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

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
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

Utilization restriction

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

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

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 mm² ... 2.5 mm²
Single-wire/terminal point, flexible	0.2 mm² ... 2.5 mm²
Conductor cross-section, flexible [AWG]	24 ... 12
Stripping length	7.00 mm

Tightening torque	0.56 Nm ... 0.79 Nm

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 mm² ... 2.5 mm²
Single-wire/terminal point, flexible	0.2 mm² ... 2.5 mm²
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

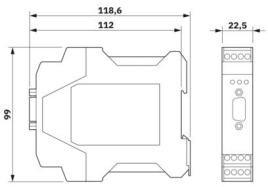
Serial transmission speed	1.2; 2.4; 4.8; 9.6; 19.2; 38.4; 57.6; 75; 93.75; 115.2 kbps
Connection method	Pluggable screw connection
Tightening torque	0.5 Nm ... 0.6 Nm (Shield clamp)
Transmission length	1200 m (shielded twisted pair)
Termination resistor	390 Ω
	150 Ω
	390 Ω (Can be connected)
Single-wire/terminal point, flexible	0.2 mm² ... 2.5 mm²
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 mm² ... 2.5 mm²
Max. AWG conductor cross-section, flexible	14
Min. AWG conductor cross-section, flexible	24
Data direction switching	Automatic control or via RTS/CTS

Protocols supported	transparent protocol

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	Operation: 5g, 10...150 Hz, 2.5 h, in XYZ direction
Shock in accordance with EN 60068-2-27/IEC 60068-2-27	Operation: 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

ATEX

Identification	Ⓔx 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

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

Corrosive gas test

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

Shipbuilding

Identification	DNV GL

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

Electrostatic discharge

Standards/regulations	EN 61000-4-2

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

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

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

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

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

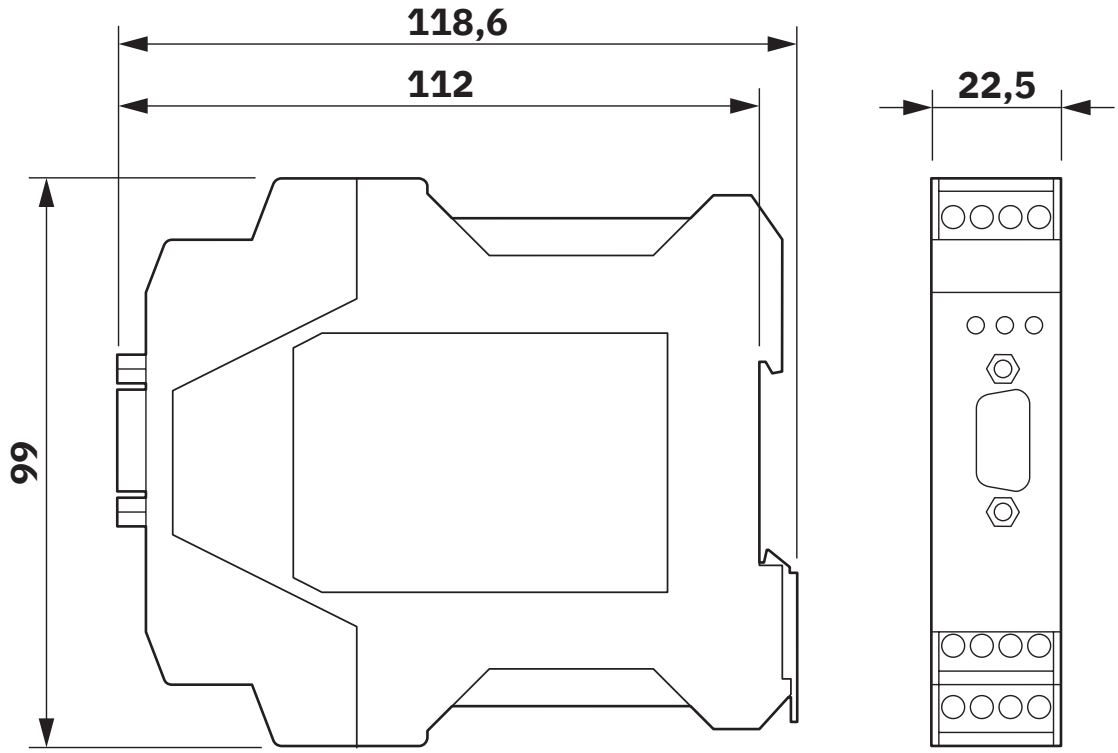
Criterion A	Normal operating behavior within the specified limits.
Criterion B	Temporary impairment to operational behavior that is corrected by the device itself.

Mounting

Mounting type	DIN rail mounting

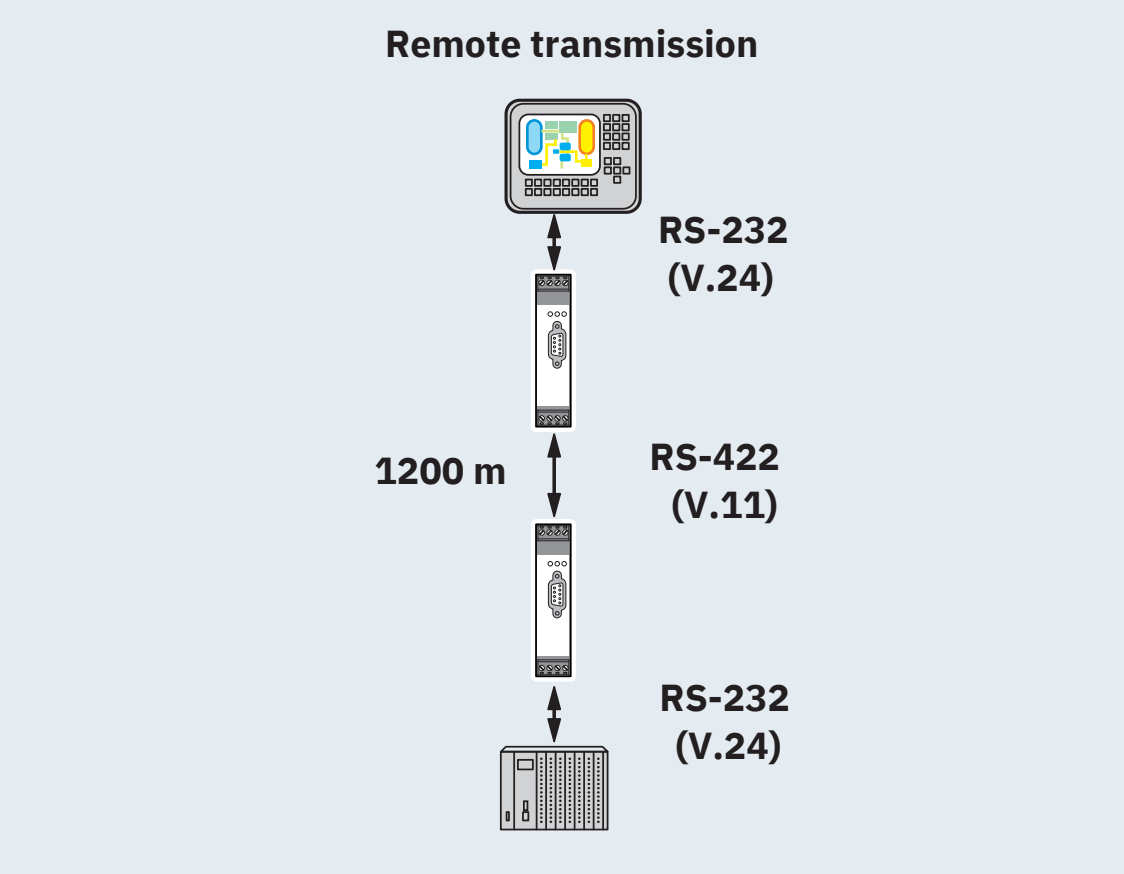
Drawings

Dimensional drawing



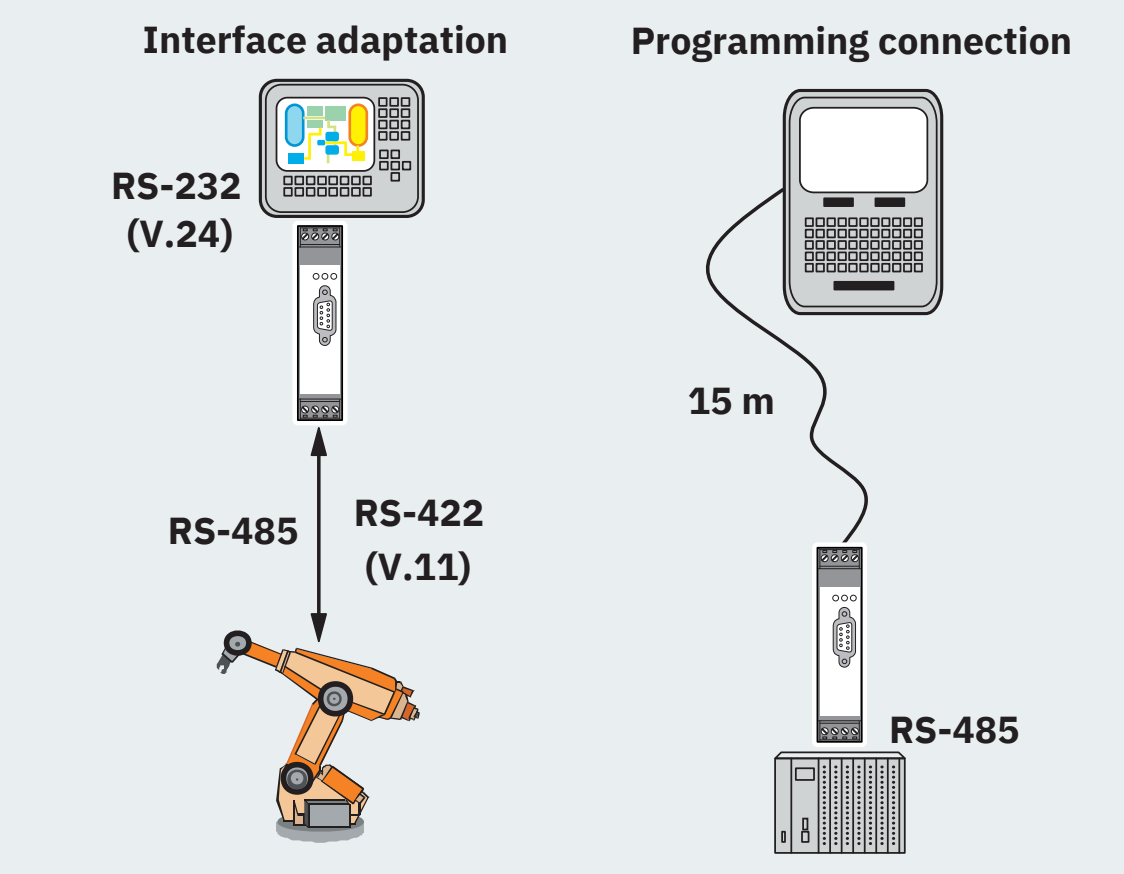
Slim design

Application drawing



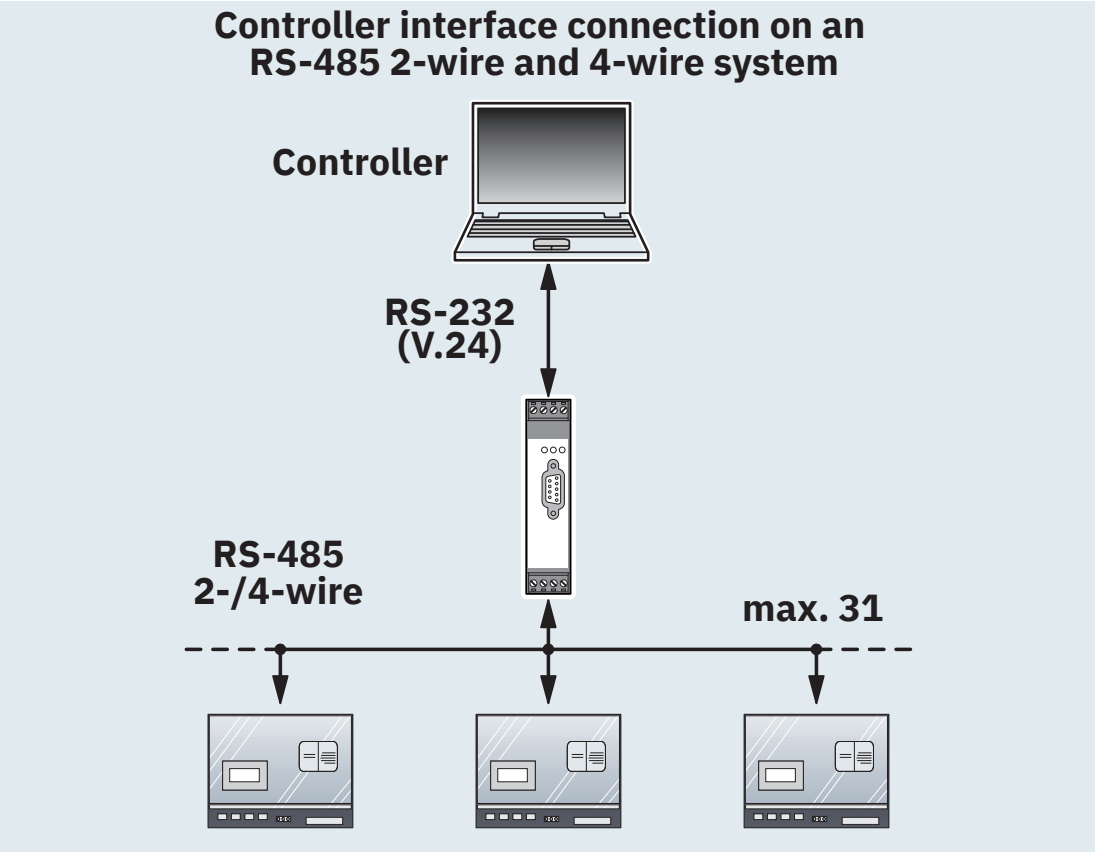
Remote transmission

Application drawing



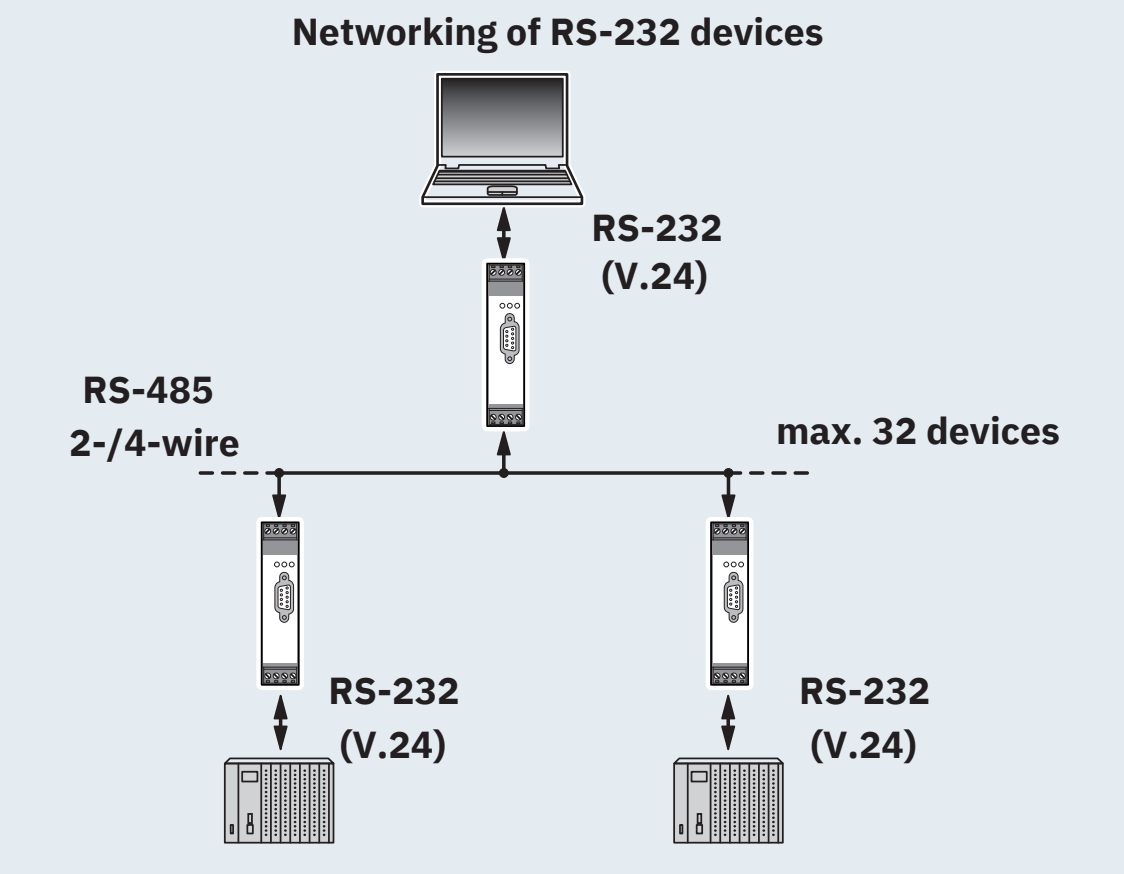
Interface adaptation or programming connection

Application drawing



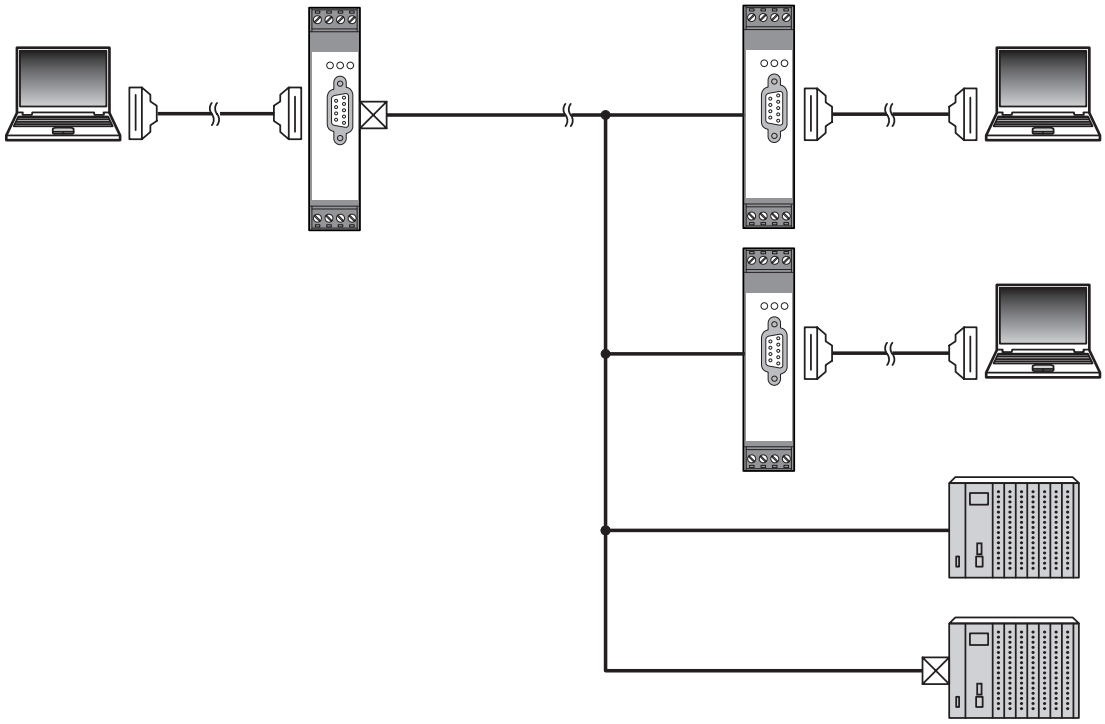
Controller interface

Application drawing



Networking of RS-232 devices

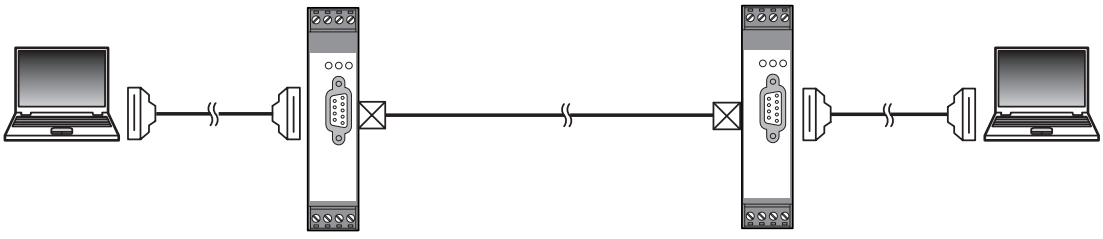
Application drawing



= Switch on bus terminating resistor

Activate termination resistors - RS-485

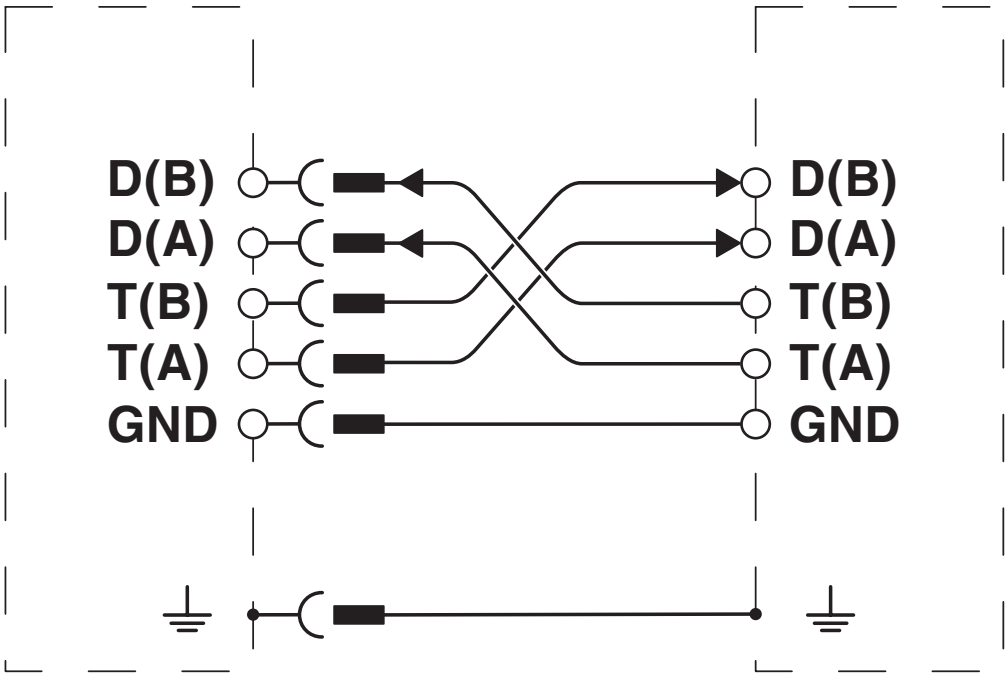
Application drawing



= Switch on bus terminating resistor

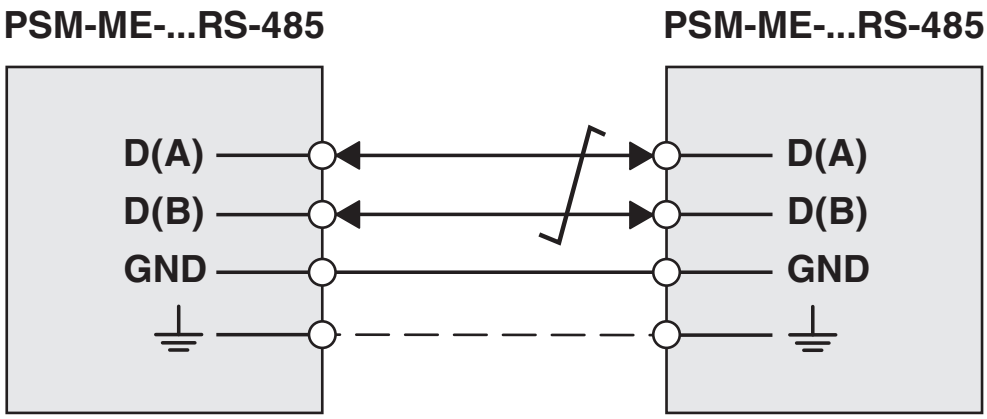
Activate termination resistors - RS-422

Connection diagram



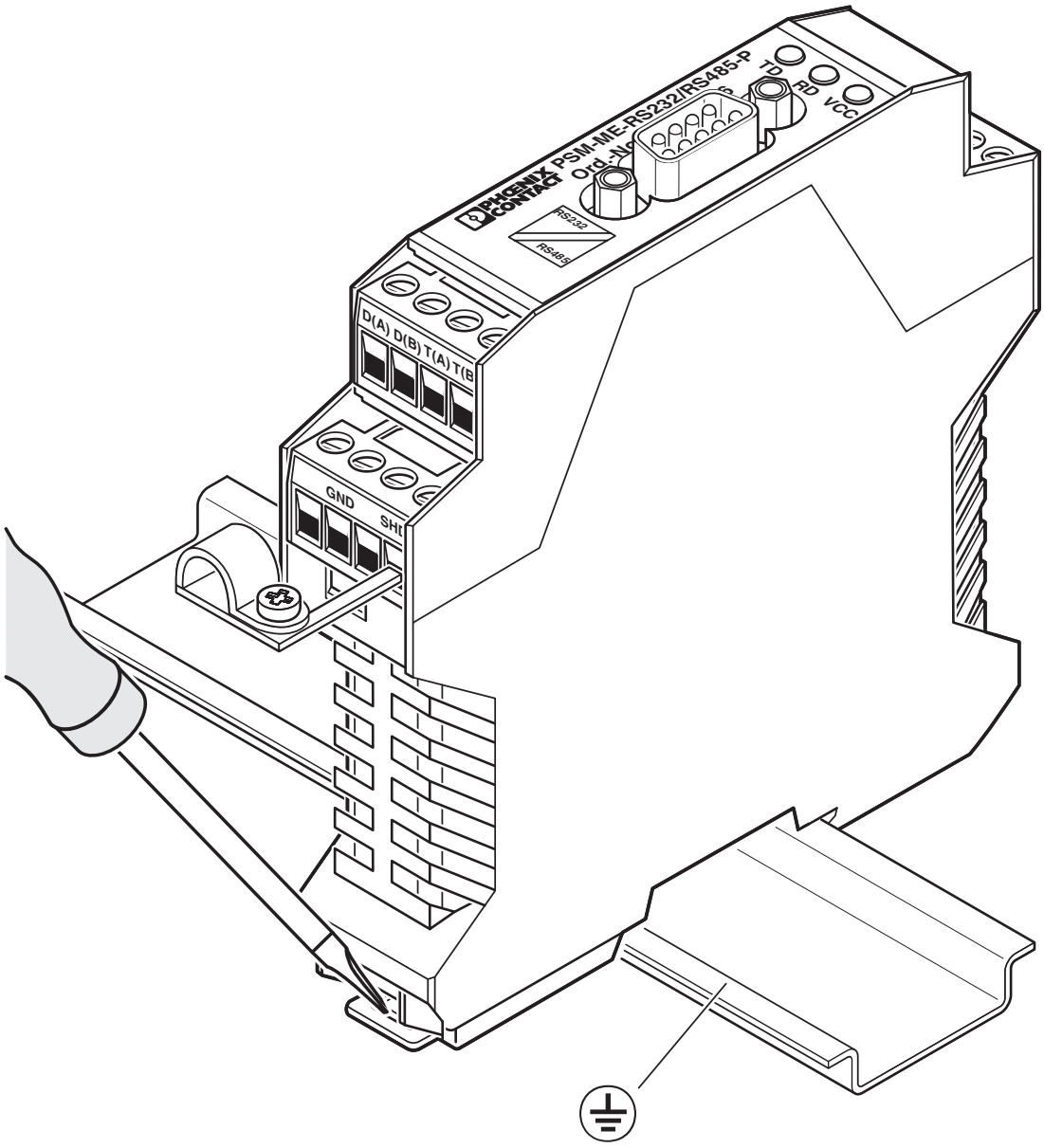
RS-422/RS-485 4-wire

Connection diagram



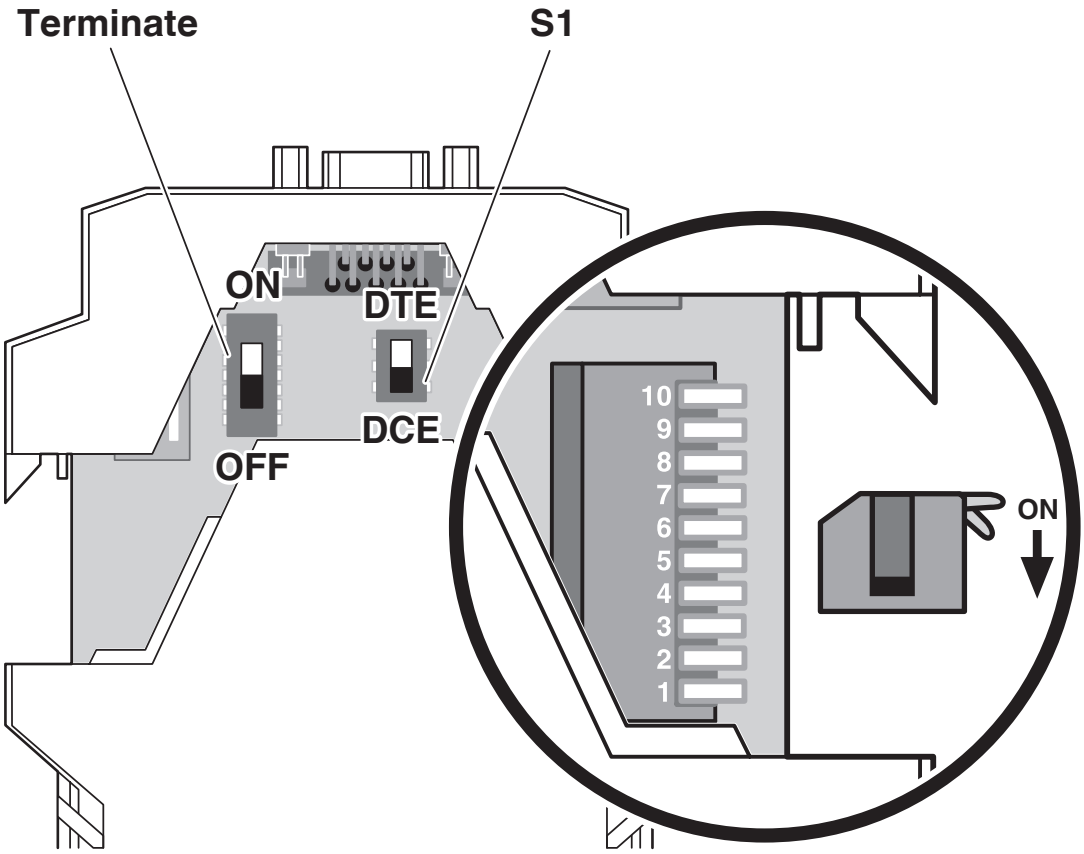
RS-485 interface

Schematic diagram



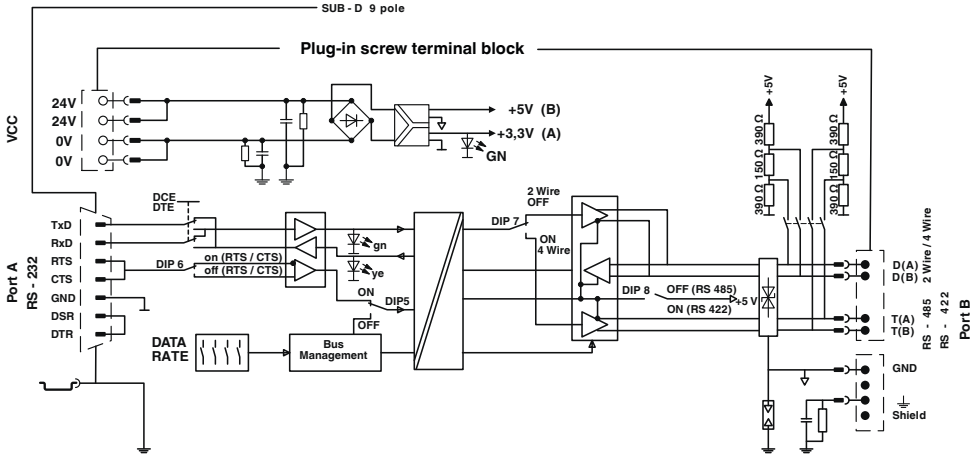
Removal

Schematic diagram



DIP switches

Circuit diagram



Basic circuit diagram

Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/2744416

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

Classifications

ECLASS

ECLASS-13.0	27242208
ECLASS-15.0	27242208

UNSPSC

UNSPSC 21.0	32151700

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

Phoenix Contact USA
586 Fulling Mill Road
Middletown, PA 17057, United States
(+717) 944-1300
info@phoenixcon.com