

PSM-ME-RS232/RS485-P - Interface converter



2744416

<https://www.phoenixcontact.com/us/products/2744416>

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Interface converter, for converting RS-232 (V.24) to RS-422 (V.11) and RS-485, with electrical isolation, 2 channels, rail-mountable

Product description

The RS-485 standard allows more than two devices to communicate with one another. Converting the V.24 (RS-232) point-to-point interface into the bus-capable RS-485 standard makes it possible to network up to 32 devices via a 2- or 4-wire cable.

Your advantages

- Mounting on standard EN DIN rails
- Transmission speed of 4.8 Kbps ... 115.2 Kbps
- High-quality 3-way isolation between power supply, RS-232, and RS-422/RS-485 for safe decoupling of potentials with 2 kV
- RS-422 4-wire point-to-point operation
- RS-485 2-wire operation, half duplex
- RS-485 4-wire operation, full duplex
- Automatic RS-485 transmit/receive changeover
- Integrated data indicator for dynamic indication of transmit and receive data
- Integrated surge protection with transient discharge to the DIN rail
- Shipbuilding approval in accordance with DNV GL



Commercial data

Item number	2744416
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN11
Product key	DNC111

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GTIN	4017918171780
Weight per piece (including packing)	207.3 g
Weight per piece (excluding packing)	196.1 g
Customs tariff number	85176200
Country of origin	DE

Technical data

Notes

Note on application

Note on application	Only for industrial use
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Utilization restriction

CCCex note	Use in potentially explosive areas is not permitted in China.
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Product properties

Product type	Interface converter
Application	RS-232
	RS-422
	RS-485
MTTF	1654 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
	746 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%)
	310 Years (SN 29500 standard, temperature 40°C, operating cycle 100%)
MTBF	10 Years (Telcordia standard, temperature 40 °C, operating cycle 100 % (7 days a week, 24 hours a day))

Insulation characteristics

Pollution degree	2
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Electrical properties

Electrical isolation	VCC // V.24 (RS-232) // RS-485
Maximum power dissipation for nominal condition	2.04 W
Test voltage data interface/power supply	1.5 kV AC
	1.5 kV AC
Test voltage data interfaces	1.5 kV AC

Supply

Supply voltage range	19.2 V AC/DC ... 28.8 V AC/DC (via pluggable COMBICON screw terminal block)
Nominal supply voltage	24 V AC/DC ±20 %
Typical current consumption	25 mA (24 V DC)

Connection data

Supply

Single conductor/terminal point, rigid	0.2 mm ² ... 2.5 mm ²
Single-wire/terminal point, flexible	0.2 mm ² ... 2.5 mm ²
Conductor cross-section, flexible [AWG]	24 ... 12
Stripping length	7.00 mm

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Tightening torque	0.56 Nm ... 0.79 Nm
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Interfaces

Interface	RS-232/-485
Bit distortion	≤ 5 %
Bit delay	≤ 2.5 μs
Signal	Modbus
Transmission channels	2 (1/1), RxD, TxD, full duplex

Data: V.24 (RS-232) interface in acc. with ITU-T V.28, EIA/TIA-232, DIN 66259-1

Serial transmission speed	1.2; 2.4; 4.8; 7.2; 9.6; 19.2; 31.25; 38.4; 57.6; 75; 93.75; 115.2 kbps
Connection method	D-SUB 9 plug
Pin assignment	DTE/DCE switchover via switch
Transmission length	15 m (shielded twisted pair)
Single conductor/terminal point, rigid	0.2 mm ² ... 2.5 mm ²
Single-wire/terminal point, flexible	0.2 mm ² ... 2.5 mm ²
Max. AWG conductor cross-section, flexible	12
Min. AWG conductor cross-section, flexible	24
Protocols supported	transparent protocol

Data: RS-422 interface in acc. with ITU-T V.11, EIA/TIA-422, DIN 66348-1

Serial transmission speed	1.2; 2.4; 4.8; 9.6; 19.2; 38.4; 57.6; 75; 93.75; 115.2 kbps
Connection method	Pluggable screw connection
Tightening torque	0.5 Nm ... 0.6 Nm (Shield clamp)
Transmission length	1200 m (shielded twisted pair)
Termination resistor	390 Ω 150 Ω 390 Ω (Can be connected)
Single-wire/terminal point, flexible	0.2 mm ² ... 2.5 mm ²
Max. AWG conductor cross-section, flexible	13
Min. AWG conductor cross-section, flexible	24
Stripping length	7 mm
Protocols supported	transparent protocol

Data: RS-485 interface in acc. with EIA/TIA-485, DIN 66259-1

Serial transmission speed	1.2; 2.4; 4.8; 9.6; 19.2; 38.4; 57.6; 75; 93.75; 115.2 kbps
Connection method	Pluggable screw connection
Transmission length	1200 m (shielded twisted pair)
Termination resistor	390 Ω 150 Ω 390 Ω (Can be connected)
Single-wire/terminal point, flexible	0.2 mm ² ... 2.5 mm ²
Max. AWG conductor cross-section, flexible	14
Min. AWG conductor cross-section, flexible	24
Data direction switching	Automatic control or via RTS/CTS

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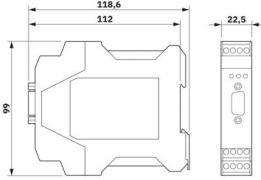


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Protocols supported	transparent protocol
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Dimensions

Dimensional drawing	
Width	22.5 mm
Height	99 mm
Depth	114.5 mm

Material specifications

Color (Housing)	green (RAL 6021)
Material (Housing)	PA 6.6-FR

Mechanical tests

Free fall in accordance with IEC 60068-2-32	Free fall: 1 m
Vibration resistance in accordance with EN 60068-2-6/IEC 60068-2-6	: 5g, 10...150 Hz, 2.5 h, in XYZ direction
Shock in accordance with EN 60068-2-27/IEC 60068-2-27	: 25g, 11 ms period, half-sine shock pulse

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-40 °C ... 70 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Altitude	≤ 5000 m (For restrictions, see the manufacturer's declaration for altitude operation)
Permissible humidity (operation)	10 % ... 95 % (non-condensing)

Approvals

CE

Certificate	CE-compliant
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ATEX

Identification	⊕ II 3 G Ex ec IIC T4 Gc
Certificate	IBExU16ATEXB004 X
Note	Please follow the special installation instructions in the documentation!

IECEX

Identification	Ex ec IIC T4 Gc
Certificate	IECEX IBE 15.0034X

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UL, USA/Canada

Identification	508 Recognized
	Class I, Zone 2, AEx nA IIC T4
	Ex nA IIC T4 Gc X
	Class I, Div. 2, Groups A, B, C, D T4

KC approval for South Korea

Certificate	MSIP-REI-PCK-ME2744416
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Corrosive gas test

Identification	ISA-S71.04-1985 G3 Harsh Group A
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Shipbuilding

Identification	DNV GL
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Shipbuilding data

Temperature	B
Humidity	A
Vibration	A
EMC	B
Enclosure	Required protection according to the Rules shall be provided upon installation on board

EMC data

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Noise immunity	EN 61000-6-2:2005

Noise emission

Standards/regulations	EN 61000-6-4
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Electrostatic discharge

Standards/regulations	EN 61000-4-2
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Electrostatic discharge

Contact discharge	± 6 kV (Test Level 3)
Discharge in air	± 8 kV (Test Level 3)
Comments	Criterion B

Electromagnetic HF field

Standards/regulations	EN 61000-4-3
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Electromagnetic HF field

Frequency range	26 MHz ... 3 GHz (Test Level 3)
Field intensity	10 V/m
Comments	Criterion A

Fast transients (burst)

Standards/regulations	EN 61000-4-4
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Fast transients (burst)

Input	± 2.2 kV (Test Level 3)
Signal	± 2.2 kV (Test Level 3)
Comments	Criterion B

Surge current load (surge)

Standards/regulations	EN 61000-4-5
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Surge current load (surge)

Input	± 0.5 kV (DC supply)
Signal	± 1 kV (Data line, asymmetrical)
Comments	Criterion B

Conducted interference

Standards/regulations	EN 61000-4-6
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Conducted interference

Frequency range	0.15 MHz ... 80 MHz
Comments	Criterion A
Voltage	10 V

Emitted interference

Standards/regulations	EN 55011
Comments	Class A, industrial applications

Criteria

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

Mounting

Mounting type	DIN rail mounting
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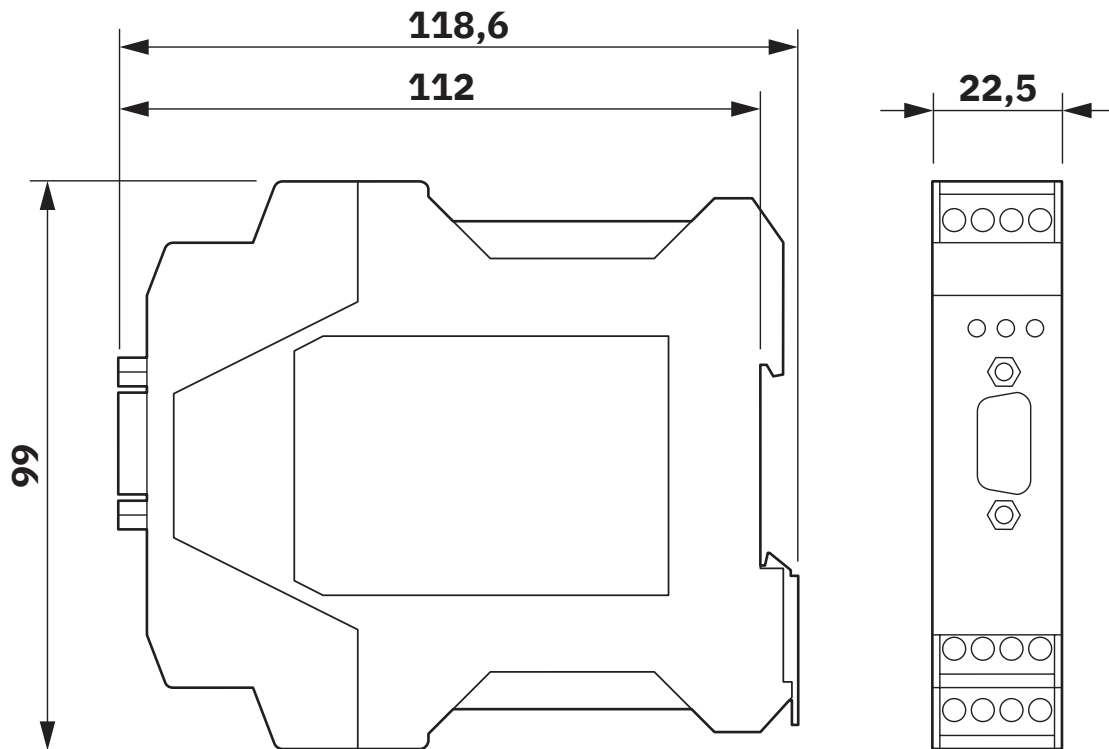
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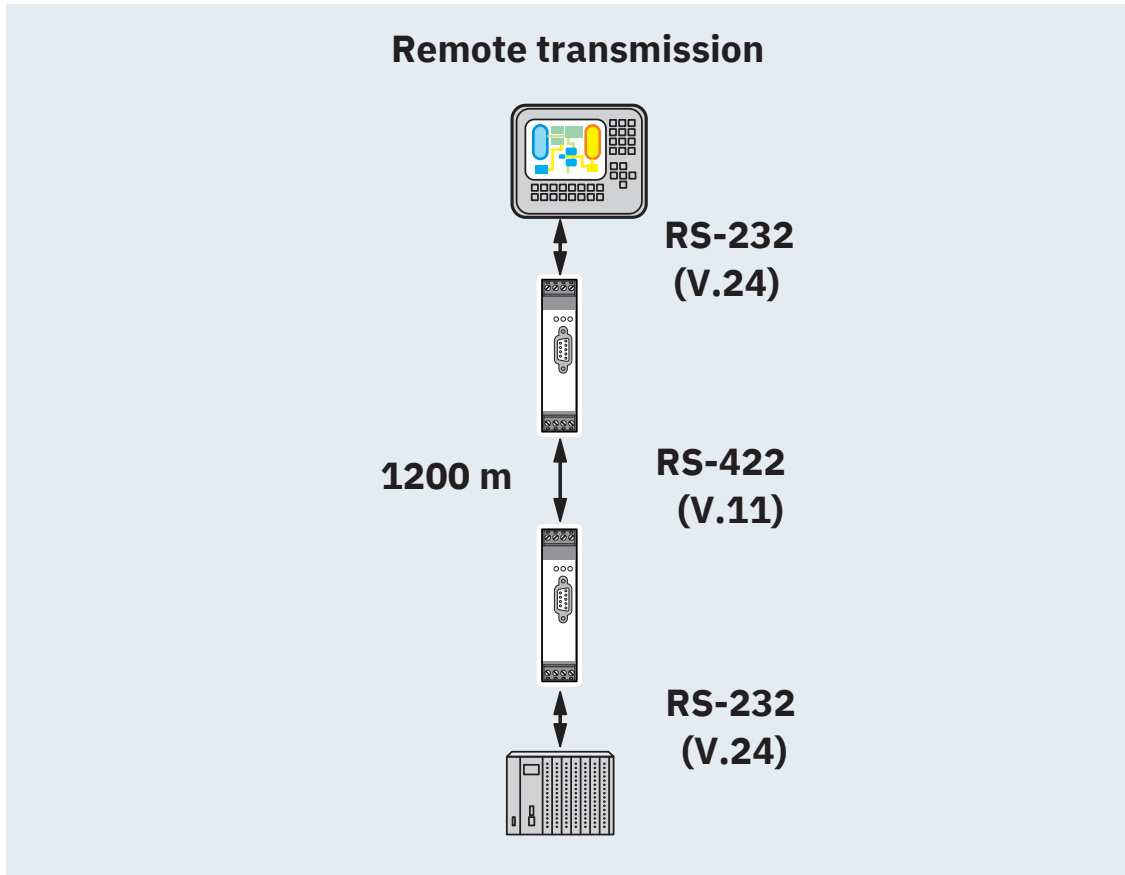
Drawings

Dimensional drawing



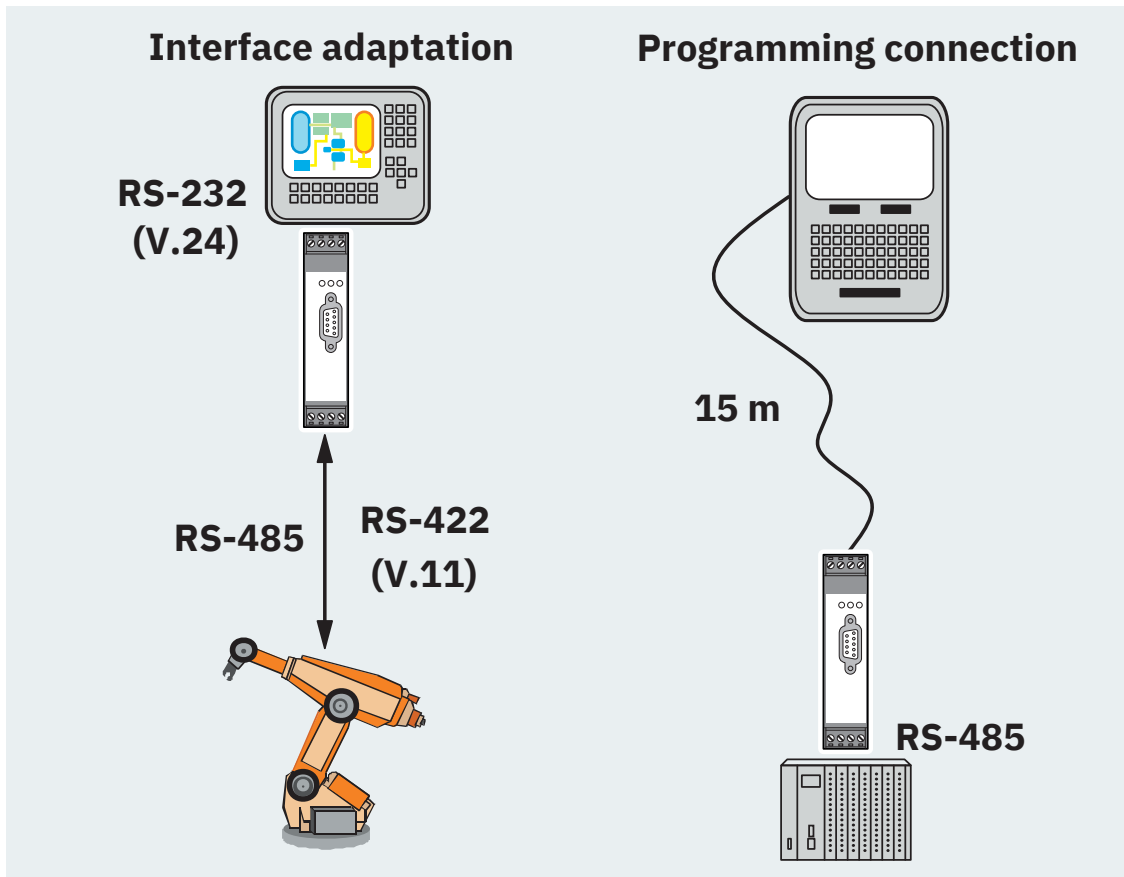
Slim design

Application drawing



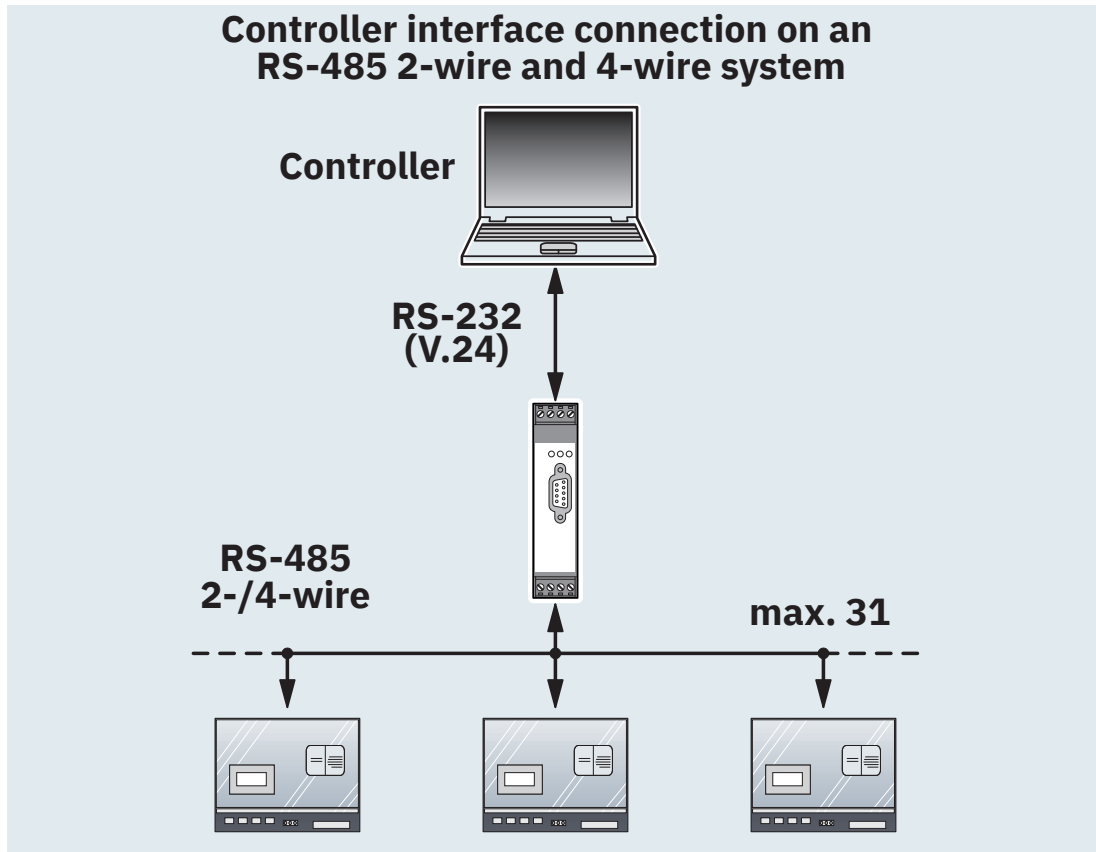
Remote transmission

Application drawing



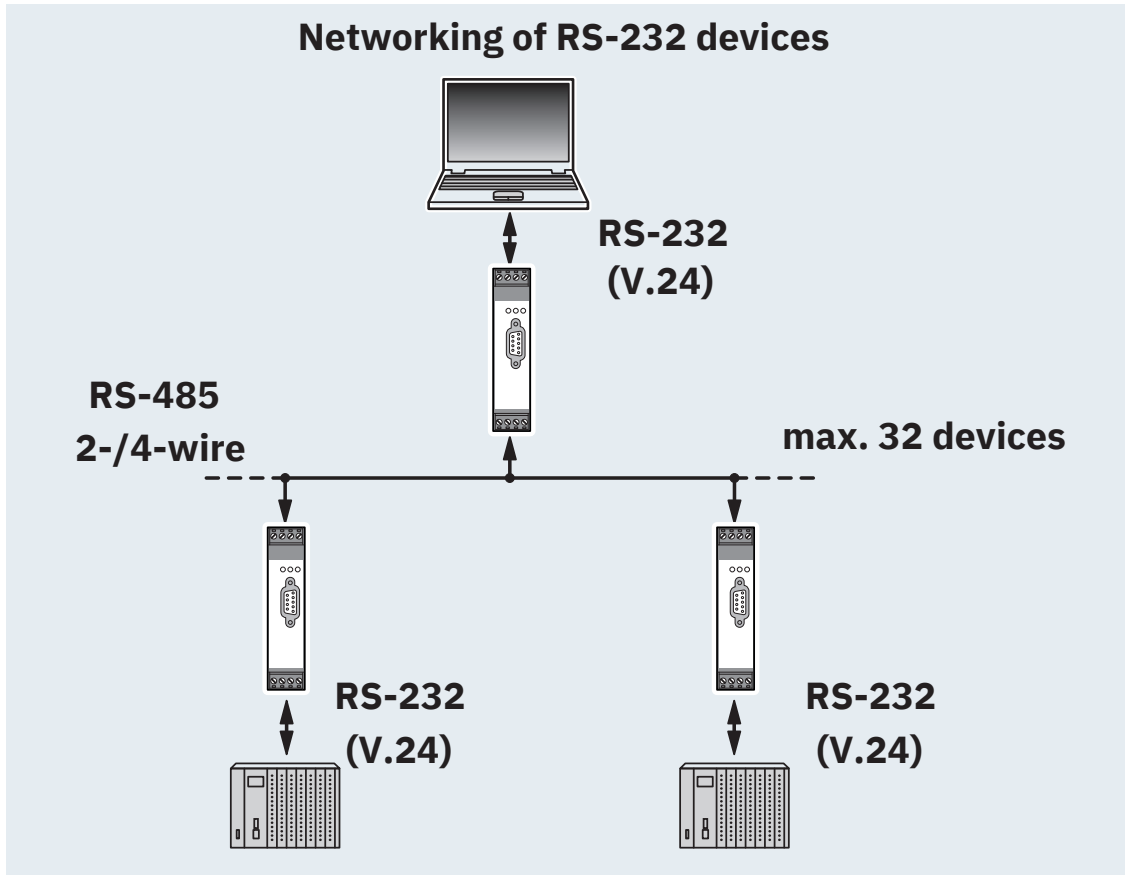
Interface adaptation or programming connection

Application drawing



Controller interface

Application drawing



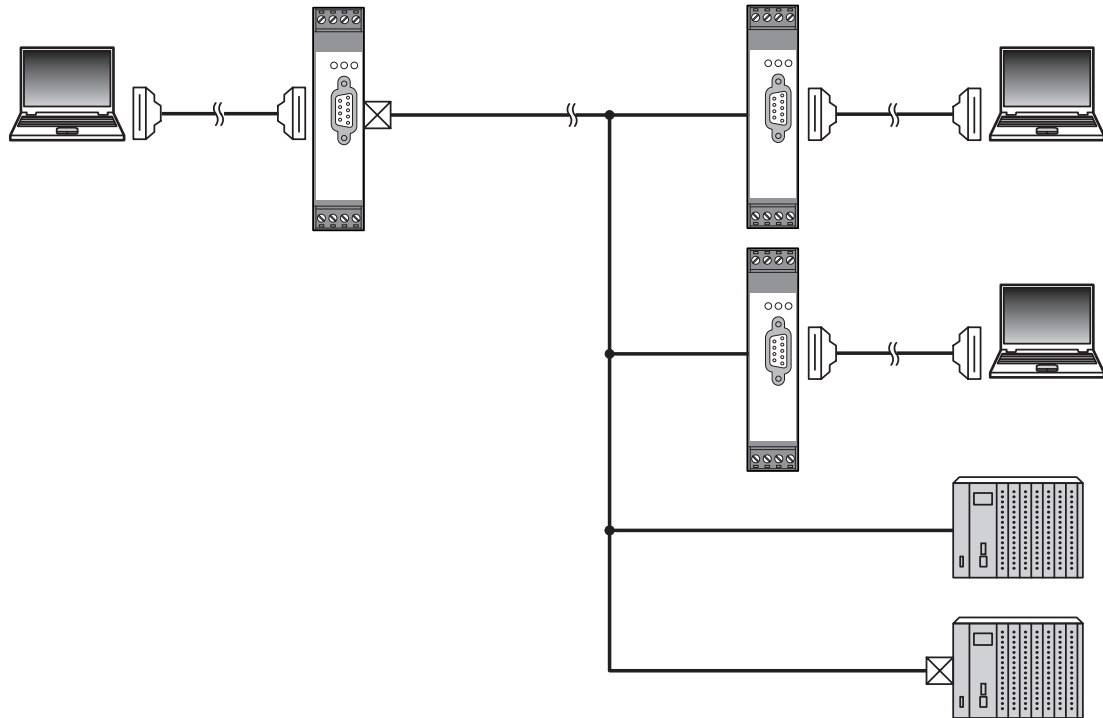
Networking of RS-232 devices

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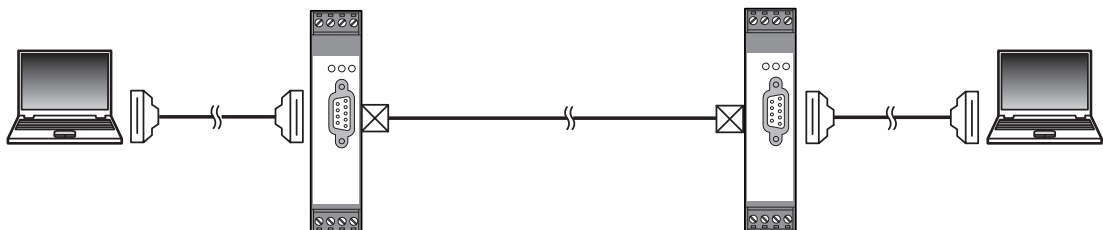
Application drawing



 = Switch on bus terminating resistor

Activate termination resistors - RS-485

Application drawing



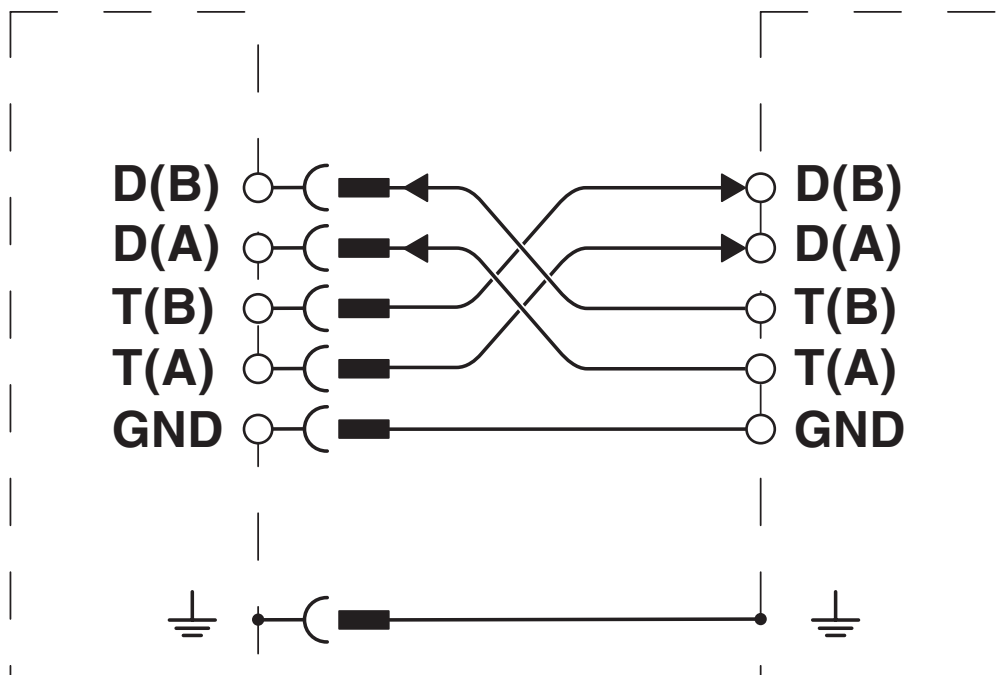
 = Switch on bus terminating resistor

Activate termination resistors - RS-422

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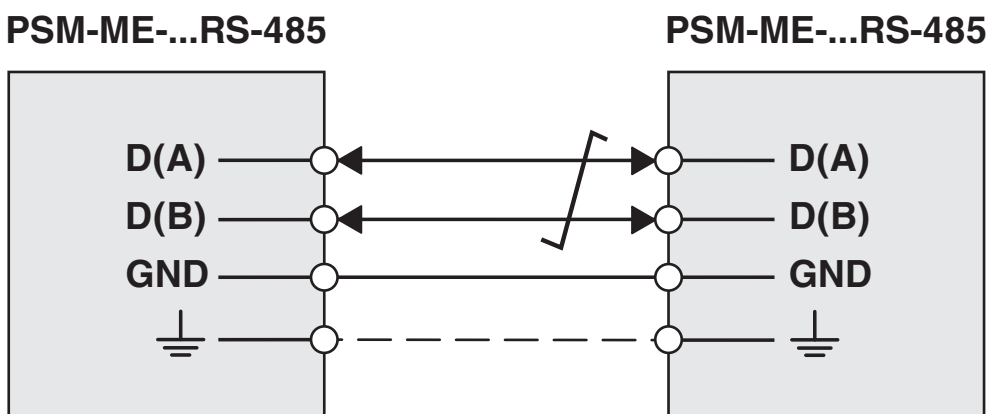
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Connection diagram



RS-422/RS-485 4-wire

Connection diagram



RS-485 interface

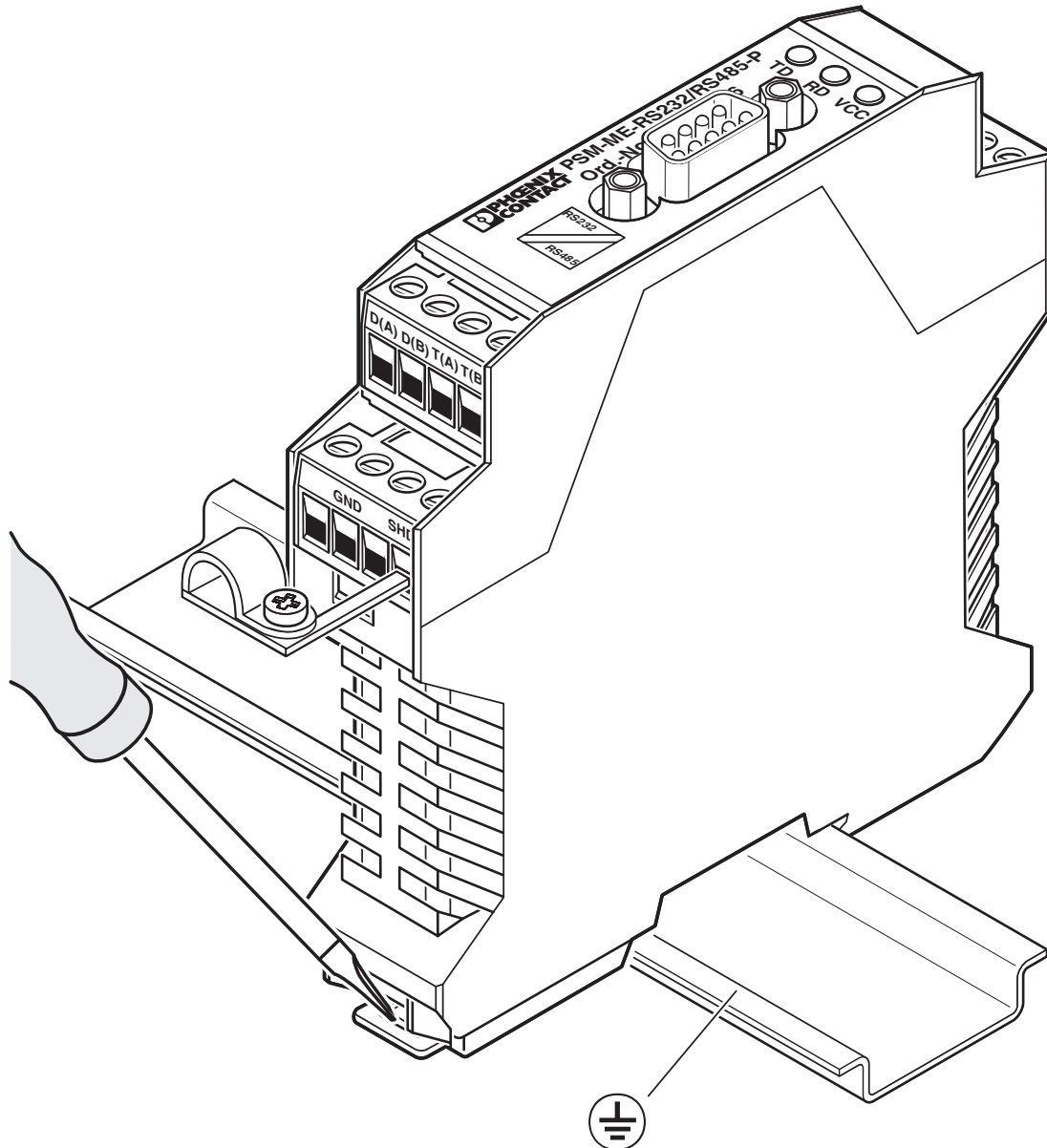
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Schematic diagram



Removal

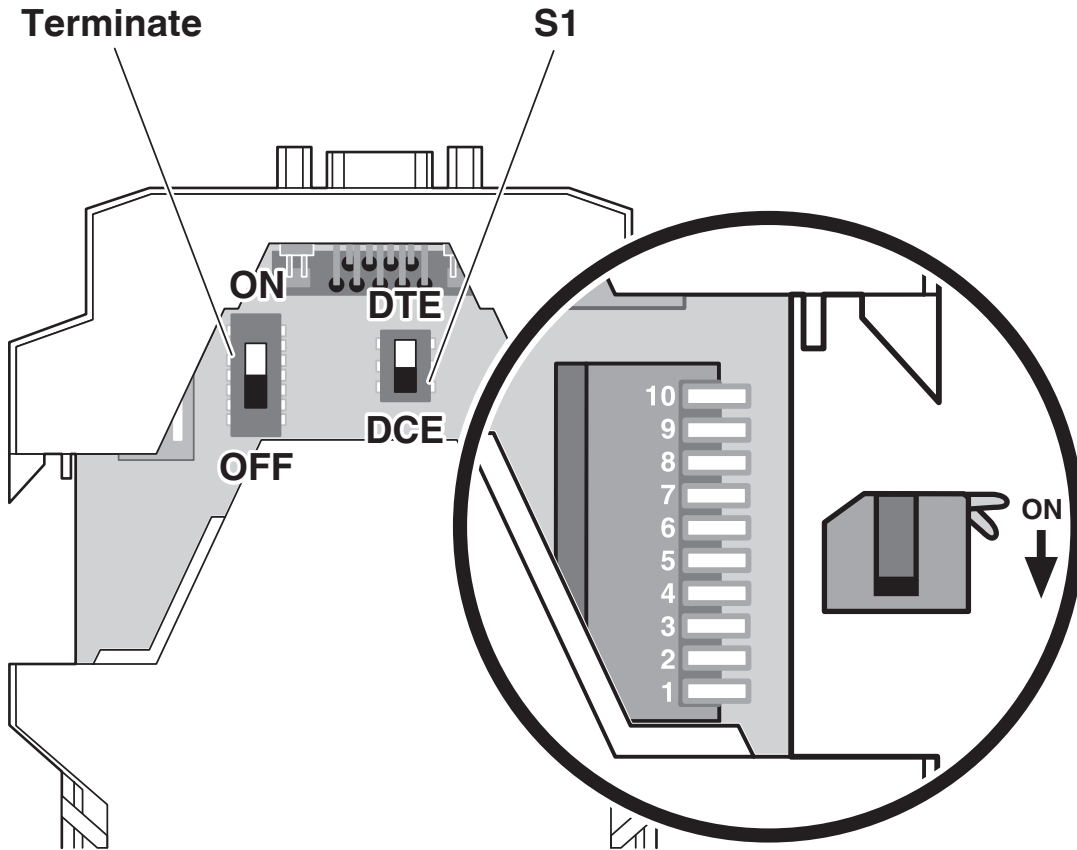
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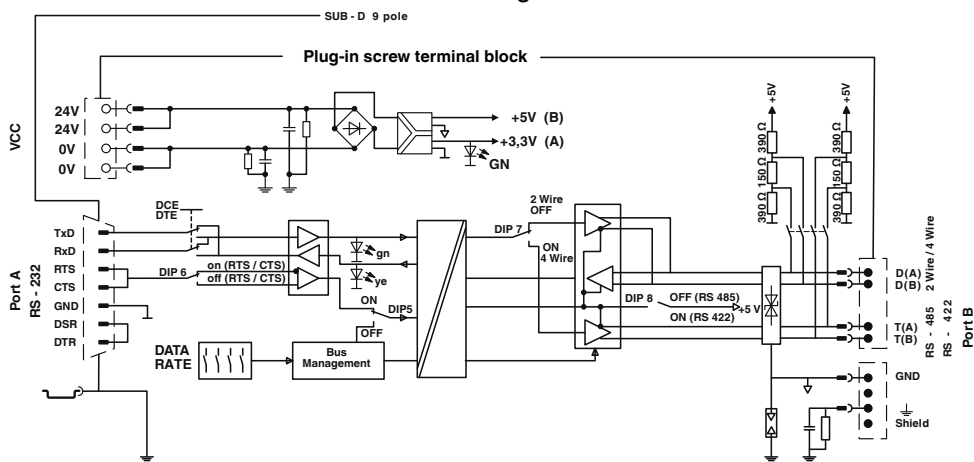
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Schematic diagram



DIP switches

Circuit diagram



Basic circuit diagram

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Approvals

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cUL Recognized
Approval ID: E238705



UL Recognized
Approval ID: E238705



DNV GL
Approval ID: TAA00001KR



KC
Approval ID: MSIP-REI-PCK-ME27444



cUL Recognized
Approval ID: E199827

	Nominal voltage U_N	Nominal current I_N	Cross section AWG	Cross section mm^2
keine				
	24 V	0.085 A	-	-



cUL Listed
Approval ID: E199827



UL Listed
Approval ID: E199827

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Classifications

ECLASS

ECLASS-13.0	27242208
ECLASS-15.0	27242208

UNSPSC

UNSPSC 21.0	32151700
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Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	6(c), 7(a), 7(c)-I

China RoHS

Environment friendly use period (EFUP)	EFUP-50
	An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.

EU REACH SVHC

REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
SCIP	0975dfe5-6e5e-4de1-b8e2-f94de5c2b5d6

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