MANUAL

Professional Line | PROTECTION TECHNOLOGY MADE SIMPLE

XRS1 | INTERFACE ADAPTER

INTERFACE ADAPTER

Original document

English

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1. Applications and features

For communication between relays and master system the interface adapter XRS1 is available for data trans-mission, inclusive the relevant software. This laterally at the relay arranged adapter can easily be retrofitted and be installed without problems. Galvanic isolation from the relay is realized by means of optical transmission and so the latest measuring values can be read-out, relay parameters set and protection functions for the output relays configurated.

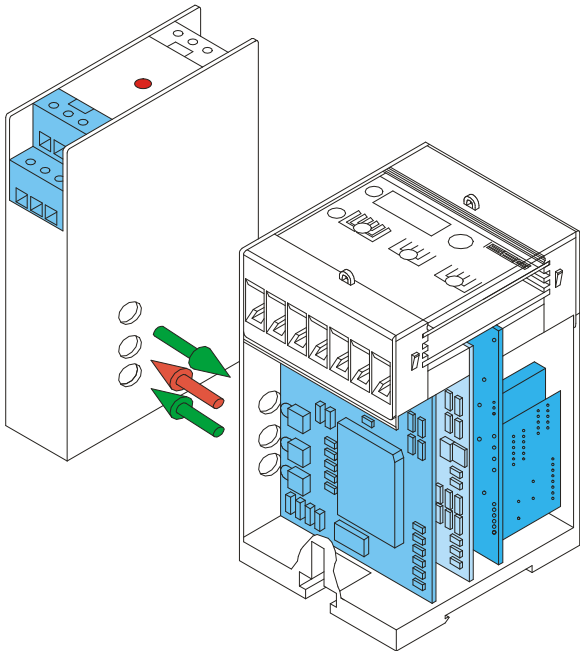

Figure 1.1: Communication via serial interface adapter

When compared to the conventional protection equipment all relays of the PROFESSIONAL LINE reflect the superiority of digital protection techniques with the following features:

- High measuring accuracy by digital data processing
- Fault indication via LEDs
- Wide operating ranges of the supply voltage by universal wide-range power supply
- Very fine graded wide setting ranges
- Extremely short response time
- Compact design by SMD-technology

2. Design

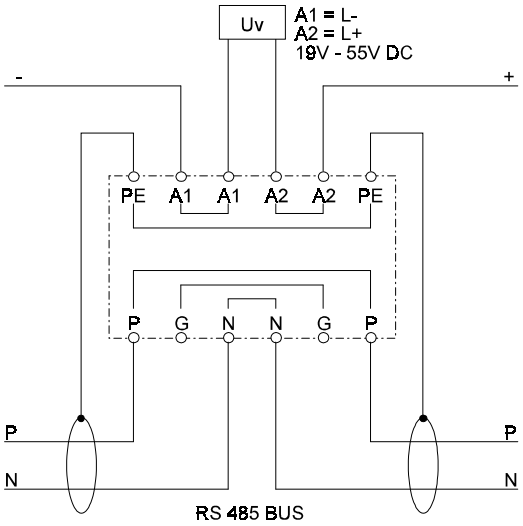

Figure 2.1: Connection diagram

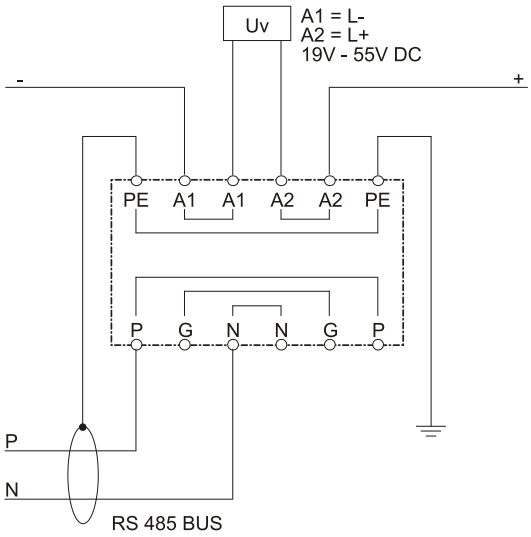

Figure 2.2: Connection diagram line terminator relay XRS1-A

Auxiliary voltage supply
Interface adapter XRS1 or XRS1-A need a separate auxiliary voltage supply. Therefore a DC voltage must be used. Units XRS1 or XRS1-A have an integrated power supply. Voltages in the range from 19 - 55 V DC can be applied at connection terminals A1 and A2.

Terminals

A1 - A2	Supply voltage
PE	Earth connection for screened data line
N = RxD/TxD-N	Signal line, Data - (converter)
P = RxD/TxD-P	Signal line, Data + (converter)

Note:
All terminals for the interface module are provided twice so if there are several devices in use, the cables can be lead through.

3. Working Principle

Communication between PROFESSIONAL LINE relays and master system is done via interface adapter XRS1. The adapter is arranged laterally to PROFESSIONAL LINE re-lays (see figure 1.1). Galvanically decoupling from the relay is realized by means of optical transmission in form of IR-LEDs. The following diagram shows a connection example of three XRS1 inclusive master.

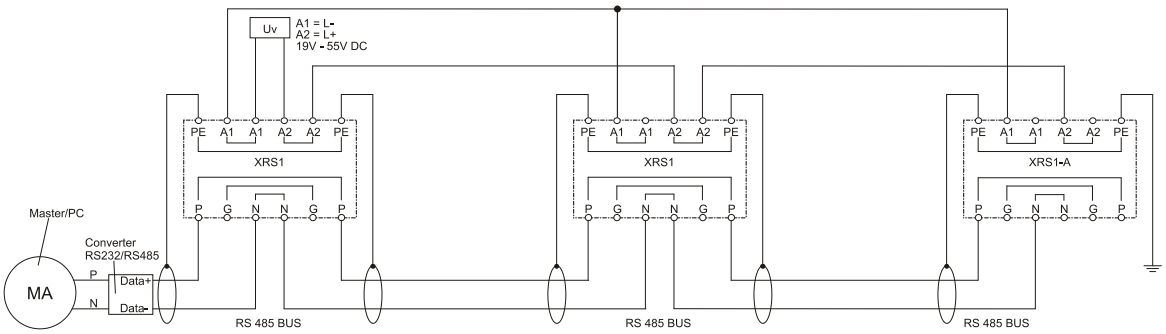

Figure 3.1: Connection example 3 devices + master

3.1 Bus structure and line terminator

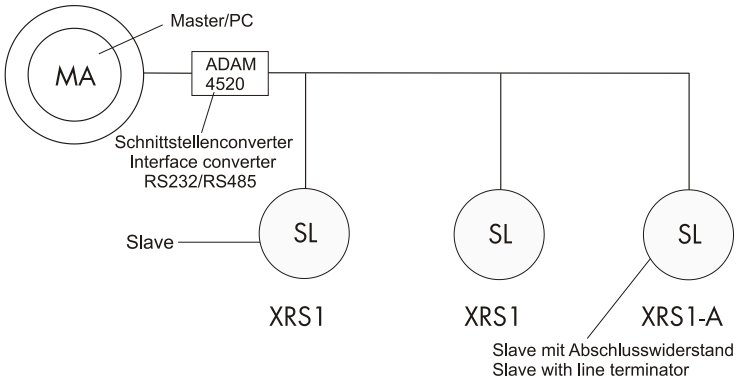

Figure 3.2: Bus structure

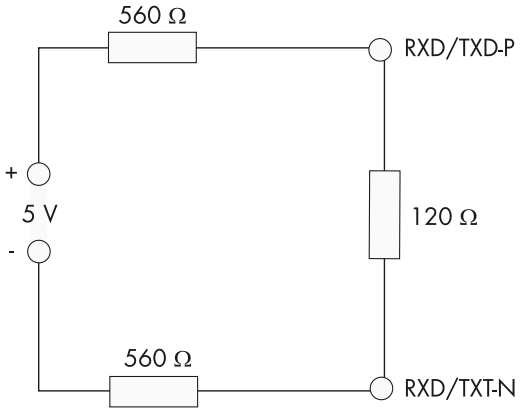

Figure 3.3: Relay XRS1-A mit line terminator

4. Operation and settings

All indication elements as well as the coding plug for activating the interface module are at the front of the XRS1.
Because of this all adjustments of the unit can be made or changed without disconnecting the unit off the DIN-rail.

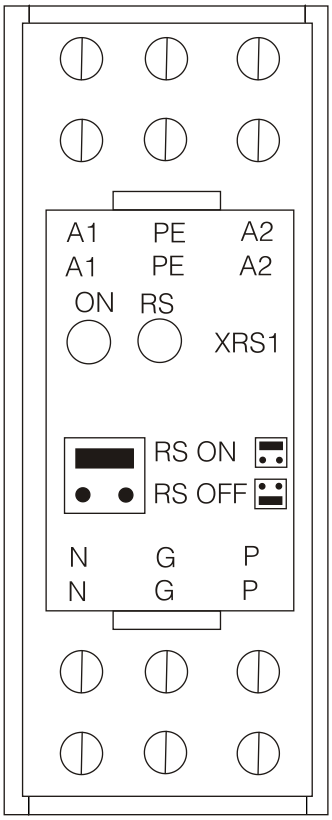

Figure 4.1: Front plate

LEDs
LED „ON“ is used for display of the readiness for service (at applied auxiliary voltage Uv). Die LED RS flashes during data transmission from slave (and plug RS in position „ON“).

RS plug
When plug RS is in position "ON", the interface module is activated; in position "OFF" there is no data transmission via the blocked module possible. The data bus, however, is active for any other devices connected.

Slave address setting of all PROFESSIONAL LINE relays (exception XM1)

1. Switch on auxiliary voltage.
2. DIP-switch 1 - 3 of the protection relay must be switched to "ON" position.
3. All potentiometer must be turned to the right position.
4. The slave address can be set with the aid of DIP-switch 4 - 8:

DIP-switch	4	5	6	7	8
Value	2^0	2^1	2^2	2^3	2^4

Setting example

Slave address 11 should be set. For this DIP-switch 4, 5 and 7 must be switched to "ON" position.

5. Next <TEST> push button must be pressed for about 1 s.
6. Last of all the potentiometer and DIP-switches must be set to the corresponding protection threshold values.

Slave address setting of XM1 relays

1. Switch off auxiliary voltage supply.
2. The slave address can be set with the aid of DIP-switch 1 - 5:

DIP-switch	1	2	3	4	5
Value	2^0	2^1	2^2	2^3	2^4

Setting example:

Slave address 11 should be set. For this DIP-switch 1, 2 and 4 must be switched to "ON" position.

3. DIP-switch 7 must be switched to "OFF" position. DIP-switch 8 however to "ON" position.
4. Switch on power supply and press the <Test> key. (LEDs light up for a moment).
5. Switch off the aux. voltage supply again. DIP-switch 8 must be switched to OFF position. Last of all the DIP-switches must be set to the corresponding protection threshold values.

5. Relay case and technical data

5.1 Relay case

Relay XRS1 is designed to be fastened onto a DIN-rail acc. to DIN EN 50022, the same as all units of the PROFESSIONAL LINE.

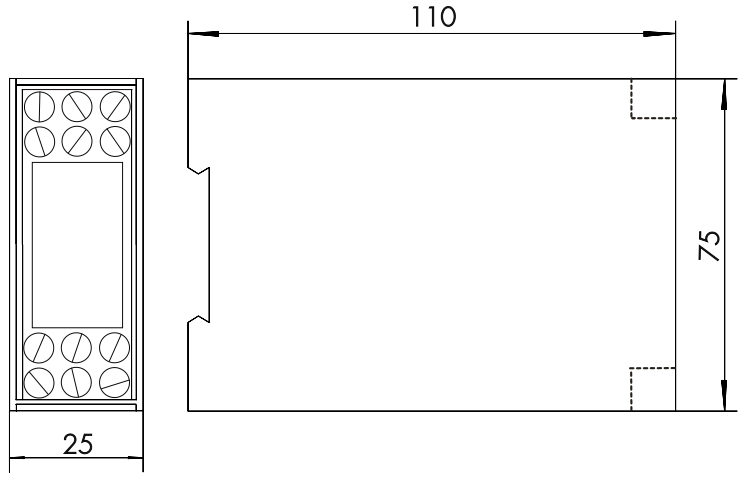

Figure 5.1: Dimensional drawing

Connection terminals
The connection of up to a maximum 1 x 1.5 mm² cross-section conductors is possible.

5.2 SUB-D plug, 9-pin

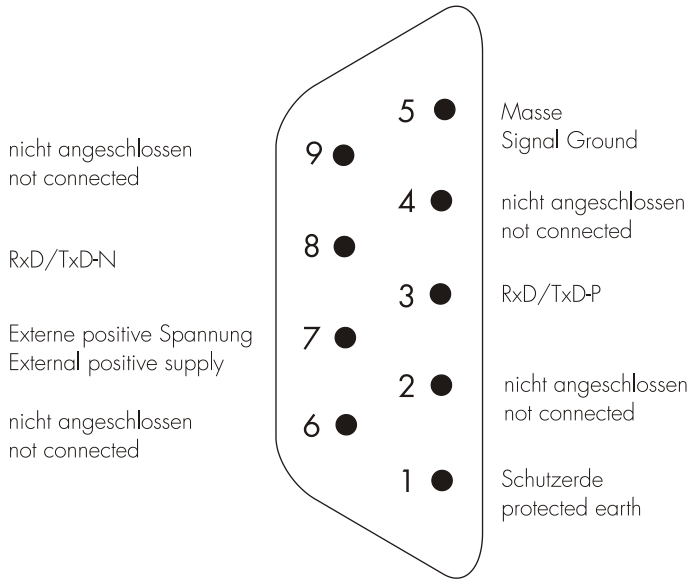

Figure 5.2: Contacts used by a 9-pin SUB-D plug for connection between XRS1 and master

5.3 Technical data

Electrical feature:	RS485 galvanically decoupled via optical transmission line (lateral IR-LEDs)
Transmission line:	max. 1000 m
Transmission mode:	screened 2-wire bus, semi-duplex, 9600 bit, master-slave principle
Number of devices:	1 master, 32 slaves
End device:	Relay XRS1-A (line terminators for data line in the device)

Auxiliary voltage

Rated auxiliary voltage Uv/ Power consumption:	19 - 55 V DC / 4 W (terminals A1 and A2)

System data

Regulations:	VDE 0160; VDE 0871
Temperature range at storage and operation:	-25°C to +70°C
Constant climate class F acc. DIN 40040 and DIN IEC 68, part 2-3:	more than 56 days at 40°C and 95 % relative humidity
Radio interference suppression test as per DIN 57871 and VDE 0871:	limit value class A

Mechanical test:

Shock:	class 1 acc. to DIN IEC 255-21-2
Vibration:	class 1 acc. to DIN IEC 255-21-1
Degree of protection Front plate:	IP40 at closed front cover
Weight:	approx. 0.125 kg
Mounting position:	any

Technical data subject to change without notice!