When the brake is being opened, it is detacted that the power supply voltage is less than 21.4 V Alarm value (2124, interpret decimal): Supply voltage fault [0.1 V]. Example: Alarm value = 195> voltage = 19.5 V Remedy: Check the 24 Voltage for stability and value. Reaction: IMONE Adknowl.upon N: NONE F30055 Power unit: Braking chopper overcurrent Message value: - Drive object: All objects		
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Message value: %1 Drive object: All objects Reaction:: NONE Acknowledge: POWER ON Cause:: The FPGA data of the power unit are faulty. This can be caused, for example, if a firmware update is interrupted. Remedy:: Replace the power unit or update of the FPGA data by updating the firmware. Note: If this fault occurs after a firmware update, then update the firmware again. A30054 (F, N) Power unit: Undervoltage when opening the brake Message value: %1 Drive object: All objects Reaction: NONE Cause: When the brake is being opened, it is detected that the power supply voltage is less than 21.4 V Alarm value (2124, interpret decimal): Supply voltage fault (0.1 1). Example: Alarm value (2124, interpret decimal): Reaction upon F: NONE Reaction upon F: NONE (DATELY Adarm value = 195 -> voltage = 19.5 V Remedy: Check the 24 V voltage for stability and value. Reaction upon F: NONE (DATELY Reaction upon F: NONE F30055 Power unit: Braking chopper overourrent Message value: .		
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Alarm value (r2124, interpret decimal): Supply voltage fault [0.1 V]. Example: Alarm value = 195> voltage = 19.5 V Remedy: Check the 24 V voltage for stability and value. Reaction upon F: NONE (OFF1, OFF2, OFF3) Acknowl. upon F: IMMEDIATELY Reaction upon N: NONE F30055 Power unit: Braking chopper overcurrent Message value: - Drive object: All objects Reaction: OFF2 Acknowlege: IMMEDIATELY Cause: An overcurrent condition has occurred in the braking chopper. Remedy: - check whether the braking resistor has a short circuit. - for an external braking resistor, check whether the resistor may have been dimensioned too small. Note: The braking chopper is only enabled again at pulse enable after the fault has been acknowledged. A30057 Power unit: Line asymmetry Message value: %1 Drive object: All objects Reaction: NONE	-	
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A30057 Power unit: Line asymmetry Message value: %1 Drive object: All objects Reaction: NONE		
Message value: %1 Drive object: All objects Reaction: NONE		
Drive object: All objects Reaction: NONE	A30057	
Reaction: NONE	Message value:	%1
	-	All objects
Acknowledge: NONE		NONE
	Acknowledge:	NONE

13.2 List of faults and alarms

Cause:	Frequencies have been detected on the DC link voltage that would suggest line asymmetry or failure of a line phase.
	It is also possible that a motor phase has failed.
	Fault F30011 is output if the alarm is present and at the latest after 5 minutes.
	The precise duration depends on the power unit type and the particular frequencies. For booksize and chassis power units, the duration also depends on how long the alarm has been active.
	Alarm value (r2124, interpret decimal):
	Only for internal Siemens troubleshooting.
Remedy:	- check the line phase connection.
	- check the motor feeder cable connections.
	If there is no phase failure of the line or motor, then line asymmetry is involved.
	- reduce the power in order to avoid fault F30011.

F30058 (N, A) Power unit: heat sink fan defective

Message value:	
Drive object:	All objects
Reaction:	OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY
Cause:	The feedback signal from the heat sink fan signals a fault.
	- fan defective.
	- fan blocked.
	- feedback signal inaccurate.
Remedy:	- check the heat sink fan and replace if necessary.
	- if you are using an external fan with feedback signal, check its wiring (X12.2 or X13.2).
	Note:
	If you are using an external fan without feedback signal, check that the feedback terminal wiring at the power unit is connected to ground and make this connection if necessary (X12.1/2 or X13.1/2).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F30059	Power unit: Internal fan faulty
Message value:	
Dubia ablasti	
Drive object:	All objects
Drive object: Reaction:	All objects OFF2
-	•
Reaction:	OFF2
Reaction: Acknowledge:	OFF2 IMMEDIATELY
Reaction: Acknowledge: Cause:	OFF2 IMMEDIATELY The internal power unit fan has failed and is possibly defective.
Reaction: Acknowledge: Cause: Remedy:	OFF2 IMMEDIATELY The internal power unit fan has failed and is possibly defective. Check the internal fan and replace if necessary.
Reaction: Acknowledge: Cause: Remedy: F30060 (A)	OFF2 IMMEDIATELY The internal power unit fan has failed and is possibly defective. Check the internal fan and replace if necessary. Precharge contactor state monitoring
Reaction: Acknowledge: Cause: Remedy: F30060 (A) Message value:	OFF2 IMMEDIATELY The internal power unit fan has failed and is possibly defective. Check the internal fan and replace if necessary. Precharge contactor state monitoring Fault cause: %1 bin

Cause: A feedback signal for the precharging contactor (ALM, SLM, BLM diode) or the line contactor (BLM thyristor) interconnected and the monitoring activate. Alter switching-inference timents): Bit 0: The time set in 02255(0, 2) was acceeded when switching-inference time. Bit 1: The precharging contactor was spended when switching-inference time. Bit 1: The precharging contactor was spended when switching-inference time. Remedy: - check the monitoring time setting (p0255(0, 2)). - check the contactor. Remedy: - check the monitoring time setting (p0255(0, 2)). - check the contactor. Reaction: NONE Addrowdugo: Alter switching-inference time times activation. - check the contactor. Reactor: OFF2 (NONE, OFF1) Addrowdugo: MinetDATELY (POWER ON) Cause: A feedback signal for the bypass contactor is interconnected and the monitoring activated. After switching-inference times operation. Bit 1: The precharging (p0255(1, 3)). Fault value (0048, interpret binary): Bit 0: The times activator was switched-in in the OFF state or during precharging. Reactor: OFF2 (NONE (OFF1) Addres switching-inference times operation. Bit 2: The precess contactor was operation operation. Bit 1: The bypass contactor was operation operation. Bit 2: The bypass contactor was operatio		
pd255[0, 2]. Fault value (049, interpret binary): Bt 0: The time set in pd255[0, 2] was exceeded when switching-in/switching out the contactor. Bt 1: The precharging contactor was synched-thin in the OFF state or during infeed operation. Remedy: - check the contactor wing and activation. - deptor the contactor wing and activation. - epideo the contactor. Rescion upon A: NONE F30061 (A) Bridging contactor monitoring Rescion: OFF2 (NONE, OFF1) Acknowl. upon A: NONE Rescion: OFF2 (NONE, OFF1) Acknowledge: IMMEDIATELY (POWER ON) Cause: A feedback signal for the bypass contactor is interconnected and the monitoring activated. After switching-in/switching-out the contactor, a correct feedback signal was not received within the monitoring time set in p0255(1, 3). - check the contactor wing and activation. - pdata value (0949, interpret binary): Bit 1: The bypass contactor was switched—in in the OFF state or during precharging. Remedy: - check the contactor wing and activation. - excelon upon A: NONE A30066 (N) Power unit: overtemperature, alarm capacitor air discharge Message value: %1 Drive object:	Cause:	
Fault value (0049, interpret binary): Bit 0: The time set in p0255(0, 2) was exceeded when switching-in/switching out the contactor. Bit 1: The precharging contactor was opened while precharging or in the infeed mode (BLM thyristor). Bit 2: The precharging contactor was opened while precharging or in the infeed operation. Remedy: - check the monitoring time sating (p0255(0, 2)). - check the contactor. - check the monitoring time sating (p0255(0, 2)). F30061 (A) Bridging contactor monitoring Message value: Fault cause: \$1 bin Phyle object: All objects Reaction: OFF2 (NONE. OFF1) Acknowledge: IMMEDIATELY (POWER ON) Cause: A feedback signal for the bypass contactor is interconnected and the monitoring activated. After switching-in/switching-out the contactor, a correct feedback signal was not received within the monitoring time set in p0255(1, 3). Fault value (0049. interpret binary): Bit 1: The bypass contactor was switched-in in the OFF state of during precharging. Remody: - check the monitoring time set in p0255(1, 3). - eheck the monitoring time set in p0255(1, 3). - check the monitoring time set in p0255(1, 3). - eheck the monitoring time set in p0255(1, 3). - check the monitoring time set in p0255(1, 3). - eheck the monitoring time se		
Bit 2: The precharging contactor was switched-in in the OFF state or during infeed operation. Remedy: - check the monitoring time setting (p0256(), 2)). - replace the contactor. Reaction upon A: NONE F30061 (A) Bridging contactor monitoring Message value: Fault cause: %1 bin Drive object: All objects Reaction: OFF2 (NONE, OFF1) Acknowledge: IMMEDIATELY (POWER ON) Cause: A feedback signal for the bypass contactor is interconnected and the monitoring activated. Attraviation (1994), interpret binary): Bit 0.2: The bypass contactor was operation. Bit 2: The bypass contactor was operation in the OFF state or during precharging. - eheck the contactor. Bit 2: The bypass contactor was operation. Bit 2: The bypass contactor was operation. Bit 2: The bypass contactor was operation. - eheck the contactor. Bit 2: The bypass contactor was operation. - eheck the contactor. Bit 2: The bypass contactor was operation. - replace the contactor. Bit 2: The bypass contactor was operation in the OFF state or during precharging. - eheck the contactor. Atomotege NONE - eheck the contactor. Atomotege NONE - entactor.		
Bit 2: The precharging contactor was switched-in in the OFF state or during infeed operation. Remedy: - check the monitoring time setting (p0255(0, 2)). - check the contactor wing and activation. - replace the contactor. Reaction upon A: NONE F30081 (A) Bridging contactor monitoring Message value: Fault cause: %1 bin Drive object: All objects Reaction: OFF2 (NONE, OFF1) Acknowledge: IMMEDIATELY (POWER ON) Cause: A faedback signal for the bypass contactor is interconnected and the monitoring activated. After switching-inswitching-out the contactor, a correct feedback signal was not received within the monitoring time set in p0255(1, 3). Fault value (r0949, interpret binary): Bit 0: The time set in p0255(1, 3). - check the monitoring time setting (p0255(1, 3)). - check the contactor. Bit 2: The bypass contactor was synchech in the DCF state or during		Bit 0: The time set in p0255[0, 2] was exceeded when switching-in/switching-out the contactor.
Remedy: - check the monitoring time setting (p0255[0, 2]). - replace the contactor. Resection upon A: NONE Acknowl, upon A: NONE F30061 (A) Bridging contactor monitoring Message value: Fault cause: %1 bin Drive object. All objects Reaction: OF2 (NONE, OFT) Acknowledge: IMMEDIATELY (POWER ON) Cause: A feedback signal for the bypass contactor, a correct feedback signal was not received within the monitoring time set in p0255[1, 3]. Fault value (r0949, interpret binary): Bit 1: The bypass contactor was sourced in operation. Bit 1: The bypass contactor was expended in operation. Bit 1: The bypass contactor was sourced in operation. Bit 1: The bypass contactor was sourced in operation. - check the contactor. Bit 1: The bypass contactor was sourced in operation. - check the contactor. Reaction upon A: NONE Actionation A: NONE Actin a diffiered from the DC link capacitor has exceeded the alarm t		Bit 1: The precharging contactor was opened while precharging or in the infeed mode (BLM thyristor).
- check the contactor wiring and activation. - replace the contactor. Reaction upon A: NONE F30061 (A) Bridging contactor monitoring Message value: Fault cause: %1 bin Drive object: All objects Reaction: OFF2 (NONE, OFT1) Acknowledge: IMMEDIATELY (POWER ON) Cause: A feedback signal for the bypass contactor is interconnected and the monitoring activated. After switching inflw the contactor, a correct feedback signal was not received within the monitoring time set in pD255(1, 3). Fault value (r094), interpret binary): Bit 0: The time set in pD255(1, 3) was exceeded when switching-in/switching-iout the contactor. Bit 1: The bypass contactor was switched-in in the OFF state or during precharging. Remedy: - check the monitoring time setting (D255(1, 3)). Acknowledge: NONE A30086 (N) Power unit: overtemperature, alarm capacitor air discharge Message value: %1 Drive object: All objects Reacton: NONE Cause: The air discharged from the DC link capacitor has exceeded the alarm threshold. - ambient temperature too high. - insufficient cooling, fan faure. Alar walue (r2124, interpret decimal): Armowidge: Interpret decimal): Amovidge: Interpret decimal): Armowidge: NONE Remedy: - check the alarm threshold [0.01 *C]. Note: Attribute the antioning the alarm threshold [0.01 *C]. Note: Attribute the anionic temperature in the permissible limit value can be exceeded. In this case, fault F30067 is output and the pulses inibited. Remedy: - check there an is unchanged, then the permissible limit value can be exceeded. In this case, fault F30067 is output and the pulses inibited. Remedy: - check whether the anionic temperature is in the permissible range. Note: The air is only withdrawn after the alarm threshold has been fallen below - and the corresponding hysteresis.		Bit 2: The precharging contactor was switched-in in the OFF state or during infeed operation.
 replace the contactor. Reaction upon A: NONE Reaction upon A: NONE Ressage value: Fault cause: %1 bin Prive object: All objects Reaction: OFF2 (NONE, OFF1) Acknowledge: IMMEDIATELY (POWER ON) Cause: A feedback signal for the bypass contactor is interconnected and the monitoring activated. After switching-in/switching-out the contactor, a correct feedback signal was not received within the monitoring time set in p0255(1, 3). Fault value (r0949, interpret binary): Bit 0: The time set in p0255(1, 3). Fault value (r0949, interpret binary): Bit 0: The time set in p0255(1, 3). check the contactor was switched-in in the OFF state or during precharging. Reaction upon A: NONE Adomowledge: MONE Adomowledge: NONE Adomowledge: MONE Adomowledge: NONE Adamowledge: NONE Adamowledge: NONE Adamowledge: NONE Adamowledge: Adam value (r214, Interpret decimal): Temperature when reaching the alarm threshold [0.01 "C]. Noke: Tempera	Remedy:	- check the monitoring time setting (p0255[0, 2]).
Reaction upon A: NONE Acknowl. upon A: NONE F30061 (A) Bridging contactor monitoring Message value Fault cause: %/1 bin Drive object: All objects Reaction: OFF2 (NONE, OFF1) Acknowledge: IMMEDIATELY (POWER ON) Cause: A feedback signal for the bypass contactor is interconnected and the monitoring activated. After switching-in/switching-out the contactor, a correct feedback signal was not received within the monitoring time set in p0255[1, 3], as exceeded when switching-in/switching-out the contactor. Bit 1: The bypass contactor was synthed-hin in the OFF state or during precharging. Remedy: - check the monitoring time setting (p0255[1, 3]). - check the contactor. - check the contactor. Reaction upon A: NONE Astronowl. upon A: N		- check the contactor wiring and activation.
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Message value: Fault cause: %1 bin Drive object: All objects Reaction: OFF2 (NONE, OFF1) Acknowledge: MIMEDIATELY (POWER ON) Cause: A feedback signal for the bypass contactor is interconnected and the monitoring activated. After switching-in/switching-out the contactor, a correct feedback signal was not received within the monitoring time set in p0255[1, 3]. Fault value (r0944, interpret binary): Bit 0: The bypass contactor was opened in operation. Bit 2: The bypass contactor was switched-in in the OFF state or during precharging. Remedy: - check the monitoring time setting (r00256[1, 3]). - check the monitoring time setting (r00256[1, 3]). - check the monitoring time setting (r00256[1, 3]). - check the contactor. Reaction upon A: NONE A30066 (N) Power unit: overtemperature, alarm capacitor air discharge Message value: %1 Drive object: All objects Reaction: NONE Cause: The air discharged from the DC link capacitor has exceeded the alarm threshold. - ambient temperature too high. - insufficient cooling, fan failure. Alarn value (r2124, interpret decimal): Temperature doe high. <t< th=""><th>Acknowl. upon A:</th><th>NONE</th></t<>	Acknowl. upon A:	NONE
Drive object: All objects Reaction: OFF2 (NONE, OFF1) Acknowledge: IMMEDIATELY (POWER ON) Cause: A feedback signal for the bypass contactor is interconnected and the monitoring activated. After switching-in/switching-out the contactor, a correct feedback signal was not received within the monitoring time set in p0255[1, 3]. Fault value (r0949, interpret binary): Bit 0: The time set in p0255[1, 3] was exceeded when switching-in/switching-out the contactor. Bit 1: The bypass contactor was switched-in in the OFF state or during precharging. Remedy: - check the monitoring time setting (p0255[1, 3]). - check the contactor wiring and activation. - replace the contactor. Reaction upon A: NONE A30066 (N) Power unit: overtemperature, alarm capacitor air discharge Message value: %1 Drive object: All objects Reaction: NONE Cause: The air discharged from the DC link capacitor has exceeded the alarm threshold. - ambient temperature too high. - insufficient cooling, rain failure. Alarm value (r2124, interpret decimal): Temperature when reaching the alarm threshold [0.01 °C]. Note: If operation is unchanged, then the permissible limit value can be exceeded. In this case, fault F30067 is output and the pulses inhibited. Remedy: - check whether the fan is running. - check whether the anise temperature is in the permissible range. Note: This alarm i	F30061 (A)	Bridging contactor monitoring
Reaction: OFF2 (NONE, OFF1) Acknowledge: IMMEDIATELY (POWER ON) Cause: A feedback signal for the bypass contactor is interconnected and the monitoring activated. After switching-in/switching-out the contactor, a correct feedback signal was not received within the monitoring time set in p0255[1, 3]. Fault value (r0949, interpret binary): Bit 0: The bypass contactor was opened in operation. Bit 2: The bypass contactor was switched-in in the OFF state or during precharging. Remedy: - check the contactor. - check the contactor. Reaction upon A NONE A30066 (N) Power unit: overtemperature, alarm capacitor air discharge Message value: %1 Prive object: All objects Reaction: NONE Cause: The air discharged from the DC link capacitor has exceeded the alarm threshold. - ambient temperature too high. - insufficient cooling, fan failure. Alarm value (r2124, interpret decimal): Temperature when reaching the alarm threshold [0.01 °C]. Note: - check whether the fan is running. - check whether the fan is running. - check whether the aniset temperature is in the permissible range. - check whether the alarm threshold [0.01 °C]. Note: <	Message value:	Fault cause: %1 bin
Acknowledge: IMMEDIATELY (POWER ON) Cause: A feedback signal for the bypass contactor is interconnected and the monitoring activated. After switching-in/switching-out the contactor, a correct feedback signal was not received within the monitoring time set in p0255[1, 3]. Fault value (0949, Interpret binary): Bit 0: The time set in p0255[1, 3] was exceeded when switching-in/switching-out the contactor. Bit 1: The bypass contactor was opened in operation. Bit 2: The bypass contactor was switched-in in the OFF state or during precharging. Remedy: - check the contactor. replace the contactor. - check the contactor. - check the contactor. Reaction upon A: NONE Acknowl.upon A: NONE Adonowledge: %1 Drive object: All objects Reaction: NONE Acknowledge: NONE Cause: The air discharged from the DC link capacitor has exceeded the alarm threshold. - ambient temperature too high. - insufficient cooling, fan failure. Alarm value (r2124, interpret decimal): Temperature when reaching the alarm threshold [0.01 °C]. Note: If operation is unchanged, then the permissible limit value can be exceeded. In this case, fault F30067 is output and the pulses inhibited. Remedy: - check whether the fan is running. - check the fan elements. - check whether the fan is running. - check the fan elements. - check whether the fan is running. - check the fan elements. - check whether the fan is running. - check whether the fan is nunning. - check the fan elements. - check wh	Drive object:	All objects
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	Reaction upon N:	
	INCOLUCIT UDUIT IN:	

Acknowl. upon N: NONE

F30067	Power unit: overtemperature, fault capacitor air discharge
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The air discharged from the DC link capacitor has exceeded the permissible limit.
	- ambient temperature too high.
	- insufficient cooling, fan failure.
	Fault value (r0949, interpret decimal):
	Temperature when reaching the limit value [0.01 °C].
Remedy:	- check whether the fan is running.
	- check the fan elements.
	- check whether the ambient temperature is in the permissible range.
	Note:
	This fault can only be acknowledged after the limit value has been fallen below, and the corresponding hysteresis (5 K).
F30070	Cycle requested by the power unit module not supported
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A cycle is requested that is not supported by the power unit.
	Fault value (r0949, interpret hexadecimal):
	0: The current control cycle is not supported.
	1: The DRIVE-CLiQ cycle is not supported.
	2: Internal timing problem (clearance between RX and TX instants too low).
	3: Internal timing problem (TX instant too early).
Remedy:	The power unit only supports the following cycles:
	62.5 μs, 125 μs, 250 μs and 500 μs
	For fault value = 0:
	Set a permitted current control cycle.
	For fault value = 1:
	Set a permitted DRIVE-CLiQ cycle. For fault value = 2, 3:
	Contact the manufacturer (you may have an incompatible firmware version).
F30071	No new actual values received from the power unit
Message value:	
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The number of actual value telegrams from the power unit module that have failed has exceeded the permissible number.
Remedy:	Check the interface (adjustment and locking) to the power unit module.
F30072	Setpoints can no longer be transferred to the power unit
Message value:	-
Drive object:	All objects
Reaction:	OFF2

13.2 List of faults and alarms

Acknowledge:	IMMEDIATELY
Cause:	The following applies for CU31x and CUA31:
	More than one setpoint telegram was not able to be transferred to the power unit module.
Remedy:	The following applies for CU31x and CUA31:
•	Check the interface (adjustment and locking) to the power unit module.
A30073 (N)	Actual value/setpoint preprocessing no longer synchronous
Message value:	
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Communication with the power unit module is no longer in synchronism with the current control cycle.
Remedy:	Wait until synchronization is re-established.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
F30074 (A)	Communication error between the Control Unit and Power Module
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	Communications between the Control Unit (CU) and Power Module (PM) via the interface no longer possible. The CU may have been withdrawn or is incorrectly inserted.
	Fault value (r0949, interpret hexadecimal):
	0 hex:
	- a Control Unit with external 24 V supply was withdrawn from the Power Module during operation.
	- with the Power Module switched off, the external 24 V supply for the Control Unit was interrupted for some time.
	1 hex:
	The Control Unit was withdrawn from the Power Module during operation, although the encoderless safe motion monitoring functions are enabled. This is not supported. After re-inserting the Control Unit in operation, communications to the Power Module no longer possible.
	20A hex:
	The Control Unit was inserted on a Power Module, which has another code number.
	20B hex:
	The Control Unit was inserted on a Power Module, which although it has the same code number, has a different serial number.
	601 hex:
	The Control Unit was inserted on a Power Module, whose power/performance class (chassis unit) is not supported.
Remedy:	Reinsert the Control Unit (CU) or the Control Unit Adapter (CUAxx) onto the original Power Module and continue operation. If required, carry out a POWER ON for the CU and/or the CUA.
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F30080	Power unit: Current increasing too quickly
Message value:	Fault cause: %1 bin
Drive object:	All objects
Reaction:	OFF2

Acknowledge: IMMEDIATELY

Cause:	The power unit has detected an excessive rate of rise in the overvoltage range.
	- closed-loop control is incorrectly parameterized.
	- motor has a short-circuit or fault to ground (frame).
	- U/f operation: Up ramp set too low.
	- U/f operation: rated current of motor much greater than that of power unit.
	- infeed: High discharge and post-charging currents for voltage dip.
	- infeed: High post-charging currents for overload when motoring and DC link voltage dip.
	- infeed: Short-circuit currents at switch-on due to the missing line reactor.
	- power cables are not correctly connected.
	- power cables exceed the maximum permissible length.
	- power unit defective.
	Additional causes for a parallel switching device (r0108.15 = 1):
	- a power unit has tripped (switched off) due to a ground fault.
	- the closed-loop circulating current control is either too slow or has been set too fast.
	Fault value (r0949, interpret bitwise binary):
	Bit 0: Phase U.
	Bit 1: Phase V.
	Bit 2: Phase W.
Remedy:	- check the motor data - if required, carry out commissioning.
	- check the motor circuit configuration (star-delta)
	- U/f operation: Increase up ramp.
	- U/f operation: Check assignment of rated currents of motor and power unit.
	- infeed: Check the line supply quality.
	- infeed: Reduce the motor load.
	- infeed: Correct connection of the line reactor.
	- check the power cable connections.
	- check the power cables for short-circuit or ground fault.
	- check the length of the power cables.
	- replace power unit.
	For a parallel switching device (r0108.15 = 1) the following additionally applies:
	- check the ground fault monitoring thresholds (p0287).
	- check the setting of the closed-loop circulating current control (p7036, p7037).
F30081	Power unit: Switching operations too frequent
Message value:	Fault cause: %1 bin
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY

Causas	The neuror unit has executed too many suitabing executions for surrent limitation
Cause:	The power unit has executed too many switching operations for current limitation. - closed-loop control is incorrectly parameterized.
	- motor has a short-circuit or fault to ground (frame).
	- U/f operation: Up ramp set too low.
	- U/f operation: rated current of motor much greater than that of power unit.
	- infeed: High discharge and post-charging currents for voltage dip.
	- infeed: High post-charging currents for overload when motoring and DC link voltage dip.
	- infeed: Short-circuit currents at switch-on due to the missing line reactor.
	- power cables are not correctly connected.
	- power cables exceed the maximum permissible length.
	- power unit defective.
	Additional causes for a parallel switching device (r0108.15 = 1):
	- a power unit has tripped (switched off) due to a ground fault.
	- the closed-loop circulating current control is either too slow or has been set too fast.
	Fault value (r0949, interpret bitwise binary):
	Bit 0: Phase U.
	Bit 1: Phase V.
	Bit 2: Phase W.
Remedy:	- check the motor data - if required, carry out commissioning.
	- check the motor circuit configuration (star-delta)
	- U/f operation: Increase up ramp.
	- U/f operation: Check assignment of rated currents of motor and power unit.
	- infeed: Check the line supply quality.
	- infeed: Reduce the motor load.
	- infeed: Correct connection of the line reactor.
	- check the power cable connections.
	 check the power cables for short-circuit or ground fault. check the length of the power cables.
	- replace power unit.
	For a parallel switching device (r0108.15 = 1) the following additionally applies:
	- check the ground fault monitoring thresholds (p0287).
	- check the setting of the closed-loop circulating current control (p7036, p7037).
F30105	PU: Actual value sensing fault
Message value:	-
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	At least one incorrect actual value channel was detected on the Power Stack Adapter (PSA).
	The incorrect actual value channels are displayed in the following diagnostic parameters.
Remedy:	Evaluate the diagnostic parameters.
	If the actual value channel is incorrect, check the components and if required, replace.
F30314	Power unit: 24 V power supply overloaded by PM
Message value:	-
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The 24 V power supply through the Power Module (PM) is overloaded.
	An external 24 V power supply via X124 on the Control Unit is not connected.
Remedy:	Connect an external 24 V power supply via X124 at the Control Unit.

A30315 (F)	Power unit: 24 V power supply overloaded by PM
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The 24 V power supply through the Power Module (PM) is overloaded.
	An external 24 V power supply via X124 on the Control Unit is not connected.
Remedy:	Connect an external 24 V power supply via X124 at the Control Unit.
Reaction upon F:	NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
A30502	Power unit: DC link overvoltage
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The power unit has detected overvoltage in the DC link on a pulse inhibit.
	- device connection voltage too high.
	- line reactor incorrectly dimensioned.
	Alarm value (r0949, interpret decimal):
	DC link voltage [1 bit = 100 mV].
	See also: r0070
Remedy:	- check the device supply voltage (p0210).
	- check the dimensioning of the line reactor.
	See also: p0210
F30600	SI P2: STOP A initiated
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The drive-integrated "Safety Integrated" function in monitoring channel 2 has detected a fault and initiated a STOP A (STO via the safety switch-off signal path of monitoring channel 2).
	- forced checking procedure (test stop) of the safety switch-off signal path of monitoring channel 2 unsuccessful.
	- subsequent response to fault F30611 (defect in a monitoring channel).
	Fault value (r0949, decimal interpretation):
	0: Stop request from the Control Unit.
	1005: STO active although STO not selected and there is no internal STOP A present.
	1010: STO inactive although STO is selected or an internal STOP A is present.
	1011: internal error for STO deselected in monitoring channel 2.
	9999: Subsequent response to fault F30611.
Remedy:	- select Safe Torque Off and de-select again.
	- carry out a POWER ON (switch-off/switch-on) for all components.
	- replace drive.
	For fault value = 9999:
	- carry out diagnostics for fault F30611.
	Note:
	CU: Control Unit
	SI: Safety Integrated
	STO: Safe Torque Off

Drive object: Reaction: Acknowledge: Cause:	 %1 All objects NONE (OFF1, OFF2, OFF3) IMMEDIATELY (POWER ON) The drive-integrated "Safety Integrated" function on monitoring channel 2 has detected a fault in the crosswise data comparison between the two monitoring channels and has initiated a STOP F. As a result of this fault, after the parameterized transition has expired (p9658), fault F30600 is output (SI second channel STOP A initiated). Fault value (r0949, interpret decimal): 0: Stop request from the other monitoring channel. 1 999: Number of the cross-compared data that resulted in this fault. This number is also displayed in r9895.
Reaction: Acknowledge: Cause:	NONE (OFF1, OFF2, OFF3) IMMEDIATELY (POWER ON) The drive-integrated "Safety Integrated" function on monitoring channel 2 has detected a fault in the crosswise data comparison between the two monitoring channels and has initiated a STOP F. As a result of this fault, after the parameterized transition has expired (p9658), fault F30600 is output (SI second channel STOP A initiated). Fault value (r0949, interpret decimal): 0: Stop request from the other monitoring channel. 1 999:
Acknowledge: Cause:	IMMEDIATELY (POWER ON) The drive-integrated "Safety Integrated" function on monitoring channel 2 has detected a fault in the crosswise data comparison between the two monitoring channels and has initiated a STOP F. As a result of this fault, after the parameterized transition has expired (p9658), fault F30600 is output (SI second channel STOP A initiated). Fault value (r0949, interpret decimal): 0: Stop request from the other monitoring channel. 1 999:
Cause:	The drive-integrated "Safety Integrated" function on monitoring channel 2 has detected a fault in the crosswise data comparison between the two monitoring channels and has initiated a STOP F. As a result of this fault, after the parameterized transition has expired (p9658), fault F30600 is output (SI second channel STOP A initiated). Fault value (r0949, interpret decimal): 0: Stop request from the other monitoring channel. 1 999:
	comparison between the two monitoring channels and has initiated a STOP F. As a result of this fault, after the parameterized transition has expired (p9658), fault F30600 is output (SI second channel STOP A initiated). Fault value (r0949, interpret decimal): 0: Stop request from the other monitoring channel. 1 999:
	STOP A initiated).Fault value (r0949, interpret decimal):0: Stop request from the other monitoring channel.1 999:
	0: Stop request from the other monitoring channel. 1 999:
	1 999:
	Number of the cross-compared data that resulted in this fault. This number is also displayed in r9895.
	2: SI enable safety functions (p9601). Crosswise data comparison is only carried out for the supported bits.
	3: SI SGE changeover discrepancy time (p9650).
	4: SI transition time STOP F to STOP A (p9658).
	5: SI enable Safe Brake Control (p9602, p9802).
	6: SI Motion enable safety functions (p9501).
	7: SI delay time of STO for Safe Stop 1 (p9652).
	8: SI PROFIsafe address (p9610).
	9: SI debounce time for STO/SBC/SS1 (p9651).
	14: SI PROFIsafe telegram selection (p9611).
	15: SI PROFIsafe bus failure response (p9612).
	1000: Watchdog timer has expired.
	Within the time of approx. 5 x p9650, alternatively, the following was defined:
	- the signal at F-DI for STO continually changes with time intervals less than or equal to the discrepancy time (p9650).
	- via PROFIsafe, STO (also as subsequent response) was continually selected and deselected with time intervals less than or equal to the discrepancy time (p9650).
	1001, 1002: Initialization error, change timer / check timer.
	1950: Module temperature outside the permissible temperature range.
	1951: Module temperature not plausible.
	2000: Status of the STO selection for both monitoring channels different.
	2001: Feedback signal of STO shutdown for both monitoring channels different.
	2002: Status of the delay timer SS1 on both monitoring channels are different (status of the timer in p9650).
	2003: Status of the STO terminal for both monitoring channels different.
	6000 6999:
	Error in the PROFIsafe control.
	For these fault values, the fail-safe control signals (fail-safe values) are transferred to the safety functions. If "STOP B after failure of the PROFIsafe communication" (p9612) is parameterized, the transfer of the fail-safe value is delayed.
	The significance of the individual message values is described in safety message C01611.

Remeay:	For fault value = 1 5 and 7 999:
	- check the cross data comparison that resulted in a STOP F.
	- upgrade the drive software.
	- carry out a POWER ON (switch-off/switch-on).
	For fault value = 1000:
	- check the wiring of the safety-relevant inputs (SGE) in the first monitoring channel (contact problems).
	- PROFIsafe: Resolve contact problems/faults at the PROFINET controller.
	- check the discrepancy time, and if required, increase the value (p9650).
	For fault value = 1001, 1002:
	- carry out a POWER ON (switch-off/switch-on).
	- upgrade the drive software.
	For fault value = 1950:
	- operate the module in the permissible range.
	- test module fan, replace drive.
	For fault value = 1951:
	- operate the module in the permissible range.
	- replace drive.
	For fault value = 2000, 2001, 2002, 2003:
	- check the discrepancy time, and if required, increase the value (p9650, p9652).
	- check the wiring of the F-DI for STO/SBC/SS1 (contact problems).
	- replace drive.
	Note:
	This fault can be acknowledged after removing the cause of the error and after correct selection/deselection of STO.
	For fault value = 6000 6999:
	Refer to the description of the message values in safety message C01611.
	Note:
	CU: Control Unit
	SGE: Safety-relevant input
	F-DI: Fail-safe Digital Input
	SI: Safety Integrated
	SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)
	STO: Safe Torque Off
Reaction upon A:	
Acknowl. upon A:	

N30620 (F, A)	SI P2: Safe Torque Off active
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The "Safe Torque Off" (STO) function of the basic functions has been selected in monitoring channel 2 using the input terminal and is active.
	Note:
	- this message does not result in a safety stop response.
	- this message is not output when STO is selected using the Extended Functions.
Remedy:	Not necessary.
	Note:
	SI: Safety Integrated
	STO: Safe Torque Off
Reaction upon F:	OFF2
Acknowl. upon F:	IMMEDIATELY (POWER ON)

Remedy:

For fault value = 1 ... 5 and 7 ... 999:

13.2 List of faults and alarms

Reaction upon A: NONE Acknowl. upon A: NONE

• •	SI P2: Safe Stop 1 active
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The "Safe Stop 1" function (SS1) was selected in monitoring channel 2 and is active. Note:
	This message does not result in a safety stop response.
Remedy:	Not necessary.
	Note:
	SI: Safety Integrated
	SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)
Reaction upon F:	NONE (OFF3)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F30625	SI P2: Sign-of-life error in safety data
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The drive-integrated "Safety Integrated" function in monitoring channel 2 has detected an error in the sign-of-life of the safety data between the two monitoring channels and initiated a STOP A.
	- there is either a DRIVE-CLiQ communication error or communication has failed.
	- a time slice overflow of the safety software has occurred.
	- the enable of the safety functions in both monitoring channels is inconsistent
	Fault value (r0949, interpret decimal):
	Only for internal Siemens troubleshooting.
Remedy:	- select Safe Torque Off and de-select again.
-	- carry out a POWER ON (switch-off/switch-on) for all components.
	- check whether there is a DRIVE-CLiQ communication error between the two monitoring channels and, if required, carry out a diagnostics routine for the faults identified.
	- de-select all drive functions that are not absolutely necessary.
	- check the electrical cabinet design and cable routing for EMC compliance
	- check whether the safety functions are enabled (p9601), copy the safety parameters using the commissioning tool, and confirm the data change.
	Note:
	P2: processor 2
	SI: Safety Integrated
F30630	SI P2: Brake control error
Message value:	%1
Determination of	All stars and

Message value:%1Drive object:All objectsReaction:OFF2Acknowledge:IMMEDIATELY (POWER ON)

Cause:	The drive-integrated "Safety Integrated" function in monitoring channel 2 has detected a brake control error and initiated a STOP A.
	- OCC cable shield is not correctly connected.
	- defect in the brake control circuit of the drive.
	Fault value (r0949, decimal interpretation):
	100, 101, 102:
	Fault in "open brake" operation.
	- brake not closed or interrupted cable.
	- ground fault in brake cable.
	300, 301, 302:
	Fault in "close brake" operation.
	- brake not closed or interrupted cable.
	200:
	Fault in the "Brake open" state.
	- short-circuit in brake winding.
	201, 202:
	Fault in the "Brake open" state.
	- defective hardware.
	400, 401, 402:
	Fault in "brake closed" state.
	60, 70:
	Fault in the brake control of the drive or a communication error between the monitoring channels (brake control diagnostics).
Remedy:	- select STO and then de-select again.
	- check the motor holding brake connection.
	- check the function of the motor holding brake.
	- carry out a diagnostics routine for the faults involved.
	- check for EMC-compliant control cabinet design and cable routing (e.g. shield OCC cable with shield terminal and shield
	plate, check the connection of the brake conductors).
	- replace drive.
	Note:
	OCC: One Cable Connection (one cable system)
	SBC: Safe Brake Control
	SI: Safety Integrated
	STO: Safe Torque Off
F30631	Brake control: External release active
Message value:	-
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	For mounting purposes, the brake is supplied with voltage via terminal X4.1 and released.
Remedy:	If required, again remove the power supply at X4.1.
A30640 (F)	SI P2: Fault in the switch-off signal path of the second channel
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
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Cause:	The Motor Module has detected a communication error with the higher-level control or the TM54F to transfer the safety- relevant information or there is a communication error between Motor Modules connected in parallel.
	Note:
	This fault results in a STOP A that can be acknowledged.
	Alarm value (r2124, interpret decimal):
	Only for internal Siemens troubleshooting.
Remedy:	For the higher-level control, the following applies:
	- check the PROFIsafe address in the higher-level control and Motor Modules and if required, align.
	- save all parameters (p0977 = 1).
	- carry out a POWER ON (switch-off/switch-on) for all components.
	For TM54F, carry out the following steps:
	- start the copy function for the node identifier (p9700 = 1D hex).
	- acknowledge hardware CRC (p9701 = EC hex).
	- save all parameters (p0977 = 1).
	- carry out a POWER ON (switch-off/switch-on) for all components.
	For a parallel connection, the following applies:
	- check the PROFIsafe address in both monitoring channels and if required, align.
	- save all parameters (p0977 = 1).
	- carry out a POWER ON (switch-off/switch-on) for all components.
	The following generally applies:
	- upgrade the Motor Module software.
	Note:
	MM: Motor Module
	SI: Safety Integrated
Reaction upon F:	NONE (OFF2)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
F30649	SI P2: Internal software error
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	An internal error in the Safety Integrated software in monitoring channel 2 has occurred.
eddoo.	Note:
	This fault results in a STOP A that cannot be acknowledged.
	Fault value (r0949, interpret hexadecimal):
	Only for internal Siemens troubleshooting.
Remedy:	- carry out a POWER ON (switch-off/switch-on).
	- re-commission the Safety Integrated function and carry out a POWER ON.
	- upgrade the drive software.
	- contact Technical Support.
	- replace drive.
	Note:
	SI: Safety Integrated
F30650	SI P2: Acceptance test required
Message value:	%1
Drive object:	All objects
Reaction:	OFF2

Cause:	The "Safety Integrated" function on monitoring channel 2 requires an acceptance test.
	Note:
	This fault results in a STOP A that can be acknowledged.
	Fault value (r0949, interpret decimal):
	130: Safety parameters for monitoring channel 2 not available.
	Note:
	This fault value is always output when Safety Integrated is commissioned for the first time.
	1000: Reference and actual checksum in monitoring channel 2 are not identical (booting).
	- safety parameters set offline and loaded to the drive.
	- at least one checksum-checked piece of data is defective.
	2000: Reference and actual checksum in monitoring channel 2 are not identical (commissioning mode).
	2003: Acceptance test is required as a safety parameter has been changed.
	2005: The safety logbook has identified that the safety checksums have changed. An acceptance test is required.
	3003: Acceptance test is required as a hardware-related safety parameter has been changed.
	9999: Subsequent response of another safety-related fault that occurred when booting that requires an acceptance test.
Remedy:	For fault value = 130:
	- carry out safety commissioning routine.
	For fault value = 1000:
	- again carry out safety commissioning routine.
	- replace the memory card or drive.
	For fault value = 2000:
	- confirm the data change using the commissioning tool
	For fault value = 2003, 2005:
	- carry out an acceptance test and generate an acceptance report.
	The procedure when carrying out an acceptance test as well as an example of the acceptance report are provided in the following literature:
	SINAMICS Function Manual Safety Integrated
	For fault value = 3003:
	- carry out the function checks for the modified hardware and generate an acceptance report.
	The procedure when carrying out an acceptance test as well as an example of the acceptance report are provided in the following literature:
	SINAMICS Function Manual Safety Integrated
	For fault value = 9999:
	- carry out diagnostics for the other safety-related fault that is present.
	Note:
	SI: Safety Integrated
F30651	SI P2: synchronization with monitoring channel 1 unsuccessful
Message value:	%1

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Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The drive-integrated "Safety Integrated" function requires synchronization of the safety time slices in both monitoring channels. This synchronization routine was unsuccessful.
	Note:
	This fault results in a STOP A that cannot be acknowledged.
	Fault value (r0949, interpret decimal):
	Only for internal Siemens troubleshooting.
Remedy:	- carry out a POWER ON (switch-off/switch-on).
	- upgrade the drive software.
	Note:
	SI: Safety Integrated

F30652	SI P2: Illegal monitoring clock cycle
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The Safety Integrated monitoring clock cycle cannot be maintained due to the communication conditions requested in the system.
	Note:
	This fault results in a STOP A that cannot be acknowledged.
	Fault value (r0949, interpret decimal):
	Only for internal Siemens troubleshooting.
Remedy:	- if fault F01652 simultaneously occurs, apply the remedy/countermeasure described there.
	- upgrade the firmware of the Motor Module/Hydraulic Module to a later version.
	Note:
	MM: Motor Module
	P2: processor 2
	SI: Safety Integrated
F30655	SI P2: Align monitoring functions
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	An error has occurred when aligning the Safety Integrated monitoring functions of both monitoring channels. No common set of supported SI monitoring functions was able to be determined.
	- there is either a DRIVE-CLiQ communication error or communication has failed.
	Note:
	This fault results in a STOP A that cannot be acknowledged.
	Fault value (r0949, interpret hexadecimal):
	Only for internal Siemens troubleshooting.
Remedy:	- carry out a POWER ON (switch-off/switch-on) for all components.
	- upgrade the Control Unit software.
	- check the electrical cabinet design and cable routing for EMC compliance
	CU: Control Unit
	SI: Safety Integrated
F30656	SI P2: parameter monitoring channel 2 incorrect
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	When accessing the Safety Integrated parameters for monitoring channel 2 in the non-volatile memory, an error has occurred.
	Note:
	This fault results in a STOP A that can be acknowledged.
	Fault value (r0949, interpret decimal):
	129:
	- safety parameters for monitoring channel 2 corrupted.

Remedy:	 re-commission the safety functions. upgrade the drive software. replace the memory card or drive. For fault value = 129: activate the Safety Integrated commissioning mode. adapt the PROFIsafe address. copy the safety parameters and confirm the data change. exit the Safety Integrated commissioning mode. save all parameters or "Copy RAM to ROM". carry out a POWER ON (switch-off/switch-on). Note: SI: Safety Integrated
F30657	SI P2: PROFIsafe telegram number invalid
Message value:	-
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	POWER ON
Cause:	The PROFIsafe telegram number that has been set is not valid.
	When PROFIsafe is enabled (p9601.3 = 1), then a telegram number greater than zero must be used.
	The copy function was not used.
	Note:
	This fault does not result in a safety stop response.
	See also: p9611, p60022, r60022
Remedy:	Enter a valid PROFIsafe telegram number (p9611), then using the commissioning tool, copy the safety parameters and confirm the data change.
F30659	SI P2: Write request for parameter rejected
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The write request for one or several Safety Integrated parameters in monitoring channel 2 was rejected.
	Note:
	See also fault F01659.
Remedy:	Upgrade the firmware to later version.
F30664	Error while booting
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	POWER ON
Cause:	An error has occurred during booting.
	Fault value (r0949, interpret hexadecimal):
	Only for internal Siemens troubleshooting.
Remedy:	- carry out a POWER ON (switch-off/switch-on).
	- upgrade firmware to later version.
	- contact Technical Support.

F30665	SI P2: System is defective
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A system defect was detected before the last boot or in the actual one. The system might have been rebooted (reset). Fault value (r0949, interpret hexadecimal): 2 hex:
	 parameters p9500 and p9300 are not the same (if Safety message C30711 is displayed at the same time). 200000 hex, 400000 hex:
	- fault in the actual booting/operation.
	Additional values:
	- defect before the last time that the system booted.
Remedy:	- carry out a POWER ON (switch-off/switch-on).
	- upgrade firmware to later version.
	- contact Technical Support.
	For fault value = 2:
	- check parameters p9500 and p9300 to see if they are the same (if Safety message C30711 is displayed at the same
	time).
	For fault value = 400000 hex:
	- ensure that the Control Unit is connected to the Power Module.
A30666 (F)	SI Motion P2: Steady-state (static) 1 signal at the F-DI for safe acknowledgment
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	A logical 1 signal is present at the F-DI configured in p10106 for more than 10 seconds.
00000	If, at the F-DI no acknowledgment was performed for safe acknowledgment, then a steady-state logical and 0 signal mus be present. This avoids unintentional safety-relevant acknowledgment (or the "Internal Event Acknowledge" signal) if a wire breaks or one of the two digital inputs bounces.
Remedy:	Set the fail-safe digital input (F-DI) to a logical 0 signal (p10106).
•	Note:
	F-DI: Fail-safe Digital Input
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY
F30672	SI P2: Control I Init software incompatible
	SI P2: Control Unit software incompatible
Message value:	
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The existing Control Unit software does not support the safe drive-based motion monitoring function. Note:
	This fault results in a STOP A that cannot be acknowledged.
	This fault results in a STOP A that cannot be acknowledged. Fault value (r0949, interpret decimal):

Remedy:	 check whether there are faults in the safety function alignment between the two monitoring channels (F01655, F30655) and if required, carry out diagnostics for the faults involved. use a Control Unit that supports the safe motion monitoring function.
	- upgrade the Control Unit software.
	Note:
	SI: Safety Integrated
F30674	SI Motion P2: Safety function not supported by PROFIsafe telegram
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	POWER ON
Cause:	The monitoring function enabled in p9501 and p9601 is not supported by the currently set PROFIsafe telegram (p9611). Note:
	This fault does not result in a safety stop response.
	Fault value (r0949, interpret bitwise binary):
	Bit 18 = 1:
	SS2E via PROFIsafe is not supported (p9501.18).
	Bit $24 = 1$:
Densedan	Transfer SLS limit value via PROFIsafe not supported (p9501.24).
Remedy:	- Deselect the monitoring function involved (p9501, p9601).
	 set the matching PROFIsafe telegram (p9611). using the commissioning tool, copy the safety parameters and confirm the data change.
	Note:
	SI: Safety Integrated
	SLS: Safely Limited Speed
	SS2E: Safe Stop 2 external (Safe Stop 2 with external stop, external STOP D)
F30680	SI Motion P2: Checksum error safety monitoring functions
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The actual checksum over the safety-relevant parameters calculated by monitoring channel 2 does not match the reference checksum saved at the last machine acceptance.
	Safety-relevant parameters have been changed or a fault is present.
	Note:
	This fault results in a STOP A that can be acknowledged.
	Fault value (r0949, decimal interpretation):
	0: Checksum error for SI parameters for motion monitoring.
D	1: Checksum error for SI parameters for component assignment.
Remedy:	- check the safety-relevant parameters and if required, correct.
	 execute the function "Copy RAM to ROM". perform a POWER ON if safety parameters requiring a POWER ON have been modified.
	- carry out an acceptance test.
F30681	SI Motion P1: Incorrect parameter value
Message value:	Parameter: %1, supplementary information: %2
Drive object:	All objects
Reaction:	OFF2

IMMEDIATELY (POWER ON)

Acknowledge:

13.2 List of faults and alarms

Cause:	The parameter cannot be parameterized with this value.
	Note:
	This message does not result in a safety stop response.
	Fault value (r0949, interpret decimal):
	yyyyxxxx dec: yyyy = supplementary information, xxxx = parameter
	yyyy = 0:
	No additional information available.
	xxxx = 9301:
	It is not permissible to enable the function "SSM hysteresis and filtering" (p9501.16) in conjunction with the function "Extended functions without selection" (p9601.5).
	xxxx = 9347:
	The hysteresis tolerance is not permissible.
	xxxx = 9801 and yyyy = 1:
	If motion monitoring functions integrated in the drive (p9601.2 = 1) and extended functions without selection (p9601.5 = 1) are activated, then PROFIsafe (p9601.3 = 1) is not possible.
	xxxx = 9801 and yyyy = 2:
	Extended functions without selection (p9601.5 =1) are enabled without enabling motion monitoring functions integrated in the drive (p9601.2).
	xxxx = 9801 and yyyy = 3:
	Onboard F-DI are enabled without enabling motion monitoring functions integrated in the drive (p9601.2).
	xxxx = 9801 and yyyy = 5:
	Transfer of the SLS limit value via PROFIsafe (p9501.24) has been enabled, without enabling PROFIsafe.
	xxxx = 9801 and yyyy = 11:
	SS2E (p9501.18 = 1) is enabled without PROFIsafe being enabled.
	xxxx = 9801 and $yyyy = 12$:
	SCA (p9501.28 = 1) is enabled without enabling PROFIsafe.
Remedy:	Correct parameter (if required, also on another monitoring channel, p9601). Note:
	For different values in the two monitoring channels: using the commissioning tool, copy the safety parameters and confirm the data change.
	For xxxx = 9301:
	De-select Extended Functions without selection (p9601.5).
	For xxxx = 9317:
	Further, p9516.0 should be checked.
	For xxxx = 9347:
	Using the commissioning tool, copy the safety parameters and confirm the data change.
	For xxxx = 9801:
	Using the commissioning tool, copy the safety parameters, confirm the data change and carry out a power on.
E20602	SI Mation D2: Manitaring function not ourported

F30682 SI Motion P2: Monitoring function not supported

Message value:%1Drive object:All objectsReaction:OFF2Acknowledge:IMMEDIATELY (POWER ON)

Cause:	The monitoring function enabled in p9501, p9601, p9506, p9507 is not supported in this firmware version. Note: This message does not result in a safety stop response. Fault value (r0949, decimal interpretation): 1: Monitoring function SLP not supported (p9501.1). 2: Monitoring function SCA not supported (p9501.7 and p9501.815). 3: Monitoring function SLS override not supported (p9501.5). 4: Monitoring function external ESR activation not supported (p9501.4). 5: Monitoring function F-DI in PROFIsafe not supported (p9501.3). 9: Monitoring function not supported by the firmware or enable bit not used. 12: This drive does not support operation of safety functions with a higher-level control. 26: Hysteresis and filtering for SSM monitoring function without an encoder not supported (p9501.16). 27: This hardware does not support onboard F-DI and F-DO. 30: The firmware version of the Motor Module is older than the version of the Control Unit. 33: Safety functions without selection not supported (p9601.5). 34: This module does not support safe position via PROFIsafe. 39: This module or software version of the CU/MM does not support safe gearbox stage switchover (p9501.26). 44: This module/this software version does not support referencing via the safety control channel (p9501.27). 45: Deactivating SOS/SLS during an external STOP A is not supported (p9501.23).
Remedy:	 54: SCA function not supported (p9501.28). - de-select the monitoring function involved (p9501, p9601, p9507, p9506). - Upgrade the Motor Module firmware. Note: ESR: Extended Stop and Retract F-DI: Fail-safe Digital Input SBR: Safe Brake Ramp (safe brake ramp monitoring) SCA: Safe Cam SDI: Safe Direction (safe motion direction) SI: Safety Integrated SLP: Safely Limited Position SLS: Safely Limited Speed SP: Safe Position SS1E: Safe Stop 1 External (Safe Stop 1 with external stop) SS2E: Safe Stop 2 external (Safe Stop 2 with external stop, external STOP D) See also: p9501, p9601
F30683	SI Motion P2: SOS/SLS enable missing
Message value:	
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The safety-relevant basic function "SOS/SLS" is not enabled, although other safety-relevant monitoring functions are enabled.
	Note: This massage does not result in a safety stop response
Demoder	This message does not result in a safety stop response.
Remedy:	Using the commissioning tool, copy the safety parameters, confirm the data change and carry out a power on. Note: SI: Safety Integrated
	SLS: Safely Limited Speed SOS: Safe Operating Stop

13.2 List of faults and alarms

F30684	SI Motion P2: Safely limited position limit values interchanged
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	For the function "Safely Limited Position" (SLP), a lower value is in p9334 than in p9335. Note: This fault does not result in a safety stop response. Fault value (r0949, interpret decimal):
	1: Limit values SLP1 interchanged.
	2: Limit values SLP2 interchanged.
Remedy:	- correct the lower and upper limit values (p9335, p9334). - carry out a POWER ON (switch-off/switch-on). Note: SI: Safety Integrated SLP: Safely Limited Position / SE: Safe software limit switches
F30685	SI Motion P2: Safely Limited Speed limit value too high
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The limit value for the function "Safely Limited Speed" (SLS) is greater than the speed that corresponds to an encoder limit frequency of 500 kHz. Note: This message does not result in a safety stop response. Fault value (r0949, interpret decimal): Maximum permissible speed.
Bomodu"	Correct the limit values for SLS and carry out a POWER ON.
Remedy:	Note:
	SI: Safety Integrated
	SLS: Safely Limited Speed
F30686	SI Motion: Illegal parameterization cam position
F30686 Message value:	SI Motion: Illegal parameterization cam position

Reaction:

Acknowledge:

OFF2

IMMEDIATELY (POWER ON)

Cause:	At least one enabled "Safety Cam" (SCA) is parameterized in p9336 or p9337 too close to the tolerance range around the modulo position.
	- the minus position value of a cam must be greater than the lower modulo limit + cam tolerance (p9340) + position tolerance (p9342).
	- the plus position value of a cam must be less than the upper modulo limit - cam tolerance (p9340) - position tolerance (p9342).
	- when the modulo position is parameterized (p9305 > 0), the lower modulo limit = 0, the upper modulo limit = p9305.
	- the cam length of cam $x = p9336[x] - p9337[x]$ is less than the cam tolerance + position tolerance (= p9340 + p9342).
	This also means that cams of the minus position value must be less than the plus position value.
	Note:
	This fault does not result in a safety stop response.
	Fault value (r0949, interpret decimal):
	Number of the "Safe Cam" with an illegal position.
	See also: p9501
Remedy:	Correct the cam position and carry out a POWER ON.
	Note:
	SCA: Safe Cam
	SI: Safety Integrated
F30688	SI Motion P2: Actual value synchronization not permissible
Message value:	• • • • • • • • • • • • • • • • • • •
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	- it is not permissible to enable actual value synchronization for a 1-encoder system.
	- it is not permissible to simultaneously enable actual value synchronization and a monitoring function with absolute reference (SCA/SLP).
	- it is not permissible to simultaneously enable actual value synchronization and safe position via PROFIsafe.
	Note:
	This fault results in a STOP A that cannot be acknowledged.
Remedy:	- either deselect the "actual value synchronization" function or parameterize a 2-encoder system.
	- either deselect the function "actual value synchronization" or the monitoring functions with absolute reference (SCA/SLP) and carry out a POWER ON.
	- either deselect the "actual value synchronization" function or do not enable "Safe position via PROFIsafe".
	Note:
	SCA: Safe Cam / SN: Safe software cam
	SI: Safety Integrated
	SLP: Safely Limited Position / SE: Safe software limit switches
	SP: Safe Position
	See also: p9501
F30692	SI Motion P2: Parameter value not permitted for encoderless
Message value:	Parameter: %1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The parameter cannot be parameterized with this value if encoderless motion monitoring functions have been parameterized in p9306.
	Note:
	This message does not result in a safety stop response.
	Fault value (r0949, interpret decimal)

- Fault value (r0949, interpret decimal):
- Parameter number with the incorrect value.

13.2 List of faults and alarms

Remedy:	- correct the parameter specified in the fault value. - if necessary, deselect encoderless motion monitoring functions (p9306). See also: p9501
A30693 (F)	SI P2: Safety parameter settings changed, warm restart/POWER ON required
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Safety parameters have been changed; these will only take effect following a warm restart or POWER ON. Alarm value (r2124, interpret decimal):
	Parameter number of the safety parameter which has changed, necessitating a warm restart or POWER ON.
Remedy:	- carry out a warm restart. - carry out a POWER ON (switch-off/switch-on) for all components. Note:
	Before performing an acceptance test, a POWER ON must be carried out for all components.
Reaction upon F: Acknowl. upon F:	NONE (OFF1, OFF2, OFF3) POWER ON
C30700	SI Motion P2: STOP A initiated
Message value:	-
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The drive is stopped via a STOP A (STO via the safety switch-off signal path of the first monitoring channel). Possible causes:
	- stop request from the first monitoring channel.
	- STO not active after a parameterized time after test stop selection.
	- subsequent response to the message C30706 "SI Motion MM: SAM/SBR limit exceeded".
	- subsequent response to the message C30714 "SI Motion MM: Safely Limited Speed exceeded".
Demedia	 subsequent response to the message C30701 "SI Motion MM: STOP B initiated". subsequent response to the message C30716 "SI Motion MM: tolerance for safe motion direction exceeded".
Remedy:	 remove the cause of the fault on the first monitoring channel. check the switch-off signal path of the first of monitoring channel (check DRIVE-CLiQ communication). carry out a diagnostics routine for message C30706.
	- carry out a diagnostics routine for message C30714.
	- carry out a diagnostics routine for message C30701.
	- carry out a diagnostics routine for message C30716.
	- replace drive.
	This message can be acknowledged without a POWER ON as follows (safe acknowledgment): - PROFIsafe.
	- machine control panel.
	Note:
	SAM: Safe Acceleration Monitor (safe acceleration monitoring)
	SBR: Safe Brake Ramp (safe brake ramp monitoring) SI: Safety Integrated
C30701	SI Motion P2: STOP B initiated
Message value:	

Message value: -

Drive object: All objects

Reaction:	NONE (OFF3)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The drive is stopped via a STOP B (braking along the OFF3 ramp).
	As a result of this fault, after the time parameterized in p9556 has expired or after the speed threshold parameterized in p9560 has been fallen below, message C30700 "SI Motion MM: STOP A initiated" is output. Possible causes:
	- stop request from the first monitoring channel.
	- subsequent response to the message C30714 "SI Motion MM: Safely Limited Speed exceeded".
	- subsequent response to the message C30711 "SI Motion MM: Defect in a monitoring channel".
	- subsequent response to the message C30707 "SI Motion MM: tolerance for safe operating stop exceeded".
	- subsequent response to the message C30716 "SI Motion MM: tolerance for safe motion direction exceeded".
Remedy:	- remove the cause of the fault on the first monitoring channel.
	- carry out a diagnostics routine for message C30714.
	 carry out a diagnostics routine for message C30711. carry out a diagnostics routine for message C30707.
	- carry out a diagnostics routine for message C30716.
	This message can be acknowledged without a POWER ON as follows (safe acknowledgment):
	- PROFIsafe.
	- machine control panel.
	Note:
	SI: Safety Integrated
C30706	SI Motion P2: SAM/SBR limit exceeded
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	Motion monitoring functions with encoder (SAM, p9506 = 0):
	- after initiating STOP B (SS1) or STOP C (SS2), the speed has exceeded the selected tolerance.
	Motion monitoring functions with encoder (SBR, p9506 = 2):
	- after initiating STOP B (SS1) or SLS changeover to the lower speed stage, the speed has exceeded the selected tolerance
	The drive is shut down by the message C30700 "SI Motion MM: STOP A initiated".
Remedy:	Check the braking behavior and, if necessary, adapt the parameterization of the parameter settings of the "SAM" or the "SBR" function.
	This message can be acknowledged without a POWER ON as follows (safe acknowledgment): - PROFIsafe.
	- machine control panel.
	Note:
	SAM: Safe Acceleration Monitor (safe acceleration monitoring)
	SBR: Safe Brake Ramp (safe ramp monitoring)
	SI: Safety Integrated See also: p9548
	Cl Mation D2: Talaranaa for asfa an arting atop area atop
C30707	SI Motion P2: Tolerance for safe operating stop exceeded
Message value:	-
Drive object:	All objects
Reaction:	

Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The actual position has distanced itself further from the target position than the standstill tolerance.
	The drive is shut down by the message C30701 "SI Motion MM: STOP B initiated".

Remedy:	- check whether safety faults are present and if required carry out the appropriate diagnostic routines for the particular faults.
	- check whether the standstill tolerance matches the accuracy and control dynamic performance of the axis.
	This message can be acknowledged without a POWER ON as follows (safe acknowledgment):
	- PROFIsafe.
	- machine control panel.
	Note:
	SI: Safety Integrated
	SOS: Safe Operating Stop
	See also: p9530
C30708	SI Motion P2: STOP C initiated
Message value:	-
Drive object:	All objects
Reaction:	STOP2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The drive is stopped via a STOP C (braking along the OFF3 ramp).
	"Safe Operating Stop" (SOS) is activated after the parameterized time has expired.
	Possible causes:
	- stop request from the higher-level control.
	- subsequent response to the message C30714 "SI Motion MM: Safely Limited Speed exceeded".
	- subsequent response to the message C30716 "SI Motion MM: tolerance for safe motion direction exceeded".
	See also: p9552
Remedy:	- remove the cause of the fault at the control.
	- carry out a diagnostics routine for message C30714, C30716.
	This message can be acknowledged without a POWER ON as follows (safe acknowledgment):
	- PROFIsafe.
	- machine control panel.
	Note:
	SI: Safety Integrated
	SOS: Safe Operating Stop
C30709	SI Motion P2: STOP D initiated
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The drive is stopped via a STOP D (braking along the path).
	"Safe Operating Stop" (SOS) is activated after the parameterized time has expired.
	Possible causes:
	aton request from the Control Unit

- stop request from the Control Unit.

- subsequent response to the message C30714 "SI Motion MM: Safely Limited Speed exceeded".

- subsequent response to the message C30716 "SI Motion MM: tolerance for safe motion direction exceeded". See also: p9553

 Remedy:
 - remove the cause of the fault at the control.

 - carry out a diagnostics routine for message C30714, C30716.

 This message can be acknowledged without a POWER ON as follows (safe acknowledgment):

 - PROFIsafe.

 - machine control panel.

 Note:

 SI: Safety Integrated

 SOS: Safe Operating Stop

C30710 SI Motion P2: STOP E initiated

	-		
C30711	SI Motion P2: Defect in a monitoring channel		
	SOS: Safe Operating Stop / SBH: Safe operating stop		
	SI: Safety Integrated		
	Note:		
	- machine control panel.		
	- PROFIsafe.		
	- onboard F-DI (only CU310-2).		
	- Terminal Module 54F (TM54F).		
	This message can be acknowledged without a POWER ON as follows (safe acknowledgment):		
•	- carry out a diagnostics routine for messages C30714, C30715, C30716.		
Remedy:	- remove the cause of the fault at the control.		
	- subsequent response to the message C30716 "SI Motion MM: tolerance for safe motion direction exceeded".		
	- subsequent response to the message C01715 "SI Motion CU: Safely Limited Position exceeded".		
	- subsequent response to the message C30714 "SI Motion MM: Safely Limited Speed exceeded".		
	- stop request from the higher-level control.		
	Possible causes:		
Cause.	"Safe Operating Stop" (SOS) is activated after the parameterized time has expired.		
Cause:	The drive is stopped via a STOP E (retraction motion).		
Acknowledge:	IMMEDIATELY (POWER ON)		
Reaction:	NONE		
Drive object:	All objects		
Message value:	-		

Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)

Cause:

13.2 List of faults and alarms

When cross-comparing the two monitoring channels, the drive detected a difference between the input data or results of the monitoring functions and initiated a STOP F. One of the monitoring functions no longer reliably functions - i.e. safe operation is no longer possible.

If at least one monitoring function is active, then after the parameterized timer has expired, the message C30701 "SI Motion: STOP B initiated" is output.

The following message values may also occur in the following cases if the cause that is explicitly mentioned does not apply: - incorrect synchronization.

Message value (r2124, interpret decimal):

0 ... 999:

Number of the cross-compared data that resulted in this message.

The significance of the individual message values is described in safety message C01711.

1000: Watchdog timer has expired. Too many signal changes have occurred at safety-relevant inputs.

1001: Initialization error of watchdog timer.

1005: STO already active for test stop selection.

1011: Acceptance test status between the monitoring channels differ.

1012: Plausibility violation of the actual value from the encoder.

1020: Cyc. communication failure between the monit. channels.

1021: Cyc. communication failure between the monit. channel and Sensor Module.

1023: Error in the effectiveness test in the DRIVE-CLiQ encoder

1030: Encoder fault detected from another monitoring channel.

1045: CRC of the standstill position incorrect.

5000 ... 5140:

PROFIsafe message values.

For these message values, the fail-safe control signals (fail-safe values) are transferred to the safety functions.

The significance of the individual message values is described in safety message C01711.

6000 ... 6166:

PROFIsafe message values (PROFIsafe driver for PROFIBUS DP V1/V2 and PROFINET).

For these message values, the fail-safe control signals (fail-safe values) are transferred to the safety functions. If "Stop B after failure of the PROFISafe communication" is parameterized, the transfer of the fail-safe value is delayed.

The significance of the individual message values is described in safety fault F01611.

7000 ... 7002:

Message values of the "Safe position via PROFIsafe" function.

See also: p9555, r9725

Remedy: For message value = 1005:

- check the conditions for deselecting STO.

- For message value = 1012:
- upgrade the Sensor Module firmware to a more recent version.
- check encoder parameters to ensure that they are the same (p9515, p9519, p9523, p9524, p9525, p9529).
- start the copy function for encoder parameters.
- check the electrical cabinet design and cable routing for EMC compliance
- POWER ON (switch-off/switch-on) for all components or carry out a warm restart.
- replace the hardware.

For message value = 1024:

- check the communication link.
- carry out a POWER ON (switch-off/switch-on) for all components.
- replace the hardware.
- For message value = 1030:
- check the encoder connection.
- if required, replace the encoder.

Adapt the encoder parameterization for the second channel as follows:

- set the encoder type (p0400).

- activate the safety commissioning mode (p0010 = 95).
- start the copy function for encoder parameters.
- exit the safety commissioning mode (p0010 = 0).
- save parameter in a non-volatile fashion (copy RAM to ROM).
- carry out a POWER ON (switch-off/switch-on) for all components.

The following always applies:

- check the encoder connection.
- if required, replace the encoder.

For message value = 6000 ... 6999:

- the significance of the individual message values is described in safety fault F01611 of the Control Unit.

For other message values:

- the significance of the individual message values is described in safety message C01711.

This message can be acknowledged without a POWER ON as follows (safe acknowledgment):

- PROFIsafe.

- machine control panel.

C30712 SI Motion P2: Defect in F-IO processing

Message value: %1 Drive object: All objects Reaction: NONE Acknowledge: **IMMEDIATELY (POWER ON)** Cause: When cross checking and comparing the two monitoring channels, the drive detected a difference between parameters or results of the F-IO processing and initiated a STOP F. One of the monitoring functions no longer reliably functions - i.e. safe operation is no longer possible. The safety message C30711 with message value 0 is also displayed due to initiation of STOP F. If at least one monitoring function is active, the safety message C30701 "SI Motion: STOP B initiated" is output after the parameterized timer has expired. Message value (r9749, interpret decimal): Number of the cross-compared data that resulted in this message. Refer to the description of the message values in safety message C01712.

Remedy:	 check parameterization in the parameters involved and correct if required. ensure equality by copying the SI data to the second channel and then carry out an acceptance test. check monitoring clock cycle for equality (p9500, p9300). This message can be acknowledged without a POWER ON as follows (safe acknowledgment): onboard F-DI (only CU310-2). PROFIsafe. machine control panel. 		
C30714	SI Motion P2: Safely Limited Speed exceeded		
Message value:			
Drive object:	All objects		
Reaction:	NONE		
Acknowledge:	IMMEDIATELY (POWER ON)		
Cause:	The drive had moved faster than that specified by the velocity limit value. The drive is stopped as a result of the configured stop response. Message value (r2124, interpret decimal): 100: SLS1 exceeded. 200: SLS2 exceeded. 300: SLS3 exceeded. 400: SLS4 exceeded. 1000: Encoder limit frequency exceeded.		
Remedy:	 check the traversing/motion program in the control. check the limits for the "SLS" function and if required adapt. This message can be acknowledged without a POWER ON as follows (safe acknowledgment): PROFIsafe. machine control panel. Note: SI: Safety Integrated SLS: Safely Limited Speed 		
C30715	SI Motion P2: Safely Limited Position exceeded		
Message value:	%1		
Drive object:	All objects		
Reaction:	NONE		
Acknowledge:	IMMEDIATELY (POWER ON)		
Courses	The suis has moved apart a necessary description that is maniferred by the "OID" function		

 Cause:
 The axis has moved past a parameterized position that is monitored by the "SLP" function.

 Message value (r9749, interpret decimal):
 10: SLP1 violated.

 20: SLP2 violated.
 20: SLP2 violated.

Remedy: -

- check the traversing/motion program in the control.

- check the limits for "SLP" function and if required, adapt (p9534, p9535).

This message can be acknowledged without a POWER ON as follows (safe acknowledgment): Prerequisite:

- deselect "SLP" function and retract the axis into the permitted position range.

Carry out a safe acknowledgment using one of the following options:

- Terminal Module 54F (TM54F).

- onboard F-DI (only CU310-2).
- PROFIsafe.

- machine control panel.

Note:

SI: Safety Integrated

SLP: Safely Limited Position / SE: Safe software limit switches

C30716 SI Motion P2: Tolerance for safe motion direction exceeded

Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The tolerance for the "safe motion direction" function was exceeded. The drive is stopped as a result of the configured stop response.
	Message value (r2124, interpret decimal):
	0: Tolerance for the "safe motion direction positive" function exceeded.
	1: Tolerance for the "safe motion direction negative" function exceeded.
Remedy:	- check the traversing/motion program in the control.
	- check the tolerance for the "SDI" function and adapt if necessary.
	This message can be acknowledged without a POWER ON as follows (safe acknowledgment):
	Prerequisite:
	- deselect the "SDI" function and if required select again.
	Carry out a safe acknowledgment using one of the following options:
	- PROFIsafe.
	- machine control panel.
	Note:
	SDI: Safe Direction (safe motion direction)
	SI: Safety Integrated

C30717 SI Motion P2: SLA limit exceeded

Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The acceleration limit for the "Safely limited acceleration" function was exceeded. The drive is stopped as a result of the configured stop response (p9379).
Remedy:	- check the traversing/motion program in the control.
	- check the acceleration limit for the "SLA" function and if required, adapt (p9378).
	- carry out a safe acknowledgment.
	Note:
	SI: Safety Integrated
	SLA: Safely-Limited Acceleration

C30730	SI Motion P2: Reference block for dynamic safely limited speed invalid
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The reference block transferred via PROFIsafe is negative.
	A reference block is used to generate a referred velocity limit value based on the reference quantity "Velocity limit value SLS1" (p9531[0]).
	The drive is stopped as a result of the configured stop response (p9563[0]).
	Message value (r2124, interpret decimal):
	requested, invalid reference block.
Remedy:	In the PROFIsafe telegram, input data S_SLS_LIMIT_IST must be corrected.
	This message can be acknowledged without a POWER ON as follows (safe acknowledgment):
	- PROFIsafe.
	Note:
	SI: Safety Integrated
	SLS: Safely Limited Speed
A30788	Automatic test stop: wait for STO deselection via SMM
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The automatic test stop was not able to be carried out after powering up.
	Possible causes:
	- the STO function is selected via Safety Extended Functions.
	- a safety message is present, that resulted in a STO.
Remedy:	- Deselect STO via Safety Extended Functions.
	- remove the cause of the safety messages and acknowledge the messages.
	The automatic test stop is performed after removing the cause.
C30797	SI Motion P2: Axis not safely referenced
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The standstill position saved before switching off does not match the actual position determined at switch-on.
Oduše.	Message value (r9749, interpret decimal):
	1: Axis not safely referenced.
	2: User agreement missing.
Remedy:	If safe automatic referencing is not possible the user must issue a user agreement for the new position using the softkey
· ·······	This mean that this position is then designated as safety-relevant.
	Note:
	SI: Safety Integrated
C30798	SI Motion P2: Test stop for motion monitoring functions running
	SI Motion P2: Test stop for motion monitoring functions running
Message value:	
Drive object:	All objects
Reaction:	
Acknowledge:	IMMEDIATELY (POWER ON)

Cause:	The forced checking procedure (test stop) for the safe motion monitoring functions is currently in progress.
Remedy:	Not necessary.
	The message is automatically withdrawn when the test stop has been completed.
	Note:
	SI: Safety Integrated
C30799	SI Motion P2: Acceptance test mode active
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The acceptance test mode is active.
	This means the following:
	- the setpoint velocity limiting is deactivated (r9733).
Remedy:	Not necessary.
	The message is automatically withdrawn when exiting the acceptance test mode.
	Note:
	SI: Safety Integrated
N30800 (F)	Power unit: Group signal
Message value:	-
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	NONE
Cause:	The power unit has detected at least one fault.
Remedy:	Evaluate the other messages that are presently available.
Reaction upon F:	OFF2
Acknowl. upon F:	IMMEDIATELY
F30801	Power unit DRIVE-CLiQ: Sign-of-life missing
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Control Unit to the power unit concerned.
	The computing time load might be too high.
	Fault cause:
	10 (= 0A hex):
	The sign-of-life bit in the receive telegram is not set.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
Domodu <i>u</i>	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- deselect functions that are not required. - if required, increase the sampling times (p0112, p0115).
	- replace the component involved (power unit, Control Unit).
E20902	Power unit: Time alian averflow
F30802	Power unit: Time slice overflow
Message value: Drive object:	%1 All objects

Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A time slice overflow has occurred.
	Fault value (r0949, interpret decimal):
	xx: time slice number
Remedy:	- carry out a POWER ON (switch-off/switch-on) for all components.
	- upgrade firmware to later version.
	- contact Technical Support.
F30804 (N, A)	Power unit: CRC
Message value:	%1
Drive object:	All objects
Reaction:	Servo: OFF2 (OFF1, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	A checksum error (CRC error) has occurred for the power unit.
Remedy:	- carry out a POWER ON (switch-off/switch-on) for all components.
	- upgrade firmware to later version.
	- contact Technical Support.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F30805	Power unit: EEPROM checksum error
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	Internal parameter data is corrupted.
	Fault value (r0949, interpret hexadecimal):
	01: EEPROM access error.
	02: Too many blocks in the EEPROM.
Remedy:	Replace the module.
F30809	Power unit: Switching information not valid
Message value:	-
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	For 3P gating unit, the following applies:
	The last switching status word in the setpoint telegram is identified by the end ID. Such an end ID was not found.
Remedy:	- carry out a POWER ON (switch-off/switch-on) for all components.
Remedy:	- upgrade firmware to later version.
Remedy:	

A30810 (F)	Power unit: Watchdog time
Message value:	-
Drive object:	All objects
Reaction:	NONE

Acknowledge:	NONE
Cause:	When booting it was detected that the cause of the previous reset was an SAC watchdog timer overflow.
Remedy:	- carry out a POWER ON (switch-off/switch-on) for all components.
-	- upgrade firmware to later version.
	- contact Technical Support.
Reaction upon F:	NONE (OFF2)
Acknowl. upon F:	IMMEDIATELY
F30820	Power unit DRIVE-CLiQ: Telegram error
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLIQ communication error has occurred from the Control Unit to the power unit concerned.
euce.	Fault cause:
	1 (= 01 hex):
	Checksum error (CRC error).
	2 (= 02 hex):
	Telegram is shorter than specified in the length byte or in the receive list.
	3 (= 03 hex):
	Telegram is longer than specified in the length byte or in the receive list.
	4 (= 04 hex):
	The length of the receive telegram does not match the receive list.
	5 (= 05 hex):
	The type of the receive telegram does not match the receive list.
	6 (= 06 hex):
	The address of the component in the telegram and in the receive list do not match.
	7 (= 07 hex):
	A SYNC telegram is expected - but the received telegram is not a SYNC telegram.
	8 (= 08 hex):
	No SYNC telegram is expected - but the received telegram is one.
	9 (= 09 hex): The energy hit is the reaction to be an end
	The error bit in the receive telegram is set.
	16 (= 10 hex):
	The receive telegram is too early. Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON (switch-off/switch-on).
Remody.	- check the electrical cabinet design and cable routing for EMC compliance
	- check the DRIVE-CLiQ wiring (interrupted cable, contacts,).
F30835	Power unit DRIVE-CLiQ: Cyclic data transfer error
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
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Cause:	A DRIVE-CLiQ communication error has occurred from the Control Unit to the power unit concerned. The nodes do not
	send and receive in synchronism.
	Fault cause:
	33 (= 21 hex):
	The cyclic telegram has not been received.
	34 (= 22 hex):
	Timeout in the telegram receive list.
	64 (= 40 hex):
	Timeout in the telegram send list.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON.
	- replace the component involved (power unit, Control Unit).
F30836	Power unit DRIVE-CLiQ: Send error for DRIVE-CLiQ data
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Control Unit to the power unit concerned. Data were not able
eddoo.	to be sent.
	Fault cause:
	65 (= 41 hex):
	Telegram type does not match send list.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	Carry out a POWER ON.
F30837	Power unit DRIVE-CLiQ: Component fault
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
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Cause:	Fault detected on the DRIVE-CLiQ component concerned. Faulty hardware cannot be excluded.
	Fault cause:
	32 (= 20 hex):
	Error in the telegram header.
	35 (= 23 hex):
	Receive error: The telegram buffer memory contains an error.
	66 (= 42 hex):
	Send error: The telegram buffer memory contains an error.
	67 (= 43 hex):
	Send error: The telegram buffer memory contains an error.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause

Remedy:	- check the DRIVE-CLiQ wiring (interrupted cable, contacts,).
	 check the electrical cabinet design and cable routing for EMC compliance if required, use another DRIVE-CLiQ socket (p9904).
	- replace the component involved.
F30845	Power unit DRIVE-CLiQ: Cyclic data transfer error
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Control Unit to the power unit concerned.
	Fault cause:
	11 (= 0B hex):
	Synchronization error during alternating cyclic data transfer.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	Carry out a POWER ON (switch-off/switch-on).
F30850	Power unit: Internal software error
Message value:	%1
Drive object:	All objects
Reaction:	Servo: OFF1 (NONE, OFF2, OFF3)
Acknowledge:	POWER ON
Cause:	An internal software error has occurred in the power unit.
	Fault value (r0949, interpret decimal):
	Only for internal Siemens troubleshooting.
Remedy:	- replace power unit.
	- if required, upgrade the firmware in the power unit.
	- contact Technical Support.
F30851	Power unit DRIVE-CLiQ (CU): Sign-of-life missing
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	Servo: OFF2 (NONE, OFF1, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the power unit to the Control Unit involved.
	The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit.
	Fault cause:
	10 (= 0A hex):
	The sign-of-life bit in the receive telegram is not set.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- deselect functions that are not required.
	- if required, increase the sampling times (p0112, p0115).
	- replace the component involved (power unit, Control Unit).
A30853	Power unit: Sign-of-life error cyclic data
Message value:	

Message value:

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Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The power unit has detected that the cyclic setpoint telegrams of the Control Unit have not been updated on time. At least two sign-of-life errors have occurred within the window set in p7788.
Remedy:	- reduce the size of the window (p7788) for monitoring.
	- check the Motor Module, and if required replace.
F30860	Power unit DRIVE-CLiQ (CU): Telegram error
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the power unit to the Control Unit involved.
	Fault cause:
	1 (= 01 hex):
	Checksum error (CRC error).
	2 (= 02 hex):
	Telegram is shorter than specified in the length byte or in the receive list.
	3 (= 03 hex):
	Telegram is longer than specified in the length byte or in the receive list.
	4 (= 04 hex): The length of the receive telegram does not match the receive list.
	5 (= 05 hex):
	The type of the receive telegram does not match the receive list.
	6 (= 06 hex):
	The address of the power unit in the telegram and in the receive list do not match.
	9 (= 09 hex):
	The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed.
	16 (= 10 hex):
	The receive telegram is too early.
	17 (= 11 hex): CRC error and the receive telegram is too early.
	18 (= 12 hex):
	The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early. 19 (= 13 hex):
	The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early. 20 (= 14 hex):
	The length of the receive telegram does not match the receive list and the receive telegram is too early. 21 (= 15 hex):
	The type of the receive telegram does not match the receive list and the receive telegram is too early. 22 (= 16 hex):
	The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early. 25 (= 19 hex):
	The error bit in the receive telegram is set and the receive telegram is too early.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON (switch-off/switch-on).
	- check the electrical cabinet design and cable routing for EMC compliance
	- check the DRIVE-CLiQ wiring (interrupted cable, contacts,).

F30875	Power unit: power supply voltage failed
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed. Fault cause:
	9 (= 09 hex):
	The power supply voltage for the components has failed.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
Demodul	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON (switch-off/switch-on).
	 check the power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts,). check the dimensioning of the power supply for the DRIVE-CLiQ component.
F30885	CU DRIVE-CLiQ (CU): Cyclic data transfer error
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the power unit to the Control Unit involved.
	The nodes do not send and receive in synchronism.
	Fault cause:
	26 (= 1A hex):
	Sign-of-life bit in the receive telegram not set and the receive telegram is too early.
	33 (= 21 hex):
	The cyclic telegram has not been received. 34 (= 22 hex):
	Timeout in the telegram receive list.
	64 (= 40 hex):
	Timeout in the telegram send list.
	98 (= 62 hex):
	Error at the transition to cyclic operation.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- check the power supply voltage of the component involved.
	- carry out a POWER ON.
	- replace the component involved.
F30886	PU DRIVE-CLiQ (CU): Error when sending DRIVE-CLiQ data
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	OFF2

Acknowledge: IMMEDIATELY

Cause:	A DRIVE-CLiQ communication error has occurred from the power unit to the Control Unit involved.
	Data were not able to be sent.
	Fault cause:
	65 (= 41 hex):
	Telegram type does not match send list.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	Carry out a POWER ON.
F30887	Power unit DRIVE-CLiQ (CU): Component fault
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	Fault detected on the DRIVE-CLiQ component (power unit) involved. Faulty hardware cannot be excluded.
	Fault cause:
	32 (= 20 hex):
	Error in the telegram header.
	35 (= 23 hex):
	Receive error: The telegram buffer memory contains an error.
	66 (= 42 hex):
	Send error: The telegram buffer memory contains an error.
	67 (= 43 hex):
	Send error: The telegram buffer memory contains an error.
	96 (= 60 hex):
	Response received too late during runtime measurement.
	97 (= 61 hex): Time talen to such and a home tariatic data tao lang
	Time taken to exchange characteristic data too long.
	Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124):
	0000 yxx hex: yy = component number, xx = error cause
Remedy:	- check the DRIVE-CLiQ wiring (interrupted cable, contacts,).
Remedy.	- check the electrical cabinet design and cable routing for EMC compliance
	- if required, use another DRIVE-CLiQ socket (p9904).
	- replace the component involved.
F30895	PU DRIVE-CLiQ (CU): Alternating cyclic data transfer error
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the power unit to the Control Unit involved. Fault cause:
	11 (= 0B hex):
	Synchronization error during alternating cyclic data transfer.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	Carry out a POWER ON.

F30896	Power unit DRIVE-CLiQ (CU): Inconsistent component properties
Message value:	Component number: %1
Drive object:	All objects
Reaction:	Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	The properties of the DRIVE-CLiQ component (power unit), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced.
	Fault value (r0949, interpret decimal):
	Component number.
Remedy:	- carry out a POWER ON.
	 - when a component is replaced, the same component type and if possible the same firmware version should be used. - when a cable is replaced, only cables whose length is the same as or as close as possible to the length of the original cables should be used (ensure compliance with the maximum cable length).
F30899 (N, A)	Power unit: Unknown fault
Message value:	New message: %1
Drive object:	All objects
Reaction:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	A fault occurred on the power unit that cannot be interpreted by the Control Unit firmware.
	This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
	Fault value (r0949, interpret decimal):
	Fault number.
	Note:

If required, the significance of this new fault can be read about in a more recent description of the Control Unit.

- replace the firmware on the power	r unit by an older firmware version (r0128).
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	- upgrade the firmware on the Control Unit (r0018).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F30903	Power unit: I2C bus error occurred
Message value:	%1
Drive object:	All objects
Reaction:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	Communications error with an EEPROM or an analog/digital converter.
	Fault value (r0949, interpret hexadecimal):
	8000000 hex:
	- internal software error.
	00000001 hex 0000FFFF hex:
	- module fault.
Remedy:	For fault value = 80000000 hex:
	- upgrade firmware to later version.
	For fault value = 00000001 hex 0000FFFF hex:
	- replace the module.

Remedy:

- All objects Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2) IMMEDIATELY During initialization within the power unit, an internal software error has occurred.
Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2) IMMEDIATELY
IMMEDIATELY
During initialization within the power unit, an internal software error has occurred
Barring mittainzation within the power and, an internal software endinas occurred.
- if required, upgrade the firmware in the power unit.
- replace power unit.
- contact Technical Support.
Power unit: Temperature monitoring failed
%1
All objects
NONE
NONE
The temperature monitoring in the power unit has failed.
Fault-free operation of the drive system is no longer guaranteed.
Alarm value (r2124, interpret hexadecimal):
Bit 0: Sensor 1 for the internal temperature can no longer be evaluated.
Bit 1: Sensor 2 for the internal temperature can no longer be evaluated.
Replace the power unit immediately.
Power unit: Temperature sensor fault
%1
All objects
NONE
NONE
When evaluating the temperature sensor, an error occurred.
Alarm value (r2124, interpret decimal): 1: Wire breakage or sensor not connected.
KTY: R > 1630 Ohm, PT100: R > 375 Ohm, PT1000: R > 1720 Ohm
2: Measured resistance too low.
PTC: R < 20 Ohm, KTY: R < 50 Ohm, PT100: R < 30 Ohm, PT1000: R < 603 Ohm
Note:
A temperature sensor is connected to the following terminals:
- "Booksize" format: X21.1/.2 or X22.1/.2
- "Chassis" format: X41.4/.3
Information on temperature sensors is provided in the following literature for example:
SINAMICS S120 Function Manual Drive Functions
- make sure that the sensor is connected correctly.
- replace the sensor.
Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
IMMEDIATELY
Power unit: Component trace has saved data
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All objects
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NONE

Cause:	Trace data was saved in the component.
Remedy:	Not necessary.
	Note:
	For p7792= 1, the trace data of the component can be written to the memory card.
Reaction upon N:	
Acknowl. upon N:	NONE
F30950	Power unit: Internal software error
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	POWER ON
Cause:	An internal software error has occurred.
	Fault value (r0949, interpret decimal):
	Information about the fault source.
	Only for internal Siemens troubleshooting.
Remedy:	- if necessary, upgrade the firmware in the power unit to a later version.
	- contact Technical Support.
A30999 (F, N)	Power unit: Unknown alarm
Message value:	New message: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	An alarm occurred on the power unit that cannot be interpreted by the Control Unit firmware.
	This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
	Alarm value (r2124, interpret decimal):
	Alarm number.
	Note:
	If required, the significance of this new alarm can be read about in a more recent description of the Control Unit.
Remedy:	If required, the significance of this new alarm can be read about in a more recent description of the Control Unit. - replace the firmware on the power unit by an older firmware version (r0128).
Remedy:	
Remedy: Reaction upon F:	- replace the firmware on the power unit by an older firmware version (r0128).
Reaction upon F:	 replace the firmware on the power unit by an older firmware version (r0128). upgrade the firmware on the Control Unit (r0018).
Reaction upon F:	 replace the firmware on the power unit by an older firmware version (r0128). upgrade the firmware on the Control Unit (r0018). Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY (POWER ON)
Reaction upon F: Acknowl. upon F:	 replace the firmware on the power unit by an older firmware version (r0128). upgrade the firmware on the Control Unit (r0018). Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY (POWER ON) NONE
Reaction upon F: Acknowl. upon F: Reaction upon N: Acknowl. upon N:	 replace the firmware on the power unit by an older firmware version (r0128). upgrade the firmware on the Control Unit (r0018). Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY (POWER ON) NONE NONE
Reaction upon F: Acknowl. upon F: Reaction upon N: Acknowl. upon N: F31100 (N, A)	- replace the firmware on the power unit by an older firmware version (r0128) upgrade the firmware on the Control Unit (r0018). Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY (POWER ON) NONE NONE Encoder 1: Zero mark distance error
Reaction upon F: Acknowl. upon F: Reaction upon N: Acknowl. upon N: F31100 (N, A) Message value:	 replace the firmware on the power unit by an older firmware version (r0128). upgrade the firmware on the Control Unit (r0018). Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY (POWER ON) NONE NONE Encoder 1: Zero mark distance error %1
Reaction upon F: Acknowl. upon F: Reaction upon N: Acknowl. upon N: F31100 (N, A) Message value: Drive object:	 replace the firmware on the power unit by an older firmware version (r0128). upgrade the firmware on the Control Unit (r0018). Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY (POWER ON) NONE NONE Encoder 1: Zero mark distance error %1 All objects
Reaction upon F: Acknowl. upon F: Reaction upon N: Acknowl. upon N: F31100 (N, A) Message value: Drive object: Reaction:	 replace the firmware on the power unit by an older firmware version (r0128). upgrade the firmware on the Control Unit (r0018). Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY (POWER ON) NONE NONE Encoder 1: Zero mark distance error %1 All objects Servo: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
Reaction upon F: Acknowl. upon F: Reaction upon N: Acknowl. upon N: F31100 (N, A) Message value: Drive object: Reaction: Acknowledge:	 replace the firmware on the power unit by an older firmware version (r0128). upgrade the firmware on the Control Unit (r0018). Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY (POWER ON) NONE NONE Fencoder 1: Zero mark distance error %1 All objects Servo: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2) PULSE INHIBIT
Reaction upon F: Acknowl. upon F: Reaction upon N: Acknowl. upon N: F31100 (N, A) Message value: Drive object: Reaction:	 replace the firmware on the power unit by an older firmware version (r0128). upgrade the firmware on the Control Unit (r0018). Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY (POWER ON) NONE NONE Encoder 1: Zero mark distance error %1 All objects Servo: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2) PULSE INHIBIT The measured zero mark distance does not correspond to the parameterized zero mark distance.
Reaction upon F: Acknowl. upon F: Reaction upon N: Acknowl. upon N: F31100 (N, A) Message value: Drive object: Reaction: Acknowledge:	 replace the firmware on the power unit by an older firmware version (r0128). upgrade the firmware on the Control Unit (r0018). Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY (POWER ON) NONE NONE MONE VONE VONE VONE VONE VONE VONE VONE NONE NONE
Reaction upon F: Acknowl. upon F: Reaction upon N: Acknowl. upon N: F31100 (N, A) Message value: Drive object: Reaction: Acknowledge:	 replace the firmware on the power unit by an older firmware version (r0128). upgrade the firmware on the Control Unit (r0018). Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY (POWER ON) NONE NONE NONE VONE VONE VONE NONE NONE
Reaction upon F: Acknowl. upon F: Reaction upon N: Acknowl. upon N: F31100 (N, A) Message value: Drive object: Reaction: Acknowledge:	 replace the firmware on the power unit by an older firmware version (r0128). upgrade the firmware on the Control Unit (r0018). Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY (POWER ON) NONE NONE MONE Encoder 1: Zero mark distance error %1 All objects Servo: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2) PULSE INHIBIT The measured zero mark distance does not correspond to the parameterized zero mark distance. For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
Reaction upon F: Acknowl. upon F: Reaction upon N: Acknowl. upon N: F31100 (N, A) Message value: Drive object: Reaction: Acknowledge:	 replace the firmware on the power unit by an older firmware version (r0128). upgrade the firmware on the Control Unit (r0018). Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY (POWER ON) NONE NONE MONE VONE VONE VONE VONE VONE PULSE INHIBIT The measured zero mark distance does not correspond to the parameterized zero mark distance. For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder). Fault value (r0949, interpret decimal):
Reaction upon F: Acknowl. upon F: Reaction upon N: Acknowl. upon N: F31100 (N, A) Message value: Drive object: Reaction: Acknowledge:	 replace the firmware on the power unit by an older firmware version (r0128). upgrade the firmware on the Control Unit (r0018). Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY (POWER ON) NONE NONE MONE Encoder 1: Zero mark distance error %1 All objects Servo: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2) PULSE INHIBIT The measured zero mark distance does not correspond to the parameterized zero mark distance. For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).

Remedy:	- check that the encoder cables are routed in compliance with EMC.
	- check the plug connections.
	- check the encoder type (encoder with equidistant zero marks).
	- adapt the parameter for the distance between zero marks (p0424, p0425).
	- if message output above speed threshold, reduce filter time if necessary (p0438).
	- replace the encoder or encoder cable.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F31101 (N, A)	Encoder 1: Zero mark failed
Message value:	%1
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
Acknowledge:	PULSE INHIBIT
Cause:	The 1.5 x parameterized zero mark distance was exceeded.
	The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
	Fault value (r0949, interpret decimal):
	Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse).
Remedy:	- check that the encoder cables are routed in compliance with EMC.
	- check the plug connections.
	- check the encoder type (encoder with equidistant zero marks).
	- adapt the parameter for the clearance between zero marks (p0425).
	- if message output above speed threshold, reduce filter time if necessary (p0438).
	- when p0437.1 is active, check p4686.
	- replace the encoder or encoder cable.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F31103 (N, A)	Encoder 1: Signal level zero mark (track R) outside tolerance
Message value:	R track: %1
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowledge:	PULSE INHIBIT

	yyyyxxx hex: yyyy = 0, xxxx = Signal level, track R (16 bits with sign) The response thresholds of the unipolar signal levels of the encoder are between < 1400 mV and > 3500 mV. The response threshold for the differential signal level of the encoder is < -1600 mV. A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
	Note: The analog value of the amplitude error is not measured at the same time with the hardware fault output by the Sensor Module.
	The fault value can only be represented between -32768 32767 dec (-770 770 mV).
	The signal level is not evaluated unless the following conditions are satisfied:
	- Sensor Module properties available (r0459.31 = 1).
	- monitoring active (p0437.31 = 1).
Remedy:	- check the speed range; frequency characteristic (amplitude characteristic) of the measuring equipment might not be sufficient for the speed range
	- check that the encoder cables and shielding are routed in compliance with EMC.
	- check the plug connections and contacts of the encoder cable.
	- check the encoder type (encoder with zero marks).
	- check whether the zero mark is connected and the signal cables RP and RN have been connected correctly (not connected with the incorrect polarity).
	- replace the encoder cable.
	- if the coding disk is soiled or the lighting aged, replace the encoder.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F31110 (N, A)	Encoder 1: Serial communications error

Message value:	Fault cause: %1 bin
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowledge:	PULSE INHIBIT

Cause:	Serial communication protocol transfer error between the encoder and evaluation module. Fault value (r0949, interpret binary):
	Bit 0: Alarm bit in the position protocol.
	Bit 1: Incorrect quiescent level on the data line.
	Bit 2: Encoder does not respond (does not supply a start bit within 50 ms).
	Bit 3: CRC error: The checksum in the protocol from the encoder does not match the data.
	Bit 4: Encoder acknowledgment error: The encoder incorrectly understood the task (request) or cannot execute it.
	Bit 5: Internal error in the serial driver: An illegal mode command was requested.
	Bit 6: Timeout when cyclically reading.
	Bit 7: Timeout for the register communication.
	Bit 8: Protocol is too long (e.g. > 64 bits).
	Bit 9: Receive buffer overflow.
	Bit 10: Frame error when reading twice.
	Bit 11: Parity error.
	Bit 12: Data line signal level error during the monoflop time.
	Bit 13: Data line incorrect.
	Bit 14: Fault for the register communication.
	Bit 15: Internal communication error.
	Note:
	For an EnDat 2.2 encoder, the significance of the fault value for F3x135 (x = 1, 2, 3) is described.
Remedy:	For fault value, bit 0 = 1:
-	- Enc defect F31111 may provide additional details.
	For fault value, bit 1 = 1:
	- incorrect encoder type / replace the encoder or encoder cable.
	For fault value, bit 2 = 1:
	- incorrect encoder type / replace the encoder or encoder cable.
	For fault value, bit 3 = 1:
	- EMC / connect the cable shield, replace the encoder or encoder cable.
	For fault value, bit 4 = 1:
	- EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.
	For fault value, bit 5 = 1:
	- EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.
	For fault value, bit 6 = 1:
	- Update Sensor Module firmware.
	For fault value, bit 7 = 1:
	- incorrect encoder type / replace the encoder or encoder cable.
	For fault value, bit 8 = 1:
	- check parameterization (p0429.2).
	For fault value, bit 9 = 1:
	- EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.
	For fault value, bit 10 = 1:
	- check parameterization (p0429.2, p0449).
	For fault value, bit 11 = 1:
	- check parameterization (p0436).
	For fault value, bit 12 = 1:
	- check parameterization (p0429.6).
	For fault value, bit 13 = 1:
	- check data line.
	For fault value, bit 14 = 1:
	- incorrect encoder type / replace the encoder or encoder cable.
Reaction upon N:	NONE
Acknowl. upon N:	NONE

Reaction upon A: NONE Acknowl. upon A: NONE

F31111 (N, A)	Encoder 1: Encoder signals an internal error (detailed information)
Message value:	Fault cause: %1 bin, additional information: %2
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowledge:	PULSE INHIBIT
Cause:	The encoder error word provides detailed information (error bit).
	For p0404.8 = 0, the following applies:
	Fault value for internal Siemens troubleshooting.
	For p0404.8 = 1, the following applies:
	Fault value (r0949, interpret binary):
	yyyyxxxx hex: yyyy = supplementary information, xxxx = fault cause
	уууу = 0:
	Bit 0: Lighting system failed.
	Bit 1: Signal amplitude too low.
	Bit 2: Position value incorrect.
	Bit 3: Encoder power supply overvoltage condition.
	Bit 4: Encoder power supply undervoltage condition.
	Bit 5: Encoder power supply overcurrent condition.
	Bit 6: The battery must be changed.
Remedy:	For yyyy = 0:
	For fault value, bit 0 = 1:
	Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.
	For fault value, bit 1 = 1:
	Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.
	For fault value, bit 2 = 1:
	Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.
	For fault value, bit 3 = 1:
	5 V power supply voltage fault. When using an SMC: Check the plug-in cable between the encoder and SMC or replace the SMC.
	When a motor encoder with a direct DRIVE-CLiQ connection is used: Replace the motor.
	For fault value, bit 4 = 1:
	5 V power supply voltage fault.
	When using an SMC: Check the plug-in cable between the encoder and SMC or replace the SMC.
	When using a motor with DRIVE-CLiQ: Replace the motor.
	For fault value, bit 5 = 1:
	Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.
	For fault value, bit 6 = 1:
	The battery must be changed (only for encoders with battery back-up).
	For yyyy = 1:
	Encoder is defective. Replace encoder.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31112 (N, A) Encoder 1: Encoder signals an internal error

Message value:

Drive object:	All objects
---------------	-------------

%1

Reaction:	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowledge:	PULSE INHIBIT
Cause:	The encoder signals an internal error via serial protocol.
	Fault value (r0949, interpret binary):
	Bit 0: Fault bit in the position protocol.
Remedy:	For fault value, bit 0 = 1:
Desetion upon Nu	In the case of an EnDat encoder, F31111 may provide further details.
Reaction upon N:	
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	NONE
F31115 (N. A)	Encoder 1: Signal level track A or B too low
Message value:	A track: %1, B-track: %2
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowledge:	PULSE INHIBIT
Cause:	The signal level (root from A ² + B ²) of the encoder falls below the permissible limit value.
	Fault value (r0949, interpret hexadecimal):
	yyyyxxxx hex:
	yyyy = Signal level, track B (16 bits with sign).
	xxxx = Signal level, track A (16 bits with sign).
	The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
	The response threshold is < 170 mV (input frequency <= 256 kHz) or < 120 mV (input frequency > 256 kHz).
	A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
	Note for Sensor Modules for resolvers (e.g. SMC10):
	The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is < 1070 mV.
	A signal level of 2900 mV peak value corresponds to the numerical value 6666 hex = 26214 dec. Note:
	The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor
Demoden	Module.
Remedy:	 check that the encoder cables and shielding are routed in compliance with EMC. check the plug connections.
	- replace the encoder or encoder cable.
	- check the Sensor Module (e.g. contacts).
	The following applies to measuring systems without their own bearing system:
	- adjust the scanning head and check the bearing system of the measuring wheel.
	The following applies for measuring systems with their own bearing system:
	- ensure that the encoder housing is not subject to any axial force.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F31116 (N, A)	Encoder 1: Signal level track A or B too low
	-
Message value:	A track: %1, B-track: %2
Drive object: Reaction:	All objects
	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowledge:	IMMEDIATELY

Cause:	The signal level of the rectified encoder signals A and B of the encoder fall below the permissible limit value.
	Fault value (r0949, interpret hexadecimal):
	yyyyxxxx hex:
	yyyy = Signal level, track B (16 bits with sign).
	xxxx = Signal level, track A (16 bits with sign).
	The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
	The response threshold is < 130 mV.
	A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
	Note:
	The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
Remedy:	- check that the encoder cables and shielding are routed in compliance with EMC.
	- check the plug connections.
	- replace the encoder or encoder cable.
	- check the Sensor Module (e.g. contacts).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31117 (N, A)	Encoder 1: Inversion error signals A/B/R
Message value:	Fault cause: %1 bin
Drive object:	All objects
Reaction:	•
	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowledge:	
Cause:	For a square-wave encoder (bipolar, double ended) signals A*, B* and R* are not inverted with respect to signals A, B and R.
	Fault value (r0949, interpret binary):
	Bits 0 15: Only for internal Siemens troubleshooting.
	Bit 16: Error track A.
	Bit 17: Error track B.
	Bit 18: Error track R.
	Note:
	For SMC30 (only Article No. 6SL3055-0AA00-5CA0 and 6SL3055-0AA00-5CA1), CUA32, and CU310, the following applies:
	A square-wave encoder without track R is used and track monitoring (p0405.2 = 1) is activated.
Remedy:	- check the encoder/cable.
	- Does the encoder supply signals and the associated inverted signals?
	Note:
	For SMC30 (only Article Number 6SL3055-0AA00-5CA0 and 6SL3055-0AA00-5CA1), the following applies:
	- check the setting of p0405 (p0405.2 = 1 is only possible if the encoder is connected at X520).
	For a square-wave encoder without track R, the following jumpers must be set for the connection at X520 (SMC30) or X23 (CUA32, CU310):
	- pin 10 (reference signal R) <> pin 7 (encoder power supply, ground)
	- pin 11 (reference signal R inverted) <> pin 4 (encoder power supply)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	
Acknowl. upon A:	

F31118 (N, A)	Encoder 1: Speed change not plausible
Message value:	%1
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowledge:	PULSE INHIBIT
Cause:	For an HTL/TTL encoder, the speed change has exceeded the value in p0492 over several sampling cycles.
	The change to the averaged speed actual value - if applicable - is monitored in the current controller sampling time.
	Encoder 1 is used as motor encoder and can be effective has fault response to change over to encoderless operation.
	Fault value (r0949, interpret decimal):
	Only for internal Siemens troubleshooting.
Remedy:	- check the tachometer feeder cable for interruptions.
	- check the grounding of the tachometer shielding.
	- if required, increase the maximum speed difference per sampling cycle (p0492).
Reaction upon N:	NONE
Acknowl. upon N:	
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F31120 (N, A)	Encoder 1: Encoder power supply fault
Message value:	Fault cause: %1 bin
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowledge:	PULSE INHIBIT
Cause:	An encoder power supply fault was detected.
	Fault value (r0949, interpret binary):
	Bit 0: Undervoltage condition on the sense line.
	Bit 1: Overcurrent condition for the encoder power supply.
	Bit 2: Overcurrent condition for encoder power supply on cable resolver excitation negative.
	Bit 3: Overcurrent condition for encoder power supply on cable resolver excitation positive.
	bit 3. Overcuirent condition for encoder power supply on cable resolver excitation positive.
	Bit 4: The 24 V power supply through the Power Module (PM) is overloaded.
	Bit 4: The 24 V power supply through the Power Module (PM) is overloaded.
	Bit 4: The 24 V power supply through the Power Module (PM) is overloaded. Bit 5: Overcurrent at the EnDat connection of the converter. Bit 6: Overvoltage at the EnDat connection of the converter. Bit 7: Hardware fault at the EnDat connection of the converter.
	Bit 4: The 24 V power supply through the Power Module (PM) is overloaded. Bit 5: Overcurrent at the EnDat connection of the converter. Bit 6: Overvoltage at the EnDat connection of the converter.

 - correct encoder cable connected? - check the plag connections of the encoder cable. - SMC30: Check the parameterization (p040-22). For fault value, bit 1 = 1: - correct encoder cable connected? - replace the encoder or encoder cable. For fault value, bit 2 = 1: - correct encoder cable connected? - replace the encoder or encoder cable. For fault value, bit 3 = 1: - correct encoder cable connected? - replace the encoder or encoder cable. For fault value, bit 3 = 1: - correct encoder cable connected? - replace the encoder or encoder cable. For fault value, bit 5 = 1: - correct encoder cable connected? - Replace the measuing unit or the cable to the measuring unit. For fault value, bit 6, 7 = 1: - Replace the defective EnDat 2.2 converter. Reaction upon N: NONE Reaction upon N: NONE Readom up	Remedy:	For fault value, bit 0 = 1:
 SNC30: Check the parameterization (p0404.22). For fault value, bit 1 = 1: - correct encoder cable connected? - replace the encoder or encoder cable. For fault value, bit 2 = 1: - correct encoder cable connected? - replace the encoder or encoder cable. For fault value, bit 3 = 1: - correct encoder cable. For fault value, bit 3 = 1: - correct encoder cable. For fault value, bit 3 = 1: - correct encoder cable. For fault value, bit 5 = 1: - correct encoder cable. For fault value, bit 5 = 1: - Measuring unit correctly connected at the converter? Replace the measuring unit or the cable to the measuring unit. For fault value, bit 6, 7 = 1: - Replace the defective EnDat 2.2 converter. Readcon upon N: NONE Kehnew upon X: NONE Kehnew u		
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 - replace the encoder or encoder cable. For fault value, bit 2 = 1: - correct encoder cable connected? - replace the encoder or encoder cable. For fault value, bit 3 = 1: - correct encoder cable connected? - replace the encoder or encoder cable. For fault value, bit 5 = 1: - Measuring unit correctly connected at the converter? - Replace the measuring unit correctly connected at the converter? - Replace the measuring unit correct the cable to the measuring unit. For fault value, bit 6, 7 = 1: - Replace the defective EnDat 2.2 converter. Reaction upon X: NONE Acknowl, upon X: NONE Acknowl, upon X: NONE Seatcon upon X: NONE Acknowl, upon X: NONE Seatcon upon X: NONE Concert I: Determined commutation position incorrect Measage value: - - - Concert I: Determined commutation position incorrect Measage value: - - Concert I: Determined commutation position incorrect Measage value: - -<th></th><th>For fault value, bit 1 = 1:</th>		For fault value, bit 1 = 1:
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 - correct encoder cable connected? - replace the encoder or encoder cable. - For fault value, bit 5 = 1: - Measuring unit correctly connected at the converter? - Replace the measuring unit or the cable to the measuring unit. - For fault value, bit 6, 7 = 1: - Replace the defective EnDat 2.2 converter. Reaction upon N: NONE Replace the defective EnDat 2.2 converter. Reaction upon A: NONE Replace the defective EnDat 2.2 converter. Reaction upon A: NONE Replace the defective EnDat 2.2 converter. Reaction upon A: NONE Reaction: Servo: ENCODER (NONE) Acknowledge: PULSE INHIBIT Cause: A commutation position actual value sensing error was detected. Reaction upon A: NONE Reaction: Servo: ENCODER Reaction: Servo: ENCODER<th></th><th>- replace the encoder or encoder cable.</th>		- replace the encoder or encoder cable.
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 Measuring unit correctly connected at the converter? Replace the measuring unit or the cable to the measuring unit. For fault value, bit 0, 7 = 1: Replace the defective EnDat 2.2 converter. Reaction upon X: NONE Acknowl, upon X: NONE Chocder 1: Determined commutation position incorrect Message value: Drive object: All objects Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module. Reaction upon X: NONE Acknowl, upon X: NONE Reaction upon X: NONE Acknowl, upon X:		•
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For fault value, bit 6, 7 = 1: - Replace the defective EnDat 2.2 converter. Reaction upon N: NONE Reaction upon N: NONE Reaction upon A: NONE F31121 (N, A) Encoder 1: Determined commutation position incorrect F31121 (N, A) Encoder 1: Determined commutation position incorrect F31122 (N, A) Encoder 1: Determined commutation position incorrect Reaction: Servo: ENCODER (NONE) Acknowledge: PULSE INHIBIT Cause: A commutation position actual value sensing error was detected. Reaction upon N: NONE Acknowl. upon N: NONE Reaction upon N: NONE F31122 Encoder 1: Sensor Module hardware fault Message value: %1 Thre object: All objects Reaction: Servo: ENCODER Acknowledge: IMMEDIATELY Cause: A ninternal Sensor Module hardware fault was detected. Fault value (r0949, interpret decimal): 1: Reference voltage error. 2: Internal undervoltage. 3: Internal overvoltage. Remedy: Replace the motor with DRIVE-CLIQ or the appropriate Sensor Module. F31123 (N, A) Encoder 1: Signal level A/B outside tolerance		
 - Replace the defective EnDat 2.2 converter. Reaction upon N: NONE Acknowl. upon N: NONE Reaction upon A: NONE Restrict upon A: NONE Restrict upon A: NONE Could Acknowl. upon A: NONE Could Acknowl upon A: NONE Reaction: Servo: ENCODER (NONE) Acknowl upon A: A commutation position actual value sensing error was detected. Remedy: Replace the motor with DRIVE-CLIQ or the appropriate Sensor Module. Reaction upon A: NONE Reflace the motor with DRIVE-CLIQ or the appropriate Sensor Module. Reaction upon A: Internal Sensor Module hardware fault was detected. Reaction (0949, interpret decimal): Reference voltage error. Internal overvoltage. Internal overvoltage. Reference voltage error. Internal overvoltage. Reference voltage error. Internal overvoltage. Replace the motor with DRIVE-CLIQ or the app		
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F31121 (N, A) Encoder 1: Determined commutation position incorrect Message value: - Drive object: All objects Reaction: Servo: ENCODER (NONE) Acknowledge: PULSE INHIBIT Cause: A commutation position actual value sensing error was detected. Remedy: Replace the motor with DRIVE-CLIQ or the appropriate Sensor Module. Reaction upon N: NONE Acknowl. upon N: NONE F31122 Encoder 1: Sensor Module hardware fault Message value: %1 Drive object: All objects Reaction: Servo: ENCODER Acknowledge: IMMEDIATELY Cause: A1 objects Reaction: Servo: ENCODER Acknowledge: IMMEDIATELY Cause: An internal Sensor Module hardware fault was detected. Fault value (r0949, interpret decimal): 1: Reference voltage error. 2: Internal undervoltage. 3: Internal overvoltage. Remedy: Replace the motor with DRIVE-CLIQ or the appropriate Sensor Module. F31123 (N, A) Encoder 1: Signal level A/B outside tolerance	-	
Message value: - Drive object: All objects Reaction: Servo: ENCODER (NONE) Acknowledge: PULSE INHIBIT Cause: A commutation position actual value sensing error was detected. Remedy: Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module. Reaction upon N: NONE Acknowl. upon A: NONE F31122 Encoder 1: Sensor Module hardware fault Message value: %1 Drive object: All objects Reaction: Servo: ENCODER Acknowl.upon A: NONE Message value: %1 Drive object: All objects Reaction: Servo: ENCODER Acknowledge: IMMEDIATELY Cause: An internal Sensor Module hardware fault was detected. Fault value (r0949, interpret decimal): 1: Reference voltage error. 1: Reference voltage error. 2: Internal undervoltage. 3: Internal overvoltage. 3: Internal overvoltage. 3: Internal overvoltage. 3: Internal overvoltage. S: Internal overvoltage. 3: Internal overvoltage. S: Internal overvoltage.	Acknowl. upon A:	NONE
Drive object: All objects Reaction: Servo: ENCODER (NONE) Acknowledge: PULSE INHIBIT Cause: A commutation position actual value sensing error was detected. Remedy: Replace the motor with DRIVE-CLIQ or the appropriate Sensor Module. Reaction upon N: NONE Acknowl.upon N: NONE Reaction upon A: NONE Acknowl.upon A: NONE F31122 Encoder 1: Sensor Module hardware fault Message value: %1 Drive object: All objects Reaction: Servo: ENCODER Acknowledge: IMMEDIATELY Cause: An internal Sensor Module hardware fault was detected. Fault value (r0949, interpret decimal): 1: Reference voltage error. 1: Internal undervoltage. 3: Internal overvoltage. Remedy: Replace the motor with DRIVE-CLIQ or the appropriate Sensor Module. F31123 (N, A) Encoder 1: Signal level A/B outside tolerance	F31121 (N, A)	Encoder 1: Determined commutation position incorrect
Reaction: Servo: ENCODER (NONE) Acknowledge: PULSE INHIBIT Cause: A commutation position actual value sensing error was detected. Remedy: Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module. Reaction upon N: NONE Acknowl.upon N: NONE Reaction upon A: NONE Reaction upon A: NONE F31122 Encoder 1: Sensor Module hardware fault Message value: %1 Prive object: All objects Reaction: Servo: ENCODER Acknowledge: IMMEDIATELY Cause: An internal Sensor Module hardware fault was detected. Fault value (r0949, interpret decimal): 1: Reference voltage error. 2: Internal undervoltage. 3: Internal overvoltage. Sinternal overvoltage. 3: Internal overvoltage. F31123 (N, A) Encoder 1: Signal level A/B outside tolerance	Message value:	-
Reaction: Servo: ENCODER (NONE) Acknowledge: PULSE INHIBIT Cause: A commutation position actual value sensing error was detected. Remedy: Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module. Reaction upon N: NONE Acknowl.upon N: NONE Reaction upon A: NONE Reaction upon A: NONE F31122 Encoder 1: Sensor Module hardware fault Message value: %1 Prive object: All objects Reaction: Servo: ENCODER Acknowledge: IMMEDIATELY Cause: An internal Sensor Module hardware fault was detected. Fault value (r0949, interpret decimal): 1: Reference voltage error. 2: Internal undervoltage. 3: Internal overvoltage. Sinternal overvoltage. 3: Internal overvoltage. F31123 (N, A) Encoder 1: Signal level A/B outside tolerance	Drive object:	All objects
Acknowledge: PULSE INHIBIT Cause: A commutation position actual value sensing error was detected. Remedy: Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module. Reaction upon N: NONE Acknowl. upon A: NONE Reaction upon A: NONE Reaction upon A: NONE Reaction upon A: NONE PS11122 Encoder 1: Sensor Module hardware fault Message value: %1 Drive object: All objects Reaction: Servo: ENCODER Acknowledge: IMMEDIATELY Cause: An internal Sensor Module hardware fault was detected. Fault value (r0949, interpret decimal): 1: Reference voltage error. 2: Internal undervoltage. 3: Internal overvoltage. Remedy: Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module. F31123 (N, A) Encoder 1: Signal level A/B outside tolerance	Reaction:	Servo: ENCODER (NONE)
Remedy: Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module. Reaction upon N: NONE Acknowl. upon A: NONE Reaction upon A: NONE Reaction upon A: NONE Acknowl. upon A: NONE F31122 Encoder 1: Sensor Module hardware fault Message value: %1 Drive object: All objects Reaction: Servo: ENCODER Acknowledge: IMMEDIATELY Cause: An internal Sensor Module hardware fault was detected. Fault value (r0949, interpret decimal): 1: Reference voltage error. 2: Internal undervoltage. 3: Internal overvoltage. 3: Internal overvoltage. 3: Internal overvoltage. F31123 (N, A) Encoder 1: Signal level A/B outside tolerance	Acknowledge:	
Remedy: Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module. Reaction upon N: NONE Acknowl. upon A: NONE Reaction upon A: NONE Reaction upon A: NONE Acknowl. upon A: NONE F31122 Encoder 1: Sensor Module hardware fault Message value: %1 Drive object: All objects Reaction: Servo: ENCODER Acknowledge: IMMEDIATELY Cause: An internal Sensor Module hardware fault was detected. Fault value (r0949, interpret decimal): 1: Reference voltage error. 2: Internal undervoltage. 3: Internal overvoltage. 3: Internal overvoltage. 3: Internal overvoltage. F31123 (N, A) Encoder 1: Signal level A/B outside tolerance	Cause:	A commutation position actual value sensing error was detected.
Reaction upon N: NONE Acknowl. upon N: NONE Reaction upon A: NONE Reaction upon A: NONE Acknowl. upon A: NONE F31122 Encoder 1: Sensor Module hardware fault Message value: %1 Drive object: All objects Reaction: Servo: ENCODER Acknowledge: IMMEDIATELY Cause: An internal Sensor Module hardware fault was detected. Fault value (r0949, interpret decimal): 1: Reference voltage error. 1: Reference voltage. 3: Internal overvoltage. 3: Internal overvoltage. 3: Internal overvoltage. F31123 (N, A) Encoder 1: Signal level A/B outside tolerance	Remedy:	
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Acknowl. upon A: NONE F31122 Encoder 1: Sensor Module hardware fault Message value: %1 Drive object: All objects Reaction: Servo: ENCODER Acknowledge: IMMEDIATELY Cause: An internal Sensor Module hardware fault was detected. Fault value (r0949, interpret decimal): 1: Reference voltage error. 2: Internal undervoltage. 3: Internal overvoltage. Remedy: Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module. F31123 (N, A) Encoder 1: Signal level A/B outside tolerance	-	
F31122 Encoder 1: Sensor Module hardware fault Message value: %1 Drive object: All objects Reaction: Servo: ENCODER Acknowledge: IMMEDIATELY Cause: An internal Sensor Module hardware fault was detected. Fault value (r0949, interpret decimal): 1: Reference voltage error. 2: Internal undervoltage. 3: Internal overvoltage. Remedy: Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module.	-	
Message value: %1 Drive object: All objects Reaction: Servo: ENCODER Acknowledge: IMMEDIATELY Cause: An internal Sensor Module hardware fault was detected. Fault value (r0949, interpret decimal): 1: Reference voltage error. 2: Internal undervoltage. 3: Internal overvoltage. Remedy: Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module.		
Drive object: All objects Reaction: Servo: ENCODER Acknowledge: IMMEDIATELY Cause: An internal Sensor Module hardware fault was detected. Fault value (r0949, interpret decimal): 1: Reference voltage error. 2: Internal undervoltage. 3: Internal overvoltage. Remedy: Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module.	F31122	Encoder 1: Sensor Module hardware fault
Reaction: Servo: ENCODER Acknowledge: IMMEDIATELY Cause: An internal Sensor Module hardware fault was detected. Fault value (r0949, interpret decimal): 1: Reference voltage error. 1: Reference voltage error. 2: Internal undervoltage. 3: Internal overvoltage. Remedy: Remedy: Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module.	Message value:	%1
Acknowledge: IMMEDIATELY Cause: An internal Sensor Module hardware fault was detected. Fault value (r0949, interpret decimal): 1: Reference voltage error. 2: Internal undervoltage. 3: Internal overvoltage. Remedy: Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module. F31123 (N, A) Encoder 1: Signal level A/B outside tolerance	Drive object:	All objects
Cause: An internal Sensor Module hardware fault was detected. Fault value (r0949, interpret decimal): 1: Reference voltage error. 1: Reference voltage error. 2: Internal undervoltage. 3: Internal overvoltage. 3: Internal overvoltage. Remedy: Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module. F31123 (N, A) Encoder 1: Signal level A/B outside tolerance	Reaction:	Servo: ENCODER
Fault value (r0949, interpret decimal): 1: Reference voltage error. 2: Internal undervoltage. 3: Internal overvoltage. Remedy: Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module. F31123 (N, A) Encoder 1: Signal level A/B outside tolerance	Acknowledge:	IMMEDIATELY
1: Reference voltage error. 2: Internal undervoltage. 3: Internal overvoltage. Remedy: Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module. F31123 (N, A) Encoder 1: Signal level A/B outside tolerance	Cause:	An internal Sensor Module hardware fault was detected.
2: Internal undervoltage. 3: Internal overvoltage. Remedy: Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module. F31123 (N, A) Encoder 1: Signal level A/B outside tolerance		Fault value (r0949, interpret decimal):
3: Internal overvoltage. Remedy: Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module. F31123 (N, A) Encoder 1: Signal level A/B outside tolerance		-
Remedy: Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module. F31123 (N, A) Encoder 1: Signal level A/B outside tolerance		-
F31123 (N, A) Encoder 1: Signal level A/B outside tolerance		
	Remedy:	Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module.
	F31123 (N. A)	Encoder 1: Signal level A/B outside tolerance
-	Message value:	

Message value:Fault cause: %1 binDrive object:All objects

13.2 List of faults and alarms

Reaction:	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowledge:	PULSE INHIBIT
Cause:	The unipolar level (AP/AN or BP/BN) for encoder 1 is outside the permissible tolerance.
	Fault value (r0949, interpret binary):
	Bit 0 = 1: Either AP or AN outside the tolerance.
	Bit 16 = 1: Either BP or BN outside the tolerance.
	The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV.
	The response thresholds are < 1700 mV and > 3300 mV.
	Note:
	The signal level is not evaluated unless the following conditions are satisfied:
	 Sensor Module properties available (r0459.31 = 1). monitoring active (p0437.31 = 1).
Pomodu:	
Remedy:	 make sure that the encoder cables and shielding are installed in an EMC-compliant manner. check the plug connections and contacts of the encoder cable.
	- check the short-circuit of a signal cable with mass or the operating voltage.
	- replace the encoder cable.
Reaction upon N:	
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	
F31125 (N, A)	Encoder 1: Signal level track A or B too high
Message value:	A track: %1, B-track: %2
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowledge:	PULSE INHIBIT
Cause:	The signal level (root from A ² + B ²) of the encoder exceeds the permissible limit value.
	Fault value (r0949, interpret hexadecimal):
	yyyyxxxx hex:
	yyyy = Signal level, track B (16 bits with sign).
	xxxx = Signal level, track A (16 bits with sign).
	The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
	The response threshold is > 750 mV.
	A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
	Note for Sensor Modules for resolvers (e.g. SMC10): The nominal signal level is at 2900 mV (2.0 Vrms).
	The response threshold is > 3582 mV.
	A signal level of 2900 mV peak value corresponds to the numerical value 6666 hex = 26214 dec.
	Note:
	The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
Remedy:	- check that the encoder cables and shielding are routed in compliance with EMC.
	- replace the encoder or encoder cable.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
-	

F31126 (N, A) Encoder 1: Signal level track A or B too high

Message value: Amplitude: %1, Angle: %2

Drive chiest	All objects
Drive object:	
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowledge:	
Cause:	The signal level ($ A + B $) of the encoder exceeds the permissible limit value.
	Fault value (r0949, interpret hexadecimal):
	yyyyxxx hex:
	yyyy = Angle xxxx = amplitude i.e. root of AA2 + BA2 (16 bits without eign)
	xxxx = amplitude, i.e. root of A ² + B ² (16 bits without sign) The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
	The response threshold for $(A + B)$ is > 1120 mV or the root of $(A^2 + B^2) > 955$ mV.
	A signal level of 500 mV peak value corresponds to the numerical value of 299A hex = 10650 dec.
	The angle 0 FFFF hex corresponds to 0 360 degrees of the fine position. Zero degrees is present at the negative
	zero crossover of track B.
	Note:
	The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
Remedy:	- check that the encoder cables and shielding are routed in compliance with EMC.
	- replace the encoder or encoder cable.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F31129 (N, A)	Encoder 1: Position difference hall sensor/track C/D and A/B too large
	•
Message value.	%1
Message value: Drive obiect:	
Drive object:	All objects
Drive object: Reaction:	
Drive object:	All objects Servo: ENCODER (IASC/DCBRK, NONE)
Drive object: Reaction: Acknowledge:	All objects Servo: ENCODER (IASC/DCBRK, NONE) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical.
Drive object: Reaction: Acknowledge:	All objects Servo: ENCODER (IASC/DCBRK, NONE) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater
Drive object: Reaction: Acknowledge:	All objects Servo: ENCODER (IASC/DCBRK, NONE) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical.
Drive object: Reaction: Acknowledge:	All objects Servo: ENCODER (IASC/DCBRK, NONE) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect
Drive object: Reaction: Acknowledge:	All objects Servo: ENCODER (IASC/DCBRK, NONE) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no
Drive object: Reaction: Acknowledge:	All objects Servo: ENCODER (IASC/DCBRK, NONE) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A31429. Fault value (r0949, interpret decimal): For track C/D, the following applies:
Drive object: Reaction: Acknowledge:	All objects Servo: ENCODER (IASC/DCBRK, NONE) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A31429. Fault value (r0949, interpret decimal):
Drive object: Reaction: Acknowledge:	All objects Servo: ENCODER (IASC/DCBRK, NONE) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A31429. Fault value (r0949, interpret decimal): For track C/D, the following applies: Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °). For Hall signals, the following applies:
Drive object: Reaction: Acknowledge:	All objects Servo: ENCODER (IASC/DCBRK, NONE) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A31429. Fault value (r0949, interpret decimal): For track C/D, the following applies: Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °).
Drive object: Reaction: Acknowledge:	All objects Servo: ENCODER (IASC/DCBRK, NONE) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A31429. Fault value (r0949, interpret decimal): For track C/D, the following applies: Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °). For Hall signals, the following applies: Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °). - track C or D not connected.
Drive object: Reaction: Acknowledge: Cause:	All objects Servo: ENCODER (IASC/DCBRK, NONE) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A31429. Fault value (r0949, interpret decimal): For track C/D, the following applies: Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °). For Hall signals, the following applies: Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °). - track C or D not connected. - correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D.
Drive object: Reaction: Acknowledge: Cause:	All objects Servo: ENCODER (IASC/DCBRK, NONE) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A31429. Fault value (r0949, interpret decimal): For track C/D, the following applies: Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °). For Hall signals, the following applies: Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °) track C or D not connected correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D check that the encoder cables are routed in compliance with EMC.
Drive object: Reaction: Acknowledge: Cause: Remedy:	All objects Servo: ENCODER (IASC/DCBRK, NONE) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A31429. Fault value (r0949, interpret decimal): For track C/D, the following applies: Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °). For Hall signals, the following applies: Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °) track C or D not connected correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D check that the encoder cables are routed in compliance with EMC check the adjustment of the Hall sensor.
Drive object: Reaction: Acknowledge: Cause: Remedy: Remedy:	All objects Servo: ENCODER (IASC/DCBRK, NONE) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A31429. Fault value (r0949, interpret decimal): For track C/D, the following applies: Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °). For Hall signals, the following applies: Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °). + track C or D not connected correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D check that the encoder cables are routed in compliance with EMC check the adjustment of the Hall sensor. NONE
Drive object: Reaction: Acknowledge: Cause: Remedy: Remedy: Reaction upon N: Acknowl. upon N:	All objects Servo: ENCODER (IASC/DCBRK, NONE) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A31429. Fault value (r0949, interpret decimal): For track C/D, the following applies: Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °). For Hall signals, the following applies: Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °). For track C or D not connected. • correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D. • check that the encoder cables are routed in compliance with EMC. • check the adjustment of the Hall sensor. NONE NONE
Drive object: Reaction: Acknowledge: Cause: Remedy: Remedy:	All objects Servo: ENCODER (IASC/DCBRK, NONE) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A31429. Fault value (r0949, interpret decimal): For track C/D, the following applies: Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °). For Hall signals, the following applies: Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °). For track C or D not connected. correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D. check that the encoder cables are routed in compliance with EMC. check that the encoder cables are routed in compliance with EMC. check the adjustment of the Hall sensor. NONE NONE

13.2 List of faults and alarms

F31130 (N, A)	Encoder 1: Zero mark and position error from the coarse synchronization
Message value:	Angular deviation, electrical: %1, angle, mechanical: %2
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
Acknowledge:	PULSE INHIBIT
Cause:	After initializing the pole position using track C/D, Hall signals or pole position identification routine, the zero mark was detected outside the permissible range. For distance-coded encoders, the test is carried out after passing 2 zero mark Fine synchronization was not carried out.
	When initializing via track C/D (p0404) then it is checked whether the zero mark occurs in an angular range of +/-18 ° mechanical.
	When initializing via Hall sensors (p0404) or pole position identification (p1982) it is checked whether the zero mark occur in an angular range of +/-60 ° electrical.
	Fault value (r0949, interpret hexadecimal):
	yyyyxxxx hex
	yyyy: Determined mechanical zero mark position (can only be used for track C/D).
	xxxx: Deviation of the zero mark from the expected position as electrical angle.
	Scaling: 32768 dec = 180 °
Remedy:	- check p0431 and, if necessary, correct (trigger via p1990 = 1 if necessary).
	- check that the encoder cables are routed in compliance with EMC.
	- check the plug connections.
	- if the Hall sensor is used as an equivalent for track C/D, check the connection.
	- check the connection of track C or D.
	- replace the encoder or encoder cable.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	
Acknowl. upon A:	

F31131 (N, A) Encoder 1: Position deviation incremental/absolute too high

Message value:	%1
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
Acknowledge:	PULSE INHIBIT
Cause:	Absolute encoder:
	When cyclically reading the absolute position, an excessively high difference to the incremental position was detected. The absolute position that was read is rejected.
	Limit value for the deviation:
	 EnDat encoder: Is supplied from the encoder and is a minimum of 2 quadrants (e.g. EQI 1325 > 2 quadrants, EQN 1325 > 50 quadrants).

- other encoders: 15 pulses = 60 quadrants.

Incremental encoder:

When the zero pulse is passed, a deviation in the incremental position was detected.

For equidistant zero marks, the following applies:

- the first zero mark passed supplies the reference point for all subsequent checks. The other zero marks must have n times the distance referred to the first zero mark.

For distance-coded zero marks, the following applies:

- the first zero mark pair supplies the reference point for all subsequent checks. The other zero mark pairs must have the expected distance to the first zero mark pair.

Fault value (r0949, interpret decimal):

Deviation in quadrants (1 pulse = 4 quadrants).

Remedy:	 check that the encoder cables are routed in compliance with EMC. check the plug connections. replace the encoder or encoder cable. check whether the coding disk is dirty or there are strong ambient magnetic fields. adapt the parameter for the clearance between zero marks (p0425). if message output above speed threshold, reduce filter time if necessary (p0438).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F31135	Encoder 1: Fault when determining the position (single turn)
Message value:	Fault cause: %1 bin
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowledge:	PULSE INHIBIT

13.2 List of faults and alarms

Cause: The encoder has identified a position determination fault (singleturn) and supplies status information bit by bit in an internal status/fault word. Some of these bits cause this fault to be triggered. Other bits are status displays. The status/fault word is displayed in the fault value. Note regarding the bit designation: The first designation is valid for DRIVE-CLiQ encoders, the second for EnDat 2.2 encoders. Fault value (r0949, interpret binary): Bit 0: F1 (safety status display). Bit 1: F2 (safety status display). Bit 2: Reserved (lighting). Bit 3: Reserved (signal amplitude). Bit 4: Reserved (position value). Bit 5: Reserved (overvoltage). Bit 6: Reserved (undervoltage)/hardware fault EnDat supply (--> F3x110, x = 1, 2, 3). Bit 7: Reserved (overcurrent)/EnDat encoder withdrawn when not in the parked state (--> F3x110, x = 1, 2, 3). Bit 8: Reserved (battery)/overcurrent EnDat supply (--> F3x110, x = 1, 2, 3). Bit 9: Reserved/overvoltage EnDat supply (--> F3x110, x = 1, 2, 3). Bit 11: Reserved/internal communication error (--> F3x110, x = 1, 2, 3). Bit 12: Reserved/internal communication error (--> F3x110, x = 1, 2, 3). Bit 13: Reserved/internal communication error (--> F3x110, x = 1, 2, 3). Bit 14: Reserved/internal communication error (--> F3x110, x = 1, 2, 3). Bit 15: Internal communication error (--> F3x110, x = 1, 2, 3). Bit 16: Lighting (--> F3x135, x = 1, 2, 3). Bit 17: Signal amplitude (--> F3x135, x = 1, 2, 3). Bit 18: Singleturn position 1 (--> F3x135, x = 1, 2, 3). Bit 19: Overvoltage (--> F3x135, x = 1, 2, 3). Bit 20: Undervoltage (--> F3x135, x = 1, 2, 3). Bit 21: Overcurrent (--> F3x135, x = 1, 2, 3). Bit 22: Temperature exceeded (--> F3x405, x = 1, 2, 3). Bit 23: Singleturn position 2 (safety status display). Bit 24: Singleturn system (--> F3x135, x = 1, 2, 3). Bit 25: Singleturn power down (--> F3x135, x = 1, 2, 3) Bit 26: Multiturn position 1 (--> F3x136, x = 1, 2, 3). Bit 27: Multiturn position 2 (--> F3x136, x = 1, 2, 3). Bit 28: Multiturn system (--> F3x136, x = 1, 2, 3). Bit 29: Multiturn power down (--> F3x136, x = 1, 2, 3). Bit 30: Multiturn overflow/underflow (--> F3x136, x = 1, 2, 3). Bit 31: Multiturn battery (reserved). Remedy: - determine the detailed cause of the fault using the fault value. - replace the encoder if necessary. Note: An EnDat 2.2 encoder may only be removed and inserted in the "Park" state. If an EnDat 2.2 encoder was removed when not in the "Park" state, then after inserting the encoder, a POWER ON (switchoff/switch-on) is necessary to acknowledge the fault. F31136 Encoder 1: Fault when determining the position (multiturn) Message value: Fault cause: %1 bin Drive object: All objects Reaction: Servo: ENCODER (IASC/DCBRK, NONE) PULSE INHIBIT Acknowledge:

Faults and alarms

Cause:	The encoder has identified a position determination fault (multiturn) and supplies status information bit by bit in an internal status/fault word.
	Some of these bits cause this fault to be triggered. Other bits are status displays. The status/fault word is displayed in the fault value.
	Note regarding the bit designation:
	The first designation is valid for DRIVE-CLiQ encoders, the second for EnDat 2.2 encoders.
	Fault value (r0949, interpret binary):
	Bit 0: F1 (safety status display).
	Bit 1: F2 (safety status display).
	Bit 2: Reserved (lighting).
	Bit 3: Reserved (signal amplitude).
	Bit 4: Reserved (position value).
	Bit 5: Reserved (overvoltage).
	Bit 6: Reserved (undervoltage)/hardware fault EnDat supply (> F3x110, x = 1, 2, 3).
	Bit 7: Reserved (overcurrent)/EnDat encoder withdrawn when not in the parked state (> F3x110, x = 1, 2, 3).
	Bit 8: Reserved (battery)/overcurrent EnDat supply (> F3x110, x = 1, 2, 3).
	Bit 9: Reserved/overvoltage EnDat supply (> F3x110, x = 1, 2, 3).
	Bit 11: Reserved/internal communication error (> F3x110, x = 1, 2, 3).
	Bit 12: Reserved/internal communication error (> F3x110, x = 1, 2, 3).
	Bit 13: Reserved/internal communication error (> F3x110, x = 1, 2, 3).
	Bit 14: Reserved/internal communication error (> F3x110, x = 1, 2, 3).
	Bit 15: Internal communication error (> $F3x110$, x = 1, 2, 3).
	Bit 16: Lighting (> F3x135, x = 1, 2, 3).
	Bit 17: Signal amplitude (> $F3x135$, x = 1, 2, 3).
	Bit 18: Singleturn position 1 (> $F3x135$, x = 1, 2, 3).
	Bit 19: Overvoltage (> F3x135, $x = 1, 2, 3$).
	Bit 20: Undervoltage (> $F3x135$, x = 1, 2, 3).
	Bit 21: Overcurrent (> F3x135, $x = 1, 2, 3$).
	Bit 22: Temperature exceeded (> $F3x405$, x = 1, 2, 3).
	Bit 23: Singleturn position 2 (safety status display).
	Bit 24: Singleturn system (> F3x135, x = 1, 2, 3).
	Bit 25: Singleturn power down (> F3x135, $x = 1, 2, 3$).
	Bit 20: Singletum power down (> $F3x136$, x = 1, 2, 3) Bit 26: Multitum position 1 (> $F3x136$, x = 1, 2, 3).
	Bit 22: Multitum position 2 (> $F3x136$, x = 1, 2, 3). Bit 27: Multitum position 2 (> $F3x136$, x = 1, 2, 3).
	Bit 28: Multiturn system (> $F3x136, x = 1, 2, 3$).
	Bit 29: Multiturn power down (> F3x136, x = 1, 2, 3). Bit 20: Multiturn power flow/underflow/ ($>$ F3x136, x = 1, 2, 3).
	Bit 30: Multiturn overflow/underflow (> $F3x136$, x = 1, 2, 3).
Demoden	Bit 31: Multiturn battery (reserved).
Remedy:	- determine the detailed cause of the fault using the fault value.
	- replace the encoder if necessary.
	Note:
	An EnDat 2.2 encoder may only be removed and inserted in the "Park" state.
	If an EnDat 2.2 encoder was removed when not in the "Park" state, then after inserting the encoder, a POWER ON (switch- off/switch-on) is necessary to acknowledge the fault.
F31137	Encoder 1: Fault when determining the position (single turn)
Message value:	Fault cause: %1 bin
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowledge:	PULSE INHIBIT

Cause:	A position determination fault has occurred in the DRIVE-CLiQ encoder.
	Fault value (r0949, interpret binary):
	yyxxxxx hex: yy = encoder version, xxxxxx = bit coding of the fault cause
	For yy = 8 (0000 1000 bin), the following applies:
	Bit 1: Signal monitoring (sin/cos).
	Bit 8: F1 (safety status display) error position word 1.
	Bit 9: F2 (safety status display) error position word 2.
	Bit 16: LED monitoring.
	Bit 17: Fault when determining the position (multiturn).
	Bit 23: Temperature outside the limit values.
	For yy = 11 (0000 1011 bin), the following applies:
	Bit 0: Position word 1 difference between rotation counter and software counter (XC_ERR).
	Bit 1: Position word 1 track error of the incremental signals (LIS_ERR).
	Bit 2: Position word 1 error when aligning between incremental track signals and absolute value (ST_ERR).
	Bit 3: Maximum permissible temperature exceeded (TEMP_ERR).
	Bit 4: Power supply overvoltage (MON_OVR_VOLT).
	Bit 5: Power supply overcurrent (MON_OVR_CUR).
	Bit 6: Power supply undervoltage (MON_UND_VOLT).
	Bit 7: Rotation error counter (MT_ERR).
	Bit 8: F1 (safety status display) error position word 1.
	Bit 9: F2 (safety status display) error position word 2.
	Bit 11: Position word 1 status bit: singleturn position OK (ADC_ready).
	Bit 12: Position word 1 status bit: rotation counter OK (MT_ready).
	Bit 13: Position word 1 memory error (MEM_ERR).
	Bit 14: Position word 1 absolute position error (MLS_ERR).
	Bit 15: position word 1 LED error, lighting unit error (LED_ERR).
	Bit 18: Position word 2 error when aligning between incremental track signals and absolute value (ST_ERR).
	Bit 21: Position word 2 memory error (MEM_ERR).
	Bit 22: Position word 2 absolute position error (MLS_ERR).
	Bit 23: position word 2 LED error, lighting unit error (LED_ERR).
	For yy = 12 (0000 1100 bin), the following applies:
	Bit 8: encoder fault.
	Bit 10: error in the internal position data transport.
	For yy = 14 (0000 1110 bin), the following applies:
	Bit 0: Position word 1 temperature outside limit value.
	Bit 1: Position word 1 position determination error (multiturn).
	Bit 2: Position word 1 FPGA error.
	Bit 3: Position word 1 velocity error.
	Bit 4: Position word 1 communication error between FPGAs/error in the incremental signal.
	Bit 5: Position word 1 timeout absolute value/error when determining the position (singleturn).
	Bit 6: Position word 1 internal hardware fault (clock/power monitor IC/power).
	Bit 7: Position word 1 internal error (FPGA communication/FPGA parameterization/self-test/software).
	Bit 8: F1 (safety status display) error position word 1.
	Bit 9: F2 (safety status display) error position word 2.
	Bit 16: Position word 2 temperature outside limit value.
	Bit 17: Position word 2 position determination error (multiturn).
	Bit 18: Position word 2 FPGA error.
	Bit 19: Position word 2 velocity error.

	Bit 20: Position word 2 communication error between FPGAs. Bit 21: Position word 2 position determination error (singleturn). Bit 22: Position word 2 internal hardware fault (clock/power monitor IC/power). Bit 23: Position word 2 internal error (self-test/software).
	Note: For an encoder version that is not described here, please contact the encoder manufacturer for more detailed information on the bit coding.
Remedy:	- determine the detailed cause of the fault using the fault value.
	- if required, replace the DRIVE-CLiQ encoder.
F31138	Encoder 1: Fault when determining the position (multiturn)
Message value:	Fault cause: %1 bin
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowledge:	PULSE INHIBIT

Cause:	A position determination fault has occurred in the DRIVE-CLiQ encoder. Fault value (r0949, interpret binary):
	yyxxxxx hex: yy = encoder version, xxxxxx = bit coding of the fault cause
	For yy = 8 (0000 1000 bin), the following applies:
	Bit 1: Signal monitoring (sin/cos).
	Bit 8: F1 (safety status display) error position word 1.
	Bit 9: F2 (safety status display) error position word 2.
	Bit 16: LED monitoring.
	Bit 17: Fault when determining the position (multiturn).
	Bit 23: Temperature outside the limit values.
	For yy = 11 (0000 1011 bin), the following applies:
	Bit 0: Position word 1 difference between rotation counter and software counter (XC_ERR).
	Bit 1: Position word 1 track error of the incremental signals (LIS_ERR).
	Bit 2: Position word 1 error when aligning between incremental track signals and absolute value (ST_ERR).
	Bit 3: Maximum permissible temperature exceeded (TEMP_ERR).
	Bit 4: Power supply overvoltage (MON_OVR_VOLT).
	Bit 5: Power supply overcurrent (MON_OVR_CUR).
	Bit 6: Power supply undervoltage (MON_UND_VOLT).
	Bit 7: Rotation error counter (MT_ERR).
	Bit 8: F1 (safety status display) error position word 1.
	Bit 9: F2 (safety status display) error position word 2.
	Bit 11: Position word 1 status bit: singleturn position OK (ADC_ready).
	Bit 12: Position word 1 status bit: rotation counter OK (MT_ready).
	Bit 13: Position word 1 memory error (MEM_ERR).
	Bit 14: Position word 1 absolute position error (MLS_ERR).
	Bit 15: position word 1 LED error, lighting unit error (LED_ERR).
	Bit 18: Position word 2 error when aligning between incremental track signals and absolute value (ST_ERR).
	Bit 21: Position word 2 memory error (MEM_ERR).
	Bit 22: Position word 2 absolute position error (MLS_ERR).
	Bit 23: position word 2 LED error, lighting unit error (LED_ERR).
	For yy = 14 (0000 1110 bin), the following applies:
	Bit 0: Position word 1 temperature outside limit value.
	Bit 1: Position word 1 position determination error (multiturn).
	Bit 2: Position word 1 FPGA error.
	Bit 3: Position word 1 velocity error.
	Bit 4: Position word 1 communication error between FPGAs/error in the incremental signal.
	Bit 5: Position word 1 timeout absolute value/error when determining the position (singleturn).
	Bit 6: Position word 1 internal hardware fault (clock/power monitor IC/power).
	Bit 7: Position word 1 internal error (FPGA communication/FPGA parameterization/self-test/software).
	Bit 8: F1 (safety status display) error position word 1.
	Bit 9: F2 (safety status display) error position word 2.
	Bit 16: Position word 2 temperature outside limit value.
	Bit 17: Position word 2 position determination error (multiturn).
	Bit 18: Position word 2 FPGA error.
	Bit 19: Position word 2 velocity error.
	Bit 20: Position word 2 communication error between FPGAs.
	Bit 21: Position word 2 position determination error (singleturn).
	Bit 22: Position word 2 internal hardware fault (clock/power monitor IC/power).
	Bit 23: Position word 2 internal error (self-test/software).

	Note:
	For an encoder version that is not described here, please contact the encoder manufacturer for more detailed information on the bit coding.
Remedy:	- determine the detailed cause of the fault using the fault value.
	- if required, replace the DRIVE-CLiQ encoder.

F31142 (N, A) Encoder 1: Battery voltage fault

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Message value:	-
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	When switched-off, the encoder uses a battery to back up the multiturn information. The battery voltage is no longer sufficient to check the multiturn information.
Remedy:	Replace battery.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F31150 (N, A)	Encoder 1: Initialization error
Message value:	%1
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
Acknowledge:	PULSE INHIBIT
Cause:	Encoder functionality selected in p0404 cannot be executed.
	Fault value (r0949, interpret hexadecimal):
	Encoder malfunction.
	The bit assignment corresponds to that of p0404 (e.g. bit 5 set: Error track C/D).
Remedy:	- check that p0404 is correctly set.
	- check the encoder type used (incremental/absolute) and for SMCxx, the encoder cable.
	- if relevant, note additional fault messages that describe the fault in detail.
Reaction upon N:	
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F31151 (N, A)	Encoder 1: Encoder speed for initialization AB too high
Message value:	%1
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
Acknowledge:	PULSE INHIBIT
Cause:	The encoder speed is too high while initializing the Sensor Module.
Remedy:	Reduce the speed of the encoder accordingly during initialization.
	If necessary, deactivate monitoring (p0437.29).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31152 (N, A)	Encoder 1: Max. signal frequency (track A/B) exceeded
Message value:	%1
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
Acknowledge:	PULSE INHIBIT
Cause:	The maximum signal frequency of the encoder evaluation has been exceeded.
	Fault value (r0949, interpret decimal):
	Actual signal frequency in Hz.
Remedy:	- reduce the speed.
	- Use an encoder with a lower pulse number (p0408).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F31153 (N, A)	Encoder 1: Identification error
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	An error has occurred when identifying the encoder (waiting) p0400 = 10100.
	The connected encoder was not able to be identified.
	Fault value (r0949, interpret hexadecimal):
	Bit 0: Data length incorrect.
Remedy:	Manually configure the encoder according to the data sheet.
Reaction upon N:	
Acknowl. upon N:	
•	NONE
Acknowl. upon A:	NONE
F31160 (N, A)	Encoder 1: Analog sensor channel A failed
Message value:	%1
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowledge:	PULSE INHIBIT
Cause:	The input voltage of the analog sensor is outside the permissible limits.
	Fault value (r0949, interpret decimal):
	1: Input voltage outside detectable measuring range.
	2: Input voltage outside the measuring range set in (p4673).
	3: The absolute value of the input voltage has exceeded the range limit (p4676).
Remedy:	For fault value = 1:
	- check the output voltage of the analog sensor.
	For fault value = 2:
	- check the voltage setting for each encoder period (p4673). For fault value = 3:
	- check the range limit setting and increase it if necessary (p4676).
Reaction upon N:	NONE
Acknowl. upon N:	
Reaction upon A:	
. cousion upon A.	

Acknowl. upon A: NONE

F31161 (N, A)	Encoder 1: Analog sensor channel B failed
Message value:	%1
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowledge:	PULSE INHIBIT
Cause:	The input voltage of the analog sensor is outside the permissible limits.
	Fault value (r0949, interpret decimal):
	1: Input voltage outside detectable measuring range.
	2: Input voltage outside the selected measuring range (p4675).
	3: The absolute value of the input voltage has exceeded the range limit (p4676).
Remedy:	For fault value = 1:
	- check the output voltage of the analog sensor.
	For fault value = 2:
	- check the voltage setting for each encoder period (p4675).
	For fault value = 3:
	- check the range limit setting and increase it if necessary (p4676).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F31163 (N, A)	Encoder 1: Analog sensor position value exceeds limit value
Message value:	%1
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowledge:	PULSE INHIBIT
Cause:	The position value has exceeded the permissible range of -0.5 +0.5.
	Fault value (r0949, interpret decimal):
	1: Position value from the LVDT sensor.
	2: Position value from the encoder characteristic.
Remedy:	For fault value = 1:
	- check the LVDT ratio (p4678).
	- check the reference signal connection at track B.
	For fault value = 2:
	- check the coefficients of the characteristic (p4663 p4666).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
A31400 (F, N)	Encoder 1: Zero mark distance error (alarm threshold exceeded)
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE

Cause:	The measured zero mark distance does not correspond to the parameterized zero mark distance.
	For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a zero mark is missing, depending on the pair generation, this cannot result in a fault and also has no effect in the system.
	The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
	Alarm value (r2124, interpret decimal):
	Last measured zero mark distance in increments (4 increments = 1 encoder pulse).
	The sign designates the direction of motion when detecting the zero mark distance.
Remedy:	- check that the encoder cables are routed in compliance with EMC.
	- check the plug connections.
	- check the encoder type (encoder with equidistant zero marks).
	- adapt the parameter for the distance between zero marks (p0424, p0425).
	- replace the encoder or encoder cable.
Reaction upon F:	Servo: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	
Acknowl. upon N:	NONE
A31401 (F, N)	Encoder 1: Zero mark failed (alarm threshold exceeded)
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The 1.5x parameterized zero mark distance was exceeded without a zero mark being detected.
	The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
	Alarm value (r2124, interpret decimal):
	Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse).
Remedy:	- check that the encoder cables are routed in compliance with EMC.
	- check the plug connections.
	- check the encoder type (encoder with equidistant zero marks).
	- adapt the parameter for the clearance between zero marks (p0425).
	- replace the encoder or encoder cable.
Reaction upon F:	Servo: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	
Reaction upon N:	
Acknowl. upon N:	NONE
F31405 (N, A)	Encoder 1: Temperature in the encoder evaluation exceeded
Message value:	%1
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The encoder evaluation for a motor with DRIVE-CLiQ has detected an excessively high temperature.
	The fault threshold is 125 ° C.
	Fault value (r0949, interpret decimal):
	Measured module temperature [0.1 °C].
Remedy:	Reduce the ambient temperature for the DRIVE-CLiQ connection of the motor.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A31407 (F, N)	Encoder 1: Function limit reached
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The encoder has reached one of its function limits. A service is recommended.
	Alarm value (r2124, interpret decimal):
	1: Incremental signals
	3: Absolute track
	4: Code connection
Remedy:	Perform service. Replace the encoder if necessary.
	Note:
	The actual functional reserve of an encoder can be displayed via r4651.
Reaction upon F:	Servo: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A31410 (F, N)	Encoder 1: Communication error (encoder and Sensor Module)
Message value:	Fault cause: %1 bin
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Serial communication protocol transfer error between the encoder and evaluation module.
	Alarm value (r2124, interpret binary):
	Bit 0: Alarm bit in the position protocol.

A31407 (F. N) Encoder 1: Function limit reached

Bit 1: Incorrect quiescent level on the data line.

Bit 2: Encoder does not respond (does not supply a start bit within 50 ms).

Bit 3: CRC error: The checksum in the protocol from the encoder does not match the data.

- Bit 4: Encoder acknowledgment error: The encoder incorrectly understood the task (request) or cannot execute it.
- Bit 5: Internal error in the serial driver: An illegal mode command was requested.
- Bit 6: Timeout when cyclically reading.

Bit 8: Protocol is too long (e.g. > 64 bits).

- Bit 9: Receive buffer overflow.
- Bit 10: Frame error when reading twice.
- Bit 11: Parity error.
- Bit 12: Data line signal level error during the monoflop time.

 Remedy:
 - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
 replace encoder.
 Reaction upon F: Servo: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
- Acknowl. upon F: IMMEDIATELY
- Reaction upon N: NONE

Acknowl. upon N: NONE

A31411 (F, N) Encoder 1: Encoder signals an internal alarm (detailed information)

Message value:	Fault cause: %1 bin, additional information: %2
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE

13.2 List of faults and alarms

0	The shark de succeder fault could include a share bits that the state of the second
Cause:	The absolute encoder fault word includes alarm bits that have been set.
	Alarm value (r2124, interpret binary):
	yyyyxxxx hex: yyyy = supplementary information, xxxx = fault cause yyyy = 0:
	Bit 0: Frequency exceeded (speed too high).
	Bit 1: Temperature exceeded.
	Bit 2: Control reserve, lighting system exceeded.
	Bit 3: Battery discharged.
	Bit 4: Reference point passed.
	yyyy = 1:
	Bit 0: Signal amplitude outside the control range.
	Bit 1: Error multiturn interface
	Bit 2: Internal data error (singleturn/multiturn not with single steps).
	Bit 3: Error EEPROM interface.
	Bit 4: SAR_converter error.
	Bit 5: Fault for the register data transfer.
	Bit 6: Internal error identified at the error pin (nErr).
	Bit 7: Temperature threshold exceeded or fallen below.
Remedy:	Replace encoder.
Reaction upon F:	Servo: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A31412 (F, N)	Encoder 1: Encoder signals an internal alarm
A31412 (F, N) Message value:	Encoder 1: Encoder signals an internal alarm
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Message value:	%1
Message value: Drive object:	%1 All objects
Message value: Drive object: Reaction:	%1 All objects NONE
Message value: Drive object: Reaction: Acknowledge:	%1 All objects NONE NONE
Message value: Drive object: Reaction: Acknowledge:	%1 All objects NONE NONE The encoder signals an internal alarm via serial protocol.
Message value: Drive object: Reaction: Acknowledge:	%1 All objects NONE NONE The encoder signals an internal alarm via serial protocol. Alarm value (r2124, interpret binary):
Message value: Drive object: Reaction: Acknowledge:	%1 All objects NONE NONE The encoder signals an internal alarm via serial protocol. Alarm value (r2124, interpret binary): Bit 0: Fault bit in the position protocol.
Message value: Drive object: Reaction: Acknowledge: Cause:	%1 All objects NONE NONE The encoder signals an internal alarm via serial protocol. Alarm value (r2124, interpret binary): Bit 0: Fault bit in the position protocol. Bit 1: Alarm bit in the position protocol.
Message value: Drive object: Reaction: Acknowledge: Cause:	%1 All objects NONE NONE The encoder signals an internal alarm via serial protocol. Alarm value (r2124, interpret binary): Bit 0: Fault bit in the position protocol. Bit 1: Alarm bit in the position protocol. - carry out a POWER ON (switch-off/switch-on) for all components. - check that the encoder cables are routed in compliance with EMC. - check the plug connections.
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy:	%1 All objects NONE NONE The encoder signals an internal alarm via serial protocol. Alarm value (r2124, interpret binary): Bit 0: Fault bit in the position protocol. Bit 1: Alarm bit in the position protocol. - carry out a POWER ON (switch-off/switch-on) for all components. - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace encoder.
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy: Remedy:	%1 All objects NONE NONE The encoder signals an internal alarm via serial protocol. Alarm value (r2124, interpret binary): Bit 0: Fault bit in the position protocol. Bit 1: Alarm bit in the position protocol. • carry out a POWER ON (switch-off/switch-on) for all components. • check that the encoder cables are routed in compliance with EMC. • check the plug connections. • replace encoder. Servo: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy: Remedy: Reaction upon F: Acknowl. upon F:	%1 All objects NONE NONE The encoder signals an internal alarm via serial protocol. Alarm value (r2124, interpret binary): Bit 0: Fault bit in the position protocol. Bit 1: Alarm bit in the position protocol. - carry out a POWER ON (switch-off/switch-on) for all components. - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace encoder. Servo: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy: Remedy: Reaction upon F: Acknowl. upon F: Reaction upon N:	%1 All objects NONE NONE The encoder signals an internal alarm via serial protocol. Alarm value (r2124, interpret binary): Bit 0: Fault bit in the position protocol. Bit 1: Alarm bit in the position protocol. I carry out a POWER ON (switch-off/switch-on) for all components. - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace encoder. Servo: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY NONE
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy: Remedy: Reaction upon F: Acknowl. upon F:	%1 All objects NONE NONE The encoder signals an internal alarm via serial protocol. Alarm value (r2124, interpret binary): Bit 0: Fault bit in the position protocol. Bit 1: Alarm bit in the position protocol. I carry out a POWER ON (switch-off/switch-on) for all components. - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace encoder. Servo: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY NONE
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy: Remedy: Reaction upon F: Acknowl. upon F: Reaction upon N: Acknowl. upon N:	%1 All objects NONE NONE The encoder signals an internal alarm via serial protocol. Alarm value (r2124, interpret binary): Bit 0: Fault bit in the position protocol. Bit 1: Alarm bit in the position protocol. I carry out a POWER ON (switch-off/switch-on) for all components. - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace encoder. Servo: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY NONE
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy: Remedy: Reaction upon F: Acknowl. upon F: Reaction upon N:	%1 All objects NONE NONE The encoder signals an internal alarm via serial protocol. Alarm value (r2124, interpret binary): Bit 0: Fault bit in the position protocol. Bit 1: Alarm bit in the position protocol. - carry out a POWER ON (switch-off/switch-on) for all components. - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace encoder. Servo: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY NONE NONE
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy: Remedy: Reaction upon F: Acknowl. upon F: Reaction upon N: Acknowl. upon N: Acknowl. upon N:	%1 All objects NONE NONE The encoder signals an internal alarm via serial protocol. Alarm value (r2124, interpret binary): Bit 0: Fault bit in the position protocol. Bit 1: Alarm bit in the position protocol. - carry out a POWER ON (switch-off/switch-on) for all components. - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace encoder. Servo: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY NONE NONE

Reaction:NONEAcknowledge:NONE

Cause:	The signal level (C ² + D ²) of track C or D of the encoder or from the Hall signals, is not within the tolerance bandwidth. Alarm value (r2124, interpret hexadecimal): yyyyxxxx hex:
	yyyy = Signal level, track D (16 bits with sign).
	xxxx = Signal level, track C (16 bits with sign).
	The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
	The response thresholds are < 230 mV (observe the frequency response of the encoder) and > 750 mV.
	A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
	Note:
	If the amplitude is not within the tolerance bandwidth, then it cannot be used to initialize the start position.
Remedy:	- check that the encoder cables are routed in compliance with EMC.
	- check the plug connections.
	- replace the encoder or encoder cable.
	- check the Sensor Module (e.g. contacts).
D	- check the Hall sensor box.
Reaction upon F:	
Acknowl. upon F:	
Reaction upon N:	
Acknowl. upon N:	NONE
N31415 (F, A)	Encoder 1: Signal level track A or B outside tolerance (alarm)
Message value:	Amplitude: %1, Angle: %2
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The signal level (root from A ² + B ²) of the encoder is outside the permissible tolerance. Alarm value (r2124, interpret hexadecimal):
	yyyyxxxx hex:
	yyyy = Angle
	xxxx = amplitude, i.e. root of A ² + B ² (16 bits without sign)
	The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
	The response threshold is < 230 mV (observe the frequency response of the encoder).
	A signal level of 500 mV peak value corresponds to the numerical value 299A hex = 10650 dec.
	The angle 0 FFFF hex corresponds to 0 360 degrees of the fine position. Zero degrees is present at the negative zero crossover of track B.
	Note for Sensor Modules for resolvers (e.g. SMC10):
	The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is < 1414 mV (1.0 Vrms).
	A signal level of 2900 mV peak value corresponds to the numerical value 3333 hex = 13107 dec. Note:
	The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
Remedy:	- check the speed range, frequency characteristic (amplitude characteristic) of the measuring equipment is not sufficient for the speed range.
	- check that the encoder cables and shielding are routed in compliance with EMC.
	- check the plug connections.
	- replace the encoder or encoder cable.
	- check the Sensor Module (e.g. contacts).
- " -	- if the coding disk is soiled or the lighting aged, replace the encoder.
Reaction upon F:	Servo: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	
Reaction upon A:	NONE

13.2 List of faults and alarms

Acknowl. upon A: NONE

A31418 (F, N)	Encoder 1: Speed change not plausible (alarm)
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	For an HTL/TTL encoder, the speed change has exceeded the value in p0492 over several sampling cycles. The change to the averaged speed actual value - if applicable - is monitored in the current controller sampling time. Alarm value (r2124, interpret decimal): Only for internal Siemens troubleshooting.
Remedy:	- check the tachometer feeder cable for interruptions.
	- check the grounding of the tachometer shielding.
	- if required, increase the setting of p0492.
Reaction upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A31419 (F, N)	Encoder 1: Track A or B outside tolerance
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The amplitude/phase/offset correction for track A or B is at the limit.
	Amplitude error correction: Amplitude B / Amplitude A = 0.78 1.27
	Phase: <84 degrees or >96 degrees
	SMC20: Offset correction: +/-140 mV
	SMC10: Offset correction: +/-650 mV
	Alarm value (r2124, interpret hexadecimal):
	xxxx1: Minimum of the offset correction, track B
	xxxx2: Maximum of the offset correction, track B
	xxx1x: Minimum of the offset correction, track A
	xxx2x: Maximum of the offset correction, track A
	xx1xx: Minimum of the amplitude correction, track B/A
	xx2xx: Maximum of the amplitude correction, track B/A
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Remedy:	
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	- replace the encoder or encoder cable.
Reaction upon F:	Servo: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Remedy: Reaction upon F: Acknowl upon F:	x1xxx: Minimum of the phase error correction x2xxx: Maximum of the phase error correction 1xxxx: Minimum of the cubic correction 2xxxx: Maximum of the cubic correction - check mechanical mounting tolerances for encoders without their own bearings (e.g. toothed-wheel encoders). - check the plug connections (also the transition resistance). - check the encoder signals. - replace the encoder or encoder cable. Servo: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)

A31421 (F, N)	Encoder 1: Determined commutation position incorrect (alarm)
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	A commutation position actual value sensing error was detected.
	Alarm value (r2124, interpret decimal):
	3: The absolute position of the serial protocol and track A/B differ by half an encoder pulse. The absolute position must have its zero position in the quadrants in which both tracks are negative. In the case of a fault, the position can be incorrect by one encoder pulse.
Remedy:	For alarm value = 3:
	- For a standard encoder with cable, contact the manufacturer where relevant.
	- correct the assignment of the tracks to the position value that is serially transferred. To do this, the two tracks must be connected, inverted, at the Sensor Module (interchange A with A* and B with B*) or, for a programmable encoder, check the zero offset of the position.
Reaction upon F:	Servo: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A31422 (F, N)	Encoder 1: Pulses per revolution square-wave encoder outside tolerance bandwidth
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The measured zero mark distance does not correspond to the parameterized zero mark distance.
	This alarm is triggered with active square-wave encoder PPR correction and re-parameterized fault 31131 if the accumulator contains larger values than p4683 or p4684.
	The zero mark distance for zero mark monitoring is set in p0425 (rotary encoder).
	Alarm value (r2124, interpret decimal):
	accumulated differential pulses in encoder pulses.
Remedy:	- check that the encoder cables are routed in compliance with EMC.
	- check the plug connections.
	- check the encoder type (encoder with equidistant zero marks).
	 adapt the parameter for the distance between zero marks (p0424, p0425). replace the encoder or encoder cable.
Reaction upon F:	Servo: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	
Reaction upon N:	
Acknowl. upon N:	
	NONE
A31429 (F, N)	Encoder 1: Position difference hall sensor/track C/D and A/B too large
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Acknowledge.	NONE

A31421 (F N) Encoder 1: Determined commutation position incorrect (alarm)

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Cause:	The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical.
	One period of track C/D corresponds to 360 ° mechanical.
	One period of the Hall signal corresponds to 360 ° electrical.
	The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect
	rotational sense or supply values that are not accurate enough.
	Alarm value (r2124, interpret decimal):
	For track C/D, the following applies:
	Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 $^\circ$).
	For Hall signals, the following applies:
	Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °).
Remedy:	- track C or D not connected.
	- correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D.
	- check that the encoder cables are routed in compliance with EMC.
	- check the adjustment of the Hall sensor.
Reaction upon F:	Servo: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A31431 (F, N)	Encoder 1: Position deviation incremental/absolute too high (alarm)
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	When the zero pulse is passed, a deviation in the incremental position was detected.
eddool	For equidistant zero marks, the following applies:
	- the first zero mark passed supplies the reference point for all subsequent checks. The other zero marks must have n
	times the distance referred to the first zero mark.
	For distance-coded zero marks, the following applies:
	- the first zero mark pair supplies the reference point for all subsequent checks. The other zero mark pairs must have the expected distance to the first zero mark pair.
	Alarm value (r2124, interpret decimal):
	Deviation in quadrants (1 pulse = 4 quadrants).
Remedy:	- check that the encoder cables are routed in compliance with EMC.
	- check the plug connections.
	- replace the encoder or encoder cable.
	- Clean coding disk or remove strong magnetic fields.
Reaction upon F:	
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	
Acknowl. upon N:	NUNE
A31432 (F, N)	Encoder 1: Rotor position adaptation corrects deviation
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE

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Cause:	On track A/B, pulses have been lost or too many have been counted. These pulses are presently being corrected.
	Alarm value (r2124, interpret decimal): Last measured deviation of zero mark in increments (4 increments = 1 encoder pulse).
	The sign designates the direction of motion when detecting the zero mark distance.
Bomodu <i>i</i>	- check that the encoder cables are routed in compliance with EMC.
Remedy:	- check the plug connections.
	- replace the encoder or encoder cable.
	- check encoder limit frequency.
	- adapt the parameter for the distance between zero marks (p0424, p0425).
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Reaction upon F:	Servo: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A31442 (F, N)	Encoder 1: Battery voltage alarm threshold reached
Message value:	
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Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	When switched-off, the encoder uses a battery to back up the multiturn information. The multiturn information can no longer be buffered if the battery voltage drops even further.
Remedy:	Replace battery.
Reaction upon F:	Servo: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A31443 (F, N)	Encoder 1: Signal level track C/D outside tolerance (alarm)
A31443 (F, N) Message value:	Encoder 1: Signal level track C/D outside tolerance (alarm) Fault cause: %1 bin
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Message value:	Fault cause: %1 bin
Message value: Drive object:	Fault cause: %1 bin All objects
Message value: Drive object: Reaction:	Fault cause: %1 bin All objects NONE
Message value: Drive object: Reaction: Acknowledge:	Fault cause: %1 bin All objects NONE NONE
Message value: Drive object: Reaction: Acknowledge:	Fault cause: %1 bin All objects NONE NONE The unipolar level (CP/CN or DP/DN) for encoder 1 is outside the permissible tolerance. Alarm value (r2124, interpret binary): Bit 0 = 1: Either CP or CN outside the tolerance.
Message value: Drive object: Reaction: Acknowledge:	Fault cause: %1 bin All objects NONE NONE The unipolar level (CP/CN or DP/DN) for encoder 1 is outside the permissible tolerance. Alarm value (r2124, interpret binary):
Message value: Drive object: Reaction: Acknowledge:	Fault cause: %1 bin All objects NONE NONE The unipolar level (CP/CN or DP/DN) for encoder 1 is outside the permissible tolerance. Alarm value (r2124, interpret binary): Bit 0 = 1: Either CP or CN outside the tolerance. Bit 16 = 1: Either DP or DN outside the tolerance. The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV.
Message value: Drive object: Reaction: Acknowledge:	Fault cause: %1 bin All objects NONE NONE The unipolar level (CP/CN or DP/DN) for encoder 1 is outside the permissible tolerance. Alarm value (r2124, interpret binary): Bit 0 = 1: Either CP or CN outside the tolerance. Bit 16 = 1: Either CP or DN outside the tolerance. The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV. The response thresholds are < 1700 mV and > 3300 mV.
Message value: Drive object: Reaction: Acknowledge:	Fault cause: %1 bin All objects NONE NONE The unipolar level (CP/CN or DP/DN) for encoder 1 is outside the permissible tolerance. Alarm value (r2124, interpret binary): Bit 0 = 1: Either CP or CN outside the tolerance. Bit 16 = 1: Either DP or DN outside the tolerance. The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV. The response thresholds are < 1700 mV and > 3300 mV. Note:
Message value: Drive object: Reaction: Acknowledge:	Fault cause: %1 bin All objects NONE NONE The unipolar level (CP/CN or DP/DN) for encoder 1 is outside the permissible tolerance. Alarm value (r2124, interpret binary): Bit 0 = 1: Either CP or CN outside the tolerance. Bit 16 = 1: Either DP or DN outside the tolerance. The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV. The response thresholds are < 1700 mV and > 3300 mV. Note: The signal level is not evaluated unless the following conditions are satisfied:
Message value: Drive object: Reaction: Acknowledge:	Fault cause: %1 bin All objects NONE NONE The unipolar level (CP/CN or DP/DN) for encoder 1 is outside the permissible tolerance. Alarm value (r2124, interpret binary): Bit 0 = 1: Either CP or CN outside the tolerance. Bit 16 = 1: Either DP or DN outside the tolerance. The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV. The response thresholds are < 1700 mV and > 3300 mV. Note: The signal level is not evaluated unless the following conditions are satisfied: - Sensor Module properties available (r0459.31 = 1).
Message value: Drive object: Reaction: Acknowledge: Cause:	Fault cause: %1 bin All objects NONE NONE The unipolar level (CP/CN or DP/DN) for encoder 1 is outside the permissible tolerance. Alarm value (r2124, interpret binary): Bit 0 = 1: Either CP or CN outside the tolerance. Bit 16 = 1: Either DP or DN outside the tolerance. The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV. The response thresholds are < 1700 mV and > 3300 mV. Note: The signal level is not evaluated unless the following conditions are satisfied: - Sensor Module properties available (r0459.31 = 1). - monitoring active (p0437.31 = 1).
Message value: Drive object: Reaction: Acknowledge:	Fault cause: %1 bin All objects NONE NONE The unipolar level (CP/CN or DP/DN) for encoder 1 is outside the permissible tolerance. Alarm value (r2124, interpret binary): Bit 0 = 1: Either CP or CN outside the tolerance. Bit 16 = 1: Either DP or DN outside the tolerance. The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV. The response thresholds are < 1700 mV and > 3300 mV. Note: The signal level is not evaluated unless the following conditions are satisfied: - Sensor Module properties available (r0459.31 = 1). - monitoring active (p0437.31 = 1). - check that the encoder cables and shielding are routed in compliance with EMC.
Message value: Drive object: Reaction: Acknowledge: Cause:	Fault cause: %1 bin All objects NONE NONE The unipolar level (CP/CN or DP/DN) for encoder 1 is outside the permissible tolerance. Alarm value (r2124, interpret binary): Bit 0 = 1: Either CP or CN outside the tolerance. Bit 16 = 1: Either DP or DN outside the tolerance. The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV. The response thresholds are < 1700 mV and > 3300 mV. Note: The signal level is not evaluated unless the following conditions are satisfied: - Sensor Module properties available (r0459.31 = 1). - monitoring active (p0437.31 = 1). - check that the encoder cables and shielding are routed in compliance with EMC. - check the plug connections and contacts of the encoder cable.
Message value: Drive object: Reaction: Acknowledge: Cause:	Fault cause: %1 bin All objects NONE NONE The unipolar level (CP/CN or DP/DN) for encoder 1 is outside the permissible tolerance. Alarm value (r2124, interpret binary): Bit 0 = 1: Either CP or CN outside the tolerance. Bit 16 = 1: Either DP or DN outside the tolerance. The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV. The response thresholds are < 1700 mV and > 3300 mV. Note: The signal level is not evaluated unless the following conditions are satisfied: - Sensor Module properties available (r0459.31 = 1) monitoring active (p0437.31 = 1) check that the encoder cables and shielding are routed in compliance with EMC check the plug connections and contacts of the encoder cable are the C/D tracks connected correctly (have the signal cables CP and CN or DP and DN been interchanged)?
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy:	Fault cause: %1 bin All objects NONE NONE The unipolar level (CP/CN or DP/DN) for encoder 1 is outside the permissible tolerance. Alarm value (r2124, interpret binary): Bit 0 = 1: Either CP or CN outside the tolerance. Bit 16 = 1: Either DP or DN outside the tolerance. Bit 16 = 1: Either DP or DN outside the tolerance. The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV. The response thresholds are < 1700 mV and > 3300 mV. Note: The signal level is not evaluated unless the following conditions are satisfied: - Sensor Module properties available (r0459.31 = 1). - monitoring active (p0437.31 = 1). - check that the encoder cables and shielding are routed in compliance with EMC. - check that the encoder cables and shielding are routed in compliance with EMC. - check the plug connections and contacts of the encoder cable. - are the <i>C/D</i> tracks connected correctly (have the signal cables CP and CN or DP and DN been interchanged)? - replace the encoder cable.
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy: Remedy:	Fault cause: %1 bin All objects NONE NONE The unipolar level (CP/CN or DP/DN) for encoder 1 is outside the permissible tolerance. Alarm value (r2124, interpret binary): Bit 0 = 1: Either CP or CN outside the tolerance. Bit 16 = 1: Either DP or DN outside the tolerance. The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV. The response thresholds are < 1700 mV and > 3300 mV. Note: The signal level is not evaluated unless the following conditions are satisfied: - Sensor Module properties available (r0459.31 = 1). - monitoring active (p0437.31 = 1). - check that the encoder cables and shielding are routed in compliance with EMC. - check the plug connections and contacts of the encoder cable. - are the C/D tracks connected correctly (have the signal cables CP and CN or DP and DN been interchanged)? - replace the encoder cable. Servo: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy: Remedy: Reaction upon F: Acknowl. upon F:	Fault cause: %1 bin All objects NONE NONE NONE The unipolar level (CP/CN or DP/DN) for encoder 1 is outside the permissible tolerance. Alarm value (r2124, interpret binary): Bit 0 = 1: Either CP or CN outside the tolerance. Bit 16 = 1: Either DP or DN outside the tolerance. The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV. The response thresholds are < 1700 mV and > 3300 mV. Note: The signal level is not evaluated unless the following conditions are satisfied: - Sensor Module properties available (r0459.31 = 1). - monitoring active (p0437.31 = 1). - check that the encoder cables and shielding are routed in compliance with EMC. - check the plug connections and contacts of the encoder cable. - are the C/D tracks connected correctly (have the signal cables CP and CN or DP and DN been interchanged)? - replace the encoder cable. Servo: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy: Remedy: Reaction upon F: Acknowl. upon F: Reaction upon N:	Fault cause: %1 bin All objects NONE NONE NONE The unipolar level (CP/CN or DP/DN) for encoder 1 is outside the permissible tolerance. Alarm value (r2124, interpret binary): Bit 0 = 1: Either CP or CN outside the tolerance. Bit 16 = 1: Either DP or DN outside the tolerance. The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV. The response thresholds are < 1700 mV and > 3300 mV. Note: The signal level is not evaluated unless the following conditions are satisfied: - Sensor Module properties available (r0459.31 = 1). - monitoring active (p0437.31 = 1). - check that the encoder cables and shielding are routed in compliance with EMC. - check the plug connections and contacts of the encoder cable. - are the C/D tracks connected correctly (have the signal cables CP and CN or DP and DN been interchanged)? - replace the encoder cable. Servo: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY NONE
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy: Remedy: Reaction upon F: Acknowl. upon F:	Fault cause: %1 bin All objects NONE NONE NONE The unipolar level (CP/CN or DP/DN) for encoder 1 is outside the permissible tolerance. Alarm value (r2124, interpret binary): Bit 0 = 1: Either CP or CN outside the tolerance. Bit 16 = 1: Either DP or DN outside the tolerance. The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV. The response thresholds are < 1700 mV and > 3300 mV. Note: The signal level is not evaluated unless the following conditions are satisfied: - Sensor Module properties available (r0459.31 = 1). - monitoring active (p0437.31 = 1). - check that the encoder cables and shielding are routed in compliance with EMC. - check the plug connections and contacts of the encoder cable. - are the C/D tracks connected correctly (have the signal cables CP and CN or DP and DN been interchanged)? - replace the encoder cable. Servo: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY NONE

A31460 (N)	Encoder 1: Analog sensor channel A failed
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The input voltage of the analog sensor is outside the permissible limits.
Cause.	Alarm value (r2124, interpret decimal):
	1: Input voltage outside detectable measuring range.
	2: Input voltage outside measuring range set in p4673.
	3: The absolute value of the input voltage has exceeded the range limit (p4676).
Pomodu:	For alarm value = 1:
Remedy:	- check the output voltage of the analog sensor.
	For alarm value = 2:
	- check the voltage setting for each encoder period (p4673). For alarm value = 3:
Desetion upon Nu	- check the range limit setting and increase it if necessary (p4676).
Reaction upon N:	
Acknowl. upon N:	NONE
A31461 (N)	Encoder 1: Analog sensor channel B failed
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The input voltage of the analog sensor is outside the permissible limits.
	Alarm value (r2124, interpret decimal):
	1: Input voltage outside detectable measuring range.
	2: Input voltage outside the selected measuring range (p4675).
	3: The absolute value of the input voltage has exceeded the range limit (p4676).
Remedy:	For alarm value = 1:
	- check the output voltage of the analog sensor.
	For alarm value = 2:
	- check the voltage setting for each encoder period (p4675).
	For alarm value = 3:
	- check the range limit setting and increase it if necessary (p4676).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A31462 (N)	Encoder 1: Analog sensor no channel active
Message value:	%1
Drive object:	All objects
Reaction:	
	NONE
Acknowledge:	NONE
Cause:	Channel A and B are not activated for the analog sensor.
Remedy:	- activate channel A and/or channel B (p4670).
	- check the encoder configuration (p0404.17).
Reaction upon N:	
Acknowl. upon N:	NONE

A31463 (N) E	Encoder 1: Analog sensor position value exceeds limit value
Message value: %	% 1
•	All objects
-	VONE
	NONE
•	The position value has exceeded the permissible range of -0.5 +0.5.
	Alarm value (r2124, interpret decimal):
	1: Position value from the LVDT sensor.
	2: Position value from the encoder characteristic.
	For alarm value = 1:
•	check the LVDT ratio (p4678).
	check the reference signal connection at track B.
	For alarm value = 2:
	check the coefficients of the characteristic (p4663 p4666).
Reaction upon N: N	
Acknowl. upon N: N	
A31470 (F, N) E	Encoder 1: Encoder signals an internal error (X521.7)
Message value: -	
Drive object:	All objects
Reaction:	NONE
Acknowledge: N	NONE
	For the Sensor Module Cabinet 30 (SMC30), a dirty encoder is signaled via a 0 signal at terminal X521.7.
	check the plug connections.
=	replace the encoder or encoder cable.
	Servo: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
	MMEDIATELY
-	NONE
Acknowl. upon N: N	NONE
E24500 (NL A) 1	Encoder 4. Desition tracking traversing range eveneded
,	Encoder 1: Position tracking traversing range exceeded
Message value: -	
-	All objects
	Servo: OFF1 (NONE, OFF2, OFF3)
-	MMEDIATELY
	For a configured linear axis without modulo correction, the drive/encoder has exceeded the maximum possible traversing ange. The value should be read in p0412 and interpreted as the number of motor revolutions.
F	For p0411.0 = 1, the maximum traversing range for the configured linear axis is defined to be 64x (+/- 32x) of p0421.
	For p0411.3 = 1, the maximum traversing range for the configured linear axis is preset (default value) to the highest possible
	value and is +/-p0412/2 (rounded off to complete revolutions). The highest possible value depends on the pulse number (p0408) and the fine resolution (p0419).
·	The fault should be resolved as follows:
•	select encoder commissioning (p0010 = 4).
	reset the position tracking as follows (p0411.2 = 1).
	deselect encoder commissioning (p0010 = 0).
	The fault should then be acknowledged and the absolute encoder adjusted.
	VONE
•	
Acknowl. upon N: N	NONE
	NONE

F31501 (N, A)	Encoder 1: Position tracking encoder position outside tolerance window
Message value:	%1
Drive object:	All objects
Reaction:	Servo: OFF1 (NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	When switched off, the drive/encoder was moved through a distance greater than was parameterized in the tolerance window. It is possible that there is no longer any reference between the mechanical system and encoder.
	Fault value (r0949, interpret decimal):
	Deviation (difference) to the last encoder position in increments of the absolute value.
	The sign designates the traversing direction.
	Note:
	The deviation (difference) found is also displayed in r0477.
Remedy:	Reset the position tracking as follows:
	- select encoder commissioning (p0010 = 4).
	- reset the position tracking as follows (p0411.2 = 1).
	- deselect encoder commissioning (p0010 = 0).
	The fault should then be acknowledged and, if necessary, the absolute encoder adjusted (p2507).
- <i>"</i>	See also: p0010
Reaction upon N:	NONE
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	NONE
F31502 (N, A)	Encoder 1: Encoder with measuring gear without valid signals
Message value:	
Drive object:	All objects
Reaction:	Servo: OFF1 (OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The encoder with measuring gear no longer provides any valid signals.
Remedy:	It must be ensured that all of the encoders, with mounted measuring gear, provide valid actual values in operation.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	
Acknowl. upon A:	
F31503 (N, A)	Encoder 1: Position tracking cannot be reset
Message value:	-
Drive object:	All objects
Reaction:	Servo: OFF1 (NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The position tracking for the measuring gear cannot be reset.
Remedy:	The fault should be resolved as follows:
	- select encoder commissioning (p0010 = 4).
	- reset the position tracking as follows (p0411.2 = 1).
	- deselect encoder commissioning (p0010 = 0).
	The fault should then be acknowledged and the absolute encoder adjusted.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE

Acknowl. upon A: NONE

A04700	En en den de Européien et enfeter manifesiene initiate d
A31700	Encoder 1: Functional safety monitoring initiated
Message value:	Fault cause: %1 bin
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Functional safety was activated. Self-test of the DRIVE-CLiQ encoder has detected a fault.
	Alarm value (r2124, interpret binary):
	Bit x = 1: Effectivity test x unsuccessful.
Remedy:	Replace encoder.
N31800 (F)	Encoder 1: Group signal
Message value:	
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowledge:	NONE
Cause:	The motor encoder has detected at least one fault.
Remedy:	Evaluate the other messages that are presently available.
Reaction upon F:	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowl. upon F:	
F31801 (N, A)	Encoder 1 DRIVE-CLiQ: Sign-of-life missing
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved.
	Fault cause:
	10 (= 0A hex):
	The sign-of-life bit in the receive telegram is not set.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- check the electrical cabinet design and cable routing for EMC compliance
	- replace the component involved.
Reaction upon N:	
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	NONE
F31802 (N, A)	Encoder 1: Time slice overflow
Message value:	%1
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowledge:	IMMEDIATELY
, chilomougo.	

Cause:	A time slice overflow has occurred in encoder 1.
	Fault value (r0949, interpret hexadecimal):
	yx hex: y = function involved (Siemens-internal fault diagnostics), x = time slice involved
	$\mathbf{x} = 9$:
	Time slice overflow of the fast (current controller clock cycle) time slice. x = A:
	Time slice overflow of the average time slice.
	x = C:
	Time slice overflow of the slow time slice.
	yx = 3E7:
	Timeout when waiting for SYNO (e.g. unexpected return to non-cyclic operation).
Remedy:	Increase the current controller sampling time
	Note:
	For a current controller sampling time = 31.25 μs, use an SMx20 with Article No. 6SL3055-0AA00-5xA3.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F31804 (N, A)	Encoder 1: Sensor Module checksum error
Message value:	%1
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowledge:	POWER ON (IMMEDIATELY)
Cause:	A checksum error has occurred when reading-out the program memory on the Sensor Module.
	Fault value (r0949, interpret hexadecimal):
	yyyyxxxx hex yyyy: Memory area involved.
	xxxx: Difference between the checksum at POWER ON and the actual checksum.
Remedy:	- carry out a POWER ON (switch-off/switch-on).
	- upgrade firmware to later version (>= V2.6 HF3, >= V4.3 SP2, >= V4.4).
	- check whether the permissible ambient temperature for the component is maintained.
	- replace the Sensor Module.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F31805 (N, A)	Encoder 1: EEPROM checksum error
Message value:	%1
Drive object:	
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowledge:	
Cause:	Data in the EEPROM corrupted .
	Fault value (r0949, interpret hexadecimal): 01: EEPROM access error.
	02: Too many blocks in the EEPROM.
Remedy:	Replace the module.
Reaction upon N:	
Acknowl. upon N:	

Reaction upon A: NONE Acknowl. upon A: NONE

F31806 (N, A)	Encoder 1: Initialization error
Message value:	%1
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowledge:	PULSE INHIBIT
Cause:	The encoder was not successfully initialized.
	Fault value (r0949, interpret hexadecimal):
	Bit 0, 1: Encoder initialization with the motor rotating has failed (deviation involving coarse and fine position in encoder pulses/4).
	Bit 2: Mid-voltage matching for track A unsuccessful.
	Bit 3: Mid-voltage matching for track B unsuccessful.
	Bit 4: Mid-voltage matching for acceleration input unsuccessful.
	Bit 5: Mid-voltage matching for track safety A unsuccessful.
	Bit 6: Mid-voltage matching for track safety B unsuccessful.
	Bit 7: Mid-voltage matching for track C unsuccessful.
	Bit 8: Mid-voltage matching for track D unsuccessful.
	Bit 9: Mid-voltage matching for track R unsuccessful.
	Bit 10: The difference in mid-voltages between A and B is too great (> 0.5 V)
	Bit 11: The difference in mid-voltages between C and D is too great (> 0.5 V)
	Bit 12: The difference in mid-voltages between safety A and safety B is too great (> 0.5 V)
	Bit 13: The difference in mid-voltages between A and safety B is too great (> 0.5 V)
	Bit 14: The difference in mid-voltages between B and safety A is too great (> 0.5 V) Bit 15: The standard deviation of the calculated mid-voltages is too great (> 0.3 V)
	Bit 16: Internal fault - fault when reading a register (CAFE)
	Bit 17: Internal fault - fault when writing a register (CAFE)
	Bit 18: Internal fault: No mid-voltage matching available
	Bit 19: Internal error - ADC access error.
	Bit 20: Internal error - no zero crossover found.
	Bit 28: Error while initializing the EnDat 2.2 measuring unit.
	Bit 29: Error when reading out the data from the EnDat 2.2 measuring unit.
	Bit 30: EEPROM checksum of the EnDat 2.2 measuring unit incorrect.
	Bit 31: Data of the EnDat 2.2 measuring unit inconsistent.
	Note:
	Bit 0, 1: Up to 6SL3055-0AA00-5*A0
	Bits 2 20: 6SL3055-0AA00-5*A1 and higher
Remedy:	Acknowledge fault.
	If the fault cannot be acknowledged:
	Bits 2 9: Check encoder power supply.
	Bits 2 14: Check the corresponding cable.
	Bit 15 with no other bits: Check track R, check settings in p0404.
	Bit 28: Check the cable between the EnDat 2.2 converter and the measuring unit.
- 4	Bit 29 31: Replace the defective measuring unit.
Reaction upon N:	
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	NONE

A31811 (F, N)	Encoder 1: Encoder serial number changed
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The serial number of the motor encoder of a synchronous motor has changed. The change was only checked for encoders with serial number (e.g. EnDat encoders) and build-in motors (e.g. p0300 = 401) or third-party motors (p0300 = 2).
	Cause 1:
	- the encoder was replaced.
	Cause 2:
	- a third-party, built-in or linear motor was re-commissioned.
	Cause 3:
	- the motor with integrated and adjusted encoder was replaced.
	Cause 4:
	- the firmware was updated to a version that checks the encoder serial number.
	Note:
	With closed-loop position control, the serial number is accepted when starting the adjustment (p2507 = 2).
	When the encoder is adjusted (p2507 = 3), the serial number is checked for changes and if required, the adjustment is reset (p2507 = 1).
	Proceed as follows to hide serial number monitoring:
	- set the following serial numbers for the corresponding Encoder Data Set: p0441= FF, p0442 = 0, p0443 = 0, p0444 = 0 p0445 = 0.
	- parameterize F07414 as message type N (p2118, p2119).
Remedy:	For causes 1, 2:
	Carry out an automatic adjustment using the pole position identification routine. Acknowledge fault. Initiate the pole position identification routine with p1990 = 1. Then check that the pole position identification routine is correctly executed. SERVO:
	If a pole position identification technique is selected in p1980, and if p0301 does not contain a motor type with an encode adjusted in the factory, then p1990 is automatically activated.
	or
	Set the adjustment via p0431. In this case, the new serial number is automatically accepted.
	or
	Mechanically adjust the encoder. Accept the new serial number with p0440 = 1.
	For causes 3, 4:
	Accept the new serial number with p0440 = 1.
Reaction upon F:	Servo: NONE (ENCODER, OFF2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A31811 (F, N) Encoder 1: Encoder serial number changed

F31812 (N, A) Encoder 1: Requested cycle or RX-/TX timing not supported

Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A cycle requested from the Control Unit or RX/TX timing is not supported.
	Fault value (r0949, interpret decimal):
	0: Application cycle is not supported.
	1: DRIVE-CLiQ cycle is not supported.
	2: Distance between RX and TX instants in time too low.
	3: TX instant in time too early.

Remedy:	Carry out a POWER ON (switch-off/switch-on) for all components.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31813 Encoder 1: Hardware logic unit failed

Message value:	Fault cause: %1 bin
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowledge:	PULSE INHIBIT
Cause:	The logic unit of the DRIVE-CLiQ encoder has failed.
	Fault value (r0949, interpret binary):
	Bit 0: ALU watchdog has responded.
	Bit 1: ALU has detected a sign-of-life error.
Remedy:	When the error reoccurs, replace the encoder.

F31820 (N, A) Encoder 1 DRIVE-CLiQ: Telegram error

F31020 (N, A)	Encoder I DRIVE-CLIQ: Telegram error
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder concerned.
	Fault cause:
	1 (= 01 hex):
	Checksum error (CRC error).
	2 (= 02 hex):
	Telegram is shorter than specified in the length byte or in the receive list.
	3 (= 03 hex):
	Telegram is longer than specified in the length byte or in the receive list.
	4 (= 04 hex):
	The length of the receive telegram does not match the receive list.
	5 (= 05 hex):
	The type of the receive telegram does not match the receive list.
	6 (= 06 hex):
	The address of the component in the telegram and in the receive list do not match.
	7 (= 07 hex):
	A SYNC telegram is expected - but the received telegram is not a SYNC telegram.
	8 (= 08 hex):
	No SYNC telegram is expected - but the received telegram is one.
	9 (= 09 hex):
	The error bit in the receive telegram is set.
	16 (= 10 hex):
	The receive telegram is too early.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON (switch-off/switch-on).
	- check the electrical cabinet design and cable routing for EMC compliance
	- check the DRIVE-CLiQ wiring (interrupted cable, contacts,).

Reaction upon N:	
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	NONE
F31835 (N, A)	Encoder 1 DRIVE-CLiQ: Cyclic data transfer error
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder concerned. The nodes do not send and receive in synchronism.
	Fault cause:
	33 (= 21 hex):
	The cyclic telegram has not been received.
	34 (= 22 hex):
	Timeout in the telegram receive list.
	64 (= 40 hex):
	Timeout in the telegram send list.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
Domodu	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON.
Position upon N	- replace the component involved. NONE
Reaction upon N:	NONE
•	NONE
· · · · · · ·	
Acknowl. upon A:	NONE
F31836 (N, A)	Encoder 1 DRIVE-CLiQ: Send error for DRIVE-CLiQ data
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Data were not able to be sent.
	Fault cause:
	65 (= 41 hex):
	Telegram type does not match send list.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
	Carry out a POWER ON.
Remedy:	-
Reaction upon N:	NONE
Reaction upon N: Acknowl. upon N:	NONE
Reaction upon N:	NONE NONE NONE

F31837 (N, A) Encoder 1 DRIVE-CLiQ: Component fault

Message value: Component number: %1, fault cause: %2

Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowledge:	IMMEDIATELY
Cause:	Fault detected on the DRIVE-CLiQ component concerned. Faulty hardware cannot be excluded.
	Fault cause:
	32 (= 20 hex):
	Error in the telegram header.
	35 (= 23 hex):
	Receive error: The telegram buffer memory contains an error.
	66 (= 42 hex):
	Send error: The telegram buffer memory contains an error.
	67 (= 43 hex):
	Send error: The telegram buffer memory contains an error.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- check the DRIVE-CLiQ wiring (interrupted cable, contacts,).
	- check the electrical cabinet design and cable routing for EMC compliance
	- if required, use another DRIVE-CLiQ socket (p9904).
	- replace the component involved.
Reaction upon N:	
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	NONE
F31845 (N, A)	Encoder 1 DRIVE-CLiQ: Cyclic data transfer error
F31845 (N, A) Message value:	Encoder 1 DRIVE-CLiQ: Cyclic data transfer error Component number: %1, fault cause: %2
	-
Message value:	Component number: %1, fault cause: %2
Message value: Drive object:	Component number: %1, fault cause: %2 All objects
Message value: Drive object: Reaction:	Component number: %1, fault cause: %2 All objects Servo: ENCODER (IASC/DCBRK, NONE)
Message value: Drive object: Reaction: Acknowledge:	Component number: %1, fault cause: %2 All objects Servo: ENCODER (IASC/DCBRK, NONE) IMMEDIATELY
Message value: Drive object: Reaction: Acknowledge:	Component number: %1, fault cause: %2 All objects Servo: ENCODER (IASC/DCBRK, NONE) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved.
Message value: Drive object: Reaction: Acknowledge:	Component number: %1, fault cause: %2 All objects Servo: ENCODER (IASC/DCBRK, NONE) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause:
Message value: Drive object: Reaction: Acknowledge:	Component number: %1, fault cause: %2 All objects Servo: ENCODER (IASC/DCBRK, NONE) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex):
Message value: Drive object: Reaction: Acknowledge:	Component number: %1, fault cause: %2 All objects Servo: ENCODER (IASC/DCBRK, NONE) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer.
Message value: Drive object: Reaction: Acknowledge:	Component number: %1, fault cause: %2 All objects Servo: ENCODER (IASC/DCBRK, NONE) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value:
Message value: Drive object: Reaction: Acknowledge:	Component number: %1, fault cause: %2 All objects Servo: ENCODER (IASC/DCBRK, NONE) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124):
Message value: Drive object: Reaction: Acknowledge: Cause:	Component number: %1, fault cause: %2 All objects Servo: ENCODER (IASC/DCBRK, NONE) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy:	Component number: %1, fault cause: %2 All objects Servo: ENCODER (IASC/DCBRK, NONE) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause Carry out a POWER ON (switch-off/switch-on). NONE
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy: Reemedy: Reaction upon N:	Component number: %1, fault cause: %2 All objects Servo: ENCODER (IASC/DCBRK, NONE) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause Carry out a POWER ON (switch-off/switch-on). NONE
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy: Reaction upon N: Acknowl. upon N:	Component number: %1, fault cause: %2 All objects Servo: ENCODER (IASC/DCBRK, NONE) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause Carry out a POWER ON (switch-off/switch-on). NONE NONE NONE
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy: Reaction upon N: Acknowl. upon N: Reaction upon A:	Component number: %1, fault cause: %2 All objects Servo: ENCODER (IASC/DCBRK, NONE) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause Carry out a POWER ON (switch-off/switch-on). NONE NONE NONE
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy: Reaction upon N: Acknowl. upon N: Reaction upon A:	Component number: %1, fault cause: %2 All objects Servo: ENCODER (IASC/DCBRK, NONE) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause Carry out a POWER ON (switch-off/switch-on). NONE NONE NONE NONE
Message value: Drive object: Reaction: Acknowledge: Cause: Cause: Remedy: Reaction upon N: Acknowl. upon N: Reaction upon A: Acknowl. upon A:	Component number: %1, fault cause: %2 All objects Servo: ENCODER (IASC/DCBRK, NONE) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause Carry out a POWER ON (switch-off/switch-on). NONE NONE NONE NONE
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy: Reaction upon N: Acknowl. upon N: Reaction upon A: Acknowl. upon A: F31850 (N, A)	Component number: %1, fault cause: %2 All objects Servo: ENCODER (IASC/DCBRK, NONE) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause Carry out a POWER ON (switch-off/switch-on). NONE NONE NONE NONE NONE
Message value: Drive object: Reaction: Acknowledge: Cause: Cause: Remedy: Reaction upon N: Acknowl. upon N: Reaction upon A: Acknowl. upon A: F31850 (N, A) Message value:	Component number: %1, fault cause: %2 All objects Servo: ENCODER (IASC/DCBRK, NONE) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause Carry out a POWER ON (switch-off/switch-on). NONE NONE NONE NONE NONE NONE
Message value: Drive object: Reaction: Acknowledge: Cause: Cause: Remedy: Reaction upon N: Acknowl. upon N: Reaction upon A: Acknowl. upon A: F31850 (N, A) Message value: Drive object:	Component number: %1, fault cause: %2 All objects Servo: ENCODER (IASC/DCBRK, NONE) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause Carry out a POWER ON (switch-off/switch-on). NONE NONE NONE NONE NONE

Cause:	An internal software error has occurred in the Sensor Module of encoder 1.
	Fault value (r0949, interpret decimal):
	1: Background time slice is blocked.
	2: Checksum over the code memory is not OK.
	10000: OEM memory of the EnDat encoder contains data that cannot be interpreted.
	11000 11499: Descriptive data from EEPROM incorrect.
	11500 11899: Calibration data from EEPROM incorrect.
	11900 11999: Configuration data from EEPROM incorrect.
	12000 12008: communication with analog/digital converter faulted. 16000: DRIVE-CLiQ encoder initialization application error.
	16001: DRIVE-CLiQ encoder initialization ALU error.
	16002: DRIVE-OLIQ encoder HISI / SISI initialization error.
	16003: DRIVE-CLiQ encoder safety initialization error.
	16004: DRIVE-CLiQ encoder internal system error.
Remedy:	- replace the Sensor Module.
	- if required, upgrade the firmware in the Sensor Module.
	- contact Technical Support.
Reaction upon N:	NONE
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	NONE
F31851 (N, A)	Encoder 1 DRIVE-CLiQ (CU): Sign-of-life missing
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit.
	The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit.
	Fault cause:
	10 (= 0A hex):
	The sign-of-life bit in the receive telegram is not set.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- Upgrade the firmware of the component involved.
	- carry out a POWER ON (switch-off/switch-on) for the component involved.
Reaction upon N:	
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	NONE
E21060 (NL A)	Encoder 1 DBIV/E CLIQ (CLI): Tologram organ
F31860 (N, A)	Encoder 1 DRIVE-CLiQ (CU): Telegram error
Message value:	Component number: %1, fault cause: %2
Drive object:	
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowledge:	IMMEDIATELY

Cause:	A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit.
	Fault cause:
	1 (= 01 hex):
	Checksum error (CRC error).
	2 (= 02 hex):
	Telegram is shorter than specified in the length byte or in the receive list.
	3 (= 03 hex):
	Telegram is longer than specified in the length byte or in the receive list.
	4 (= 04 hex):
	The length of the receive telegram does not match the receive list.
	5 (= 05 hex):
	The type of the receive telegram does not match the receive list.
	6 (= 06 hex): The address of the power unit in the telegram and in the receive list do not match.
	9 (= 09 hex):
	The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed.
	16 (= 10 hex):
	The receive telegram is too early.
	17 (= 11 hex):
	CRC error and the receive telegram is too early.
	18 (= 12 hex):
	The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early.
	19 (= 13 hex):
	The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early.
	20 (= 14 hex):
	The length of the receive telegram does not match the receive list and the receive telegram is too early.
	21 (= 15 hex):
	The type of the receive telegram does not match the receive list and the receive telegram is too early.
	22 (= 16 hex): The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early.
	25 (= 19 hex):
	The error bit in the receive telegram is set and the receive telegram is too early.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON (switch-off/switch-on).
	- check the electrical cabinet design and cable routing for EMC compliance
	- check the DRIVE-CLiQ wiring (interrupted cable, contacts,).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F31875 (N, A)	Encoder 1: power supply voltage failed
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowledge:	IMMEDIATELY
, with other days.	

Is failed. se: x): r supply voltage for the components has failed. rding the message value: dual information is coded as follows in the message value (r0949/r2124): hex: yy = component number, xx = error cause a POWER ON (switch-off/switch-on). e power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts,). e dimensioning of the power supply for the DRIVE-CLiQ component. r 1 DRIVE-CLiQ (CU): Cyclic data transfer error In number: %1, fault cause: %2 CODER (IASC/DCBRK, NONE) TELY CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit. s do not send and receive in synchronism.
x): r supply voltage for the components has failed. rding the message value: dual information is coded as follows in the message value (r0949/r2124): hex: yy = component number, xx = error cause : a POWER ON (switch-off/switch-on). e power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts,). e dimensioning of the power supply for the DRIVE-CLiQ component. r 1 DRIVE-CLiQ (CU): Cyclic data transfer error nt number: %1, fault cause: %2 : CODER (IASC/DCBRK, NONE) TELY CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit. s do not send and receive in synchronism.
r supply voltage for the components has failed. rding the message value: dual information is coded as follows in the message value (r0949/r2124): hex: yy = component number, xx = error cause : a POWER ON (switch-off/switch-on). e power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts,). e dimensioning of the power supply for the DRIVE-CLiQ component. e dimensioning of the power supply for the DRIVE-CLiQ component. r 1 DRIVE-CLiQ (CU): Cyclic data transfer error nt number: %1, fault cause: %2 : CODER (IASC/DCBRK, NONE) TELY CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit. s do not send and receive in synchronism.
rdig the message value: dual information is coded as follows in the message value (r0949/r2124): hex: yy = component number, xx = error cause a POWER ON (switch-off/switch-on). e power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts,). e dimensioning of the power supply for the DRIVE-CLiQ component. r 1 DRIVE-CLiQ (CU): Cyclic data transfer error nt number: %1, fault cause: %2 CODER (IASC/DCBRK, NONE) TELY CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit. s do not send and receive in synchronism.
dual information is coded as follows in the message value (r0949/r2124): hex: yy = component number, xx = error cause a POWER ON (switch-off/switch-on). e power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts,). e dimensioning of the power supply for the DRIVE-CLiQ component. T DRIVE-CLiQ (CU): Cyclic data transfer error nt number: %1, fault cause: %2 (CODER (IASC/DCBRK, NONE) TELY CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit. s do not send and receive in synchronism.
a POWER ON (switch-off/switch-on). e power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts,). e dimensioning of the power supply for the DRIVE-CLiQ component. T DRIVE-CLiQ (CU): Cyclic data transfer error nt number: %1, fault cause: %2 CODER (IASC/DCBRK, NONE) TELY CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit. s do not send and receive in synchronism.
e power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts,). e dimensioning of the power supply for the DRIVE-CLiQ component. T 1 DRIVE-CLiQ (CU): Cyclic data transfer error nt number: %1, fault cause: %2 CODER (IASC/DCBRK, NONE) TELY CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit. s do not send and receive in synchronism.
e dimensioning of the power supply for the DRIVE-CLiQ component. T 1 DRIVE-CLiQ (CU): Cyclic data transfer error nt number: %1, fault cause: %2 CODER (IASC/DCBRK, NONE) TELY CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit. s do not send and receive in synchronism.
r 1 DRIVE-CLiQ (CU): Cyclic data transfer error nt number: %1, fault cause: %2 CODER (IASC/DCBRK, NONE) TELY CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit. s do not send and receive in synchronism.
nt number: %1, fault cause: %2 CODER (IASC/DCBRK, NONE) TELY CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit. s do not send and receive in synchronism.
nt number: %1, fault cause: %2 CODER (IASC/DCBRK, NONE) TELY CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit. s do not send and receive in synchronism.
nt number: %1, fault cause: %2 CODER (IASC/DCBRK, NONE) TELY CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit. s do not send and receive in synchronism.
nt number: %1, fault cause: %2 CODER (IASC/DCBRK, NONE) TELY CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit. s do not send and receive in synchronism.
nt number: %1, fault cause: %2 CODER (IASC/DCBRK, NONE) TELY CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit. s do not send and receive in synchronism.
nt number: %1, fault cause: %2 CODER (IASC/DCBRK, NONE) TELY CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit. s do not send and receive in synchronism.
ICODER (IASC/DCBRK, NONE) TELY CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit. s do not send and receive in synchronism.
TELY CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit. s do not send and receive in synchronism.
CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit. s do not send and receive in synchronism.
s do not send and receive in synchronism.
s do not send and receive in synchronism.
se:
nex):
e bit in the receive telegram not set and the receive telegram is too early.
ex):
telegram has not been received.
ex):
the telegram receive list.
ex):
the telegram send list.
ex):
e transition to cyclic operation. rding the message value:
dual information is coded as follows in the message value (r0949/r2124):
hex: $yy = component number, xx = error cause$
e power supply voltage of the component involved.
a POWER ON.
he component involved.
ne r 1

Cause:	A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit.
	Data were not able to be sent.
	Fault cause:
	65 (= 41 hex):
	Telegram type does not match send list.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON.
	- check whether the firmware version of the encoder (r0148) matches the firmware version of Control Unit (r0018).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31887 (N, A) Encoder 1 DRIVE-CLiQ (CU): Component fault

Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowledge:	IMMEDIATELY
Cause:	Fault detected on the DRIVE-CLiQ component involved (Sensor Module for encoder 1). Faulty hardware cannot be excluded.
	Fault cause:
	32 (= 20 hex):
	Error in the telegram header.
	35 (= 23 hex):
	Receive error: The telegram buffer memory contains an error.
	66 (= 42 hex):
	Send error: The telegram buffer memory contains an error.
	67 (= 43 hex):
	Send error: The telegram buffer memory contains an error.
	96 (= 60 hex):
	Response received too late during runtime measurement.
	97 (= 61 hex):
	Time taken to exchange characteristic data too long.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- check the DRIVE-CLiQ wiring (interrupted cable, contacts,).
	- check the electrical cabinet design and cable routing for EMC compliance
	- if required, use another DRIVE-CLiQ socket (p9904).
	- replace the component involved.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31895 (N, A)	Encoder 1 DRIVE-CLiQ (CU): Alternating cyclic data transfer error
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects

Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit.
	Fault cause:
	11 (= 0B hex):
	Synchronization error during alternating cyclic data transfer.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
Demedur	0000yyxx hex: yy = component number, xx = error cause
Remedy:	Carry out a POWER ON.
Reaction upon N:	
Acknowl. upon N: Reaction upon A:	
Acknowl. upon A:	
Acknowl upon A.	NONE
F31896 (N, A)	Encoder 1 DRIVE-CLiQ (CU): Inconsistent component properties
Message value:	Component number: %1
Drive object:	All objects
Reaction:	Servo: OFF2 (ENCODER, IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	The properties of the DRIVE-CLiQ component (Sensor Module for encoder 1), specified by the fault value, have changed
	in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced.
	Fault value (r0949, interpret decimal):
	Component number.
Remedy:	- carry out a POWER ON.
•	- when a component is replaced, the same component type and if possible the same firmware version should be used.
	- when a cable is replaced, only cables whose length is the same as or as close as possible to the length of the original cables should be used (ensure compliance with the maximum cable length).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F31899 (N, A)	
Message value:	New message: %1
Drive object:	
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	A fault occurred on the Sensor Module for encoder 1 that cannot be interpreted by the Control Unit firmware.
	This can occur if the firmware on this component is more recent than the firmware on the Control Unit. Fault value (r0949, interpret decimal):
	Fault number.
	Note:
	If required, the significance of this new fault can be read about in a more recent description of the Control Unit.
Remedy:	- replace the firmware on the Sensor Module by an older firmware version (r0148).
-	- upgrade the firmware on the Control Unit (r0018).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A31902 (F, N)	Encoder 1: SPI-BUS error occurred
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Error when operating the internal SPI bus.
	Alarm value (r2124, interpret hexadecimal):
	Only for internal Siemens troubleshooting.
Remedy:	- replace the Sensor Module.
	- if required, upgrade the firmware in the Sensor Module.
Depation when Fr	- contact Technical Support.
Reaction upon F:	Servo: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	
Reaction upon N: Acknowl. upon N:	NONE
Acknowl. upon N.	NONE
A31903 (F, N)	Encoder 1: I2C-BUS error occurred
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Error when operating the internal I2C bus.
	Alarm value (r2124, interpret hexadecimal):
	Only for internal Siemens troubleshooting.
Remedy:	- replace the Sensor Module.
	- if required, upgrade the firmware in the Sensor Module.
	- contact Technical Support.
Reaction upon F:	Servo: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
F31905 (N, A)	Encoder 1: Encoder parameterization error
Message value:	Parameter: %1, supplementary information: %2
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)

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IMMEDIATELY

Acknowledge:

	For an EnDat/SSI encoder, the absolute position in the protocol must be less than or equal to 30 bits.
	yyyy = 0: No additional information available.
	yyyy = 1:
	The component does not support HTL level (p0405.1 = 0) combined with track monitoring A/B <> -A/B (p0405.2 = 1). yyyy = 2:
	A code number for an identified encoder has been entered into p0400, however, no identification was carried out. Please start a new encoder identification.
	уууу = 3:
	A code number for an identified encoder has been entered into p0400, however, no identification was carried out. Please select a listed encoder in p0400 with a code number < 10000.
	уууу = 4:
	This component does not support SSI encoders (p0404.9 = 1) without track A/B.
	yyyy = 5:
	For SQW encoder, value in p4686 greater than in p0425.
	yyyy = 6:
	DRIVE-CLiQ encoder cannot be used with this firmware version. yyyy = 7:
	For an SQW encoder, the XIST1 correction (p0437.2) is only permitted for equidistant zero marks.
	yyyy = 8:
	The motor pole pair width is not supported by the linear scale being used.
	yyyy = 9:
	The length of the position in the EnDat protocol may be a maximum of 32 bits.
	yyyy = 10:
	The connected encoder is not supported.
	уууу = 11:
	The hardware does not support track monitoring.
Remedy:	- check whether the connected encoder type matches the encoder that has been parameterized.
	- correct the parameter specified by the fault value (r0949) and p0187.
	- re parameter number = 314:
	- check the pole pair number and measuring gear ratio. The quotient of the "pole pair number" divided by the "measuring gear ratio" must be less than or equal to 1000 ((r0313 * p0433) / p0432 <= 1000).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F31912	Encoder 1: Device combination is not permissible
Message value:	%1
Drive object:	All objects
Reaction:	Servo: ENCODER (IASC/DCBRK, NONE)
Acknowledge:	PULSE INHIBIT

Cause:	The selected device combination is not supported.
	Fault value (r0949, interpret decimal):
	1003:
	The connected measuring unit cannot be operated with the EnDat 2.2 converter. For instance, the measuring unit has a pulse number/resolution of 2^n.
	1005:
	The type of measuring unit (incremental) is not supported by the EnDat 2.2 converter.
	1006:
	The maximum duration of the EnDat transfer (31.25 µs) was exceeded.
	2001:
	The set combination of current controller cycle, DP cycle and Safety cycle is not supported by the EnDat 2.2 converter.
	2002:
	The resolution of the linear measuring unit does not match the pole pair width of the linear motor
	Pole pair width, minimum = p0422 * 2^20
Remedy:	For fault value = 1003, 1005, 1006:
	- Use a measuring unit that is permissible.
	For fault value = 2001:
	- set a permissible cycle combination (if required, use standard settings).
	For fault value = 2002:
	- Use a measuring unit with a lower resolution (p0422).

A31915 (F, N) Encoder 1: Encoder configuration error

Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The configuration for encoder 1 is incorrect.
	Alarm value (r2124, interpret decimal):
	1:
	Re-parameterization between fault/alarm is not permissible.
	419:
	When the fine resolution Gx_XIST2 is configured, the encoder identifies a maximum possible absolute position actual value (r0483) that can no longer be represented within 32 bits.
Remedy:	For alarm value = 1:
	No re-parameterization between fault/alarm.
	For alarm value = 419:
	Reduce the fine resolution (p0419) or deactivate the monitoring (p0437.25), if the complete multiturn range is not required.
Reaction upon F:	Servo: NONE (ENCODER, IASC/DCBRK)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
E31916 (N_A)	Encoder 1: Encoder parameterization error

Encoder 1: Encoder parameterization error
Parameter: %1, supplementary information: %2
All objects
Servo: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
IMMEDIATELY

Cause:	An encoder parameter was detected as being incorrect.
	It is possible that the parameterized encoder type does not match the connected encoder.
	The parameter involved can be determined as follows:
	- determine the parameter number using the fault value (r0949).
	- determine the parameter index (p0187).
	Fault value (r0949, interpret decimal):
Demode	Parameter number.
Remedy:	- check whether the connected encoder type matches the encoder that has been parameterized.
Depation upon Nu	- correct the parameter specified by the fault value (r0949) and p0187.
Reaction upon N:	
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	NONE
A31920 (F. N)	Encoder 1: Temperature sensor fault (motor)
Message value:	Fault cause: %1, channel number: %2
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The motor detected a fault when evaluating the temperature sensor.
Oduše.	Fault cause:
	1 (= 01 hex):
	Wire breakage or sensor not connected.
	KTY: R > 1630 Ohm, PT1000: R > 1720 Ohm
	2 (= 02 hex):
	Measured resistance too low.
	PTC: R < 20 Ohm, KTY: R < 50 Ohm, PT1000: R < 603 Ohm
	Additional values:
	Only for internal Siemens troubleshooting.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = channel number, xx = error cause
Remedy:	- check that the encoder cable is the correct type and is correctly connected.
	- check the temperature sensor selection in p0600 to p0603.
	- replace the Sensor Module (hardware defect or incorrect calibration data).
	Servo: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	
Reaction upon N:	
Acknowl. upon N:	NONE
A31930 (N)	Encoder 1: Data logger has saved data
Message value:	
Drive object:	All objects
Reaction:	All objects
	NONE
Acknowledge:	NONE

Cause:	For the activated function "Data logger" (p0437.0 = 1) a fault has occurred with the Sensor Module. This alarm indicates that the diagnostics data corresponding to the fault was saved on the memory card. The diagnostics data is saved in the following folder: /USER/SINAMICS/DATA/SMTRC00.BIN
	/USER/SINAMICS/DATA/SMTRC07.BIN /USER/SINAMICS/DATA/SMTRCIDX.TXT
	The following information is contained in the TXT file:
	- Display of the last written BIN file.
	- Number of write operations that are still possible (from 10000 downwards).
	Note:
	Only Siemens can evaluate the BIN files.
Remedy:	Not necessary.
	This alarm is automatically withdrawn.
	The data logger is ready to record the next fault case.
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A31940 (F, N) Encoder 1: Spindle sensor S1 voltage incorrect

Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The voltage of analog sensor S1 is outside the permissible range.
	Alarm value (r2124, interpret decimal):
	Signal level from sensor S1.
	Note:
	A signal level of 500 mV corresponds to the numerical value 500 dec.
Remedy:	- check the clamped tool.
	- check the tolerance and if required, adapt (p5040).
	- check the thresholds and if required, adapt (p5041).
	- check analog sensor S1 and connections.
Reaction upon F:	Servo: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F31950 Encoder 1: Internal software error

Message value:	%1
Drive object:	All objects
Reaction:	ENCODER (OFF2)
Acknowledge:	POWER ON
Cause:	An internal software error has occurred.
	Fault value (r0949, interpret decimal):
	The fault value contains information regarding the fault source.
	Only for internal Siemens troubleshooting.
Remedy:	- if necessary, upgrade the firmware in the Sensor Module to a later version.
	- contact Technical Support.

A31999 (F, N)	Encoder 1: Unknown alarm
Message value:	New message: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	A alarm has occurred on the Sensor Module for encoder 1 that cannot be interpreted by the Control Unit firmware. This can occur if the firmware on this component is more recent than the firmware on the Control Unit. Alarm value (r2124, interpret decimal): Alarm number. Note: If required, the significance of this new alarm can be read about in a more recent description of the Control Unit.
Remedy:	- replace the firmware on the Sensor Module by an older firmware version (r0148).
	- upgrade the firmware on the Control Unit (r0018).
Reaction upon F:	Servo: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
F32100 (N, A)	Encoder 2: Zero mark distance error
Message value:	%1
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge:	PULSE INHIBIT
Cause:	The measured zero mark distance does not correspond to the parameterized zero mark distance.
	For distance-coded encoders, the zero mark distance is determined from zero mark detected pairs. This means that if a zero mark is missing, depending on the pair generation, this cannot result in a fault and also has no effect in the system The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder). Fault value (r0949, interpret decimal):
	Last measured zero mark distance in increments (4 increments = 1 encoder pulse).
	The sign designates the direction of motion when detecting the zero mark distance.
Remedy:	- check that the encoder cables are routed in compliance with EMC.
-	- check the plug connections.
	- check the encoder type (encoder with equidistant zero marks).
	- adapt the parameter for the distance between zero marks (p0424, p0425).
	- if message output above speed threshold, reduce filter time if necessary (p0438).
	- replace the encoder or encoder cable.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F32101 (N, A)	Encoder 2: Zero mark failed
Message value:	%1
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge:	PULSE INHIBIT
Cause:	The 1.5 x parameterized zero mark distance was exceeded.
	The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder). Fault value (r0949, interpret decimal):
	Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse)

Remedy:	 check that the encoder cables are routed in compliance with EMC. check the plug connections. check the encoder type (encoder with equidistant zero marks). adapt the parameter for the clearance between zero marks (p0425). if message output above speed threshold, reduce filter time if necessary (p0438). when p0437.1 is active, check p4686. replace the encoder or encoder cable.
Reaction upon N:	
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	NONE
F32103 (N, A)	Encoder 2: Signal level zero track (track R) outside tolerance
Message value:	R track: %1
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The zero mark signal level (track R) does not lie within the tolerance bandwidth for encoder 2.
	The fault can be initiated when the unipolar voltage level is exceeded (RP/RN) or if the differential amplitude is undershot.
	Fault value (r0949, interpret hexadecimal):
	yyyyxxxx hex: yyyy = 0, xxxx = Signal level, track R (16 bits with sign)
	The response thresholds of the unipolar signal levels of the encoder are between < 1400 mV and > 3500 mV.
	The response threshold for the differential signal level of the encoder is < -1600 mV.
	A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec. Note:
	The analog value of the amplitude error is not measured at the same time with the hardware fault output by the Sensor Module.
	The fault value can only be represented between -32768 32767 dec (-770 770 mV).
	The signal level is not evaluated unless the following conditions are satisfied:
	- Sensor Module properties available (r0459.31 = 1).
	- monitoring active (p0437.31 = 1).
Remedy:	- check the speed range; frequency characteristic (amplitude characteristic) of the measuring equipment might not be sufficient for the speed range
	- check that the encoder cables and shielding are routed in compliance with EMC.
	- check the plug connections and contacts of the encoder cable.
	- check the encoder type (encoder with zero marks).
	- check whether the zero mark is connected and the signal cables RP and RN have been connected correctly (not connected with the incorrect polarity).
	- replace the encoder cable.
	- if the coding disk is soiled or the lighting aged, replace the encoder.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F32110 (N, A)	Encoder 2: Serial communications error
Message value:	Fault cause: %1 bin
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
	PULSE INHIBIT
Acknowledge:	

Cause:	Serial communication protocol transfer error between the encoder and evaluation module. Fault value (r0949, interpret binary):
	Bit 0: Alarm bit in the position protocol.
	Bit 1: Incorrect quiescent level on the data line.
	Bit 2: Encoder does not respond (does not supply a start bit within 50 ms).
	Bit 3: CRC error: The checksum in the protocol from the encoder does not match the data.
	Bit 4: Encoder acknowledgment error: The encoder incorrectly understood the task (request) or cannot execute it.
	Bit 5: Internal error in the serial driver: An illegal mode command was requested.
	Bit 6: Timeout when cyclically reading.
	Bit 7: Timeout for the register communication.
	Bit 8: Protocol is too long (e.g. > 64 bits).
	Bit 9: Receive buffer overflow.
	Bit 10: Frame error when reading twice.
	Bit 11: Parity error.
	Bit 12: Data line signal level error during the monoflop time.
	Bit 13: Data line incorrect.
	Bit 14: Fault for the register communication.
	Bit 15: Internal communication error.
	Note:
	For an EnDat 2.2 encoder, the significance of the fault value for F3x135 (x = 1, 2, 3) is described.
Remedy:	For fault value, bit 0 = 1:
-	- Enc defect F31111 may provide additional details.
	For fault value, bit 1 = 1:
	- incorrect encoder type / replace the encoder or encoder cable.
	For fault value, bit 2 = 1:
	- incorrect encoder type / replace the encoder or encoder cable.
	For fault value, bit 3 = 1:
	- EMC / connect the cable shield, replace the encoder or encoder cable.
	For fault value, bit 4 = 1:
	- EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.
	For fault value, bit 5 = 1:
	- EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.
	For fault value, bit 6 = 1:
	- Update Sensor Module firmware.
	For fault value, bit 7 = 1:
	- incorrect encoder type / replace the encoder or encoder cable.
	For fault value, bit 8 = 1:
	- check parameterization (p0429.2).
	For fault value, bit 9 = 1:
	- EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.
	For fault value, bit 10 = 1:
	- check parameterization (p0429.2, p0449).
	For fault value, bit 11 = 1:
	- check parameterization (p0436).
	For fault value, bit 12 = 1:
	- check parameterization (p0429.6).
	For fault value, bit 13 = 1:
	- check data line.
	For fault value, bit 14 = 1:
	- incorrect encoder type / replace the encoder or encoder cable.
Reaction upon N:	NONE
Acknowl. upon N:	NONE

Acknowl. upon A: NONE F32111 (N. A) Encoder 2: Encoder signals an internal error (detailed information) Message value: Fault cause: %1 bin, additional information: %2 Drive object: All objects Reaction: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowledge: PULSE INHIBIT The encoder error word provides detailed information (error bit). Cause: For p0404.8 = 0, the following applies: Fault value for internal Siemens troubleshooting. For p0404.8 = 1, the following applies: Fault value (r0949, interpret binary): yyyyxxxx hex: yyyy = supplementary information, xxxx = fault cause yyyy = 0: Bit 0: Lighting system failed. Bit 1: Signal amplitude too low. Bit 2: Position value incorrect. Bit 3: Encoder power supply overvoltage condition. Bit 4: Encoder power supply undervoltage condition. Bit 5: Encoder power supply overcurrent condition. Bit 6: The battery must be changed. Remedy: For yyyy = 0: For fault value, bit 0 = 1: Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor. For fault value, bit 1 = 1: Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor. For fault value, bit 2 = 1: Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor. For fault value, bit 3 = 1: 5 V power supply voltage fault. When using an SMC: Check the plug-in cable between the encoder and SMC or replace the SMC. When a motor encoder with a direct DRIVE-CLiQ connection is used: Replace the motor. For fault value, bit 4 = 1: 5 V power supply voltage fault. When using an SMC: Check the plug-in cable between the encoder and SMC or replace the SMC. When using a motor with DRIVE-CLiQ: Replace the motor. For fault value, bit 5 = 1: Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor. For fault value, bit 6 = 1: The battery must be changed (only for encoders with battery back-up). For yyyy = 1: Encoder is defective. Replace encoder. Reaction upon N: NONE Acknowl. upon N: NONE Reaction upon A: NONE Acknowl. upon A: NONE

F32112 (N, A) Encoder 2: Encoder signals an internal error

Message value:

Drive object:	All objects
Binto objeca	7 11 00 0000

%1

Reaction upon A: NONE

Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	
Cause:	The encoder signals a set error bit via the serial protocol.
	Fault value (r0949, interpret binary):
_ .	Bit 0: Fault bit in the position protocol.
Remedy:	For fault value, bit 0 = 1:
	In the case of an EnDat encoder, F31111 may provide further details.
Reaction upon N:	
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	NONE
F32115 (N, A)	Encoder 2: Signal level track A or B too low
Message value:	A track: %1, B-track: %2
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	PULSE INHIBIT
Cause:	The signal level (root from A ² + B ²) of the encoder falls below the permissible limit value.
	Fault value (r0949, interpret hexadecimal):
	yyyyxxxx hex:
	yyyy = Signal level, track B (16 bits with sign).
	xxxx = Signal level, track A (16 bits with sign).
	The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
	The response threshold is < 170 mV (input frequency <= 256 kHz) or < 120 mV (input frequency > 256 kHz).
	A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
	Note for Sensor Modules for resolvers (e.g. SMC10):
	The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is < 1070 mV.
	A signal level of 2900 mV peak value corresponds to the numerical value 6666 hex = 26214 dec.
	Note:
	The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
Remedy:	- check that the encoder cables and shielding are routed in compliance with EMC.
	- check the plug connections.
	- replace the encoder or encoder cable.
	- check the Sensor Module (e.g. contacts).
	The following applies to measuring systems without their own bearing system:
	- adjust the scanning head and check the bearing system of the measuring wheel.
	The following applies for measuring systems with their own bearing system: - ensure that the encoder housing is not subject to any axial force.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
•	
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F32116 (N, A)	Encoder 2: Signal level track A or B too low
Message value:	A track: %1, B-track: %2
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY

Cause:	The signal level of the rectified encoder signals A and B of the encoder fall below the permissible limit value.
	Fault value (r0949, interpret hexadecimal):
	yyyyxxxx hex:
	yyyy = Signal level, track B (16 bits with sign).
	xxxx = Signal level, track A (16 bits with sign).
	The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
	The response threshold is < 130 mV.
	A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
	Note:
	The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
Remedy:	- check that the encoder cables and shielding are routed in compliance with EMC.
	- check the plug connections.
	- replace the encoder or encoder cable.
	- check the Sensor Module (e.g. contacts).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
• •	Encoder 2: Inversion error signals A/B/R
Message value:	Fault cause: %1 bin
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	For a square-wave encoder (bipolar, double ended) signals A*, B* and R* are not inverted with respect to signals A, B and R.
	Fault value (r0949, interpret binary):
	Bits 0 15: Only for internal Siemens troubleshooting.
	Bit 16: Error track A.
	Bit 17: Error track B.
	Bit 18: Error track R.
	For SMC30 (only Article No. 6SL3055-0AA00-5CA0 and 6SL3055-0AA00-5CA1), CUA32, and CU310, the following applies:
	A square-wave encoder without track R is used and track monitoring (p0405.2 = 1) is activated.
Remedy:	- check the encoder/cable.
	- Does the encoder supply signals and the associated inverted signals?
	For SMC30 (only Article Number 6SL3055-0AA00-5CA0 and 6SL3055-0AA00-5CA1), the following applies:
	- check the setting of p0405 (p0405.2 = 1 is only possible if the encoder is connected at X520). For a square-wave encoder without track R, the following jumpers must be set for the connection at X520 (SMC30) or X23
	(CUA32, CU310):
	- pin 10 (reference signal R) <> pin 7 (encoder power supply, ground)
	- pin 11 (reference signal R inverted) <> pin 4 (encoder power supply)
Reaction upon N:	
Acknowl. upon N:	NONE

- Acknowl. upon N: NONE Reaction upon A: NONE
- Acknowl. upon A: NONE

Encoder 2: Speed change not plausible
%1
All objects
Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
PULSE INHIBIT
For an HTL/TTL encoder, the speed change has exceeded the value in p0492 over several sampling cycles. The change to the averaged speed actual value - if applicable - is monitored in the current controller sampling time. Fault value (r0949, interpret decimal): Only for internal Siemens troubleshooting.
- check the tachometer feeder cable for interruptions.
- check the grounding of the tachometer shielding.
- if required, increase the maximum speed difference per sampling cycle (p0492).
NONE
NONE
NONE
NONE
Encoder 2: Encoder power supply fault
Fault cause: %1 bin
All objects
Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
PULSE INHIBIT
An encoder power supply fault was detected.
Fault value (r0949, interpret binary):
Bit 0: Undervoltage condition on the sense line.
Bit 1: Overcurrent condition for the encoder power supply.
Bit 2: Overcurrent condition for encoder power supply on cable resolver excitation negative.
Bit 3: Overcurrent condition for encoder power supply on cable resolver excitation positive.
Bit 4: The 24 V power supply through the Power Module (PM) is overloaded.
Bit 5: Overcurrent at the EnDat connection of the converter.
bit 5. Overednent at the Enbat connection of the converter.
Bit 6: Overvoltage at the EnDat connection of the converter.
Bit 6: Overvoltage at the EnDat connection of the converter.

Remedy:	For fault value, bit 0 = 1:
	- correct encoder cable connected?
	- check the plug connections of the encoder cable.
	- SMC30: Check the parameterization (p0404.22).
	For fault value, bit 1 = 1:
	- correct encoder cable connected?
	- replace the encoder or encoder cable.
	For fault value, bit 2 = 1:
	- correct encoder cable connected?
	- replace the encoder or encoder cable. For fault value, bit 3 = 1:
	- correct encoder cable connected?
	- replace the encoder or encoder cable.
	For fault value, bit 5 = 1:
	- Measuring unit correctly connected at the converter?
	- Replace the measuring unit or the cable to the measuring unit.
	For fault value, bit 6, 7 = 1:
	- Replace the defective EnDat 2.2 converter.
Reaction upon N:	
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	
, control appendia	
F32121 (N, A)	Encoder 2: Determined commutation position incorrect
Message value:	-
Drive object:	All objects
Reaction:	OFF1 (NONE, OFF2, OFF3)
Acknowledge:	PULSE INHIBIT
Cause:	A commutation position actual value sensing error was detected.
Remedy:	Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	
F32122	Encoder 2: Sensor Module hardware fault
Message value:	%1
Drive object:	All objects
Reaction:	OFF1
Acknowledge:	IMMEDIATELY
Cause:	An internal Sensor Module hardware fault was detected.
	Fault value (r0949, interpret decimal):
	1: Reference voltage error.
	2: Internal undervoltage.
	3: Internal overvoltage.
Remedy:	Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module.
F32123 (N, A)	Encoder 2: Signal level A/B outside tolerance
Message value:	Fault cause: %1 bin
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Drive object: All objects

13.2 List of faults and alarms

Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The unipolar level (AP/AN or BP/BN) for encoder 2 is outside the permissible tolerance.
	Fault value (r0949, interpret binary):
	Bit 0 = 1: Either AP or AN outside the tolerance.
	Bit 16 = 1: Either BP or BN outside the tolerance.
	The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV.
	The response thresholds are < 1700 mV and > 3300 mV. Note:
	The signal level is not evaluated unless the following conditions are satisfied:
	- Sensor Module properties available (r0459.31 = 1).
	- monitoring active (p0437.31 = 1).
Remedy:	- make sure that the encoder cables and shielding are installed in an EMC-compliant manner.
•	- check the plug connections and contacts of the encoder cable.
	- check the short-circuit of a signal cable with mass or the operating voltage.
	- replace the encoder cable.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F32125 (N, A)	Encoder 2: Signal level track A or B too high
Message value:	A track: %1, B-track: %2
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge:	PULSE INHIBIT
Cause:	The signal level (root from A ² + B ²) of the encoder exceeds the permissible limit value.
	Fault value (r0949, interpret hexadecimal):
	yyyyxxxx hex:
	yyyy = Signal level, track B (16 bits with sign).
	xxxx = Signal level, track A (16 bits with sign). The nominal signal level of the encoder must lie in the range $275 \text{ m}/(46.00 \text{ m})/(500 \text{ m})/(25/(20.07))$
	The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %). The response threshold is > 750 mV.
	A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
	Note for Sensor Modules for resolvers (e.g. SMC10):
	The nominal signal level is at 2900 mV (2.0 Vrms).
	The response threshold is > 3582 mV.
	A signal level of 2900 mV peak value corresponds to the numerical value 6666 hex = 26214 dec. Note:
	The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
Remedy:	 check that the encoder cables and shielding are routed in compliance with EMC. replace the encoder or encoder cable.
Reaction upon N:	NONE
Acknowl. upon N:	
Reaction upon A:	NONE
Acknowl. upon A:	

F32126 (N, A) Encoder 2: Signal level track A or B too high

Message value: Amplitude: %1, Angle: %2

Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge:	PULSE INHIBIT
Cause:	The signal level (A + B) of the encoder exceeds the permissible limit value.
	Fault value (r0949, interpret hexadecimal):
	yyyyxxxx hex:
	yyyy = Angle
	xxxx = amplitude, i.e. root of A ² + B ² (16 bits without sign)
	The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
	The response threshold for $(A + B)$ is > 1120 mV or the root of $(A^2 + B^2)$ > 955 mV.
	A signal level of 500 mV peak value corresponds to the numerical value of 299A hex = 10650 dec.
	The angle 0 FFFF hex corresponds to 0 360 degrees of the fine position. Zero degrees is present at the negative zero crossover of track B.
	Note:
	The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
Remedy:	- check that the encoder cables and shielding are routed in compliance with EMC.
	- replace the encoder or encoder cable.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	
Acknowl. upon A:	
F32129 (N, A)	Encoder 2: Position difference hall sensor/track C/D and A/B too large
Message value:	%1
Drive object:	All objects
j	
Reaction:	-
Reaction: Acknowledge:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT
	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical.
Acknowledge:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical.
Acknowledge:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical.
Acknowledge:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical.
Acknowledge:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect
Acknowledge:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no
Acknowledge:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A32429.
Acknowledge:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A32429. Fault value (r0949, interpret decimal):
Acknowledge:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A32429. Fault value (r0949, interpret decimal): For track C/D, the following applies: Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °). For Hall signals, the following applies:
Acknowledge:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A32429. Fault value (r0949, interpret decimal): For track C/D, the following applies: Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °).
Acknowledge:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A32429. Fault value (r0949, interpret decimal): For track C/D, the following applies: Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °). For Hall signals, the following applies:
Acknowledge: Cause:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A32429. Fault value (r0949, interpret decimal): For track C/D, the following applies: Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °). For Hall signals, the following applies:
Acknowledge: Cause:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A32429. Fault value (r0949, interpret decimal): For track C/D, the following applies: Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °). For Hall signals, the following applies: Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °). - track C or D not connected.
Acknowledge: Cause:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A32429. Fault value (r0949, interpret decimal): For track C/D, the following applies: Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °). For Hall signals, the following applies: Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °). - track C or D not connected. - correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D.
Acknowledge: Cause:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A32429. Fault value (r0949, interpret decimal): For track C/D, the following applies: Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °). For Hall signals, the following applies: Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °). - track C or D not connected. - correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D. - check that the encoder cables are routed in compliance with EMC.
Acknowledge: Cause: Remedy:	 Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A32429. Fault value (r0949, interpret decimal): For track C/D, the following applies: Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °). For Hall signals, the following applies: Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °). track C or D not connected. correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D. check that the encoder cables are routed in compliance with EMC. check the adjustment of the Hall sensor. NONE
Acknowledge: Cause: Remedy: Reaction upon N:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A32429. Fault value (r0949, interpret decimal): For track C/D, the following applies: Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °). For Hall signals, the following applies: Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °). For track C or D not connected. - correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D. - check that the encoder cables are routed in compliance with EMC. - check the adjustment of the Hall sensor. NONE NONE
Acknowledge: Cause: Remedy: Reaction upon N: Acknowl. upon N:	Serve: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A32429. Fault value (r0949, interpret decimal): For track C/D, the following applies: Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °). For Hall signals, the following applies: Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °). For track C or D not connected. - correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D. - check that the encoder cables are routed in compliance with EMC. - check the adjustment of the Hall sensor. NONE NONE NONE

F32130 (N, A)	Encoder 2: Zero mark and position error from the coarse synchronization
Message value:	Angular deviation, electrical: %1, angle, mechanical: %2
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge:	PULSE INHIBIT
Cause:	After initializing the pole position using track C/D, Hall signals or pole position identification routine, the zero mark was detected outside the permissible range. For distance-coded encoders, the test is carried out after passing 2 zero marks. Fine synchronization was not carried out.
	When initializing via track C/D (p0404) then it is checked whether the zero mark occurs in an angular range of +/-18 ° mechanical.
	When initializing via Hall sensors (p0404) or pole position identification (p1982) it is checked whether the zero mark occurs in an angular range of +/-60 ° electrical.
	Fault value (r0949, interpret hexadecimal):
	yyyyxxxx hex
	yyyy: Determined mechanical zero mark position (can only be used for track C/D).
	xxxx: Deviation of the zero mark from the expected position as electrical angle.
	Scaling: 32768 dec = 180 °
Remedy:	- check that the encoder cables are routed in compliance with EMC.
	- check the plug connections.
	- if the Hall sensor is used as an equivalent for track C/D, check the connection.
	- check the connection of track C or D.
	- replace the encoder or encoder cable.
Reaction upon N:	
	NONE
Acknowl. upon N:	NONE
Acknowl. upon N: Reaction upon A:	NONE
•	NONE
Reaction upon A:	NONE
Reaction upon A: Acknowl. upon A:	NONE
Reaction upon A: Acknowl. upon A: F32131 (N, A)	NONE NONE Encoder 2: Position deviation incremental/absolute too high
Reaction upon A: Acknowl. upon A: F32131 (N, A) Message value:	NONE NONE Encoder 2: Position deviation incremental/absolute too high %1
Reaction upon A: Acknowl. upon A: F32131 (N, A) Message value: Drive object: Reaction:	NONE NONE Encoder 2: Position deviation incremental/absolute too high %1 All objects
Reaction upon A: Acknowl. upon A: F32131 (N, A) Message value: Drive object: Reaction: Acknowledge:	NONE NONE Encoder 2: Position deviation incremental/absolute too high %1 All objects Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2) PULSE INHIBIT
Reaction upon A: Acknowl. upon A: F32131 (N, A) Message value: Drive object: Reaction:	NONE NONE Encoder 2: Position deviation incremental/absolute too high %1 All objects Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Reaction upon A: Acknowl. upon A: F32131 (N, A) Message value: Drive object: Reaction: Acknowledge:	NONE NONE Encoder 2: Position deviation incremental/absolute too high %1 All objects Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2) PULSE INHIBIT Absolute encoder: When cyclically reading the absolute position, an excessively high difference to the incremental position was detected.
Reaction upon A: Acknowl. upon A: F32131 (N, A) Message value: Drive object: Reaction: Acknowledge:	NONE NONE Encoder 2: Position deviation incremental/absolute too high %1 All objects Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2) PULSE INHIBIT Absolute encoder: When cyclically reading the absolute position, an excessively high difference to the incremental position was detected. The absolute position that was read is rejected.
Reaction upon A: Acknowl. upon A: F32131 (N, A) Message value: Drive object: Reaction: Acknowledge:	NONE NONE Encoder 2: Position deviation incremental/absolute too high %1 All objects Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2) PULSE INHIBIT Absolute encoder: When cyclically reading the absolute position, an excessively high difference to the incremental position was detected. The absolute position that was read is rejected. Limit value for the deviation: - EnDat encoder: Is supplied from the encoder and is a minimum of 2 quadrants (e.g. EQI 1325 > 2 quadrants, EQN 1325
Reaction upon A: Acknowl. upon A: F32131 (N, A) Message value: Drive object: Reaction: Acknowledge:	NONE NONE Encoder 2: Position deviation incremental/absolute too high %1 All objects Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2) PULSE INHIBIT Absolute encoder: When cyclically reading the absolute position, an excessively high difference to the incremental position was detected. The absolute position that was read is rejected. Limit value for the deviation: - EnDat encoder: Is supplied from the encoder and is a minimum of 2 quadrants (e.g. EQI 1325 > 2 quadrants, EQN 1325 > 50 quadrants).
Reaction upon A: Acknowl. upon A: F32131 (N, A) Message value: Drive object: Reaction: Acknowledge:	NONE NONE Encoder 2: Position deviation incremental/absolute too high %1 All objects Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2) PULSE INHIBIT Absolute encoder: When cyclically reading the absolute position, an excessively high difference to the incremental position was detected. The absolute position that was read is rejected. Limit value for the deviation: - EnDat encoder: Is supplied from the encoder and is a minimum of 2 quadrants (e.g. EQI 1325 > 2 quadrants, EQN 1325 > 50 quadrants). - other encoders: 15 pulses = 60 quadrants.
Reaction upon A: Acknowl. upon A: F32131 (N, A) Message value: Drive object: Reaction: Acknowledge:	NONE NONE NONE Encoder 2: Position deviation incremental/absolute too high %1 All objects Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2) PULSE INHIBIT Absolute encoder: When cyclically reading the absolute position, an excessively high difference to the incremental position was detected. The absolute position that was read is rejected. Limit value for the deviation: - EnDat encoder: Is supplied from the encoder and is a minimum of 2 quadrants (e.g. EQI 1325 > 2 quadrants, EQN 1325 > 50 quadrants). - other encoders: 15 pulses = 60 quadrants. Incremental encoder:
Reaction upon A: Acknowl. upon A: F32131 (N, A) Message value: Drive object: Reaction: Acknowledge:	NONE NONE NONE Encoder 2: Position deviation incremental/absolute too high %1 All objects Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2) PULSE INHIBIT Absolute encoder: When cyclically reading the absolute position, an excessively high difference to the incremental position was detected. The absolute position that was read is rejected. Limit value for the deviation: - EnDat encoder: Is supplied from the encoder and is a minimum of 2 quadrants (e.g. EQI 1325 > 2 quadrants, EQN 1325 > 50 quadrants). - other encoders: 15 pulses = 60 quadrants. Incremental encoder: When the zero pulse is passed, a deviation in the incremental position was detected.
Reaction upon A: Acknowl. upon A: F32131 (N, A) Message value: Drive object: Reaction: Acknowledge:	NONE NONE Encoder 2: Position deviation incremental/absolute too high %1 All objects Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2) PULSE INHIBIT Absolute encoder: When cyclically reading the absolute position, an excessively high difference to the incremental position was detected. The absolute position that was read is rejected. Limit value for the deviation: - EnDat encoder: Is supplied from the encoder and is a minimum of 2 quadrants (e.g. EQI 1325 > 2 quadrants, EQN 1325 > 50 quadrants). - other encoders: 15 pulses = 60 quadrants. Incremental encoder: When the zero pulse is passed, a deviation in the incremental position was detected. For equidistant zero marks, the following applies: - the first zero mark passed supplies the reference point for all subsequent checks. The other zero marks must have n
Reaction upon A: Acknowl. upon A: F32131 (N, A) Message value: Drive object: Reaction: Acknowledge:	NONE NONE Encoder 2: Position deviation incremental/absolute too high %1 All objects Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2) PULSE INHIBIT Absolute encoder: When cyclically reading the absolute position, an excessively high difference to the incremental position was detected. The absolute position that was read is rejected. Limit value for the deviation: - EnDat encoder: Is supplied from the encoder and is a minimum of 2 quadrants (e.g. EQI 1325 > 2 quadrants, EQN 1325 > 50 quadrants). - other encoders: 15 pulses = 60 quadrants. Incremental encoder: When the zero pulse is passed, a deviation in the incremental position was detected. For equidistant zero marks, the following applies: - the first zero mark passed supplies the reference point for all subsequent checks. The other zero marks must have n times the distance referred to the first zero mark.
Reaction upon A: Acknowl. upon A: F32131 (N, A) Message value: Drive object: Reaction: Acknowledge:	NONE NONE NONE Encoder 2: Position deviation incremental/absolute too high %1 All objects Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2) PULSE INHIBIT Absolute encoder: When cyclically reading the absolute position, an excessively high difference to the incremental position was detected. The absolute position that was read is rejected. Limit value for the deviation: - EnDat encoder: Is supplied from the encoder and is a minimum of 2 quadrants (e.g. EQI 1325 > 2 quadrants, EQN 1325 > 50 quadrants). - other encoders: 15 pulses = 60 quadrants. Incremental encoder: When the zero pulse is passed, a deviation in the incremental position was detected. For equidistant zero marks, the following applies: - the first zero mark passed supplies the reference point for all subsequent checks. The other zero marks must have n times the distance referred to the first zero mark, the following applies: - the first zero mark pair supplies the reference point for all subsequent checks. The other zero mark pairs must have the

Remedy:	 check that the encoder cables are routed in compliance with EMC. check the plug connections. replace the encoder or encoder cable. check whether the coding disk is dirty or there are strong ambient magnetic fields. adapt the parameter for the clearance between zero marks (p0425). if message output above speed threshold, reduce filter time if necessary (p0438). 	
Reaction upon N: NONE		
Acknowl. upon N:	NONE	
Reaction upon A:	NONE	
Acknowl. upon A:	NONE	
F32135	Encoder 2: Fault when determining the position (single turn)	
Message value:	Fault cause: %1 bin	
Drive object:	All objects	
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)	

Acknowledge: PULSE INHIBIT

13.2 List of faults and alarms

Cause: The encoder has identified a position determination fault (singleturn) and supplies status information bit by bit in an internal status/fault word. Some of these bits cause this fault to be triggered. Other bits are status displays. The status/fault word is displayed in the fault value. Note regarding the bit designation: The first designation is valid for DRIVE-CLiQ encoders, the second for EnDat 2.2 encoders. Fault value (r0949, interpret binary): Bit 0: F1 (safety status display). Bit 1: F2 (safety status display). Bit 2: Reserved (lighting). Bit 3: Reserved (signal amplitude). Bit 4: Reserved (position value). Bit 5: Reserved (overvoltage). Bit 6: Reserved (undervoltage)/hardware fault EnDat supply (--> F3x110, x = 1, 2, 3). Bit 7: Reserved (overcurrent)/EnDat encoder withdrawn when not in the parked state (--> F3x110, x = 1, 2, 3). Bit 8: Reserved (battery)/overcurrent EnDat supply (--> F3x110, x = 1, 2, 3). Bit 9: Reserved/overvoltage EnDat supply (--> F3x110, x = 1, 2, 3). Bit 11: Reserved/internal communication error (--> F3x110, x = 1, 2, 3). Bit 12: Reserved/internal communication error (--> F3x110, x = 1, 2, 3). Bit 13: Reserved/internal communication error (--> F3x110, x = 1, 2, 3). Bit 14: Reserved/internal communication error (--> F3x110, x = 1, 2, 3). Bit 15: Internal communication error (--> F3x110, x = 1, 2, 3). Bit 16: Lighting (--> F3x135, x = 1, 2, 3). Bit 17: Signal amplitude (--> F3x135, x = 1, 2, 3). Bit 18: Singleturn position 1 (--> F3x135, x = 1, 2, 3). Bit 19: Overvoltage (--> F3x135, x = 1, 2, 3). Bit 20: Undervoltage (--> F3x135, x = 1, 2, 3). Bit 21: Overcurrent (--> F3x135, x = 1, 2, 3). Bit 22: Temperature exceeded (--> F3x405, x = 1, 2, 3). Bit 23: Singleturn position 2 (safety status display). Bit 24: Singleturn system (--> F3x135, x = 1, 2, 3). Bit 25: Singleturn power down (--> F3x135, x = 1, 2, 3) Bit 26: Multiturn position 1 (--> F3x136, x = 1, 2, 3). Bit 27: Multiturn position 2 (--> F3x136, x = 1, 2, 3). Bit 28: Multiturn system (--> F3x136, x = 1, 2, 3). Bit 29: Multiturn power down (--> F3x136, x = 1, 2, 3). Bit 30: Multiturn overflow/underflow (--> F3x136, x = 1, 2, 3). Bit 31: Multiturn battery (reserved). Remedy: - determine the detailed cause of the fault using the fault value. - replace the encoder if necessary. Note: An EnDat 2.2 encoder may only be removed and inserted in the "Park" state. If an EnDat 2.2 encoder was removed when not in the "Park" state, then after inserting the encoder, a POWER ON (switchoff/switch-on) is necessary to acknowledge the fault. F32136 Encoder 2: Fault when determining the position (multiturn) Message value: Fault cause: %1 bin Drive object: All objects Reaction: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT Acknowledge:

Faults and alarms

Acknowledge:	PULSE INHIBIT
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Drive object:	All objects
Message value:	Fault cause: %1 bin
F32137	Encoder 2: Fault when determining the position (single turn)
	off/switch-on) is necessary to acknowledge the fault.
	If an EnDat 2.2 encoder was removed when not in the "Park" state, then after inserting the encoder, a POWER ON (switch-
	Note: An EnDat 2.2 encoder may only be removed and inserted in the "Park" state.
Remeuy:	- replace the encoder if necessary.
Remedy:	- determine the detailed cause of the fault using the fault value.
	Bit 30: Multiturn battery (reserved).
	Bit 29. Multitum power down (> F3x136, $x = 1, 2, 3$). Bit 30: Multitum overflow/underflow (> F3x136, $x = 1, 2, 3$).
	Bit 29: Multiturn power down (> F3x136, $x = 1, 2, 3$).
	Bit 28: Multiturn system (> $F3x136$, x = 1, 2, 3).
	Bit 27: Multitum position 2 (> $F3x136$, x = 1, 2, 3).
	Bit 25: Singleturn power down (> F3x135, x = 1, 2, 3) Bit 26: Multiturn position 1 (> F3x136, x = 1, 2, 3).
	Bit 24: Singleturn system (> F3x135, x = 1, 2, 3). Bit 25: Singleturn power down (> F3x135, $x = 1, 2, 3$)
	Bit 23: Singleturn position 2 (safety status display). Bit 24: Singleturn system ($>$ E3x135, x = 1, 2, 3)
	Bit 22: Temperature exceeded (> F3x405, x = 1, 2, 3). Bit 23: Singleture position 2 (sofety status display)
	Bit 21: Overcurrent (> F3x135, x = 1, 2, 3). Bit 22: Temperature exceeded ($>$ F2x405, x = 1, 2, 2)
	Bit 20: Undervoltage (> F3x135, x = 1, 2, 3). Bit 24: Output term $(-> F3x135, x = 1, 2, 3)$.
	Bit 19: Overvoltage (> F3x135, x = 1, 2, 3).
	Bit 18: Singleturn position 1 (> F3x135, $x = 1, 2, 3$).
	Bit 17: Signal amplitude (> $F3x135, x = 1, 2, 3$).
	Bit 16: Lighting (> F3x135, x = 1, 2, 3). Bit 17: Signal amplitude ($>$ F2:(125, x = 1, 2, 2)
	Bit 15: Internal communication error (> F3x110, x = 1, 2, 3). Bit 16: Lighting (\rightarrow F2:(425, x = 4, 2, 2)
	Bit 14: Reserved/internal communication error (> F3x110, x = 1, 2, 3). Bit 15: Internal communication error (-> F3x110, x = 1, 2, 3).
	Bit 13: Reserved/internal communication error (> F3x110, x = 1, 2, 3). Bit 14: Reserved/internal communication error (-> F3x110, x = 1, 2, 3).
	Bit 12: Reserved/internal communication error (> F3x110, $x = 1, 2, 3$). Bit 12: Reserved/internal communication error (-> F3x110, $x = 1, 2, 3$).
	Bit 11: Reserved/internal communication error (> F3x110, $x = 1, 2, 3$). Bit 12: Reserved/internal communication error (-> F3x110, $x = 1, 2, 3$).
	Bit 9: Reserved/overvoltage EnDat supply (> F3x110, $x = 1, 2, 3$).
	Bit 8: Reserved (battery)/overcurrent EnDat supply (> $F3x110$, x = 1, 2, 3).
	Bit 7: Reserved (overcurrent)/EnDat encoder withdrawn when not in the parked state (> F3x110, $x = 1, 2, 3$).
	Bit 6: Reserved (undervoltage)/hardware fault EnDat supply (> $F3x110$, x = 1, 2, 3).
	Bit 5: Reserved (overvoltage).
	Bit 4: Reserved (position value).
	Bit 3: Reserved (signal amplitude).
	Bit 2: Reserved (lighting).
	Bit 1: F2 (safety status display).
	Bit 0: F1 (safety status display).
	Fault value (r0949, interpret binary):
	The first designation is valid for DRIVE-CLiQ encoders, the second for EnDat 2.2 encoders.
	Note regarding the bit designation:
	fault value.
	Some of these bits cause this fault to be triggered. Other bits are status displays. The status/fault word is displayed in the
Cause:	The encoder has identified a position determination fault (multiturn) and supplies status information bit by bit in an internal status/fault word.

Cause:	A position determination fault has occurred in the DRIVE-CLiQ encoder.				
	Fault value (r0949, interpret binary):				
	yyxxxxx hex: yy = encoder version, xxxxxx = bit coding of the fault cause				
	For yy = 8 (0000 1000 bin), the following applies:				
	Bit 1: Signal monitoring (sin/cos).				
	Bit 8: F1 (safety status display) error position word 1.				
	Bit 9: F2 (safety status display) error position word 2.				
	Bit 16: LED monitoring.				
	Bit 17: Fault when determining the position (multiturn).				
	Bit 23: Temperature outside the limit values.				
	For yy = 11 (0000 1011 bin), the following applies:				
	Bit 0: Position word 1 difference between rotation counter and software counter (XC_ERR).				
	Bit 1: Position word 1 track error of the incremental signals (LIS_ERR).				
	Bit 2: Position word 1 error when aligning between incremental track signals and absolute value (ST_ERR).				
	Bit 3: Maximum permissible temperature exceeded (TEMP_ERR).				
	Bit 4: Power supply overvoltage (MON_OVR_VOLT).				
	Bit 5: Power supply overcurrent (MON_OVR_CUR).				
	Bit 6: Power supply undervoltage (MON_UND_VOLT).				
	Bit 7: Rotation error counter (MT_ERR).				
	Bit 8: F1 (safety status display) error position word 1.				
	Bit 9: F2 (safety status display) error position word 2.				
	Bit 11: Position word 1 status bit: singleturn position OK (ADC_ready).				
	Bit 12: Position word 1 status bit: rotation counter OK (MT_ready).				
	Bit 13: Position word 1 memory error (MEM_ERR).				
	Bit 14: Position word 1 absolute position error (MLS_ERR).				
	Bit 15: position word 1 LED error, lighting unit error (LED_ERR).				
	Bit 18: Position word 2 error when aligning between incremental track signals and absolute value (ST_ERR).				
	Bit 21: Position word 2 memory error (MEM_ERR).				
	Bit 22: Position word 2 absolute position error (MLS_ERR).				
	Bit 23: position word 2 LED error, lighting unit error (LED_ERR).				
	For yy = 12 (0000 1100 bin), the following applies:				
	Bit 8: encoder fault.				
	Bit 10: error in the internal position data transport.				
	For yy = 14 (0000 1110 bin), the following applies:				
	Bit 0: Position word 1 temperature outside limit value.				
	Bit 1: Position word 1 position determination error (multiturn).				
	Bit 2: Position word 1 FPGA error.				
	Bit 3: Position word 1 velocity error.				
	Bit 4: Position word 1 communication error between FPGAs/error in the incremental signal.				
	Bit 5: Position word 1 timeout absolute value/error when determining the position (singleturn).				
	Bit 6: Position word 1 internal hardware fault (clock/power monitor IC/power).				
	Bit 7: Position word 1 internal error (FPGA communication/FPGA parameterization/self-test/software).				
	Bit 8: F1 (safety status display) error position word 1.				
	Bit 9: F2 (safety status display) error position word 2.				
	Bit 16: Position word 2 temperature outside limit value.				
	Bit 17: Position word 2 position determination error (multiturn).				
	Bit 18: Position word 2 FPGA error.				
	Bit 19: Position word 2 velocity error.				

	Bit 20: Position word 2 communication error between FPGAs. Bit 21: Position word 2 position determination error (singleturn). Bit 22: Position word 2 internal hardware fault (clock/power monitor IC/power). Bit 23: Position word 2 internal error (self-test/software).	
	Note:	
	For an encoder version that is not described here, please contact the encoder manufacturer for more detailed information on the bit coding.	
Remedy:	- determine the detailed cause of the fault using the fault value.	
	- if required, replace the DRIVE-CLiQ encoder.	
F32138	Encoder 2: Fault when determining the position (multiturn)	
Message value:	Fault cause: %1 bin	
Drive object:	All objects	
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)	
Acknowledge: PULSE INHIBIT		

Cause:	A position determination fault has occurred in the DRIVE-CLiQ encoder. Fault value (r0949, interpret binary):			
	yyxxxxx hex: yy = encoder version, xxxxxx = bit coding of the fault cause			
	For yy = 8 (0000 1000 bin), the following applies:			
	Bit 1: Signal monitoring (sin/cos).			
	Bit 8: F1 (safety status display) error position word 1.			
	Bit 9: F2 (safety status display) error position word 2.			
	Bit 16: LED monitoring.			
	Bit 17: Fault when determining the position (multiturn).			
	Bit 23: Temperature outside the limit values.			
	For yy = 11 (0000 1011 bin), the following applies:			
	Bit 0: Position word 1 difference between rotation counter and software counter (XC_ERR).			
	Bit 1: Position word 1 track error of the incremental signals (LIS_ERR).			
	Bit 2: Position word 1 error when aligning between incremental track signals and absolute value (ST_ERR).			
	Bit 3: Maximum permissible temperature exceeded (TEMP_ERR).			
	Bit 4: Power supply overvoltage (MON_OVR_VOLT).			
	Bit 5: Power supply overcurrent (MON_OVR_CUR).			
	Bit 6: Power supply undervoltage (MON_UND_VOLT).			
	Bit 7: Rotation error counter (MT_ERR).			
	Bit 8: F1 (safety status display) error position word 1.			
	Bit 9: F2 (safety status display) error position word 2.			
	Bit 11: Position word 1 status bit: singleturn position OK (ADC_ready).			
	Bit 12: Position word 1 status bit: rotation counter OK (MT_ready).			
	Bit 13: Position word 1 memory error (MEM_ERR).			
	Bit 14: Position word 1 absolute position error (MLS_ERR).			
	Bit 15: position word 1 LED error, lighting unit error (LED_ERR).			
	Bit 18: Position word 2 error when aligning between incremental track signals and absolute value (ST_ERR).			
	Bit 21: Position word 2 memory error (MEM_ERR).			
	Bit 22: Position word 2 absolute position error (MLS_ERR).			
	Bit 23: position word 2 LED error, lighting unit error (LED_ERR).			
	For yy = 14 (0000 1110 bin), the following applies:			
	Bit 0: Position word 1 temperature outside limit value.			
	Bit 1: Position word 1 position determination error (multiturn).			
	Bit 2: Position word 1 FPGA error.			
	Bit 3: Position word 1 velocity error. Bit 4: Position word 1 communication error between FPGAs/error in the incremental signal.			
	Bit 5: Position word 1 timeout absolute value/error when determining the position (singleturn).			
	Bit 6: Position word 1 internal hardware fault (clock/power monitor IC/power).			
	Bit 7: Position word 1 internal error (FPGA communication/FPGA parameterization/self-test/software).			
	Bit 8: F1 (safety status display) error position word 1.			
	Bit 9: F2 (safety status display) error position word 2.			
	Bit 16: Position word 2 temperature outside limit value.			
	Bit 17: Position word 2 position determination error (multiturn).			
	Bit 18: Position word 2 FPGA error.			
	Bit 19: Position word 2 velocity error.			
	Bit 20: Position word 2 communication error between FPGAs.			
	Bit 21: Position word 2 position determination error (singleturn).			
	Bit 22: Position word 2 internal hardware fault (clock/power monitor IC/power).			
	Bit 23: Position word 2 internal error (self-test/software).			

	Note:
	For an encoder version that is not described here, please contact the encoder manufacturer for more detailed information on the bit coding.
Remedy:	- determine the detailed cause of the fault using the fault value. - if required, replace the DRIVE-CLiQ encoder.

F32142 (N, A) Encoder 2: Battery voltage fault

	Enocion 21 Battory Voltago lauk	
Message value:	-	
Drive object:	All objects	
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)	
Acknowledge:	IMMEDIATELY	
Cause:	When switched-off, the encoder uses a battery to back up the multiturn information. The battery voltage is no longer sufficient to check the multiturn information.	
Remedy:	Replace battery.	
Reaction upon N:	NONE	
Acknowl. upon N:	NONE	
Reaction upon A:	NONE	
Acknowl. upon A:	NONE	
F32150 (N, A)	Encoder 2: Initialization error	
Message value:	%1	
Drive object:	All objects	
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)	
Acknowledge:	PULSE INHIBIT	
Cause:	Encoder functionality selected in p0404 cannot be executed.	
	Fault value (r0949, interpret hexadecimal):	
	Encoder malfunction.	
Demedia	The bit assignment corresponds to that of p0404 (e.g. bit 5 set: Error track C/D).	
Remedy:	 check that p0404 is correctly set. check the encoder type used (incremental/absolute) and for SMCxx, the encoder cable. 	
	- if relevant, note additional fault messages that describe the fault in detail.	
Reaction upon N:		
Acknowl. upon N:		
Reaction upon A:	NONE	
Acknowl. upon A:		
F32151 (N, A)	Encoder 2: Encoder speed for initialization AB too high	
Message value:	%1	
Drive object:	All objects	
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)	
Acknowledge:	PULSE INHIBIT	
Cause:	The encoder speed is too high while initializing the Sensor Module.	
Remedy:	Reduce the speed of the encoder accordingly during initialization.	
_ // ···	If necessary, deactivate monitoring (p0437.29).	
Reaction upon N:	NONE	
Acknowl. upon N:		
Reaction upon A:	NONE	
Acknowl. upon A:	NONE	

F32152 (N, A)	Encoder 2: Max. signal frequency (track A/B) exceeded		
Message value:	value: %1		
Drive object: All objects			
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)		
Acknowledge:	PULSE INHIBIT		
Cause:	The maximum signal frequency of the encoder evaluation has been exceeded.		
	Fault value (r0949, interpret decimal):		
	Actual input frequency in Hz.		
Remedy:	- reduce the speed.		
	- Use an encoder with a lower pulse number (p0408).		
Reaction upon N:	NONE		
Acknowl. upon N:	NONE		
Reaction upon A:	NONE		
Acknowl. upon A:	NONE		
F32153 (N, A)	Encoder 2: Identification error		
Message value:	%1		
Drive object:	All objects		
Reaction:	NONE		
Acknowledge:	IMMEDIATELY		
Cause:	An error has occurred when identifying the encoder (waiting) p0400 = 10100.		
	The connected encoder was not able to be identified.		
	Fault value (r0949, interpret hexadecimal):		
	Bit 0: Data length incorrect.		
Remedy:	Manually configure the encoder according to the data sheet.		
Reaction upon N:	NONE		
Acknowl. upon N:	NONE		
Reaction upon A:	NONE		
Acknowl. upon A:	NONE		
F32160 (N, A)	Encoder 2: Analog sensor channel A failed		
Message value:	%1		
Drive object:	All objects		
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE)		
Acknowledge:	PULSE INHIBIT		
Cause:	The input voltage of the analog sensor is outside the permissible limits.		
	Fault value (r0949, interpret decimal):		
	1: Input voltage outside detectable measuring range.		
	2: Input voltage outside the measuring range set in (p4673).		
	3: The absolute value of the input voltage has exceeded the range limit (p4676).		
Remedy:	For fault value = 1:		
	- check the output voltage of the analog sensor.		
	For fault value = 2:		
	- check the voltage setting for each encoder period (p4673).		
	For fault value = 3: - check the range limit setting and increase it if necessary (p4676).		
Peaction upon N	NONE		
Reaction upon N: Acknowl. upon N:			
Reaction upon A:			
Reaction upon A.	NONE		

Acknowl. upon A: NONE

F32161 (N, A)	(N, A) Encoder 2: Analog sensor channel B failed	
Message value: %1		
Drive object:	All objects	
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE)	
Acknowledge:	PULSE INHIBIT	
Cause:	The input voltage of the analog sensor is outside the permissible limits.	
	Fault value (r0949, interpret decimal):	
	1: Input voltage outside detectable measuring range.	
	2: Input voltage outside the selected measuring range (p4675).	
	3: The absolute value of the input voltage has exceeded the range limit (p4676).	
Remedy:	For fault value = 1:	
	- check the output voltage of the analog sensor.	
	For fault value = 2:	
	- check the voltage setting for each encoder period (p4675).	
	For fault value = 3:	
	- check the range limit setting and increase it if necessary (p4676).	
Reaction upon N:	NONE	
Acknowl. upon N:	NONE	
Reaction upon A:	NONE	
Acknowl. upon A:	NONE	
F32163 (N, A)	Encoder 2: Analog sensor position value exceeds limit value	
Message value:	%1	
Drive object:	All objects	
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE)	
Acknowledge:	PULSE INHIBIT	
Cause:	The position value has exceeded the permissible range of -0.5 +0.5.	
	Fault value (r0949, interpret decimal):	
	1: Position value from the LVDT sensor.	
	2: Position value from the encoder characteristic.	
Remedy:	For fault value = 1:	
	- check the LVDT ratio (p4678).	
	- check the reference signal connection at track B.	
	For fault value = 2:	
	- check the coefficients of the characteristic (p4663 p4666).	
Reaction upon N:	NONE	
Acknowl. upon N:	NONE	
Reaction upon A:	NONE	
Acknowl. upon A:	NONE	
A32400 (F, N)	Encoder 2: Zero mark distance error (alarm threshold exceeded)	
Message value:	%1	
Drive object:	All objects	
Reaction:	NONE	
Acknowledge:		
ACKIIOWICUUC.	NONE	

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Cause:	The measured zero mark distance does not correspond to the parameterized zero mark distance. For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a
	zero mark is missing, depending on the pair generation, this cannot result in a fault and also has no effect in the system.
	The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
	Alarm value (r2124, interpret decimal):
	Last measured zero mark distance in increments (4 increments = 1 encoder pulse).
	The sign designates the direction of motion when detecting the zero mark distance.
Remedy:	- check that the encoder cables are routed in compliance with EMC.
	- check the plug connections.
	- check the encoder type (encoder with equidistant zero marks).
	- adapt the parameter for the distance between zero marks (p0424, p0425).
	- replace the encoder or encoder cable.
Reaction upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	
Acknowl. upon N:	NONE
A32401 (F, N)	Encoder 2: Zero mark failed (alarm threshold exceeded)
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The 1.5x parameterized zero mark distance was exceeded without a zero mark being detected.
	The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
	Alarm value (r2124, interpret decimal):
	Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse).
Remedy:	- check that the encoder cables are routed in compliance with EMC.
	- check the plug connections.
	- check the encoder type (encoder with equidistant zero marks).
	- adapt the parameter for the clearance between zero marks (p0425).
Deseties was 5	- replace the encoder or encoder cable.
Reaction upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	
Reaction upon N:	
Acknowl. upon N:	NONE
F32405 (N, A)	Encoder 2: Temperature in the encoder evaluation exceeded
Message value:	%1
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The encoder evaluation for a motor with DRIVE-CLiQ has detected an excessively high temperature.
	The fault threshold is 125 ° C.
	Fault value (r0949, interpret decimal):
	Measured module temperature [0.1 °C].
Remedy:	Reduce the ambient temperature for the DRIVE-CLiQ connection of the motor.
Reaction upon N:	NONE
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	NUNE

A3240	/ (F, N)	
Message	e value:	%1
Drive ob	ject:	All objects
Reaction	า:	NONE
Acknowl	edge:	NONE
Cause:		The encoder has reached one of its function limits. A service is recommended.
		Alarm value (r2124, interpret decimal):
		1: Incremental signals
		3: Absolute track
		4: Code connection
Remedy	•	Perform service. Replace the encoder if necessary.
		Note:
		The actual functional reserve of an encoder can be displayed via r4651.
Reaction	n upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl	. upon F:	IMMEDIATELY
Reaction	n upon N:	NONE
Acknowl	. upon N:	NONE
A3241	0 (F, N)	Encoder 2: Communication error (encoder and Sensor Module)
Message	e value:	Fault cause: %1 bin
Drive ob	ject:	All objects
Reaction	า:	NONE
Acknowl	edge:	NONE
Cause:		Serial communication protocol transfer error between the encoder and evaluation module.
		Alarm value (r2124, interpret binary):
		Bit 0: Alarm bit in the position protocol.

A32407 (F, N) Encoder 2: Function limit reached

Bit 1: Incorrect quiescent level on the data line.

Bit 2: Encoder does not respond (does not supply a start bit within 50 ms).

Bit 3: CRC error: The checksum in the protocol from the encoder does not match the data.

- Bit 4: Encoder acknowledgment error: The encoder incorrectly understood the task (request) or cannot execute it.
 - Bit 5: Internal error in the serial driver: An illegal mode command was requested.
 - Bit 6: Timeout when cyclically reading.

Bit 8: Protocol is too long (e.g. > 64 bits).

- Bit 9: Receive buffer overflow.
- Bit 10: Frame error when reading twice.
- Bit 11: Parity error.
- Bit 12: Data line signal level error during the monoflop time.

 Remedy:
 check that the encoder cables are routed in compliance with EMC.

 check the plug connections

	- check the plug connections.
	- replace encoder.
Reaction upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

A32411 (F, N) Encoder 2: Encoder signals an internal alarm (detailed information)

Message value:Fault cause: %1 bin, additional information: %2Drive object:All objectsReaction:NONEAcknowledge:NONE

Cause:	The absolute encoder fault word includes alarm bits that have been set.
	Alarm value (r2124, interpret binary):
	yyyyxxxx hex: yyyy = supplementary information, xxxx = fault cause
	уууу = 0:
	Bit 0: Frequency exceeded (speed too high).
	Bit 1: Temperature exceeded.
	Bit 2: Control reserve, lighting system exceeded.
	Bit 3: Battery discharged.
	Bit 4: Reference point passed.
	yyyy = 1: Bit 0: Signal amplitude outside the control range.
	Bit 1: Error multiturn interface
	Bit 2: Internal data error (singleturn/multiturn not with single steps).
	Bit 3: Error EEPROM interface.
	Bit 4: SAR converter error.
	Bit 5: Fault for the register data transfer.
	Bit 6: Internal error identified at the error pin (nErr).
	Bit 7: Temperature threshold exceeded or fallen below.
Remedy:	Replace encoder.
Reaction upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A32412 (F, N)	-
Message value:	%1
Message value: Drive object:	%1 All objects
Message value: Drive object: Reaction:	%1 All objects NONE
Message value: Drive object: Reaction: Acknowledge:	%1 All objects NONE NONE
Message value: Drive object: Reaction:	%1 All objects NONE NONE The encoder signals an internal alarm via serial protocol.
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Message value: Drive object: Reaction: Acknowledge: Cause: Remedy: Remedy: Reaction upon F: Acknowl. upon F:	%1 All objects NONE NONE The encoder signals an internal alarm via serial protocol. Alarm value (r2124, interpret binary): Bit 0: Fault bit in the position protocol. Bit 1: Alarm bit in the position protocol. Bit 1: Alarm bit in the position protocol. - carry out a POWER ON (switch-off/switch-on) for all components. - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace encoder. Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY NONE
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Message value: Drive object: Reaction: Acknowledge: Cause: Remedy: Remedy: Reaction upon F: Acknowl. upon F: Reaction upon N: Acknowl. upon N:	%1 All objects NONE NONE The encoder signals an internal alarm via serial protocol. Alarm value (r2124, interpret binary): Bit 0: Fault bit in the position protocol. Bit 1: Alarm bit in the position protocol. - carry out a POWER ON (switch-off/switch-on) for all components. - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace encoder. Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY NONE NONE
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Message value: Drive object: Reaction: Acknowledge: Cause: Cause: Remedy: Remedy: Reaction upon F: Acknowl. upon F: Reaction upon N: Acknowl. upon N: Acknowl. upon N: Drive object:	%1 All objects NONE NONE The encoder signals an internal alarm via serial protocol. Alarm value (r2124, interpret binary): Bit 0: Fault bit in the position protocol. Bit 1: Alarm bit in the position protocol. - carry out a POWER ON (switch-off/switch-on) for all components. - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace encoder. Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY NONE NONE NONE Tencoder 2: Signal level track C or D out of tolerance C track: %1, D track: %2 All objects

Cause:	The signal level (C ² + D ²) of track C or D of the encoder or from the Hall signals, is not within the tolerance bandwidth. Alarm value (r2124, interpret hexadecimal): yyyyxxxx hex:
	yyyy = Signal level, track D (16 bits with sign).
	xxxx = Signal level, track C (16 bits with sign).
	The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
	The response thresholds are < 230 mV (observe the frequency response of the encoder) and > 750 mV.
	A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
	Note:
	If the amplitude is not within the tolerance bandwidth, then it cannot be used to initialize the start position.
Remedy:	- check that the encoder cables are routed in compliance with EMC.
	- check the plug connections.
	- replace the encoder or encoder cable.
	- check the Sensor Module (e.g. contacts).
	- check the Hall sensor box.
Reaction upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
N32415 (F, A)	Encoder 2: Signal level track A or B outside tolerance (alarm)
Message value:	Amplitude: %1, Angle: %2
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The signal level (root from A ² + B ²) of the encoder is outside the permissible tolerance.
	Alarm value (r2124, interpret hexadecimal):
	yyyyxxxx hex:
	yyyy = Angle
	xxxx = amplitude, i.e. root of A ² + B ² (16 bits without sign)
	The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
	The response threshold is < 230 mV (observe the frequency response of the encoder).
	A signal level of 500 mV peak value corresponds to the numerical value 299A hex = 10650 dec.
	The angle 0 FFFF hex corresponds to 0 360 degrees of the fine position. Zero degrees is present at the negative zero crossover of track B.
	Note for Sensor Modules for resolvers (e.g. SMC10):
	The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is < 1414 mV (1.0 Vrms).
	A signal level of 2900 mV peak value corresponds to the numerical value 3333 hex = 13107 dec. Note:
	The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
Remedy:	- check the speed range, frequency characteristic (amplitude characteristic) of the measuring equipment is not sufficient for the speed range.
	- check that the encoder cables and shielding are routed in compliance with EMC.
	- check the plug connections.
	- replace the encoder or encoder cable.
	- check the Sensor Module (e.g. contacts).
	- if the coding disk is soiled or the lighting aged, replace the encoder.
Reaction upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	
· · · · · · · · · · · · · · · · · · ·	IMMEDIATELY
Reaction upon A:	

13.2 List of faults and alarms

Acknowl. upon A: NONE

A32418 (F, N)	Encoder 2: Speed change not plausible (alarm)
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	For an HTL/TTL encoder, the speed change has exceeded the value in p0492 over several sampling cycles. The change to the averaged speed actual value - if applicable - is monitored in the current controller sampling time. Alarm value (r2124, interpret decimal): Only for internal Siemens troubleshooting.
Remedy:	- check the tachometer feeder cable for interruptions.
	- check the grounding of the tachometer shielding.
	- if required, increase the setting of p0492.
Reaction upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A32419 (F, N)	Encoder 2: Track A or B outside tolerance
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Message value:	
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The amplitude/phase/offset correction for track A or B is at the limit.
	Amplitude error correction: Amplitude B / Amplitude A = 0.78 1.27
	Phase: <84 degrees or >96 degrees
	SMC20: Offset correction: +/-140 mV
	SMC10: Offset correction: +/-650 mV
	Alarm value (r2124, interpret hexadecimal):
	xxxx1: Minimum of the offset correction, track B
	xxxx2: Maximum of the offset correction, track B xxx1x: Minimum of the offset correction, track A
	xxx1x. Minimum of the offset correction, track A xxx2x: Maximum of the offset correction, track A
	xx1xx: Minimum of the amplitude correction, track B/A
	xx2xx: Maximum of the amplitude correction, track B/A
	x1xxx: Minimum of the phase error correction
	x2xxx: Maximum of the phase error correction
	1xxxx: Minimum of the cubic correction
	2xxxx: Maximum of the cubic correction
Remedy:	- check mechanical mounting tolerances for encoders without their own bearings (e.g. toothed-wheel encoders).
(comody)	- check the plug connections (also the transition resistance).
	- check the encoder signals.
	- replace the encoder or encoder cable.
Reaction upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	
Acknowl. upon N:	
Automi. upon N.	

A32421 (F, N)	Encoder 2: Determined commutation position incorrect (alarm)
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	A commutation position actual value sensing error was detected.
	Alarm value (r2124, interpret decimal):
	3: The absolute position of the serial protocol and track A/B differ by half an encoder pulse. The absolute position must have its zero position in the quadrants in which both tracks are negative. In the case of a fault, the position can be incorrect by one encoder pulse.
Remedy:	For alarm value = 3:
	- For a standard encoder with cable, contact the manufacturer where relevant.
	- correct the assignment of the tracks to the position value that is serially transferred. To do this, the two tracks must be connected, inverted, at the Sensor Module (interchange A with A* and B with B*) or, for a programmable encoder, check the zero offset of the position.
Reaction upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A32422 (F, N)	Encoder 2: Pulses per revolution square-wave encoder outside tolerance bandwidth
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The measured zero mark distance does not correspond to the parameterized zero mark distance.
	This alarm is triggered with active square-wave encoder PPR correction and re-parameterized fault 31131 if the accumulator contains larger values than p4683 or p4684.
	The zero mark distance for zero mark monitoring is set in p0425 (rotary encoder).
	Alarm value (r2124, interpret decimal):
	accumulated differential pulses in encoder pulses.
Remedy:	- check that the encoder cables are routed in compliance with EMC.
	- check the plug connections.
	 check the encoder type (encoder with equidistant zero marks). adapt the parameter for the distance between zero marks (p0424, p0425).
	- replace the encoder or encoder cable.
Reaction upon F:	
Acknowl. upon F:	
Reaction upon N:	
Acknowl. upon N:	
A32429 (F, N)	Encoder 2: Position difference hall sensor/track C/D and A/B too large
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
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Cause:	The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical.
	One period of track C/D corresponds to 360 ° mechanical.
	One period of the Hall signal corresponds to 360 ° electrical.
	The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect
	rotational sense or supply values that are not accurate enough.
	Alarm value (r2124, interpret decimal):
	For track C/D, the following applies:
	Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °).
	For Hall signals, the following applies:
	Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °).
Remedy:	- track C or D not connected.
	- correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D.
	- check that the encoder cables are routed in compliance with EMC.
	- check the adjustment of the Hall sensor.
Reaction upon F:	
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A32431 (F, N)	Encoder 2: Position deviation incremental/absolute too high (alarm)
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	When the zero pulse is passed, a deviation in the incremental position was detected.
Cause.	For equidistant zero marks, the following applies:
	- the first zero mark passed supplies the reference point for all subsequent checks. The other zero marks must have n
	times the distance referred to the first zero mark.
	For distance-coded zero marks, the following applies:
	- the first zero mark pair supplies the reference point for all subsequent checks. The other zero mark pairs must have the expected distance to the first zero mark pair.
	Alarm value (r2124, interpret decimal):
	Deviation in quadrants (1 pulse = 4 quadrants).
Remedy:	- check that the encoder cables are routed in compliance with EMC.
	- check the plug connections.
	- replace the encoder or encoder cable.
	- Clean coding disk or remove strong magnetic fields.
Reaction upon F:	
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	
Acknowl. upon N:	NONE
A32432 (F, N)	Encoder 2: Rotor position adaptation corrects deviation
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE

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Cause:	On track A/B, pulses have been lost or too many have been counted. These pulses are presently being corrected.
	Alarm value (r2124, interpret decimal):
	Last measured deviation of zero mark in increments (4 increments = 1 encoder pulse).
	The sign designates the direction of motion when detecting the zero mark distance.
Remedy:	- check that the encoder cables are routed in compliance with EMC.
	- check the plug connections.
	- replace the encoder or encoder cable.
	- check encoder limit frequency.
	- adapt the parameter for the distance between zero marks (p0424, p0425).
Reaction upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	
	Encoder 9. Detter (voltage elever threshold reached
A32442 (F, N)	Encoder 2: Battery voltage alarm threshold reached
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	When switched-off, the encoder uses a battery to back up the multiturn information. The multiturn information can no longer be buffered if the battery voltage drops even further.
Remedy:	Replace battery.
Reaction upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
432443 (F NI)	Encoder 2: Signal level track C/D outside tolerance (alarm)
A32443 (F, N)	Encoder 2: Signal level track C/D outside tolerance (alarm)
Message value:	Fault cause: %1 bin
Message value: Drive object:	Fault cause: %1 bin All objects
Message value: Drive object: Reaction:	Fault cause: %1 bin All objects NONE
Message value: Drive object:	Fault cause: %1 bin All objects
Message value: Drive object: Reaction:	Fault cause: %1 bin All objects NONE
Message value: Drive object: Reaction: Acknowledge:	Fault cause: %1 bin All objects NONE NONE
Message value: Drive object: Reaction: Acknowledge:	Fault cause: %1 bin All objects NONE NONE The unipolar level (CP/CN or DP/DN) for encoder 2 is outside the permissible tolerance. Alarm value (r2124, interpret binary): Bit 0 = 1: Either CP or CN outside the tolerance.
Message value: Drive object: Reaction: Acknowledge:	Fault cause: %1 bin All objects NONE NONE The unipolar level (CP/CN or DP/DN) for encoder 2 is outside the permissible tolerance. Alarm value (r2124, interpret binary):
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Message value: Drive object: Reaction: Acknowledge:	Fault cause: %1 bin All objects NONE NONE The unipolar level (CP/CN or DP/DN) for encoder 2 is outside the permissible tolerance. Alarm value (r2124, interpret binary): Bit 0 = 1: Either CP or CN outside the tolerance. Bit 16 = 1: Either DP or DN outside the tolerance. The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV.
Message value: Drive object: Reaction: Acknowledge:	Fault cause: %1 bin All objects NONE NONE The unipolar level (CP/CN or DP/DN) for encoder 2 is outside the permissible tolerance. Alarm value (r2124, interpret binary): Bit 0 = 1: Either CP or CN outside the tolerance. Bit 16 = 1: Either CP or DN outside the tolerance. The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV. The response thresholds are < 1700 mV and > 3300 mV.
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Message value: Drive object: Reaction: Acknowledge:	Fault cause: %1 bin All objects NONE NONE NONE The unipolar level (CP/CN or DP/DN) for encoder 2 is outside the permissible tolerance. Alarm value (r2124, interpret binary): Bit 0 = 1: Either CP or CN outside the tolerance. Bit 16 = 1: Either DP or DN outside the tolerance. The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV. The response thresholds are < 1700 mV and > 3300 mV. Note: The signal level is not evaluated unless the following conditions are satisfied: - Sensor Module properties available (r0459.31 = 1).
Message value: Drive object: Reaction: Acknowledge: Cause:	Fault cause: %1 bin All objects NONE NONE The unipolar level (CP/CN or DP/DN) for encoder 2 is outside the permissible tolerance. Alarm value (r2124, interpret binary): Bit 0 = 1: Either CP or CN outside the tolerance. Bit 16 = 1: Either DP or DN outside the tolerance. The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV. The response thresholds are < 1700 mV and > 3300 mV. Note: The signal level is not evaluated unless the following conditions are satisfied: - Sensor Module properties available (r0459.31 = 1).
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Message value: Drive object: Reaction: Acknowledge: Cause:	Fault cause: %1 bin All objects NONE NONE The unipolar level (CP/CN or DP/DN) for encoder 2 is outside the permissible tolerance. Alarm value (r2124, interpret binary): Bit 0 = 1: Either CP or CN outside the tolerance. Bit 16 = 1: Either DP or DN outside the tolerance. The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV. The response thresholds are < 1700 mV and > 3300 mV. Note: The signal level is not evaluated unless the following conditions are satisfied: - Sensor Module properties available (r0459.31 = 1). - monitoring active (p0437.31 = 1). - check that the encoder cables and shielding are routed in compliance with EMC. - check the plug connections and contacts of the encoder cable.
Message value: Drive object: Reaction: Acknowledge: Cause:	Fault cause: %1 bin All objects NONE NONE The unipolar level (CP/CN or DP/DN) for encoder 2 is outside the permissible tolerance. Alarm value (r2124, interpret binary): Bit 0 = 1: Either CP or CN outside the tolerance. Bit 16 = 1: Either DP or DN outside the tolerance. The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV. The response thresholds are < 1700 mV and > 3300 mV. Note: The signal level is not evaluated unless the following conditions are satisfied: - Sensor Module properties available (r0459.31 = 1). - monitoring active (p0437.31 = 1). - check that the encoder cables and shielding are routed in compliance with EMC. - check the plug connections and contacts of the encoder cable. - are the C/D tracks connected correctly (have the signal cables CP and CN or DP and DN been interchanged)?
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy:	Fault cause: %1 bin All objects NONE NONE The unipolar level (CP/CN or DP/DN) for encoder 2 is outside the permissible tolerance. Alarm value (r2124, interpret binary): Bit 0 = 1: Either CP or CN outside the tolerance. Bit 16 = 1: Either DP or DN outside the tolerance. The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV. The response thresholds are < 1700 mV and > 3300 mV. Note: The signal level is not evaluated unless the following conditions are satisfied: - Sensor Module properties available (r0459.31 = 1). - monitoring active (p0437.31 = 1). - check that the encoder cables and shielding are routed in compliance with EMC. - check the plug connections and contacts of the encoder cable. - are the C/D tracks connected correctly (have the signal cables CP and CN or DP and DN been interchanged)? - replace the encoder cable.
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy: Remedy:	Fault cause: %1 bin All objects NONE NONE NONE The unipolar level (CP/CN or DP/DN) for encoder 2 is outside the permissible tolerance. Alarm value (r2124, interpret binary): Bit 0 = 1: Either CP or CN outside the tolerance. Bit 16 = 1: Either DP or DN outside the tolerance. The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV. The response thresholds are < 1700 mV and > 3300 mV. Note: The signal level is not evaluated unless the following conditions are satisfied: - Sensor Module properties available (r0459.31 = 1). - monitoring active (p0437.31 = 1). - check that the encoder cables and shielding are routed in compliance with EMC. - check the plug connections and contacts of the encoder cable. - are the C/D tracks connected correctly (have the signal cables CP and CN or DP and DN been interchanged)? - replace the encoder cable. Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy: Remedy: Reaction upon F: Acknowl. upon F: Reaction upon N:	Fault cause: %1 bin All objects NONE NONE NONE The unipolar level (CP/CN or DP/DN) for encoder 2 is outside the permissible tolerance. Alarm value (r2124, interpret binary): Bit 0 = 1: Either CP or CN outside the tolerance. Bit 16 = 1: Either DP or DN outside the tolerance. The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV. The response thresholds are < 1700 mV and > 3300 mV. Note: The signal level is not evaluated unless the following conditions are satisfied: - Sensor Module properties available (r0459.31 = 1). - monitoring active (p0437.31 = 1). - check that the encoder cables and shielding are routed in compliance with EMC. - check the plug connections and contacts of the encoder cable. - are the C/D tracks connected correctly (have the signal cables CP and CN or DP and DN been interchanged)? - replace the encoder cable. Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY NONE
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy: Remedy: Reaction upon F: Acknowl. upon F:	Fault cause: %1 bin All objects NONE NONE NONE The unipolar level (CP/CN or DP/DN) for encoder 2 is outside the permissible tolerance. Alarm value (r2124, interpret binary): Bit 0 = 1: Either CP or CN outside the tolerance. Bit 16 = 1: Either DP or DN outside the tolerance. The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV. The response thresholds are < 1700 mV and > 3300 mV. Note: The signal level is not evaluated unless the following conditions are satisfied: - Sensor Module properties available (r0459.31 = 1). - monitoring active (p0437.31 = 1). - check that the encoder cables and shielding are routed in compliance with EMC. - check the plug connections and contacts of the encoder cable. - are the C/D tracks connected correctly (have the signal cables CP and CN or DP and DN been interchanged)? - replace the encoder cable. Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY NONE

A32460 (N)	Encoder 2: Analog sensor channel A failed
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The input voltage of the analog sensor is outside the permissible limits.
	Alarm value (r2124, interpret decimal):
	1: Input voltage outside detectable measuring range.
	2: Input voltage outside measuring range set in p4673.
	3: The absolute value of the input voltage has exceeded the range limit (p4676).
Remedy:	For alarm value = 1:
-	- check the output voltage of the analog sensor.
	For alarm value = 2:
	- check the voltage setting for each encoder period (p4673).
	For alarm value = 3:
	- check the range limit setting and increase it if necessary (p4676).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A32461 (N)	Encoder 2: Analog sensor channel B failed
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The input voltage of the analog sensor is outside the permissible limits.
	Alarm value (r2124, interpret decimal):
	1: Input voltage outside detectable measuring range.
	2: Input voltage outside the selected measuring range (p4675).
	3: The absolute value of the input voltage has exceeded the range limit (p4676).
Remedy:	For alarm value = 1:
	- check the output voltage of the analog sensor.
	For alarm value = 2:
	- check the voltage setting for each encoder period (p4675).
	For alarm value = 3:
	- check the range limit setting and increase it if necessary (p4676).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A20460 (NI)	Encoder 2: Analog concer no channel active
A32462 (N)	Encoder 2: Analog sensor no channel active
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Channel A and B are not activated for the analog sensor.
Remedy:	- activate channel A and/or channel B (p4670).
	- check the encoder configuration (p0404.17).
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A32463 (N)	Encoder 2: Analog sensor position value exceeds limit value
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The position value has exceeded the permissible range of -0.5 +0.5.
	Alarm value (r2124, interpret decimal):
	1: Position value from the LVDT sensor.
	2: Position value from the encoder characteristic.
Remedy:	For alarm value = 1:
-	- check the LVDT ratio (p4678).
	- check the reference signal connection at track B.
	For alarm value = 2:
	- check the coefficients of the characteristic (p4663 p4666).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A32470 (F, N)	Encoder 2: Encoder signals an internal error (X521.7)
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	For the Sensor Module Cabinet 30 (SMC30), a dirty encoder is signaled via a 0 signal at terminal X521.7.
Remedy:	- check the plug connections.
	- replace the encoder or encoder cable.
Reaction upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
F32500 (N, A)	Encoder 2: Position tracking traversing range exceeded
Message value:	
Drive object:	All objects
Reaction:	OFF1 (NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	For a configured linear axis without modulo correction, the drive/encoder has exceeded the maximum possible traversing range. The value should be read in p0412 and interpreted as the number of motor revolutions.
	For p0411.0 = 1, the maximum traversing range for the configured linear axis is defined to be 64x (+/- 32x) of p0421.
	For p0411.3 = 1, the maximum traversing range for the configured linear axis is preset (default value) to the highest possible
	value and is +/-p0412/2 (rounded off to complete revolutions). The highest possible value depends on the pulse number (p0408) and the fine resolution (p0419).
Remedy:	The fault should be resolved as follows:
	- select encoder commissioning (p0010 = 4).
	- reset the position tracking as follows (p0411.2 = 1).
	- deselect encoder commissioning (p0010 = 0).
	The fault should then be acknowledged and the absolute encoder adjusted.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F32501 (N, A)	Encoder 2: Position tracking encoder position outside tolerance window
Message value:	%1
Drive object:	All objects
Reaction:	OFF1 (NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	When switched off, the drive/encoder was moved through a distance greater than was parameterized in the tolerance window. It is possible that there is no longer any reference between the mechanical system and encoder.
	Fault value (r0949, interpret decimal):
	Deviation (difference) to the last encoder position in increments of the absolute value.
	The sign designates the traversing direction.
	Note:
D	The deviation (difference) found is also displayed in r0477.
Remedy:	Reset the position tracking as follows:
	- select encoder commissioning (p0010 = 4).
	- reset the position tracking as follows ($p0411.2 = 1$).
	- deselect encoder commissioning ($p0010 = 0$).
	The fault should then be acknowledged and, if necessary, the absolute encoder adjusted (p2507). See also: p0010
Desction upon Nu	
Reaction upon N: Acknowl. upon N:	
•	
Reaction upon A:	
Acknowl. upon A:	NONE
F32502 (N, A)	Encoder 2: Encoder with measuring gear without valid signals
Message value:	
Drive object:	All objects
Reaction:	OFF1 (OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The encoder with measuring gear no longer provides any valid signals.
Remedy:	It must be ensured that all of the encoders, with mounted measuring gear, provide valid actual values in operation.
Reaction upon N:	
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	
F32503 (N, A)	Encoder 2: Position tracking cannot be reset
F32503 (N, A) Message value:	Encoder 2: Position tracking cannot be reset
• •	Encoder 2: Position tracking cannot be reset - All objects
Message value:	
Message value: Drive object:	- All objects
Message value: Drive object: Reaction:	- All objects OFF1 (NONE, OFF2, OFF3)
Message value: Drive object: Reaction: Acknowledge:	- All objects OFF1 (NONE, OFF2, OFF3) IMMEDIATELY
Message value: Drive object: Reaction: Acknowledge: Cause:	All objects OFF1 (NONE, OFF2, OFF3) IMMEDIATELY The position tracking for the measuring gear cannot be reset.
Message value: Drive object: Reaction: Acknowledge: Cause:	All objects OFF1 (NONE, OFF2, OFF3) IMMEDIATELY The position tracking for the measuring gear cannot be reset. The fault should be resolved as follows:
Message value: Drive object: Reaction: Acknowledge: Cause:	All objects OFF1 (NONE, OFF2, OFF3) IMMEDIATELY The position tracking for the measuring gear cannot be reset. The fault should be resolved as follows: - select encoder commissioning (p0010 = 4). - reset the position tracking as follows (p0411.2 = 1). - deselect encoder commissioning (p0010 = 0).
Message value: Drive object: Reaction: Acknowledge: Cause:	All objects OFF1 (NONE, OFF2, OFF3) IMMEDIATELY The position tracking for the measuring gear cannot be reset. The fault should be resolved as follows: - select encoder commissioning (p0010 = 4). - reset the position tracking as follows (p0411.2 = 1).
Message value: Drive object: Reaction: Acknowledge: Cause:	All objects OFF1 (NONE, OFF2, OFF3) IMMEDIATELY The position tracking for the measuring gear cannot be reset. The fault should be resolved as follows: - select encoder commissioning (p0010 = 4). - reset the position tracking as follows (p0411.2 = 1). - deselect encoder commissioning (p0010 = 0).
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy:	All objects OFF1 (NONE, OFF2, OFF3) IMMEDIATELY The position tracking for the measuring gear cannot be reset. The fault should be resolved as follows: - select encoder commissioning (p0010 = 4). - reset the position tracking as follows (p0411.2 = 1). - deselect encoder commissioning (p0010 = 0). The fault should then be acknowledged and the absolute encoder adjusted. NONE

Acknowl. upon A: NONE

A32700	Encoder 2: Effectivity test does not supply the expected value
Message value:	Fault cause: %1 bin
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The DRIVE-CLiQ encoder fault word supplies fault bits that have been set.
	Alarm value (r2124, interpret binary):
	Bit x = 1: Effectivity test x unsuccessful.
Remedy:	Replace encoder.
N32800 (F)	Encoder 2: Group signal
Message value:	-
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	NONE
Cause:	The motor encoder has detected at least one fault.
Remedy:	Evaluates other actual messages.
Reaction upon F:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY
F32801 (N, A)	Encoder 2 DRIVE-CLiQ: Sign-of-life missing
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved.
	Fault cause:
	10 (= 0A hex):
	The sign-of-life bit in the receive telegram is not set.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- check the electrical cabinet design and cable routing for EMC compliance
	- replace the component involved.
Reaction upon N:	
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	NONE
F32802 (N, A)	Encoder 2: Time slice overflow
Message value:	%1
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY

Cause:	A time slice overflow has occurred in encoder 2.
	Fault value (r0949, interpret hexadecimal):
	yx hex: y = function involved (Siemens-internal fault diagnostics), x = time slice involved
	x = 9:
	Time slice overflow of the fast (current controller clock cycle) time slice.
	$\mathbf{x} = \mathbf{A}$:
	Time slice overflow of the average time slice.
	x = C:
	Time slice overflow of the slow time slice.
	yx = 3E7: Timeout when waiting for SYNO (e.g. unexpected return to non-cyclic operation).
Remedy:	Increase the current controller sampling time
Remedy.	Note:
	For a current controller sampling time = 31.25 µs, use an SMx20 with Article No. 6SL3055-0AA00-5xA3.
Reaction upon N:	
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	
Additional upon A.	
F32804 (N, A)	Encoder 2: Sensor Module checksum error
Message value:	%1
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	POWER ON (IMMEDIATELY)
Cause:	A checksum error has occurred when reading-out the program memory on the Sensor Module.
	Fault value (r0949, interpret hexadecimal):
	yyyyxxxx hex
	yyyy: Memory area involved.
	xxxx: Difference between the checksum at POWER ON and the actual checksum.
Remedy:	- carry out a POWER ON (switch-off/switch-on).
	- upgrade firmware to later version (>= V2.6 HF3, >= V4.3 SP2, >= V4.4).
	- check whether the permissible ambient temperature for the component is maintained.
	- replace the Sensor Module.
Reaction upon N:	NONE
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	NONE
F32805 (N, A)	Encoder 2: EEPROM checksum error
	%1
Message value:	
Drive object: Reaction:	All objects
	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY
Acknowledge:	
Cause:	Data in the EEPROM corrupted . Fault value (r0949, interpret hexadecimal):
	01: EEPROM access error.
	02: Too many blocks in the EEPROM.
Remedy:	Replace the module.
Reaction upon N:	
Acknowl. upon N:	

Reaction upon A: NONE Acknowl. upon A: NONE

F32806 (N, A)	Encoder 2: Initialization error
Message value:	%1
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	PULSE INHIBIT
Cause:	The encoder was not successfully initialized.
	Fault value (r0949, interpret hexadecimal):
	Bit 0, 1: Encoder initialization with the motor rotating has failed (deviation involving coarse and fine position in encoder pulses (4)
	pulses/4). Bit 2: Mid-voltage matching for track A unsuccessful.
	Bit 3: Mid-voltage matching for track B unsuccessful.
	Bit 4: Mid-voltage matching for acceleration input unsuccessful.
	Bit 5: Mid-voltage matching for track safety A unsuccessful.
	Bit 6: Mid-voltage matching for track safety B unsuccessful.
	Bit 7: Mid-voltage matching for track C unsuccessful.
	Bit 8: Mid-voltage matching for track D unsuccessful.
	Bit 9: Mid-voltage matching for track R unsuccessful.
	Bit 10: The difference in mid-voltages between A and B is too great (> 0.5 V)
	Bit 11: The difference in mid-voltages between C and D is too great (> 0.5 V)
	Bit 12: The difference in mid-voltages between safety A and safety B is too great (> 0.5 V)
	Bit 13: The difference in mid-voltages between A and safety B is too great (> 0.5 V)
	Bit 14: The difference in mid-voltages between B and safety A is too great (> 0.5 V)
	Bit 15: The standard deviation of the calculated mid-voltages is too great (> 0.3 V)
	Bit 16: Internal fault - fault when reading a register (CAFE)
	Bit 17: Internal fault - fault when writing a register (CAFE)
	Bit 18: Internal fault: No mid-voltage matching available
	Bit 19: Internal error - ADC access error.
	Bit 20: Internal error - no zero crossover found.
	Bit 28: Error while initializing the EnDat 2.2 measuring unit.
	Bit 29: Error when reading out the data from the EnDat 2.2 measuring unit.
	Bit 30: EEPROM checksum of the EnDat 2.2 measuring unit incorrect.
	Bit 31: Data of the EnDat 2.2 measuring unit inconsistent. Note:
	Bit 0, 1: Up to 6SL3055-0AA00-5*A0
	Bits 2 20: 6SL3055-0AA00-5*A1 and higher
Remedy:	Acknowledge fault.
	If the fault cannot be acknowledged:
	Bits 2 9: Check encoder power supply.
	Bits 2 14: Check the corresponding cable.
	Bit 15 with no other bits: Check track R, check settings in p0404.
	Bit 28: Check the cable between the EnDat 2.2 converter and the measuring unit.
	Bit 29 31: Replace the defective measuring unit.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
-	

A32811 (F, N)	Encoder 2: Encoder serial number changed
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The encoder serial number has changed. The change is only checked for encoders with serial number (e.g. EnDat encoders).
	- the encoder was replaced.
	Note:
	With closed-loop position control, the serial number is accepted when starting the adjustment (p2507 = 2).
	When the encoder is adjusted (p2507 = 3), the serial number is checked for changes and if required, the adjustment is reset (p2507 = 1).
	Proceed as follows to hide serial number monitoring:
	- set the following serial numbers for the corresponding Encoder Data Set: p0441= FF, p0442 = 0, p0443 = 0, p0444 = 0, p0445 = 0.
Remedy:	Mechanically adjust the encoder. Accept the new serial number with p0440 = 1.
Reaction upon F:	NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
F32812 (N, A)	Encoder 2: Requested cycle or RX-/TX timing not supported
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A cycle requested from the Control Unit or RX/TX timing is not supported.
	Fault value (r0949, interpret decimal):
	0: Application cycle is not supported.
	1: DRIVE-CLiQ cycle is not supported.
	2: Distance between RX and TX instants in time too low.
	3: TX instant in time too early.
Remedy:	Carry out a POWER ON (switch-off/switch-on) for all components.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
	Encodes Or Hendurges la sie unit feiled
F32813	Encoder 2: Hardware logic unit failed
Message value:	Fault cause: %1 bin
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	PULSE INHIBIT
Cause:	The logic unit of the DRIVE-CLiQ encoder has failed.
	Fault value (r0949, interpret binary):
	Bit 0: ALU watchdog has responded.
_ .	Bit 1: ALU has detected a sign-of-life error.
Remedy:	When the error reoccurs, replace the encoder.

F32820 (N, A)	Encoder 2 DRIVE-CLiQ: Telegram error
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder concerned.
	Fault cause:
	1 (= 01 hex):
	Checksum error (CRC error).
	2 (= 02 hex):
	Telegram is shorter than specified in the length byte or in the receive list.
	3 (= 03 hex):
	Telegram is longer than specified in the length byte or in the receive list.
	4 (= 04 hex):
	The length of the receive telegram does not match the receive list.
	5 (= 05 hex):
	The type of the receive telegram does not match the receive list.
	6 (= 06 hex):
	The address of the component in the telegram and in the receive list do not match.
	7 (= 07 hex):
	A SYNC telegram is expected - but the received telegram is not a SYNC telegram.
	8 (= 08 hex):
	No SYNC telegram is expected - but the received telegram is one. 9 (= 09 hex):
	The error bit in the receive telegram is set.
	16 (= 10 hex):
	The receive telegram is too early.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON (switch-off/switch-on).
•	- check the electrical cabinet design and cable routing for EMC compliance
	- check the DRIVE-CLiQ wiring (interrupted cable, contacts,).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	
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F32835 (N. A)	Encoder 2 DRIVE-CLiQ: Cyclic data transfer error
Message value:	Component number: %1, fault cause: %2

Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY

13.2 List of faults and alarms

Cause:	A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder concerned. The nodes do not send
	and receive in synchronism.
	Fault cause:
	33 (= 21 hex):
	The cyclic telegram has not been received.
	34 (= 22 hex):
	Timeout in the telegram receive list.
	64 (= 40 hex):
	Timeout in the telegram send list.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
Demedu	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON.
	- replace the component involved.
Reaction upon N:	
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	NONE
F32836 (N, A)	Encoder 2 DRIVE-CLiQ: Send error for DRIVE-CLiQ data
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
	IMMEDIATELY
Acknowledge:	
Cause:	A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Data were not able to be sent.
	Fault cause:
	65 (= 41 hex):
	Telegram type does not match send list.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	Carry out a POWER ON.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F32837 (N, A)	Encoder 2 DRIVE-CLiQ: Component fault
Message value:	Component number: %1, fault cause: %2
=	•
Drive object:	
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause:	Fault detected on the DRIVE-CLiQ component concerned. Faulty hardware cannot be excluded.
00000.	Fault cause:
	32 (= 20 hex):
	Error in the telegram header.
	35 (= 23 hex):
	Receive error: The telegram buffer memory contains an error.
	66 (= 42 hex):
	Send error: The telegram buffer memory contains an error.
	67 (= 43 hex):
	Send error: The telegram buffer memory contains an error.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- check the DRIVE-CLiQ wiring (interrupted cable, contacts,).
Remedy.	- check the electrical cabinet design and cable routing for EMC compliance
	- if required, use another DRIVE-CLiQ socket (p9904).
	- replace the component involved.
Departies upon Nu	
Reaction upon N:	
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	NONE
F32845 (N, A)	Encoder 2 DRIVE-CLiQ: Cyclic data transfer error
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Drive object: Reaction:	All objects Servo: OEE1 (IASC/DCBRK_NONE_OEE2_OEE3)
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Reaction: Acknowledge:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved.
Reaction: Acknowledge:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause:
Reaction: Acknowledge:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex):
Reaction: Acknowledge:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer.
Reaction: Acknowledge:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value:
Reaction: Acknowledge:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124):
Reaction: Acknowledge: Cause:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Reaction: Acknowledge: Cause: Remedy:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause Carry out a POWER ON (switch-off/switch-on).
Reaction: Acknowledge: Cause: Remedy: Reaction upon N:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause Carry out a POWER ON (switch-off/switch-on). NONE
Reaction: Acknowledge: Cause: Remedy: Reaction upon N: Acknowl. upon N:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause Carry out a POWER ON (switch-off/switch-on). NONE NONE
Reaction: Acknowledge: Cause: Remedy: Reaction upon N: Acknowl. upon N: Reaction upon A:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause Carry out a POWER ON (switch-off/switch-on). NONE NONE NONE
Reaction: Acknowledge: Cause: Remedy: Reaction upon N: Acknowl. upon N:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause Carry out a POWER ON (switch-off/switch-on). NONE NONE NONE
Reaction: Acknowledge: Cause: Remedy: Reaction upon N: Acknowl. upon N: Reaction upon A:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause Carry out a POWER ON (switch-off/switch-on). NONE NONE NONE NONE
Reaction: Acknowledge: Cause: Remedy: Reaction upon N: Acknowl. upon N: Reaction upon A: Acknowl. upon A:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause Carry out a POWER ON (switch-off/switch-on). NONE NONE NONE NONE
Reaction: Acknowledge: Cause: Remedy: Reaction upon N: Acknowl. upon N: Reaction upon A: Acknowl. upon A: Acknowl. upon A:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause Carry out a POWER ON (switch-off/switch-on). NONE NONE NONE NONE NONE NONE
Reaction: Acknowledge: Cause: Remedy: Reaction upon N: Acknowl. upon N: Reaction upon A: Acknowl. upon A: F32850 (N, A) Message value:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause Carry out a POWER ON (switch-off/switch-on). NONE NONE NONE NONE NONE NONE NONE NONE NONE NONE
Reaction: Acknowledge: Cause: Remedy: Reaction upon N: Acknowl. upon N: Reaction upon A: Acknowl. upon A: F32850 (N, A) Message value: Drive object:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause Carry out a POWER ON (switch-off/switch-on). NONE NONE NONE NONE NONE NONE NONE

Cause:	An internal software error has occurred in the Sensor Module of encoder 2.
	Fault value (r0949, interpret decimal):
	1: Background time slice is blocked.
	2: Checksum over the code memory is not OK.
	10000: OEM memory of the EnDat encoder contains data that cannot be interpreted.
	11000 11499: Descriptive data from EEPROM incorrect.
	11500 11899: Calibration data from EEPROM incorrect.
	11900 11999: Configuration data from EEPROM incorrect.
	12000 12008: communication with analog/digital converter faulted.
	16000: DRIVE-CLiQ encoder initialization application error.
	16001: DRIVE-CLiQ encoder initialization ALU error.
	16002: DRIVE-CLiQ encoder HISI / SISI initialization error.
	16003: DRIVE-CLiQ encoder safety initialization error. 16004: DRIVE-CLiQ encoder internal system error.
Bomodu:	- replace the Sensor Module.
Remedy:	- if required, upgrade the firmware in the Sensor Module.
	- contact Technical Support.
Reaction upon N:	
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	
Acknowi. upon A.	
F32851 (N, A)	Encoder 2 DRIVE-CLiQ (CU): Sign-of-life missing
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 2) involved to the Control Unit.
	The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit.
	Fault cause:
	10 (= 0A hex):
	The sign-of-life bit in the receive telegram is not set.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- Upgrade the firmware of the component involved.
	- carry out a POWER ON (switch-off/switch-on) for the component involved.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F32860 (N, A)	Encoder 2 DRIVE-CLiQ (CU): Telegram error
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY

Cause:	A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 2) involved to the Control Unit.
	Fault cause:
	1 (= 01 hex):
	Checksum error (CRC error).
	2 (= 02 hex):
	Telegram is shorter than specified in the length byte or in the receive list.
	3 (= 03 hex):
	Telegram is longer than specified in the length byte or in the receive list.
	4 (= 04 hex):
	The length of the receive telegram does not match the receive list.
	5 (= 05 hex):
	The type of the receive telegram does not match the receive list.
	6 (= 06 hex):
	The address of the power unit in the telegram and in the receive list do not match. 9 (= 09 hex):
	The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply
	voltage has failed.
	16 (= 10 hex):
	The receive telegram is too early.
	17 (= 11 hex):
	CRC error and the receive telegram is too early.
	18 (= 12 hex):
	The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early.
	19 (= 13 hex):
	The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early.
	20 (= 14 hex):
	The length of the receive telegram does not match the receive list and the receive telegram is too early.
	21 (= 15 hex):
	The type of the receive telegram does not match the receive list and the receive telegram is too early.
	22 (= 16 hex):
	The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early.
	25 (= 19 hex): The error bit in the receive telegram is set and the receive telegram is too early.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON (switch-off/switch-on).
. telliou ji	- check the electrical cabinet design and cable routing for EMC compliance
	- check the DRIVE-CLiQ wiring (interrupted cable, contacts,).
Reaction upon N:	NONE
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	
F32875 (N, A)	Encoder 2: power supply voltage failed
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY

Cause:	The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply
	voltage has failed.
	Fault cause:
	9 (= 09 hex):
	The power supply voltage for the components has failed.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON (switch-off/switch-on).
	- check the power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts,).
	- check the dimensioning of the power supply for the DRIVE-CLiQ component.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F32885 (N, A)	Encoder 2 DRIVE-CLiQ (CU): Cyclic data transfer error
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 2) involved to the Control Unit.
	The nodes do not send and receive in synchronism.
	Fault cause:
	26 (= 1A hex):
	Sign-of-life bit in the receive telegram not set and the receive telegram is too early.
	33 (= 21 hex):
	The cyclic telegram has not been received.
	34 (= 22 hex):
	Timeout in the telegram receive list.
	64 (= 40 hex):
	Timeout in the telegram send list.
	98 (= 62 hex):
	Error at the transition to cyclic operation.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- check the power supply voltage of the component involved.
	- carry out a POWER ON.
	- replace the component involved.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
•	
Acknowl. upon A:	
F32886 (N, A)	Encoder 2 DRIVE-CLiQ (CU): Error when sending DRIVE-CLiQ data
Message value:	Component number: %1, fault cause: %2

Component number: %1, fault cause: %2
All objects
Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
IMMEDIATELY

Cause: Remedy: Reaction upon N:	A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 2) involved to the Control Unit. Data were not able to be sent. Fault cause: 65 (= 41 hex): Telegram type does not match send list. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause Carry out a POWER ON. NONE
Acknowl. upon N:	NONE
Reaction upon A:	
Acknowl. upon A:	NONE
F32887 (N, A)	Encoder 2 DRIVE-CLiQ (CU): Component fault
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	Fault detected on the DRIVE-CLiQ component involved (Sensor Module for encoder 2). Faulty hardware cannot be excluded.
Remedy:	Fault cause: 32 (= 20 hex): Error in the telegram header. 35 (= 23 hex): Receive error: The telegram buffer memory contains an error. 66 (= 42 hex): Send error: The telegram buffer memory contains an error. 67 (= 43 hex): Send error: The telegram buffer memory contains an error. 96 (= 60 hex): Response received too late during runtime measurement. 97 (= 61 hex): Time taken to exchange characteristic data too long. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause - check the DRIVE-CLiQ wiring (interrupted cable, contacts,). - check the electrical cabinet design and cable routing for EMC compliance - if required, use another DRIVE-CLiQ socket (p9904). - replace the component involved.
Reaction upon N:	
Acknowl. upon N:	
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F32895 (N, A) Message value: Drive object: Reaction:	Encoder 2 DRIVE-CLiQ (CU): Alternating cyclic data transfer error Component number: %1, fault cause: %2 All objects Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)

Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 2) involved to the Control Unit.
	Fault cause:
	11 (= 0B hex):
	Synchronization error during alternating cyclic data transfer.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
Demedia	0000yyxx hex: yy = component number, xx = error cause
Remedy:	Carry out a POWER ON.
Reaction upon N:	
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	NONE
F32896 (N, A)	Encoder 2 DRIVE-CLiQ (CU): Inconsistent component properties
Message value:	Component number: %1
Drive object:	All objects
Reaction:	Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	The properties of the DRIVE-CLiQ component (Sensor Module for encoder 2), specified by the fault value, have changed
	in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced.
	Fault value (r0949, interpret decimal):
	Component number.
Remedy:	- carry out a POWER ON.
	- when a component is replaced, the same component type and if possible the same firmware version should be used.
	- when a cable is replaced, only cables whose length is the same as or as close as possible to the length of the original cables should be used (ensure compliance with the maximum cable length).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
E00000 (NL A)	For a day 0. His lay care for th
F32899 (N, A)	
Message value:	New message: %1
Drive object:	
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	A fault occurred on the Sensor Module for encoder 2 that cannot be interpreted by the Control Unit firmware.
	This can occur if the firmware on this component is more recent than the firmware on the Control Unit. Fault value (r0949, interpret decimal):
	Fault number.
	Note:
	If required, the significance of this new fault can be read about in a more recent description of the Control Unit.
Remedy:	- replace the firmware on the Sensor Module by an older firmware version (r0148).
•	- upgrade the firmware on the Control Unit (r0018).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A32902 (F, N)	Encoder 2: SPI-BUS error occurred
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Error when operating the internal SPI bus.
	Alarm value (r2124, interpret hexadecimal):
	Only for internal Siemens troubleshooting.
Remedy:	- replace the Sensor Module.
	- if required, upgrade the firmware in the Sensor Module.
	- contact Technical Support.
Reaction upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A32902 (F, N) Encoder 2: SPI-BUS error occurred

A32903 (F, N)	Encoder 2: I2C-BUS	error occurred
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Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Error when operating the internal I2C bus.
	Alarm value (r2124, interpret hexadecimal):
	Only for internal Siemens troubleshooting.
Remedy:	- replace the Sensor Module.
	- if required, upgrade the firmware in the Sensor Module.
	- contact Technical Support.
Reaction upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F32905 (N, A)	Encoder 2: Encoder parameterization error
Message value:	Parameter: %1, supplementary information: %2
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge:	IMMEDIATELY

Cause:	An error was identified in the encoder parameterization. It is possible that the parameterized encoder type does not match the connected encoder. The parameter involved can be determined as follows:
	- determine the parameter number using the fault value (r0949).
	- determine the parameter index (p0187).
	Fault value (r0949, interpret decimal):
	yyyyxxxx dec: yyyy = supplementary information, xxxx = parameter
	xxxx = 421:
	For an EnDat/SSI encoder, the absolute position in the protocol must be less than or equal to 30 bits.
	yyyy = 0: No additional information available.
	yyyy = 1:
	The component does not support HTL level (p0405.1 = 0) combined with track monitoring A/B <> -A/B (p0405.2 = 1).
	yyyy = 2:
	A code number for an identified encoder has been entered into p0400, however, no identification was carried out. Please start a new encoder identification.
	уууу = 3:
	A code number for an identified encoder has been entered into p0400, however, no identification was carried out. Please select a listed encoder in p0400 with a code number < 10000.
	уууу = 4:
	This component does not support SSI encoders (p0404.9 = 1) without track A/B.
	yyyy = 5:
	For SQW encoder, value in p4686 greater than in p0425.
	yyyy = 6: DRIVE-CLiQ encoder cannot be used with this firmware version.
	yyyy = 7:
	For an SQW encoder, the XIST1 correction (p0437.2) is only permitted for equidistant zero marks. yyyy = 8:
	The motor pole pair width is not supported by the linear scale being used. yyyy = 9:
	The length of the position in the EnDat protocol may be a maximum of 32 bits. yyyy = 10:
	The connected encoder is not supported. yyyy = 11:
	The hardware does not support track monitoring.
Remedy:	- check whether the connected encoder type matches the encoder that has been parameterized.
	- correct the parameter specified by the fault value (r0949) and p0187. - re parameter number = 314:
	- check the pole pair number and measuring gear ratio. The quotient of the "pole pair number" divided by the "measuring gear ratio" must be less than or equal to 1000 ((r0313 * p0433) / p0432 <= 1000).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F32912	Encoder 2: Device combination is not permissible
Message value:	%1
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE)
Acknowledge:	PULSE INHIBIT

Cause:	The selected device combination is not supported.
	Fault value (r0949, interpret decimal):
	1003:
	The connected measuring unit cannot be operated with the EnDat 2.2 converter. For instance, the measuring unit has a pulse number/resolution of 2 ⁿ .
	1005:
	The type of measuring unit (incremental) is not supported by the EnDat 2.2 converter.
	1006:
	The maximum duration of the EnDat transfer (31.25 µs) was exceeded.
	2001:
	The set combination of current controller cycle, DP cycle and Safety cycle is not supported by the EnDat 2.2 converter.
	2002:
	The resolution of the linear measuring unit does not match the pole pair width of the linear motor
	Pole pair width, minimum = p0422 * 2^20
Remedy:	For fault value = 1003, 1005, 1006:
	- Use a measuring unit that is permissible.
	For fault value = 2001:
	- set a permissible cycle combination (if required, use standard settings).
	For fault value = 2002:
	- Use a measuring unit with a lower resolution (p0422).

A32915 (F, N) Encoder 2: Encoder configuration error

Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The configuration for encoder 2 is incorrect.
	Alarm value (r2124, interpret decimal):
	1:
	Re-parameterization between fault/alarm is not permissible.
	419:
	When the fine resolution Gx_XIST2 is configured, the encoder identifies a maximum possible absolute position actual value (r0483) that can no longer be represented within 32 bits.
Remedy:	For alarm value = 1:
	No re-parameterization between fault/alarm.
	For alarm value = 419:
	Reduce the fine resolution (p0419) or deactivate the monitoring (p0437.25), if the complete multiturn range is not required.
Reaction upon F:	Servo: NONE (IASC/DCBRK)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F32916 (N, A)	Encoder 2: Encoder parameterization error	
Message value:	Parameter: %1, supplementary information: %2	
Drive object:	All objects	
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)	
Acknowledge:	IMMEDIATELY	

Cause:	An encoder parameter was detected as being incorrect.
	It is possible that the parameterized encoder type does not match the connected encoder.
	The parameter involved can be determined as follows:
	- determine the parameter number using the fault value (r0949).
	- determine the parameter index (p0187).
	Fault value (r0949, interpret decimal):
Demedu	Parameter number.
Remedy:	 check whether the connected encoder type matches the encoder that has been parameterized. correct the parameter specified by the fault value (r0949) and p0187.
Reaction upon N:	
Acknowl. upon N:	
-	
Reaction upon A:	
Acknowl. upon A:	NONE
A32920 (F, N)	Encoder 2: Temperature sensor fault (motor)
Message value:	Fault cause: %1, channel number: %2
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The motor detected a fault when evaluating the temperature sensor.
	Fault cause:
	1 (= 01 hex):
	Wire breakage or sensor not connected.
	KTY: R > 1630 Ohm, PT1000: R > 1720 Ohm
	2 (= 02 hex):
	Measured resistance too low.
	PTC: R < 20 Ohm, KTY: R < 50 Ohm, PT1000: R < 603 Ohm
	Additional values:
	Only for internal Siemens troubleshooting.
	Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = channel number, xx = error cause
Remedy:	- check that the encoder cable is the correct type and is correctly connected.
rtomody.	- check the temperature sensor selection in p0600 to p0603.
	- replace the Sensor Module (hardware defect or incorrect calibration data).
Reaction upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	
Reaction upon N:	
Acknowl. upon N:	
A32930 (N)	Encoder 2: Data logger has saved data
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
-	

Cause:	For the activated function "Data logger" (p0437.0 = 1) a fault has occurred with the Sensor Module. This alarm indicates that the diagnostics data corresponding to the fault was saved on the memory card. The diagnostics data is saved in the following folder: /USER/SINAMICS/DATA/SMTRC00.BIN
	 /USER/SINAMICS/DATA/SMTRC07.BIN
	/USER/SINAMICS/DATA/SMTRCIDX.TXT
	The following information is contained in the TXT file:
	- Display of the last written BIN file.
	- Number of write operations that are still possible (from 10000 downwards).
	Note:
	Only Siemens can evaluate the BIN files.
Remedy:	Not necessary.
	This alarm is automatically withdrawn.
	The data logger is ready to record the next fault case.
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A32940 (F, N) Encoder 2: Spindle sensor S1 voltage incorrect

Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The voltage of analog sensor S1 is outside the permissible range.
	Alarm value (r2124, interpret decimal):
	Signal level from sensor S1.
	Note:
	A signal level of 500 mV corresponds to the numerical value 500 dec.
Remedy:	- check the clamped tool.
	- check the tolerance and if required, adapt (p5040).
	- check the thresholds and if required, adapt (p5041).
	 check analog sensor S1 and connections.
Reaction upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

sor Module to a later version.
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13.2 List of faults and alarms

A32999 (F, N)	Encoder 2: Unknown alarm
Message value:	New message: %1
Drive object:	All objects
Reaction:	NONE
	NONE
Acknowledge:	
Cause:	A alarm has occurred on the Sensor Module for encoder 2 that cannot be interpreted by the Control Unit firmware. This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
	Alarm value (r2124, interpret decimal):
	Alarm number.
	Note:
	If required, the significance of this new alarm can be read about in a more recent description of the Control Unit.
Remedy:	- replace the firmware on the Sensor Module by an older firmware version (r0148).
· ······	- upgrade the firmware on the Control Unit (r0018).
Reaction upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	
F33100 (N, A)	Encoder 3: Zero mark distance error
Message value:	%1
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge:	PULSE INHIBIT
Cause:	The measured zero mark distance does not correspond to the parameterized zero mark distance.
	For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a zero mark is missing, depending on the pair generation, this cannot result in a fault and also has no effect in the system
	The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
	Fault value (r0949, interpret decimal):
	Last measured zero mark distance in increments (4 increments = 1 encoder pulse).
	The sign designates the direction of motion when detecting the zero mark distance.
Remedy:	- check that the encoder cables are routed in compliance with EMC.
	- check the plug connections.
	- check the encoder type (encoder with equidistant zero marks).
	- adapt the parameter for the distance between zero marks (p0424, p0425).
	- if message output above speed threshold, reduce filter time if necessary (p0438).
	- replace the encoder or encoder cable.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F33101 (N, A)	Encoder 3: Zero mark failed
Message value:	%1
Drive object:	All objects
Reaction:	
	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge:	PULSE INHIBIT
Cause:	The 1.5 x parameterized zero mark distance was exceeded.
	The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
	Fault value (r0949, interpret decimal): Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse

Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse).

Remedy:	 check that the encoder cables are routed in compliance with EMC. check the plug connections. check the encoder type (encoder with equidistant zero marks). adapt the parameter for the clearance between zero marks (p0425). if message output above speed threshold, reduce filter time if necessary (p0438). when p0437.1 is active, check p4686. replace the encoder or encoder cable.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F33103 (N, A)	Encoder 3: Signal level zero track (track R) outside tolerance
Message value:	R track: %1
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The zero mark signal level (track R) does not lie within the tolerance bandwidth for encoder 1.
	The fault can be initiated when the unipolar voltage level is exceeded (RP/RN) or if the differential amplitude is undershot.
	Fault value (r0949, interpret hexadecimal):
	yyyyxxx hex: yyyy = 0, xxxx = Signal level, track R (16 bits with sign)
	The response thresholds of the unipolar signal levels of the encoder are between < 1400 mV and > 3500 mV.
	The response threshold for the differential signal level of the encoder is $< -1600 \text{ mV}$.
	A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec. Note:
	The analog value of the amplitude error is not measured at the same time with the hardware fault output by the Sensor Module.
	The fault value can only be represented between -32768 32767 dec (-770 770 mV).
	The signal level is not evaluated unless the following conditions are satisfied:
	- Sensor Module properties available (r0459.31 = 1).
	- monitoring active (p0437.31 = 1).
Remedy:	- check the speed range; frequency characteristic (amplitude characteristic) of the measuring equipment might not be sufficient for the speed range
	- check that the encoder cables and shielding are routed in compliance with EMC.
	- check the plug connections and contacts of the encoder cable.
	- check the encoder type (encoder with zero marks).
	- check whether the zero mark is connected and the signal cables RP and RN have been connected correctly (not connected with the incorrect polarity).
	- replace the encoder cable.
	- if the coding disk is soiled or the lighting aged, replace the encoder.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F33110 (N, A)	Encoder 3: Serial communications error
Message value:	Fault cause: %1 bin
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	PULSE INHIBIT

Cause:	Serial communication protocol transfer error between the encoder and evaluation module. Fault value (r0949, interpret binary):
	Bit 0: Alarm bit in the position protocol.
	Bit 1: Incorrect quiescent level on the data line.
	Bit 2: Encoder does not respond (does not supply a start bit within 50 ms).
	Bit 3: CRC error: The checksum in the protocol from the encoder does not match the data.
	Bit 4: Encoder acknowledgment error: The encoder incorrectly understood the task (request) or cannot execute it.
	Bit 5: Internal error in the serial driver: An illegal mode command was requested.
	Bit 6: Timeout when cyclically reading.
	Bit 7: Timeout for the register communication.
	Bit 8: Protocol is too long (e.g. > 64 bits).
	Bit 9: Receive buffer overflow.
	Bit 10: Frame error when reading twice.
	Bit 11: Parity error.
	Bit 12: Data line signal level error during the monoflop time.
	Bit 13: Data line incorrect.
	Bit 14: Fault for the register communication.
	Bit 15: Internal communication error.
	Note:
	For an EnDat 2.2 encoder, the significance of the fault value for F3x135 (x = 1, 2, 3) is described.
Remedy:	For fault value, bit 0 = 1:
-	- Enc defect F31111 may provide additional details.
	For fault value, bit 1 = 1:
	- incorrect encoder type / replace the encoder or encoder cable.
	For fault value, bit 2 = 1:
	- incorrect encoder type / replace the encoder or encoder cable.
	For fault value, bit 3 = 1:
	- EMC / connect the cable shield, replace the encoder or encoder cable.
	For fault value, bit 4 = 1:
	- EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.
	For fault value, bit 5 = 1:
	- EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.
	For fault value, bit 6 = 1:
	- Update Sensor Module firmware.
	For fault value, bit 7 = 1:
	- incorrect encoder type / replace the encoder or encoder cable.
	For fault value, bit 8 = 1:
	- check parameterization (p0429.2).
	For fault value, bit 9 = 1:
	- EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.
	For fault value, bit 10 = 1:
	- check parameterization (p0429.2, p0449).
	For fault value, bit 11 = 1:
	- check parameterization (p0436).
	For fault value, bit 12 = 1:
	- check parameterization (p0429.6).
	For fault value, bit 13 = 1:
	- check data line.
	For fault value, bit 14 = 1:
	- incorrect encoder type / replace the encoder or encoder cable.
Reaction upon N:	NONE
Acknowl. upon N:	NONE

Acknowl. upon A: NONE F33111 (N. A) Encoder 3: Encoder signals an internal error (detailed information) Message value: Fault cause: %1 bin, additional information: %2 Drive object: All objects Reaction: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowledge: PULSE INHIBIT The encoder error word provides detailed information (error bit). Cause: For p0404.8 = 0, the following applies: Fault value for internal Siemens troubleshooting. For p0404.8 = 1, the following applies: Fault value (r0949, interpret binary): yyyyxxxx hex: yyyy = supplementary information, xxxx = fault cause yyyy = 0: Bit 0: Lighting system failed. Bit 1: Signal amplitude too low. Bit 2: Position value incorrect. Bit 3: Encoder power supply overvoltage condition. Bit 4: Encoder power supply undervoltage condition. Bit 5: Encoder power supply overcurrent condition. Bit 6: The battery must be changed. Remedy: For yyyy = 0: For fault value, bit 0 = 1: Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor. For fault value, bit 1 = 1: Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor. For fault value, bit 2 = 1: Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor. For fault value, bit 3 = 1: 5 V power supply voltage fault. When using an SMC: Check the plug-in cable between the encoder and SMC or replace the SMC. When a motor encoder with a direct DRIVE-CLiQ connection is used: Replace the motor. For fault value, bit 4 = 1: 5 V power supply voltage fault. When using an SMC: Check the plug-in cable between the encoder and SMC or replace the SMC. When using a motor with DRIVE-CLiQ: Replace the motor. For fault value, bit 5 = 1: Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor. For fault value, bit 6 = 1: The battery must be changed (only for encoders with battery back-up). For yyyy = 1: Encoder is defective. Replace encoder. Reaction upon N: NONE Acknowl. upon N: NONE Reaction upon A: NONE Acknowl. upon A: NONE

F33112 (N, A) Encoder 3: Encoder signals an internal error

Message value:

Drive object:	All objects

%1

Reaction upon A: NONE

Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	PULSE INHIBIT
Cause:	The encoder signals a set error bit via the serial protocol.
	Fault value (r0949, interpret binary):
	Bit 0: Fault bit in the position protocol.
Remedy:	For fault value, bit 0 = 1:
	In the case of an EnDat encoder, F31111 may provide further details.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F33115 (N, A)	Encoder 3: Signal level track A or B too low
Message value:	A track: %1, B-track: %2
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	PULSE INHIBIT
Cause:	The signal level (root from A ² + B ²) of the encoder falls below the permissible limit value.
	Fault value (r0949, interpret hexadecimal):
	yyyyxxxx hex:
	yyyy = Signal level, track B (16 bits with sign).
	xxxx = Signal level, track A (16 bits with sign).
	The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
	The response threshold is < 170 mV (input frequency <= 256 kHz) or < 120 mV (input frequency > 256 kHz).
	A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
	Note for Sensor Modules for resolvers (e.g. SMC10):
	The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is < 1070 mV.
	A signal level of 2900 mV peak value corresponds to the numerical value 6666 hex = 26214 dec.
	Note:
	The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
Remedy:	- check that the encoder cables and shielding are routed in compliance with EMC.
•	- check the plug connections.
	- replace the encoder or encoder cable.
	- check the Sensor Module (e.g. contacts).
	The following applies to measuring systems without their own bearing system:
	- adjust the scanning head and check the bearing system of the measuring wheel.
	The following applies for measuring systems with their own bearing system:
	- ensure that the encoder housing is not subject to any axial force.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F33116 (N, A)	Encoder 3: Signal level track A or B too low
Message value:	A track: %1, B-track: %2
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY

Cause:	The signal level of the rectified encoder signals A and B of the encoder fall below the permissible limit value.
	Fault value (r0949, interpret hexadecimal):
	yyyyxxxx hex:
	yyyy = Signal level, track B (16 bits with sign).
	xxxx = Signal level, track A (16 bits with sign).
	The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
	The response threshold is < 130 mV.
	A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
	Note:
	The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
Remedy:	- check that the encoder cables and shielding are routed in compliance with EMC.
	- check the plug connections.
	- replace the encoder or encoder cable.
	- check the Sensor Module (e.g. contacts).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F33117 (N, A)	Encoder 3: Inversion error signals A/B/R
Message value:	Fault cause: %1 bin
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	For a square-wave encoder (bipolar, double ended) signals A*, B* and R* are not inverted with respect to signals A, B and R.
	Fault value (r0949, interpret binary):
	Bits 0 15: Only for internal Siemens troubleshooting.

	Fault value (r0949, interpret binary):
	Bits 0 15: Only for internal Siemens troubleshooting.
	Bit 16: Error track A.
	Bit 17: Error track B.
	Bit 18: Error track R.
	Note:
	For SMC30 (only Article No. 6SL3055-0AA00-5CA0 and 6SL3055-0AA00-5CA1), CUA32, and CU310, the following applies:
	A square-wave encoder without track R is used and track monitoring (p0405.2 = 1) is activated.
Remedy:	- check the encoder/cable.
	- Does the encoder supply signals and the associated inverted signals?
	Note:
	For SMC30 (only Article Number 6SL3055-0AA00-5CA0 and 6SL3055-0AA00-5CA1), the following applies:
	- check the setting of p0405 (p0405.2 = 1 is only possible if the encoder is connected at X520).
	For a square-wave encoder without track R, the following jumpers must be set for the connection at X520 (SMC30) or X23 (CUA32, CU310):
	- pin 10 (reference signal R) <> pin 7 (encoder power supply, ground)
	- pin 11 (reference signal R inverted) <> pin 4 (encoder power supply)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE

Acknowl. upon A: NONE

F33118 (N, A)	Encoder 3: Speed change not plausible
Message value:	%1
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	PULSE INHIBIT
Cause:	For an HTL/TTL encoder, the speed change has exceeded the value in p0492 over several sampling cycles. The change to the averaged speed actual value - if applicable - is monitored in the current controller sampling time. Fault value (r0949, interpret decimal): Only for internal Siemens troubleshooting.
Remedy:	- check the tachometer feeder cable for interruptions.
	- check the grounding of the tachometer shielding.
	- if required, increase the maximum speed difference per sampling cycle (p0492).
Reaction upon N:	
Acknowl. upon N:	
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F33120 (N, A)	Encoder 3: Encoder power supply fault
Message value:	Fault cause: %1 bin
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	PULSE INHIBIT
Cause:	An encoder power supply fault was detected.
	Fault value (r0949, interpret binary):
	Bit 0: Undervoltage condition on the sense line.
	Bit 1: Overcurrent condition for the encoder power supply.
	Bit 2: Overcurrent condition for encoder power supply on cable resolver excitation negative.
	Bit 3: Overcurrent condition for encoder power supply on cable resolver excitation positive.
	Bit 4: The 24 V power supply through the Power Module (PM) is overloaded.
	Bit 5: Overcurrent at the EnDat connection of the converter.
	Bit 6: Overvoltage at the EnDat connection of the converter.
	Bit 7: Hardware fault at the EnDat connection of the converter.
	If the encoder cables 6FX2002-2EQ00 and 6FX2002-2CH00 are interchanged, this can result in the encoder being destroyed because the pins of the operating voltage are reversed.

Bomodu:	For fault value, bit $0 = 1$
Remedy:	For fault value, bit 0 = 1: - correct encoder cable connected?
	- check the plug connections of the encoder cable.
	- SMC30: Check the parameterization (p0404.22).
	For fault value, bit 1 = 1:
	- correct encoder cable connected?
	- replace the encoder or encoder cable.
	For fault value, bit 2 = 1:
	- correct encoder cable connected?
	- replace the encoder or encoder cable.
	For fault value, bit 3 = 1:
	- correct encoder cable connected?
	- replace the encoder or encoder cable.
	For fault value, bit 5 = 1:
	- Measuring unit correctly connected at the converter?
	- Replace the measuring unit or the cable to the measuring unit.
	For fault value, bit 6, 7 = 1:
	- Replace the defective EnDat 2.2 converter.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F33121 (N, A)	Encoder 3: Determined commutation position incorrect
Message value:	-
Drive object:	All objects
Reaction:	OFF1 (NONE, OFF2, OFF3)
Acknowledge:	PULSE INHIBIT
Cause:	A commutation position actual value sensing error was detected.
Remedy:	Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module.
-	NONE
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	
F33122	Encoder 3: Sensor Module hardware fault
Message value:	%1
Drive object:	All objects
Reaction:	OFF1
Acknowledge:	IMMEDIATELY
Cause:	An internal Sensor Module hardware fault was detected.
	Fault value (r0949, interpret decimal):
	1: Reference voltage error.
	2: Internal undervoltage.
	3: Internal overvoltage.
Remedy:	Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module.
F33123 (N, A)	Encoder 3: Signal level A/B outside tolerance
Message value:	Fault cause: %1 bin

Drive object: All objects

13.2 List of faults and alarms

Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The unipolar level (AP/AN or BP/BN) for encoder 3 is outside the permissible tolerance.
	Fault value (r0949, interpret binary):
	Bit 0 = 1: Either AP or AN outside the tolerance.
	Bit 16 = 1: Either BP or BN outside the tolerance.
	The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV.
	The response thresholds are < 1700 mV and > 3300 mV. Note:
	The signal level is not evaluated unless the following conditions are satisfied:
	- Sensor Module properties available (r0459.31 = 1).
	- monitoring active (p0437.31 = 1).
Remedy:	- make sure that the encoder cables and shielding are installed in an EMC-compliant manner.
· · · · · · · · · · · · · · · · · · ·	- check the plug connections and contacts of the encoder cable.
	- check the short-circuit of a signal cable with mass or the operating voltage.
	- replace the encoder cable.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F33125 (N, A)	Encoder 3: Signal level track A or B too high
Message value:	A track: %1, B-track: %2
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge:	PULSE INHIBIT
Cause:	The signal level (root from A ² + B ²) of the encoder exceeds the permissible limit value.
	Fault value (r0949, interpret hexadecimal):
	yyyyxxxx hex:
	yyyy = Signal level, track B (16 bits with sign).
	xxxx = Signal level, track A (16 bits with sign). The neurinal simplifying the second arrivation in the second $275 \text{ m}/(500 \text{ m})/(500 \text{ m})/(25/(20\%))$
	The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %). The response threshold is > 750 mV.
	A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
	Note for Sensor Modules for resolvers (e.g. SMC10):
	The nominal signal level is at 2900 mV (2.0 Vrms).
	The response threshold is > 3582 mV.
	A signal level of 2900 mV peak value corresponds to the numerical value 6666 hex = 26214 dec.
	Note:
	The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
Remedy:	 check that the encoder cables and shielding are routed in compliance with EMC. replace the encoder or encoder cable.
Reaction upon N:	NONE
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	
-	

F33126 (N, A) Encoder 3: Signal level track A or B too high

Message value: Amplitude: %1, Angle: %2

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Drive object:	
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge:	
Cause:	The signal level ($ A + B $) of the encoder exceeds the permissible limit value.
	Fault value (r0949, interpret hexadecimal):
	yyyyxxx hex:
	yyyy = Angle
	xxxx = amplitude, i.e. root of A ² + B ² (16 bits without sign) The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
	The response threshold for $(A + B)$ is > 1120 mV or the root of $(A^2 + B^2)$ > 955 mV.
	A signal level of 500 mV peak value corresponds to the numerical value of 299A hex = 10650 dec.
	The angle 0 FFFF hex corresponds to 0 360 degrees of the fine position. Zero degrees is present at the negative
	zero crossover of track B.
	Note:
	The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
Remedy:	- check that the encoder cables and shielding are routed in compliance with EMC.
	- replace the encoder or encoder cable.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F33129 (N, A)	Encoder 3: Position difference hall sensor/track C/D and A/B too large
Message value:	%1
Drive object:	All objects
Drive object: Reaction:	All objects Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
-	-
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Reaction: Acknowledge:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater
Reaction: Acknowledge:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical.
Reaction: Acknowledge:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical.
Reaction: Acknowledge:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect
Reaction: Acknowledge:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no
Reaction: Acknowledge:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A33429. Fault value (r0949, interpret decimal): For track C/D, the following applies:
Reaction: Acknowledge:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A33429. Fault value (r0949, interpret decimal): For track C/D, the following applies: Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °).
Reaction: Acknowledge:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A33429. Fault value (r0949, interpret decimal): For track C/D, the following applies: Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °). For Hall signals, the following applies:
Reaction: Acknowledge: Cause:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A33429. Fault value (r0949, interpret decimal): For track C/D, the following applies: Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °). For Hall signals, the following applies:
Reaction: Acknowledge:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A33429. Fault value (r0949, interpret decimal): For track C/D, the following applies: Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °). For Hall signals, the following applies: Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °). - track C or D not connected.
Reaction: Acknowledge: Cause:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A33429. Fault value (r0949, interpret decimal): For track C/D, the following applies: Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °). For Hall signals, the following applies: Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °). - track C or D not connected. - correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D.
Reaction: Acknowledge: Cause:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A33429. Fault value (r0949, interpret decimal): For track C/D, the following applies: Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °). For Hall signals, the following applies: Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °). - track C or D not connected. - correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D. - check that the encoder cables are routed in compliance with EMC.
Reaction: Acknowledge: Cause: Remedy:	 Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A33429. Fault value (r0949, interpret decimal): For track C/D, the following applies: Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °). For Hall signals, the following applies: Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °). track C or D not connected. correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D. check that the encoder cables are routed in compliance with EMC. check the adjustment of the Hall sensor.
Reaction: Acknowledge: Cause: Remedy: Remedy:	 Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A33429. Fault value (r0949, interpret decimal): For track C/D, the following applies: Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °). For Hall signals, the following applies: Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °). track C or D not connected. correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D. check that the encoder cables are routed in compliance with EMC. check the adjustment of the Hall sensor. NONE
Reaction: Acknowledge: Cause: Remedy: Remedy: Reaction upon N: Acknowl. upon N:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A33429. Fault value (r0949, interpret decimal): For track C/D, the following applies: Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °). For Hall signals, the following applies: Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °). - track C or D not connected. - correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D. - check that the encoder cables are routed in compliance with EMC. - check the adjustment of the Hall sensor. NONE NONE
Reaction: Acknowledge: Cause: Remedy: Remedy:	Serve: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A33429. Fault value (r0949, interpret decimal): For track C/D, the following applies: Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °). For Hall signals, the following applies: Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °). For track C or D not connected. - correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D. - check that the encoder cables are routed in compliance with EMC. - check the adjustment of the Hall sensor. NONE NONE NONE

F33130 (N, A)	Encoder 3: Zero mark and position error from the coarse synchronization
Message value:	Angular deviation, electrical: %1, angle, mechanical: %2
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge:	PULSE INHIBIT
Cause:	After initializing the pole position using track C/D, Hall signals or pole position identification routine, the zero mark was detected outside the permissible range. For distance-coded encoders, the test is carried out after passing 2 zero marks. Fine synchronization was not carried out.
	When initializing via track C/D (p0404) then it is checked whether the zero mark occurs in an angular range of +/-18 ° mechanical.
	When initializing via Hall sensors (p0404) or pole position identification (p1982) it is checked whether the zero mark occurs in an angular range of +/-60 ° electrical.
	Fault value (r0949, interpret hexadecimal):
	yyyyxxxx hex
	yyyy: Determined mechanical zero mark position (can only be used for track C/D).
	xxxx: Deviation of the zero mark from the expected position as electrical angle. Scaling: 32768 dec = 180 $^{\circ}$
Remedy:	- check that the encoder cables are routed in compliance with EMC.
	- check the plug connections.
	- if the Hall sensor is used as an equivalent for track C/D, check the connection.
	- check the connection of track C or D.
	- replace the encoder or encoder cable.
Reaction upon N:	•
Acknowl. upon N:	
-	NONE
Reaction upon A:	NONE
-	
Reaction upon A:	NONE
Reaction upon A: Acknowl. upon A:	NONE
Reaction upon A: Acknowl. upon A: F33131 (N, A)	NONE Encoder 3: Position deviation incremental/absolute too high
Reaction upon A: Acknowl. upon A: F33131 (N, A) Message value:	NONE Encoder 3: Position deviation incremental/absolute too high %1
Reaction upon A: Acknowl. upon A: F33131 (N, A) Message value: Drive object: Reaction:	NONE Encoder 3: Position deviation incremental/absolute too high %1 All objects
Reaction upon A: Acknowl. upon A: F33131 (N, A) Message value: Drive object:	NONE Encoder 3: Position deviation incremental/absolute too high %1 All objects Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Reaction upon A: Acknowl. upon A: F33131 (N, A) Message value: Drive object: Reaction: Acknowledge:	NONE Encoder 3: Position deviation incremental/absolute too high %1 All objects Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2) PULSE INHIBIT
Reaction upon A: Acknowl. upon A: F33131 (N, A) Message value: Drive object: Reaction: Acknowledge:	NONE Encoder 3: Position deviation incremental/absolute too high %1 All objects Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2) PULSE INHIBIT Absolute encoder: When cyclically reading the absolute position, an excessively high difference to the incremental position was detected.
Reaction upon A: Acknowl. upon A: F33131 (N, A) Message value: Drive object: Reaction: Acknowledge:	NONE Encoder 3: Position deviation incremental/absolute too high %1 All objects Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2) PULSE INHIBIT Absolute encoder: When cyclically reading the absolute position, an excessively high difference to the incremental position was detected. The absolute position that was read is rejected.
Reaction upon A: Acknowl. upon A: F33131 (N, A) Message value: Drive object: Reaction: Acknowledge:	NONE Encoder 3: Position deviation incremental/absolute too high %1 All objects Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2) PULSE INHIBIT Absolute encoder: When cyclically reading the absolute position, an excessively high difference to the incremental position was detected. The absolute position that was read is rejected. Limit value for the deviation: - EnDat encoder: Is supplied from the encoder and is a minimum of 2 quadrants (e.g. EQI 1325 > 2 quadrants, EQN 1325
Reaction upon A: Acknowl. upon A: F33131 (N, A) Message value: Drive object: Reaction: Acknowledge:	NONE Encoder 3: Position deviation incremental/absolute too high %1 All objects Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2) PULSE INHIBIT Absolute encoder: When cyclically reading the absolute position, an excessively high difference to the incremental position was detected. The absolute position that was read is rejected. Limit value for the deviation: - EnDat encoder: Is supplied from the encoder and is a minimum of 2 quadrants (e.g. EQI 1325 > 2 quadrants, EQN 1325 > 50 quadrants).
Reaction upon A: Acknowl. upon A: F33131 (N, A) Message value: Drive object: Reaction: Acknowledge:	NONE Encoder 3: Position deviation incremental/absolute too high %1 All objects Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2) PULSE INHIBIT Absolute encoder: When cyclically reading the absolute position, an excessively high difference to the incremental position was detected. The absolute position that was read is rejected. Limit value for the deviation: - EnDat encoder: Is supplied from the encoder and is a minimum of 2 quadrants (e.g. EQI 1325 > 2 quadrants, EQN 1325 > 50 quadrants). - other encoders: 15 pulses = 60 quadrants.
Reaction upon A: Acknowl. upon A: F33131 (N, A) Message value: Drive object: Reaction: Acknowledge:	NONE Encoder 3: Position deviation incremental/absolute too high %1 All objects Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2) PULSE INHIBIT Absolute encoder: When cyclically reading the absolute position, an excessively high difference to the incremental position was detected. The absolute position that was read is rejected. Limit value for the deviation: - EnDat encoder: Is supplied from the encoder and is a minimum of 2 quadrants (e.g. EQI 1325 > 2 quadrants, EQN 1325 > 50 quadrants). - other encoders: 15 pulses = 60 quadrants. Incremental encoder:
Reaction upon A: Acknowl. upon A: F33131 (N, A) Message value: Drive object: Reaction: Acknowledge:	NONE Encoder 3: Position deviation incremental/absolute too high %1 All objects Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2) PULSE INHIBIT Absolute encoder: When cyclically reading the absolute position, an excessively high difference to the incremental position was detected. The absolute position that was read is rejected. Limit value for the deviation: - EnDat encoder: Is supplied from the encoder and is a minimum of 2 quadrants (e.g. EQI 1325 > 2 quadrants, EQN 1325 > 50 quadrants) other encoders: 15 pulses = 60 quadrants. Incremental encoder: When the zero pulse is passed, a deviation in the incremental position was detected.
Reaction upon A: Acknowl. upon A: F33131 (N, A) Message value: Drive object: Reaction: Acknowledge:	NONE Encoder 3: Position deviation incremental/absolute too high %1 All objects Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2) PULSE INHIBIT Absolute encoder: When cyclically reading the absolute position, an excessively high difference to the incremental position was detected. The absolute position that was read is rejected. Limit value for the deviation: - EnDat encoder: Is supplied from the encoder and is a minimum of 2 quadrants (e.g. EQI 1325 > 2 quadrants, EQN 1325 > 50 quadrants) other encoders: 15 pulses = 60 quadrants. Incremental encoder: When the zero pulse is passed, a deviation in the incremental position was detected. For equidistant zero marks, the following applies: - the first zero mark passed supplies the reference point for all subsequent checks. The other zero marks must have n
Reaction upon A: Acknowl. upon A: F33131 (N, A) Message value: Drive object: Reaction: Acknowledge:	NONE Encoder 3: Position deviation incremental/absolute too high %1 All objects Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2) PULSE INHIBIT Absolute encoder: When cyclically reading the absolute position, an excessively high difference to the incremental position was detected. The absolute position that was read is rejected. Limit value for the deviation: - EnDat encoder: Is supplied from the encoder and is a minimum of 2 quadrants (e.g. EQI 1325 > 2 quadrants, EQN 1325 > 50 quadrants) other encoders: 15 pulses = 60 quadrants. Incremental encoder: When the zero pulse is passed, a deviation in the incremental position was detected. For equidistant zero marks, the following applies: - the first zero mark passed supplies the reference point for all subsequent checks. The other zero marks must have n times the distance referred to the first zero mark.
Reaction upon A: Acknowl. upon A: F33131 (N, A) Message value: Drive object: Reaction: Acknowledge:	NONE Encoder 3: Position deviation incremental/absolute too high %1 All objects Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2) PULSE INHIBIT Absolute encoder: When cyclically reading the absolute position, an excessively high difference to the incremental position was detected. The absolute position that was read is rejected. Limit value for the deviation: - EnDat encoder: Is supplied from the encoder and is a minimum of 2 quadrants (e.g. EQI 1325 > 2 quadrants, EQN 1325 > 50 quadrants). - other encoders: 15 pulses = 60 quadrants. Incremental encoder: When the zero pulse is passed, a deviation in the incremental position was detected. For equidistant zero marks, the following applies: - the first zero mark passed supplies the reference point for all subsequent checks. The other zero marks must have n times the distance referred to the first zero mark. For distance-coded zero marks, the following applies: - the first zero mark pais supplies the reference point for all subsequent checks. The other zero mark pais must have the times the distance referred to the first zero mark.

Remedy:	 check that the encoder cables are routed in compliance with EMC. check the plug connections. replace the encoder or encoder cable. check whether the coding disk is dirty or there are strong ambient magnetic fields. adapt the parameter for the clearance between zero marks (p0425). if message output above speed threshold, reduce filter time if necessary (p0438).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F33135	Encoder 3: Fault when determining the position (singleturn)
Message value:	Fault cause: %1 bin
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)

SINAMICS S210 servo drive system Operating Instructions, 12/2017, A5E41702836A AB

Acknowledge:

PULSE INHIBIT

13.2 List of faults and alarms

Cause: The encoder has identified a position determination fault (singleturn) and supplies status information bit by bit in an internal status/fault word. Some of these bits cause this fault to be triggered. Other bits are status displays. The status/fault word is displayed in the fault value. Note regarding the bit designation: The first designation is valid for DRIVE-CLiQ encoders, the second for EnDat 2.2 encoders. Fault value (r0949, interpret binary): Bit 0: F1 (safety status display). Bit 1: F2 (safety status display). Bit 2: Reserved (lighting). Bit 3: Reserved (signal amplitude). Bit 4: Reserved (position value). Bit 5: Reserved (overvoltage). Bit 6: Reserved (undervoltage)/hardware fault EnDat supply (--> F3x110, x = 1, 2, 3). Bit 7: Reserved (overcurrent)/EnDat encoder withdrawn when not in the parked state (--> F3x110, x = 1, 2, 3). Bit 8: Reserved (battery)/overcurrent EnDat supply (--> F3x110, x = 1, 2, 3). Bit 9: Reserved/overvoltage EnDat supply (--> F3x110, x = 1, 2, 3). Bit 11: Reserved/internal communication error (--> F3x110, x = 1, 2, 3). Bit 12: Reserved/internal communication error (--> F3x110, x = 1, 2, 3). Bit 13: Reserved/internal communication error (--> F3x110, x = 1, 2, 3). Bit 14: Reserved/internal communication error (--> F3x110, x = 1, 2, 3). Bit 15: Internal communication error (--> F3x110, x = 1, 2, 3). Bit 16: Lighting (--> F3x135, x = 1, 2, 3). Bit 17: Signal amplitude (--> F3x135, x = 1, 2, 3). Bit 18: Singleturn position 1 (--> F3x135, x = 1, 2, 3). Bit 19: Overvoltage (--> F3x135, x = 1, 2, 3). Bit 20: Undervoltage (--> F3x135, x = 1, 2, 3). Bit 21: Overcurrent (--> F3x135, x = 1, 2, 3). Bit 22: Temperature exceeded (--> F3x405, x = 1, 2, 3). Bit 23: Singleturn position 2 (safety status display). Bit 24: Singleturn system (--> F3x135, x = 1, 2, 3). Bit 25: Singleturn power down (--> F3x135, x = 1, 2, 3) Bit 26: Multiturn position 1 (--> F3x136, x = 1, 2, 3). Bit 27: Multiturn position 2 (--> F3x136, x = 1, 2, 3). Bit 28: Multiturn system (--> F3x136, x = 1, 2, 3). Bit 29: Multiturn power down (--> F3x136, x = 1, 2, 3). Bit 30: Multiturn overflow/underflow (--> F3x136, x = 1, 2, 3). Bit 31: Multiturn battery (reserved). Remedy: - determine the detailed cause of the fault using the fault value. - replace the encoder if necessary. Note: An EnDat 2.2 encoder may only be removed and inserted in the "Park" state. If an EnDat 2.2 encoder was removed when not in the "Park" state, then after inserting the encoder, a POWER ON (switchoff/switch-on) is necessary to acknowledge the fault. F33136 Encoder 3: Fault when determining the position (multiturn) Message value: Fault cause: %1 bin Drive object: All objects Reaction: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT Acknowledge:

Faults and alarms

Cause:	The encoder has identified a position determination fault (multiturn) and supplies status information bit by bit in an internal status/fault word.
	Some of these bits cause this fault to be triggered. Other bits are status displays. The status/fault word is displayed in the fault value.
	Note regarding the bit designation:
	The first designation is valid for DRIVE-CLiQ encoders, the second for EnDat 2.2 encoders.
	Fault value (r0949, interpret binary):
	Bit 0: F1 (safety status display).
	Bit 1: F2 (safety status display).
	Bit 2: Reserved (lighting).
	Bit 3: Reserved (signal amplitude).
	Bit 4: Reserved (position value).
	Bit 5: Reserved (overvoltage).
	Bit 6: Reserved (undervoltage)/hardware fault EnDat supply (> F3x110, x = 1, 2, 3).
	Bit 7: Reserved (overcurrent)/EnDat encoder withdrawn when not in the parked state (> F3x110, x = 1, 2, 3).
	Bit 8: Reserved (battery)/overcurrent EnDat supply (> F3x110, x = 1, 2, 3).
	Bit 9: Reserved/overvoltage EnDat supply (> F3x110, x = 1, 2, 3).
	Bit 11: Reserved/internal communication error (> F3x110, x = 1, 2, 3).
	Bit 12: Reserved/internal communication error (> F3x110, x = 1, 2, 3).
	Bit 13: Reserved/internal communication error (> F3x110, x = 1, 2, 3).
	Bit 14: Reserved/internal communication error (> F3x110, x = 1, 2, 3).
	Bit 15: Internal communication error (> F3x110, x = 1, 2, 3).
	Bit 16: Lighting (> F3x135, x = 1, 2, 3).
	Bit 17: Signal amplitude (> F3x135, x = 1, 2, 3).
	Bit 18: Singleturn position 1 (> F3x135, x = 1, 2, 3).
	Bit 19: Overvoltage (> F3x135, x = 1, 2, 3).
	Bit 20: Undervoltage (> F3x135, x = 1, 2, 3).
	Bit 21: Overcurrent (> F3x135, x = 1, 2, 3).
	Bit 22: Temperature exceeded (> $F3x405$, x = 1, 2, 3).
	Bit 23: Singleturn position 2 (safety status display).
	Bit 24: Singleturn system (> F3x135, x = 1, 2, 3).
	Bit 25: Singleturn power down (> F3x135, x = 1, 2, 3)
	Bit 26: Multiturn position 1 (> F3x136, x = 1, 2, 3).
	Bit 27: Multiturn position 2 (> F3x136, x = 1, 2, 3).
	Bit 28: Multiturn system (> F3x136, x = 1, 2, 3).
	Bit 29: Multiturn power down (> F3x136, x = 1, 2, 3).
	Bit 30: Multiturn overflow/underflow (> F3x136, x = 1, 2, 3).
	Bit 31: Multiturn battery (reserved).
Remedy:	- determine the detailed cause of the fault using the fault value.
· ·····	- replace the encoder if necessary.
	Note:
	An EnDat 2.2 encoder may only be removed and inserted in the "Park" state.
	If an EnDat 2.2 encoder was removed when not in the "Park" state, then after inserting the encoder, a POWER ON (switch-
	off/switch-on) is necessary to acknowledge the fault.
F33137	Encoder 3: Fault when determining the position (singleturn)
Message value:	Fault cause: %1 bin
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	PULSE INHIBIT

Cause:	A position determination fault has occurred in the DRIVE-CLiQ encoder.
	Fault value (r0949, interpret binary):
	yyxxxxx hex: yy = encoder version, xxxxxx = bit coding of the fault cause
	For yy = 8 (0000 1000 bin), the following applies:
	Bit 1: Signal monitoring (sin/cos).
	Bit 8: F1 (safety status display) error position word 1.
	Bit 9: F2 (safety status display) error position word 2.
	Bit 16: LED monitoring.
	Bit 17: Fault when determining the position (multiturn).
	Bit 23: Temperature outside the limit values.
	For yy = 11 (0000 1011 bin), the following applies:
	Bit 0: Position word 1 difference between rotation counter and software counter (XC_ERR).
	Bit 1: Position word 1 track error of the incremental signals (LIS_ERR).
	Bit 2: Position word 1 error when aligning between incremental track signals and absolute value (ST_ERR).
	Bit 3: Maximum permissible temperature exceeded (TEMP_ERR).
	Bit 4: Power supply overvoltage (MON_OVR_VOLT).
	Bit 5: Power supply overcurrent (MON_OVR_CUR).
	Bit 6: Power supply undervoltage (MON_UND_VOLT).
	Bit 7: Rotation error counter (MT_ERR).
	Bit 8: F1 (safety status display) error position word 1.
	Bit 9: F2 (safety status display) error position word 2.
	Bit 11: Position word 1 status bit: singleturn position OK (ADC_ready).
	Bit 12: Position word 1 status bit: rotation counter OK (MT_ready).
	Bit 13: Position word 1 memory error (MEM_ERR).
	Bit 14: Position word 1 absolute position error (MLS_ERR).
	Bit 15: position word 1 LED error, lighting unit error (LED_ERR).
	Bit 18: Position word 2 error when aligning between incremental track signals and absolute value (ST_ERR).
	Bit 21: Position word 2 memory error (MEM_ERR).
	Bit 22: Position word 2 absolute position error (MLS_ERR).
	Bit 23: position word 2 LED error, lighting unit error (LED_ERR).
	For yy = 12 (0000 1100 bin), the following applies:
	Bit 8: encoder fault.
	Bit 10: error in the internal position data transport.
	For yy = 14 (0000 1110 bin), the following applies:
	Bit 0: Position word 1 temperature outside limit value.
	Bit 1: Position word 1 position determination error (multiturn).
	Bit 2: Position word 1 FPGA error.
	Bit 3: Position word 1 velocity error.
	Bit 4: Position word 1 communication error between FPGAs/error in the incremental signal.
	Bit 5: Position word 1 timeout absolute value/error when determining the position (singleturn).
	Bit 6: Position word 1 internal hardware fault (clock/power monitor IC/power).
	Bit 7: Position word 1 internal error (FPGA communication/FPGA parameterization/self-test/software).
	Bit 8: F1 (safety status display) error position word 1.
	Bit 9: F2 (safety status display) error position word 2.
	Bit 16: Position word 2 temperature outside limit value.
	Bit 17: Position word 2 position determination error (multiturn).
	Bit 18: Position word 2 FPGA error.
	Bit 19: Position word 2 velocity error.

	Bit 20: Position word 2 communication error between FPGAs. Bit 21: Position word 2 position determination error (singleturn). Bit 22: Position word 2 internal hardware fault (clock/power monitor IC/power). Bit 23: Position word 2 internal error (self-test/software).
	Note:
	For an encoder version that is not described here, please contact the encoder manufacturer for more detailed information on the bit coding.
Remedy:	- determine the detailed cause of the fault using the fault value.
	- if required, replace the DRIVE-CLiQ encoder.
F33138	Encoder 3: Fault when determining the position (multiturn)
Message value:	Fault cause: %1 bin
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	PULSE INHIBIT

Cause:	A position determination fault has occurred in the DRIVE-CLiQ encoder. Fault value (r0949, interpret binary):
	yyxxxxx hex: $yy = encoder version$, xxxxxx = bit coding of the fault cause
	For yy = 8 (0000 1000 bin), the following applies:
	Bit 1: Signal monitoring (sin/cos).
	Bit 8: F1 (safety status display) error position word 1.
	Bit 9: F2 (safety status display) error position word 2.
	Bit 16: LED monitoring.
	Bit 17: Fault when determining the position (multiturn).
	Bit 23: Temperature outside the limit values.
	For yy = 11 (0000 1011 bin), the following applies:
	Bit 0: Position word 1 difference between rotation counter and software counter (XC_ERR).
	Bit 1: Position word 1 track error of the incremental signals (LIS_ERR).
	Bit 2: Position word 1 error when aligning between incremental track signals and absolute value (ST_ERR).
	Bit 3: Maximum permissible temperature exceeded (TEMP_ERR).
	Bit 4: Power supply overvoltage (MON_OVR_VOLT).
	Bit 5: Power supply overcurrent (MON_OVR_CUR).
	Bit 6: Power supply undervoltage (MON_UND_VOLT). Bit 7: Rotation error counter (MT_ERR).
	Bit 8: F1 (safety status display) error position word 1.
	Bit 9: F2 (safety status display) error position word 2.
	Bit 11: Position word 1 status bit: singleturn position OK (ADC_ready).
	Bit 12: Position word 1 status bit: rotation counter OK (MT_ready). Bit 13: Position word 1 memory error (MEM_ERR).
	Bit 14: Position word 1 absolute position error (MLS_ERR).
	Bit 15: position word 1 LED error, lighting unit error (LED_ERR).
	Bit 18: Position word 2 error when aligning between incremental track signals and absolute value (ST_ERR).
	Bit 21: Position word 2 memory error (MEM_ERR).
	Bit 22: Position word 2 absolute position error (MLS_ERR).
	Bit 23: position word 2 LED error, lighting unit error (LED_ERR).
	For yy = 14 (0000 1110 bin), the following applies:
	Bit 0: Position word 1 temperature outside limit value.
	Bit 1: Position word 1 position determination error (multiturn).
	Bit 2: Position word 1 FPGA error.
	Bit 3: Position word 1 velocity error.
	Bit 4: Position word 1 communication error between FPGAs/error in the incremental signal.
	Bit 5: Position word 1 timeout absolute value/error when determining the position (singleturn).
	Bit 6: Position word 1 internal hardware fault (clock/power monitor IC/power).
	Bit 7: Position word 1 internal error (FPGA communication/FPGA parameterization/self-test/software).
	Bit 8: F1 (safety status display) error position word 1.
	Bit 9: F2 (safety status display) error position word 2.
	Bit 16: Position word 2 temperature outside limit value.
	Bit 17: Position word 2 position determination error (multiturn).
	Bit 18: Position word 2 FPGA error.
	Bit 19: Position word 2 velocity error.
	Bit 20: Position word 2 communication error between FPGAs.
	Bit 21: Position word 2 position determination error (singleturn).
	Bit 22: Position word 2 internal hardware fault (clock/power monitor IC/power).
	Bit 23: Position word 2 internal error (self-test/software).

	Note:
	For an encoder version that is not described here, please contact the encoder manufacturer for more detailed information on the bit coding.
Remedy:	- determine the detailed cause of the fault using the fault value.
	- if required, replace the DRIVE-CLiQ encoder.
F33142 (N, A)	Encoder 3: Battery voltage fault
Message value:	-
Drive object:	All objects

Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	When switched-off, the encoder uses a battery to back up the multiturn information. The battery voltage is no longer sufficient to check the multiturn information.
Remedy:	Replace battery.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F33150 (N, A)	Encoder 3: Initialization error
Message value:	%1
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge:	PULSE INHIBIT
Cause:	Encoder functionality selected in p0404 cannot be executed.
	Fault value (r0949, interpret hexadecimal):
	Encoder malfunction.
	The bit assignment corresponds to that of p0404 (e.g. bit 5 set: Error track C/D).
Remedy:	- check that p0404 is correctly set.
	- check the encoder type used (incremental/absolute) and for SMCxx, the encoder cable.
	- if relevant, note additional fault messages that describe the fault in detail.
Reaction upon N:	
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	NONE
F33151 (N, A)	Encoder 3: Encoder speed for initialization AB too high
Message value:	
	%1
Drive object:	%1 All objects
Drive object: Reaction:	
-	All objects
Reaction:	All objects Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Reaction: Acknowledge:	All objects Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2) PULSE INHIBIT
Reaction: Acknowledge: Cause:	All objects Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2) PULSE INHIBIT The encoder speed is too high while initializing the Sensor Module.

Acknowl. upon N: NONE

F33152 (N, A)	Encoder 3: Max. signal frequency (track A/B) exceeded
Message value:	%1
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge:	PULSE INHIBIT
Cause:	The maximum signal frequency of the encoder evaluation has been exceeded.
	Fault value (r0949, interpret decimal):
	Actual input frequency in Hz.
Remedy:	- reduce the speed.
	- Use an encoder with a lower pulse number (p0408).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F33153 (N, A)	Encoder 3: Identification error
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	An error has occurred when identifying the encoder (waiting) p0400 = 10100.
	The connected encoder was not able to be identified.
	Fault value (r0949, interpret hexadecimal):
	Bit 0: Data length incorrect.
Remedy:	Manually configure the encoder according to the data sheet.
Reaction upon N:	NONE
Acknowl. upon N:	
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F33160 (N, A)	Encoder 3: Analog sensor channel A failed
Message value:	%1
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE)
Acknowledge:	PULSE INHIBIT
Cause:	The input voltage of the analog sensor is outside the permissible limits.
	Fault value (r0949, interpret decimal):
	1: Input voltage outside detectable measuring range.
	2: Input voltage outside the measuring range set in (p4673).
	3: The absolute value of the input voltage has exceeded the range limit (p4676).
Remedy:	For fault value = 1:
	- check the output voltage of the analog sensor.
	For fault value = 2:
	- check the voltage setting for each encoder period (p4673). For fault value = 3:
	- check the range limit setting and increase it if necessary (p4676).
Reaction upon N:	
Acknowl. upon N:	
Reaction upon A:	
Account upon A.	

Acknowl. upon A: NONE

F33161 (N, A)	Encoder 3: Analog sensor channel B failed
Message value:	%1
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE)
Acknowledge:	PULSE INHIBIT
Cause:	The input voltage of the analog sensor is outside the permissible limits.
	Fault value (r0949, interpret decimal):
	1: Input voltage outside detectable measuring range.
	2: Input voltage outside the selected measuring range (p4675).
	3: The absolute value of the input voltage has exceeded the range limit (p4676).
Remedy:	For fault value = 1:
	- check the output voltage of the analog sensor.
	For fault value = 2:
	- check the voltage setting for each encoder period (p4675).
	For fault value = 3:
	- check the range limit setting and increase it if necessary (p4676).
Reaction upon N:	
Acknowl. upon N:	NONE
Reaction upon A:	
Acknowl. upon A:	NONE
	Encoder 2. Angles concerne itigs value avecade limit value
F33163 (N, A)	Encoder 3: Analog sensor position value exceeds limit value
Message value:	%1
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE)
Acknowledge:	PULSE INHIBIT
Cause:	The position value has exceeded the permissible range of -0.5 +0.5.
	Fault value (r0949, interpret decimal):
	1: Position value from the LVDT sensor.
_ .	2: Position value from the encoder characteristic.
Remedy:	For fault value = 1:
	- check the LVDT ratio (p4678).
	- check the reference signal connection at track B. For fault value = 2:
	- check the coefficients of the characteristic (p4663 p4666).
Peaction upon N:	
Reaction upon N: Acknowl. upon N:	
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Reaction upon A:	NONE
Acknowl. upon A:	NONE
A33400 (F, N)	Encoder 3: Zero mark distance error (alarm threshold exceeded)
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE

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Cause:	The measured zero mark distance does not correspond to the parameterized zero mark distance.
	For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a zero mark is missing, depending on the pair generation, this cannot result in a fault and also has no effect in the system.
	The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
	Alarm value (r2124, interpret decimal):
	Last measured zero mark distance in increments (4 increments = 1 encoder pulse).
	The sign designates the direction of motion when detecting the zero mark distance.
Remedy:	- check that the encoder cables are routed in compliance with EMC.
	- check the plug connections.
	- check the encoder type (encoder with equidistant zero marks).
	- adapt the parameter for the distance between zero marks (p0424, p0425).
	- replace the encoder or encoder cable.
Reaction upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A22401 (E NI)	Encoder 2: Zero mark feiled (clarm threshold exceeded)
A33401 (F, N)	Encoder 3: Zero mark failed (alarm threshold exceeded)
Message value: Drive object:	%1
Reaction:	All objects NONE
Acknowledge:	NONE
Cause:	
Cause.	The 1.5x parameterized zero mark distance was exceeded without a zero mark being detected. The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
	Alarm value (r2124, interpret decimal):
	Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse).
Remedy:	- check that the encoder cables are routed in compliance with EMC.
-	- check the plug connections.
	- check the encoder type (encoder with equidistant zero marks).
	- adapt the parameter for the clearance between zero marks (p0425).
	- replace the encoder or encoder cable.
Reaction upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
F33405 (N, A)	Encoder 3: Temperature in the encoder evaluation exceeded
Message value:	%1
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The encoder evaluation for a motor with DRIVE-CLiQ has detected an excessively high temperature.
	The fault threshold is 125 ° C.
	Fault value (r0949, interpret decimal):
	Measured module temperature [0.1 °C].
Remedy:	Reduce the ambient temperature for the DRIVE-CLiQ connection of the motor.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A33407 (F, N)	Elicodel 5. Function minic reached
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The encoder has reached one of its function limits. A service is recommended.
	Alarm value (r2124, interpret decimal):
	1: Incremental signals
	3: Absolute track
	4: Code connection
Remedy:	Perform service. Replace the encoder if necessary.
	Note:
	The actual functional reserve of an encoder can be displayed via r4651.
Reaction upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A33410 (F, N)	Encoder 3: Communication error (encoder and Sensor Module)
Message value:	Fault cause: %1 bin
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Serial communication protocol transfer error between the encoder and evaluation module.
	Alarm value (r2124, interpret binary):

A33407 (F. N) Encoder 3: Function limit reached

Alarm value (r2124, interpret binary):

- Bit 0: Alarm bit in the position protocol.
- Bit 1: Incorrect quiescent level on the data line.

Bit 2: Encoder does not respond (does not supply a start bit within 50 ms).

- Bit 3: CRC error: The checksum in the protocol from the encoder does not match the data.
- Bit 4: Encoder acknowledgment error: The encoder incorrectly understood the task (request) or cannot execute it.
- Bit 5: Internal error in the serial driver: An illegal mode command was requested.
- Bit 6: Timeout when cyclically reading.
- Bit 8: Protocol is too long (e.g. > 64 bits).
- Bit 9: Receive buffer overflow.
- Bit 10: Frame error when reading twice.
- Bit 11: Parity error.
- Bit 12: Data line signal level error during the monoflop time.

 Remedy:
 - check that the encoder cables are routed in compliance with EMC.
 - check the plug connections. - replace encoder.
- Reaction upon F: Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
- Acknowl. upon F: IMMEDIATELY
- Reaction upon N: NONE
- Acknowl. upon N: NONE

A33411 (F, N) Encoder 3: Encoder signals an internal alarm (detailed information)

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Message value:	Fault cause: %1 bin, additional information: %2
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE

Cause:	The absolute encoder fault word includes alarm bits that have been set.
	Alarm value (r2124, interpret binary):
	yyyyxxxx hex: yyyy = supplementary information, xxxx = fault cause
	уууу = 0:
	Bit 0: Frequency exceeded (speed too high).
	Bit 1: Temperature exceeded.
	Bit 2: Control reserve, lighting system exceeded.
	Bit 3: Battery discharged.
	Bit 4: Reference point passed.
	yyyy = 1: Bit 0: Signal amplitude outside the control range.
	Bit 1: Error multiturn interface
	Bit 2: Internal data error (singleturn/multiturn not with single steps).
	Bit 3: Error EEPROM interface.
	Bit 4: SAR converter error.
	Bit 5: Fault for the register data transfer.
	Bit 6: Internal error identified at the error pin (nErr).
	Bit 7: Temperature threshold exceeded or fallen below.
Remedy:	Replace encoder.
Reaction upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A33412 (F, N)	-
Message value:	%1
Message value: Drive object:	%1 All objects
Message value: Drive object: Reaction:	%1 All objects NONE
Message value: Drive object: Reaction: Acknowledge:	%1 All objects NONE NONE
Message value: Drive object: Reaction:	%1 All objects NONE NONE The encoder signals an internal alarm via serial protocol.
Message value: Drive object: Reaction: Acknowledge:	%1 All objects NONE NONE The encoder signals an internal alarm via serial protocol. Alarm value (r2124, interpret binary):
Message value: Drive object: Reaction: Acknowledge:	%1 All objects NONE NONE The encoder signals an internal alarm via serial protocol. Alarm value (r2124, interpret binary): Bit 0: Fault bit in the position protocol.
Message value: Drive object: Reaction: Acknowledge: Cause:	%1 All objects NONE NONE The encoder signals an internal alarm via serial protocol. Alarm value (r2124, interpret binary): Bit 0: Fault bit in the position protocol. Bit 1: Alarm bit in the position protocol.
Message value: Drive object: Reaction: Acknowledge:	%1 All objects NONE NONE The encoder signals an internal alarm via serial protocol. Alarm value (r2124, interpret binary): Bit 0: Fault bit in the position protocol. Bit 1: Alarm bit in the position protocol. - carry out a POWER ON (switch-off/switch-on) for all components.
Message value: Drive object: Reaction: Acknowledge: Cause:	%1 All objects NONE NONE The encoder signals an internal alarm via serial protocol. Alarm value (r2124, interpret binary): Bit 0: Fault bit in the position protocol. Bit 1: Alarm bit in the position protocol. - carry out a POWER ON (switch-off/switch-on) for all components. - check that the encoder cables are routed in compliance with EMC.
Message value: Drive object: Reaction: Acknowledge: Cause:	%1 All objects NONE NONE The encoder signals an internal alarm via serial protocol. Alarm value (r2124, interpret binary): Bit 0: Fault bit in the position protocol. Bit 1: Alarm bit in the position protocol. - carry out a POWER ON (switch-off/switch-on) for all components. - check that the encoder cables are routed in compliance with EMC. - check the plug connections.
Message value: Drive object: Reaction: Acknowledge: Cause:	%1 All objects NONE NONE The encoder signals an internal alarm via serial protocol. Alarm value (r2124, interpret binary): Bit 0: Fault bit in the position protocol. Bit 1: Alarm bit in the position protocol. - carry out a POWER ON (switch-off/switch-on) for all components. - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace encoder.
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy: Remedy:	%1 All objects NONE NONE The encoder signals an internal alarm via serial protocol. Alarm value (r2124, interpret binary): Bit 0: Fault bit in the position protocol. Bit 1: Alarm bit in the position protocol. - carry out a POWER ON (switch-off/switch-on) for all components. - check that the encoder cables are routed in compliance with EMC. - check the plug connections.
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy:	%1 All objects NONE NONE The encoder signals an internal alarm via serial protocol. Alarm value (r2124, interpret binary): Bit 0: Fault bit in the position protocol. Bit 1: Alarm bit in the position protocol. Isit 1: Alarm bit in the position protocol. - carry out a POWER ON (switch-off/switch-on) for all components. - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace encoder. Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy: Remedy: Reaction upon F: Acknowl. upon F:	%1 All objects NONE NONE The encoder signals an internal alarm via serial protocol. Alarm value (r2124, interpret binary): Bit 0: Fault bit in the position protocol. Bit 1: Alarm bit in the position protocol. - carry out a POWER ON (switch-off/switch-on) for all components. - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace encoder. Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY NONE
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy: Remedy: Reaction upon F: Acknowl. upon F: Reaction upon N:	%1 All objects NONE NONE The encoder signals an internal alarm via serial protocol. Alarm value (r2124, interpret binary): Bit 0: Fault bit in the position protocol. Bit 1: Alarm bit in the position protocol. - carry out a POWER ON (switch-off/switch-on) for all components. - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace encoder. Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY NONE
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy: Remedy: Reaction upon F: Acknowl. upon F: Reaction upon N:	%1 All objects NONE NONE The encoder signals an internal alarm via serial protocol. Alarm value (r2124, interpret binary): Bit 0: Fault bit in the position protocol. Bit 1: Alarm bit in the position protocol. - carry out a POWER ON (switch-off/switch-on) for all components. - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace encoder. Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY NONE NONE
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy: Remedy: Reaction upon F: Acknowl. upon F: Reaction upon N: Acknowl. upon N:	%1 All objects NONE NONE The encoder signals an internal alarm via serial protocol. Alarm value (r2124, interpret binary): Bit 0: Fault bit in the position protocol. Bit 1: Alarm bit in the position protocol. - carry out a POWER ON (switch-off/switch-on) for all components. - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace encoder. Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY NONE NONE
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy: Remedy: Reaction upon F: Acknowl. upon F: Reaction upon N: Acknowl. upon N: Acknowl. upon N:	%1 All objects NONE NONE The encoder signals an internal alarm via serial protocol. Alarm value (r2124, interpret binary): Bit 0: Fault bit in the position protocol. Bit 1: Alarm bit in the position protocol. - carry out a POWER ON (switch-off/switch-on) for all components. - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace encoder. Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY NONE NONE
Message value: Drive object: Reaction: Acknowledge: Cause: Remedy: Remedy: Reaction upon F: Acknowl. upon F: Reaction upon N: Acknowl. upon N: Acknowl. upon N:	%1 All objects NONE NONE The encoder signals an internal alarm via serial protocol. Alarm value (r2124, interpret binary): Bit 0: Fault bit in the position protocol. Bit 1: Alarm bit in the position protocol. - carry out a POWER ON (switch-off/switch-on) for all components. - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace encoder. Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY NONE NONE Encoder 3: Signal level track C or D out of tolerance C track: %1, D track: %2
Message value: Drive object: Reaction: Acknowledge: Cause: Cause: Remedy: Remedy: Reaction upon F: Acknowl. upon F: Reaction upon N: Acknowl. upon N: Acknowl. upon N: Drive object:	%1 All objects NONE NONE The encoder signals an internal alarm via serial protocol. Alarm value (r2124, interpret binary): Bit 0: Fault bit in the position protocol. Bit 1: Alarm bit in the position protocol. - carry out a POWER ON (switch-off/switch-on) for all components. - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace encoder. Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY NONE NONE NONE Encoder 3: Signal level track C or D out of tolerance C track: %1, D track: %2 All objects

 Symperson Signal level, track C (16 bits with sign). Xxxx = Signal level, track C (16 bits with sign). The normal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV - 25/-20 %). The response thresholds are < 230 mV (dbserve the frequency response of the encoder) and > 750 mV. A signal level of the encoder cables are routed in compliance with EMC. Acheck the plug connections. - check the plug connections. - check the sensor Module (e.g. contacts). <l< th=""><th>Cause:</th><th>The signal level (C² + D²) of track C or D of the encoder or from the Hall signals, is not within the tolerance bandwidth. Alarm value (r2124, interpret hexadecimal): yyyyxxxx hex:</th></l<>	Cause:	The signal level (C ² + D ²) of track C or D of the encoder or from the Hall signals, is not within the tolerance bandwidth. Alarm value (r2124, interpret hexadecimal): yyyyxxxx hex:
The non-nal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -250 %). The response thresholds are < 200 mV (observe the frequency response of the encoder) and > 750 mV. A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec. Note: If the amplitude is not within the tolerance bandwidth, then it cannot be used to initialize the start position. - check that the encoder cables are routed in compliance with EMC. - check the big connections. - replace the encoder or anoder cable. - check the big connections. - check the big connections. - check the big encoder or anoder cable. - check the big connections. NoNE Note: Note: <td< th=""><th></th><th>yyyy = Signal level, track D (16 bits with sign).</th></td<>		yyyy = Signal level, track D (16 bits with sign).
The response thresholds are <230 mV (observe the frequency response of the encoder) and > 750 mV. A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec. Note: If the amplitude is not within the tolerance bandwidth, then it cannot be used to initialize the start position. - check that the encoder cables are routed in compliance with EMC. - check the the encoder cable are routed in compliance with EMC. - check the Hail sensor box. Reaction upon F. Reaction upon F. Start (KASC/CDERK, OFF1, OFF2, OFF3, STOP2) Acknowl. upon F. NONE Acknowl.upon N:		xxxx = Signal level, track C (16 bits with sign).
A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21298 dec. Note: If the amplitude is not within the tolerance bandwidth, then it cannot be used to initialize the start position. Remody: - check the plug connections. - replace the encoder or encoder cable. - check the full sensor toxo. Reaction upon F: Sensor Notle (ASC/DCBRK, OFF1, OFF2, OFF3, STOP2) Acknowl, upon F: MMEDIATELY Reaction upon N: NONE		The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
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 - check the Sensor Module (e.g. contacts). - if the coding disk is soiled or the lighting aged, replace the encoder. Reaction upon F: Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) Acknowl. upon F: IMMEDIATELY 		
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Reaction upon F: Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) Acknowl. upon F: IMMEDIATELY		
Acknowl. upon F: IMMEDIATELY		
	-	
Reaction upon A: NONE	-	
	Reaction upon A:	NUNE

13.2 List of faults and alarms

Acknowl. upon A: NONE

A33418 (F, N)	Encoder 3: Speed change not plausible (alarm)
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	For an HTL/TTL encoder, the speed change has exceeded the value in p0492 over several sampling cycles. The change to the averaged speed actual value - if applicable - is monitored in the current controller sampling time. Alarm value (r2124, interpret decimal): Only for internal Siemens troubleshooting.
Remedy:	- check the tachometer feeder cable for interruptions.
	- check the grounding of the tachometer shielding.
	- if required, increase the setting of p0492.
Reaction upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A22/10 /E NI	Encoder 3: Track A or B outside tolerance
A33419 (F, N)	
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The amplitude/phase/offset correction for track A or B is at the limit.
	Amplitude error correction: Amplitude B / Amplitude A = 0.78 1.27
	Phase: <84 degrees or >96 degrees
	SMC20: Offset correction: +/-140 mV
	SMC10: Offset correction: +/-650 mV
	Alarm value (r2124, interpret hexadecimal):
	xxxx1: Minimum of the offset correction, track B
	xxxx2: Maximum of the offset correction, track B
	xxx1x: Minimum of the offset correction, track A xxx2x: Maximum of the offset correction, track A
	xx1xx: Minimum of the amplitude correction, track B/A
	xx2xx: Maximum of the amplitude correction, track B/A
	x1xxx: Minimum of the phase error correction
	x2xxx: Maximum of the phase error correction
	1xxxx: Minimum of the cubic correction
	2xxxx: Maximum of the cubic correction
Remedy:	- check mechanical mounting tolerances for encoders without their own bearings (e.g. toothed-wheel encoders).
· · · · · · · · · · · · · · · · · · ·	- check the plug connections (also the transition resistance).
	- check the encoder signals.
	- replace the encoder or encoder cable.
Reaction upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	
Acknowl. upon N:	

A33421 (F, N)	Encoder 3: Determined commutation position incorrect (alarm)
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	A commutation position actual value sensing error was detected.
	Alarm value (r2124, interpret decimal):
	3: The absolute position of the serial protocol and track A/B differ by half an encoder pulse. The absolute position must have its zero position in the quadrants in which both tracks are negative. In the case of a fault, the position can be incorrect by one encoder pulse.
Remedy:	For alarm value = 3:
	- For a standard encoder with cable, contact the manufacturer where relevant.
	- correct the assignment of the tracks to the position value that is serially transferred. To do this, the two tracks must be connected, inverted, at the Sensor Module (interchange A with A* and B with B*) or, for a programmable encoder, check the zero offset of the position.
Reaction upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A33422 (F, N)	Encoder 3: Pulses per revolution square-wave encoder outside tolerance bandwidth
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The measured zero mark distance does not correspond to the parameterized zero mark distance.
	This alarm is triggered with active square-wave encoder PPR correction and re-parameterized fault 31131 if the accumulator contains larger values than p4683 or p4684.
	The zero mark distance for zero mark monitoring is set in p0425 (rotary encoder).
	Alarm value (r2124, interpret decimal):
	accumulated differential pulses in encoder pulses.
Remedy:	- check that the encoder cables are routed in compliance with EMC.
	- check the plug connections.
	- check the encoder type (encoder with equidistant zero marks).
	 adapt the parameter for the distance between zero marks (p0424, p0425). replace the encoder or encoder cable.
Reaction upon E:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	
Reaction upon N:	
Acknowl. upon N:	
A33429 (F, N)	Encoder 3: Position difference hall sensor/track C/D and A/B too large
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
-	

13.2 List of faults and alarms

Cause:	The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater
	than +/-60 ° electrical.
	One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical.
	The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect
	rotational sense or supply values that are not accurate enough.
	Alarm value (r2124, interpret decimal):
	For track C/D, the following applies:
	Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °).
	For Hall signals, the following applies:
Demoden	Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °).
Remedy:	- track C or D not connected.
	 - correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D. - check that the encoder cables are routed in compliance with EMC.
	- check the adjustment of the Hall sensor.
Reaction upon F:	·
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	
·	
A33431 (F, N)	Encoder 3: Position deviation incremental/absolute too high (alarm)
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	When the zero pulse is passed, a deviation in the incremental position was detected.
	For equidistant zero marks, the following applies:
	 the first zero mark passed supplies the reference point for all subsequent checks. The other zero marks must have n times the distance referred to the first zero mark.
	For distance-coded zero marks, the following applies:
	- the first zero mark pair supplies the reference point for all subsequent checks. The other zero mark pairs must have the expected distance to the first zero mark pair.
	Alarm value (r2124, interpret decimal):
	Deviation in quadrants (1 pulse = 4 quadrants).
Remedy:	- check that the encoder cables are routed in compliance with EMC.
	- check the plug connections.
	- replace the encoder or encoder cable.
Departies upon E	- Clean coding disk or remove strong magnetic fields.
Reaction upon F: Acknowl. upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY
Reaction upon N:	
Acknowl. upon N:	
A33432 (F, N)	Encoder 3: Rotor position adaptation corrects deviation
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE

Acknowledge: NONE

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Cause:	On track A/B, pulses have been lost or too many have been counted. These pulses are presently being corrected.
	Alarm value (r2124, interpret decimal):
	Last measured deviation of zero mark in increments (4 increments = 1 encoder pulse).
	The sign designates the direction of motion when detecting the zero mark distance.
Remedy:	- check that the encoder cables are routed in compliance with EMC.
	- check the plug connections.
	- replace the encoder or encoder cable.
	- check encoder limit frequency.
	- adapt the parameter for the distance between zero marks (p0424, p0425).
Reaction upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	
A22442 (E NI)	Encoder 2. Potters weltage clarm threshold reached
A33442 (F, N)	Encoder 3: Battery voltage alarm threshold reached
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	When switched-off, the encoder uses a battery to back up the multiturn information. The multiturn information can no longer be buffered if the battery voltage drops even further.
Remedy:	Replace battery.
Reaction upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	
Acknown upon N.	NONE
A33443 (F, N)	Encoder 3: Signal level track C/D outside tolerance (alarm)
Message value:	Fault cause: %1 bin
-	
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The unipolar level (CP/CN or DP/DN) for encoder 3 is outside the permissible tolerance.
	Alarm value (r2124, interpret binary):
	Bit 0 = 1: Either CP or CN outside the tolerance.
	Bit 16 = 1: Either DP or DN outside the tolerance.
	The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV.
	The response thresholds are < 1700 mV and > 3300 mV.
	Note:
	The signal level is not evaluated unless the following conditions are satisfied:
	- Sensor Module properties available (r0459.31 = 1).
	- Sensor Module properties available (r0459.31 = 1). - monitoring active (p0437.31 = 1).
Remedy:	
Remedy:	- monitoring active (p0437.31 = 1).
Remedy:	 monitoring active (p0437.31 = 1). check that the encoder cables and shielding are routed in compliance with EMC.
Remedy:	 monitoring active (p0437.31 = 1). check that the encoder cables and shielding are routed in compliance with EMC. check the plug connections and contacts of the encoder cable.
Remedy: Reaction upon F:	 monitoring active (p0437.31 = 1). check that the encoder cables and shielding are routed in compliance with EMC. check the plug connections and contacts of the encoder cable. are the C/D tracks connected correctly (have the signal cables CP and CN or DP and DN been interchanged)?
Reaction upon F:	 monitoring active (p0437.31 = 1). check that the encoder cables and shielding are routed in compliance with EMC. check the plug connections and contacts of the encoder cable. are the C/D tracks connected correctly (have the signal cables CP and CN or DP and DN been interchanged)? replace the encoder cable.
Reaction upon F: Acknowl. upon F:	 monitoring active (p0437.31 = 1). check that the encoder cables and shielding are routed in compliance with EMC. check the plug connections and contacts of the encoder cable. are the C/D tracks connected correctly (have the signal cables CP and CN or DP and DN been interchanged)? replace the encoder cable. Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY
Reaction upon F: Acknowl. upon F: Reaction upon N:	 monitoring active (p0437.31 = 1). check that the encoder cables and shielding are routed in compliance with EMC. check the plug connections and contacts of the encoder cable. are the C/D tracks connected correctly (have the signal cables CP and CN or DP and DN been interchanged)? replace the encoder cable. Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY NONE
Reaction upon F: Acknowl. upon F:	 monitoring active (p0437.31 = 1). check that the encoder cables and shielding are routed in compliance with EMC. check the plug connections and contacts of the encoder cable. are the C/D tracks connected correctly (have the signal cables CP and CN or DP and DN been interchanged)? replace the encoder cable. Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY NONE

A33460 (N)	Encoder 3: Analog sensor channel A failed
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The input voltage of the analog sensor is outside the permissible limits.
08030.	Alarm value (r2124, interpret decimal):
	1: Input voltage outside detectable measuring range.
	2: Input voltage outside measuring range set in p4673.
	3: The absolute value of the input voltage has exceeded the range limit (p4676).
Remedy:	For alarm value = 1:
Remouy.	- check the output voltage of the analog sensor.
	For alarm value = 2:
	- check the voltage setting for each encoder period (p4673).
	For alarm value = 3:
	- check the range limit setting and increase it if necessary (p4676).
Reaction upon N:	
Acknowl. upon N:	
Acknowl. upon N.	NONE
A33461 (N)	Encoder 3: Analog sensor channel B failed
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The input voltage of the analog sensor is outside the permissible limits.
	Alarm value (r2124, interpret decimal):
	1: Input voltage outside detectable measuring range.
	2: Input voltage outside the selected measuring range (p4675).
	3: The absolute value of the input voltage has exceeded the range limit (p4676).
Remedy:	For alarm value = 1:
	- check the output voltage of the analog sensor.
	For alarm value = 2:
	- check the voltage setting for each encoder period (p4675).
	For alarm value = 3:
	- check the range limit setting and increase it if necessary (p4676).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A33462 (N)	Encoder 3: Analog sensor no channel active
Message value:	%1
Drive object:	All objects
Reaction:	
	NONE
Acknowledge:	NONE Channel A and B are not activisted for the appleg concer
Cause:	Channel A and B are not activated for the analog sensor.
Remedy:	- activate channel A and/or channel B (p4670).
– <i>–</i> – – – – – – – – – – – – – – – – – –	- check the encoder configuration (p0404.17).
Reaction upon N:	
Acknowl. upon N:	

A33463 (N)	Encoder 3: Analog sensor position value exceeds limit value
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The position value has exceeded the permissible range of -0.5 +0.5.
	Alarm value (r2124, interpret decimal):
	1: Position value from the LVDT sensor.
	2: Position value from the encoder characteristic.
Remedy:	For alarm value = 1:
-	- check the LVDT ratio (p4678).
	- check the reference signal connection at track B.
	For alarm value = 2:
	- check the coefficients of the characteristic (p4663 p4666).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
A33470 (F, N)	Encoder 3: Encoder signals an internal error (X521.7)
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	For the Sensor Module Cabinet 30 (SMC30), a dirty encoder is signaled via a 0 signal at terminal X521.7.
Remedy:	- check the plug connections.
	- replace the encoder or encoder cable.
Reaction upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
F33500 (N, A)	Encoder 3: Position tracking traversing range exceeded
	Encodel 5. Position tracking traversing range exceeded
Message value:	
Drive object:	All objects
Reaction:	OFF1 (NONE, OFF2, OFF3)
Acknowledge:	
Cause:	For a configured linear axis without modulo correction, the drive/encoder has exceeded the maximum possible traversing range. The value should be read in p0412 and interpreted as the number of motor revolutions.
	For p0411.0 = 1, the maximum traversing range for the configured linear axis is defined to be 64x (+/- 32x) of p0421.
	For p0411.3 = 1, the maximum traversing range for the configured linear axis is preset (default value) to the highest possible
	value and is +/-p0412/2 (rounded off to complete revolutions). The highest possible value depends on the pulse number (p0408) and the fine resolution (p0419).
Remedy:	The fault should be resolved as follows:
Remeuy.	- select encoder commissioning (p0010 = 4).
	- reset the position tracking as follows ($p0411.2 = 1$).
	- deselect encoder commissioning (p0010 = 0).
	The fault should then be acknowledged and the absolute encoder adjusted.
Reaction upon N:	NONE
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	NONE

F33501 (N, A)	Encoder 3: Position tracking encoder position outside tolerance window
Message value:	%1
Drive object:	All objects
Reaction:	OFF1 (NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	When switched off, the drive/encoder was moved through a distance greater than was parameterized in the tolerance window. It is possible that there is no longer any reference between the mechanical system and encoder. Fault value (r0949, interpret decimal): Deviation (difference) to the last encoder position in increments of the absolute value. The sign designates the traversing direction. Note:
	The deviation (difference) found is also displayed in r0477.
Remedy:	Reset the position tracking as follows:
	- select encoder commissioning (p0010 = 4).
	- reset the position tracking as follows (p0411.2 = 1).
	- deselect encoder commissioning (p0010 = 0).
	The fault should then be acknowledged and, if necessary, the absolute encoder adjusted (p2507).
Deset	See also: p0010
Reaction upon N:	NONE
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	NONE
F33502 (N, A)	Encoder 3: Encoder with measuring gear without valid signals
Message value:	-
Drive object:	All objects
Reaction:	OFF1 (OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The encoder with measuring gear no longer provides any valid signals.
Remedy:	It must be ensured that all of the encoders, with mounted measuring gear, provide valid actual values in operation.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F33503 (N. A)	Encoder 3: Position tracking cannot be reset
Message value:	-
Drive object:	All objects
Reaction:	OFF1 (NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The position tracking for the measuring gear cannot be reset.
Remedy:	The fault should be resolved as follows:
-	- select encoder commissioning (p0010 = 4).
	- reset the position tracking as follows (p0411.2 = 1).
	- deselect encoder commissioning (p0010 = 0).
	The fault should then be acknowledged and the absolute encoder adjusted.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE

Acknowl. upon A: NONE

A33700 Encoder 3: Effectivity test does not supply the expected value Message value: Fault cause: %1 bin Drive object: All objects Reaction: NONE Adknowledge: NONE Adknowledge: NONE Adam value (r2124, interpret binary): Bit x = 1: Effectivity test x unsuccessful. Remedy: Replace encoder. N33800 (F) Encoder 3: Group signal Message value: - Drive object: All objects Reaction: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowledge: NONE Cause: The motor encoder has detected at least one fault. Reaction: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowledge: NONE Cause: The motor encoder has detected at least one fault. Reaction upon F: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowledge: NONE F33801 (N, A) Encoder 3 DRIVE-CLIQ: Sign-of-life missing Message value: Component number: %1, fault cause: %2 Drive object: All objects Reaction: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Drive object: All objects Reaction: NONE Acknowledge: NONE Cause: The DRIVE-CLiQ encoder fault word supplies fault bits that have been set. Alarm value (r2124, interpret binary): Bit x = 1: Effectivity test x unsuccessful. Remedy: Replace encoder. N33800 (F) Encoder 3: Group signal Message value: - Offwo object: All objects Reaction: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowledge: NONE Cause: The motor encoder has detected at least one fault. Reaction: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowledge: NONE Cause: The motor encoder has detected at least one fault. Reaction upon F: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowl.upon F: IMMEDIATELY F33801 (N, A) Encoder 3 DRIVE-CLIQ: Sign-of-life missing Component number: %1, fault cause: %2 Drive object: Drive object: All objects Reaction: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowledge: IMMEDIATELY Cause: Component number: %1, fault cause: %2 Drive o
Reaction: NONE Acknowledge: NONE Cause: The DRIVE-CLQ encoder fault word supplies fault bits that have been set. Alarm value (r2124, interpret binary): Bit x = 1: Effectivity test x unsuccessful. Remedy: Replace encoder. N33800 (F) Encoder 3: Group signal Message value: - Drive object All objects Reaction: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowledge: NONE Cause: The motor encoder has detected at least one fault. Remedy: Evaluate the other messages that are presently available. Reaction: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowledge: NONE Reaction upon F: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowl.upon F: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowledge: Component number: %1, fault cause: %2 Drive object: All objects Reaction: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowledge: MMEDIATELY Cause: A Divjects Reaction: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowledge: MMEDIATELY Cause
Acknowledge: NONE Cause: The DRIVE-CLiQ encoder fault word supplies fault bits that have been set. Alarm value (r2124, interpret binary): Bit x = 1: Effectivity test x unsuccessful. Remedy: Remedy: Replace encoder. N33800 (F) Encoder 3: Group signal Message value: N33800 (F) Encoder 3: Group signal Message value: Acknowledge: NONE Orive object: All objects Reaction: Serve: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowledge: NONE Cause: The motor encoder has detected at least one fault. Reaction upon F: F33801 (N, A) Encoder 3 DRIVE-CLiQ: Sign-of-life missing F33801 (N, A) Encoder 3 DRIVE-CLiQ: Sign-of-life missing Message value: Component number: %1, fault cause: %2 Drive object: All objects Reaction: Serve: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowledge: IMMEDIATELY F33801 (N, A) Encoder 3 DRIVE-CLiQ: Sign-of-life missing Cause: All objects Reaction: Serve: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowledge: IMMEDIATELY Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fau
Cause: The DRIVE-CLiQ encoder fault word supplies fault bits that have been set. Alarm value (r2124, interpret binary): Bit x = 1: Effectivity test x unsuccessful. Remedy: Replace encoder. N33800 (F) Encoder 3: Group signal Message value: - Onive object: All objects Reaction: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowledge: NONE Cause: The motor encoder has detected at least one fault. Reaction upon F: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowlupon F: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowlupon F: IMMEDIATELY F33801 (N, A) Encoder 3 DRIVE-CLiQ: Sign-of-life missing Cause: Component number: %1, fault cause: %2 Drive object: All objects Reaction: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowledge: IMMEDIATELY Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 10 (= 0A hex): The sign-of-life bit in the receive telegram is not set. Note regarding the message value: The individual information is coded as follows in the message value (
Alarm value (r2124, interpret binary): Bit x = 1: Effectivity test x unsuccessful. Remedy: Replace encoder. N33800 (F) Encoder 3: Group signal Message value: - Drive object: All objects Reaction: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowledge: NONE Cause: The motor encoder has detected at least one fault. Reaction upon F: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowledge: NONE Cause: The motor encoder has detected at least one fault. Reaction upon F: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowl.upon F: IMMEDIATELY F33801 (N, A) Encoder 3 DRIVE-CLIQ: Sign-of-life missing Message value: Component number: %1, fault cause: %2 Drive object: All objects Reaction: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowledge: IMMEDIATELY Cause: A DRIVE-CLIQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 10 (= 0A hex): The sign-of-life bit in the receive telegram is not set. Note regarding the message value:
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Remedy: Replace encoder. N33800 (F) Encoder 3: Group signal Message value: - Drive object: All objects Reaction: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowledge: NONE Cause: The motor encoder has detected at least one fault. Reaction upon F: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowledge: NONE Cause: The motor encoder has detected at least one fault. Reaction upon F: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowl.upon F: IMMEDIATELY F33801 (N, A) Encoder 3 DRIVE-CLIQ: Sign-of-life missing Component number: %1, fault cause: %2 Drive object: All objects All objects Reaction: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowledge: IMMEDIATELY Cause: ADRIVE-CLIQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 10 (= 0A hex): The sign-of-life bit in the receive telegram is not set. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error caus
N33800 (F) Encoder 3: Group signal Message value: - Drive object: All objects Reaction: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowledge: NONE Cause: The motor encoder has detected at least one fault. Remedy: Evaluate the other messages that are presently available. Reaction upon F: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowl.upon F: IMMEDIATELY F33801 (N, A) Encoder 3 DRIVE-CLiQ: Sign-of-life missing Message value: Component number: %1, fault cause: %2 Drive object: All objects Reaction: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowledge: IMMEDIATELY Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 10 (= 0A hex): The sign-of-life bit in the receive telegram is not set. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
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Acknowl. upon F: IMMEDIATELY F33801 (N, A) Encoder 3 DRIVE-CLiQ: Sign-of-life missing Message value: Component number: %1, fault cause: %2 Drive object: All objects Reaction: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowledge: IMMEDIATELY Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 10 (= 0A hex): The sign-of-life bit in the receive telegram is not set. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Message value: Component number: %1, fault cause: %2 Drive object: All objects Reaction: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowledge: IMMEDIATELY Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 10 (= 0A hex): The sign-of-life bit in the receive telegram is not set. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Message value: Component number: %1, fault cause: %2 Drive object: All objects Reaction: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowledge: IMMEDIATELY Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 10 (= 0A hex): The sign-of-life bit in the receive telegram is not set. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Drive object: All objects Reaction: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowledge: IMMEDIATELY Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 10 (= 0A hex): The sign-of-life bit in the receive telegram is not set. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
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The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
0000yyxx hex: yy = component number, xx = error cause
- replace the component involved.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE
F33802 (N, A) Encoder 3: Time slice overflow
Message value: %1
Drive object: All objects
Reaction: Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) Acknowledge: IMMEDIATELY

Cause:	A time slice overflow has occurred in encoder 3.
	Fault value (r0949, interpret hexadecimal):
	yx hex: y = function involved (Siemens-internal fault diagnostics), x = time slice involved
	x = 9: Time clice everflow of the fact (current controller cleck evelo) time clice
	Time slice overflow of the fast (current controller clock cycle) time slice. x = A:
	Time slice overflow of the average time slice.
	x = C:
	Time slice overflow of the slow time slice.
	yx = 3E7:
	Timeout when waiting for SYNO (e.g. unexpected return to non-cyclic operation).
Remedy:	Increase the current controller sampling time
	Note:
5 4 1	For a current controller sampling time = 31.25 μs, use an SMx20 with Article No. 6SL3055-0AA00-5xA3.
Reaction upon N:	
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	NONE
F33804 (N, A)	Encoder 3: Sensor Module checksum error
Message value:	%1
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	POWER ON (IMMEDIATELY)
Cause:	A checksum error has occurred when reading-out the program memory on the Sensor Module.
	Fault value (r0949, interpret hexadecimal):
	yyyyxxxx hex
	yyyy: Memory area involved. xxxx: Difference between the checksum at POWER ON and the actual checksum.
Remedy:	- carry out a POWER ON (switch-off/switch-on).
Remouy.	- upgrade firmware to later version (>= V2.6 HF3, >= V4.3 SP2, >= V4.4).
	- check whether the permissible ambient temperature for the component is maintained.
	- replace the Sensor Module.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F33805 (N, A)	Encoder 3: EEPROM checksum error
Message value:	%1
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	Data in the EEPROM corrupted .
	Fault value (r0949, interpret hexadecimal):
	01: EEPROM access error.
	02: Too many blocks in the EEPROM.
Remedy:	Replace the module.
Reaction upon N:	
Acknowl. upon N:	NONE

Reaction upon A: NONE Acknowl. upon A: NONE

F33806 (N, A)	Encoder 3: Initialization error
Message value:	%1
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	PULSE INHIBIT
Cause:	The encoder was not successfully initialized.
	Fault value (r0949, interpret hexadecimal):
	Bit 0, 1: Encoder initialization with the motor rotating has failed (deviation involving coarse and fine position in encoder
	pulses/4).
	Bit 2: Mid-voltage matching for track A unsuccessful.
	Bit 3: Mid-voltage matching for track B unsuccessful.
	Bit 4: Mid-voltage matching for acceleration input unsuccessful.
	Bit 5: Mid-voltage matching for track safety A unsuccessful. Bit 6: Mid-voltage matching for track safety B unsuccessful.
	Bit 7: Mid-voltage matching for track C unsuccessful.
	Bit 8: Mid-voltage matching for track D unsuccessful.
	Bit 9: Mid-voltage matching for track R unsuccessful.
	Bit 10: The difference in mid-voltages between A and B is too great (> 0.5 V)
	Bit 11: The difference in mid-voltages between C and D is too great (> 0.5 V)
	Bit 12: The difference in mid-voltages between safety A and safety B is too great (> 0.5 V)
	Bit 13: The difference in mid-voltages between A and safety B is too great (> 0.5 V)
	Bit 14: The difference in mid-voltages between B and safety A is too great (> 0.5 V)
	Bit 15: The standard deviation of the calculated mid-voltages is too great (> 0.3 V)
	Bit 16: Internal fault - fault when reading a register (CAFE)
	Bit 17: Internal fault - fault when writing a register (CAFE)
	Bit 18: Internal fault: No mid-voltage matching available
	Bit 19: Internal error - ADC access error.
	Bit 20: Internal error - no zero crossover found.
	Bit 28: Error while initializing the EnDat 2.2 measuring unit.
	Bit 29: Error when reading out the data from the EnDat 2.2 measuring unit.
	Bit 30: EEPROM checksum of the EnDat 2.2 measuring unit incorrect.
	Bit 31: Data of the EnDat 2.2 measuring unit inconsistent.
	Bit 0, 1: Up to 6SL3055-0AA00-5*A0 Bits 2 20: 6SL3055-0AA00-5*A1 and higher
Remedy:	Acknowledge fault.
Remedy.	If the fault cannot be acknowledged:
	Bits 2 9: Check encoder power supply.
	Bits 2 14: Check the corresponding cable.
	Bit 15 with no other bits: Check track R, check settings in p0404.
	Bit 28: Check the cable between the EnDat 2.2 converter and the measuring unit.
	Bit 29 31: Replace the defective measuring unit.
Reaction upon N:	NONE
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	
······	

A33811 (F, N)	Encoder 3: Encoder serial number changed
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The encoder serial number has changed. The change is only checked for encoders with serial number (e.g. EnDat encoders).
	- the encoder was replaced.
	Note:
	With closed-loop position control, the serial number is accepted when starting the adjustment (p2507 = 2).
	When the encoder is adjusted (p2507 = 3), the serial number is checked for changes and if required, the adjustment is reset (p2507 = 1).
	Proceed as follows to hide serial number monitoring:
	- set the following serial numbers for the corresponding Encoder Data Set: p0441= FF, p0442 = 0, p0443 = 0, p0444 = 0, p0445 = 0.
Remedy:	Mechanically adjust the encoder. Accept the new serial number with p0440 = 1.
Reaction upon F:	NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE
F33812 (N, A)	Encoder 3: Requested cycle or RX-/TX timing not supported
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A cycle requested from the Control Unit or RX/TX timing is not supported.
	Fault value (r0949, interpret decimal):
	0: Application cycle is not supported.
	1: DRIVE-CLiQ cycle is not supported.
	2: Distance between RX and TX instants in time too low.
	3: TX instant in time too early.
Remedy:	Carry out a POWER ON (switch-off/switch-on) for all components.
Reaction upon N:	
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F33813	Encoder 3: Hardware logic unit failed
Message value:	Fault cause: %1 bin
Drive object:	
Reaction:	All objects
	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) PULSE INHIBIT
Acknowledge:	
Cause:	The logic unit of the DRIVE-CLiQ encoder has failed.
	Fault value (r0949, interpret binary): Bit 0: ALU watchdog has responded.
	Bit 1: ALU has detected a sign-of-life error.
Remedy:	When the error reoccurs, replace the encoder.
Remouy.	

A33811 (F, N) Encoder 3: Encoder serial number changed

F33820 (N, A)	Encoder 3 DRIVE-CLiQ: Telegram error
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder concerned.
	Fault cause:
	1 (= 01 hex):
	Checksum error (CRC error).
	2 (= 02 hex):
	Telegram is shorter than specified in the length byte or in the receive list.
	3 (= 03 hex):
	Telegram is longer than specified in the length byte or in the receive list.
	4 (= 04 hex):
	The length of the receive telegram does not match the receive list.
	5 (= 05 hex):
	The type of the receive telegram does not match the receive list.
	6 (= 06 hex):
	The address of the component in the telegram and in the receive list do not match.
	7 (= 07 hex):
	A SYNC telegram is expected - but the received telegram is not a SYNC telegram.
	8 (= 08 hex):
	No SYNC telegram is expected - but the received telegram is one.
	9 (= 09 hex):
	The error bit in the receive telegram is set.
	16 (= 10 hex):
	The receive telegram is too early.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON (switch-off/switch-on).
	- check the electrical cabinet design and cable routing for EMC compliance
	- check the DRIVE-CLiQ wiring (interrupted cable, contacts,).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F33835 (N, A)	Encoder 3 DRIVE-CLiQ: Cyclic data transfer error
Message value:	Component number: %1, fault cause: %2

Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY

13.2 List of faults and alarms

Cause:	A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder concerned. The nodes do not send
	and receive in synchronism.
	Fault cause:
	33 (= 21 hex):
	The cyclic telegram has not been received.
	34 (= 22 hex):
	Timeout in the telegram receive list.
	64 (= 40 hex):
	Timeout in the telegram send list.
	Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124):
Demedu	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON.
Desetter on the	- replace the component involved.
Reaction upon N:	
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	NONE
F33836 (N, A)	Encoder 3 DRIVE-CLiQ: Send error for DRIVE-CLiQ data
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
	IMMEDIATELY
Acknowledge:	
Cause:	A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Data were not able to be sent.
	Fault cause:
	65 (= 41 hex):
	Telegram type does not match send list.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	Carry out a POWER ON.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F33837 (N, A)	Encoder 3 DRIVE-CLiQ: Component fault
Message value:	Component number: %1, fault cause: %2
=	•
Drive object:	
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause:	Fault detected on the DRIVE-CLiQ component concerned. Faulty hardware cannot be excluded.
00000.	Fault cause:
	32 (= 20 hex):
	Error in the telegram header.
	35 (= 23 hex):
	Receive error: The telegram buffer memory contains an error.
	66 (= 42 hex):
	Send error: The telegram buffer memory contains an error.
	67 (= 43 hex):
	Send error: The telegram buffer memory contains an error.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- check the DRIVE-CLiQ wiring (interrupted cable, contacts,).
Remedy.	- check the electrical cabinet design and cable routing for EMC compliance
	- if required, use another DRIVE-CLiQ socket (p9904).
	- replace the component involved.
Departies upon Nu	
Reaction upon N:	
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	NONE
F33845 (N, A)	Encoder 3 DRIVE-CLiQ: Cyclic data transfer error
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Drive object: Reaction:	All objects Servo: OEE1 (IASC/DCBRK_NONE_OEE2_OEE3)
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Reaction: Acknowledge:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved.
Reaction: Acknowledge:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause:
Reaction: Acknowledge:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex):
Reaction: Acknowledge:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer.
Reaction: Acknowledge:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value:
Reaction: Acknowledge:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124):
Reaction: Acknowledge: Cause:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Reaction: Acknowledge: Cause: Remedy:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause Carry out a POWER ON (switch-off/switch-on).
Reaction: Acknowledge: Cause: Remedy: Reaction upon N:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause Carry out a POWER ON (switch-off/switch-on). NONE
Reaction: Acknowledge: Cause: Remedy: Reaction upon N: Acknowl. upon N:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause Carry out a POWER ON (switch-off/switch-on). NONE NONE
Reaction: Acknowledge: Cause: Remedy: Reaction upon N: Acknowl. upon N: Reaction upon A:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause Carry out a POWER ON (switch-off/switch-on). NONE NONE NONE
Reaction: Acknowledge: Cause: Remedy: Reaction upon N: Acknowl. upon N:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause Carry out a POWER ON (switch-off/switch-on). NONE NONE NONE
Reaction: Acknowledge: Cause: Remedy: Reaction upon N: Acknowl. upon N: Reaction upon A:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause Carry out a POWER ON (switch-off/switch-on). NONE NONE NONE NONE
Reaction: Acknowledge: Cause: Remedy: Reaction upon N: Acknowl. upon N: Reaction upon A: Acknowl. upon A:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause Carry out a POWER ON (switch-off/switch-on). NONE NONE NONE NONE
Reaction: Acknowledge: Cause: Remedy: Reaction upon N: Acknowl. upon N: Reaction upon A: Acknowl. upon A: Acknowl. upon A:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause Carry out a POWER ON (switch-off/switch-on). NONE NONE NONE NONE NONE NONE
Reaction: Acknowledge: Cause: Remedy: Reaction upon N: Acknowl. upon N: Reaction upon A: Acknowl. upon A: F33850 (N, A) Message value:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause Carry out a POWER ON (switch-off/switch-on). NONE NONE NONE NONE NONE NONE NONE NONE
Reaction: Acknowledge: Cause: Remedy: Reaction upon N: Acknowl. upon N: Reaction upon A: Acknowl. upon A: F33850 (N, A) Message value: Drive object:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause Carry out a POWER ON (switch-off/switch-on). NONE NONE NONE NONE NONE NONE NONE NONE NONE NONE

Cause:	An internal software error has occurred in the Sensor Module of encoder 3.
	Fault value (r0949, interpret decimal):
	1: Background time slice is blocked.
	2: Checksum over the code memory is not OK.
	10000: OEM memory of the EnDat encoder contains data that cannot be interpreted.
	11000 11499: Descriptive data from EEPROM incorrect.
	11500 11899: Calibration data from EEPROM incorrect.
	11900 11999: Configuration data from EEPROM incorrect.
	12000 12008: communication with analog/digital converter faulted.
	16000: DRIVE-CLiQ encoder initialization application error.
	16001: DRIVE-CLiQ encoder initialization ALU error.
	16002: DRIVE-CLiQ encoder HISI / SISI initialization error.
	16003: DRIVE-CLiQ encoder safety initialization error. 16004: DRIVE-CLiQ encoder internal system error.
Bomodu:	- replace the Sensor Module.
Remedy:	- replace the Sensor Module. - if required, upgrade the firmware in the Sensor Module.
	- contact Technical Support.
Reaction upon N:	
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	
Acknown. upon A.	
F33851 (N, A)	Encoder 3 DRIVE-CLiQ (CU): Sign-of-life missing
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 3) involved to the Control Unit.
	The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit.
	Fault cause:
	10 (= 0A hex):
	The sign-of-life bit in the receive telegram is not set.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- Upgrade the firmware of the component involved.
	- carry out a POWER ON (switch-off/switch-on) for the component involved.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F33860 (N, A)	Encoder 3 DRIVE-CLiQ (CU): Telegram error
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
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Cause:	A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 3) involved to the Control Unit.
	Fault cause:
	1 (= 01 hex):
	Checksum error (CRC error).
	2 (= 02 hex):
	Telegram is shorter than specified in the length byte or in the receive list.
	3 (= 03 hex):
	Telegram is longer than specified in the length byte or in the receive list.
	4 (= 04 hex):
	The length of the receive telegram does not match the receive list. 5 (= 05 hex):
	The type of the receive telegram does not match the receive list.
	6 (= 06 hex):
	The address of the power unit in the telegram and in the receive list do not match.
	9 (= 09 hex):
	The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply
	voltage has failed.
	16 (= 10 hex):
	The receive telegram is too early.
	17 (= 11 hex):
	CRC error and the receive telegram is too early.
	18 (= 12 hex):
	The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early.
	19 (= 13 hex):
	The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early.
	20 (= 14 hex):
	The length of the receive telegram does not match the receive list and the receive telegram is too early.
	21 (= 15 hex):
	The type of the receive telegram does not match the receive list and the receive telegram is too early.
	22 (= 16 hex): The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early.
	25 (= 19 hex):
	The error bit in the receive telegram is set and the receive telegram is too early.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON (switch-off/switch-on).
	- check the electrical cabinet design and cable routing for EMC compliance
	- check the DRIVE-CLiQ wiring (interrupted cable, contacts,).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F33875 (N, A)	Encoder 3: power supply voltage failed
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY

Cause:	The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply
	voltage has failed.
	Fault cause:
	9 (= 09 hex):
	The power supply voltage for the components has failed.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON (switch-off/switch-on).
Remedy.	- check the power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts,).
	- check the dimensioning of the power supply for the DRIVE-CLiQ component.
Reaction upon N:	
-	
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	NONE
F33885 (N, A)	Encoder 3 DRIVE-CLiQ (CU): Cyclic data transfer error
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 3) involved to the Control Unit.
	The nodes do not send and receive in synchronism.
	Fault cause:
	26 (= 1A hex): Sign-of-life bit in the receive telegram not set and the receive telegram is too early.
	33 (= 21 hex):
	The cyclic telegram has not been received.
	34 (= 22 hex):
	Timeout in the telegram receive list.
	64 (= 40 hex):
	Timeout in the telegram send list.
	98 (= 62 hex):
	Error at the transition to cyclic operation.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- check the power supply voltage of the component involved.
	- carry out a POWER ON.
	- replace the component involved.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F33886 (N, A)	Encoder 3 DRIVE-CLiQ (CU): Error when sending DRIVE-CLiQ data
Message value:	Component number: %1, fault cause: %2
Drive object:	All chiests

	,
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY

Cause: Remedy: Reaction upon N:	A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 3) involved to the Control Unit. Data were not able to be sent. Fault cause: 65 (= 41 hex): Telegram type does not match send list. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause Carry out a POWER ON. NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F33887 (N, A)	Encoder 3 DRIVE-CLiQ (CU): Component fault
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	Fault detected on the DRIVE-CLiQ component involved (Sensor Module for encoder 3). Faulty hardware cannot be excluded.
Remedy:	Fault cause: 32 (= 20 hex): Error in the telegram header. 35 (= 23 hex): Receive error: The telegram buffer memory contains an error. 66 (= 42 hex): Send error: The telegram buffer memory contains an error. 67 (= 43 hex): Send error: The telegram buffer memory contains an error. 96 (= 60 hex): Response received too late during runtime measurement. 97 (= 61 hex): Time taken to exchange characteristic data too long. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause - check the DRIVE-CLiQ wiring (interrupted cable, contacts,). - check the electrical cabinet design and cable routing for EMC compliance - if required, use another DRIVE-CLiQ socket (p9904).
	- replace the component involved.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F33895 (N, A) Message value: Drive object: Reaction:	Encoder 3 DRIVE-CLiQ (CU): Alternating cyclic data transfer error Component number: %1, fault cause: %2 All objects Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)

Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 3) involved to the Control Unit.
	Fault cause:
	11 (= 0B hex):
	Synchronization error during alternating cyclic data transfer.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	Carry out a POWER ON.
Reaction upon N:	
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	NONE
F33896 (N, A)	Encoder 3 DRIVE-CLiQ (CU): Inconsistent component properties
Message value:	Component number: %1
Drive object:	All objects
Reaction:	Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	The properties of the DRIVE-CLiQ component (Sensor Module for encoder 3), specified by the fault value, have changed
	in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced.
	Fault value (r0949, interpret decimal):
	Component number.
Remedy:	- carry out a POWER ON.
	- when a component is replaced, the same component type and if possible the same firmware version should be used.
	- when a cable is replaced, only cables whose length is the same as or as close as possible to the length of the original cables should be used (ensure compliance with the maximum cable length).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
E22900 (NL A)	Encoder 2: Unknown foult
F33899 (N, A)	Encoder 3: Unknown fault
Message value:	New message: %1
Drive object: Reaction:	All objects
	Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	A fault occurred on the Sensor Module for encoder 3 that cannot be interpreted by the Control Unit firmware. This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
	Fault value (r0949, interpret decimal):
	Fault number.
	Note:
	If required, the significance of this new fault can be read about in a more recent description of the Control Unit.
Remedy:	- replace the firmware on the Sensor Module by an older firmware version (r0148).
-	- upgrade the firmware on the Control Unit (r0018).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A33902 (F, N)	Encoder 3: SPI-BUS error occurred
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Error when operating the internal SPI bus.
	Alarm value (r2124, interpret hexadecimal):
	Only for internal Siemens troubleshooting.
Remedy:	- replace the Sensor Module.
	- if required, upgrade the firmware in the Sensor Module.
	- contact Technical Support.
Reaction upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A33902 (F, N) Encoder 3: SPI-BUS error occurred

A33903 (F, N)	Encoder 3: I2C-BUS error occurred	
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Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Error when operating the internal I2C bus.
	Alarm value (r2124, interpret hexadecimal):
	Only for internal Siemens troubleshooting.
Remedy:	- replace the Sensor Module.
	- if required, upgrade the firmware in the Sensor Module.
	- contact Technical Support.
Reaction upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F33905 (N, A)Encoder 3: Encoder parameterization errorMessage value:Parameter: %1, supplementary information: %2Drive object:All objectsReaction:Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)Acknowledge:IMMEDIATELY

Cause:	An error was identified in the encoder parameterization. It is possible that the parameterized encoder type does not match the connected encoder.
	The parameter involved can be determined as follows:
	- determine the parameter number using the fault value (r0949).
	- determine the parameter index (p0187).
	Fault value (r0949, interpret decimal):
	yyyyxxx dec: yyyy = supplementary information, xxxx = parameter
	xxxx = 421:
	For an EnDat/SSI encoder, the absolute position in the protocol must be less than or equal to 30 bits.
	уууу = 0:
	No additional information available.
	уууу = 1:
	The component does not support HTL level ($p0405.1 = 0$) combined with track monitoring A/B <> -A/B ($p0405.2 = 1$). yyyy = 2:
	A code number for an identified encoder has been entered into p0400, however, no identification was carried out. Please start a new encoder identification.
	уууу = 3:
	A code number for an identified encoder has been entered into p0400, however, no identification was carried out. Please select a listed encoder in p0400 with a code number < 10000.
	уууу = 4:
	This component does not support SSI encoders (p0404.9 = 1) without track A/B.
	уууу = 5:
	For SQW encoder, value in p4686 greater than in p0425.
	yyyy = 6: DRIVE-CLiQ encoder cannot be used with this firmware version.
	yyyy = 7
	For an SQW encoder, the XIST1 correction (p0437.2) is only permitted for equidistant zero marks. yyyy = 8:
	The motor pole pair width is not supported by the linear scale being used.
	yyyy = 9: The length of the position in the EnDat protocol may be a maximum of 32 bits.
	yyyy = 10:
	The connected encoder is not supported.
	yyyy = 11:
	The hardware does not support track monitoring.
Remedy:	- check whether the connected encoder type matches the encoder that has been parameterized.
	- correct the parameter specified by the fault value (r0949) and p0187.
	- re parameter number = 314:
	- check the pole pair number and measuring gear ratio. The quotient of the "pole pair number" divided by the "measuring gear ratio" must be less than or equal to 1000 ((r0313 * p0433) / p0432 <= 1000).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F33912	Encoder 3: Device combination is not permissible
Message value:	%1
Drive object:	All objects
Reaction:	Servo: OFF1 (IASC/DCBRK, NONE)
Acknowledge:	PULSE INHIBIT

Cause:	The selected device combination is not supported.
	Fault value (r0949, interpret decimal):
	1003:
	The connected measuring unit cannot be operated with the EnDat 2.2 converter. For instance, the measuring unit has a pulse number/resolution of 2 ⁿ .
	1005:
	The type of measuring unit (incremental) is not supported by the EnDat 2.2 converter.
	1006:
	The maximum duration of the EnDat transfer (31.25 µs) was exceeded.
	2001:
	The set combination of current controller cycle, DP cycle and Safety cycle is not supported by the EnDat 2.2 converter.
	2002:
	The resolution of the linear measuring unit does not match the pole pair width of the linear motor
	Pole pair width, minimum = p0422 * 2^20
Remedy:	For fault value = 1003, 1005, 1006:
	- Use a measuring unit that is permissible.
	For fault value = 2001:
	- set a permissible cycle combination (if required, use standard settings).
	For fault value = 2002:
	- Use a measuring unit with a lower resolution (p0422).

A33915 (F, N) Encoder 3: Encoder configuration error

Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The configuration for encoder 3 is incorrect.
	Alarm value (r2124, interpret decimal):
	1:
	Re-parameterization between fault/alarm is not permissible.
	419:
	When the fine resolution Gx_XIST2 is configured, the encoder identifies a maximum possible absolute position actual value (r0483) that can no longer be represented within 32 bits.
Remedy:	For alarm value = 1:
	No re-parameterization between fault/alarm.
	For alarm value = 419:
	Reduce the fine resolution (p0419) or deactivate the monitoring (p0437.25), if the complete multiturn range is not required
Reaction upon F:	Servo: NONE (IASC/DCBRK)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

Encoder 3: Encoder parameterization error
Parameter: %1, supplementary information: %2
All objects
Servo: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
IMMEDIATELY

Cause:	An encoder parameter was detected as being incorrect.
	It is possible that the parameterized encoder type does not match the connected encoder.
	The parameter involved can be determined as follows:
	- determine the parameter number using the fault value (r0949).
	- determine the parameter index (p0187).
	Fault value (r0949, interpret decimal):
Demedia	Parameter number.
Remedy:	 check whether the connected encoder type matches the encoder that has been parameterized. correct the parameter specified by the fault value (r0949) and p0187.
Reaction upon N:	
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	NONE
A33920 (F, N)	Encoder 3: Temperature sensor fault (motor)
Message value:	Fault cause: %1, channel number: %2
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The motor detected a fault when evaluating the temperature sensor.
	Fault cause:
	1 (= 01 hex):
	Wire breakage or sensor not connected.
	KTY: R > 1630 Ohm, PT1000: R > 1720 Ohm
	2 (= 02 hex):
	Measured resistance too low.
	PTC: R < 20 Ohm, KTY: R < 50 Ohm, PT1000: R < 603 Ohm
	Additional values:
	Only for internal Siemens troubleshooting.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
Demedu	0000yyxx hex: yy = channel number, xx = error cause
Remedy:	- check that the encoder cable is the correct type and is correctly connected.
	 check the temperature sensor selection in p0600 to p0603. replace the Sensor Module (hardware defect or incorrect calibration data).
Reaction upon E:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	
Reaction upon N:	
Acknowl. upon N:	
	NONE
A33930 (N)	Encoder 3: Data logger has saved data
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE

Cause:	For the activated function "Data logger" (p0437.0 = 1) a fault has occurred with the Sensor Module. This alarm indicates that the diagnostics data corresponding to the fault was saved on the memory card. The diagnostics data is saved in the following folder: /USER/SINAMICS/DATA/SMTRC00.BIN
	 /USER/SINAMICS/DATA/SMTRC07.BIN
	/USER/SINAMICS/DATA/SMTRCIDX.TXT
	The following information is contained in the TXT file:
	- Display of the last written BIN file.
	- Number of write operations that are still possible (from 10000 downwards).
	Note:
	Only Siemens can evaluate the BIN files.
Remedy:	Not necessary.
	This alarm is automatically withdrawn.
	The data logger is ready to record the next fault case.
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A33940 (F, N) Encoder 3: Spindle sensor S1 voltage incorrect

Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The voltage of analog sensor S1 is outside the permissible range.
	Alarm value (r2124, interpret decimal):
	Signal level from sensor S1.
	Note:
	A signal level of 500 mV corresponds to the numerical value 500 dec.
Remedy:	- check the clamped tool.
	- check the tolerance and if required, adapt (p5040).
	- check the thresholds and if required, adapt (p5041).
	 check analog sensor S1 and connections.
Reaction upon F:	Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F33950	Encoder 3: Internal software error
Message value:	%1
Drive object:	All objects
Reaction:	OFF1 (OFF2)
Acknowledge:	POWER ON
Cause:	An internal software error has occurred.
	Fault value (r0949, interpret decimal):
	Information about the fault source.
	Only for internal Siemens troubleshooting.
Remedy:	 - if necessary, upgrade the firmware in the Sensor Module to a later version. - contact Technical Support.

A33999 (F, N)	Encoder 3: Unknown alarm
Message value:	New message: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	A alarm has occurred on the Sensor Module for encoder 3 that cannot be interpreted by the Control Unit firmware. This can occur if the firmware on this component is more recent than the firmware on the Control Unit. Alarm value (r2124, interpret decimal): Alarm number. Note: If required, the significance of this new alarm can be read about in a more recent description of the Control Unit.
Remedy:	- replace the firmware on the Sensor Module by an older firmware version (r0148).
Ponction upon Fr	- upgrade the firmware on the Control Unit (r0018). Servo: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Reaction upon F: Acknowl. upon F:	
Reaction upon N:	IMMEDIATELY (POWER ON) NONE
Acknowl. upon N:	
Acknowl. upon N.	NONE
F34851	VSM DRIVE-CLiQ (CU): Sign-of-life missing
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	Servo: NONE (OFF1, OFF2)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred from the Voltage Sensing Module involved (VSM) to the Control Unit. The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit. Fault cause:
	10 (= 0A hex):
	The sign-of-life bit in the receive telegram is not set.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	Upgrade the firmware of the component involved.
F34860	VSM DRIVE-CLiQ (CU): Telegram error
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	Servo: NONE (OFF1, OFF2)
Acknowledge:	IMMEDIATELY
-	

Cause:	A DRIVE-CLiQ communications error has occurred from the Voltage Sensing Module involved (VSM) to the Control Unit.
	Fault cause:
	1 (= 01 hex):
	Checksum error (CRC error).
	2 (= 02 hex):
	Telegram is shorter than specified in the length byte or in the receive list.
	3 (= 03 hex):
	Telegram is longer than specified in the length byte or in the receive list.
	4 (= 04 hex):
	The length of the receive telegram does not match the receive list.
	5 (= 05 hex):
	The type of the receive telegram does not match the receive list.
	6 (= 06 hex):
	The address of the power unit in the telegram and in the receive list do not match.
	9 (= 09 hex):
	The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed.
	16 (= 10 hex):
	The receive telegram is too early.
	17 (= 11 hex):
	CRC error and the receive telegram is too early.
	18 (= 12 hex):
	The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early.
	19 (= 13 hex):
	The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early. 20 (= 14 hex):
	The length of the receive telegram does not match the receive list and the receive telegram is too early.
	21 (= 15 hex):
	The type of the receive telegram does not match the receive list and the receive telegram is too early.
	22 (= 16 hex):
	The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early. 25 (= 19 hex):
	The error bit in the receive telegram is set and the receive telegram is too early.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON (switch-off/switch-on).
, ·	- check the electrical cabinet design and cable routing for EMC compliance
	- check the DRIVE-CLiQ wiring (interrupted cable, contacts,).
F34875	VSM: power supply voltage failed
Message value:	Component number: %1, fault cause: %2
Dahas alula alu	

 Drive object:
 All objects

 Reaction:
 OFF2

 Acknowledge:
 IMMEDIATELY

Cause:	The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply
	voltage has failed.
	Fault cause:
	9 (= 09 hex):
	The power supply voltage for the components has failed.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON (switch-off/switch-on).
	- check the power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts,).
	- check the dimensioning of the power supply for the DRIVE-CLiQ component.
F34885	VSM DRIVE-CLiQ (CU): Cyclic data transfer error
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	Servo: NONE (OFF1, OFF2)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred from the Voltage Sensing Module involved (VSM) to the Control Unit.
	The nodes do not send and receive in synchronism.
	Fault cause:
	26 (= 1A hex):
	Sign-of-life bit in the receive telegram not set and the receive telegram is too early.
	33 (= 21 hex):
	The cyclic telegram has not been received.
	34 (= 22 hex):
	Timeout in the telegram receive list. 64 (= 40 hex):
	Timeout in the telegram send list.
	98 (= 62 hex):
	Error at the transition to cyclic operation.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- check the power supply voltage of the component involved.
. toniouji	- carry out a POWER ON.
	- replace the component involved.
F34886	VSM DRIVE-CLiQ (CU): Error when sending DRIVE-CLiQ data
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	Servo: NONE (OFF1, OFF2)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred from the Voltage Sensing Module involved (VSM) to the Control Unit.
	Data were not able to be sent.
	Fault cause:
	65 (= 41 hex):
	Telegram type does not match send list.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	Carry out a POWER ON.

E24007	VCM DDIVE OLIO (OLI): Company for the		
F34887			
Message value:			
Drive object: All objects			
Reaction:	Servo: NONE (OFF1, OFF2)		
Acknowledge:	IMMEDIATELY		
Cause:	Fault detected on the DRIVE-CLiQ component (Voltage Sensing Module) involved. Faulty hardware cannot be excluded.		
	Fault cause:		
	32 (= 20 hex):		
	Error in the telegram header.		
	35 (= 23 hex):		
	Receive error: The telegram buffer memory contains an error.		
	66 (= 42 hex):		
	Send error: The telegram buffer memory contains an error.		
	67 (= 43 hex):		
	Send error: The telegram buffer memory contains an error.		
	96 (= 60 hex):		
	Response received too late during runtime measurement.		
	97 (= 61 hex):		
	Time taken to exchange characteristic data too long.		
	Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124):		
Remedy:	0000yyxx hex: yy = component number, xx = error cause - check the DRIVE-CLiQ wiring (interrupted cable, contacts,).		
Remedy.	- check the electrical cabinet design and cable routing for EMC compliance		
	- if required, use another DRIVE-CLiQ socket (p9904).		
	- replace the component involved.		
	VeN DDIVE OLIO (OLIV: Alternating evolic data transfer error		
F34895	VSM DRIVE-CLiQ (CU): Alternating cyclic data transfer error		
Message value:	Component number: %1, fault cause: %2		
Drive object:	All objects		
Reaction:	Servo: NONE (OFF1, OFF2)		
Acknowledge:	IMMEDIATELY		
Cause:	A DRIVE-CLiQ communications error has occurred from the Voltage Sensing Module involved (VSM) to the Control Unit		
	Fault cause:		
	11 (= 0B hex):		
	Synchronization error during alternating cyclic data transfer.		
	Note regarding the message value:		
	The individual information is coded as follows in the message value (r0949/r2124):		
Demoden	0000yyxx hex: yy = component number, xx = error cause		
Remedy:	Carry out a POWER ON.		
F34896	VSM DRIVE-CLiQ (CU): Inconsistent component properties		
Message value:	Component number: %1		
Drive object:	All objects		
Reaction:	Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)		
Acknowledge:	IMMEDIATELY		
Cause:	The properties of the DRIVE-CLiQ component (Voltage Sensing Module), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced.		
	Fault value (r0949, interpret decimal):		
	Component number.		

Remedy:	- carry out a POWER ON.			
Remedy.	- when a component is replaced, the same component type and if possible the same firmware version should be used.			
	- when a cable is replaced, only cables whose length is the same as or as close as possible to the length of the original cables should be used (ensure compliance with the maximum cable length).			
F34950	VSM: Internal software error			
Message value:	%1			
Drive object:	All objects			
Reaction:	OFF2			
Acknowledge:	POWER ON			
Cause:	An internal software error in the Voltage Sensing Module (VSM) has occurred. Fault value (r0949, interpret decimal):			
	Information about the fault source.			
- .	Only for internal Siemens troubleshooting.			
Remedy:	 - if necessary, upgrade the firmware in the Voltage Sensing Module to a later version. - contact Technical Support. 			
F35005	TM54F:parallel connection not supported			
Message value:	Fault cause: %1 bin			
Drive object:	All objects			
Reaction:	NONE			
Acknowledge:	POWER ON			
Cause:	The TM54F function with Basic Safety Functions is used. This function is not supported when power units are connected in parallel.			
	All drives of the TM54F assume fail safe values, and are not enabled.			
Remedy:	 deactivate parallel connection or TM54F with Basic Safety Functions. copy RAM to ROM. 			
	- carry out a POWER ON (switch-off/switch-on).			
F35851	TM DRIVE-CLIQ (CU): Sign-of-life missing			
Message value:	Component number: %1, fault cause: %2			
Drive object:	All objects			
Reaction:	OFF1 (OFF2)			
Acknowledge:	IMMEDIATELY			
Cause:	A DRIVE-CLiQ communication error has occurred from the Terminal Module involved (TM) to the Control Unit. The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit. Fault cause:			
	10 (= 0A hex):			
	The sign-of-life bit in the receive telegram is not set.			
	Note regarding the message value:			
	The individual information is coded as follows in the message value (r0949/r2124):			
	0000yyxx hex: yy = component number, xx = error cause			
Remedy:	Upgrade the firmware of the component involved.			
F35860	TM DRIVE-CLiQ (CU): Telegram error			
Message value:	Component number: %1, fault cause: %2			
Drive object:	All objects			
Reaction:	OFF1 (OFF2)			
Acknowledge:				
0				

F35875	TM: power supply voltage failed
	 check the electrical cabinet design and cable routing for EMC compliance check the DRIVE-CLiQ wiring (interrupted cable, contacts,).
Remedy:	- carry out a POWER ON (switch-off/switch-on).
	0000yyxx hex: yy = component number, $xx =$ error cause
	The individual information is coded as follows in the message value (r0949/r2124):
	Note regarding the message value:
	25 (= 19 hex): The error bit in the receive telegram is set and the receive telegram is too early.
	The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early.
	22 (= 16 hex):
	The type of the receive telegram does not match the receive list and the receive telegram is too early.
	21 (= 15 hex):
	The length of the receive telegram does not match the receive list and the receive telegram is too early.
	20 (= 14 hex):
	The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early.
	19 (= 13 hex):
	The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early.
	CRC error and the receive telegram is too early. 18 (= 12 hex):
	17 (= 11 hex):
	The receive telegram is too early.
	16 (= 10 hex):
	voltage has failed.
	The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply
	9 (= 09 hex):
	The address of the power unit in the telegram and in the receive list do not match.
	6 (= 06 hex):
	5 (= 05 hex): The type of the receive telegram does not match the receive list.
	The length of the receive telegram does not match the receive list.
	4 (= 04 hex):
	Telegram is longer than specified in the length byte or in the receive list.
	3 (= 03 hex):
	Telegram is shorter than specified in the length byte or in the receive list.
	2 (= 02 hex):
	Checksum error (CRC error).
	1 (= 01 hex):
	Fault cause:
Cause:	A DRIVE-CLiQ communication error has occurred from the Terminal Module involved (TM) to the Control Unit.

Drive object:All objectsReaction:OFF1 (OFF2)Acknowledge:IMMEDIATELY

Cause:	The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply	
voltage has failed.		
	Fault cause:	
	9 (= 09 hex):	
	The power supply voltage for the components has failed.	
	Note regarding the message value:	
	The individual information is coded as follows in the message value (r0949/r2124):	
	0000yyxx hex: yy = component number, xx = error cause	
Remedy:	- carry out a POWER ON (switch-off/switch-on).	
	- check the power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts,).	
	- check the dimensioning of the power supply for the DRIVE-CLiQ component.	
F35885	TM DRIVE-CLiQ (CU): Cyclic data transfer error	
Message value:	Component number: %1, fault cause: %2	
Drive object:	All objects	
Reaction:	OFF1 (OFF2)	
Acknowledge:	IMMEDIATELY	
Cause: A DRIVE-CLiQ communication error has occurred from the Terminal Module involved (TM) to the Co		
	The nodes do not send and receive in synchronism.	
	Fault cause:	
	26 (= 1A hex):	
	Sign-of-life bit in the receive telegram not set and the receive telegram is too early.	
	33 (= 21 hex):	
	The cyclic telegram has not been received.	
	34 (= 22 hex):	
	Timeout in the telegram receive list.	
	64 (= 40 hex):	
	Timeout in the telegram send list.	
	98 (= 62 hex):	
	Error at the transition to cyclic operation.	
	Note regarding the message value:	
	The individual information is coded as follows in the message value (r0949/r2124):	
	0000yyxx hex: yy = component number, xx = error cause	
Remedy:	- check the power supply voltage of the component involved.	
	- carry out a POWER ON.	
	- replace the component involved.	
	TM DDIVE CLIQ (CLIV) Error when conding DDIVE CLIQ data	
F35886	TM DRIVE-CLiQ (CU): Error when sending DRIVE-CLiQ data	
Message value:	Component number: %1, fault cause: %2	
Drive object:	All objects	
Reaction:	OFF1 (OFF2)	
Acknowledge:	IMMEDIATELY	
Cause:	A DRIVE-CLiQ communication error has occurred from the Terminal Module involved (TM) to the Control Unit.	
	Data were not able to be sent.	
	Fault cause:	
	65 (= 41 hex):	
	Telegram type does not match send list.	
	Note regarding the message value:	
	The individual information is coded as follows in the message value (r0949/r2124):	
_ .	0000yyxx hex: yy = component number, xx = error cause	
Remedy:	Carry out a POWER ON.	

F35887	TM DRIVE-CLiQ (CU): Component fault	
Message value:	Component number: %1, fault cause: %2	
Drive object:	All objects	
Reaction:	OFF1 (OFF2)	
Acknowledge:	IMMEDIATELY	
Cause:	Fault detected on the DRIVE-CLiQ component (Terminal Module) involved. Faulty hardware cannot be excluded.	
	Fault cause:	
	32 (= 20 hex):	
	Error in the telegram header.	
	35 (= 23 hex):	
	Receive error: The telegram buffer memory contains an error.	
	66 (= 42 hex):	
	Send error: The telegram buffer memory contains an error.	
	67 (= 43 hex):	
	Send error: The telegram buffer memory contains an error.	
	96 (= 60 hex):	
	Response received too late during runtime measurement.	
	97 (= 61 hex):	
	Time taken to exchange characteristic data too long.	
	Note regarding the message value:	
	The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause	
Bomody:		
Remeuy.	Remedy: - check the DRIVE-CLiQ wiring (interrupted cable, contacts,).	
	 check the electrical cabinet design and cable routing for EMC compliance if required, use another DRIVE-CLiQ socket (p9904). 	
	- replace the component involved.	
F35895	TM DRIVE-CLiQ (CU): Alternating cyclic data transfer error	
Message value:	Component number: %1, fault cause: %2	
Drive object:	All objects	
Reaction:	OFF1 (OFF2)	
Acknowledge:	IMMEDIATELY	
Cause:	IMMEDIATELY A DRIVE-CLiQ communication error has occurred from the Terminal Module involved (TM) to the Control Unit.	
oddoo.	Fault cause:	
	11 (= 0B hex):	
	Synchronization error during alternating cyclic data transfer.	
	Note regarding the message value:	
	The individual information is coded as follows in the message value (r0949/r2124):	
	0000yyxx hex: yy = component number, xx = error cause	
Remedy:	Carry out a POWER ON.	
F35896	TM DRIVE-CLiQ (CU): Inconsistent component properties	
Message value:	Component number: %1	
Drive object:	All objects	
	•	
Reaction:	Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)	
	Servo: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2) IMMEDIATELY	
Reaction: Acknowledge: Cause:	IMMEDIATELY The properties of the DRIVE-CLiQ component (Terminal Module), specified by the fault value, have changed in an	
Acknowledge:	IMMEDIATELY The properties of the DRIVE-CLiQ component (Terminal Module), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or	
Acknowledge:	IMMEDIATELY The properties of the DRIVE-CLiQ component (Terminal Module), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced.	
Acknowledge:	IMMEDIATELY The properties of the DRIVE-CLiQ component (Terminal Module), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or	

Remedy:

13.2 List of faults and alarms

- carry out a POWER ON.

-	- when a component is replaced, the same component type and if possible the same firmware version should be used.
	 when a component is replaced, the same component type and it possible the same immune version should be deed. when a cable is replaced, only cables whose length is the same as or as close as possible to the length of the original cables should be used (ensure compliance with the maximum cable length).
F35950	TM: Internal software error
Message value:	%1
Drive object:	All objects
Reaction:	OFF2 (NONE)
Acknowledge:	POWER ON
Cause:	An internal software error has occurred. Fault value (r0949, interpret decimal): Information about the fault source. Only for internal Siemens troubleshooting.
Remedy:	 - if necessary, upgrade the firmware in the Terminal Module to a later version. - contact Technical Support.
F36851	Hub DRIVE-CLiQ (CU): Sign-of-life missing
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	DRIVE-CLiQ communication error from DRIVE-CLiQ Hub Module in question to Control Unit.
	The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit.
	Fault cause:
	10 (= 0A hex):
	The sign-of-life bit in the receive telegram is not set.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
Remedy:	0000yyxx hex: yy = component number, xx = error cause Upgrade the firmware of the component involved.
F36860	Hub DRIVE-CLiQ (CU): Telegram error
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	NONE

Acknowledge:

IMMEDIATELY

F36875	HUB: power supply voltage failed
	- check the DRIVE-CLiQ wiring (interrupted cable, contacts,).
	- check the electrical cabinet design and cable routing for EMC compliance
Remedy:	- carry out a POWER ON (switch-off/switch-on).
	0000yyxx hex: yy = component number, xx = error cause
	The individual information is coded as follows in the message value (r0949/r2124):
	Note regarding the message value:
	The error bit in the receive telegram is set and the receive telegram is too early.
	25 (= 19 hex):
	The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early.
	The type of the receive telegram does not match the receive list and the receive telegram is too early. 22 (= 16 hex):
	21 (= 15 hex):
	The length of the receive telegram does not match the receive list and the receive telegram is too early.
	20 (= 14 hex):
	The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early.
	19 (= 13 hex):
	The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early.
	18 (= 12 hex):
	CRC error and the receive telegram is too early.
	17 (= 11 hex):
	The receive telegram is too early.
	16 (= 10 hex):
	The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed.
	9 (= 09 hex): The DRIVE CLIO communication from the DRIVE CLIO component involved to the Control Llnit signals that the supply
	The address of the power unit in the telegram and in the receive list do not match.
	6 (= 06 hex):
	The type of the receive telegram does not match the receive list.
	5 (= 05 hex):
	The length of the receive telegram does not match the receive list.
	4 (= 04 hex):
	Telegram is longer than specified in the length byte or in the receive list.
	3 (= 03 hex):
	Telegram is shorter than specified in the length byte or in the receive list.
	2 (= 02 hex):
	Checksum error (CRC error).
	1 (= 01 hex):
	DRIVE-CLiQ communication error from DRIVE-CLiQ Hub Module in question to Control Unit. Fault cause:
Cause:	

Drive object:All objectsReaction:OFF1 (OFF2)Acknowledge:IMMEDIATELY

Cause: The BRIVE-CLIQ communication from the DRIVE-CLIQ component involved to the Control Unit signals that the supply voltage has field. Fault cause: 9 (< 08 her):			
Fault Teause: 9 (= 09 hax): The power supply voltage for the components has failed. Note regarding the message value: Note regarding the message value: 0000yxx hex: yy = component number; xx = error cause 0000 yyxx hex: yy = component number; xx = error cause 0000 yyxx hex: yy = component number; xx = error cause 86medy: - check the dimensioning of the power supply for the DRIVE-CLQ component (interrupted cable, contacts,). - check the dimensioning of the power supply for the DRIVE-CLQ component. F368855 Hub DRIVE-CLG (CU): Cyclic data transfer error Message value: Component number; %1, fault cause: %2 Drive object Al objects Reaction: NONE Acknowledge: MMEDIATELY Cause: DRIVE-CLG communication error from DRIVE-CLO Hub Module in question to the Control Unit. The nodes do not send and receive in synchronism. Fault cause: 28 (= 1A hex): Time object ist. 46 (= 24 hex): Time object ist. The object ist in the receive telegram not set and the receive telegram is too early. 33 (= 21 hex): The object ist in the receive telegram not set and the receive telegram is too early. 34 (= 22 hex): Time object ist in the receive telegram ist con early. 36 (= 1 hex): </th <th>Cause:</th> <th></th>	Cause:		
9 (= 0 b rex): The power supply voltage for the components has failed. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000/yxx hex: yr = component number, xr = error cause: - carry out a POWER ON (switch-off/switch-on): - check the dimensioning of the power supply for the DRIVE-CLIQ component (interrupted cable, contacts,). - check the dimensioning of the power supply of the DRIVE-CLIQ component (interrupted cable, contacts,). F36885 Hub DRIVE-CLIQ (CU): Cyclic data transfer error Message value: Component number: %1, fault cause: %2 Drive object: Al objects Reaction: NONE Acknowledge: IMMEDIATELY Cause: DRIVE-CLIQ communication error from DRIVE-CLIQ Hub Module in question to the Control Unit. The nodes do not send and receive in synchronism. Fault cause: 26 (= 1A hec): Sign-of-life bit in the receive telegram not set and the receive telegram is too early. 33 (= 21 hec): The optile telegram send list. 94 (= 20 hec): Timeout in the telegram send list. 94 (= 20 hec): Timeout in the telegram send list. 94 (= 20 hec): Timeout in the telegram send list. 94 (= 20 hec): Timeout in the telegram send list.		-	
The prover supply voltage for the components has failed. Note regarding the message value: The individual information is coded as follows in the message value (r0949/z124): 00000yxx hex yy = component number, xx = error cause Remedy: - carry out a POWER ON (without offswitch-on). - check the dimensioning of the power supply for the DRIVE-CLIQ component. F36885 Hub DRIVE-CLQ (CU): Cyclic data transfer error Message value: Component number: %1 fault cause: %2 DVIve object All objects Reaction: NONE Acknowledge: MIMEDIATELY Cause: DRIVE-CLQ communication error from DRIVE-CLQ Hub Module in question to the Control Unit. The rodes do not send and receive in synchronism. Fault cause: 26 (= 1 hax): The object field bit in the receive telegram not set and the receive telegram is too early. 33 (= 21 hax): The outil the telegram set to be received. 34 (= 22 hax): The outil information is outed as follows in the message value (r0949/z124): 0000yyxx hex yy = component number, xx = error cause Remedy: • check the supply voltage of the component involved. - carry out a POWER ON • carry out a POWER ON - reprice the component number, xx = error cause Remedy:			
Note regarding the message value: The individual information is coded as follows in the message value (0949/r2124): 0000/yxx hex; yy = component number; xx = error cause Remedy: - carry out a POWER ON (switch-off/switch-off). - check the power supply voltage windig of the DRIVE-CLIQ component (interrupted cable, contacts,). - check the owner supply voltage windig of the DRIVE-CLIQ component. F36885 Hub DRIVE-CLIQ (CU): Cyclic data transfer error Message value: Component number: %1, fault cause: %2 Drive object: All objects Reaction: NONE Acknowledge: IMMEDIATELY Cause: DRIVE-CLIQ communication error from DRIVE-CLIQ Hub Module in question to the Control Unit. The notes do not send and receive in synchronism. Fault cause: 26 (= 1A hex): Sign-of-life bit in the receive telegram not set and the receive telegram is too early. 33 (= 21 hex): Time out in the telegram receive list. Af (= 40 hex): Timeout in the telegram receive list. Ag (= 62 hex): Error at the transition to cyclic oparation. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 00000/yxx hex: yy = component num			
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80000yyx hex: yy = component number; xx = error cause 9 - arry out a POWER ON (switch-off): - oheck the power supply voltage wining for the DRIVE-CLIQ component. F36885 Hub DRIVE-CLIQ (CU): Cyclic data transfer error Remedy: Component number: %1, fault cause: %2 Drive object: All objects Reaction: NONE Ackrowledge: IMMEDIATELY Cause: DRIVE-CLQ CO: communication error from DRIVE-CLIQ Hub Module in question to the Control Unit. The nodes do not send and receive in synchronism. Fault cause: 28 (= 1A hex): Sign-of-life bit in the receive telegram not set and the receive telegram is too early. 33 (= 21 hex): Timeout in the telegram receive list. 64 (= 40 hex): Timeout in the telegram send list. 98 (= 62 hex): Error at the transition to cyclic operation. Noter grading the massage value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyx hex: yy = component number: %2 All objects Remedy: - oheck the supply voltage of the component involved. - arry out a POWER ON. - erelase the component involved. F36886 Hub DRIVE-CLIQ (CU): Error when sending DRIVE-CLIQ data Message value:		Note regarding the message value:	
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Message value: Component number: %1, fault cause: %2 Drive object: All objects Reaction: NONE Acknowledge: IMMEDIATELY Cause: DRIVE-CLUQ communication error from DRIVE-CLIQ Hub Module in question to the Control Unit. The nodes do not send and receive in synchronism. Fault cause: 26 (= 1A hex): Signe-of-life bit in the receive telegram not set and the receive telegram is too early. 33 (= 21 hex): The cyclic telegram has not been received. 34 (= 22 hex): Timeout in the telegram receive list. 64 (= 40 hex): Timeout in the telegram send list. 98 (= 62 hex): Error at the transition to cyclic operation. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r/2124): 0000yxx hex: yr = component number, xx = error cause Remedy: - carry out a POWER ON. - replace the component involved. F36886 Hub DRIVE-CLIQ (CU): Error when sending DRIVE-CLIQ data Message value: Component number: %1, fault cause: %2 Drive object: All objects Remediy: All objects Reterior: NONE Actnovelegie: DRIVE-CLIQ (cours in the message value (r0949/r/2124): 0000yxx hex: yr = component involved. F36886 Hub DRIVE-CLIQ (cours involved. F36886 Hub DRIVE-CLIQ (cours involved. Cause: DRIVE-CLIQ communication error from DRIVE-CLIQ Hub Module in question to Control Unit. Data were not a		- check the dimensioning of the power supply for the DRIVE-CLiQ component.	
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Drive object: All objects Reaction: NONE Acknowledge: IMMEDIATELY Cause: DRIVE-CLQ communication error from DRIVE-CLQ Hub Module in question to the Control Unit. The nodes do not send and receive in synchronism. Fault cause: 28 (= 1A hex): Sign-of-life bit in the receive telegram not set and the receive telegram is too early. 33 (= 21 hex): The cyclic telegram has not been received. 34 (= 22 hex): Timeout in the telegram send list. 96 (= 40 hex): Timeout in the telegram send list. 98 (= 62 hex): Error at the transition to cyclic operation. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 00000yyxx hex: yy = component number, xx = error cause Remedy: - check the supply voltage of the component involved. - carry out a POWER ON. - replace the component involved. - carry out a POWER ON. - replace the component number, %1 fault cause: %2 Drive object: All objects Reseage value: Component number: %1, fault cause: %2 Drive object: All objects Reseage value: DRIVE-CLIQ communication error from DRIVE-CLIQ Hub Module in question to Control Unit. Data were not able to be sent. Fault cause: is 6 (= 41 hex): Telegram type does not match send list. Note regarding the message value: Drive doiget. Actionalization in is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause			
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	Remedy:		
	Komouy.		

F36887	Hub DRIVE-CLiQ (CU): Component fault		
Message value:	Component number: %1, fault cause: %2		
Drive object:	All objects		
Reaction:	NONE		
Acknowledge:	IMMEDIATELY		
Cause:	Fault detected on the DRIVE-CLiQ component (DRIVE-CLiQ Hub Module) involved. Faulty hardware cannot be excluded		
	Fault cause:		
	32 (= 20 hex):		
	Error in the telegram header.		
	35 (= 23 hex):		
	Receive error: The telegram buffer memory contains an error.		
	66 (= 42 hex):		
	Send error: The telegram buffer memory contains an error.		
	67 (= 43 hex):		
	Send error: The telegram buffer memory contains an error.		
	96 (= 60 hex): Response received too late during runtime measurement.		
	97 (= 61 hex):		
	Time taken to exchange characteristic data too long.		
	Note regarding the message value:		
	The individual information is coded as follows in the message value (r0949/r2124):		
	0000yyxx hex: yy = component number, xx = error cause		
Remedy:	- check the DRIVE-CLiQ wiring (interrupted cable, contacts,).		
· · · · · · · · · · · · · · · · · · ·	- check the electrical cabinet design and cable routing for EMC compliance		
	- if required, use another DRIVE-CLiQ socket (p9904).		
	- replace the component involved.		
F36895	Hub DRIVE-CLiQ (CU): Alternating cyclic data transfer error		
Message value:	Component number: %1, fault cause: %2		
Drive object:	All objects		
Reaction:	NONE		
Acknowledge:	IMMEDIATELY		
Cause:	DRIVE-CLiQ communication error from DRIVE-CLiQ Hub Module in question to Control Unit.		
00000.	Fault cause:		
	11 (= 0B hex):		
	Synchronization error during alternating cyclic data transfer.		
	Note regarding the message value:		
	The individual information is coded as follows in the message value (r0949/r2124):		
	0000yyxx hex: yy = component number, xx = error cause		
Remedy:	Carry out a POWER ON.		
F36896	Hub DRIVE-CLiQ (CU): Inconsistent component properties		
Message value:	Component number: %1		
Drive object:	•		
Reaction:	All objects		
Acknowledge:			
Acknowledge:			
Acknowledge: Cause:	The properties of the DRIVE-CLiQ component (DRIVE-CLiQ Hub Module), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced.		
	The properties of the DRIVE-CLiQ component (DRIVE-CLiQ Hub Module), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or		

Remedy:	- carry out a POWER ON.		
	- when a component is replaced, the same component type and if possible the same firmware version should be used.		
	- when a cable is replaced, only cables whose length is the same as or as close as possible to the length of the original cables should be used (ensure compliance with the maximum cable length).		
F36950	Hub: Internal software error		
Message value:	%1		
Drive object:	All objects		
Reaction:	OFF2 (NONE)		
Acknowledge:	POWER ON		
Cause:	An internal software error has occurred.		
	Fault value (r0949, interpret decimal):		
	Information about the fault source.		
	Only for internal Siemens troubleshooting.		
Remedy:	 - if required, upgrade the firmware in the DRIVE-CLiQ Hub Module to a more recent version. - contact Technical Support. 		
F37001	HF Damping Module: overcurrent		
Message value:	Fault cause: %1 bin		
Drive object:	All objects		
Reaction:	OFF2		
Acknowledge:	IMMEDIATELY		
Cause:	The power unit has detected an overcurrent condition. - HF Choke Module or HF Damping Module defective.		
	- Resonance frequency of the output filter was excited.		
	Fault value (r0949, interpret bitwise binary):		
	Bit 0: Phase U.		
	Bit 1: Phase V.		
	Bit 2: Phase W.		
Remedy:	- check HF Choke Module and HF Damping Module and if required, replace.		
	- reduce the motor power in the proximity of the fault-generating frequency.		
	Note:		
	HF Choke Module (reactor module)		
	HF Damping Module		
F37002	HF Damping Module: Damping voltage too high		
Message value:	%1		
Drive object:	All objects		
Reaction:	OFF2		
Acknowledge:	IMMEDIATELY		
Cause:	The damping voltage has reached an inadmissibly high value.		
	- a motor harmonic with a high amplitude has coincided with the resonance frequency of the output filter.		
	- the current controller excessively excites the resonance of the output filter.		
	Fault value (r0949, interpret decimal):		
	Damping voltage in the case of a fault [mV].		
Remedy:	- reduce the motor power in the proximity of the fault-generating frequency.		
-	- check the current controller and if required, adapt.		
	- if required, use another motor.		
	Note:		

F37003	HF Damping Module: Damping voltage not established		
Message value:			
Drive object:			
Reaction: OFF2			
Acknowledge:	IMMEDIATELY		
Cause:	A damping voltage was not able to be established.		
	Fault value (r0949, interpret decimal):		
	Damping voltage in the case of a fault [mV].		
Remedy:	Check the HF Damping Module wiring.		
F37004	HF Damping Module: Heat sink overtemperature		
Message value:	%1		
Drive object:	All objects		
Reaction:	OFF2		
Acknowledge:	IMMEDIATELY		
Cause:	The temperature of the heat sink in the HF Damping Module has exceeded the permissible limit value.		
	- insufficient cooling, fan failure.		
	- overload.		
	- ambient temperature too high.		
	Fault value (r0949, interpret decimal):		
	Temperature [0.01 °C].		
Remedy:	- check whether the fan is running.		
	- check the fan elements.		
	- check whether the ambient temperature is in the permissible range.		
	Notice:		
	This fault can only be acknowledged after the alarm threshold for alarm A05000 has been undershot.		
	Note:		
	HF Damping Module		
F37005	HF Damping Module: I2t overload		
Message value:	%1		
Drive object:	All objects		
Reaction:	OFF2		
Acknowledge:	IMMEDIATELY		
Cause:	The filter capacitor of the HF Damping Module was overloaded (r5173 = 100 %).		
	- the filter resonance frequency was excessively excited.		
	- the HF Choke Module is defective.		
	Fault value (r0949, interpret decimal):		
	I2t [100 % = 16384].		
Remedy:	- reduce the motor power in the proximity of the fault-generating frequency.		
	- the system should not stay in a steady-state condition in the vicinity of the fault-generating frequency.		
	- check the HF Choke Module and if required replace.		
	Note:		
	HF Choke Module (reactor module)		
	HF Damping Module		
F37012	HF Damping Module: Heat sink temperature sensor wire breakage		
Message value:	%1		

Message value:	%1
Drive object:	All objects
Reaction:	OFF1 (OFF2)

Acknowledge:	IMMEDIATELY	
Cause:	The connection to one of the heat sink temperature sensors in the HF Damping Module is interrupted.	
	Fault value (r0949, interpret hexadecimal):	
	Bit 0: HF Damping Module	
	Bit 1: HF Choke Module	
Remedy:	Contact the manufacturer.	
	Note:	
	HF Choke Module (reactor module)	
	HF Damping Module	
F37013	HF Damping Module: Heat sink temperature sensor short-circuit	
Message value:	%1	
Drive object:	All objects	
Reaction:	OFF1 (OFF2)	
Acknowledge:	IMMEDIATELY	
Cause:	The heat sink temperature sensor in the HF Damping Module is short-circuited.	
	Fault value (r0949, interpret hexadecimal):	
	Bit 0: HF Damping Module	
	Bit 1: HF Choke Module	
Remedy:	Contact the manufacturer.	
	Note:	
	HF Choke Module (reactor module)	
	HF Damping Module	
F37024	HF Damping Module: Overtemperature thermal model	
Message value:		
Drive object:	All objects	
Depation		
Reaction:	OFF2	
Acknowledge:	OFF2 IMMEDIATELY	
Acknowledge:	IMMEDIATELY	
Acknowledge:	IMMEDIATELY The temperature difference between the heat sink and chip has exceeded the permissible limit value.	
Acknowledge:	IMMEDIATELY The temperature difference between the heat sink and chip has exceeded the permissible limit value. - the permissible load duty cycle was not maintained.	
Acknowledge:	IMMEDIATELY The temperature difference between the heat sink and chip has exceeded the permissible limit value. - the permissible load duty cycle was not maintained. - insufficient cooling, fan failure. - overload. - ambient temperature too high.	
Acknowledge:	IMMEDIATELY The temperature difference between the heat sink and chip has exceeded the permissible limit value. - the permissible load duty cycle was not maintained. - insufficient cooling, fan failure. - overload. - ambient temperature too high. - pulse frequency too high.	
Acknowledge: Cause:	IMMEDIATELY The temperature difference between the heat sink and chip has exceeded the permissible limit value. - the permissible load duty cycle was not maintained. - insufficient cooling, fan failure. - overload. - ambient temperature too high. - pulse frequency too high. See also: r0037	
Acknowledge:	IMMEDIATELY The temperature difference between the heat sink and chip has exceeded the permissible limit value. - the permissible load duty cycle was not maintained. - insufficient cooling, fan failure. - overload. - ambient temperature too high. - pulse frequency too high. See also: r0037 - adapt the load duty cycle.	
Acknowledge: Cause:	IMMEDIATELY The temperature difference between the heat sink and chip has exceeded the permissible limit value. - the permissible load duty cycle was not maintained. - insufficient cooling, fan failure. - overload. - ambient temperature too high. - pulse frequency too high. See also: r0037 - adapt the load duty cycle. - check whether the fan is running.	
Acknowledge: Cause:	IMMEDIATELY The temperature difference between the heat sink and chip has exceeded the permissible limit value. - the permissible load duty cycle was not maintained. - insufficient cooling, fan failure. - overload. - ambient temperature too high. - pulse frequency too high. See also: r0037 - adapt the load duty cycle. - check whether the fan is running. - check the fan elements.	
Acknowledge: Cause:	IMMEDIATELY The temperature difference between the heat sink and chip has exceeded the permissible limit value the permissible load duty cycle was not maintained insufficient cooling, fan failure overload ambient temperature too high pulse frequency too high. See also: r0037 - adapt the load duty cycle check whether the fan is running check the fan elements check whether the ambient temperature is in the permissible range.	
Acknowledge: Cause:	IMMEDIATELY The temperature difference between the heat sink and chip has exceeded the permissible limit value. - the permissible load duty cycle was not maintained. - insufficient cooling, fan failure. - overload. - ambient temperature too high. - pulse frequency too high. See also: r0037 - adapt the load duty cycle. - check whether the fan is running. - check the fan elements.	
Acknowledge: Cause: Remedy:	IMMEDIATELY The temperature difference between the heat sink and chip has exceeded the permissible limit value the permissible load duty cycle was not maintained insufficient cooling, fan failure overload ambient temperature too high pulse frequency too high. See also: r0037 - adapt the load duty cycle check whether the fan is running check the fan elements check the fan elements check the motor load reduce the pulse frequency if this is higher than the rated pulse frequency.	
Acknowledge: Cause: Remedy: F37025	IMMEDIATELY The temperature difference between the heat sink and chip has exceeded the permissible limit value the permissible load duty cycle was not maintained insufficient cooling, fan failure overload ambient temperature too high pulse frequency too high. See also: r0037 - adapt the load duty cycle check whether the fan is running check the fan elements check the fan elements check the fan elements check the motor load reduce the pulse frequency if this is higher than the rated pulse frequency.	
Acknowledge: Cause: Remedy: F37025 Message value:	IMMEDIATELY The temperature difference between the heat sink and chip has exceeded the permissible limit value the permissible load duty cycle was not maintained insufficient cooling, fan failure overload ambient temperature too high pulse frequency too high. See also: r0037 - adapt the load duty cycle check whether the fan is running check the fan elements check the fan elements check the motor load reduce the pulse frequency if this is higher than the rated pulse frequency. HF Damping Module: Chip overtemperature %1	
Acknowledge: Cause: Remedy: F37025 Message value: Drive object:	IMMEDIATELY The temperature difference between the heat sink and chip has exceeded the permissible limit value. - the permissible load duty cycle was not maintained. - insufficient cooling, fan failure. - overload. - ambient temperature too high. - pulse frequency too high. See also: r0037 - adapt the load duty cycle. - check whether the fan is running. - check whether the fan is running. - check whether the ambient temperature is in the permissible range. - check the motor load. - reduce the pulse frequency if this is higher than the rated pulse frequency.	
Acknowledge: Cause: Remedy: F37025 Message value:	IMMEDIATELY The temperature difference between the heat sink and chip has exceeded the permissible limit value the permissible load duty cycle was not maintained insufficient cooling, fan failure overload ambient temperature too high pulse frequency too high. See also: r0037 - adapt the load duty cycle check whether the fan is running check the fan elements check the fan elements check the motor load reduce the pulse frequency if this is higher than the rated pulse frequency. HF Damping Module: Chip overtemperature %1	

A37034	HF Damping Module: Internal overtemperature
	See also: r0037
	HF Damping Module
	Note:
	- reduce the pulse frequency if this is higher than the rated pulse frequency.
	- check the motor load.
	- check whether the ambient temperature is in the permissible range.
	- check the fan elements.
	- check whether the fan is running.
Remedy:	- adapt the load duty cycle.
	Temperature difference between the heat sink and chip [0.01 °C].
	Fault value (r0949, interpret decimal):
	- pulse frequency too high.
	- ambient temperature too high.
	- overload.
	- insufficient cooling, fan failure.
	- the permissible load duty cycle was not maintained.
Cause:	The chip temperature has exceeded the permissible limit value.

Message value:	%1	
Drive object:	All objects	
Reaction:	NONE	
Acknowledge:	NONE	
Cause:	The alarm threshold for internal overtemperature has been reached.	
	If the temperature inside the unit continues to increase, fault F37036 may be triggered.	
	- ambient temperature might be too high.	
	- insufficient cooling, fan failure.	
	Fault value (r0949, interpret binary):	
	Bit 0 = 1: Control electronics range.	
	Bit 1 = 1: Power electronics range.	
Remedy:	- check the ambient temperature.	
	- check the fan for the inside of the unit.	
	Note:	
	HF Damping Module	

F37036	HF Damping Module: Internal overtemperature	
Message value:	%1	
Drive object:	All objects	
Reaction:	OFF2	
Acknowledge:	IMMEDIATELY	
Cause:	The temperature inside the HF Damping Module has exceeded the permissible temperature limit. - insufficient cooling, fan failure. - overload. - ambient temperature too high. Fault value (r0949, interpret binary): Bit 0 = 1: Control electronics range. Bit 1 = 1: Power electronics range.	

Remedy: - check whether the fan is running. - check the fan elements.	
	- check whether the ambient temperature is in the permissible range.
	Notice:
	This fault can only be acknowledged once the permissible temperature limit minus 5 K has been undershot.
	Note:
	HF Damping Module
F37040	HF Damping Module: 24 V undervoltage
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	Failure of the 24 V power supply for the HF Damping Module.
	- the undervoltage threshold was undershot for longer than 3 ms.
	Fault value (r0949, interpret decimal):
	24 V voltage [0.1 V].
Remedy:	- check the 24 V DC voltage supply of the HF Damping Module.
	- carry out a POWER ON (switch-off/switch-on) for the component.
	Note:
	HF Damping Module
A37041 (F)	HF Damping Module: 24 V undervoltage alarm
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Fault in the 24 V power supply for the HF Damping Module.
	- the 16 V threshold was undershot.
	Alarm value (r2124, interpret decimal):
	24 V voltage [0.1 V].
Remedy:	- check the 24 V DC voltage supply of the HF Damping Module.
	- carry out a POWER ON (switch-off/switch-on) for the component.
	Note:
	HF Damping Module
Reaction upon F:	NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
F37043	HF Damping Module: 24 V overvoltage
Message value:	-
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	POWER ON
Cause:	Overvoltage of the 24 V power supply for the HF Damping Module.
	- the 31.5 V threshold was exceeded for more than 3 ms.
Remedy:	Check the 24 V DC voltage supply of the HF Damping Module.
•	Note:

Note:

HF Damping Module

A37044 (F)	HF Damping Module: 24 V overvoltage alarm		
Message value:	-		
Drive object:	All objects		
Reaction:	NONE		
Acknowledge:	NONE		
Cause:	Fault in the 24 V power supply for the HF Damping Module.		
	- the 32.0 V threshold was exceeded.		
Remedy:	Check the 24 V DC voltage supply of the HF Damping Module.		
	Note:		
	HF Damping Module		
Reaction upon F:	NONE (OFF1, OFF2, OFF3)		
Acknowl. upon F:	IMMEDIATELY (POWER ON)		
F37045	HF Damping Module: Supply undervoltage		
Message value:	%1		
Drive object:	All objects		
Reaction:	OFF2		
Acknowledge:	IMMEDIATELY (POWER ON)		
Cause:	Power supply fault in the HF Damping Module.		
	- the voltage monitor signals an undervoltage fault on the module.		
	Fault value (r0949, interpret decimal):		
	24 V voltage [0.1 V].		
Remedy:	- check the 24 V DC voltage supply of the HF Damping Module.		
	- carry out a POWER ON (switch-off/switch-on) for the component.		
	- replace the module if necessary.		
	Note:		
	HF Damping Module		
A37049	HF Damping Module: Internal fan defective		
Message value:	-		
Drive object:	All objects		
Reaction:	NONE		
Acknowledge:	NONE		
Cause:	The internal fan of the HF Damping Module has failed.		
Remedy:	Check the internal fan of the HF Damping Module and replace if necessary.		
F37050	HF Damping Module: 24 V overvoltage fault		
Message value:	-		
Drive object:	All objects		
Reaction:	OFF2		
Acknowledge:	POWER ON		
Cause:	The voltage monitor signals an overvoltage fault on the module.		
Remedy:	- check the 24 V power supply.		
	- replace the module if necessary.		
F37052	HF Damping Module: EEPROM data error		
Message value:	%1		
Drive object:	All objects		
Desetions	NONE		

Acknowledge:	POWER ON
Cause:	EEPROM data error of the HF Damping Module.
	Fault value (r0949, interpret hexadecimal):
	0: The EEPROM data read in from the HF Damping Module is inconsistent.
	1: EEPROM data is not compatible to the firmware of the HF Damping Module.
	Additional values:
	Only for internal Siemens troubleshooting.
Remedy:	For fault value = 0:
	Replace the HF Damping Module or update the EEPROM data.
	For fault value = 1:
	If necessary, upgrade the firmware to a later version.
	Note:
	HF Damping Module

A37056 (F)	HF Damping Module: Heat sink overtemperature
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The temperature of the HF Damping Module heat sink has exceeded the permissible limit value. - insufficient cooling, fan failure. - overload. - ambient temperature too high. Alarm value (r2124, interpret decimal): Temperature [0.01 °C].
Remedy:	 check whether the fan is running. check the fan elements. check whether the ambient temperature is in the permissible range. Notice: This fault can only be acknowledged after the alarm threshold for alarm A05000 has been undershot. Note: HF Damping Module
Reaction upon F:	NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY
A37310 (F)	HF Choke Module: Overtemperature

Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The temperature of the HF Choke Module heat sink has exceeded the permissible limit value. - insufficient cooling, fan failure. - overload. - ambient temperature too high. Alarm value (r2124, interpret decimal): Temperature [0.01 °C].

Message value:	-
F37313	HF Choke Module: Overtemperature or fan failure
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon F:	NONE (OFF1, OFF2, OFF3)
	HF Damping Module
	HF Choke Module (reactor module)
	Note:
	- check whether the ambient temperature is in the permissible range.
tomouy.	- check the fan of the HF Choke Module and replace if necessary.
Remedy:	- the cable between the HF Choke Module and the HF Damping Module has been withdrawn or is defective (X21).
Cause:	The HF Choke Module signals an overtemperature or fan failure. Fault F37313 is output if the alarm is present for longer than 30 s.
Acknowledge:	NONE The HE Cheke Medule signals an evertemperature or fan failure
Reaction:	NONE
Drive object:	All objects
Message value:	
A37312 (F)	HF Choke Module: Overtemperature or fan failure
A07040 (E)	
	HF Choke Module (reactor module)
	Note:
	This fault can only be acknowledged after this alarm threshold for alarm A05000 has been undershot.
	Notice:
	- check the motor load.
	- check whether the ambient temperature is in the permissible range.
y-	- check the fan elements.
Remedy:	- check whether the fan is running.
	Temperature [0.01 °C].
	Fault value (r0949, interpret decimal):
	- ambient temperature too high.
	- overload.
	- insufficient cooling, fan failure.
Acknowledge. Cause:	The temperature of the HF Choke Module heat sink has exceeded the permissible limit value.
Acknowledge:	IMMEDIATELY
Reaction:	OFF2
Drive object:	All objects
Message value:	%1
F37311	HF Choke Module: Heat sink overtemperature
Acknowl. upon F:	
Reaction upon F:	NONE (OFF1, OFF2, OFF3)
Departion when T-	HF Choke Module (reactor module)
	Note: HE Cheke Medule (reactor medule)
	This fault can only be acknowledged after the alarm threshold for alarm A05000 has been undershot.
	Notice:
	- check whether the ambient temperature is in the permissible range.
	- check the fan elements.
Remedy:	- check whether the fan is running.
Domodu:	check whether the fap is rupping

Drive object:All objectsReaction:OFF2

Acknowledge: Cause: Remedy:	 IMMEDIATELY (POWER ON) Alarm A37312 to display overtemperature or fan failure in the HF Choke Module was signaled for longer than 30 s. the cable between the HF Choke Module and the HF Damping Module has been withdrawn or is defective (X21). check the fan of the HF Choke Module and replace if necessary. check whether the ambient temperature is in the permissible range. Note: HF Choke Module (reactor module) HF Damping Module 	
A37502 (F)	HF Damping Module: Damping voltage too high	
Message value:	%1	
Drive object:	All objects	
Reaction:	NONE	
Acknowledge:	NONE	
Cause:	The damping voltage has exceeded the alarm threshold.	
	- a motor harmonic with a high amplitude has coincided with the resonance frequency of the output filter.	
	- the current controller excessively excites the resonance of the output filter.	
	If the damping voltage exceeds an inadmissibly high value, F37002 is output.	
	Alarm value (r2124, interpret decimal):	
Romodu:	Damping voltage in the case of a fault [mV].	
Remedy:	 reduce the motor power in the proximity of the fault-generating frequency. check the current controller and if required, adapt. 	
	- if required, use another motor.	
	Note:	
	HF Damping Module	
Reaction upon F:	NONE (OFF1, OFF2, OFF3)	
Acknowl. upon F:		
N37800 (F)	HF Damping Module: Group signal	
Message value:		
Drive object:	All objects	
Reaction:	NONE	
Acknowledge:	NONE	
Cause:	The HF Damping Module has detected at least one fault.	
Remedy:	Evaluates other actual messages.	
Reaction upon F:	NONE	
Acknowl. upon F:	IMMEDIATELY	
A37801 (F. N)	HF Damping Module: Sign-of-life missing	
Message value:	Component number: %1, fault cause: %2	
Drive object:	All objects	
Reaction:	NONE	
Acknowledge:	NONE	
Cause:	There is a DRIVE-CLiQ communication error between the Control Unit and the HF Damping Module.	
	Fault cause:	
	10 (= 0A hex):	
	The sign-of-life bit in the receive telegram is not set.	
	Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124):	
	0000 yxx hex: yy = component number, xx = error cause	

Remedy:	 check the DRIVE-CLiQ connection. replace the component involved. Note:
	HF Damping Module
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F37802 (N, A) HF Damping Module: time slice overflow

Message value:	-
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A time slice overflow has occurred.
Remedy:	- carry out a POWER ON (switch-off/switch-on) for all components.
	- upgrade firmware to later version.
	- contact Technical Support.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F37804 (N, A)	HF Damping Module: CRC
Message value:	%1
Drive object:	All objects
Reaction:	OFF2 (OFF1, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	A checksum error (CRC error) has occurred for the HF Damping Module.
Remedy:	- carry out a POWER ON (switch-off/switch-on) for all components.
	- upgrade firmware to later version.
	- contact Technical Support.
	Note:
	HF Damping Module
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F37805	HF Damping Module: EEPROM checksum incorrect
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause: Internal parameter data is corrupted.	
	Fault value (r0949, interpret hexadecimal):
	01: EEPROM access error.
	02: Too many blocks in the EEPROM.

Remedy: Replace the module. Note: HF Damping Module

F37820	HF Damping Module: Telegram error
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Control Unit to the damping module.
	Fault cause:
	1 (= 01 hex):
	Checksum error (CRC error).
	2 (= 02 hex):
	Telegram is shorter than specified in the length byte or in the receive list.
	3 (= 03 hex):
	Telegram is longer than specified in the length byte or in the receive list.
	4 (= 04 hex):
	The length of the receive telegram does not match the receive list.
	5 (= 05 hex):
	The type of the receive telegram does not match the receive list.
	6 (= 06 hex):
	The address of the component in the telegram and in the receive list do not match.
	7 (= 07 hex):
	A SYNC telegram is expected - but the received telegram is not a SYNC telegram.
	8 (= 08 hex):
	No SYNC telegram is expected - but the received telegram is one.
	9 (= 09 hex):
	The error bit in the receive telegram is set.
	16 (= 10 hex):
	The receive telegram is too early.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON (switch-off/switch-on).
	- check the electrical cabinet design and cable routing for EMC compliance
	- check the DRIVE-CLiQ wiring (interrupted cable, contacts,).
	Note:
	HF Damping Module

F37835 HF Damping Module: Cyclic data transmission error

Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY

13.2 List of faults and alarms

Cause:	There is a DRIVE-CLiQ communication error between the Control Unit and the HF Damping Module. The nodes do not send and receive in synchronism. Fault cause: 33 (= 21 hex): The cyclic telegram has not been received. 34 (= 22 hex): Timeout in the telegram receive list. 64 (= 40 hex): Timeout in the telegram send list. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124):
Remedy:	0000yyxx hex: yy = component number, xx = error cause - carry out a POWER ON. - replace the component involved. Note: HF Damping Module
F37836 Message value: Drive object: Reaction:	HF Damping Module: Send error for DRIVE-CLiQ data Component number: %1, fault cause: %2 All objects NONE

Reaction.	NONE
Acknowledge:	IMMEDIATELY
Cause:	There is a DRIVE-CLiQ communication error between the Control Unit and the HF Damping Module. Data were not able to be sent.
	Fault cause:
	65 (= 41 hex):
	Telegram type does not match send list.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	Carry out a POWER ON.
	Note:
	HF Damping Module
F37837	HF Damping Module: Component faulted
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	NONE

IMMEDIATELY

Acknowledge:

Cause:	Fault detected on the DRIVE-CLiQ component concerned. Faulty hardware cannot be excluded.
	Fault cause:
	32 (= 20 hex):
	Error in the telegram header.
	35 (= 23 hex):
	Receive error: The telegram buffer memory contains an error.
	66 (= 42 hex):
	Send error: The telegram buffer memory contains an error.
	67 (= 43 hex):
	Send error: The telegram buffer memory contains an error.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- check the DRIVE-CLiQ wiring (interrupted cable, contacts,).
	- check the electrical cabinet design and cable routing for EMC compliance
	- if required, use another DRIVE-CLiQ socket (p9904).
	- replace the component involved.
	Note:
	HF Damping Module
F37845	HF Damping Module: Cyclic data transmission error
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	There is a DRIVE-CLiQ communication error between the Control Unit and the HF Damping Module.
	Fault cause:
	11 (= 0B hex):
	Synchronization error during alternating cyclic data transfer.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	Carry out a POWER ON.
-	Note:
	HF Damping Module
F37850	HF Damping Module: Internal software error
Message value:	%1
Drive object:	
Reaction:	OFF1 (NONE, OFF2, OFF3)
Acknowledge:	POWER ON
Cause:	An internal software error in the HF Damping Module has occurred.
	Fault value (r0949, interpret decimal):
	Only for internal Siemens troubleshooting.
Remedy:	- Replace the HF Damping Module
	- if required, upgrade the firmware in the HF Damping Module.
	- contact Technical Support.
	Note:
	HF Damping Module

F37851	HF Damping Module (CU): Sign-of-life missing
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	DRIVE-CLiQ communication error from the HF Damping Module to the Control Unit.
	The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit.
	Fault cause:
	10 (= 0A hex):
	The sign-of-life bit in the receive telegram is not set.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	Upgrade the firmware of the component involved.
	Note:
	HF Damping Module

F37860	HF Damping Module (CU): Telegram error
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY

13.2 List of faults and alarms

22 (= 16 hex): The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early. 25 (= 19 hex): The error bit in the receive telegram is set and the receive telegram is too early. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause - carry out a POWER ON (switch-off/switch-on). - check the electrical cabinet design and cable routing for EMC compliance - check the DRIVE-CLiQ wiring (interrupted cable, contacts,). Note: HF Damping Module		
The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early. 25 (= 19 hex): The error bit in the receive telegram is set and the receive telegram is too early. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause carry out a POWER ON (switch-off/switch-on). check the electrical cabinet design and cable routing for EMC compliance check the DRIVE-CLiQ wiring (interrupted cable, contacts,). Note: HF Damping Module F37875 HF Damping Module: power supply voltage failed Message value: Component number: %1, fault cause: %2		The type of the receive telegram does not match the receive list and the receive telegram is too early.
22 (= 16 hex): The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early. 25 (= 19 hex): The error bit in the receive telegram is set and the receive telegram is too early. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause - carry out a POWER ON (switch-off/switch-on). - check the electrical cabinet design and cable routing for EMC compliance - check the DRIVE-CLiQ wiring (interrupted cable, contacts,). Note: HF Damping Module: F37875 HF Damping Module: power supply voltage failed Component number: %1, fault cause: %2		21 (= 15 hex):
The type of the receive telegram does not match the receive list and the receive telegram is too early. 22 (= 16 hex): The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early. 25 (= 19 hex): The error bit in the receive telegram is set and the receive telegram is too early. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause carry out a POWER ON (switch-off/switch-on). - check the electrical cabinet design and cable routing for EMC compliance - check the electrical cabinet design and cable, contacts,). Note: HF Damping Module F37875 HF Damping Module: power supply voltage failed Message value: Component number: %1, fault cause: %2		The length of the receive telegram does not match the receive list and the receive telegram is too early.
21 (= 15 hex): The type of the receive telegram does not match the receive list and the receive telegram is too early. 22 (= 16 hex): The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early. 25 (= 19 hex): The error bit in the receive telegram is set and the receive telegram is too early. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause - carry out a POWER ON (switch-off/switch-on). - check the electrical cabinet design and cable routing for EMC compliance - check the electrical cabinet design and cable, contacts,). Note: HF Damping Module F37875 HF Damping Module: power supply voltage failed Message value: Component number: %1, fault cause: %2		20 (= 14 hex):
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Remedy: 0000yyxx hex: yy = component number, xx = error cause - carry out a POWER ON (switch-off/switch-on). - check the electrical cabinet design and cable routing for EMC compliance - check the DRIVE-CLiQ wiring (interrupted cable, contacts,). Note: HF Damping Module HF Damping Module: power supply voltage failed Message value: Component number: %1, fault cause: %2		The individual information is coded as follows in the massage value (r0040/r2424):
Remedy: - carry out a POWER ON (switch-off/switch-on). - check the electrical cabinet design and cable routing for EMC compliance - check the DRIVE-CLiQ wiring (interrupted cable, contacts,). Note: HF Damping Module F37875 HF Damping Module: power supply voltage failed Component number: %1, fault cause: %2		The individual information is coded as follows in the message value (r0949/r2124):
Remedy: - carry out a POWER ON (switch-off/switch-on). - check the electrical cabinet design and cable routing for EMC compliance - check the DRIVE-CLiQ wiring (interrupted cable, contacts,). Note: HF Damping Module F37875 HF Damping Module: power supply voltage failed Component number: %1, fault cause: %2		
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 - check the DRIVE-CLiQ wiring (interrupted cable, contacts,). Note: HF Damping Module F37875 HF Damping Module: power supply voltage failed Component number: %1, fault cause: %2 	Remedy:	- carry out a POWER ON (switch-off/switch-on).
 - check the DRIVE-CLiQ wiring (interrupted cable, contacts,). Note: HF Damping Module F37875 HF Damping Module: power supply voltage failed Component number: %1, fault cause: %2 	•	
Note: HF Damping Module F37875 HF Damping Module: power supply voltage failed Message value: Component number: %1, fault cause: %2		- check the electrical cabinet design and cable routing for EMC compliance
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HF Damping Module F37875 HF Damping Module: power supply voltage failed Message value: Component number: %1, fault cause: %2		- check the DRIVE-CLiQ wiring (interrupted cable, contacts,).
HF Damping Module F37875 HF Damping Module: power supply voltage failed Message value: Component number: %1, fault cause: %2		
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Message value: Component number: %1, fault cause: %2		HF Damping Module
Message value: Component number: %1, fault cause: %2		
Message value: Component number: %1, fault cause: %2	 	LIE Demaine Medules neuron essentis selfere feiled
-	F3/8/5	HF Damping Module: power supply voltage failed
-	Message value:	Component number: %1, fault cause: %2
Drive object: All objects	•	
	Drive object:	All objects

Reaction:

Acknowledge:

OFF1 (OFF2) IMMEDIATELY

Cause:	The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply
	voltage has failed.
	Fault cause:
	9 (= 09 hex):
	The power supply voltage for the components has failed.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON (switch-off/switch-on).
	- check the power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts,).
	- check the dimensioning of the power supply for the DRIVE-CLiQ component.
F37885	HF Damping Module (CU): Cyclic data transmission error
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	DRIVE-CLiQ communication error from the damping module to the Control Unit.
Cuuco.	The nodes do not send and receive in synchronism.
	Fault cause:
	26 (= 1A hex):
	Sign-of-life bit in the receive telegram not set and the receive telegram is too early.
	33 (= 21 hex):
	The cyclic telegram has not been received.
	34 (= 22 hex):
	Timeout in the telegram receive list.
	64 (= 40 hex):
	Timeout in the telegram send list.
	98 (= 62 hex):
	Error at the transition to cyclic operation.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- check the supply voltage of the component involved.
•	- carry out a POWER ON.
	- replace the component involved.
	Note:
	HF Damping Module
F37886	HF Damping Module (CU): Error when sending DRIVE-CLiQ data

Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY

Cause:	DRIVE-CLiQ communication error from the HF Damping Module to the Control Unit.
	Data were not able to be sent.
	Fault cause:
	65 (= 41 hex):
	Telegram type does not match send list.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	Carry out a POWER ON.
	Note:
	HF Damping Module
F37887	HF Damping Module (CU): Component faulted
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	Fault detected on the DRIVE-CLiQ component (HF Damping Module) involved. Faulty hardware cannot be excluded.
	Fault cause:
	32 (= 20 hex):
	Error in the telegram header.
	35 (= 23 hex):
	Receive error: The telegram buffer memory contains an error.
	66 (= 42 hex):
	Send error: The telegram buffer memory contains an error.
	67 (= 43 hex):
	Send error: The telegram buffer memory contains an error.
	96 (= 60 hex):
	Response received too late during runtime measurement.
	97 (= 61 hex):
	Time taken to exchange characteristic data too long. Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000 yxx hex: yy = component number, xx = error cause
Remedy:	- check the DRIVE-CLiQ wiring (interrupted cable, contacts,).
Remedy.	- check the electrical cabinet design and cable routing for EMC compliance
	- if required, use another DRIVE-CLiQ socket (p9904).
	- replace the component involved.
	Note:
	HF Damping Module
F37895	HF Damping Module (CU): Alternating cyclic data transmission error
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY

Cause:	DRIVE-CLiQ communication error from the HF Damping Module to the Control Unit. Fault cause:
	11 (= 0B hex):
	Synchronization error during alternating cyclic data transfer.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	Carry out a POWER ON.
	Note:
	HF Damping Module
F37896	HF Damping Module (CU): Component properties inconsistent
Message value:	Component number: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The properties of the DRIVE-CLiQ component (HF Damping Module), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced.
	Fault value (r0949, interpret decimal):
	Component number.
Remedy:	- carry out a POWER ON.
	- when a component is replaced, the same component type and if possible the same firmware version should be used.
	- when a cable is replaced, only cables whose length is the same as or as close as possible to the length of the original cables should be used (ensure compliance with the maximum cable length).
	Note:
	HF Damping Module
F37899 (N, A)	HF Damping Module: Unknown fault
Message value:	New message: %1
Drive object:	All objects
Reaction:	NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	A fault has occurred on the HF Damping Module that cannot be interpreted by the Control Unit firmware.
	This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
	Fault value (r0949, interpret decimal):
	Fault number.
	Note:
	If required, the significance of this new fault can be read about in a more recent description of the Control Unit.
Remedy:	- replace the firmware on the HF Damping Module by an older firmware version (r0168).
	- upgrade the firmware on the Control Unit (r0018).
	Note:
- <i>"</i>	HF Damping Module
Reaction upon N:	
Acknowl. upon N:	
Reaction upon A:	
Acknowl. upon A:	NONE
F37903	HF Damping Module: I2C bus error occurred
Message value:	%1
Drive object:	All objects

Reaction: Acknowledge:	NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) IMMEDIATELY
Cause:	Communications error with an EEPROM or an analog/digital converter. Fault value (r0949, interpret hexadecimal): 80000000 hex: - internal software error. 00000001 hex 0000FFFF hex: - module fault.
Remedy:	For fault value = 8000000 hex: - upgrade firmware to later version. For fault value = 00000001 hex 0000FFFF hex: - replace the module. Note: HF Damping Module

F37950	HF Damping Module: Internal software error
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	POWER ON
Cause:	An internal software error has occurred.
	Fault value (r0949, interpret decimal):
	Information about the fault source.
	Only for internal Siemens troubleshooting.
Remedy:	- if necessary, upgrade the firmware in the HF Damping Module to a later version.
	- contact Technical Support.
	Note:
	HF Damping Module

A37999 (F,	N)	HF Damping Module: Unknown alar	m
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/ 10/ 000 (1 , 11)	
Message value:	New message: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	An alarm has occurred on the HF Damping Module that cannot be interpreted by the Control Unit firmware.
	This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
	Alarm value (r2124, interpret decimal):
	Alarm number.
	Note:
	If required, the significance of this new alarm can be read about in a more recent description of the Control Unit.
Remedy:	- replace the firmware on the HF Damping Module by an older firmware version (r0168).
	- upgrade the firmware on the Control Unit (r0018).
	Note:
	HF Damping Module
Reaction upon F:	NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
•	

F40000	Fault at DRIVE-CLiQ socket X100						
Message value:	%1						
Drive object:	All objects						
Reaction:	NONE						
Acknowledge:	IMMEDIATELY						
Cause:	A fault has occurred at the drive object at the DRIVE-CLiQ socket X100.						
	Fault value (r0949, interpret decimal):						
	First fault that has occurred for this drive object.						
Remedy:	Evaluate the fault buffer of the specified object.						
F40001	Fault at DRIVE-CLiQ socket X101						
Message value:	%1						
Drive object:	All objects						
Reaction:	NONE						
Acknowledge:	IMMEDIATELY						
Cause:	A fault has occurred at the drive object at the DRIVE-CLiQ socket X101.						
	Fault value (r0949, interpret decimal):						
	First fault that has occurred for this drive object.						
Remedy:	Evaluate the fault buffer of the specified object.						
F40002	Fault at DRIVE-CLiQ socket X102						
Message value:	%1						
Drive object:	All objects						
Reaction:	NONE						
Acknowledge:	IMMEDIATELY						
Cause:	A fault has occurred at the drive object at the DRIVE-CLiQ socket X102.						
	Fault value (r0949, interpret decimal):						
	First fault that has occurred for this drive object.						
Remedy:	Evaluate the fault buffer of the specified object.						
F40003	Fault at DRIVE-CLiQ socket X103						
Message value:	%1						
Drive object:	All objects						
Reaction:	NONE						
Acknowledge:	IMMEDIATELY						
Cause:	A fault has occurred at the drive object at the DRIVE-CLiQ socket X103.						
	Fault value (r0949, interpret decimal):						
	First fault that has occurred for this drive object.						
Remedy:	Evaluate the fault buffer of the specified object.						
F40004	Fault at DRIVE-CLiQ socket X104						
Message value:	%1						
Drive object:	All objects						
Reaction:	NONE						
Acknowledge:	IMMEDIATELY						
Cause:	A fault has occurred at the drive object at the DRIVE-CLiQ socket X104.						
	Fault value (r0949, interpret decimal):						
	First foult that has accurred for this drive object						
	First fault that has occurred for this drive object.						

F40005	Fault at DRIVE-CLiQ socket X105						
Message value:							
Drive object:	All objects						
Reaction:	NONE						
Acknowledge:	IMMEDIATELY						
Cause:	A fault has occurred at the drive object at the DRIVE-CLiQ socket X105.						
	Fault value (r0949, interpret decimal):						
	First fault that has occurred for this drive object.						
Remedy:	Evaluate the fault buffer of the specified object.						
A40100	Alarm at DRIVE-CLiQ socket X100						
Message value:	%1						
Drive object:	All objects						
Reaction:	NONE						
Acknowledge:	NONE						
Cause:	An alarm has occurred at the drive object at the DRIVE-CLiQ socket X100.						
	Alarm value (r2124, interpret decimal):						
	First alarm that has occurred for this drive object.						
Remedy:	Evaluate the alarm buffer of the specified object.						
A40101	Alarm at DRIVE-CLiQ socket X101						
Message value:	%1						
Drive object:	All objects						
Reaction:	NONE						
Acknowledge:	NONE						
Cause:	An alarm has occurred at the drive object at the DRIVE-CLiQ socket X101.						
	Alarm value (r2124, interpret decimal):						
	First alarm that has occurred for this drive object.						
Remedy:	Evaluate the alarm buffer of the specified object.						
A40102	Alarm at DRIVE-CLiQ socket X102						
Message value:	%1						
Drive object:	All objects						
Reaction:	NONE						
Acknowledge:	NONE						
Cause:	An alarm has occurred at the drive object at the DRIVE-CLiQ socket X102.						
Cause.	Alarm value (r2124, interpret decimal):						
	First alarm that has occurred for this drive object.						
Remedy:	Evaluate the alarm buffer of the specified object.						
Remedy.							
A40103	Alarm at DRIVE-CLiQ socket X103						
Message value:	%1						
Drive object:	All objects						
Reaction:	NONE						
Acknowledge:	NONE						
Cause:	An alarm has occurred at the drive object at the DRIVE-CLiQ socket X103.						
	Alarm value (r2124, interpret decimal):						
	First alarm that has occurred for this drive object.						
Remedy:	Evaluate the alarm buffer of the specified object.						

A40104	Alarm at DRIVE-CLiQ socket X104						
Message value:	%1						
Drive object:	All objects						
Reaction:	NONE						
Acknowledge:	NONE						
Cause:	An alarm has occurred at the drive object at the DRIVE-CLiQ socket X104.						
	Alarm value (r2124, interpret decimal):						
	First alarm that has occurred for this drive object.						
Remedy:	Evaluate the alarm buffer of the specified object.						
A40105	Alarm at DRIVE-CLiQ socket X105						
Message value:	%1						
Drive object:	All objects						
Reaction:	NONE						
Acknowledge:	NONE						
Cause:	An alarm has occurred at the drive object at the DRIVE-CLiQ socket X105.						
	Alarm value (r2124, interpret decimal):						
	First alarm that has occurred for this drive object.						
Remedy:	Evaluate the alarm buffer of the specified object.						
F40799	CX32: Configured transfer end time exceeded						
Message value:	-						
Drive object:	All objects						
Reaction:	NONE						
Acknowledge:	IMMEDIATELY						
Cause:	The configured transfer end time when transferring the cyclic actual values was exceeded.						
Remedy:	- carry out a POWER ON (switch-off/switch-on) for all components.						
	- contact Technical Support.						
F40801	CX32 DRIVE-CLiQ: Sign-of-life missing						
Message value:	Component number: %1, fault cause: %2						
Drive object:	All objects						
Reaction:	OFF2						
Acknowledge:	IMMEDIATELY						
Cause:	A DRIVE-CLIQ communications error has occurred from the Control Unit to the controller extension involved.						
	Fault cause:						
	10 (= 0A hex):						
	The sign-of-life bit in the receive telegram is not set.						
	Note regarding the message value:						
	The individual information is coded as follows in the message value (r0949/r2124):						
	0000yyxx hex: yy = component number, xx = error cause						
Remedy:	- carry out a POWER ON (switch-off/switch-on).						
	- replace the component involved.						
F40820	CX32 DRIVE-CLiQ: Telegram error						
Message value:	Component number: %1, fault cause: %2						
Drive object:	All objects						
Reaction:	OFF2						
Acknowledge:	IMMEDIATELY						
-							

DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply ge has failed. cause: D9 hex): power supply voltage for the components has failed. regarding the message value: ndividual information is coded as follows in the message value (r0949/r2124): yyxx hex: yy = component number, xx = error cause y out a POWER ON (switch-off/switch-on). ck the supply voltage wiring of the DRIVE-CLiQ component (interrupted cable, contacts,). ck the dimensioning of the DRIVE-CLiQ component power supply. 22 DRIVE-CLiQ: Cyclic data transfer error ponent number: %1, fault cause: %2
ge has failed. cause: D9 hex): bower supply voltage for the components has failed. regarding the message value: ndividual information is coded as follows in the message value (r0949/r2124): yyxx hex: yy = component number, xx = error cause y out a POWER ON (switch-off/switch-on). ck the supply voltage wiring of the DRIVE-CLiQ component (interrupted cable, contacts,). ck the dimensioning of the DRIVE-CLiQ component power supply.
ge has failed. cause: 09 hex): power supply voltage for the components has failed. regarding the message value: ndividual information is coded as follows in the message value (r0949/r2124): yyxx hex: yy = component number, xx = error cause y out a POWER ON (switch-off/switch-on). ck the supply voltage wiring of the DRIVE-CLiQ component (interrupted cable, contacts,).
ge has failed. cause: D9 hex): bower supply voltage for the components has failed. regarding the message value: ndividual information is coded as follows in the message value (r0949/r2124): yyxx hex: yy = component number, xx = error cause y out a POWER ON (switch-off/switch-on).
ge has failed. cause:)9 hex): power supply voltage for the components has failed. regarding the message value: ndividual information is coded as follows in the message value (r0949/r2124): yyxx hex: yy = component number, xx = error cause
ge has failed. cause: D9 hex): power supply voltage for the components has failed. regarding the message value: ndividual information is coded as follows in the message value (r0949/r2124):
ge has failed. cause: 09 hex): power supply voltage for the components has failed. regarding the message value:
ge has failed. cause: J9 hex):
ge has failed. cause:
ge has failed.
DRIVE CLID communication from the DRIVE CLID component involved to the Central Llait signals that the surply
EDIATELY
I (OFF2)
ojects
ponent number: %1, fault cause: %2
2 DRIVE-CLiQ: Supply voltage failed
ck the DRIVE-CLiQ wiring (interrupted cable, contacts,).
ck the electrical cabinet design and cable routing for EMC compliance
y out a POWER ON (switch-off/switch-on).
yyxx hex: $yy = component number$, $xx = error cause$
ndividual information is coded as follows in the message value (r0949/r2124):
regarding the message value:
10 hex): receive telegram is too early.
error bit in the receive telegram is set.
)9 hex):
YNC telegram is expected - but the received telegram is one.
)8 hex):
NC telegram is expected - but the received telegram is not a SYNC telegram.
)7 hex):
address of the component in the telegram and in the receive list do not match.
)6 hex):
ype of the receive telegram does not match the receive list.
b hex):
)4 hex): ength of the receive telegram does not match the receive list.
gram is longer than specified in the length byte or in the receive list.
)3 hex):
gram is shorter than specified in the length byte or in the receive list.
)2 hex):
ksum error (CRC error).
)1 hex):
cause:

Cause:	A DRIVE-CLiQ communications error has occurred from the Control Unit to the controller extension involved. The nodes do not send and receive in synchronism. Fault cause:					
	33 (= 21 hex):					
	The cyclic telegram has not been received.					
	34 (= 22 hex):					
	Timeout in the telegram receive list.					
	64 (= 40 hex):					
	Timeout in the telegram send list.					
	Note regarding the message value:					
	The individual information is coded as follows in the message value (r0949/r2124):					
	0000yyxx hex: yy = component number, xx = error cause					
Remedy:	- carry out a POWER ON (switch-off/switch-on).					
	- replace the component involved.					
F40836	CX32 DRIVE-CLiQ: Send error for DRIVE-CLiQ data					
Message value:	Component number: %1, fault cause: %2					
Drive object:	All objects					
Reaction:	OFF2					
Acknowledge:	IMMEDIATELY					
Cause:	A DRIVE-CLiQ communications error has occurred from the Control Unit to the controller extension involved. Data were not able to be sent.					
	Fault cause:					
	65 (= 41 hex):					
	Telegram type does not match send list.					
	Note regarding the message value:					
	The individual information is coded as follows in the message value (r0949/r2124):					
	0000yyxx hex: yy = component number, xx = error cause					
Remedy:	Carry out a POWER ON (switch-off/switch-on).					
F40837	CX32 DRIVE-CLiQ: Component fault					
Message value:	Component number: %1, fault cause: %2					
Drive object:	All objects					
Reaction:	OFF2					
Acknowledge:	IMMEDIATELY					
Cause:	Fault detected on the DRIVE-CLiQ component concerned. Faulty hardware cannot be excluded.					
	Fault cause:					
	32 (= 20 hex):					
	Error in the telegram header.					
	35 (= 23 hex):					
	Receive error: The telegram buffer memory contains an error.					
	66 (= 42 hex):					
	Send error: The telegram buffer memory contains an error.					
	67 (= 43 hex):					
	Send error: The telegram buffer memory contains an error.					
	Note regarding the message value:					
	The individual information is coded as follows in the message value (r0949/r2124):					
	0000yyxx hex: yy = component number, xx = error cause					

13.2 List of faults and alarms

D	check the DRIVE CLIO wiring (interrupted cable contacter)						
Remedy:	 check the DRIVE-CLiQ wiring (interrupted cable, contacts,). check the electrical cabinet design and cable routing for EMC compliance 						
	- if required, use another DRIVE-CLiQ socket (p9904).						
	- replace the component involved.						
F4004E							
F40845	CX32 DRIVE-CLiQ: Cyclic data transfer error						
Message value:	Component number: %1, fault cause: %2						
Drive object:	All objects						
Reaction:	OFF2						
Acknowledge:	IMMEDIATELY						
Cause:	A DRIVE-CLiQ communications error has occurred from the Control Unit to the controller extension involved.						
	Fault cause:						
	11 (= 0B hex):						
	Synchronization error during alternating cyclic data transfer.						
	Note regarding the message value:						
	The individual information is coded as follows in the message value (r0949/r2124):						
	0000yyxx hex: yy = component number, xx = error cause						
Remedy:	Carry out a POWER ON (switch-off/switch-on).						
F40851	CX32 DRIVE-CLiQ (CU): Sign-of-life missing						
Message value:	Component number: %1, fault cause: %2						
Drive object:	All objects						
Reaction:	OFF2						
Acknowledge:	IMMEDIATELY						
Cause:	A DRIVE-CLiQ communications error has occurred from the controller extension involved to the Control Unit.						
oudoo.	The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit.						
	Fault cause:						
	10 (= 0A hex):						
	The sign-of-life bit in the receive telegram is not set.						
	Note regarding the message value:						
	The individual information is coded as follows in the message value (r0949/r2124):						
	0000yyxx hex: yy = component number, xx = error cause						
Remedy:	Upgrade the firmware of the component involved.						
F40860	CX32 DRIVE-CLiQ (CU): Telegram error						
Message value:	Component number: %1, fault cause: %2						
Drive object:	All objects						
Drive object.	OFF2						

 Drive object:
 All objects

 Reaction:
 OFF2

 Acknowledge:
 IMMEDIATELY

Cause:	A DRIVE-CLIQ communications error has occurred from the controller extension involved to the Control Unit.
	Fault cause:
	1 (= 01 hex):
	Checksum error (CRC error).
	2 (= 02 hex):
	Telegram is shorter than specified in the length byte or in the receive list.
	3 (= 03 hex):
	Telegram is longer than specified in the length byte or in the receive list.
	4 (= 04 hex):
	The length of the receive telegram does not match the receive list.
	5 (= 05 hex):
	The type of the receive telegram does not match the receive list.
	6 (= 06 hex):
	The address of the power unit in the telegram and in the receive list do not match.
	9 (= 09 hex):
	The error bit in the receive telegram is set.
	16 (= 10 hex):
	The receive telegram is too early.
	17 (= 11 hex):
	CRC error and the receive telegram is too early.
	18 (= 12 hex):
	The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early.
	19 (= 13 hex):
	The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early.
	20 (= 14 hex):
	The length of the receive telegram does not match the receive list and the receive telegram is too early.
	21 (= 15 hex):
	The type of the receive telegram does not match the receive list and the receive telegram is too early.
	22 (= 16 hex):
	The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early.
	25 (= 19 hex):
	The error bit in the receive telegram is set and the receive telegram is too early.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON (switch-off/switch-on).
	- check the electrical cabinet design and cable routing for EMC compliance
	- check the DRIVE-CLiQ wiring (interrupted cable, contacts,).
F40875	CX32 DRIVE-CLiQ (CU): Supply voltage failed
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	OFF1 (OFF2)
Acknowledge:	IMMEDIATELY
Cause:	The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed.
	Fault cause:

The power supply voltage for the components has failed.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

9 (= 09 hex):

13.2 List of faults and alarms

Remedy:

- carry out a POWER ON (switch-off/switch-on).

- check the supply voltage wiring of the DRIVE-CLiQ component (interrupted cable, contacts, ...).

- check the dimensioning of the DRIVE-CLiQ component power supply.

F40885	CX32 DRIVE-CLiQ (CU): Cyclic data transfer error
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred from the controller extension involved to the Control Unit.
	The nodes do not send and receive in synchronism.
	Fault cause:
	26 (= 1A hex):
	Sign-of-life bit in the receive telegram not set and the receive telegram is too early.
	33 (= 21 hex):
	The cyclic telegram has not been received.
	34 (= 22 hex):
	Timeout in the telegram receive list.
	64 (= 40 hex):
	Timeout in the telegram send list.
	98 (= 62 hex):
	Error at the transition to cyclic operation.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- check the power supply voltage of the component involved.
	- carry out a POWER ON (switch-off/switch-on).
	- replace the component involved.
F40886	CX32 DRIVE-CLiQ (CU): Error when sending DRIVE-CLiQ data
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred from the controller extension involved to the Control Unit.
Cause.	Data were not able to be sent.
	Fault cause:
	65 (= 41 hex):
	Telegram type does not match send list.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, $xx =$ error cause
Remedy:	Carry out a POWER ON (switch-off/switch-on).
Romody.	
F40887	CX32 DRIVE-CLiQ (CU): Component fault
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY

Cause:	Fault detected on the DRIVE-CLiQ component concerned. Faulty hardware cannot be excluded.
	Fault cause:
	32 (= 20 hex):
	Error in the telegram header.
	35 (= 23 hex):
	Receive error: The telegram buffer memory contains an error.
	66 (= 42 hex):
	Send error: The telegram buffer memory contains an error.
	67 (= 43 hex):
	Send error: The telegram buffer memory contains an error.
	96 (= 60 hex):
	Response received too late during runtime measurement.
	97 (= 61 hex):
	Time taken to exchange characteristic data too long.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- check the DRIVE-CLiQ wiring (interrupted cable, contacts,).
	- check the electrical cabinet design and cable routing for EMC compliance
	- if required, use another DRIVE-CLiQ socket (p9904).
	- replace the component involved.
F40895	CX32 DRIVE-CLiQ (CU): Cyclic data transfer error
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred from the controller extension involved to the Control Unit.
	Fault cause:
	11 (= 0B hex):
	Synchronization error during alternating cyclic data transfer.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	Carry out a POWER ON (switch-off/switch-on).

Appendix

A

A.1 Communication telegrams

The converter supports the telegrams listed below.

The bit assignments of the individual process data can be found in Section Bit assignments of the process data (Page 740).

A.1.1 Standard telegrams

Telegram 3

Telegram 3 transfers the control words 1 and 2 (STW1, STW2), the status words 1 and 2 (ZSW1, ZSW2), the speed setpoint and actual value (NSOLL_B, NIST_B), control word and status word of encoder 1 (G1_STW, G1_ZSW), and the actual position value 1 and 2 of encoder 1 (G1_XIST1, G1_XIST2).

PZD01	PZD02	PZD03	PZD04	PZD05	PZD06	PZD07	PZD08	PZD09
STW1	NSOLL_B		STW2	G1 STŴ				
ZSW1	NIST_B		ZSW2	G1 ZSŴ	G1_XIST1 G1_XIST2		(IST2	

Telegram 5

In addition to the values of telegram 3, telegram 5 transfers the values for position deviation (XERR) and gain factor for the position controller (KPC).

PZD01	PZD02	PZD03	PZD04	PZD05	PZD06	PZD07	PZD08	PZD09
STW1	NSO	LL_B	STW2	G1 STŴ	XE	RR	KF	°C
ZSW1	NIS	T_B	ZSW2	G1 ZSŴ	G1_X	(IST1	G1_X	(IST2

Telegram 102

In addition to the values of telegram 3, telegram 102 transfers the value for the torque reduction (MOMRED) and the alarm word (MELDW).

PZD01	PZD02	PZD03	PZD04	PZD05	PZD06	PZD07	PZD08	PZD09	PZD10
STW1	NSO	LL_B	STW2	MOM RED	G1 STŴ				
ZSW1	NIS	T_B	ZSW2	MELDW	G1 ZSŴ	G1_>	(IST1	G1_X	(IST2

A.1 Communication telegrams

Telegram 105

In addition to the values of telegram 3, telegram 105 transfers the value for the torque reduction (MOMRED), the alarm word (MELDW), the values for the position deviation (XERR) and the gain factor for the position controller (KPC).

PZD01	PZD02	PZD03	PZD04	PZD05	PZD06	PZD07	PZD08	PZD09	PZD10
STW1	NSO	LL_B	STW2	MOM RED	G1 STŴ	XE	RR	KF	2c
ZSW1	NIS	T_B	ZSW2	MELDW	G1 ZSŴ	z.B.: G1	_XIST1	z.B.: G1	_XIST2

A.1.2 Supplementary telegrams

In addition to the main telegram, you can configure one or two supplementary telegrams. The supported supplementary telegrams are listed below.

Telegram 700

Using the Safety Info Channel (SIC), telegram 700 transfers the safety status word 1B (S_ZSW1B) and the value for the limitation of the setpoint velocity (S_V_LIMIT_B).

PZD01	PZD02	PZD03
S ZSW1B	S_V_L	IMIT_B
20.010		

Telegram 701

In addition to telegram 700, telegram 701 transfers the following data:

- Via the Safety Control Channel (SCC) the safety control word 1B (S_STW1B) and the safety control word 3B (S_STW3B).
- Via the Safety Info Channel (SIC) the safety status word 2B (S_ZSW2B) and the safety status word 3B (S_ZSW3B).

PZD01	PZD02	PZD03	PZD04	PZD05
S STW1B	S STW3B			
S ZSW1B	S ZSW2B	S_V_LI	MIT_B	S ZSW3B

Telegram 750

Telegram 750 is a supplementary telegram for the torque control with the following data:

- The controller sends the additional torque (M_ADD) and the positive and negative torque limit (M_LIMIT_POS, M_LIMIT_NEG) to the converter.
- The converter sends the actual torque (M_ACT) to the controller.

PZD01	PZD02	PZD03
M_ADD	M_LIMIT _POS	M_LIMIT _NEG
M_ACT		-

Telegram 750 can be transferred in addition to telegram 700 or 701. The order can be set in HW Config.

Appendix

A.1 Communication telegrams

A.1.3 PROFIsafe telegrams

The converter supports PROFIsafe telegrams 30 and 901.

Telegram 30

Telegram 30 transfers safety control word 1 (S_STW1) and safety status word 1 (S_ZSW1).



Telegram 901

Telegram 901 will be needed in the future for the Extended Safety Functions and is meaningless in this version.

A.1.4 Bit assignments of the process data

Note

Representation of the sending direction Controller -> Converter and Converter -> Controller

The left column always shows the process data that is sent from the controller to the converter (control words and setpoints).

The process data that is sent from the converter to the controller is displayed in the right column (status words and actual values).

A.1 Communication telegrams

A.1.4.1 Control word 1 and status word 1

Bit	Meaning
00	ON / OFF1
01	OFF2
02	OFF3
03	Enable operation
04	Reserved
05	Reserved
06	Enable speed setpoint
07	Acknowledge fault
08	Reserved
09	Reserved
10	Master control by PLC
11	Reserved
12	Open holding brake
13	Reserved
14	Torque / speed control
15	Reserved

Control word 1 (STW1)

Status word	1	(ZSW1)
-------------	---	--------

Bit	Meaning
00	Ready for switching on
01	Ready
02	Operation enabled
03	Fault active
04	No coast down active
05	No quick stop active
06	Switching-on inhibited active
07	Alarm active
08	Controller release
09	Control requested
10	Comparison value reached/exceeded
11	Alarm class bit 0
12	Alarm class bit 1
13	Reserved
14	Closed-loop torque control active
15	Reserved

A.1.4.2 Control word 2 and status word 2

Control word 2 (STW2)

Bit	Meaning
00	Reserved
01	Reserved
02	Reserved
03	Reserved
04	Reserved
05	Reserved
06	Integrator lock speed controller
07	Parking axis selection
08	Travel to fixed stop
09	Reserved
10	Reserved
11	Reserved
12	Controller sign-of-life bit 0
13	Controller sign-of-life bit 1
14	Controller sign-of-life bit 2
15	Controller sign-of-life bit 3

Status word 2 (ZSW2)

Bit	Meaning
00	Reserved
01	Reserved
02	Reserved
03	Reserved
04	Reserved
05	Open holding brake
06	Integrator lock speed controller
07	Parking axis active
08	Travel to fixed stop
09	Reserved
10	Reserved
11	Reserved
12	Device sign-of-life bit 0
13	Device sign-of-life bit 1
14	Device sign-of-life bit 2
15	Device sign-of-life bit 3

A.1 Communication telegrams

A.1.4.3 Encoder 1 - control word and status word

Encoder 1 control word (G1_STW)

Bit	Meaning	
00	Request function 1	
01	Request function 2	
02	Request function 3	
03	Request function 4	
04	Value 1	
05	Value 2	
06	Value 3	
07	Value 4	
08	Probe 1	
09	Probe 2	
10	Reserved	
11	Reserved	
12	Acknowledge encoder fault	
13	Cyclic absolute value	
14	Parking encoder active	
15	Acknowledge encoder fault	

Encoder 1 status word (G1_ZSW)

Bit	Meaning	
-	<u> </u>	
00	Function 1 active	
01	Function 2 active	
02	Function 3 active	
03	Function 4 active	
04	Value 1	
05	Value 2	
06	Value 3	
07	Value 4	
08	Probe 1	
09	Probe 2	
10	Reserved	
11	Reserved	
12	Encoder fault	
13	Absolute value	
14	Parking encoder	
15	Encoder fault	

A.1.4.4 Safety control word and status word 1

Safety control word 1 (S_STW1)

Bit	Meaning	
00	Deselect STO	
01	Deselect SS1	
02	Reserved	
03	Reserved	
04	Reserved	
05	Reserved	
06	Reserved	
07	Acknowledge	
08	Reserved	
09	Reserved	
10	Reserved	
11	Reserved	
12	Reserved	
13	Reserved	
14	Reserved	
15	Reserved	

Safety status word 1 (S_ZSW1)

Bit	Meaning	
00	STO active	
01	SS1 active	
02	Reserved	
03	Reserved	
04	Reserved	
05	Reserved	
06	Reserved	
07	Internal event	
08	Reserved	
09	Reserved	
10	Reserved	
11	Reserved	
12	Reserved	
13	Reserved	
14	Reserved	
15	Reserved	

A.1.4.5 Safety control word and status word 1B

Bit	Meaning	
00	Reserved	
01	Reserved	
02	Reserved	
03	Reserved	
04	Reserved	
05	Reserved	
06	Reserved	
07	Reserved	
08	Reserved	
09	Reserved	
10	Reserved	
11	Reserved	
12	Reserved	
13	Reserved	
14	Reserved	
15	Reserved	

Safety status word 1B (S_ZSW1B)

Bit	Meaning	
00	STO active	
01	SS1 active	
02	Reserved	
03	Reserved	
04	Reserved	
05	Reserved	
06	Reserved	
07	Internal event	
08	Reserved	
09	Reserved	
10	Reserved	
11	Reserved	
12	Reserved	
13	Reserved	
14	Reserved	
15	Safety alarm valid	

A.1.4.6 Safety status word 2B

Safety status word 2B (S_ZSW2B)

Bit	Meaning	
00	Reserved	
01	Reserved	
02	Reserved	
03	Reserved	
04	Reserved	
05	Reserved	
06	Reserved	
07	Reserved	
08	Reserved	
09	Reserved	
10	Reserved	
11	Reserved	
12	Test stop active	
13	Test stop requested	
14	Reserved	
15	Reserved	

A.1 Communication telegrams

A.1.4.7 Safety control word and status word 3B

Safety control word 3B (S_STW3B)

Bit	Meaning	
00	Reserved	
01	Reserved	
02	Reserved	
03	Reserved	
04	Reserved	
05	Reserved	
06	Reserved	
07	Reserved	
08	Reserved	
09	Reserved	
10	Reserved	
11	Reserved	
12	Reserved	
13	Reserved	
14	Reserved	
15	Reserved	

Safety status word 3B (S_ZSW3B)

Bit	Meaning	
00	Reserved	
01	Reserved	
02	Reserved	
03	Reserved	
04	Reserved	
05	Reserved	
06	Reserved	
07	Reserved	
08	Reserved	
09	Reserved	
10	Reserved	
11	Reserved	
12	Reserved	
13	Reserved	
14	Reserved	
15	Acceptance test active	

A.1.4.8 Message word

Message word (MELDW)

Bit	Meaning		
00	Ramp-up ended		
01	Torque utilization < threshold 2		
02	nact < speed threshold 3		
03	nact < speed threshold 2		
04	Reserved		
05	Variable signal functions		
06	No warning motor overtemperature		
07	No warning converter overtemperature		
08	Actual/setpoint deviation within the tolerance		
09	Reserved		
10	Reserved		
11	Servo enable		
12	Drives ready		
13	Pulses enabled		
14	Reserved		
15	Reserved		

A.2 What is the difference between the Emergency Off and Emergency Stop functions?

A.2 What is the difference between the Emergency Off and Emergency Stop functions?

"Emergency Off" and "Emergency Stop" are commands that minimize different risks in the machine or plant.

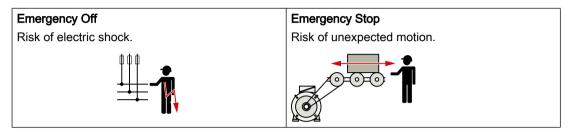


Table A-1Measures and solutions

Command	Emergency Off	Emergency Stop
Measure to minimize risk	ze Safe switch off Switching off the electric power supply for the installation, either completely or partially.	Safely stop and safely prevent restart- ing Stopping or preventing the dangerous movement
Classic solution	Switch off the power supply.	Switch off the drive power supply.
Solution with the STO safety function integrated in the drive	STO is not suitable for safely switching off a voltage.	Select STO.

A.3 Directives and standards

A.3 Directives and standards

A.3.1 Directives, standards and certificates for the converter

Directives and standards that are complied with

The converters comply with the following directives and standards:

European Low-Voltage Directive

The converter fulfills the requirements stipulated in the Low-Voltage Directive 2014/35/EU, if they are covered by the field of application of this directive.

European Machinery Directive

The converter fulfills the requirements stipulated in the Machinery Directive 2006/42//EU, if they are covered by the field of application of this directive.

However, the use of the converter in a typical machine application has been fully assessed for compliance with the main regulations in this directive concerning health and safety.

European EMC Directive

By completely complying with IEC/EN 61800-3, it has been proven that the converter is in compliance with directive 2004/108/EC or 2014/30/EU.

Safety Integrated

The converters comply with the requirements relating to functional safety/safety of machinery.

RoHS

The converters comply with directive 2011/65/EU regarding limiting the use of certain hazardous substances.



Underwriters Laboratories (North American market)

Converters provided with one of the test symbols displayed on the left fulfill the requirements stipulated for the North American market as a component of drive applications, and are appropriately listed.



Eurasian conformity

The converter complies with the requirements of the Russia/Belarus/Kazakhstan customs union (EAC).



Australia and New Zealand (RCM formerly C-Tick)

The converters showing the test symbols fulfill the EMC requirements for Australia and New Zealand.

Certificates for download



- EC declaration of conformity: (<u>https://support.industry.siemens.com/cs/de/de/view/60438382</u>)
- Certificates for the relevant directives, prototype test certificates, manufacturers declarations and test certificates for functions relating to functional safety ("Safety Integrated"): (<u>https://support.industry.siemens.com/cs/ww/en/ps/13229/cert</u>)
- Certificates of products that were certified by UL: (<u>http://database.ul.com/cgi-bin/XYV/</u> template/LISEXT/1FRAME/index.html)

Standards that are not relevant



China Compulsory Certification

The converter does not fall in the area of validity of the China Compulsory Certification (CCC).

A.3.2 Directives, standards and certificates for the motor

Standards that are complied with

The motors of the series SIMOTICS S, SIMOTICS M, SIMOTICS L, SIMOTICS T, SIMOTICS A, called "SIMOTICS motor series" below, fulfill the requirements of the following directives and standards:

- EN 60034-1 Rotating electrical machines Dimensioning and operating behavior
- EN 60204-1 Safety of machinery Electrical equipment of machines; general requirements

Where applicable, the SIMOTICS motor series are in conformance with the following parts of IEC / EN 60034:

Feature	Standard
Degree of protection	IEC / EN 60034-5
Cooling ¹⁾	IEC / EN 60034-6
Type of construction	IEC / EN 60034-7
Connection designations	IEC / EN 60034-8
Noise levels 1)	IEC / EN 60034-9
Temperature monitoring	IEC / EN 60034-11
Vibration severity levels ¹⁾	IEC / EN 60034-14

¹⁾ Standard component, e.g. cannot be applied to built-in motors

Relevant directives

The following directives are relevant for SIMOTICS motors.

ſ F

A.3 Directives and standards

European Low-Voltage Directive

SIMOTICS motors comply with the Low-Voltage Directive 2014/35/EU.

European Machinery Directive

SIMOTICS motors do not fall within the area of validity covered by the Machinery Directive.

However, the use of the products in a typical machine application has been fully assessed for compliance with the main regulations in this directive concerning health and safety.

European EMC Directive

SIMOTICS motors do not fall within the area of validity covered by the EMC Directive. The products are not considered as devices in the sense of the directive. Installed and operated with a converter, the motor - together with the Power Drive System - must comply with the requirements laid down in the applicable EMC Directive.

Eurasian conformity

SIMOTICS motors comply with the requirements of the customs union Russia/Belarus/ Kazakhstan (EAC).

China Compulsory Certification

SIMOTICS motors do not fall within the area of validity covered by the China Compulsory Certification (CCC).

CCC negative certification:

CCC product certification (<u>https://support.industry.siemens.com/cs/products?</u> search=CCC&dtp=Certificate&mfn=ps&o=DefaultRankingDesc&pnid=13347&lc)

Underwriters Laboratories

SIMOTICS motors are generally in compliance with UL and cUL as components of motor applications, and are appropriately listed.

Specifically developed motors and functions are the exceptions in this case. Here, it is important that you carefully observe the contents of the quotation and that there is a cUL mark on the rating plate!

Quality systems

Siemens AG employs a quality management system that meets the requirements of ISO 9001 and ISO 14001.

Certificates for SIMOTICS motors can be downloaded from the Internet at the following link:

Certificates for SIMOTICS motors (<u>https://support.industry.siemens.com/cs/ww/de/ps/13347/</u> cert)

European RoHS Directive

The SIMOTICS motor series complies with the Directive 2011/65/EU regarding limiting the use of certain hazardous substances.

A.4 Certifications

The safety functions of the SINAMICS S drive system meet the following requirements:

- Category 3 to DIN EN ISO 13849-1
- Performance level (PL) d according to DIN EN ISO 13849-1
- Safety integrity level 2 (SIL 2) according to IEC 61508 and EN 61800-5-2

In addition, most of the safety functions of the SINAMICS S have been certified by independent institutes. A list of currently certified components is available on request from your local Siemens office.

A.5 Certificates for the secure data transfer

A.5 Certificates for the secure data transfer

A.5.1 Overview

The "Transport Layer Security" (TLS) protocol enables encrypted data transfer between a client and the SINAMICS drive. HTTPS access of the browser to the drive is based on the "Transport Layer Security" protocol. This section informs you which steps you need to follow to enable encrypted data transfer between a browser (client) and the SINAMICS (server).

You will find information on the configuration or your IP connection in Section:

Protecting the HTTPS access

The encrypted variant of the communication between the browser and the Web server using HTTPS requires the creation and installation of certificates.

Basically, there are three ways of creating a server certificate:

- Use the default configuration
- Use self-created certificates (by means of certificate software, such as OpenSSL)
- · Use a server certificate from a certificate authority

You can only use the default configuration for SINAMICS S210, firmware version 5.1.

Delivery state

A private key is generated as a file on the device as default configuration when you first use HTTPS so that you can access the drive via HTTPS in the SINAMICS delivery state. During an HTTPS access using this key, a warning is issued in the browser that the certificate is unknown.

Duration of validity

The certificates are valid up to 2030.

After expiration of the validity period, install new valid certificates on all the relevant drives.

A.5.2 Using the certificate default configuration

Note

Security

The use of a default configuration described in the following is not the most secure way of transferring data using the HTTPS protocol to your drive with the Web server.

For this reason, it should only be used in secure networks (e.g. your PROFINET below a PLC) or for direct point-to-point connections on the Service interface X127.

Procedure

- 1. First open an HTTPS Web server connection to your drive in the browser.
- 2. The firmware then creates a new server certificate and a private server key from the root certificate and the private key, if they are not already available. This certificate is individualized for the IP address of the interface used for the communication.
- 3. Following this, a warning is issued on the standard browser that the certificate is unknown.
- 4. Import the server certificate into your standard browser or deactivate the security warnings for the SINAMICS Websites.

The exact procedure for the import can be found in the online help of the used browser.

Deactivating warnings in the most important browsers

You can deactivate warnings in the most important browser as follows:

Opera

O Me	nü						
🖺 Mei	ne Link-Sı	uche	×∫	192.168.1.1	×	÷	
-	÷ x		🔞 http	os://157.163.215.1	.64		
+							
	Ung	gültige	es Zertifika	at			
	Aufgrund eines Zertifikatproblems kann Opera die Identität des Servers »157.163.215.164« nicht überprüfen. Der Server könnte versuchen, Sie zu betrügen. Möchten Sie die Verbindung zum Server trotzdem herstellen?			te			
	Zert	ifikat ar	nzeigen	Trotzdem for	tfahren	Abbrec	hen

Figure A-1 Opera1

Click "Still continue" in order to be able to communicate via a secure HTTPS connection.

Appendix

A.5 Certificates for the secure data transfer

Zertifikat 💪	x
Allgemein Details Zertifizierungspfad	
Zertifikatsinformationen	
Dieses Zertifizierungsstellen-Stammzertifikat ist nicht vertrauenswürdig. Installieren Sie das Zertifikat in den Speicher vertrauenswürdiger Stammzertifizierungsstellen, um die Vertrauensstellung zu aktivieren.	
Ausgestellt für: SINAMICS	-
Ausgestellt von: SINAMICS	
Gültig ab 04.06.2000 bis 04.06.2030	
I <u>Ausstellererki</u> Weitere Informationen über <u>Zertifikate</u>	ärung
	OK D

Figure A-2 Opera2

A.5 Certificates for the secure data transfer

Mozilla Firefox

1	Diese Verbindung ist nicht siche					
	Der Inhaber von 157.163.215.164 hat die Website nicht richtig konfiguriert. Firefox hat keine Verbindung mit dieser Website aufgebaut, um Ihre Informationen vor Diebstahl zu schützen.					
	Weitere Informationen					
	Zurück Erweitert					
	157.163.215.164 verwendet ein ungültiges Sicherheitszertifikat. Dem Zertifikat wird nicht vertraut, weil es vom Aussteller selbst signiert wurde. Das Zertifikat gilt nur für SINAMICS. Fehlercode: SEC_ERROR_UNKNOWN_ISSUER					
	Ausnahme hinzufügen					



- 1. Click "Extended". The information for the security certificate is displayed.
- 2. Click "Add exception" in order to be able to communicate via a secure HTTPS connection.

Microsoft Internet Explorer 11

8	Es besteht ein Problem mit dem Sicherheitszertifikat der Website.
	Das Sicherheitszertifikat dieser Website wurde für eine andere Adresse der Website ausgestellt. Das Sicherheitszertifikat dieser Website wurde nicht von einer vertrauenswürdigen Zertifizierungsstelle ausgestellt.
	Die Sicherheitszertifikatprobleme deuten eventuell auf den Versuch hin, Sie auszutricksen bzw. Daten die Sie an den Server gesendet haben abzufangen.
	Es wird empfohlen, dass Sie die Webseite schließen und nicht zu dieser Website wechseln.
	Ø Click here to close this webpage.
	Sontinue to this website (not recommended).
	Weitere Informationen

Figure A-4 Internet Explorer 11

A.5 Certificates for the secure data transfer

Click "Continue to this website" in order to be able to communicate via a secure HTTPS connection.

Google Chrome

Dies ist keine sichere Verbindung	
Unbefugte Dritte könnten versuchen, Ihre Informationen vo z. B. Passwörter, Nachrichten oder Kreditkartendaten. NET::EF	
Ich möchte automatisch einige Systeminformationen und Seiten der Erfassung schädlicher Apps und Websites zu helfen. <u>Datensc</u>	-
ERWEITERT	Zurück zu sicherer Website

Figure A-5 Google 1

- 1. Click "EXTENDED". The information for the security certificate is displayed.
- 2. Click "Continue to <IP address>" in order to be able to communicate via a secure HTTPS connection.

A.5 Certificates for the secure data transfer

Dies ist keine sichere Verbindung		
Unbefugte Dritte könnten versuchen, Ihre Informationen z. B. Passwörter, Nachrichten oder Kreditkartendaten. NE		
	Ich möchte automatisch einige Systeminformationen und Seiteninhalte an Google senden, um bei der Erfassung schädlicher Apps und Websites zu helfen. <u>Datenschutzerklärung</u>	
ERWEITERTE INFORMATIONEN AUSBLENDEN	Zurück zu sicherer Website	
Dieser Server konnte nicht beweisen, dass er 157.163.215.164 ist. Sein Sicherheitszertifikat wird vom Betriebssystem Ihres Computers nicht als vertrauenswürdig eingestuft. Mögliche Gründe sind eine fehlerhafte Konfiguration oder ein Angreifer, der Ihre Verbindung abfängt. <u>Weitere Informationen</u>		
<u>Weiter zu 157.163.215.164 (unsicher)</u>		

Figure A-6 Google 2

A.6 List of abbreviations

A.6 List of abbreviations

Note

The following list of abbreviations includes the abbreviations and meanings as used for the SINAMICS.

Abbreviation	Derivation of abbreviation	Meaning
A	Alarm	Alarm
AC	Alternating Current	Alternating current
ADC	Analog Digital Converter	Analog digital converter
C	-	Safety message
CF Card	CompactFlash Card	CompactFlash card
CoL	Certificate of License	Certificate of License
СОМ	Communication LED	Status display of the communication
СОМ	Common contact of a change-over re- lay	Center contact of a change-over contact
COMM	Commissioning	Commissioning
CPU	Central Processing Unit	Central processing unit
CU	Control Unit	Control Unit
DAC	Digital Analog Converter	Digital analog converter
DC	Direct Current	Direct current
DI	Digital Input	Digital input
DO	Digital Output	Digital output
DO	Drive Object	Drive object
DP	Decentralized Peripherals	Distributed I/O
DQ	DRIVE-CLiQ	DRIVE-CLiQ
DRIVE-CLiQ	Drive Component Link with IQ	Drive Component Link with IQ
DSC	Dynamic Servo Control	Dynamic servo control
DTC	Digital Time Clock	Timer
EEPROM	Electrically Erasable Programmable Read-Only Memory	Electrically Erasable Programmable Read-On- ly Memory
EMC	Electromagnetic Compatibility	Electromagnetic compatibility
EMF	Electromotive Force	Electromotive force
EMV	Elektromagnetische Verträglichkeit	Electromagnetic compatibility
EN	Europäische Norm	European standard
EnDat	Encoder-Data-Interface	Encoder interface
ESR	Extended Stop and Retract	Extended stop and retract
F	Fault	Fault
FAQ	Frequently Asked Questions	Frequently asked questions
FCC	Function Control Chart	Function control chart
FCC	Flux Current Control	Flux current control
F-DI	Failsafe Digital Input	Fail-safe digital input

Abbreviation	Derivation of abbreviation	Meaning
FI	-	Fault current
FP	Funktionsplan	Function diagram
FW	Firmware	Firmware
GB	Gigabyte	Gigabyte
GC	Global Control	Global control telegram (broadcast telegram)
GSD	Gerätestammdatei	Generic station description file: Describes the features of a PROFIBUS slave
GUID	Globally Unique Identifier	Globally unique identifier
HF	High frequency	High frequency
HFD	Hochfrequenzdrossel	Radio frequency reactor
HTL	High-Threshold Logic	Logic with high interference threshold
HW	Hardware	Hardware
I/O	Input/Output	Input/output
I2C	Inter-Integrated Circuit	Internal serial data bus
IASC	Internal Armature Short-Circuit	Internal armature short-circuit
IBN	Inbetriebnahme	Commissioning
ID	Identifier	Identification
IE	Industrial Ethernet	Industrial Ethernet
IEC	International Electrotechnical Com- mission	International Electrotechnical Commission
IF	Interface	Interface
IL	Impulslöschung	Pulse suppression
IP	Internet Protocol	Internet protocol
IVP	Internal Voltage Protection	Internal voltage protection
JOG	Jogging	Jogging
Кр	-	Proportional gain
L	-	Symbol for inductance
LED	Light Emitting Diode	Light emitting diode
LIN	Linearmotor	Linear motor
LU	Length Unit	Length unit
М	-	Symbol for torque
Μ	Masse	Reference potential for all signal and operating voltages, usually defined as 0 V (also referred to as GND)
MB	Megabyte	Megabyte
MCC	Motion Control Chart	Motion Control Chart
MDI	Manual Data Input	Manual data input
MLFB	Maschinenlesbare Fabrikatebezeich- nung	Article number
MRCD	Modular Residual Current Device	Modular residual current device
MSR	Motorstromrichter	Motor-side converter
MT	Messtaster	Measuring input
N. C.	Not Connected	Not connected

Appendix

Abbreviation	Derivation of abbreviation	Meaning
N	No Report	No message or internal message (only as part of the alarm list)
NAMUR	Normenarbeitsgemeinschaft für Mess- und Regeltechnik in der chem- ischen Industrie	Standardization association for measurement and control in chemical industries
NC	Normally Closed (contact)	NC contact
NC	Numerical Control	Numerical control
NEMA	National Electrical Manufacturers As- sociation	Standardization association in USA (United States of America)
NM	Nullmarke	Zero mark
NO	Normally Open (contact)	NO contact
NSR	Netzstromrichter	Line-side converter
NTP	Network Time Protocol	Synchronizes the clocks in computer systems and networks
NVRAM	Non-Volatile Random Access Memo- ry	Non-volatile read/write memory
OA	Open Architecture	Software component which provides additional functions for the SINAMICS drive system
OAIF	Open Architecture Interface	Version of the SINAMICS firmware from which the OA application can be used
OASP	Open Architecture Support Package	Expands the STARTER commissioning tool by the corresponding OA application
OC	Operating Condition	Operation condition
000	One Cable Connection	One cable technology
OEM	Original Equipment Manufacturer	Original Equipment Manufacturer
OMI	Option Module Interface	Option Module Interface
p	-	Adjustable parameters
PD	PROFIdrive	PROFIdrive
PDC	Precision Drive Control	Precision drive control
PDS	Power Drive System	Drive system
PE	Protective Earth	Protective ground
PELV	Protective Extra Low Voltage	Safety extra-low voltage
PFH	Probability of dangerous failure per hour	Probability of dangerous failure per hour
PG	Programmiergerät	Programming device
PID	Proportional Integral Differential	Proportional integral differential
PLC	Programmable Logical Controller	Programmable logic controller
PLL	Phase-Locked Loop	Phase-locked loop
PM	Power Module	Power Module
PN	PROFINET	PROFINET
PS	Power Supply	Power supply
PSA	Power Stack Adapter	Power stack adapter
PT1000	-	Temperature sensor
PTC	Positive Temperature Coefficient	Positive temperature coefficient
PWM	Pulse Width Modulation	Pulse width modulation

Abbreviation	Derivation of abbreviation	Meaning
PZD	Prozessdaten	Process data
r	-	Display parameters (read-only)
RAM	Random Access Memory	Memory for reading and writing
RCCB	Residual Current Circuit Breaker	Residual current operated circuit breaker
RCD	Residual Current Device	Residual current device
RESM	Reluctance synchronous motor	Synchronous reluctance motor
RFG	Ramp-Function Generator	Ramp-function generator
RJ45	Registered Jack 45	Term for an 8-pin socket system for data trans- mission with shielded or non-shielded multi- wire copper cables
RLM	Renewable Line Module	Renewable Line Module
RO	Read Only	Read-only
ROM	Read-Only Memory	Read-only memory
S1	-	Continuous operation
S3	-	Intermittent duty
SAM	Safe Acceleration Monitor	Safe acceleration monitoring
SBC	Safe Brake Control	Safe brake control
SBH	Sicherer Betriebshalt	Safe operating stop
SBR	Safe Brake Ramp	Safe brake ramp monitoring
SBT	Safe Brake Test	Safe brake test
SCA	Safe Cam	Safe cam
SCC	Safety Control Channel	Safety control channel
SD Card	SecureDigital Card	Secure digital memory card
SDC	Standard Drive Control	Standard Drive Control
SDI	Safe Direction	Safe motion direction
SE	Sicherer Software-Endschalter	Safe software limit switch
SESM	Separately-excited synchronous mo- tor	Separately-excited synchronous motor
SG	Sicher reduzierte Geschwindigkeit	Safely reduced speed
SGA	Sicherheitsgerichteter Ausgang	Safety-related output
SGE	Sicherheitsgerichteter Eingang	Safety-related input
SH	Sicherer Halt	Safe stop
SI	Safety Integrated	Safety Integrated
SIC	Safety Info Channel	Safety info channel
SIL	Safety Integrity Level	Safety integrity level
SITOP	-	Siemens power supply system
SLP	Safely-Limited Position	Safely-limited position
SLS	Safely-Limited Speed	Safely-limited speed
SM	Sensor Module	Sensor Module
SMI	SINAMICS Sensor Module Integrated	SINAMICS Sensor Module Integrated
SN	Sicherer Software-Nocken	Safe software cam
SOS	Safe Operating Stop	Safe operating stop
SP	Service Pack	Service pack

Appendix

Abbreviation	Derivation of abbreviation	Meaning
SP	Safe Position	Safe position
SPC	Setpoint Channel	Setpoint channel
SPI	Serial Peripheral Interface	Serial peripheral interface
SPS	Speicherprogrammierbare Steuerung	Programmable logic controller
SS1	Safe Stop 1	Safe stop 1 (monitored for time and ramp)
SS1E	Safe Stop 1 External	Safe stop 1 with external stop
SS2	Safe Stop 2	Safe stop 2
SS2E	Safe Stop 2 External	Safe stop 2 with external stop
SSI	Synchronous Serial Interface	Synchronous serial interface
SSM	Safe Speed Monitor	Safe feedback from speed monitor
SSP	SINAMICS Support Package	SINAMICS support package
STO	Safe Torque Off	Safe torque off
STW	Steuerwort	Control word
TEC	Technology Extension	Software component which is installed as an additional technology package and which expands the functionality of SINAMICS (previously OA application)
TIA	Totally Integrated Automation	Totally Integrated Automation
ТМ	Terminal Module	Terminal Module
Tn	-	Integral time
TTL	Transistor-Transistor-Logic	Transistor-transistor logic
UL	Underwriters Laboratories Inc.	Underwriters Laboratories Inc.
USV	Unterbrechungsfreie Stromversor- gung	Uninterruptible power supply
U TC	Universal Time Coordinated	Universal time coordinated
Vdc	-	DC-link voltage
VDE	Verband Deutscher Elektrotechniker	Association of German Electrical Engineers
VDI	Verein Deutscher Ingenieure	Association of German Engineers
XML	Extensible Markup Language	Extensible markup language (standard lan- guage for Web publishing and document man- agement)
ZK	Zwischenkreis	DC link
ZM	Zero Mark	Zero mark
ZSW	Zustandswort	Status word

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Further information

Siemens: www.siemens.com

Industry Online Support (Service and Support): www.siemens.com/online-support

IndustryMall: www.siemens.com/industrymall

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For additional information on the SINAMICS S210, scan the QR code