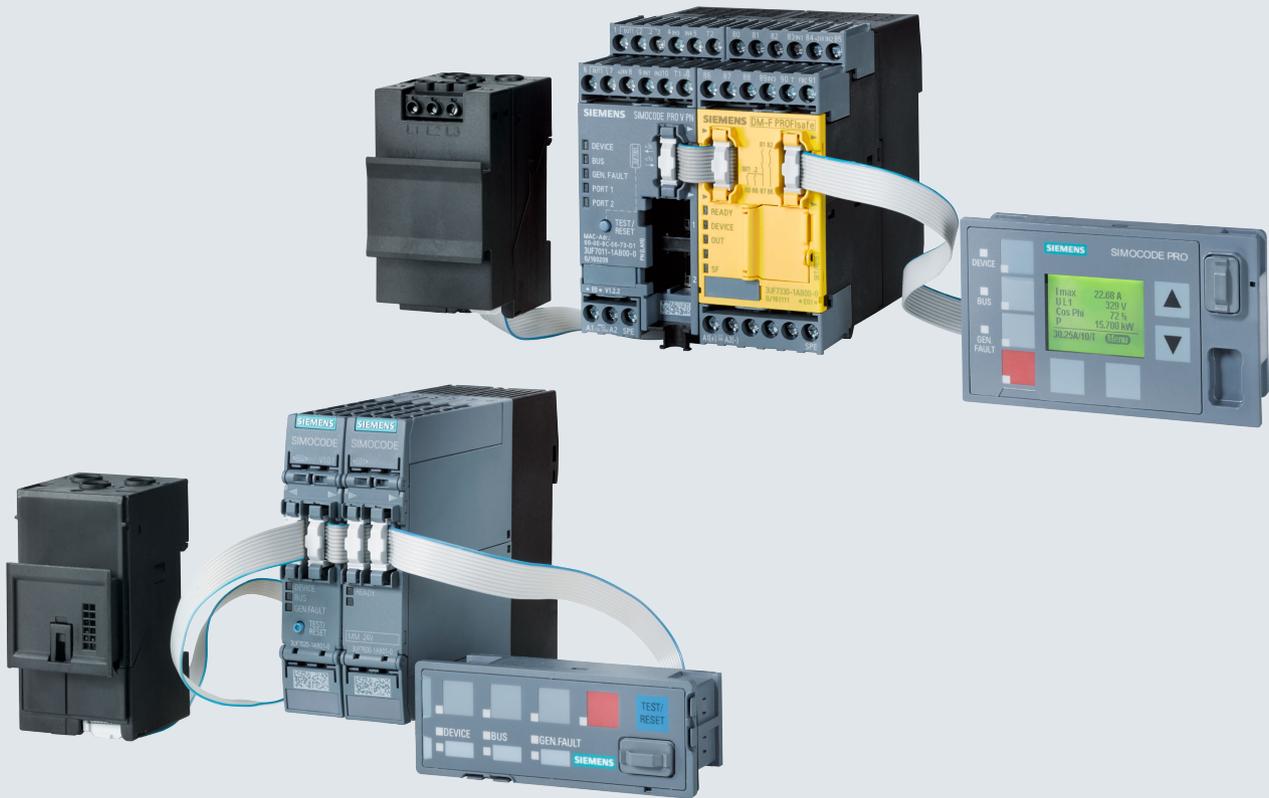


SIEMENS



Getting Started

Industrial Controls

Motor Management and Control Devices

SIMOCODE pro

Edition

04/2017

siemens.com

Industrial Controls

Motor management and control devices SIMOCODE pro

Getting Started

<u>Introduction</u>	1
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Legal information

Warning notice system

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

 DANGER
indicates that death or severe personal injury will result if proper precautions are not taken.
 WARNING
indicates that death or severe personal injury may result if proper precautions are not taken.
 CAUTION
indicates that minor personal injury can result if proper precautions are not taken.
NOTICE
indicates that property damage can result if proper precautions are not taken.

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

Qualified Personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Siemens products

Note the following:

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

Trademarks

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

Disclaimer of Liability

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

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Introduction

1.1 Important information

Scope of application

This manual is applicable to the listed SIMOCODE pro system components. It contains a description of the components applicable at the time of printing the manual. SIEMENS reserves the right to include updated information about new components or new versions of components in a Product Information.

Manual Collection

A Manual Collection (<https://support.industry.siemens.com/cs/document/109743951>), a collection of the following five SIMOCODE pro manuals is at your disposal in Industry Online Support:

- SIMOCODE pro - 1 Getting Started
- SIMOCODE pro - 2 System Manual
- SIMOCODE pro - 3 Parameterization
- SIMOCODE pro - 4 Applications
- SIMOCODE pro - 5 Communication

SIMOCODE pro response tables

Specific responses (deactivated, signaling, warning, tripping) can be parameterized for various SIMOCODE pro functions, such as overload. These are always displayed in tabular form:

- "X" = Applicable
- "—" = Not applicable
- Default values are marked "d" for "default" in parentheses.

Response	Function 1	Function 2	Function 3
Tripping	—	X (d)	X
Warning	X (d)	X	—
Signaling	X	X	—
Deactivated	X	X	X (d)
Delay	0 ... 25.5 s (default: 0)	—	—

Brief description of the responses:

- Tripping: The contactor controls QE* are tripped. A fault message is generated which is available as a diagnosis via PROFIBUS DP. The fault message and the device-internal signal remain on until the appropriate length of time has elapsed or the cause of the fault has been eliminated and acknowledged.
- Warning: In addition to the device-internal signal, a warning signal is generated that is available as diagnostics via the communication bus.
- Signaling: Only a device-internal signal is generated, which can be further processed as required.
- Deactivated: The appropriate function is switched off, no signals are generated.

A delay time can also be set for specific responses.

Further information

Please read the operating instructions of the respective components. You can find the operating instructions for SIMOCODE pro at (www.siemens.com/sirius/manuals).

You will find further information on the Internet:

- Internet (www.siemens.com/simocode)
- Information and Download Center (www.siemens.com/sirius/infomaterial)
- Siemens Industry Online Support (SIOS) (www.siemens.com/sirius/support)
- Certificates (www.siemens.com/sirius/approvals)

Further support (Service and Support)

Service and Support (www.siemens.com/sirius/technical-assistance)

Telephone: +49 (0) 911-895-5900 (8 a.m. to 5 p.m. CET)

Fax: +49 (0) 911-895-59 07

E-Mail: technical-assistance@siemens.com

Disclaimer of liability

The products described here have been developed to carry out safety-related functions as part of a complete plant or machine. In general, a complete safety system consists of sensors, evaluation units, signaling devices and methods for safe tripping. The manufacturer is responsible for ensuring safe functioning of the complete plant or machine. Siemens AG, its subsidiaries, and associated companies (hereinafter referred to as "Siemens") are not in a position to guarantee every characteristic of a complete plant or machine not designed by Siemens.

Siemens also denies all responsibility for any recommendations that are made or implied in the following description. No new guarantee, warranty, or liability claims above those standard to Siemens can be derived from the following description.

1.2 Security information

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 form one element of such a concept.

Customer is responsible to prevent 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:

<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 under:

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

1.3 Current information about operational safety

Important note for maintaining operational safety of your system

 DANGER

Hazardous Voltage

Can Cause Death, Serious Injury or Risk of Property Damage

Please take note of our latest information!

Systems with safety-related characteristics are subject to special operational safety requirements on the part of the operator. The supplier is also obliged to comply with special product monitoring measures. For this reason, we publish a special newsletter containing information on product developments and features that are (or could be) relevant to operation of safety-related systems. By subscribing to the appropriate newsletter in the Industry newsletter system (<https://www.industry.siemens.com/newsletter>), you will ensure that you are always up-to-date and able to make changes to your system, when necessary. Sign on to the following newsletter under "Products & Solutions":

- Control Components and System Engineering News
- Safety Integrated Newsletter.

Configuring a reversing starter

2.1 Introduction and objective of the example

Introduction

The following simple example of a reversing starter demonstrates step-by-step how to commission SIMOCODE pro. In this context, the reversing starter will be equipped with:

- Initially, one local control station - Local Control
- Followed by a second control station with PROFIBUS DP and PROFINET IO.

SIMOCODE ES (TIA Portal) software is used for parameterization.

The PC / PG is connected to the basic unit via a PC cable.

Objective of the example

This example is intended to:

1. Show you how to implement a standard switching operation with a reversing starter using SIMOCODE pro in just a few steps.
2. Help you modify this example for your application.
3. Help you implement other applications easily.

Fundamental steps

The two fundamental SIMOCODE pro steps are always:

- Implementation of external wiring (for control and feedback of main current switching devices and control and signaling devices)
- Implementation / activation of internal SIMOCODE pro functions (function blocks), with control and evaluation of the SIMOCODE pro inputs/outputs (internal SIMOCODE pro wiring).

Requirements

- Load feeder / motor is present
- PLC / PCS with PROFIBUS DP interface or PROFINET interface is present
- The main circuit of the reversing circuit, including the current measuring module, has already been wired. In this case, the 3 cables leading to the motor must be led through the feed-through openings of the current measuring module.
- PC / PG is present
- SIMOCODE ES software is installed
- The basic unit has the factory settings. You can find out how to restore the basic factory settings in the application manual.

2.2 Reversing starter with motor feeder and local control station

Required components

The following table lists the components required for this example:

Table 2- 1 Required components for the example of the reversing starter with motor feeder and local control station

Item	Ordering data	Order number
1	SIMOCODE pro C, pro S or pro V basic unit	3UF7000-1AU00-0 (pro C) 3UF7020-1AU00-0 (pro S) 3UF7010-1AU00-0 (pro V)
	SIMOCODE pro V PN basic unit	3UF7011-1AU00-0
2	0.3 A to 3 A current measuring module	3UF7100-1AA00-0
3	Connecting cable for connecting basic unit to the current measuring module, depending on length	3UF793.-1AA00-0
4	SIMOCODE ES (TIA Portal) Basic, Standard or Premium software for parameterization via the system interface or	3ZS1322-4CC12-0YA5 (Basic) 3ZS1322-5CC12-0YA5 (Standard) 3ZS1322-6CC12-0YA5 (Premium)
	"SIMOCODE ES 2007 Standard" software for parameterization via the system interface with graphic editor or	3ZS1312-5CC10-0YA5
	"SIMOCODE ES 2007 Premium" software for parameterization via PROFIBUS DP and the system interface with the graphic editor, includes STEP -7 Object Manager	3ZS1312-6CC10-0YA5
5	PC cable for connecting the basic unit to a PC / PG	3UF7941-0AA00-0 (USB)

Reversing starter circuitry with SIMOCODE pro

The following schematic shows the circuitry of the main circuit and the control circuit:

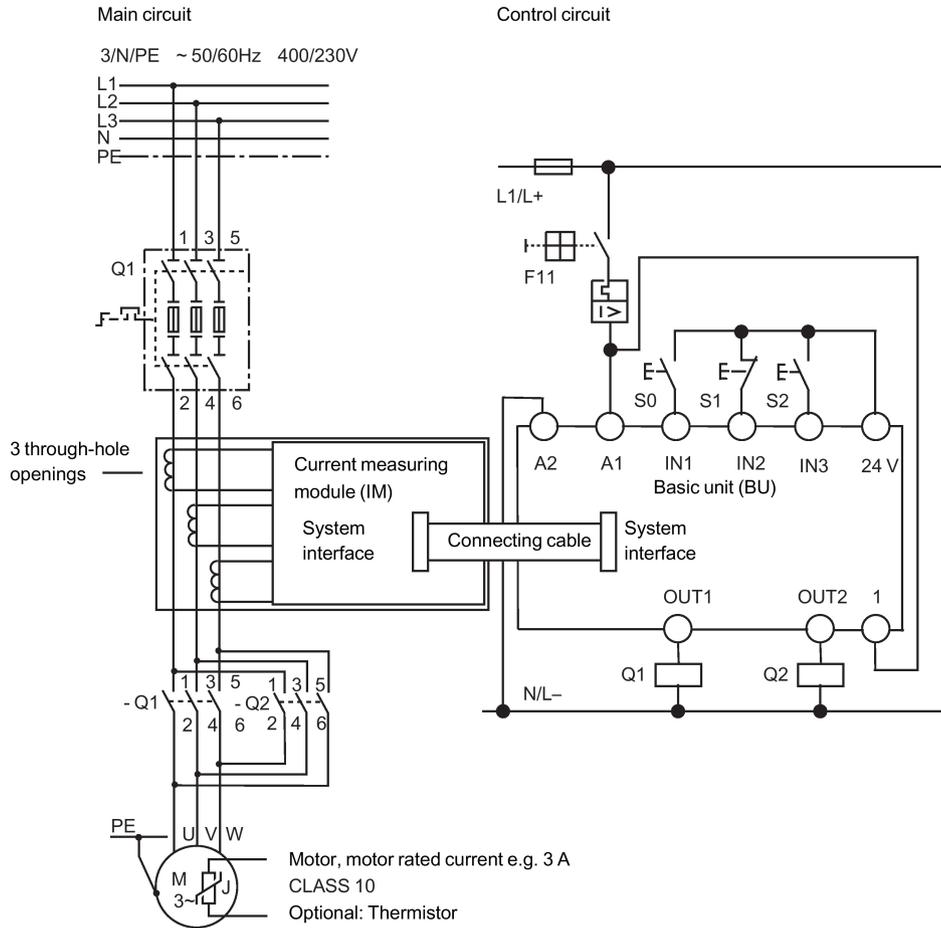


Figure 2-1 Wiring of the main circuit and the control circuit with SIMOCODE pro

Circuit diagram of a reversing starter control circuit

The following schematic shows the circuit diagram of the control circuit with a local control station for the commands:

- CCW
- OFF
- CW

Displays, messages, etc, have not been taken into account.

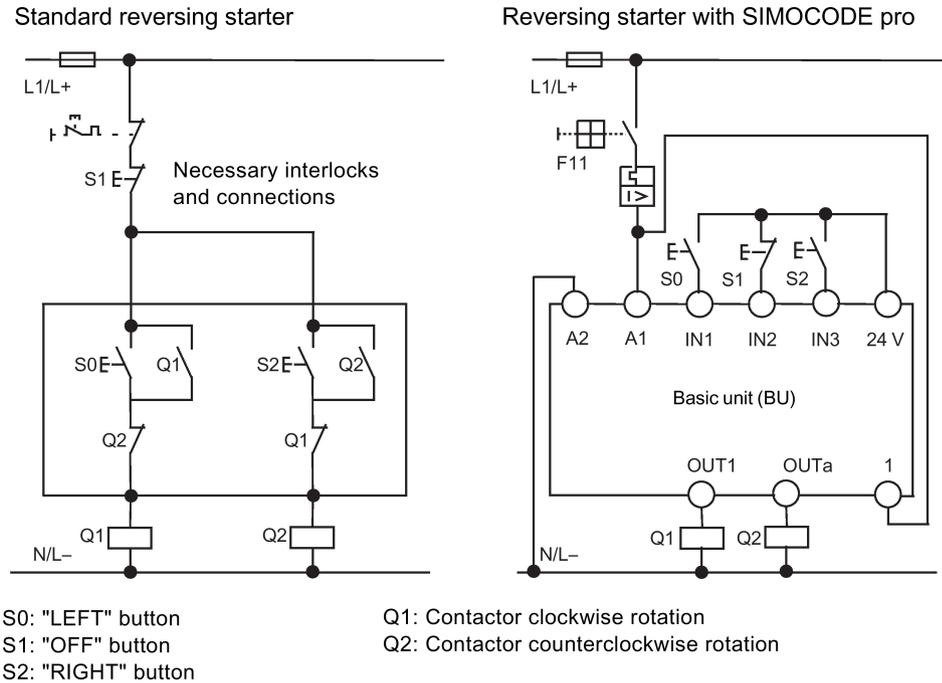


Figure 2-2 Circuit diagram of a reversing starter control circuit

The necessary interlocks and connections are carried out in the basic unit via software.

2.3 Parameterization

The basics of parameterization

After the external wiring connections have been made (contactor coils connected, current measuring module integrated in the main circuit), SIMOCODE pro is then parameterized. For this purpose, you need to understand the following points:

Table 2-2 Schematic of the various SIMOCODE pro function blocks

Point	Description
1	Function blocks are stored internally in the SIMOCODE pro system, e.g. for control stations, control functions and motor protection.
2	Function blocks have names.
3	Function blocks may have set values, e.g. the type of control function and the set current for overload protection.
4	Function blocks are equipped with plugs and sockets. These are clearly designated.
5	To achieve the desired functionality, proceed as follows: 1. Interconnect the function blocks by connecting specific plugs to specific sockets (i.e "plug the plugs into the sockets"). 2. If required, set values in the function blocks, e.g. the set current, type of control function.
6	The inputs of the function blocks in the basic unit are designated as plugs and labeled as follows: 
7	The outputs of the function blocks in the basic unit are designated as sockets and labeled as follows: 
8	The plugs and sockets of the device inputs and outputs are not connected as factory defaults. If you press a button now, the contactors will not be energized.

General procedure for parameterizing the reversing starter

Parameterization means:

- Setting values
- Connecting function blocks

Where this example is concerned, this means:

1. Select the control function "Reversing Starter". This establishes all the interlocks and connections for the reversing starter in the basic unit.
2. Determine the set current I_s for motor protection. In this case, the set current corresponds to the rated motor current, i.e. 3 A.
3. The "BU Outputs" function block must be connected to the sockets of the "Protection / Control" function block via the software, i.e.:
 - "BU Output 1" plug to "Contactor Control QE1" socket (right)
 - "BU Output 2" plug to "Contactor Control QE2" socket (left)
4. The plugs on the "Protection / Control" function block must be connected via software to the sockets on the "BU Inputs" function block, i.e.
 - Control station plug - Local Control [LC] ON< to "BU Input 1" socket
 - Control station plug - Local Control [LC] OFF to "BU Input 2" socket
 - Control station plug - Local Control [LC] ON> to "BU Input 3" socket

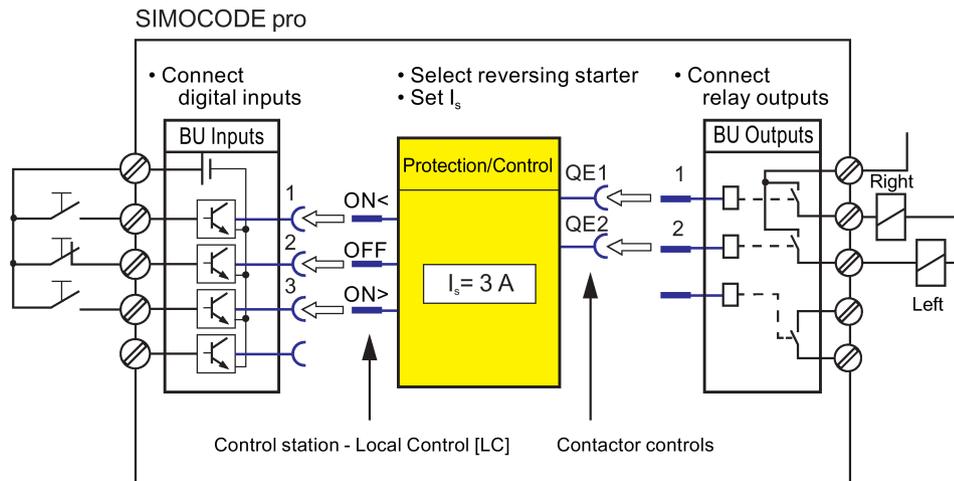


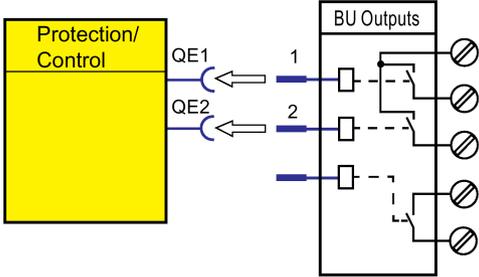
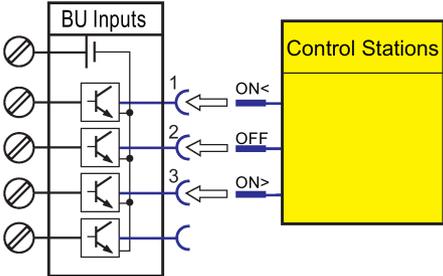
Figure 2-3 Schematic of a parameterization example

The assignment of the contactor controls QE depends on the parameterized control function. See the Function Manual.

Concrete procedure for parameterization with SIMOCODE ES (TIA Portal)

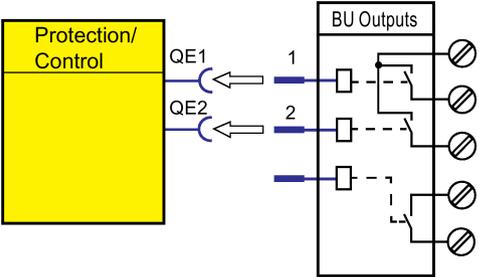
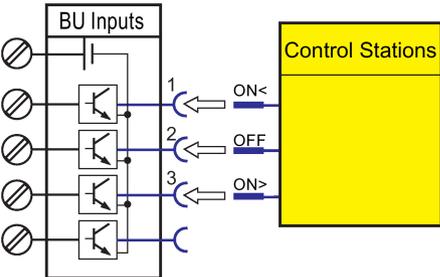
Proceed as follows:

Step	Description
1	Start SIMOCODE ES on your PC / PG.
2	<ul style="list-style-type: none"> • Select "Create new project" in the portal view and enter the project name and, if applicable, a description • Click the "Create" button
3	Switch to the project navigator ("Project view" button)
4	Double-click "Add new device" in the project view.
5	With the "Start device wizard" option activated, select the SIMOCODE device you wish to add in the project tree of the "Controllers" and confirm your selection with "OK"
6	<ul style="list-style-type: none"> • Select an application (e.g. reversing starter) in the device wizard and close the dialog by selecting "Finish". When you select this application, a range of presets will be automatically carried out that you will have to check later. You will find the device wirings corresponding to the applications in the "SIMOCODE pro - 4 Applications" manual. The SIMOCODE device has now been added to the project navigator. • You can change the device name "Control_device_1" to a device and application-specific name via the shortcut menu. • Expanding the device in the project navigator reveals the following entries: <ul style="list-style-type: none"> – Device configuration – Online & diagnostics parameters – Commissioning – Charts – Traces. <p>Select the entries by double-clicking.</p>
7	Add further components to the selected basic unit in the device configuration, for example the current measuring module IM 0.3 - 3A
8	In "Parameters", under "Motor protection → Overload/Unbalance/Stalled Rotor", set the current setting Is 1 to 3 A
9	Under "Charts → Chart_1", open the graphical parameter view (editor "CFC")

Step	Description
10	<p>Check the following settings:</p> <ul style="list-style-type: none"> • BU - Output 1 → Contactor Control QE1 • BU - Output 2 → Contactor Control QE2  <p>The relay outputs are connected to the contactor controls.</p> <p>Note By choosing a preset application (Step 6), other presets might be made when the BU outputs are assigned to the contactor controls.</p>
11	<p>Check the following settings:</p> <ul style="list-style-type: none"> • Local Control [LC] ON<: BU - Input 1 • Local Control [LC] OFF: BU - Input 2 • Local Control [LC] ON>: BU - Input 3  <p>The control station "Local Control" is now connected with the binary inputs of the basic unit. Check whether the enables for "ON" and "OFF" for operating mode "Local2" are set.</p>
12	<p>As required, further protection and monitoring functions can be activated or further logic and standard functions from the function block library can be used in the chart.</p> <p>Parameterization is complete. Save your project by selecting Project → Save.</p>

Specific procedure for parameterization with SIMOCODE ES 2007

Proceed as follows:

Step	Description
1	Start SIMOCODE ES on your PC / PG.
2	Select the control function "Reversing Starter" as application. When you select this application, a range of presets will be automatically carried out that you will have to check later.
3	Select SIMOCODE pro C, SIMOCODE pro S or SIMOCODE pro V under "Device Configuration". Deactivate the operator panel if this is not installed.
4	<ul style="list-style-type: none"> Open the "Device Parameters → Motor Protection → Overload / Unbalance / Stalled Rotor" dialog box. Set the current setting I_{s1} to 3 A.
5	<p>Check the following settings:</p> <ul style="list-style-type: none"> BU - Output 1 → Contactor Control QE1 BU - Output 2 → Contactor Control QE2  <p>The relay outputs are connected to the contactor controls.</p> <p>Note By choosing a preset application (Step 2), other presets might be made when the BU outputs are assigned to the contactor controls.</p>
6	<p>Check the following settings:</p> <ul style="list-style-type: none"> Local Control [LC] ON<: BU - Input 1 Local Control [LC] OFF: BU - Input 2 Local Control [LC] ON>: BU - Input 3  <p>The control station "Local Control" is now connected with the binary inputs of the basic unit. Check whether the enables for "ON" and "OFF" for operating mode "Local2" are set.</p>
7	<p>Parameterization is complete.</p> <p>Save the parameter file on your PC / PG using "Switching Device → Save".</p>

Transferring parameters to the basic unit and commissioning with SIMOCODE ES (TIA Portal)

After creating the parameter file, you can now transfer it to the SIMOCODE pro, and commission the reversing starter. To do so, proceed as follows:

Step	Description
1	Switch on the power supply of the basic unit.
2	Connect the USB interface of the PC / PG to the system interface of the basic unit using the SIRIUS USB PC cable. You may have to install a device driver for the parameterization cable when using the USB PC cable for the first time.
3	Observe the status LED on the basic unit. The "Device" LED should light up green. SIMOCODE pro can be started up.
4	Transfer the parameter file to the basic unit as follows: <ul style="list-style-type: none"> • Click on the "Download to device" icon or the "Online → Download to device" menu item. • The dialog that follows asks you for the type of the connection between the PC and the device - select Sirius PtP (Point-to-Point) here and the applicable virtualized COM interface and click on the "Start search" button. All accessible devices are now displayed in the list.
5	You can now start downloading parameters via the "Load" button.
6	After transferring the data to the basic unit, you will receive a message confirming successful downloading under "Info → General".

Note

Switching between "RIGHT" and "LEFT" is only possible via "OFF" after the preset, 5-second interlocking time has expired.

Transferring parameters to the basic unit and commissioning with SIMOCODE ES 2007

After creating the parameter file, you can now transfer it to the SIMOCODE pro, and commission the reversing starter. To do so, proceed as follows:

Step	Description
1	Switch on the power supply of the basic unit.
2	Connect the serial interface of the PC / PG to the system interface of the basic unit using the USB PC cable.
3	Observe the status LED on the basic unit. The "Device" LED should light up green. SIMOCODE pro can be started up.
4	<ul style="list-style-type: none">• Transfer the parameter file to the basic unit via the menu, e.g., using "Target System → Load to Switching Device".• Select the RS-232 interface through which SIMOCODE pro is connected to the PC via the USB PC cable.
5	After transferring the data to the basic unit, you will receive the message "Download to device successfully accomplished".

Note

Switching between "RIGHT" and "LEFT" is only possible via "OFF" after the preset, 5-second interlocking time has expired.

Configuration with local control station completed

The configuration with SIMOCODE pro is now complete. You now have a functional reversing starter with a local control station. If the wiring and parameterization are correct, the contactors for clockwise and counterclockwise rotation will be activated when the corresponding buttons are pushed.

2.4 Adding a control station to the reversing starter using PROFIBUS DP

In this section

In this section, you will find out how a control station can be added to the previously configured example by means of PROFIBUS DP. You can switch between the local control station (local) and PLC / PCS (remote). SIMOCODE pro can then be controlled locally via the buttons and via the PLC/PCS.

The necessary connections are preset as factory defaults in SIMOCODE pro. Therefore, you only have to set the PROFIBUS DP address for SIMOCODE pro so that it can be recognized correctly as a DP slave on the PROFIBUS DP.

Requirements

The following requirements must be fulfilled:

- The motor is switched off.
- The supply voltage for the basic unit is switched on. The "Device" LED lights up green
- You have connected the basic unit to the PROFIBUS DP. The PROFIBUS DP interface is on the front (9-way SUB-D socket)
- SIMOCODE pro is integrated in your automation system. Further information on integrating DP slaves can be found in the automation system documentation.

Setting the PROFIBUS DP address

First, set the PROFIBUS DP address of the basic unit. This can be done in the following ways:

- With SIMOCODE ES (TIA Portal) or SIMOCODE ES 2007
- Via the addressing plug

Setting the PROFIBUS DP address with SIMOCODE ES (TIA Portal)

Proceed as follows:

Step	Description
1	Switch on the power supply of the basic unit.
2	Connect the USB interface of the PC / PG to the system interface of the basic unit using the SIRIUS USB PC cable. You may have to install a device driver for the parameterization cable when using the USB PC cable for the first time. In addition you can also change the PROFIBUS address without a SIRIUS PC cable, directly via the PROFIBUS interface. Requirement: PROFIBUS interface in PC/laptop. Procedure: See step 4
3	Observe the status LED on the basic unit. The "Device" LED should light up green. SIMOCODE pro can be started up.
4	Set the address of a device configured in SIMOCODE ES (as started under Parameterization (Page 14)): <ul style="list-style-type: none"> • Select the device configuration already created as "Control device_1" • Mark the SIMOCODE basic unit and navigate to "Properties → General → PROFIBUS address" in the status window. In this view the PROFIBUS address can be entered in the field "Address". • Then load the parameterization into the device. Selecting the PROFIBUS node in the network view <ul style="list-style-type: none"> • Double-click on "Control Device_1" • Modify the PROFIBUS address • Select "Download to device" in the overview. • With extended download: Select "Start search" • Under device type select the corresponding PROFIBUS node • Then load the parameterization into the device.
5	After transferring the data to the basic unit, you will receive a message confirming successful downloading under "Info → General".

Setting the PROFIBUS-DP address with SIMOCODE ES 2007

Proceed as follows:

Step	Description
1	Plug the USB PC cable into the system interface.
2	Start SIMOCODE ES.
3	Open menu Switching device → Open online.
4	Select RS232 and the corresponding COM interface. Confirm with OK.
5	Open the Device Parameters → Bus Parameters dialog box.
6	Select the DP address.
7	<ul style="list-style-type: none"> • Save the data in the basic unit with Target System → Load to Device. The address is set. • Confirm the change of address.

Setting the PROFIBUS DP address via the addressing plug

Proceed as follows:

Table 2- 3 Setting the PROFIBUS DP address via the addressing plug

Step	Description
1	Set the desired valid address on the DIP switches. The switches are numbered. For example, address 21: Put the "16"+"4"+"1" switches in the "ON" position.
2	If necessary, remove the PC cable from the system interface.
3	Plug the addressing plug into the system interface. The "Device" LED lights up yellow
4	Briefly press the "TEST/RESET" button. The address you set is now stored. The "Device" LED flashes yellow for approx. 3 seconds.
5	Remove the addressing plug from the system interface.

Additional internal components of the basic unit

The local control [LC] station is already wired, the external components are connected and the necessary internal connections have been made. The following additional internal components, which have already been connected as factory defaults and do not have to be parameterized, are now required:

- PROFIBUS DP bit 0.0, bit 0.1 and bit 0.2 for the commands "LEFT", "OFF" and "RIGHT"
- PROFIBUS DP bit 0.5 for switching between the local control station [LC] and PLC/PCS [DP] (remote)
 - Bit 0.5=0: Local control station [LC] active
 - Bit 0.5=1: PLC/PCS [DP] control station active.

The PLC/PCS [DP] control station and the change-over (plug S1) have already been connected as factory defaults with the bits (sockets) of PROFIBUS DP cyclic send data. The assignments can be found in SIMOCODE ES under "Parameters → Motor Control → Control Stations".

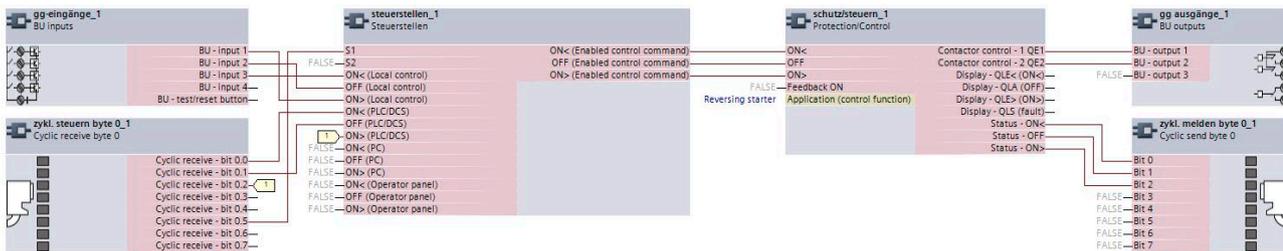


Figure 2-4 Functional diagram of reversing starter

Not all pre-assigned cyclic send data is shown here. The assignments can be found in SIMOCODE ES under "Function Blocks > Outputs > Cyclic Send Data".

Configuration with PLC/PCS [DP] control station is complete

The configuration with SIMOCODE pro is now complete. You now have a reversing starter with an additional control station implemented via PROFIBUS DP. The contactors for clockwise and counterclockwise rotation are controlled by setting the corresponding bits.

2.5 Adding a control station to the reversing starter using PROFINET

In this section

In this section, you will find out how a control station can be added to the previously configured example by means of PROFINET. You can switch between the local control station (local) and PLC/PCS (remote). SIMOCODE pro can then be controlled locally via the buttons and via the PLC/PCS.

The necessary connections are preset as factory defaults in SIMOCODE pro.

Requirements

The following requirements must be fulfilled:

- The motor is switched off.
- The supply voltage for the basic unit is switched on. The "Device" LED lights up green
- You have connected the basic unit to the automation system via PROFINET. The two PROFINET interfaces are located on the front (RJ-45 female connector). It is immaterial which of the two PROFINET interfaces you use.
- You have integrated SIMOCODE pro into your automation system and defined the IP configuration and the PROFINET IO station name for SIMOCODE pro V PN and transferred it into the device. Further information on integrating PROFINET IO devices can be found in the automation system documentation.

Setting the IP configuration and station names with SIMOCODE ES (TIA Portal)

The precondition for communication between the automation system and SIMOCODE pro via PROFINET is definition of the IP configuration and the PROFINET station name. This can be done in the following ways:

- With the configuration tool of your automation system
- With SIMOCODE ES (TIA Portal).

Proceed as follows:

Step	Description
1	Switch on the power supply of the basic unit.
2	Connect the USB interface of the PC / PG to the system interface using the SIRIUS USB PC cable. You may have to install a device driver for the parameterization cable when using the USB PC cable for the first time.
3	Observe the status LED on the basic unit. The "Device" LED should light up green. SIMOCODE pro can be started up.
4a	Set the address of a device configured in SIMOCODE ES (as started in step 3): <ul style="list-style-type: none"> • Select the IP parameters under "Parameters → PROFINET parameters" to match the configuration in the automation system. To this end, you must set the check mark next to "Overwrite IP parameters in device" • Enter the IP address • Enter the subnet mask • In the "Station" section, define the PROFINET device name to match the configuration in the automation system. To this end, you must set the check mark next to "Overwrite device name in device" • Load the parameterization into the device
4b	Set the address of a SIMOCODE device without integrating it into the current project: <ul style="list-style-type: none"> • In the project navigator, open "Online access". Here, by means of "COM<x> [SIRIUS PtP] → Update accessible devices", you can access the device connected to the serial interface. If the serial interface COM<x> should indicate a protocol other than SIRIUS PtP, you can change this via "Properties" in the shortcut menu: There, select the "IP parameters" under "Parameters → PROFINET parameters" to match the configuration in the automation system. To this end, you must set the check mark next to "Overwrite IP parameters in device" • Enter the IP address • Enter the subnet mask • In the "Station" section, define the PROFINET device name to match the configuration in the automation system. To this end, you must set the check mark next to "Overwrite device name in device" • Download the changes to the device
5	After transferring the data to the basic unit, you will receive a message confirming successful downloading under "Info → General"

Additional internal components of the basic unit

The local control [LC] station is already wired, the external components are connected and the necessary internal connections have been made. The following additional internal components, which have already been connected as factory defaults and do not have to be parameterized, are now required:

- Cycl. Receive bit 0.0, bit 0.1 and bit 0.2 for the commands "LEFT," "OFF," and "RIGHT"
- Cycl. Receive bit 0.5 for switching between the local control station [LC] and PLC/PCS [DP] (remote)
 - Bit 0.5=0: Local control station [LC] active
 - Bit 0.5=1: PLC/PCS [PN] control station active.

The PLC/PCS [PN] control station and the change-over (plug S1) have already been connected as factory defaults with the bits (sockets) of the cyclic receive data. The assignments can be found in SIMOCODE ES under "Device Parameters → Motor Control → Control Stations".

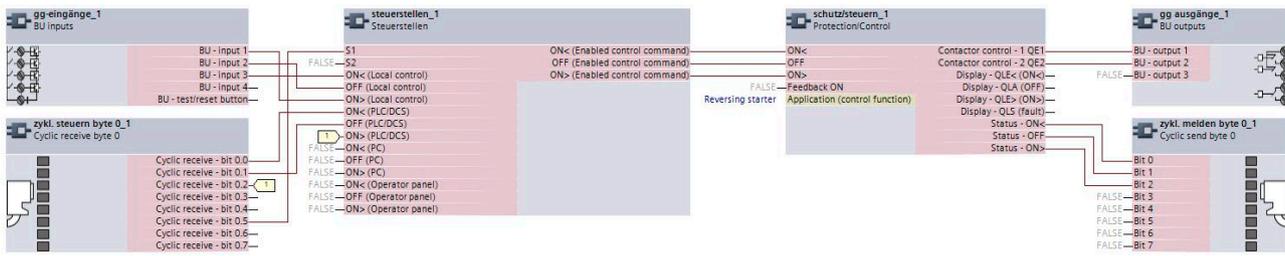


Figure 2-5 Functional diagram of reversing starter

Not all pre-assigned cyclic send data is shown here. The assignments can be found in SIMOCODE ES under "Function Blocks > Outputs > Cyclic Send Data".

The configuration with SIMOCODE pro is now complete. You now have a reversing starter with an additional control station implemented via PROFINET.

The contactors for clockwise and counterclockwise rotation are controlled by setting the corresponding bits.

Setting the IP configuration and station names with SIMOCODE ES 2007

The precondition for communication between the automation system and SIMOCODE pro via PROFINET is definition of the IP configuration and the PROFINET station name. This can be done in the following ways:

- With the configuration tool of your automation system
- Via SIMOCODE ES.

Proceed as follows:

Table 2- 4 Set IP parameters and PROFINET IO device names with SIMOCODE ES

Step	Description
1	Plug the PC cable into the system interface.
2	Start SIMOCODE ES.
3	Open the "Switching Device → Open Online" menu.
4	Select "Local device interface" and the corresponding COM interface. Confirm with OK.
5	Open the "Device Parameters → PROFINET Parameters" dialog box.
6	Choose the IP parameters to match the configuration in the automation system. Select the "Overwrite IP parameters in device" parameter. If the IP parameters are assigned by the IO Controller in the automation system, no setting is necessary here and the "Overwrite IP parameters in device" parameter must not be selected.
7	Select the PROFINET device name to match the configuration in the automation system. Select the "Overwrite device name in device" parameter. If the device name is assigned by the configuration tool of the automation system (e.g. STEP 7), no setting is required here and the parameter "Overwrite device names in device" must not be set.
8	Save the data in the basic unit with Target System → Load to Device. The address is set. Confirm the change of address.

Setting IP parameters and PROFINET device names with STEP 7 HW Config

It is possible to set this parameter with the STEP 7 HW Config function "Target system → Edit Ethernet station."

The precondition for using this function is that the PG or the PC is also connected to SIMOCODE pro via Ethernet.

If the MAC address of the SIMOCODE pro V PN basic unit is used, you can assign the IP parameters and the PROFINET device names. You will find the MAC address on the front of the basic unit.

Alternatively, you can read the MAC address out via the local device interface with SIMOCODE ES with "Switching device → Open online" under PROFINET parameters.

Additional internal components of the basic unit

The local control [LC] station is already wired, the external components are connected and the necessary internal connections have been made. The following additional internal components, which have already been connected as factory defaults and do not have to be parameterized, are now required:

- Cycl. Receive bit 0.0, bit 0.1 and bit 0.2 for the commands "LEFT," "OFF," and "RIGHT"
- Cycl. Receive bit 0.5 for switching between the local control station [LC] and PLC/PCS [DP] (remote)
 - Bit 0.5=0: Local control station [LC] active
 - Bit 0.5=1: PLC/PCS [PN] control station active.

The PLC/PCS [PN] control station and the change-over (plug S1) have already been connected as factory defaults with the bits (sockets) of the cyclic receive data. The assignments can be found in SIMOCODE ES under "Device Parameters → Motor Control → Control Stations".

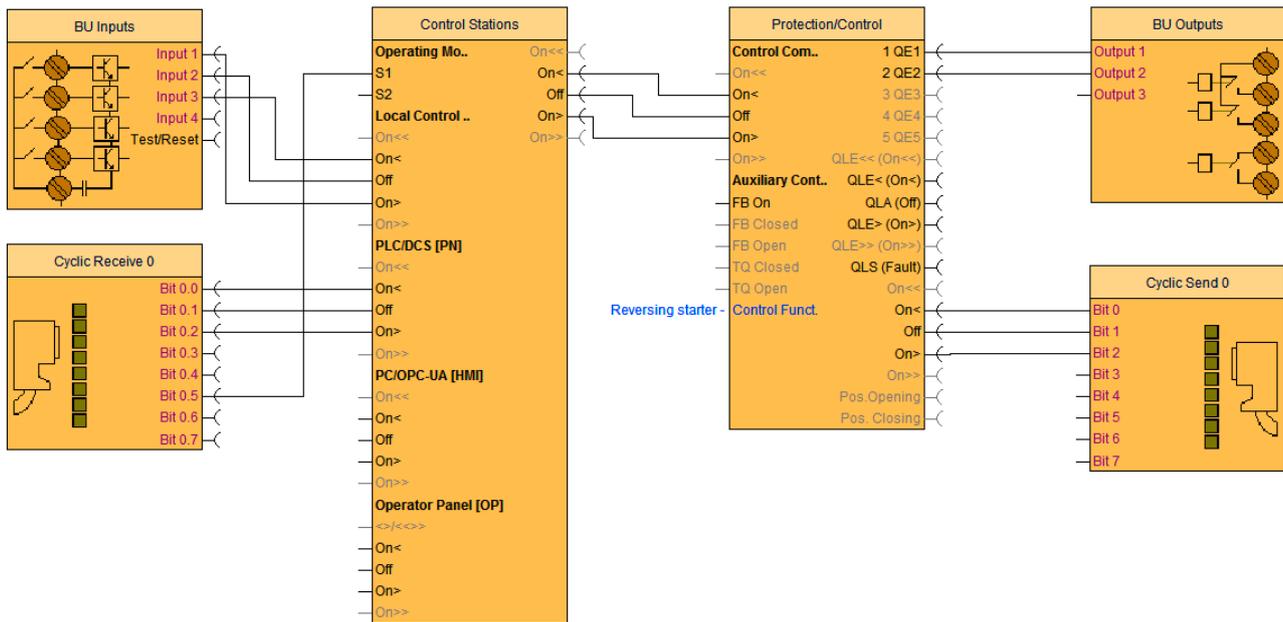


Figure 2-6 Functional diagram of reversing starter

Not all pre-assigned cyclic send data is shown here. The assignments can be found in SIMOCODE ES under "Function Blocks > Outputs > Cyclic Send Data".

The configuration with SIMOCODE pro is now complete. You now have a reversing starter with an additional control station implemented via PROFINET.

The contactors for clockwise and counterclockwise rotation are controlled by setting the corresponding bits.

A

List of abbreviations

A.1 List of abbreviations

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