PSI-REP-PROFIBUS/12MB

Repeater for PROFIBUS systems up to 12 Mbps

Data sheet
102986_en_08

1 Description

The **PSI-REP-PROFIBUS/12MB** modular PROFIBUS repeater is designed to meet the high requirements of high-performance PROFIBUS systems. The device is snapped onto standard DIN rails in the control cabinet and supplied with 24 V DC.

Possible applications:

- Electrical isolation and bus segmentation
- Increasing system availability
- Increasing the range
- Increasing the transmission speed
- Extending the number of devices to n x 32
- Creation of mixed and network structures
- Modular PROFIBUS hubs

Features

- Automatic data rate detection or fixed data rate setting via DIP switches
- Data rates of up to 12 Mbps
- High-quality 4-way isolation between all interfaces
- Automatic transmit/receive changeover
- Bit retiming for unrestricted cascading of devices
- Bit oversampling for reliable detection of sporadic disturbances
- Filtering of faulty telegrams based on start delimiter detection
- Integrated surge protection with transient discharge to the DIN rail
- Can be combined with PSI-MOS FO converters in a modular way using DIN rail connectors

WARNING: Explosion hazard when used in potentially explosive areas

The device is a category 3 item of electrical equipment. Follow the instructions provided here during installation and observe the safety notes.

Make sure you always use the latest documentation.
It can be downloaded from the product at phoenixcontact.net/products.

2 Table of contents

3 Ordering data

Description	Type	Order No.	Pcs./Pkt.
Modular repeater for electrical isolation and range increase for PROFIBUS up to 12 Mbps, 4-way isolation, rail-mountable, supply 24 V DC	PSI-REP-PROFIBUS/12MB	2708863	1

Accessories	Type	Order No.	Pcs./Pkt.
PROFIBUS cable, Fast Connect type, up to 12 Mbps (02YSY (ST)CY 1x2x22 AWG) by the meter, Bus system cable, PROFIBUS (12 Mbps), shielded, PVC FR VI/PVC, violet, 2-wire (1X2XAWG22/1), color, single wire: Red, green, cable length: Free entry (1.0 ... 1000.0 m)	PSM-CABLE-PROFIB/FC	2744652	1
Primary-switched MINI POWER supply for DIN rail mounting, input: 1-phase, output: 24 V DC/1.5 A	MINI-SYS-PS-100-240AC/ 24DC/1.5	2866983	1
DIN rail connector for DIN rail mounting. Universal for TBUS housing. Gold-plated contacts, 5-pos. Header, nominal current: 8 A, number of positions: 5, pitch: 3.81 mm, Articles with gold-plated contacts, bus connectors for connecting with electronic housings	ME 17,5 TBUS 1,5/ 5-ST-3,81 GN	2709561	10
Active termination resistor for PROFIBUS and RS-485 bus systems, redundant power supply, routing of the supply voltage via DIN rail connector, electrical isolation, switchable termination, integrated programming interface	PSI-TERMINATOR-PB-TBUS	2702636	1
D-SUB connector, 9-pos., male connector, cable entry < 90°, bus system: PROFIBUS DP up to 12 Mbps with PG D-SUB socket for connecting a programming device, termination resistor can be switched on via slide switch, pin assignment: 3, 5, 6, 8; screw connection terminal blocks	SUBCON-PLUS-PROFIB/90/ PG/SC	2313708	1
D-SUB connector, 9-pos., male connector, cable entry < 35°, bus system: PROFIBUS DP up to 12 Mbps with PG D-SUB socket for connecting a programming device, termination resistor can be switched on via slide switch, pin assignment: 3, 5, 6, 8; screw connection terminal blocks	SUBCON-PLUS-PROFIB/PG/ SC2	2708245	1
D-SUB connector, 9-pos., male connector, cable entry < 90°, bus system: PROFIBUS DP up to 12 Mbps with PG D-SUB socket for connecting a programming device, termination resistor can be switched on via slide switch, pin assignment: 3, 5, 6, 8; IDC terminal block connection	SUBCON-PLUS-PROFIB/90/ PG/IDC	2313685	1
D-SUB plug, 9-pos., pin, assignment: 3, 5, 6, 8; two M12 cable glands (B-coded) under 180° (axial). Bus system: PROFIBUS DP up to 12 Mbps. Termination resistor via separate M12 terminator	SUBCON-PLUS-PROFIB/AX/ M12	2902321	1

Accessories	Type	Order No.	Pcs./Pkt.
D-SUB plug, 9-pos., pin, assignment: 3, 5, 6, 8; two M12 cable glands (B-coded) under 90°. Bus system: PROFIBUS DP up to 12 Mbps. Termination resistor via separate M12 terminator. Long version; S7-compatible.	SUBCON-PLUS-PROFIB/ 90X/M12	2902729	1
D-SUB plug, 9-pos., pin, assignment: 3, 5, 6, 8; two M12 cable glands (B-coded) under 90°. Bus system: PROFIBUS DP up to 12 Mbps. Termination resistor via separate M12 terminator.	SUBCON-PLUS-PROFIB/90/ M12	2902318	1
D-SUB plug, 9-pos., pin, assignment: 3, 5, 6, 8; two M12 cable glands (B-coded) under 35°. Bus system: PROFIBUS DP up to 12 Mbps. Termination resistor via separate M12 terminator.	SUBCON-PLUS-PROFIB/35/ M12	2902320	1
FO converter with integrated optical diagnostics, alarm contact, for PROFIBUS up to 12 Mbps, T-coupler with two FO interfaces (FSMA), 660 nm, for polymer/PCF fiber cable	PSI-MOS-PROFIB/FO 660 T	2708287	1
FO converter with integrated optical diagnostics, alarm contact, for PROFIBUS up to 12 Mbps, terminal device with one FO interface (FSMA), 660 nm, for polymer/PCF fiber cable	PSI-MOS-PROFIB/FO 660 E	2708290	1
FO converter with integrated optical diagnostics, alarm contact, for PROFIBUS up to 12 Mbps, T-coupler with two FO interfaces (BFOC), 850 nm, for PCF/fiberglass cable (multimode)	PSI-MOS-PROFIB/FO 850 T	2708261	1
FO converter with integrated optical diagnostics, alarm contact, for PROFIBUS up to 12 Mbps, terminal device with one FO interface (BFOC), 850 nm, for PCF/fiberglass cable (multimode)	PSI-MOS-PROFIB/FO 850 E	2708274	1
Fiber optic converter with integrated optical diagnostics, alarm contact, for PROFIBUS up to 12 Mbps, T-coupler with two fiber optic interfaces (SC-Duplex), 1300 nm, for fiberglass cable	PSI-MOS-PROFIB/FO1300 T	2708892	1
Fiber optic converter with integrated optical diagnostics, alarm contact, for PROFIBUS up to 12 Mbps, termination device with one fiber optic interface (SC-Duplex), 1300 nm, for fiberglass cable	PSI-MOS-PROFIB/FO1300 E	2708559	1
Industrial PROFIBUS extender, for point-to-point connections, linear structures, and mixed operation with repeaters and fiber optic converters. Distances of up to 20 km, PROFIBUS data rates of up to 1.5 Mbps via simple copper wires, such as in-house phone lines.	PSI-MODEM-SHDSL/PB	2313656	1

4 Technical data

Supply	
Supply voltage range	18 V DC ... 30 V DC (via pluggable COMBICON screw terminal block)
Nominal supply voltage	24 V DC (With UL approval)
Typical current consumption	< 90 mA (24 V DC ⎓)
Electrical isolation	VCC // TBUS // PROFIBUS (A) // PROFIBUS (B)
Test voltage data interface/power supply	1.5 kV_{rms} (50 Hz, 1 min.)
Torque	0.6 Nm ... 0.8 Nm
PROFIBUS acc. to IEC 61158, RS-485 2-conductor	
Transmission channels	2 (1/1), TD, RD, half duplex
Operating mode	Through PROFIBUS connector
Connection method	D-SUB-9 female connector
Output nominal voltage	5 V DC ±5 %
Output current	50 mA
Conductor cross section	0.2 mm^2 ... 2.5 mm^2 (24 AWG ... 14 AWG)
Data format/encoding	UART (11 Bit, NRZ)
Data direction switching	Automatic control, min. station response time 2 bits
Transmission speed	9.6/19.2/45.45/93.75/187.5/500/1500/3000/6000/12000 kbps (can be set manually and automatically)
Transmission length	≤ 1200 m (Depends on transmission speed and cable type)
Transmission medium	2-wire twisted pair, shielded
Relay output	
Number of outputs	1
Maximum switching voltage	30 V DC (1 A) 65 V DC (0.46 A) 150 V AC (0.46 A)

General data	
Degree of protection	IP20
Dimensions (W/H/D)	35 mm x 99 mm x 105 mm
Housing material	PA 6.6-FR green
Free fall in acc. with IEC 60068-2-32	1 m
Vibration resistance in acc. with EN 60068-2-6/ IEC 60068-2-6	5g, 10...150 Hz, 2.5 h, in XYZ direction
Shock in acc. with EN 60068-2-27/IEC 60068-2-27	15g, 11 ms period, half-sine shock pulse
MTTF (mean time to failure) SN 29500 standard, temperature 25 °C, operating cycle 21 % (5 days a week, 8 hours a day)	1638 Years
MTTF (mean time to failure) SN 29500 standard, temperature 40 °C, operating cycle 34.25 % (5 days a week, 12 hours a day)	812 Years
MTTF (mean time to failure) SN 29500 standard, temperature 40 °C, operating cycle 100 % (7 days a week, 24 hours a day)	340 Years
Bit distortion, input	max. ± 35 %
Bit distortion, output	< 6.25 %
Bit delay in standard operation	≤ 11 bit (Filter mode)
Bit delay	1 bit (Direct mode)
Noise emission according to	EN 55011
Noise immunity according to	EN 61000-4-2
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Transmission channels	2 (1/1), TD, RD, half duplex

Ambient conditions	
Ambient temperature (operation)	-20 °C ... 60 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Permissible humidity (operation)	30 % ... 95 % (non-condensing)
Altitude	≤ 5000 m (for restrictions see manufacturer's declaration) ≤ 2000 m (when used in Ex zone 2)

Approvals / Certificates	
Conformance	CE-compliant EAC
Free from substances that could impair the application of coating	according to P-VW 3.10.7 57 65 0 VW-AUDI-Seat central standard
ATEX Please follow the special installation instructions in the documentation!	Ⓔx II 3 G Ex nA nC IIC T4 Gc X
UL, USA/Canada	cULus listed UL 508 Class I, Zone 2, AEx nA nC IIC T6 Class I, Zone 2, Ex nA nC IIC T6 Gc X Class I, Div. 2, Groups A, B, C, D
Standards/regulations	DIN EN 50178, DIN EN 60950

Conformance with EMC Directive 2014/30/EU		
Noise immunity according to EN 61000-6-2		
Electrostatic discharge	EN 61000-4-2	
	Contact discharge	± 6 kV
	Discharge in air	± 8 kV
	Comments	Criterion B
Electromagnetic HF field	EN 61000-4-3	
	Frequency range	80 MHz ... 3 GHz
	Field intensity	10 V/m
	Comments	Criterion A
Fast transients (burst)	EN 61000-4-4	
	Input	± 2 kV
	Signal	± 2 kV
	Comments	Criterion B
Surge current loads (surge)	EN 61000-4-5	
	Input	± 0.5 kV
	Signal	± 1 kV
	Comments	Criterion B
Conducted interference	EN 61000-4-6	
	Voltage	10 V
	Comments	Criterion A

Emitted interference in acc. with EN 61000-6-4	
Interference emission	EN 55011 Class A, industrial applications

Criterion A	Normal operating behavior within the specified limits
Criterion B	Temporary impairment of operating behavior that is corrected by the device itself

5 Safety regulations and installation notes

5.1 Installation and operation

WARNING:
Observe the following safety notes when using the repeater.

- The category 3 device is designed for installation in zone 2 potentially explosive areas. It meets the requirements of EN 60079-0:2012+A11:2013 and EN 60079-15:2010.
- Installation, operation, and maintenance may only be carried out by qualified electricians. Follow the installation instructions as described. When installing and operating the device, the applicable regulations and safety directives (including national safety directives), as well as generally approved technical regulations, must be observed. The safety data is provided in this package slip and on the certificates (conformity assessment, additional approvals where applicable).
- The device must not be opened or modified. Do not repair the device yourself, replace it with an equivalent device. Repairs may only be carried out by the manufacturer. The manufacturer is not liable for damage resulting from violation.
- The IP20 protection (IEC 60529/EN 60529) of the device is intended for use in a clean and dry environment. The device must not be subject to mechanical strain and/or thermal loads, which exceed the limits described.
- The device is not designed for use in atmospheres with a danger of dust explosions.
- The device must be stopped and immediately removed from the Ex area if it is damaged, was subject to an impermissible load, stored incorrectly or if it malfunctions.
- The device is designed exclusively for SELV operation according to IEC 60950/EN 60950/VDE 0805. The device may only be connected to devices, which meet the requirements of EN 60950.

5.2 Installation in Zone 2

WARNING: Explosion hazard when used in potentially explosive areas
Please make sure that the following notes and instructions are observed.

- Observe the specified conditions for use in potentially explosive areas.
- The device should be installed so that a degree of protection of at least IP54 is achieved in accordance with EN 60529. To this end, a suitable, approved housing that meets the requirements of EN 60079-15 should be used.
- Only devices that are designed for operation in Ex Zone 2 and the conditions at the installation location may be connected to the circuits in Zone 2.
- In potentially explosive areas, terminals may only be snapped onto or off the DIN rail connector and wires may only be connected or disconnected when the power is switched off.
- The switches of the device that can be accessed may only be actuated when the power supply to the device is disconnected or when it has been ensured that there is no potentially explosive atmosphere present.
- For safe operation, lockable plug connections must have a functional interlock (e. g. locking clip, screw connection etc.). Insert the interlock. Repair any damaged connectors immediately.
- The application height in zone 2 is limited to 2000 m (80 kPa).

5.3 UL Notes

PROCESS CONTROL EQUIPMENT FOR HAZARDOUS LOCATIONS 31ZN

A) This equipment is suitable for use in Class I, Zone 2, AEx nA nC IIC T6; Class I, Zone 2, Ex nA nC IIC T6 Gc X and Class I, Division 2, Groups A, B, C, D or non-hazardous locations only.
B) WARNING - EXPLOSION HAZARD - Substitution of components may impair suitability for Class I, Zone 2/Division 2.
C) WARNING - EXPLOSION HAZARD - Do not disconnect equipment unless power has been switched off or the area is known to be non-hazardous.
D) Conductor temperature rating must be 65°C or higher.
E) Product must be installed in Class I, Zone 2 certified and at least an IP54 enclosure.
F) The product has to be installed in an enclosure with tool removable cover or door.
G) Product must be used in no more than a pollution degree 2 environment as defined by IEC 60664-1.
H) Provisions must be made to provide transient protection to the product so that voltage levels do not exceed 40 % of the rated voltage at the power supply terminals.
I) The relay contacts are directly connected to connections 3 and 4 (1)

Wire Range: 30-12 AWG
Torque: 5-7 (Lbs-Ins)

c UL us

24 Vdc, 90 mA
T_{amb} = 60°C
30-12 AWG, Copper Solid and Stranded, Field and Factory
Torque: 5-7 Lbs-Ins

6 Application examples

The repeater can be used to create network structures that are tailored to the relevant application.

The limits set by the PROFIBUS standard are therefore extended. The standard defines the following basic specifications:

- Up to 32 devices per potential segment
- Only line structures
- Maximum bus cable length: 1200 m
- Bus cable termination at the start and end of the bus cable

Please note that in each potential segment, the port of the repeater must be considered as an electrical device.

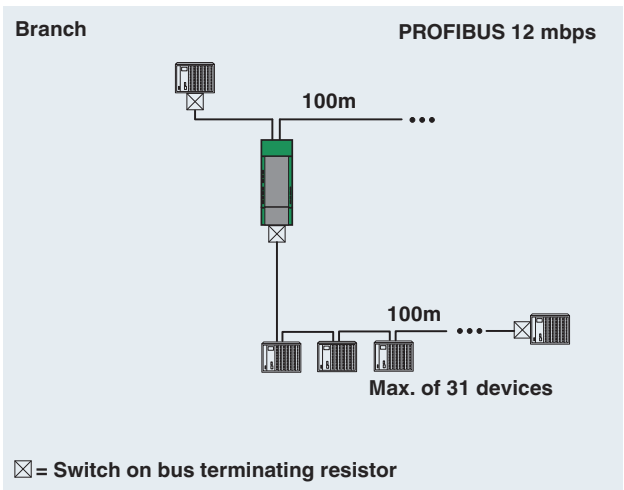


Figure 1 Branch line

A segment can be created as an active branch, which can comprise the full bus cable length and a maximum of 31 devices.

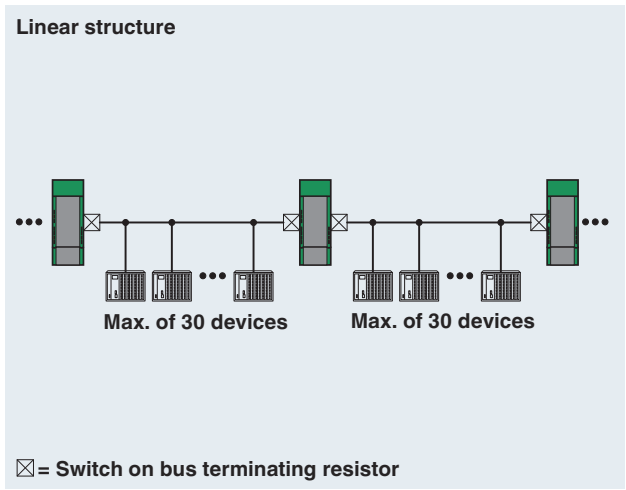


Figure 2 Line structure

Bus segmentation with repeaters makes it possible to multiply the permissible coverage of the network and to extend the number of devices.

The full number of devices from the PROFIBUS specification (n x 32) applies in each potential segment.

Higher transmission speeds can also be supported by subdividing into shorter segment lengths.

Example: normally, a PROFIBUS segment with a length of 200 m could only be operated at a data rate of 1.5 Mbps. If you use a repeater after 100 m, the possible data rate is 12 Mbps.

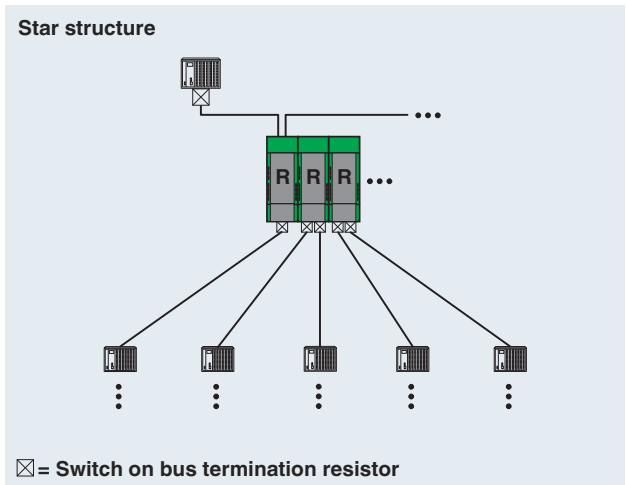


Figure 3 Star structure

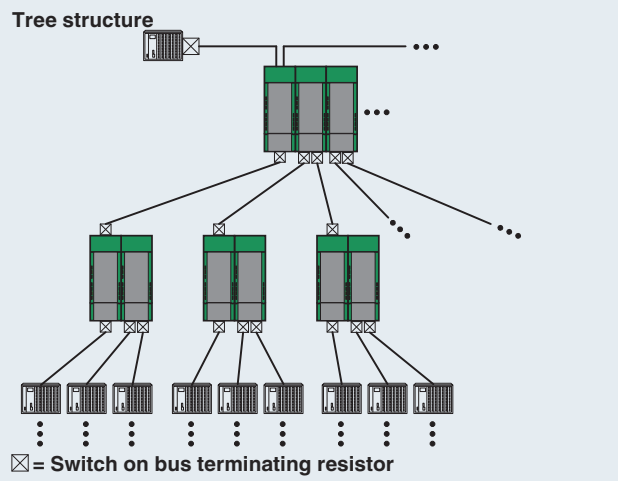


Figure 4 Tree structure

Mixed/network structures, star, and tree structures can be created using the repeaters. The repeaters can be extended using PSI-MOS-PROFIB/FO... fiber optic converters.

In addition, the repeaters can be combined and therefore configured to form a modular PROFIBUS hub.

6.1 Bit retiming

PROFIBUS signals with a bit distortion of up to 35 % can be reliably detected using the bit retiming function and are converted to their original bit form before being transferred to the next segment.

This data processing function means that a virtually unlimited number of repeaters can be connected without an impermissible level of bit distortion.

6.2 Bit oversampling

The bit oversampling function can be used to detect and filter disturbances. This means that these disturbances are not transferred to the next segment.

7 Product description

7.1 Dimensions

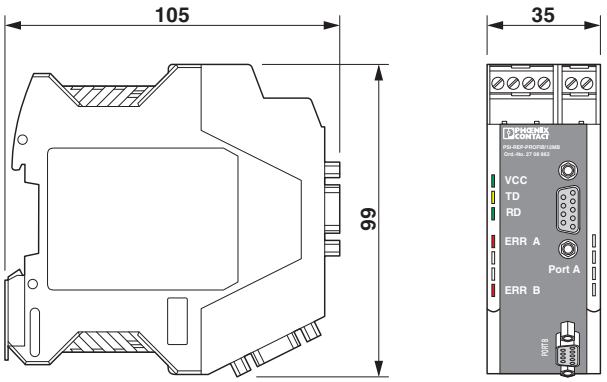


Figure 5 Housing dimensions

7.2 Block diagram

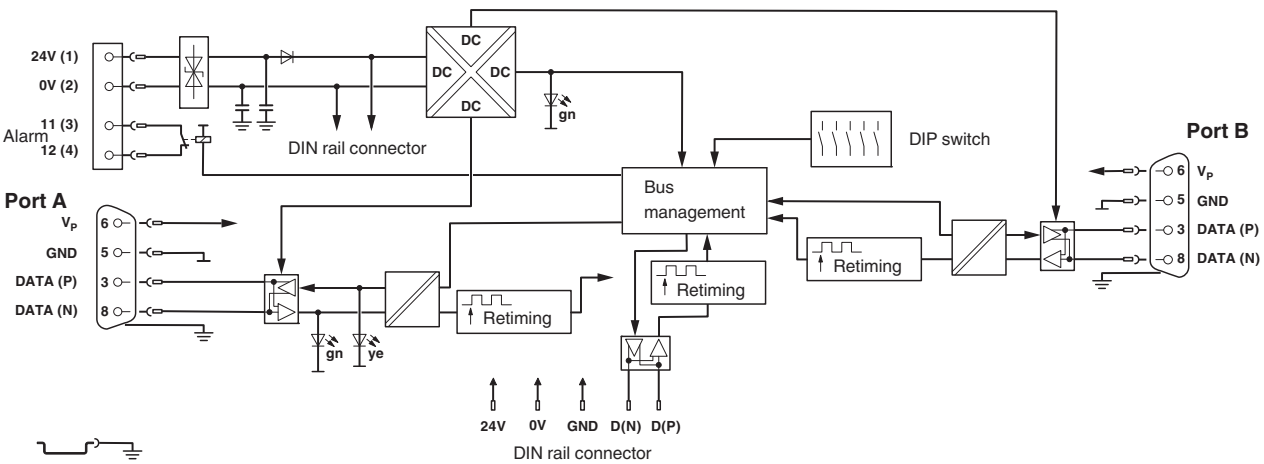


Figure 6 Block diagram

7.3 Function elements

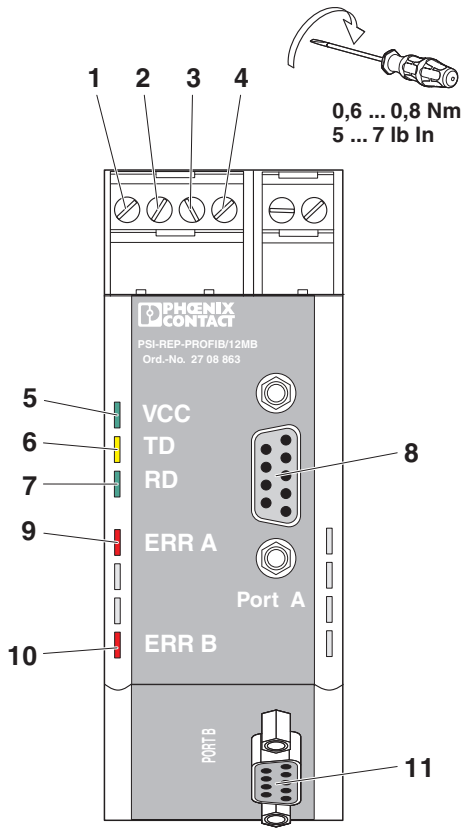


Figure 7 Function elements

1	24 V DC supply voltage		
2	0 V DC supply voltage		
3	Switch contact		Connection 11
4	Switch contact		Connection 12
5	LED VCC	Green	Supply voltage
6	LED TD	Yellow	Transmit data, Dynamic, port A
7	LED RD	Green	Receive data, Dynamic, port A
8	D-SUB 9		PROFIBUS interface, port A
9	LED ERR A	Red	Transmission error, port A
10	LED ERR B	Red	Transmission error, port B
11	D-SUB 9		PROFIBUS interface, port B

The relay contacts are connected directly to connections **3** and **4**.

Status and diagnostics indicators

LED		Meaning
VCC	ON	Supply voltage OK
	Flashing	Supply voltage present but no valid data rate detected (“Autobaud” setting only)
	OFF	No supply voltage

8 Configuration via DIP switches

NOTE: electrostatic discharge!

The device contains components that can be damaged or destroyed by electrostatic discharge. When handling the device, observe the necessary safety precautions against electrostatic discharge (ESD) according to EN 61340-5-1 and IEC 61340-5-1.

Only select the mode of operation when the power is disconnected! The change is activated after renewed power up.

The DIP switches for configuration are located under the cover on the port B interface.

- Insert a small screwdriver into the slot on the bottom of the cap and remove the cap.

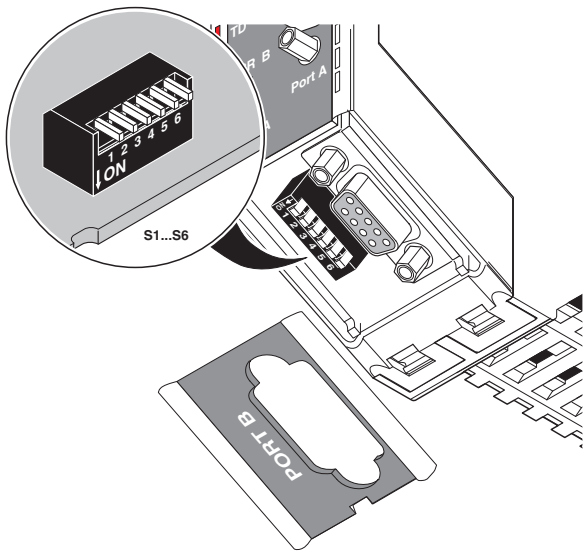


Figure 8 DIP switches

At delivery, all DIP switches are in the "OFF" position.

DIP switch 6 has no function.

8.1 Set the data rate (DIP switches 1 - 4)

- Set the transmission speed using the DIP switches.

Set all connected PROFIBUS devices to the same data rate!

ON = •	DIP 1	DIP 2	DIP 3	DIP 4
Data rate [kbps]				
Autobaud				
12000				•
6000			•	
3000			•	•
1500		•		
500		•		•
187.5		•	•	
93.75		•	•	•
45.45	•			
19.2	•			•
9.6	•		•	

8.2 Set the operating mode (DIP switch 5)

Operating mode	DIP 5
FILTER	OFF
DIRECT	ON

In FILTER operating mode (DIP 5 = OFF), the repeater filters out destroyed telegrams. This avoids unnecessary network load and improves resistance to interference. The bit delay resulting from the repeater is 11 bits. Take this into account when configuring the lines.

In DIRECT operating mode (DIP 5 = ON), the filter function is switched off. The bit delay is only 1 bit. You don't need to take this bit delay into account when configuring the lines.

If several repeaters are connected to form a star structure, there is no additional bit delay when distributing the data signal via the DIN rail connector.

The corresponding bit delay must only be taken into consideration when the telegram is received at port A or port B. The direction (master or slave) from which the telegram is received at the repeater is therefore not important.

9 Cable configuration

The cable configuration is only necessary if the repeater is operated in FILTER mode (DIP 5 = OFF). In this case, the bit delay of 11 bits must be taken into consideration in the cable configuration of the control system.

Data transmission cables and network components lead to signal delays. The following section provides support when calculating the necessary network parameters.

The configuration of network parameters is described using a practical example with STEP 7® software.

The following data is required for configuration:

– Number of repeaters
– Total length of all copper cables

Tslot_Init = a + b x L + 22 x N

Tslot_Init	=	Minimum slot time in bit periods
a, b	=	Length parameter (see table)
L	=	Network coverage in km
N	=	Number of repeaters

	a		b
Data rate [kbps]	**DP**	**DP/FMS**	
12000	811	811	120
6000	461	461	60
3000	261	261	30
1500	161	991	15
500	111	371	5
187.5	71	371	1.875
93.75	71	211	0.9375
45.45	411	411	0.4545
19.2	71	76	0.192
9.6	71	71	0.096

9.1 Configuring the network parameters in STEP 7

- Open the “Properties-DP” dialog box and click on “Properties”.
- Select a subnetwork and click on “Properties”.
- Switch to the “Network Settings” tab and click on “Options”.
- Switch to the “Cables” tab.

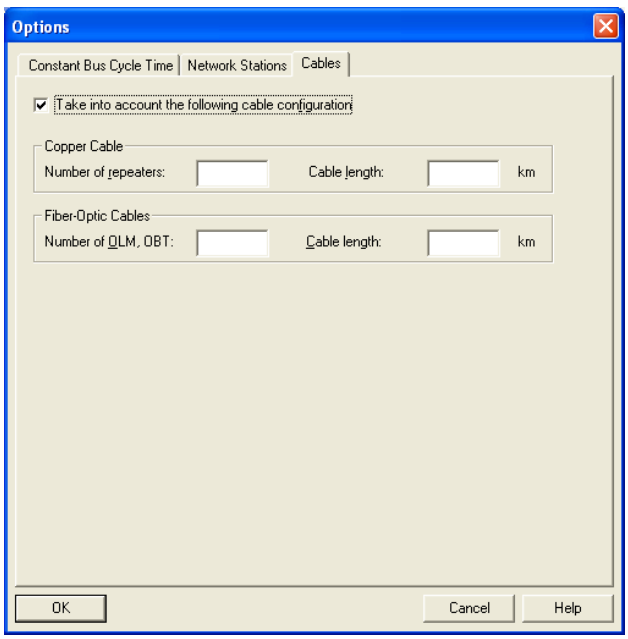


Figure 9 Options

- Activate the “Take into account the following cable configuration” checkbox.
- Enter the total number of repeaters used and the total length of all copper cables. If fiber optic paths are used, enter them separately.
- Close all dialog boxes with “OK”.
- Switch to the “Network Settings” tab and activate the “User-Defined” profile.

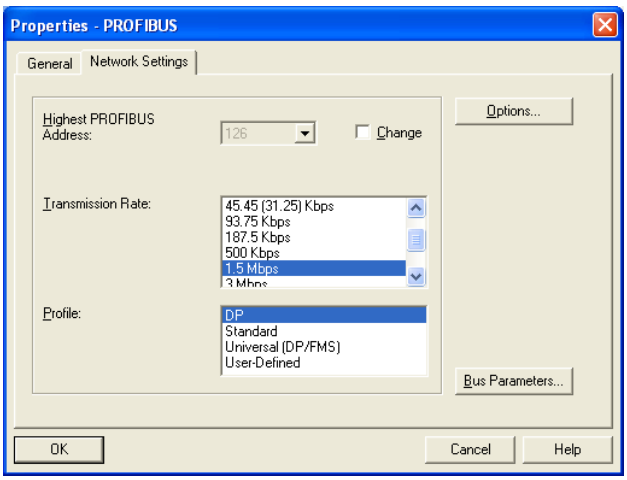


Figure 10 Properties - PROFIBUS

- Click on “Bus Parameters”.

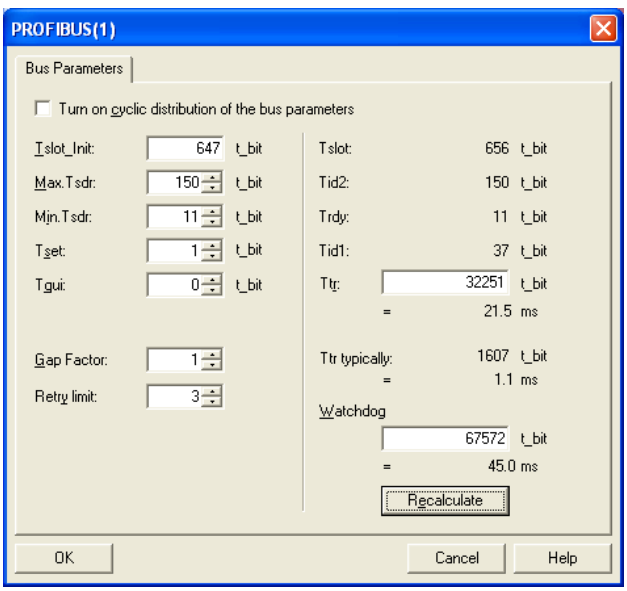


Figure 11 PROFIBUS

- Enter the calculated value “Tslot_init” and click on “Recalculate”.
- Change the “Gap Factor” to “1” and the “Retry Limit” to “3”.
- Confirm all dialog boxes with “OK” and load the parameterization to the controller.

10 Assembly

CAUTION: Electric shock

The device is designed exclusively for SELV operation according to IEC 60950/EN 60950/ VDE 0805. The device may only be connected to devices, which meet the requirements of EN 60950.

NOTE: Malfunction

Use a grounding terminal block to connect the DIN rail to protective earth ground. The devices are grounded when they are snapped onto the DIN rail (installation according to PELV).
This ensures that the shielding is effective. Connect protective earth ground with low impedance.

10.1 Mounting on a DIN rail

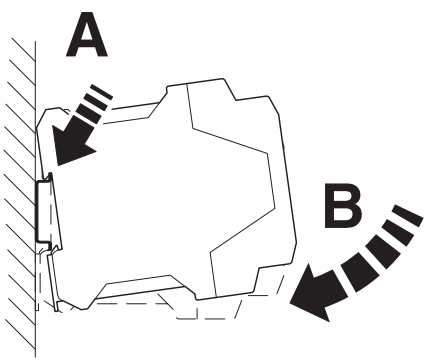


Figure 12 Mounting on a DIN rail

- To avoid contact resistance, only use clean, corrosion-free 35 mm DIN rails according to DIN EN 60715.
- Install an end bracket next to the left-hand device to prevent the devices from slipping.
- Place the device onto the DIN rail from above. Push the module from the front toward the mounting surface until it audibly engages.
- Snap the other devices that are to be contacted onto the DIN rail next to one another.

10.2 Combined assembly

Observe the snap-in direction of the device and DIN rail connector: snap-on foot below and plug on the left.

A connection station must not consist of more than ten devices.

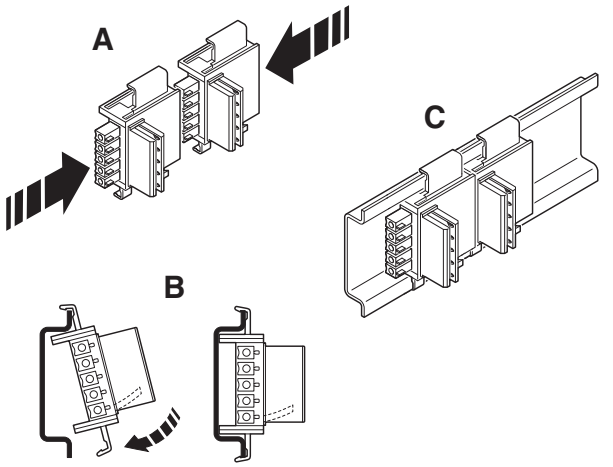


Figure 13 Combined assembly

The DIN rail connector is used to bridge the power supply and communication.

- For one connection station, plug the DIN rail connectors together (order no. 2709561, 2 per device).
- Push the connected DIN rail connectors into the DIN rail.
- Place the device onto the DIN rail from above. Push the module from the front toward the mounting surface until it audibly engages.

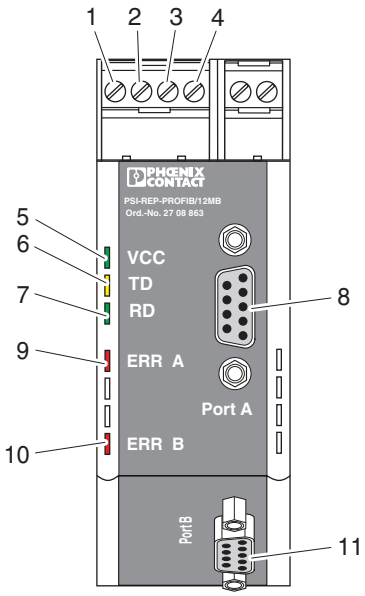
10.3 Removal

- Push down the locking tab with a screwdriver, needle-nose pliers or similar.
- Slightly pull the bottom edge of the device away from the mounting surface.
- Pull the device away from the DIN rail.

When you dismantle a connection station, also remove the DIN connectors.

11 Supply voltage

The device is operated using a 24 V DC SELV.



1 24 V DC supply voltage

2 0 V DC supply voltage

11.1 Operation as a single device

- Supply voltage to the device via terminal blocks **1** (24 V) and **2** (0 V).

11.2 Operation in a topology

When the devices are operated in a topology, the supply voltage must only be supplied to the first device in the station.

The remaining devices are supplied via the DIN rail connector. A second power supply unit can be used to create a redundant supply concept.

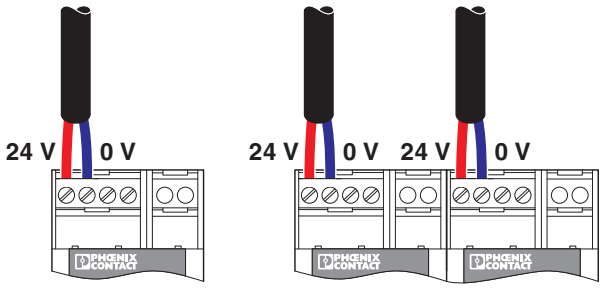


Figure 14 Individual/redundant supply

Using the system current supply

Alternatively, the connection station can be connected to a system power supply.

- Connect a system power supply to two DIN rail connectors on the left of the group.
  - MINI-SYS-PS-100-240AC/24DC/1.5, Order No. 2866983 or
  - MINI-PS100-240AC/24DC/1.5/EX, Order No.: 2866653
  - Two DIN rail connectors, Order No. 2709561

12 Connecting data cables

NOTE: Malfunction

Use shielded twisted pair data cables. Connect the cable shielding at both ends of the transmission path.

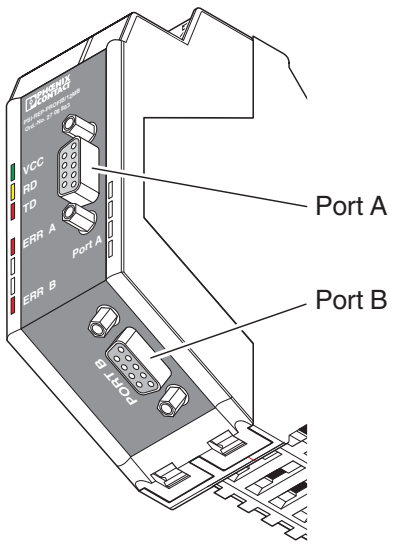


Figure 15 D-SUB connections for port A and port B

- Connect the data lines for port A and Port B to the corresponding D-SUB connections using a suitable plug, for example a SUBCON-PLUS-PROFIB/SC2 plug, order number 2708232.
- If the device is used at the beginning or the end of an electrical PROFIBUS segment, activate the termination in the connector plug.

Assignment of the D-SUB connection		
Contact	**Signal**	**Meaning**
3	RxD / TxD-P	Receive/transmit data - positive, B cable
5	DGND	Data transmission potential (reference potential to VP)
6	VP	5 V auxiliary voltage output (P5V), max. 50 mA
8	RxD / TxD-N	Receive/transmit data – negative A cable

13 Switching output

NOTE: device damage

The maximum load capacity of the relay contact is 30 V DC, 1 A, and 65 V DC/ 150 V AC, 0.46 A.

The device is equipped with a floating switching output for error diagnostics (terminals **3** (11) and **4** (12)).

The floating switch contact opens on the relevant device if there is a transmission error on port A or port B.

The switching output is an N/C contact. It can be connected to a local digital input, e.g., on a PLC, for error detection.

When mounted in a topology, the individual switching outputs can be connected to separate input points or the individual contacts can be looped through to generate a group message.

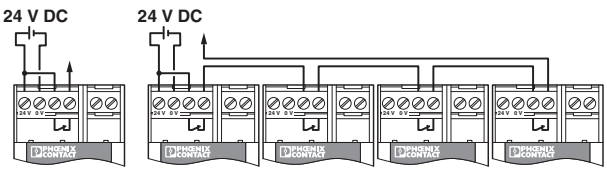


Figure 16 Individual and group message

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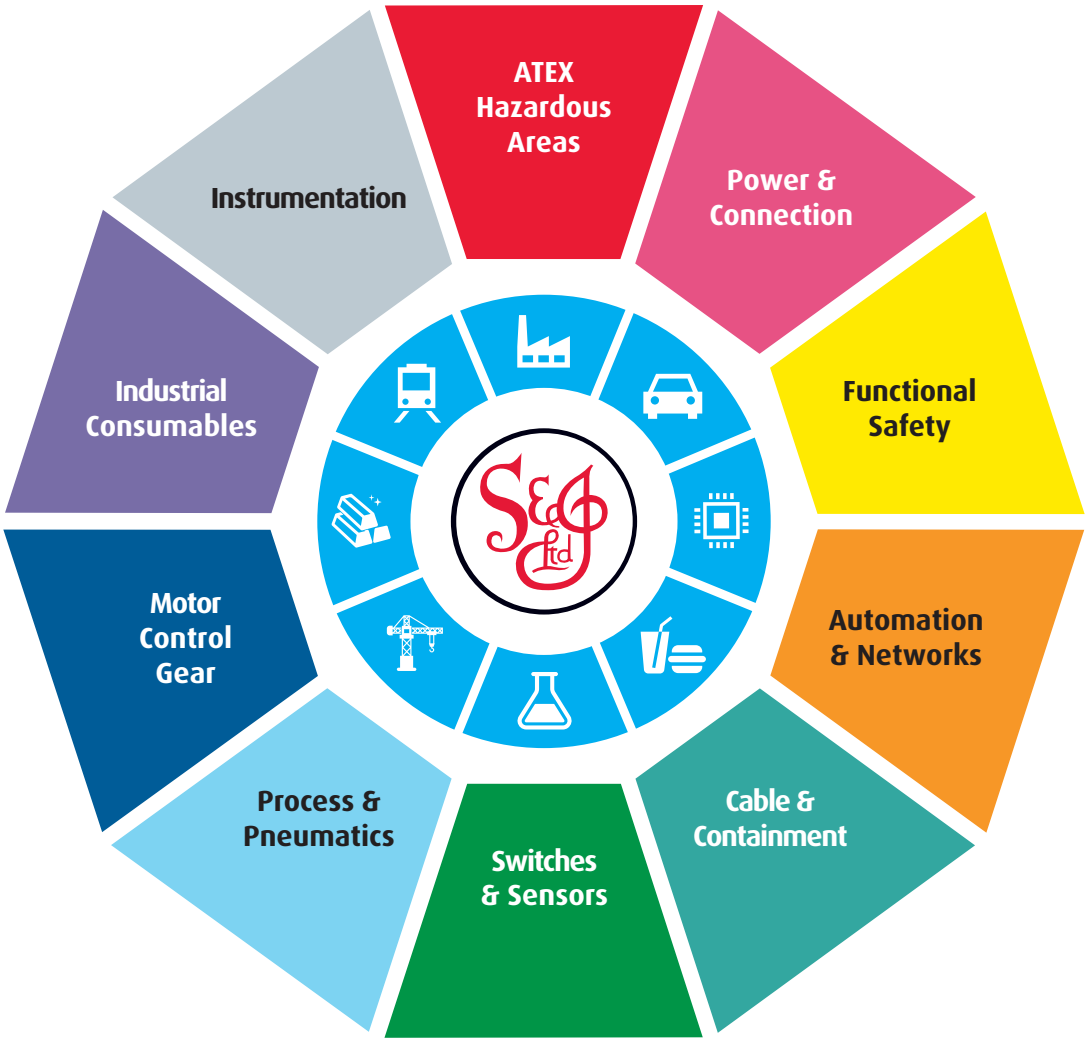

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