

# RER 123 Bus Connection Module

## Technical Description





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<b>1. About this manual .....</b>	<b>4</b>
1.1. Copyrights .....	4
1.2. Trademarks .....	4
1.3. Guarantee .....	4
<b>2. Safety information .....</b>	<b>5</b>
<b>3. General .....</b>	<b>6</b>
<b>4. Principle of operation .....</b>	<b>7</b>
<b>5. Construction and mounting .....</b>	<b>8</b>
<b>6. Type designation .....</b>	<b>10</b>
<b>7. Fibre-optic connectors and technical data .....</b>	<b>11</b>

## **1. About this manual**

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**2.****Safety information**

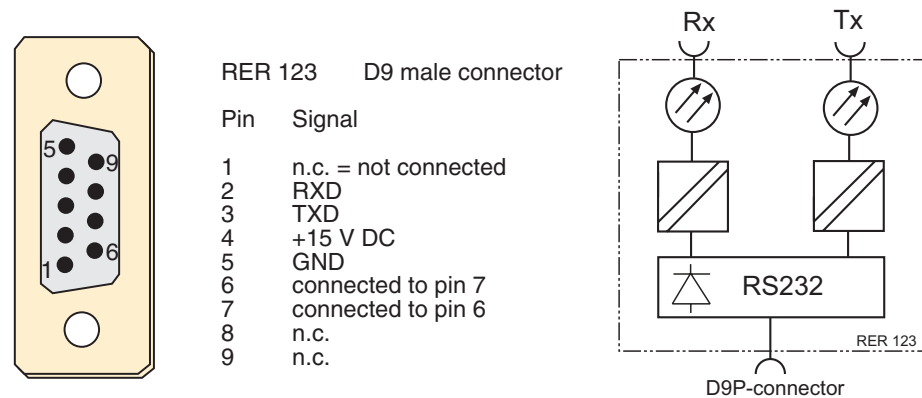
	Dangerous voltages can occur on the connectors, even though the auxiliary voltage has been disconnected.
	National and local electrical safety regulations must always be followed.
	The device contains components which are sensitive to electrostatic discharge. Unnecessary touching of electronic components must therefore be avoided.
	Only a competent electrician is allowed to carry out the electrical installation.
	Non-observance can result in death, personal injury or substantial property damage.

### 3. General

The bus connection module RER 123 acts as an interfacing unit between an RE\_54\_ device and a fibre-optic SPA, DNP 3.0, Modbus or IEC 60870-5-103 bus. The bus connection module converts incoming optical signals from the bus to electrical RS-232 signals for the RE\_54\_ devices and vice versa. The RER 123 module is connected to a host device with a 9-pin D-type RS-232 connector on the rear plate of the RE\_54\_ device via a cable delivered with the module. It can be used together with any RE\_54\_ device provided with a 9-pin D-type RS-232 connector. The bus connection module is also powered from the same D-type connector of the RE\_54\_ device.

The RER 123 box includes a bus connection module (RER 123), a connection cable, two jumpers, and an installation plate.

The RS-232 interface of the bus connection module RER 123 is shown in the figure below.



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*Fig. 3.-1 9-pin D-type connector and block diagram.*

## 4. Principle of operation

The RER 123 bus connection module can be used in Loop and Star type bus topologies. Also the line idle state of the module is selectable. It can be light on or off. The selection of Loop/Star and light on/off is made by jumpers.

In the Loop topology the RER 123 module passes a message received from the fibre-optic interface both to the fibre-optic transmitter and the RS-232 interface.

In the Star topology the module passes a message received from the fibre-optic receiver only to the RS-232 interface.

A message received from the RS-232 interface is passed to the fibre-optic transmitter in both bus topologies.

SPA bus communication is using Loop and light off modes, when the module jumpers are in Loop and light off positions. IEC\_103 bus communication is using Star and light on or off modes, when the module jumpers are in Star and light on or off positions. DNP 3.0 and Modbus support all jumper combinations.



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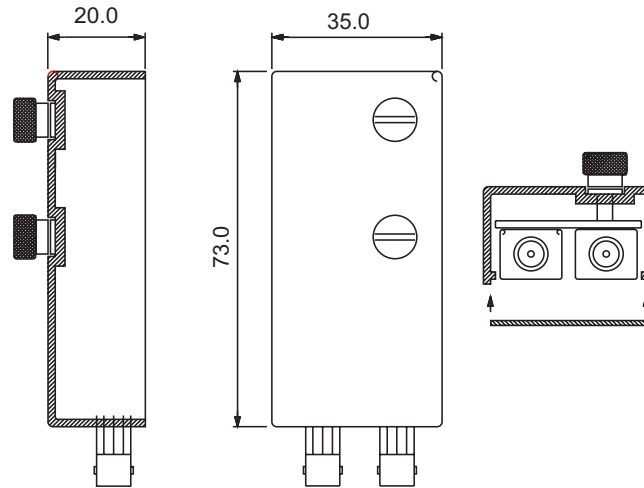
Fig. 4.-1 Rear side of the RER 123 module

**Table 4.-1 Settings of the jumper**

Topology	Light on/off	Protocol
Star	Off	IEC_103, DNP 3.0, Modbus
Star	Light	IEC_103, DNP 3.0, Modbus
Loop	Off	SPA, DNP 3.0, Modbus
Loop	Light	DNP 3.0, Modbus

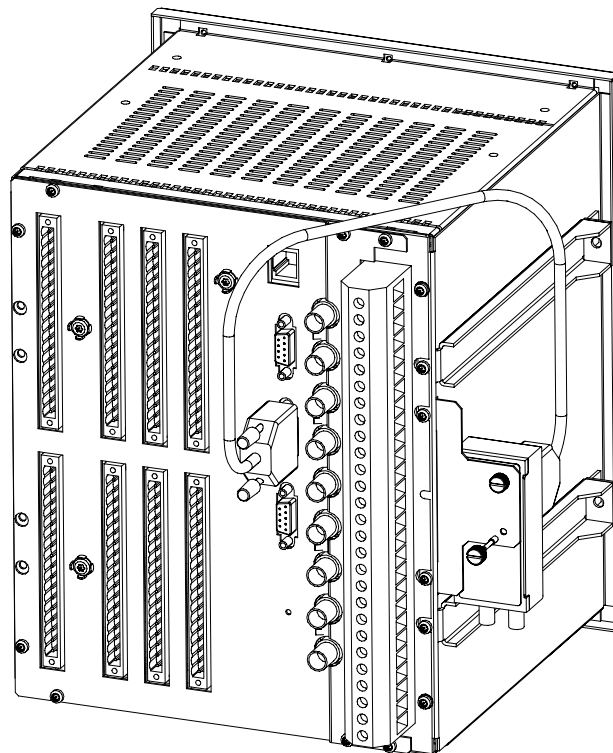
## 5. Construction and mounting

The RER 123 consists of a printed circuit board and is housed in a plastic case. It can be mounted on the rear side of the RE\_500 device by using the mounting plate and cable delivered with the module. See Figure 5.-2.



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Fig. 5.-1 Dimensional drawing of the bus connection module RER 123



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Fig. 5.-2 Mounting of the RER 123



Technical Description

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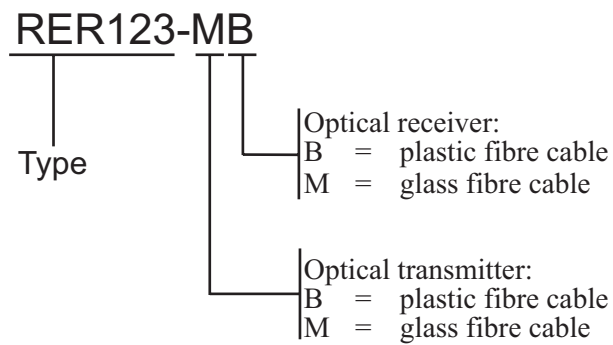
Connect the cable between the device and the bus connection module and lock it by tightening the finger screws in both ends. To meet the specified EMC requirements, only the connection cable (1MRS120524) delivered with the module may be used between the RER 123 and the device. The incoming optical fibre is connected to the receiver input Rx and the outgoing optical fibre to the transmitter output Tx. Special attention must be paid to the handling, mounting, connection, etc. of optical fibres.

The RER 123 can be provided with connectors for two plastic fibre cables, two glass fibre cables or one of each type. For additional information, refer to the manual “Plastic-core fibre-optic cables. Features and instructions for mounting” (34 SPA 13 EN1).

## 6. Type designation

Type designation	Transmitter	Receiver	Ordering number
RER 123	Plastic	Plastic	RER123-BB
RER 123	Plastic	Glass	RER123-BM
RER 123	Glass	Plastic	RER123-MB
RER 123	Glass	Glass	RER123-MM

The IEC star-coupler RER 125 supports only glass-glass and plastic-plastic transceiver connections.



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## 7. Fibre-optic connectors and technical data

**Table 7.-1 Fibre-optic connectors**

	Glass fibre	Plastic fibre
Cable connector	ST connector	snap-in connector
Cable diameter	62.5/125 $\mu\text{m}$	1 mm
Max. cable length	1000 m	20 m
Wavelength	820-900 nm	660 nm
Transmitted power	-13 dBm (HFBR-1414)	-13 dBm (HFBR-1521)

**Table 7.-2 Technical data**

<b>Auxiliary power supply</b>	Powered from a host device (9/15 V DC)	
<b>Burden</b>	~ 1.2 W	
<b>Max. data transfer rate</b>	19.2 kbps	
<b>Mechanical dimensions</b>	RER 123	Width: 35.0 mm Height: 73.0 mm Depth: 20.0 mm
	RER 123 with RE_54_	Width: 25 cm
	Connection cable 1MRS120524	Length: 350.0 mm
<b>Operating temperature range</b>	-10...55 °C	
<b>Storage temperature range</b>	-40...70 °C	



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