RS 204-5184

Phoenix-Contact
PSM-EG-RS 232/RS 422-P/4K

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Phoenix Schnittstellen-Modem PSM

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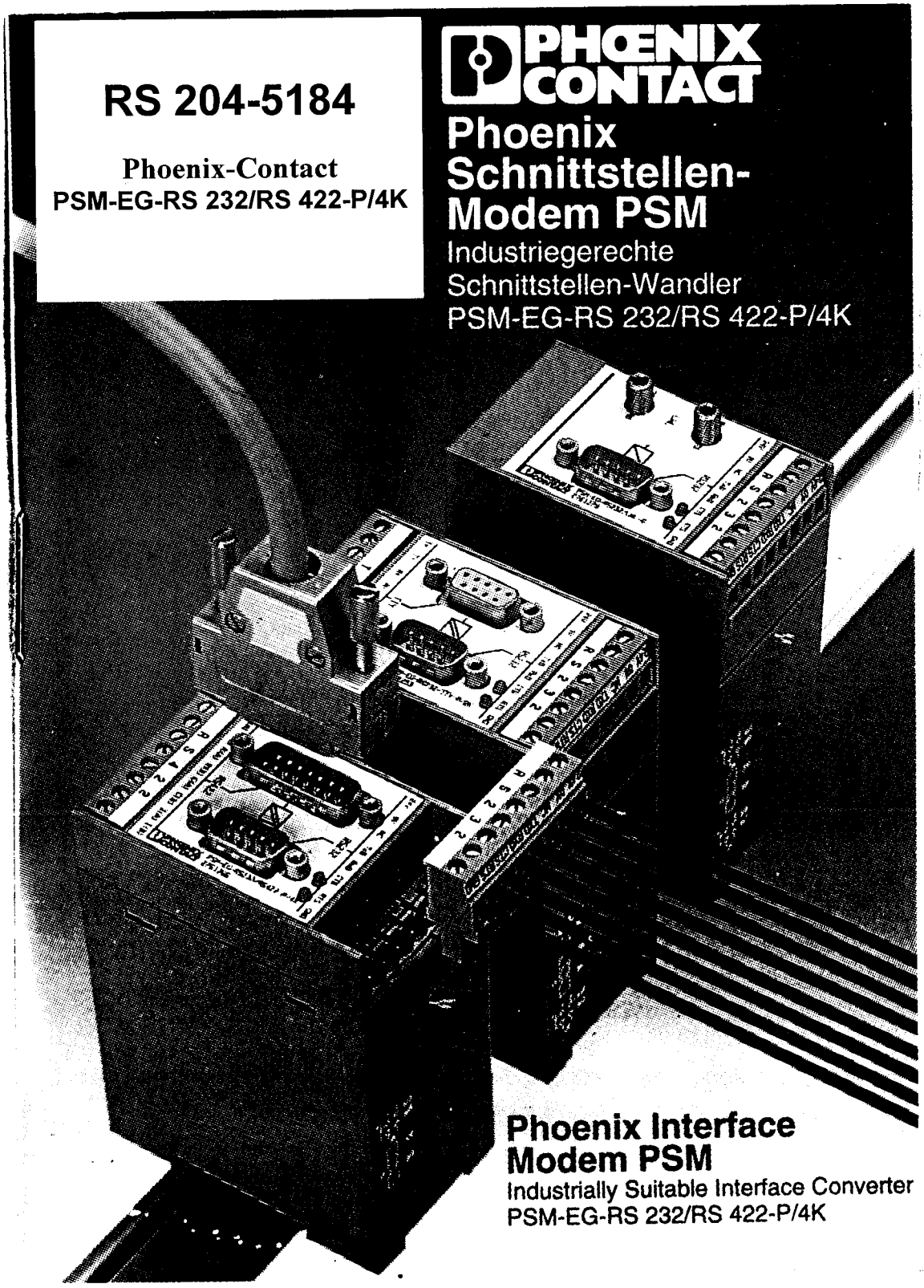
PSM-EG-RS 232/RS 422-P/4K



Phoenix Interface Modem PSM

Industrially Suitable Interface Converter
PSM-EG-RS 232/RS 422-P/4K

Phoenix Interface Modem PSM
PSM-EG-RS 232/RS 422-P/4K

Product Range:

Interface format converter PSM-EG-RS 232/RS 422-P/4K
(Order No. 2761266)
with two ground connection sets, including:
15 cm connection cable,
fan-type lock washer,
UNC fixing screw.

Table of Contents **Page**

The content of this brochure refers to standards valid at the time of development!

Please refer to the Phoenix brochure No. 84 for information on further PSM modules.

1. Application Field

1.1. Interface Matching (Fig. 1a)

The interface format converter allows the communication between devices with either RS-232-C or RS-422 interfaces over a transmission distance of max. 1000 m.

1.2. Transmission over Long Distances (Fig. 1b)

Data transmission for devices with RS-232-C interface is usually limited to a cable length of 15 m. Longer distances between these devices can be securely bridged in applying two PSM modules.

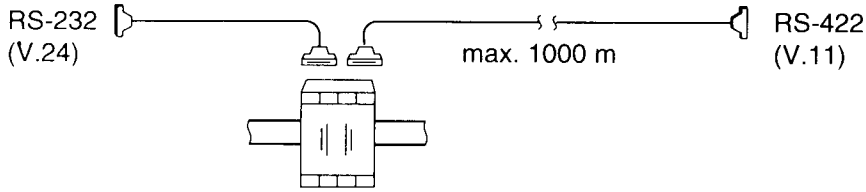


Fig.1a)

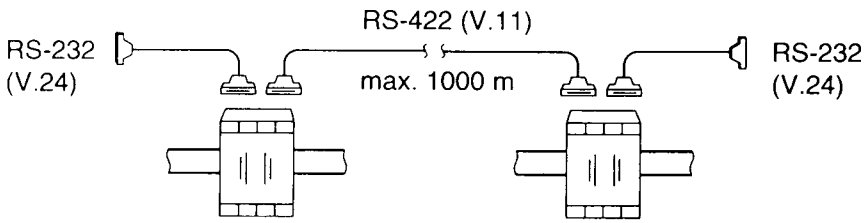


Fig.1b)

2. Secure Isolation

These PSM module offers securely isolated data interfaces in accordance with DIN VDE 0106, part 101 (IEC 536).

The use of a power supply that corresponds to the previously mentioned standard ensures that also the RS-232-C interface and the mains voltage are securely isolated from each other.

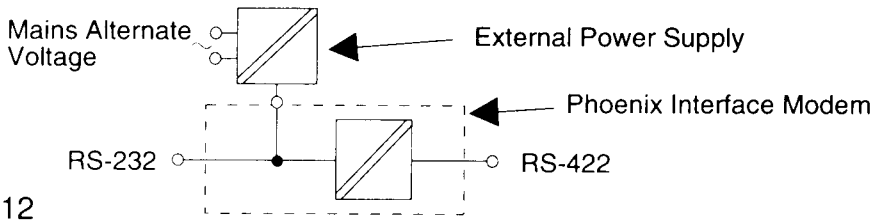


Fig.2

3. Connection Options

The RS-232-C interface is connected either through a 9-position D-SUB (pin) connector or an 8-position COMBICON connector.

The RS-422 interface is connected either through a 15-position D-SUB (pin) connector or an 8-position COMBICON connector.

Caution:
It is not allowed to plug two devices in parallel into one interface!

Failure to observe this can cause a damage of the PSM module!

The COMBICON connector supplies the module with a voltage of **24 V DC**.

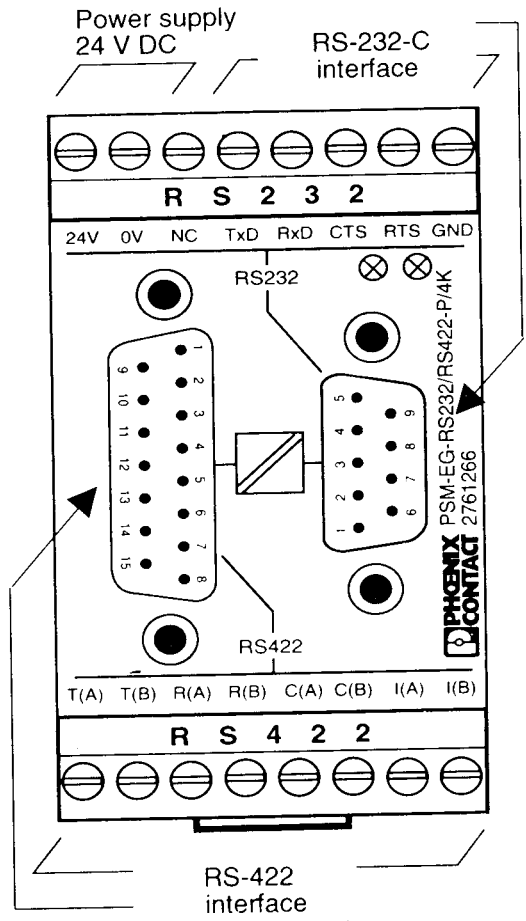


Fig.3

A separate screw-clamp terminal is provided for wiring the ground PE to the module. The terminal is installed on the bottom housing side, and is designed for conductor cross sections up to max. 2.5 mm^2.

Caution: In each case of application the **ground connection must be applied** in the switch cabinet in order to ensure shielding and transient absorption (see installation instruction on page 18, Fig.9)!

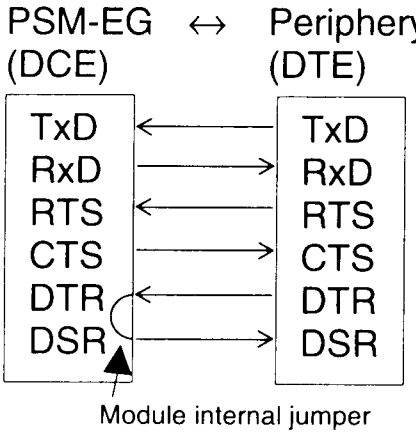
4. The RS-232-C Interface

4.1. Pin Assignment of the RS-232-C Interface

The pins of the D-SUB connector are assigned in accordance with DIN 66 259, part 1.

D-SUB 9position (pin)	COMBI-CON (LH)	Designation		Transfer direction acc. to 4.2.
—	pin 1	24 V	supply voltage	—
—	pin 2	0 V	supply voltage	—
—	pin 3	NC	not occupied	—
pin 3	pin 4	TxD	transmit data	input
pin 2	pin 5	RxD	receive data	output
pin 8	pin 6	CTS	clear to send	output
pin 7	pin 7	RTS	request to send	input
pin 5	pin 8	GND	system ground	—
pin 4	—	DTR	data terminal ready	input
pin 6	—	DSR	data set ready	output
shield	—	PE	connection	—

4.2. Transfer Direction with the Switch Position 'S1 to DTE' (see page 17 - Configuration options):



Note: The PSM module and the peripheral unit to be connected are to be wired **in linear** according to the schematic on the left - independent of the transfer direction.

4.3. Data Indicator

LED indicator for transmitting (green) and receiving (yellow) statuses of the RS-232-C interface.

5. The RS-422 Interface

5.1. Pin Assignment of the RS-422 Interface

The pins of the D-SUB connector are assigned in accordance with DIN 66 348 part 1, DTE.

D-SUB 15position (pin)	COMBI-CON (RH)		Designation
pin 12	pin 1	I (B)	signalling data -
pin 5	pin 2	I (A)	(ready to transmit)
pin 10	pin 3	C (B)	control data -
pin 3	pin 4	C (A)	(turn on transmit unit)
pin 11	pin 5	R (B)	receive data
pin 4	pin 6	R (A)	receive data
pin 9	pin 7	T (B)	transmit data
pin 2	pin 8	T (A)	transmit data
pin 8	—	GND	system ground
shield	—	PE	connection

5.2. Interface Coupler

The coupling of two RS-422 interfaces is effected in linking the terminations according to the following schematic:

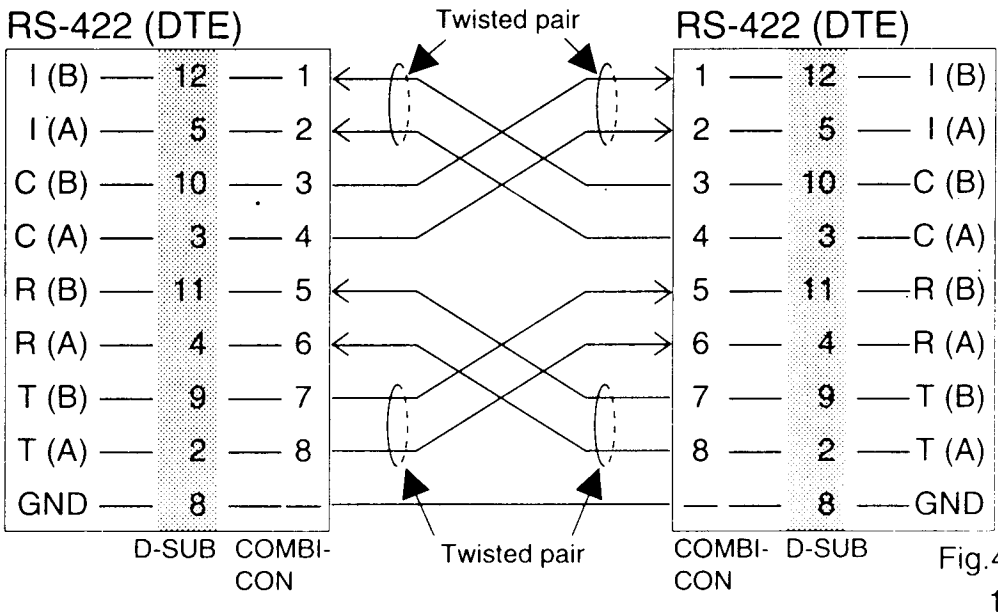


Fig.4

6. Shielding the Data Line

If a shielded cable is used, it is recommended in accordance with DIN 66 348, part 1, to connect the shield to one side of the data line only. Nevertheless, application-dependent deviations are possible.

6.1. D-SUB Connectors

When applying the metallic D-SUB connectors cable shield is made via the D-SUB sockets, which are fixed tightly to the module with the screw-clamp terminal,
and thus are connected to the PE.

6.2. COMBICON Connectors

When using the COMBICON connectors the enclosed ground connection set help shield the data cable of the PSM module through the screw thread of the D-SUB socket.

The shield of the data line is electrically interfaced with the connection cable. The cable end with the fan-type lock washer is fixed to the housing frame of the D-SUB connector of the interface by using the fixing screw.

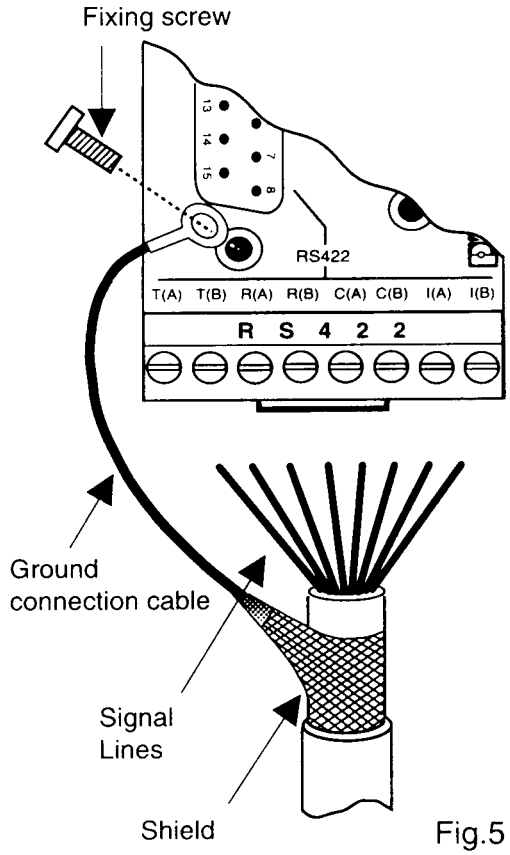


Fig.5

7. Configuration Options of the RS-232-C Interface

7.1. DTE/DCE Change-over

When interfacing a data terminal equipment (DTE):
Switch S1 to position DTE (see Fig.6).

When interfacing a data circuit-terminating equipment (DCE):
Switch S1 to position DCE.

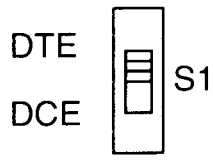


Fig.6

7.2. DSR/DTR Assignment

The DTR control line and the DSR signal line are preset via jumper field X6.

Upon delivery the pair of pins 2 and 4 are jumpered. Thereby, the DSR signal state always succeeds that of the DTR state (Fig.7).

Jumpers help apply a positive potential to the single lines, i.e. they are set to the position ON.

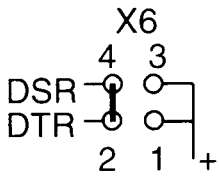


Fig.7

7.3. Changing the Presetting

Switch S1 and the jumper field X6 are located at the marked positions on the housing top, which become visible in removing the cover (Fig.8).

For this a screwdriver is located at the marked position to remove the cover towards the top.

Now the setting of switch S1 or the jumper field X6 can be modified without any aids.

Finally, the cover is hooked with its rear edge into the housing and is closed again by pressing the cover down.

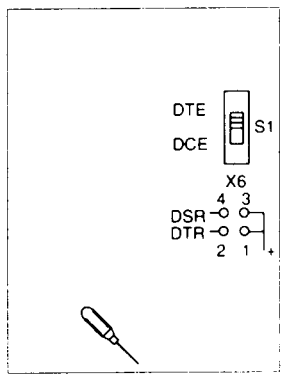


Fig.8

8. Installation into the Switch Cabinet

In accordance with DIN EN 50 022 the module is configured to snap on 35 mm mounting rails installed in the switch cabinet. The module is engaged to the top mounting rail and is locked in position on the bottom rail.

For module removal the red spring catch is pulled back with the help of a screwdriver to then remove it towards the top.

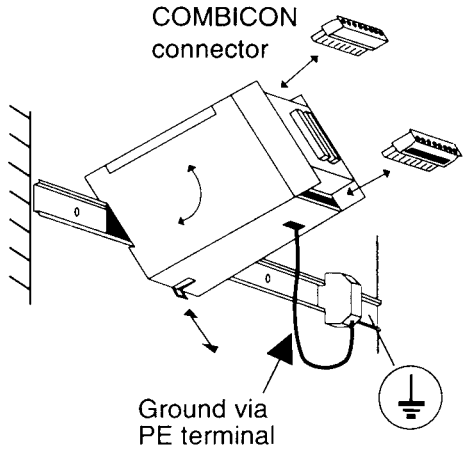


Fig.9

CAUTION: Never forget to apply the ground into the switch cabinet via the PE screw-clamp terminal!

9. Schematic Circuit Diagram

of the PSM-EG-RS 232/RS 422-P/4K

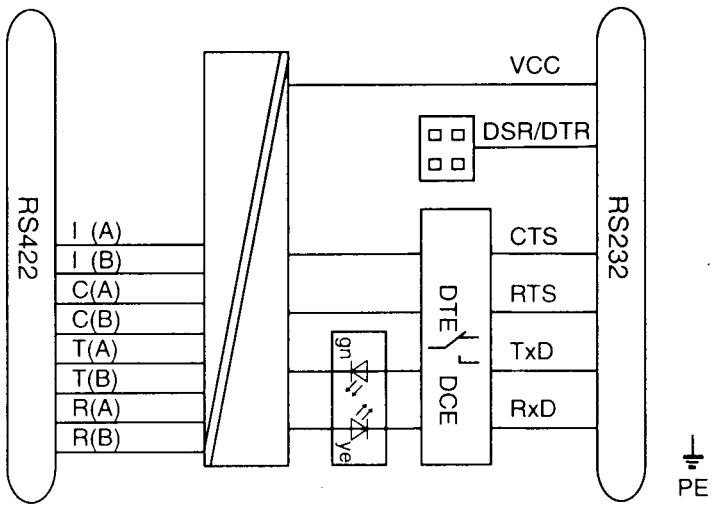


Fig.10

10. Technical Data

Supply voltage	24 V DC ± 10 %
Nominal current consumption	approx. 110 mA
RS-232-C interface	acc. to DIN 66259, part 1:
-configuration option	DTE/DCE - change over DSR/DTR - jumper
-data indicator	LED green, transmit data, dyn. LED yellow, receive data, dyn.
RS-422 interface	acc. to DIN 66348, part 1, DTE:
-termination resistor	receiving side, 150 Ω
Transmission length	1000 m, twisted pair
Transmission ports (I/O)	4 (2/2), RxD, TxD, RTS, CTS
Transmission rate	19.2 kBd (NRZ) 1)
Bit distortion	≤ 5 %
Bit delay	≤ 3 µs

General Data

Range of ambient temperature	0° C to 50° C
Regulations:	
Secure isolation:	acc. to VDE 0106 part 101 RS-232-C / RS-422, supply / RS-422
-Test voltage	2.5 kVeff, 50 Hz, 1 min.
-Insulation voltage	250 Veff
Electromagnetic compatibility:	
-Protection circuit	Polarity protection diodes, TAZ diodes, gas filled surge, D-SUB connector grounded (shield)
-Electrostatic discharge ESD	IEC 801-2 / severity 3
-Electromagnetic interference EMI	IEC 801-3 / severity 3
-Fast Transient Test (Burst)	IEC 801-4 / severity 4
Noise suppression	VDE 0871 cl.B
Housing: – dimensions (H/W/D)	(78 x 45 x 109) mm
– material	ABS, green

1) **No Return to Zero Code**

We reserve all rights for any technical modifications!