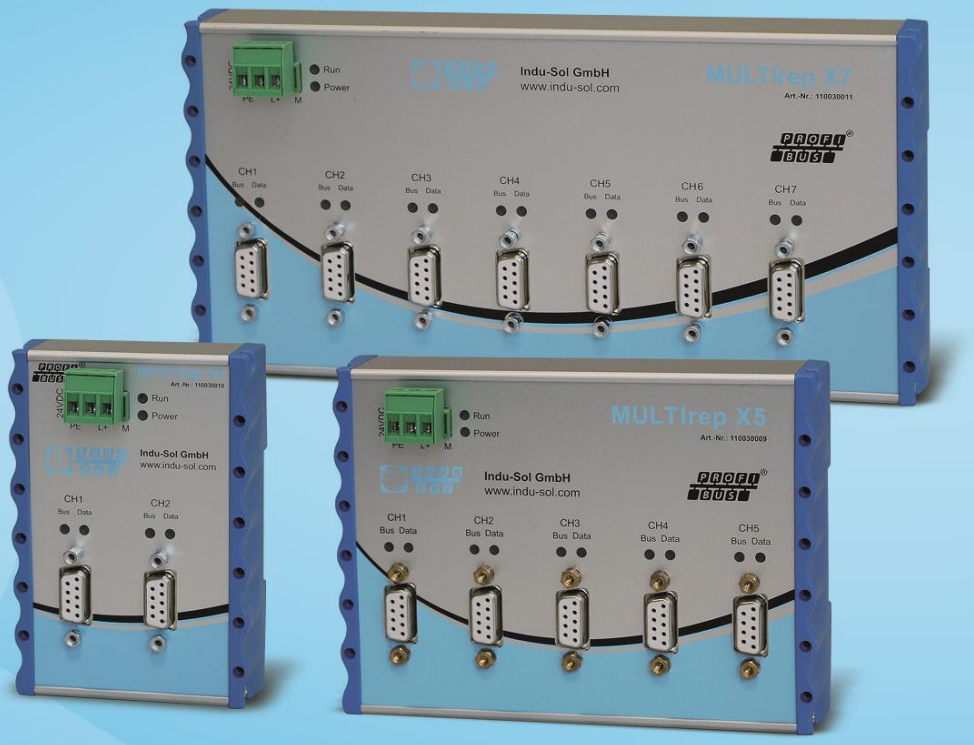
Indu-Sol GmbH – Specialist in Industrial Networks

MULTIreps

User Manual



PROFIBUS diagnostic repeater

PROFIBUS PROFINET INDUSTRIAL ETHERNET CAN DeviceNet SafetyBUS p AS-i INTERBUS EMV WIRELESS

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Is your system at a standstill? You can reach our emergency service around the clock on: +49 (0)34491 / 580-0.

Revision Summary

date	revision	change(s)
04/12/2022	0	First version

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WARNING

Commissioning and operation of this device may only be carried out by qualified personnel. Qualified personnel in the sense of the safety instructions in this manual are persons who are authorized to commission, ground and label devices, systems and circuits in accordance with safety engineering standards.

Improper use or configuration of the ***MULTIrep*** in the network, can lead to serious physical injuries as well as damage to property and materials, also due to uncontrolled machine movements.

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1 General information

Please read this document thoroughly from beginning to end before installing and operating the device.

1.1 Purpose of use

The use of PROFIBUS repeaters MULTIrep X2, X5 and X7 enables the expansion of a PROFIBUS network to a maximum of 126 participants and the extension of the speed-dependent line length. A maximum of 32 participants (31 + repeaters) are permitted per segment. The MULTIrep regenerates the voltage signal in two, five or seven directions and raises it to the PROFIBUS standard level. From a physical point of view, this results in up to seven segments that are galvanically isolated from one another.

The PROFIBUS repeaters MULTIrep X2, X5 and X7 not only meet all the requirements for modern, flexible PROFIBUS cabling. Thanks to the integrated interference suppression function, they also ensure the greatest possible stability of data communication.

Thanks to the integrated diagnostics, clearly visible status LED and automatic interference suppression, the MULTIrep PROFIBUS repeaters enable simple and targeted troubleshooting.

The PROFIBUS is connected via a 9-pin Sub-D connector (according to the PROFIBUS directive). If a segment ends or begins directly at the repeater connections, the bus terminating resistors must be activated directly at the connectors.

1.2 Scope of delivery

The scope of delivery includes the following items:

- MULTIrep device
- 3-pin removable terminal block (power supply)
- device description

Please check the content for completeness before commissioning.

1.3 General safety instructions

1.3.1 Operating personnel

Commissioning and operation of this device may only be carried out by qualified personnel. Qualified personnel in the sense of the safety instructions in this manual are persons who are authorized to commission, ground and label devices, systems and circuits in accordance with safety engineering standards.

1.3.2 Dealing with MULTIrep

Never open the housing of the device. Opening the case immediately voids any warranty. If the device is suspected to be defective, return it to the supplier. The devices do not contain any user-serviceable components.

1.3.3 Intended Use

The devices are designed for use in industrial areas with protection class IP20. These must therefore not be connected directly to the public low-voltage network, the installation must be carried out in an industrial control cabinet.

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2 Connections and status displays on the device

2.1 Device connections MULTirep X2

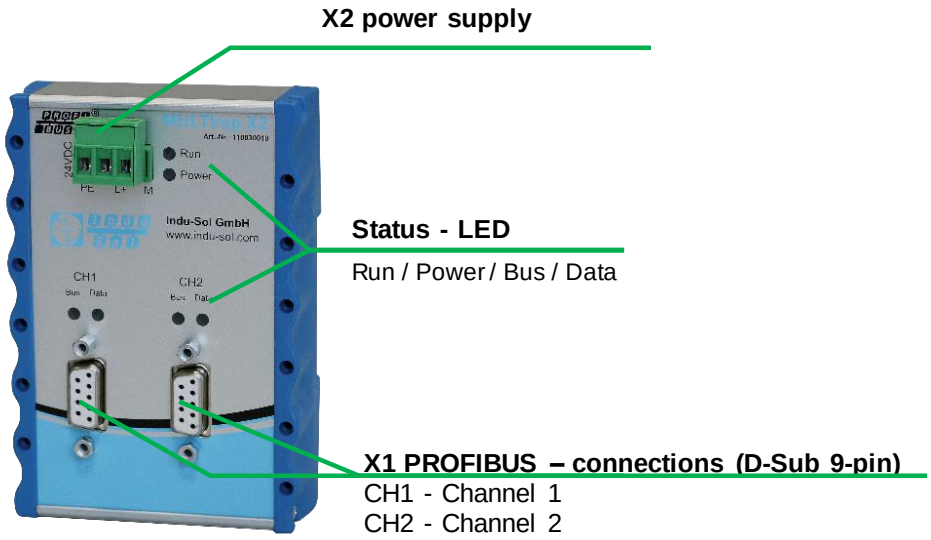


Illustration1: Device connections MULTIrep X2

2.2 Device connections MULTirep X5

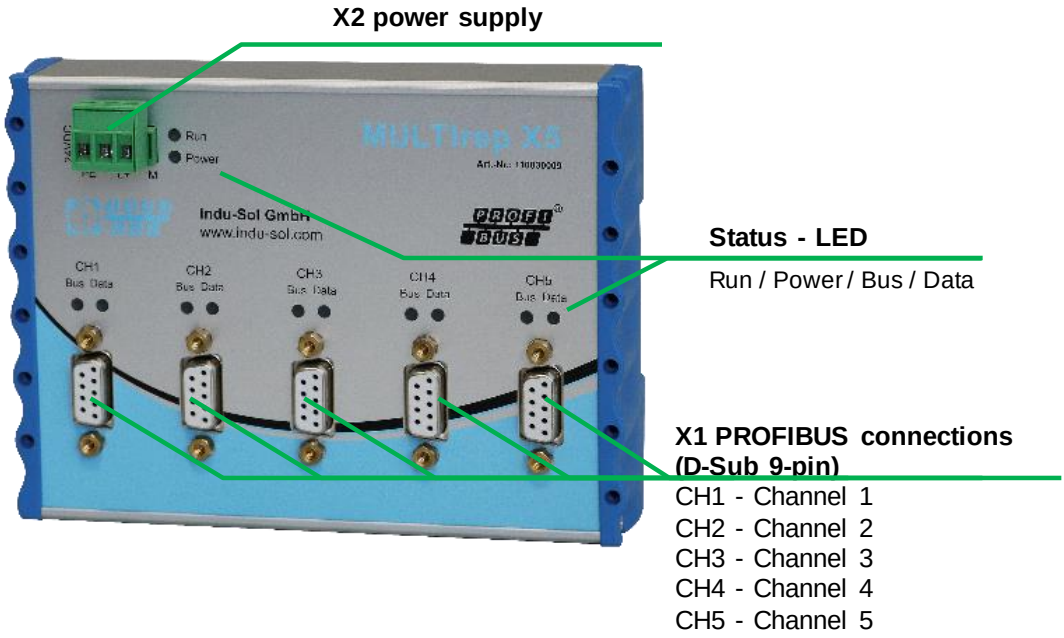


Illustration2: Device connections MULTIrep X5

2.3 Device connections MULTirep X7

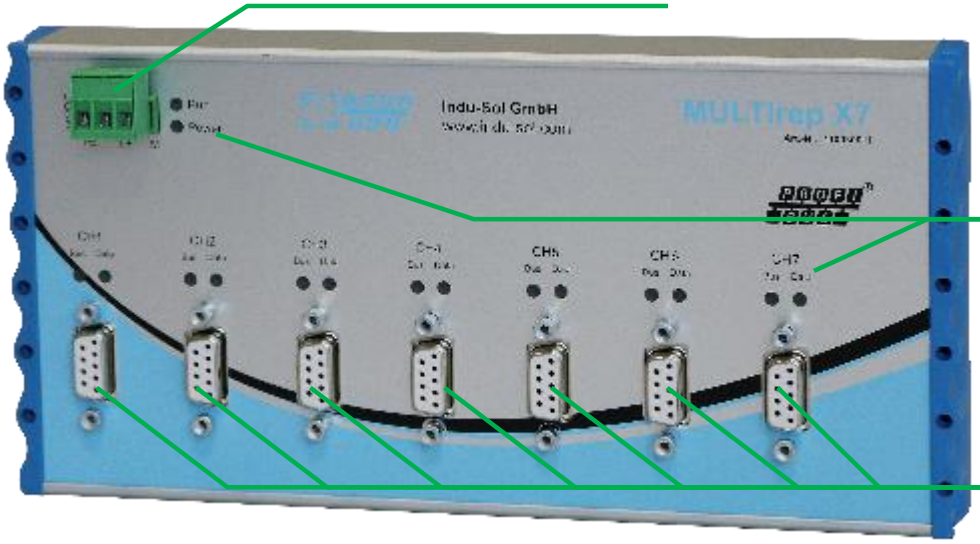


Illustration3: Device connections MULTIrep X7

2.4 Status LED

LEDs	color		meaning
run	green	●	Device operational
	red	●	device error
	out of	●	Device not ready for operation
power	green	●	24V power supply available
	out of	●	24V power supply not available
bus	green	●	Error-free PROFIBUS communication
	red	●	Errors detected: error telegram, repetition, diagnostic messages or participant failures
Data	green	●	Bus activity on the channel
	red	●	Configuration problem in the PROFIBUS
	out of	●	There is no bus activity

tabel1: Status LED

3 Installation

3.1 Installation

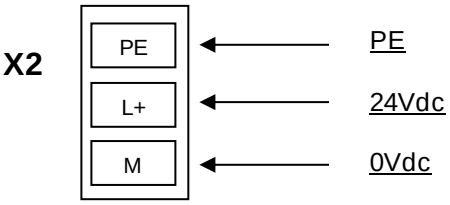
The MULTIrep is installed horizontally in the control cabinet on a 35 mm DIN rail according to DIN EN 60715.

Danger: For correct installation, the following distances to other assemblies must be observed:

- To the left and right: 20mm
- Up and Down: 50mm

3.2 Power supply

An external 24 V DC voltage is required for operation, which is to be connected to the device via the supplied 3-pin plug-in terminal block. The PE contact should be connected to the local PE system.



Danger: When connecting, pay attention to the correct polarity.

3.3 Connection to the PROFIBUS network

The SUB-D interface for the connection to the PROFIBUS network has the following pin assignment:

Pin No.	signal	function
1	-	-
2	-	-
3	RxD/TxD-P	data line B
4	-	-
5	DGND	Dimensions
6	VP	+5V power supply
7	-	-
8th	RxD/TxD-N	Data Line A
9	-	-

tabel2: Pin assignment of the SUB-D interface

The PROFIBUS cable can be connected in different ways. All two options are shown and described below.

3.3.1 Installation at the beginning or end of a segment

If the PROFIBUS segment begins or ends on a channel of the MULTIrep (connection X1) (only one line is connected to the PROFIBUS connector), then the terminating resistor integrated in the PROFIBUS connector must be switched on (termination: "ON").

3.3.2 Installation within a segment

If both lines are connected to a PROFIBUS connector and connected to a channel of the MULTIrep (connection X1), then the terminating resistor integrated in the PROFIBUS connector must be switched off (termination: "OFF").

3.3.3 Maximum cable length of a segment

Baud rate	Maximum cable length
9.6 kbps	1200m
19.2 kbps	1200m
45.45 kbps	1200m
93.75 kbps	1200m
187.5 kbps	1000m
500 kbps	400 m
1.5 Mbps	200m
3 Mbps	100 m
6 Mbps	100 m
12 Mbps	100 m

table 3: maximum cable length of a segment

4 Technical specifications

- PROFIBUS transfer rate: 9.6 kbps to 12 Mbps
- PROFIBUS Types: DP-V0, DP-V1, DP-V2, FMS, MPI
- Power supply: +24Vdc
- Tolerance: ±20%
- Power Consumption: max. 300mA
- Dimensions (H x W x D): MULTIrep X2 - 105 x 75 x 40 mm
  MULTIrep X5 - 105x145x40mm
  MULTIrep X7 - 105 x 212 x 40mm
- Assembly: TS35 DIN rail (EN 50022)
- Degree of protection: IP20
- Operating temperatur: 0°C to +70°C
- storage temperature: -20°C to +70°C
- Relative humidity: 10%…90%

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