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Serial PROFIBUS Interface

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Industrial

Disclaimer of liability

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The latest version of this manual is available in the Softing download area at: http://industrial.softing.com.

Table of Contents

1 Introduction

1.1 About this document

Read this manual before starting

For damages due to improper connection, implementation or operation Softing refuses any liability according to our existing warranty obligations.

1.2 Symbols used

Note

This symbol is used to call attention to notable information that should be followed during installation, use, or servicing of this device.

Hint

This symbol is used when providing you with helpful user hints.

CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury

1.3 Intended use

The SPI 3 is designed as an interface between Fieldbus devices and the PROFIBUS. Do not use the SPI 3 for any other purpose.

2 Safety precautions

CAUTION

The SPI 3 may only be installed by qualified technical personnel with appropriate electro-technical qualifications. Observe the regulations for handling electrical equipment to VDE 0100.

The faultless and safe operation of the product requires proper transport, proper storage and installation, and expert operation and maintenance in accordance with the manual. The permissible ambient conditions given in the Technical Data must be complied with.

Note

Large temperature differences between the storage and the installation site can result in condensation within the SPI 3. In such cases, to prevent damage to the device you should wait at least 3 - 4 hours after installing the SPI 3 before switching on the power.

3 Product overview

The SPI 3 is used to connect a serial Fieldbus device to the PROFIBUS system. The SPI 3 has the following interfaces and operating/display elements:

Connections and interfaces

- ❑ Power supply
- ❑ 24 V Terminal for external 24 V power supply
- ❑ GND Signal ground terminal
- ❑ PE Protective ground terminal
- ❑ PROFIBUS interface
- ❑ Serial interface

Operating elements

Rotary switches for setting the PROFIBUS address

- ❑ Switch for setting the tens value
- ❑ Switch for setting the units value

Display elements

LEDs:	to display operating states
RUN:	lit continuously if supply voltage is present, flashes in case of errors
PB:	lights up if the SPI 3 has been configured by the master and is operational, flashes in case of errors
TX:	flashes if data is being sent to the serial interface
RX:	flashes if data is being received from the serial interface

4 Connecting up the SPI 3
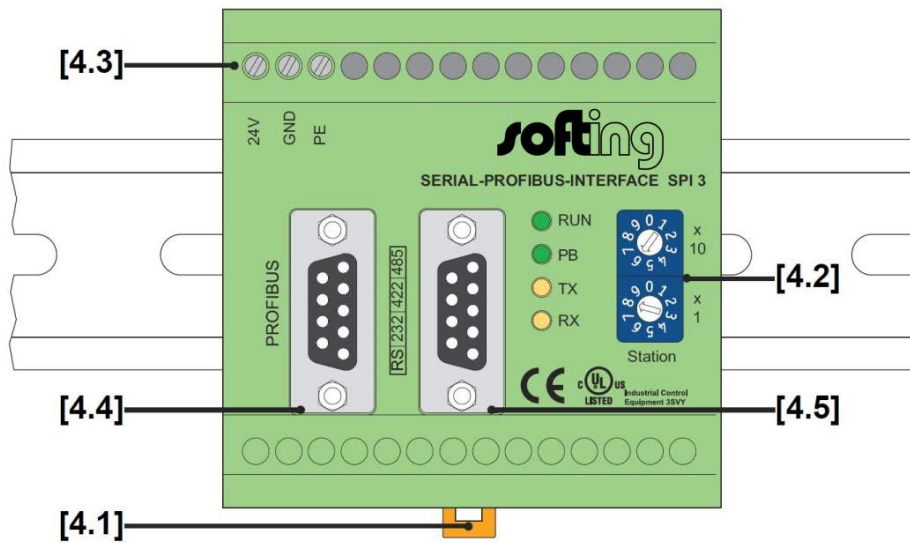
4.1 Mounting the SPI

Place the notch of the SPI 3 on the top hat rail and move the SPI 3 downward until the stop lever locks on the top hat rail.

> **Note**
>
> Above and below the SPI 3, a minimum of 5 cm head space for heat dissipation needs to be available.

4.2 Setting the PROFIBUS address

The PROFIBUS address is set with rotary switches.

Example: In order to set the PROFIBUS address 68, turn the rotary switch for the 10s to 6, and the rotary switch for the ones to 8.

> **Note**
>
> The SPI 3 only updates its PROFIBUS address during a restart. Set the PROFIBUS address on the SPI 3 before switching on the power, or turn off the power briefly after changing the PROFIBUS address.
>
> Configure only numbers between 01 and 99.

4.3 Connecting the power supply

Connect the cables for 24 V power supply, ground and protective ground to the corresponding screw terminals 24 V, GND and PE.

WARNING

Incorrect grounding of the SPI 3 can injure personnel and damage equipment. Make sure the SPI 3 is correctly grounded.

Note

Although the SPI 3 is protected against polarity reversal, connecting up the power supply with in- correct polarity for extended periods can damage the device. Make sure that the power supply is connected with correct polarity.

4.4 Connecting up to the PROFIBUS

Ensure that the PROFIBUS connector uses the pin assignments shown below.

Attach the PROFIBUS connector to the PROFIBUS interface socket on the SPI 3 and secure the connector with the retaining screws.

Note

Only use commercially available PROFIBUS connectors for connecting to the bus. If the SPI 3 is installed at the beginning or end of the PROFIBUS cable segment, use PROFIBUS connectors that contain an integrated terminating resistor. To ensure that the SPI 3 functions without errors, you must ground the shield of the PROFIBUS cable.

4.5 Connecting up to the serial Fieldbus device

Ensure that the sub-D connector for the serial interface uses the pin assignments shown below (connect the cable shield to the case of the sub-D connector).

Attach the sub-D connector for the serial interface to the serial interface socket on the SPI 3 and secure the connector with the retaining screws.

Note

Use a shielded cable for connecting to the serial Fieldbus device and ground the shield to ensure that the SPI 3 functions without errors.

5   Technical data

Electrical data

Nominal supply voltage(limit values)	V DC	24 (19.2...28.8)
Current consumption max.	mA	200
Protection class	IP	20
Galvanic isolation	V DC	500

Operating conditions

Ambient temperature range	°C	0...+60

Case data

Dimensions W × H × D	mm	75 × 75 × 53
Weight (approx.)	g	136

PROFIBUS interface

Interface	Type	RS 485
Transmission rate	Bit/s	9,600...12M
Sub-D plug pin assignment	Pin 1	Shield
	Pin 2	not assigned
	Pin 3	B line data
	Pin 4	RTS
	Pin 5	GND 5V DC (M5)
	Pin 6	Potential 5 V DC (P5)
	Pin 7	not assigned
	Pin 8	A line data
	Pin 9	not assigned
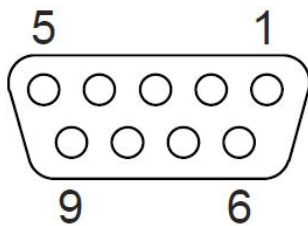
Serial interface

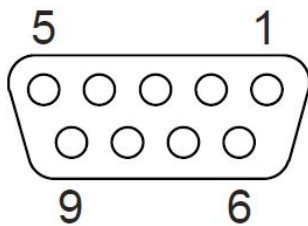| Interface	Type	RS 232[1], RS 422[1], RS 485[1]
Fieldbus device data transfer rates	Bit/s	110; 300; 600; 1,200; 2,400; 4,800; 9,600; 19,200; 28,800[2]; 38,400[2]; 57,600[2]

Sub-D plug pin assignment for serial interface	**RS 232**	
	Pin 1	unused
	Pin 2	TXD (out)
	Pin 3	RXD (in)
	Pin 4	unused
	Pin 5	GND
	Pin 6	+ 5 V
	Pin 7	CTS
	Pin 8	RTS (out)
	Pin 9	unused
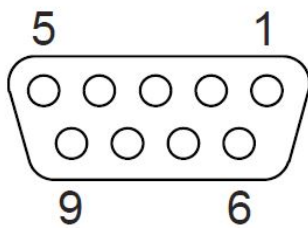
Sub-D plug pin assignment for serial interface	**RS 422**	
	Pin 1	unused
	Pin 2	unused
	Pin 3	REC-P
	Pin 4	TRANS-P
	Pin 5	GND
	Pin 6	+ 5 V
	Pin 7	unused
	Pin 8	REC-N
	Pin 9	TRANS-N

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[1] see label on SPI 3
[2] depends on protocol
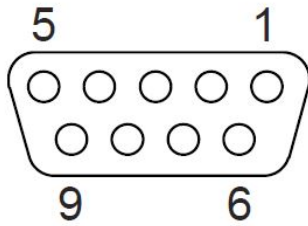
Sub-D plug pin assignment for serial interface	RS 485	
	Pin 1	unused
	Pin 2	unused
	Pin 3	BUS-P
	Pin 4	unused
	Pin 5	GND
	Pin 6	+ 5 V
	Pin 7	unused
	Pin 8	BUS-N
	Pin 9	unused

Other

Certificates	CE, UL

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