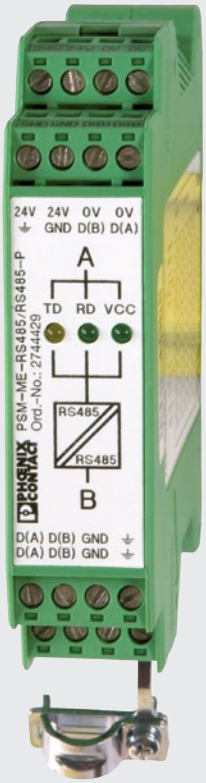
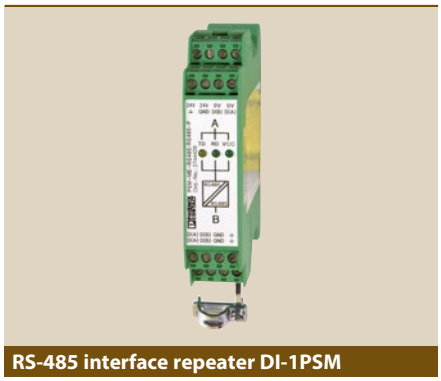
RS-485 interface repeater DI-1PSM

for RS-485 bus extension



RS-485 interface repeater DI-1PSM

Interface repeater for RS-485 bus extension



RS-485 interface repeater DI-1PSM

Device features

- Plastic enclosure for DIN rail mounting
- Configurable baud rate
- Galvanic separation between the input and output circuit and the power supply
- Supply voltage AC/DC 24 V ± 20 %

Note:
Use on the internal BMS bus is not recommended due to manual baud rate setting. For this application, type DI-1DL is available.

Product description

The RS-485 interface repeater DI-1PSM is designed for signal amplification on the RS-485 interface (external BMS bus*, Modbus RTU). This is required when the network distance exceeds a length of 1200 m or when the maximum permissible number of bus nodes is exceeded.

Applications

- Extension of the maximum possible bus length by 1200 m in BMS systems (EDS, RCMS, MEDICS® systems)
- Extension of the maximum possible bus nodes by 31*
- Protection against spikes by galvanic separation between the input and output circuit and the power supply
- Implementation of resonant stubs (refer also to BSM instruction leaflet)

Technical data

Insulation coordination according to IEC 60664-1

Rated insulation voltage	
Rated impulse withstand voltage/pollution degree	2 kV/3

Supply voltage

Supply voltage U_S	see ordering information
Current consumption	≤ 100 mA

Interfaces

BMS

Interface/protocol	2 x RS-485 /BMS/Modbus RTU
Baud rate configurable via DIP switch	4.8…1500 kBit/s
Cable length	≤ 1200 m
Cable (twisted pair, one end of shield connected to PE)	recommended: J-Y(St)Y min. 2x0.8
Operating mode	half-duplex
Data direction switching	self-controlling
Cascading option	9 (4.8…93.75 kBit/s)
Terminating resistor, selectable via DIP switch	220 Ω
Device address, BMS bus	--
Alarm LEDs	ON (green), R x D (green), T x D (yellow)

Environment/EMC

EMC immunity	EN 61000-6-2
EMC emission	EN 50081-1
Classification of climatic conditions acc. to IEC 60721	
Stationary use	3K5
Transport	2K3
Long-term storage	1K4
Operating temperature	0…+55 °C
Classification of mechanical conditions acc. to IEC 60721	
Stationary use	3M4
Transport	2M2
Long-term storage	1M3

Connection

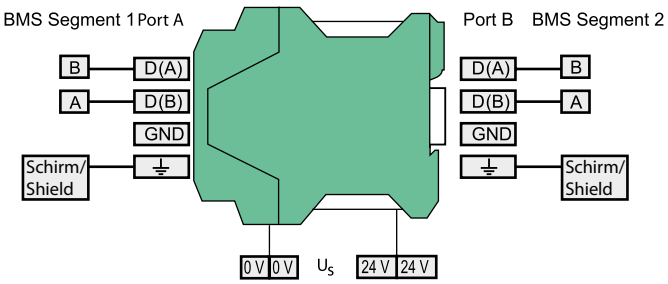
Connection type	screw-type terminals
Connection properties	
rigid/flexible/conductor sizes	0.2…2.5 mm² (AWG 24…12)

Other

Operating mode	continuous operation
Mounting	any position
Degree of protection, internal components (IEC 60529)	IP30
Degree of protection, terminals (IEC 60529)	IP20
DIN rail mounting acc. to	IEC 60715
Documentation number	D00180
Weight	≤ 130 g

* depending on used transceivers

Connection

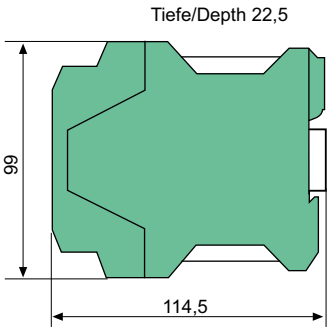


Ordering information

Supply voltage U_S	Type	Art. no.
AC/DC 24 V ± 20 %	DI-1PSM	B 9501 2044

Dimension diagram

Dimensions in mm

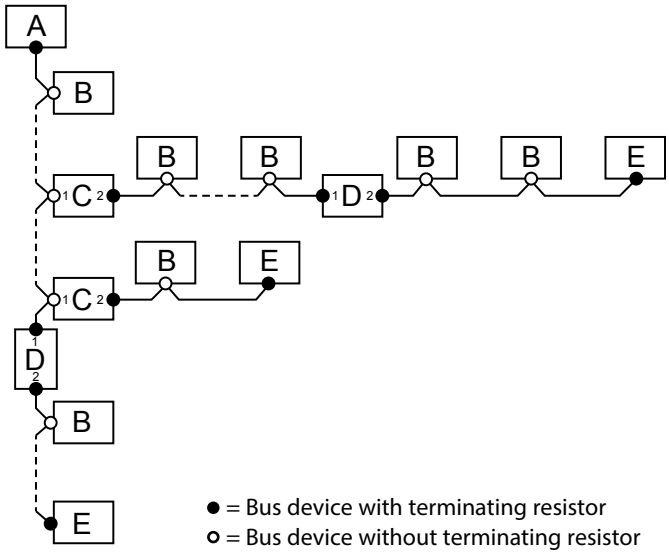


Settings

a) The baud rate is to be set via the DIP switch (DIP 1…4) according to the transmission rate in the bus system.

b) One DIP switch is available per bus segment to terminate the bus and to generate the required bias voltage.

The termination is carried out as shown in the following example of a BMS bus system:



Termination/bias voltage		
A	Master	Terminating resistor activated via switch on device (ON)* or external terminating resistor between terminals A and B
B	Slave	Terminating resistor deactivated via switch on device (OFF)*
C	RS-485 interface repeater DI-1PSM	Bus 1: Terminating resistor and bias voltage generation deactivated via switch on device (DIP switch Terminate RS-485 (A): OFF)
		Bus 2: Terminating resistor and bias voltage generation activated via switch on device (DIP switch Terminate RS-485 (B): ON)
D	RS-485 interface repeater DI-1PSM	Bus 1: Terminating resistor and bias voltage generation deactivated via switch on device (DIP switch Terminate RS-485 (A): OFF), external terminating resistor between terminals D(A) and D(B)
		Bus 2: Terminating resistor and bias voltage generation activated via switch on device (DIP switch Terminate RS-485 (B): ON)*
E	Slave	Terminating resistor activated via switch on device (ON) or external terminating resistor between terminals A and B

* The bias voltage generation is generally activated for the BMS bus master (via software) and deactivated for the BMS slaves.

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