NOTE
Shield terminal does not have a null terminal.
Fix the shield terminal only when there is at least one inserted cable.

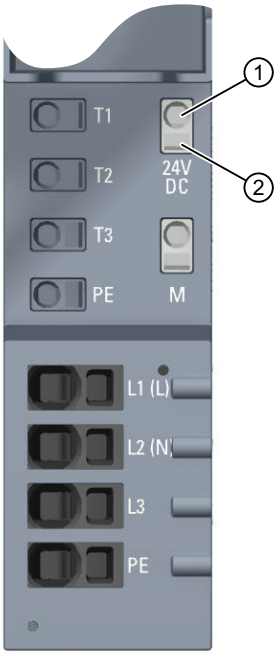
8.10 Wiring BaseUnits for motor starters

Introduction

The following versions of BaseUnits can be used:

- BU30-MS1 (with 24 V DC and 500 V AC infeed)
- BU30-MS2 (with 500 V AC infeed)
- BU30-MS3 (with 24 V DC infeed)
- BU30-MS4 (without infeed)
- BU30-MS5 (with 500 V AC infeed and single F-DI)
- BU30-MS6 (without infeed and with single F-DI)
- BU30-MS7 (with F-DI and 500 V AC infeed)
- BU30-MS8 (with 500 V AC infeed and F-DI routing)
- BU30-MS9 (with F-DI routing)
- BU30-MS10 (with F-DI infeed)

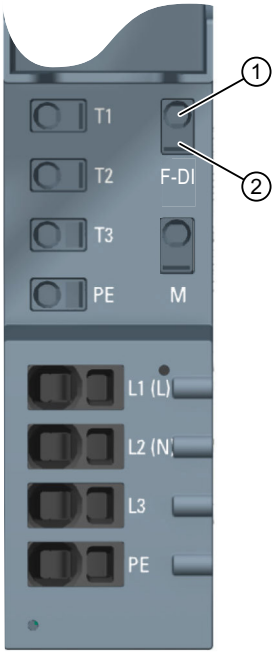
The following figure shows an example of a BaseUnit BU30-MS1 (with the maximum number of terminals):



① Push-in terminal
② Spring release

Figure 8-7 Terminals on a BaseUnit BU30-MS1

The following figure shows an example of a BaseUnit BU30-MS5 (with the maximum number of terminals):



① Push-in terminal
② Spring release

Figure 8-8 Terminals on a BaseUnit BU30-MS5

DANGER

Hazardous Voltage
Can Cause Death, Serious Injury, or Property Damage.

Hazardous electrical voltage can cause electric shock, burns and property damage.

Turn off and lock out all power supplying this device before working on this device.

For wiring finely-stranded or stranded conductors without end sleeves on push-in connections, a screwdriver is required.

Requirements

- The supply voltages are switched off
- Observe the wiring rules

NOTICE
Interconnection of the F-DI input of BaseUnits BU-30-MS5, BU-30-MS6, BU-30-MS7 and BU-30-MS10 with surge filters If your system requires overvoltage protection, you must interconnect the F-DI input of the BaseUnits BU-30-MS5, BU-30-MS6, BU-30-MS7 and BU-30-MS10 with surge filters. Please see "Electromagnetic Compatibility" in the technical specifications.

Required tools

Use the screwdriver "SZF 1-0.6x3.5" (for finely-stranded cables only).

Connecting conductors: Solid without end sleeve, stranded (stranded wire) with end sleeve

To connect a cable, proceed as follows:

1. Insulate the cables in accordance with the table in chapter "Electromagnetic compatibility of fail-safe modules (Page 326)".
2. Only in the case of stranded conductors:
   Crimp the cable with end sleeves.
3. Insert the cable into the push-in terminal as far as it will go.
4. Pull on the cable to ensure it is tight.

Connecting conductors: multi-wire (stranded), without end sleeve, unfinished

To connect a cable, proceed as follows:

1. Insulate the cables in accordance with the table in chapter "Wiring rules (Page 146)".
2. Press the screwdriver into the spring release.
3. Insert the conductor into the push-in terminal until it engages.
4. Pull the screwdriver out of the spring release.
5. Check whether or not the conductor is firmly connected by pulling on the cable.

Video sequence

At the following Internet link, you can see a video about connecting conductors: Wire BaseUnits (http://support.automation.siemens.com/WW/view/en/95886218)

Releasing conductors

To release a conductor, proceed as follows:

1. Press the screwdriver into the spring release of the terminal until it engages.
2. Pull the conductor out.

NOTE

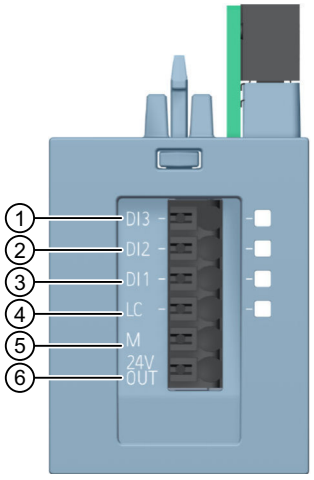
When pressing the spring release, you must not pull on the wire/cable at the same time. In this way, you avoid damaging the terminal.

8.11 Connecting the 3DI/LC module for the motor starter

You will find further information on the 3DI/LC module in the ET 200SP motor starter (https://support.industry.siemens.com/cs/ww/en/view/109479973) manual.

Procedure

The figure below shows the connections of the 3DI/LC module.



① Digital input 3
② Digital input 2
③ Digital input 1
④ Local control (manual local)
⑤ Ground
⑥ 24 V DC/ 100 mA output

NOTE

The digital inputs (1 to 4) are not isolated. The reference potential is M (5). Control the digital inputs only via a unit supplied from the 24 V DC output (6).

Connect only cables of a width not exceeding 30 m to the 3DI/LC module.

The supply (5 and 6) is protected against short-circuits.

Terminal sketch of the 3DI/LC module

The following diagram shows a terminal sketch of the 3DI/LC module:

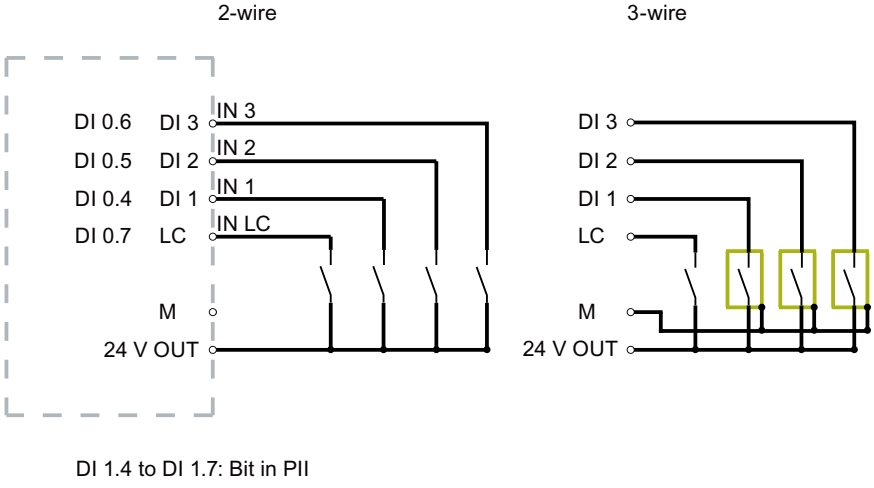


Figure 8-9 Connection example of inputs

8.12 Connecting the supply voltage to the CPU/interface module

Introduction

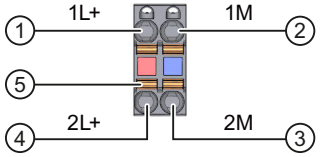
The supply voltage of the CPU/interface module is supplied by means of a 4-pin connector plug located on the front of the CPU/interface module.

Power supply unit

Only use power supply units of type SELV/PELV with safe electrically isolated functional extra low voltage (≤ 28.8 V DC).

Connection for supply voltage (X80)

The connections of the 4-pole connector have the following meaning:



① +24 V DC of the supply voltage (current limited to 10 A)
② Ground of the supply voltage (current limited to 10 A)
③ Ground of the supply voltage for loop-through
④ +24 V DC of the supply voltage for loop-through
⑤ Spring opener (one spring opener per terminal)

1L+ and 2L+ and 1M and 2M are internally jumpered

Figure 8-10 Supply voltage connection

A strain relief is not present. The cable connector offers you the option of looping the supply voltage uninterrupted, even when it is unplugged.
For the maximum wire cross-sections, observe the information in the tables of the wiring rules (Page 146).

Requirements

- Only wire up the connector plug when the supply voltage is turned off.
- Follow the wiring rules (Page 146).

Required tools

3 to 3.5 mm screwdriver

Tool-free connection of cables: single-wire without end sleeve, multi-wire (stranded) with end sleeve or ultrasonically sealed

Watch video sequence: "Connect BusAdapter to the interface module"
(https://support.automation.siemens.com/WW/view/en/95886218)

To connect a wire without tools, follow these steps:

1. Strip 8 to 10 mm of the wires.
2. Only in the case of stranded conductors:
   Seal or crimp the wire with end sleeves.
3. Insert the cable into the push-in terminal as far as it will go.
4. Push the wired connector plug into the plug socket of the interface module.

Connection of cables: multi-wire (stranded), without end sleeve, unfinished

To connect a wire without an end sleeve, follow these steps:

1. Strip 8 to 10 mm of the wires.
2. Using a screwdriver, press the spring release and insert the wire into the push-in terminal as far as it will go.
3. Pull the screwdriver out of the spring release.
4. Push the wired connector plug into the socket in the interface module.

Removing a wire

Using the screwdriver, press the spring release as far as it will go and pull out the wire.

8.13 Connecting interfaces for communication

Connect the communication interfaces of the ET 200SP distributed I/O system using the standardized connector or directly. If you want to prepare communication cables yourself, the interface assignment is specified in the manuals of the corresponding modules. Observe the mounting instructions for the connectors.

Detailed information on the available BusAdapters and the procedure for connecting PROFINET IO to the CPU/interface module is available in the BusAdapter (https://support.industry.siemens.com/cs/ww/en/view/109751716) manual.

8.13.1 Connecting PROFINET IO (port P3) to the CPU

Introduction

You use the RJ-45 bus connector to connect PROFINET IO (port P3) directly to the CPU.

Required accessories

- Cable ties with standard width of 2.5 mm or 3.6 mm for strain relief
- Please observe the specifications in the PROFINET Installation Guide (https://www.profibus.com).

Mounting the bus connector

Mount the PROFINET connector in accordance with the instructions in the PROFINET Installation Guide (https://www.profibus.com).

Procedure

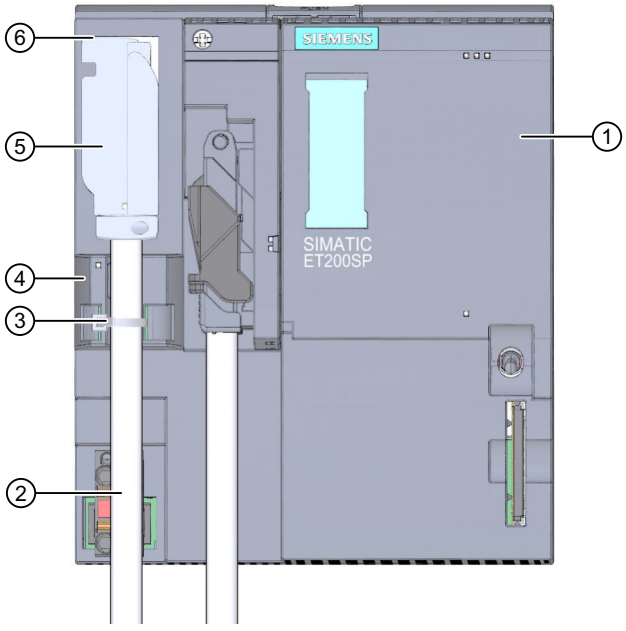
Insert the RJ45 bus connector into the PROFINET port (port P3) on the CPU.

NOTE

Cable support and strain relief

If you are using a FastConnect RJ45 bus connector with 90° cable outlet (6GK1901-1BB20-2AA0), we recommend you provide strain relief for the PROFINET connecting cable. For this you need a cable tie with a standard width of 2.5 mm or 3.6 mm.

Use it to fasten the PROFINET connecting cable directly after it exits the bus connector to the provided cable support on the CPU (on the front directly below the PROFINET interface X1P3).



① CPU
② PROFINET connecting cable
③ Strain relief (cable tie)
④ Cable support
⑤ FastConnect RJ45 bus connector with 90° cable outlet
⑥ PROFINET connector (port P3)

Figure 8-11 Connecting PROFINET IO (port P3) to the CPU

8.13.2 Connecting the PROFIBUS DP interface to the interface module/communications module CM DP

Introduction

Using the bus connector (RS485), connect the PROFIBUS DP to the interface module/communications module CM DP.

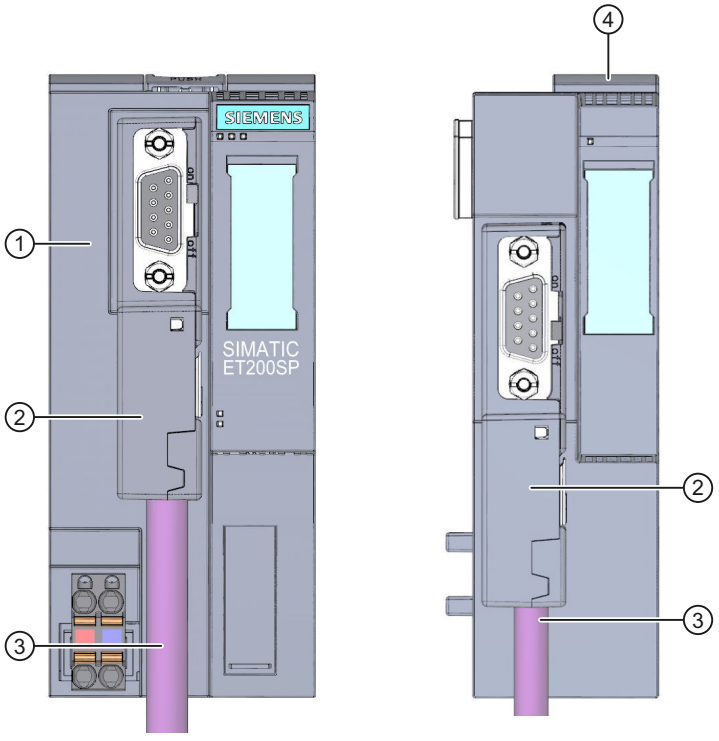
Required tools

3 to 3.5 mm screwdriver

Procedure

To connect the PROFIBUS DP interface to the interface module / DP communication module CM DP, follow these steps:

1. Connect the PROFIBUS cable to the bus connector.
2. Plug the bus connector into the PROFIBUS DP connector.
3. Securely tighten the fixing screws of the bus connector (0.3 Nm).



① Interface module
② PROFIBUS FastConnect bus connector
③ PROFIBUS connecting cable
④ Communications module CM DP

Figure 8-12 Connect PROFIBUS DP to the interface module/communications module CM DP

Reference

You can find additional information on the PROFIBUS FastConnect bus connector in the corresponding product information on the Internet (https://support.industry.siemens.com/cs/ww/de/view/109793857/en).

8.14 Inserting I/O modules / motor starters and BU covers

Introduction

- You insert the I/O modules on the BaseUnits. The I/O modules are self-coding and type-coded.
- You insert the PotDis-TerminalBlocks on the PotDis-BaseUnits.
- You insert the BU covers on BaseUnits whose slots are not equipped with I/O modules/PotDis-TerminalBlocks.
- You insert the BU covers on BaseUnits whose slots have been reserved for future expansion (as empty slots).
- The BU covers for motor starters serve as touch protection covers for unoccupied slots.
  The BU covers have a holder for the reference identification label on the inside. For future expansion of the ET 200SP, remove the reference identification label from the holder and insert it into the final I/O module.
  It is not possible to attach a reference identification label to the BU cover itself.
  There are three versions:
  - BU cover with a width of 15 mm
  - BU cover with a width of 20 mm
  - BU cover with a width of 30 mm (for motor starters)

Requirement

Refer to chapter "Application planning (Page 80)".