

# 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 and ABS

## Commercial Data

Item number	2744416
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	DN11
Product Key	DNC111
Catalog Page	Page 425 (C-6-2019)
GTIN	4017918171780
Weight per Piece (including packing)	206 g
Weight per Piece (excluding packing)	196.1 g
Customs tariff number	85176200
Country of origin	DE

## Technical Data

### Notes

#### Utilization restriction

EMC note	EMC: class A product, see manufacturer's declaration in the download area
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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
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	18 V AC/DC ... 30 V AC/DC (via pluggable COMBICON screw terminal block)
Nominal supply voltage	24 V AC/DC
Typical current consumption	85 mA (24 V DC)
Max. current consumption	100 mA

### Connection data

#### Supply

Conductor cross section, flexible	0.20 mm <sup>2</sup> ... 2.50 mm <sup>2</sup>
Conductor cross section, rigid	0.20 mm <sup>2</sup> ... 2.50 mm <sup>2</sup>
Conductor cross section, flexible [AWG]	24 ... 12
Tightening torque	0.56 Nm ... 0.79 Nm

### Interfaces

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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)
Conductor cross section flexible max.	2.5 mm <sup>2</sup>
Conductor cross section flexible min.	0.2 mm <sup>2</sup>
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
Transmission length	1200 m (shielded twisted pair)
Termination resistor	390 Ω 150 Ω 390 Ω (Can be connected)
Conductor cross section flexible max.	2.5 mm <sup>2</sup>
Conductor cross section flexible min.	0.2 mm <sup>2</sup>
Conductor cross section AWG max.	13
Conductor cross section AWG min.	24
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)
Conductor cross section flexible max.	2.5 mm <sup>2</sup>
Conductor cross section flexible min.	0.2 mm <sup>2</sup>
Conductor cross section AWG max.	14
Conductor cross section AWG min.	24
Data direction switching	Automatic control or via RTS/CTS
Protocols supported	transparent protocol

## Material specifications

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Material	PA 6.6-FR
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## 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)

## Approval data

### CE

Certificate	CE-compliant
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### EAC

Identification	EAC
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### ATEX

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

### IECEX

Identification	Ex nA IIC T4 Gc
Certificate	IECEX IBE 15.0034X

### UL, USA/Canada

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

### 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
	ABS

### DNV GL data

Temperature	B
Humidity	A

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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 emission	EN 61000-6-4
Noise immunity	EN 61000-6-2:2005

### Electrostatic discharge

Standards/regulations	EN 61000-4-2
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### Electrostatic discharge

Contact discharge	$\pm 6$ kV (Test Level 3)
Discharge in air	$\pm 8$ 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	$\pm 2.2$ kV (Test Level 3)
Signal	$\pm 2.2$ 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	$\pm 0.5$ kV (DC supply)
Signal	$\pm 1$ 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

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## Emitted interference

Standards/regulations	EN 55011
Comments	Class A, industrial applications

## Criteria

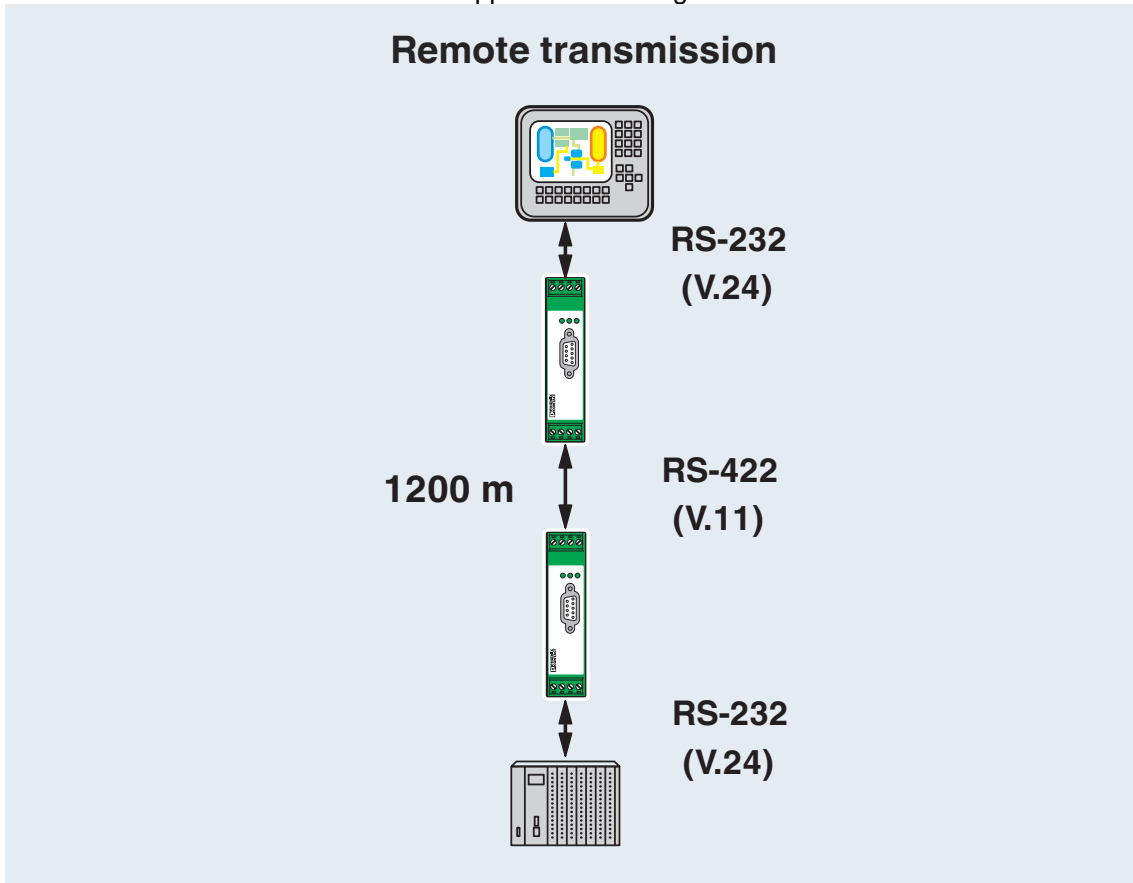
Criterion A	Normal operating behavior within the specified limits.
Criterion B	Temporary impairment to operational behavior that is corrected by the device itself.

## Mounting

Mounting type	DIN rail mounting
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## Drawings

Application drawing



Remote transmission

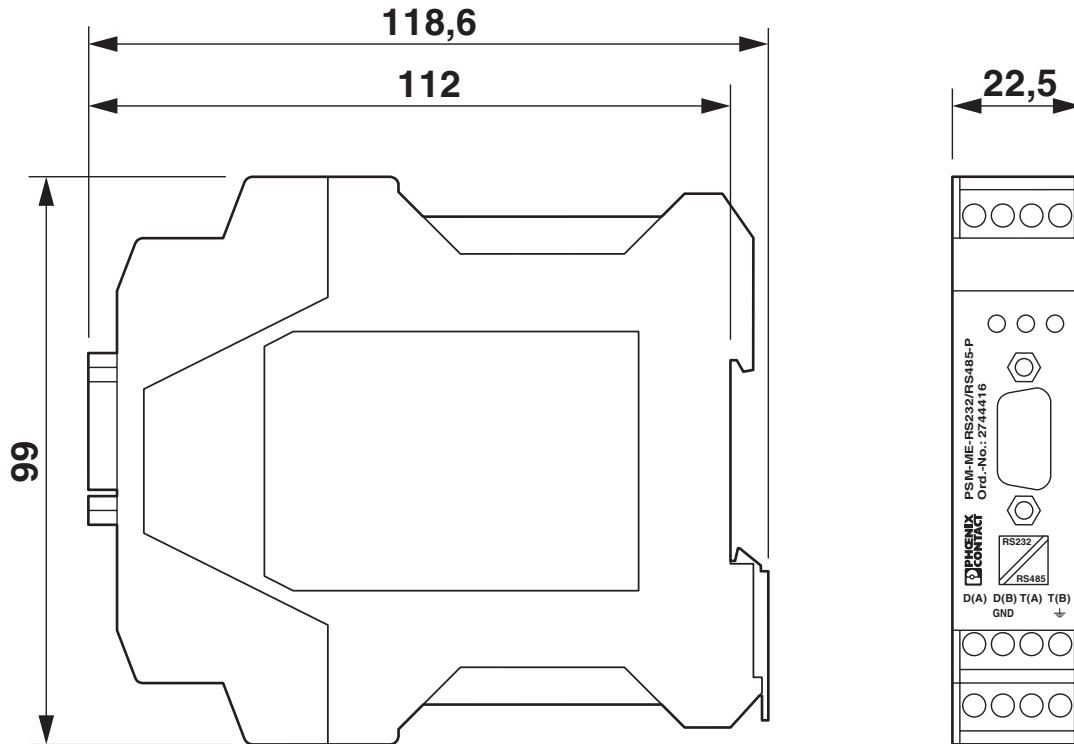
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Dimensional drawing



Slim design



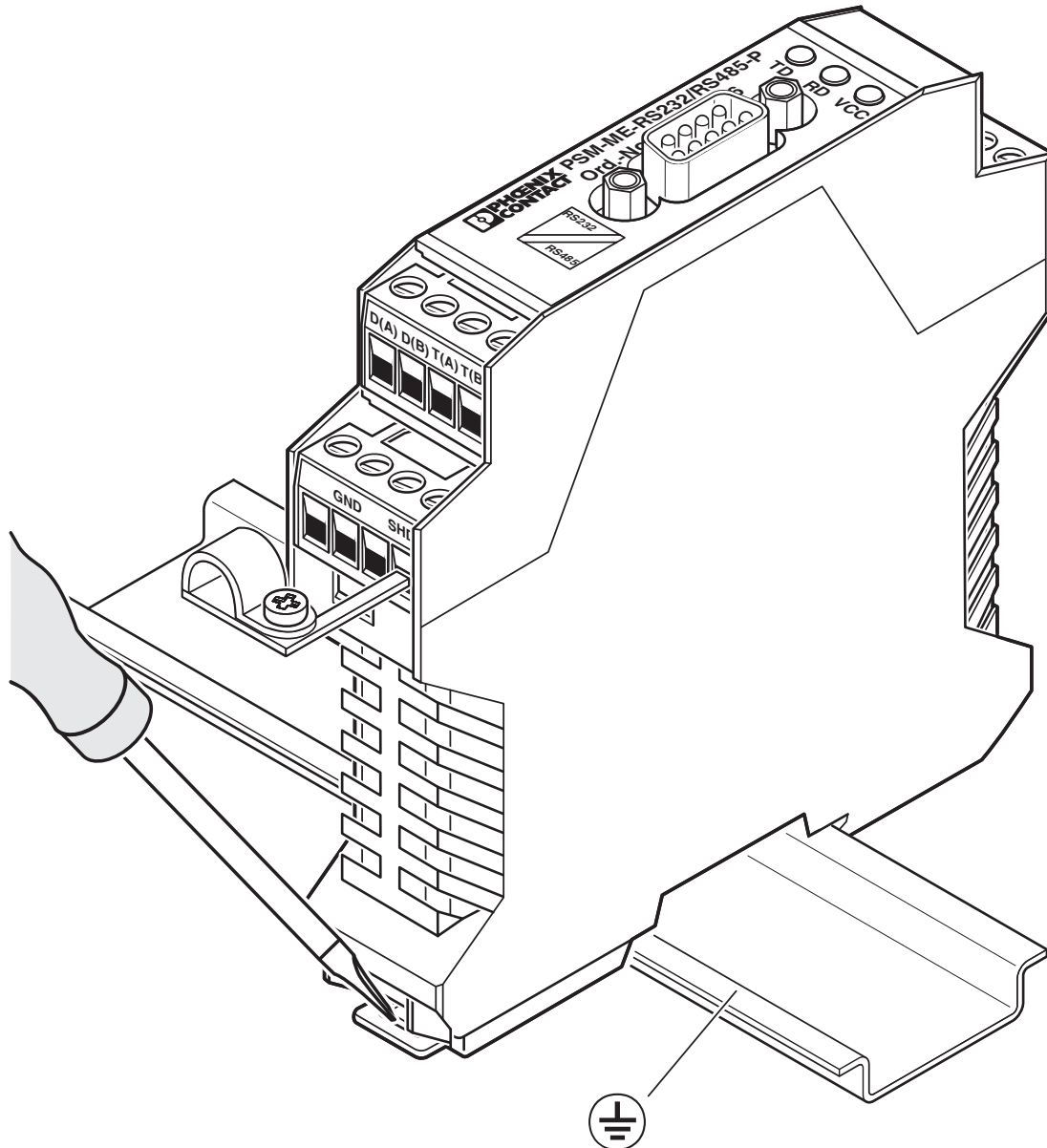
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Schematic diagram



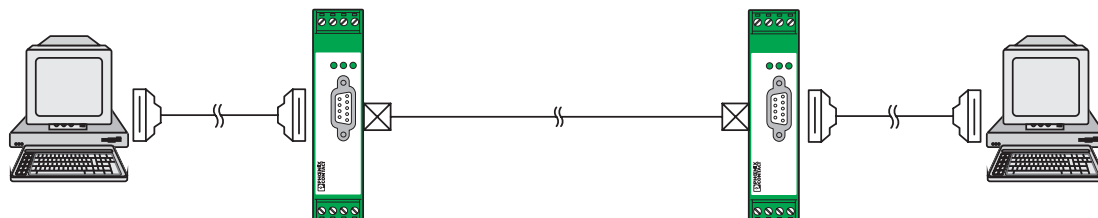
Removal

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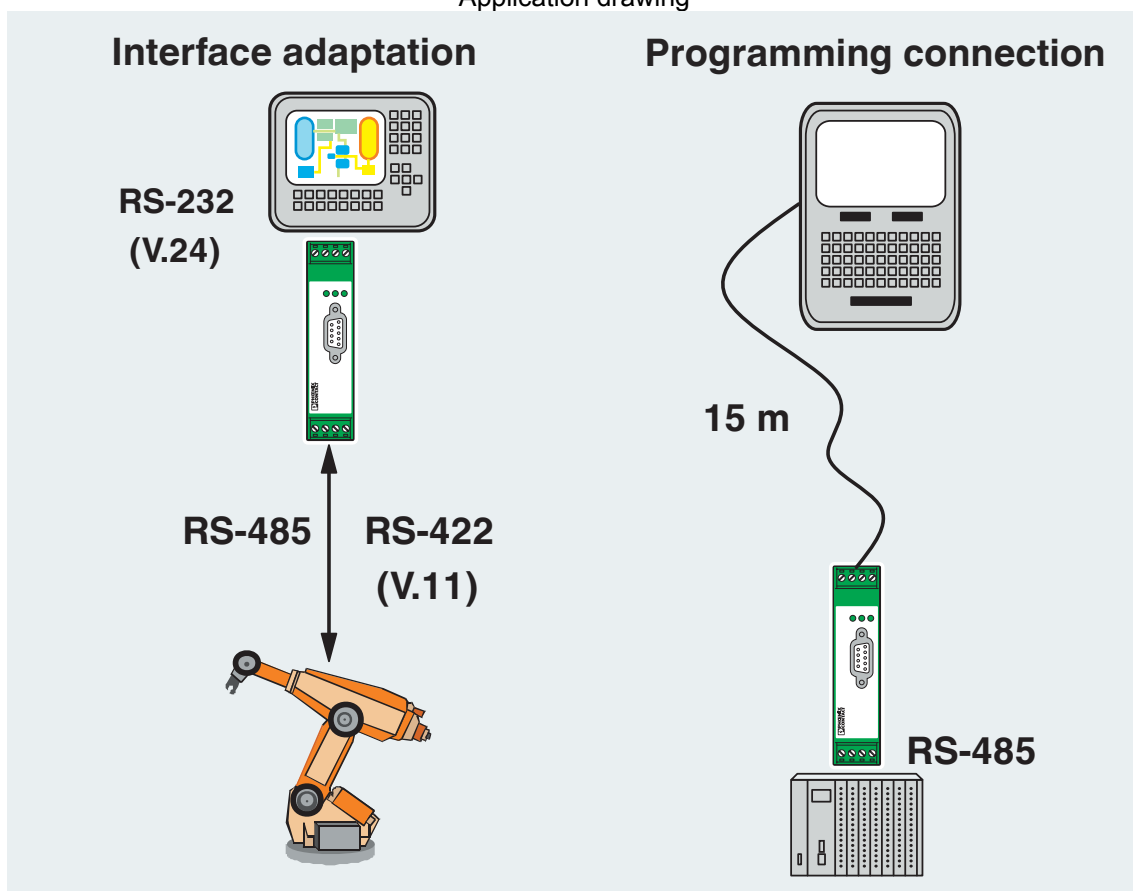
Application drawing



 = Switch on bus terminating resistor

Activate termination resistors - RS-422

Application drawing



Interface adaptation or programming connection

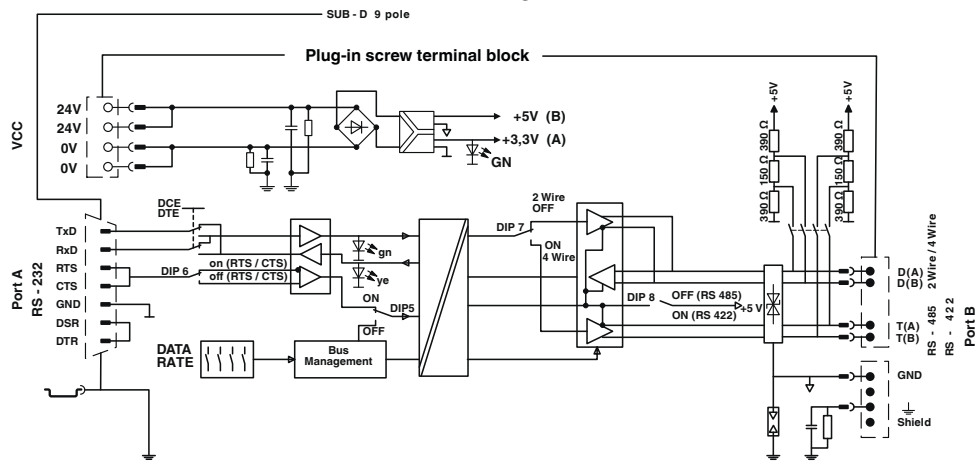
# PSM-ME-RS232/RS485-P - Interface converter



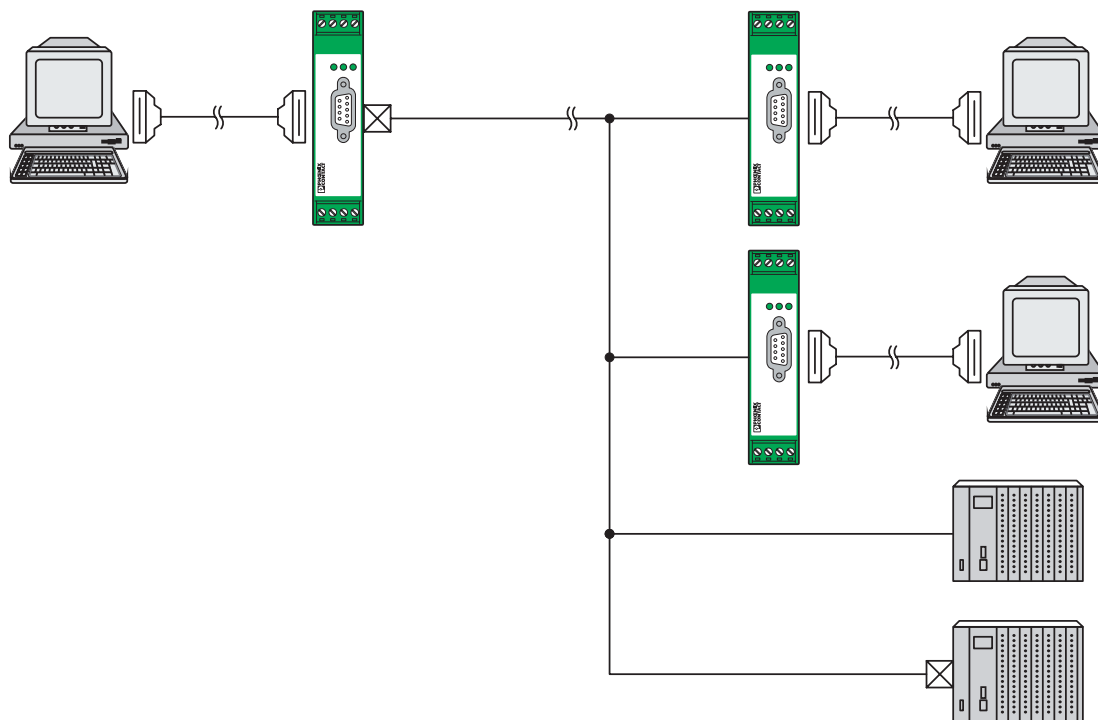
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Circuit diagram



Application drawing



 = Switch on bus terminating resistor

Activate termination resistors - RS-485

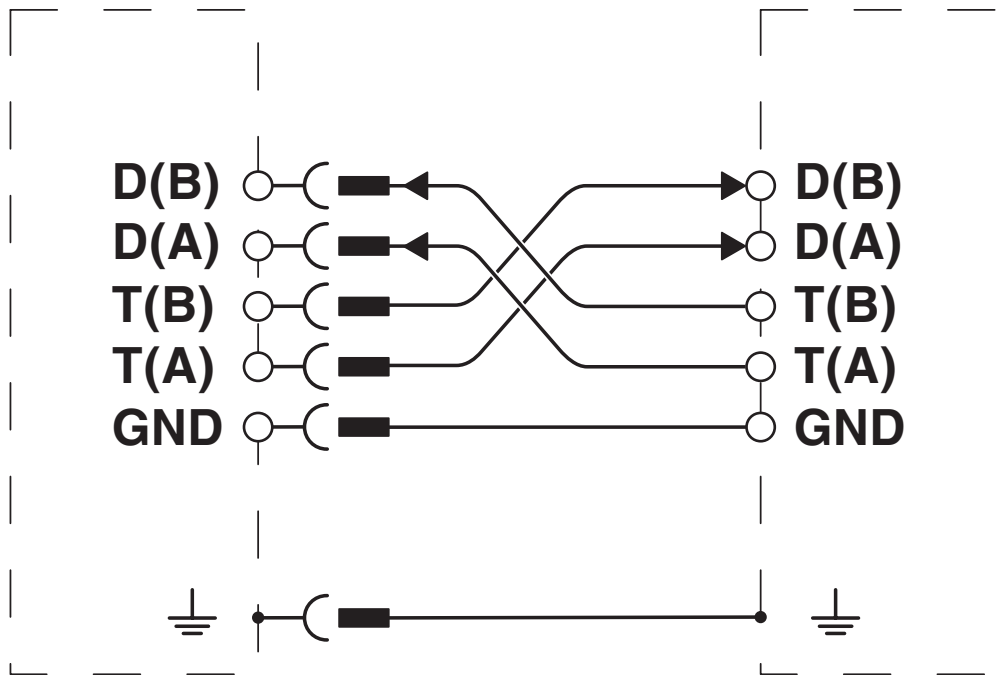
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Connection diagram



RS-422/RS-485 4-wire

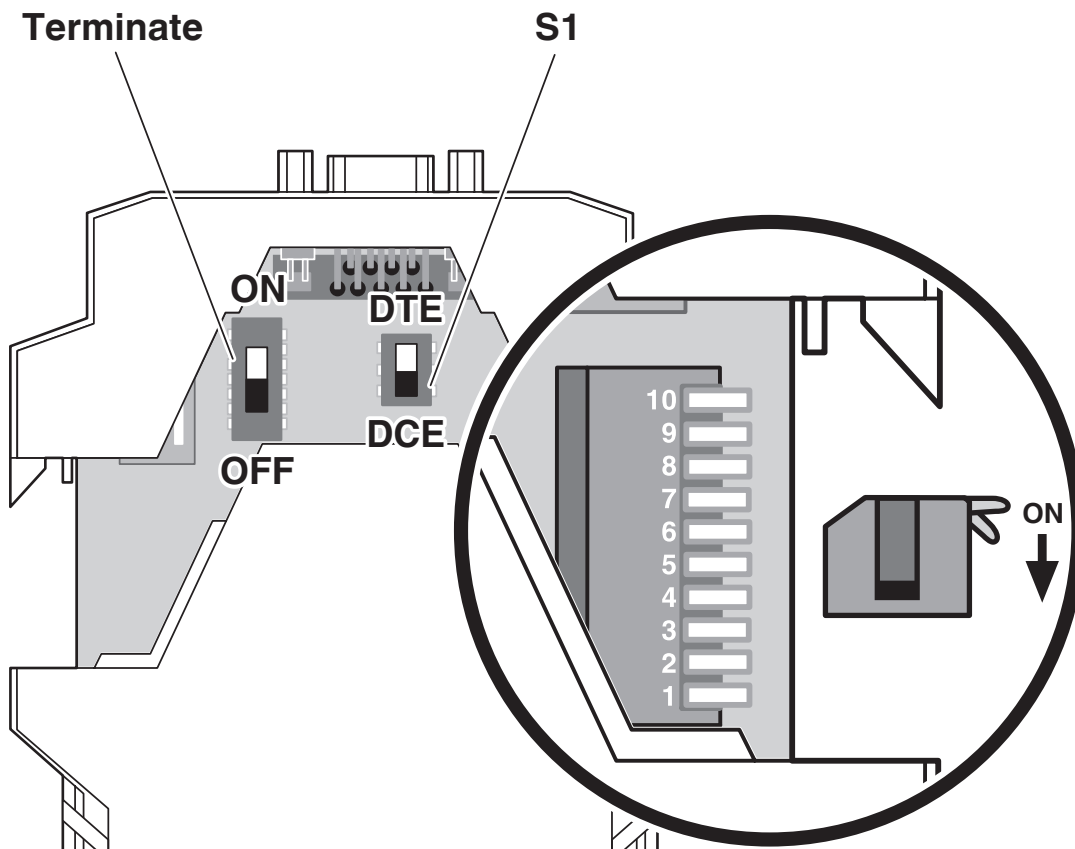
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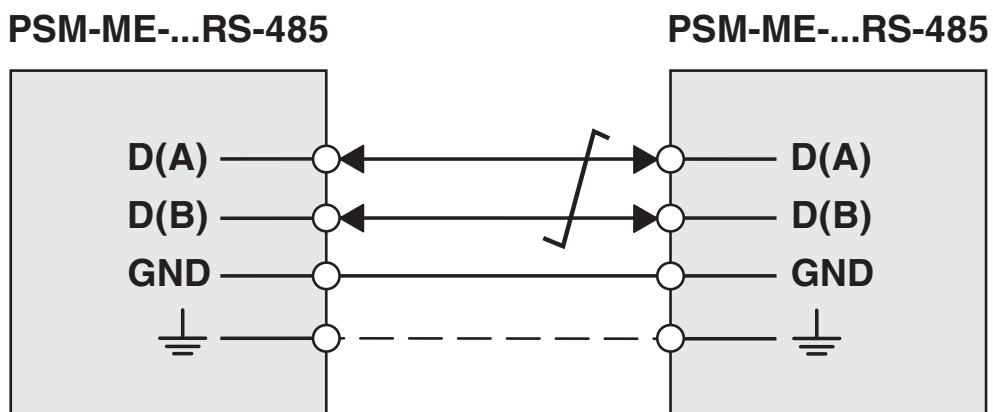
<https://www.phoenixcontact.com/us/products/2744416>

Schematic diagram



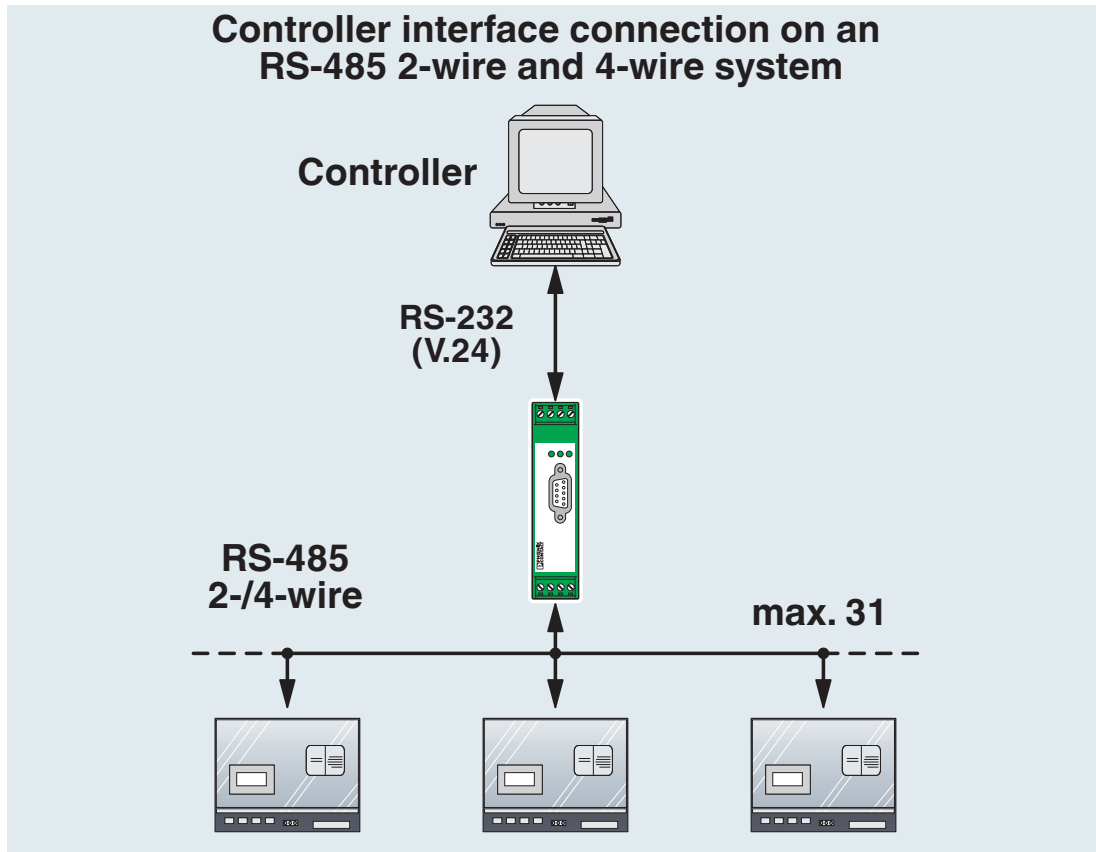
DIP switches

Connection diagram



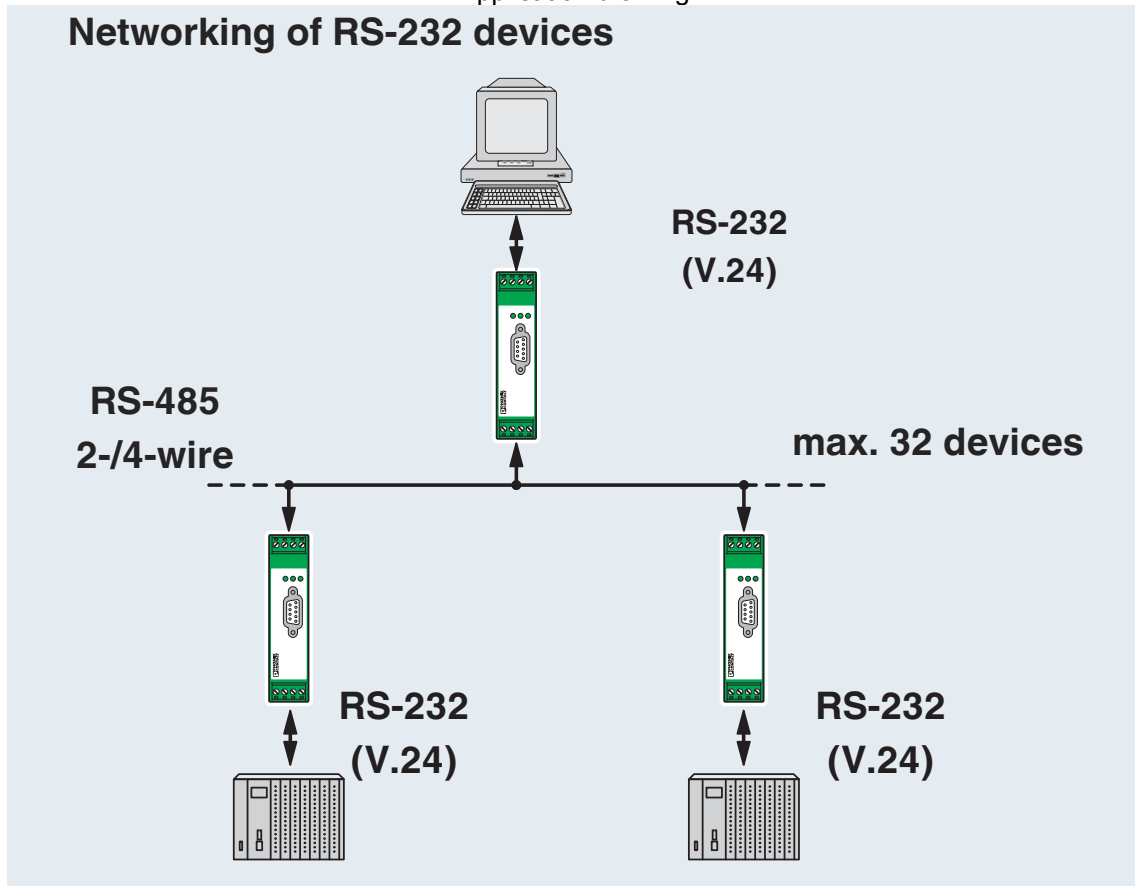
RS-485 interface

## Application drawing



Controller interface

Application drawing



Networking of RS-232 devices

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## Approvals



**cUL Recognized**  
Approval ID: FILE E 238705



**UL Recognized**  
Approval ID: FILE E 238705



**DNV GL**  
Approval ID: TAA00001KR



**KC**  
Approval ID: MSIP-REI-PCK-ME27444



**EAC**  
Approval ID: TR TS\_D\_01871-19



**cUL Recognized**  
Approval ID: FILE E 199827



**IECEX**  
Approval ID: IECEX IBE 15.0034 X



**cUL Listed**  
Approval ID: FILE E 199827



**UL Listed**  
Approval ID: FILE E 199827



**ATEX**  
Approval ID: IBExU 16 ATEX B004 X



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## Classifications

### ECLASS

ECLASS-9.0	19179290
ECLASS-10.0.1	27242208
ECLASS-11.0	27242208

### ETIM

ETIM 8.0	EC001423
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### UNSPSC

UNSPSC 21.0	32151700
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## Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads"

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## Accessories

### PSM-KA9SUB9/BB/2METER - Data cable

2799474

<https://www.phoenixcontact.com/us/products/2799474>

RS-232 cable, 9-pos. D-SUB socket on 9-pos. D-SUB socket, 9-wire, 1:1



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### ME-SAS - Shield connection clamp

2853899

<https://www.phoenixcontact.com/us/products/2853899>

Shield connection clamp for terminal points starting from 2.5 mm<sup>2</sup>



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## SZF 1-0,6X3,5 - Screwdriver

1204517

<https://www.phoenixcontact.com/us/products/1204517>



Actuation tool, for ST terminal blocks, also suitable for use as a bladed screwdriver, size: 0.6 x 3.5 x 100 mm, 2-component grip, with non-slip grip

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## PSI-TERMINATOR-PB-TBUS - Termination resistor

2702636

<https://www.phoenixcontact.com/us/products/2702636>



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

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## SUBCON 9/F-SH - D-SUB bus connector

2761499

<https://www.phoenixcontact.com/us/products/2761499>



D-SUB plug, 9-pos. female connector, one 35° cable entry, universal type for all systems, pin assignment: 1, 2, 3, 4, 5, 6, 7, 8, 9 to screw connection terminal block

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