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Brief Instruction *FLEXtra*® *multiRepeater*
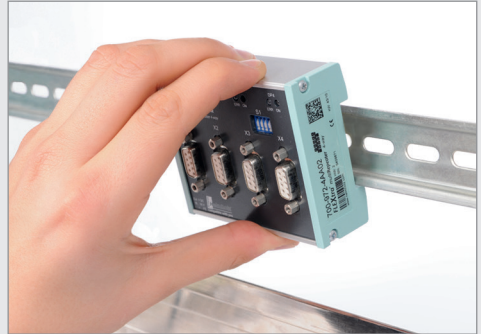
Version

4en

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Application and functional description

The FLEXtra® multiRepeater is primarily a normal PROFIBUS Repeater with the expansion by 3 (for the 4-way) or 5 (for the 6-way) additional segments. This enables, e.g. the simple establishment of a PROFIBUS-star network. It regenerates the signals in flank slope, level and duty cycle.

Mounting

The FLEXtra® multiRepeater is suitable for mounting on a DIN rail. It is engaged as shown on the picture.

Switching repeat function

A DIP switch is installed for the deactivation of the repeat function on the individual ports. Furthermore, the respective last DIP switch i. e. DIP 5 (4-way) or DIP 7 (6-way), must be considered as OFF and ON switch for all segments.

Connection

The PROFIBUS is connected via the SUB-D female connector to the FLEXtra® multiRepeater. PROFIBUS connectors for each segment are necessary for this.

Connection of the power supply

The power supply of the device is connected using the power supply connections on the bottom left of the device. The assignment can be seen in the picture on the right.

Terminating resistors

If the respective used port of the FLEXtra® multiRepeater is located at the end or beginning of a segment, the termination on the PROFIBUS connector must be activated (ON).

If the respective used port of the FLEXtra® multiRepeater is located in the middle of a segment, the termination on the PROFIBUS connector must be deactivated (OFF). Some examples can be found on the following pages.

Safety instructions ⚠

Target audience

This description is only intended for trained personnel qualified in control and automation engineering who are familiar with the applicable national standards. For installation, commissioning, and operation of the components, compliance with the instructions and explanations in this operating manual is essential. The specialist personnel is to ensure that the application or the use of the products described fulfills all safety requirements, including all applicable laws, regulations, provisions, and standards.

Intended use

The device has a protection rating of IP 20 (open type) and must be installed in an electrical operating room or a control box/cabinet in order to protect it against environmental influences. To prevent unauthorized operation, the doors of control boxes/cabinets must be closed and possibly locked during operation. The consequences of improper use may include personal injury to the user or third parties, as well as property damage to the control system, the product, or the environment. Use the device only as intended!

Operation

Successful and safe operation of the device requires proper transport, storage, setup, assembly, installation, commissioning, operation, and maintenance. Operate the device only in flawless condition. The permissible operating conditions and performance limits (technical data) must be adhered to. Retrofits, changes, or modifications to the device are strictly forbidden.

LED description

	LED			DIP switch	
	PWR	DP 1–6			
	-ON-	-ERR-	-ON-	1–4 (4-way) 1–6 (6-way)	deactivated 5 (4-way) 7 (6-way)
Baud rate is detected, the FLEXtra® multiRepeater is restarted	green on	green on	off	ON	ON
Automatic restart e.g. in the case of signal loss	off	red on	off	ON	ON
FLEXtra® multiRepeater ready for operation, baud rate detected	green on	green on	yellow	ON	ON
Segment switched off	off	off	off	OFF	ON
Repeat function deactivated for all segments	green slow blink	red on	off	ON	OFF
Repeat function deactivated for all segments + individual segments	green slow blink	off	off	OFF	OFF
Invalid telegrams are received	green on	red on	yellow	ON	ON
There is a short circuit	green on	red on	off	ON	ON
Data is being received	green on	green on	yellow	ON	ON

Legende

🟢 *LED an* 🟢 *LED blinkt langsam* 🟢 *LED blinkt schnell* ⚪ *LED aus* 🔴 *LED an*

🔴 *Blinkfrequenz abhängig von Anzahl der fehlerhaften Telegramme (Dauerleuchten möglich).*
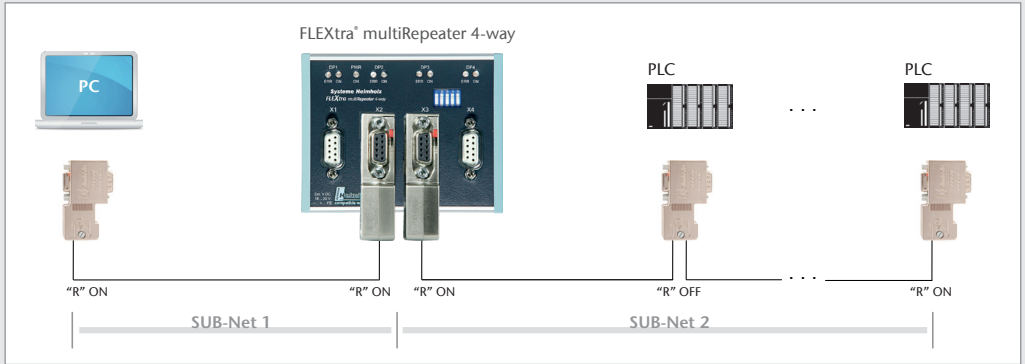
🟡 *Blinkfrequenz abhängig von Baudrate und Teilnehmeranzahl des Ports (Dauerleuchten möglich).*

Note: if no baud rate is detected, the repeater restarts every 8 seconds. The restart takes approx. 2 seconds.
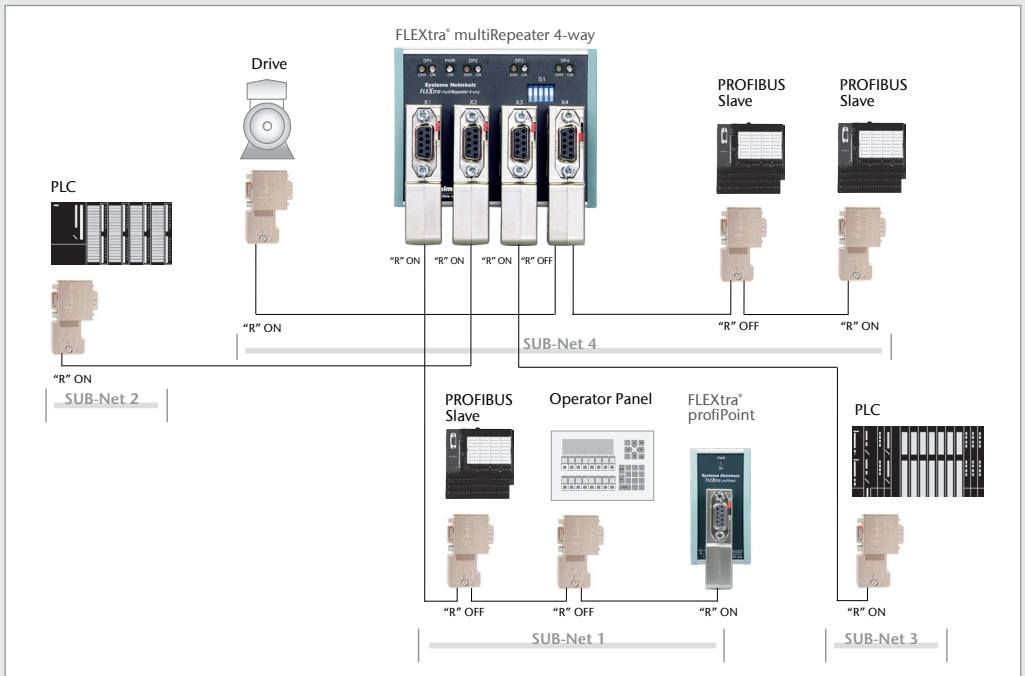
Application examples

Example 1:
Extension of a bus.

Example 2:
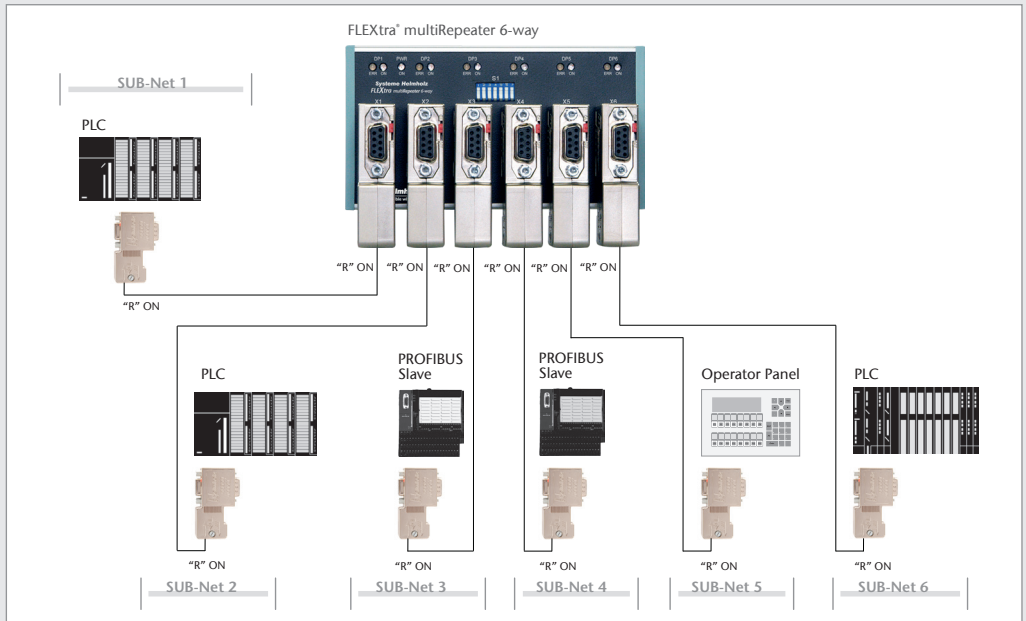Complex tree bus structure.

In all SUB networks up to 32 users are possible.
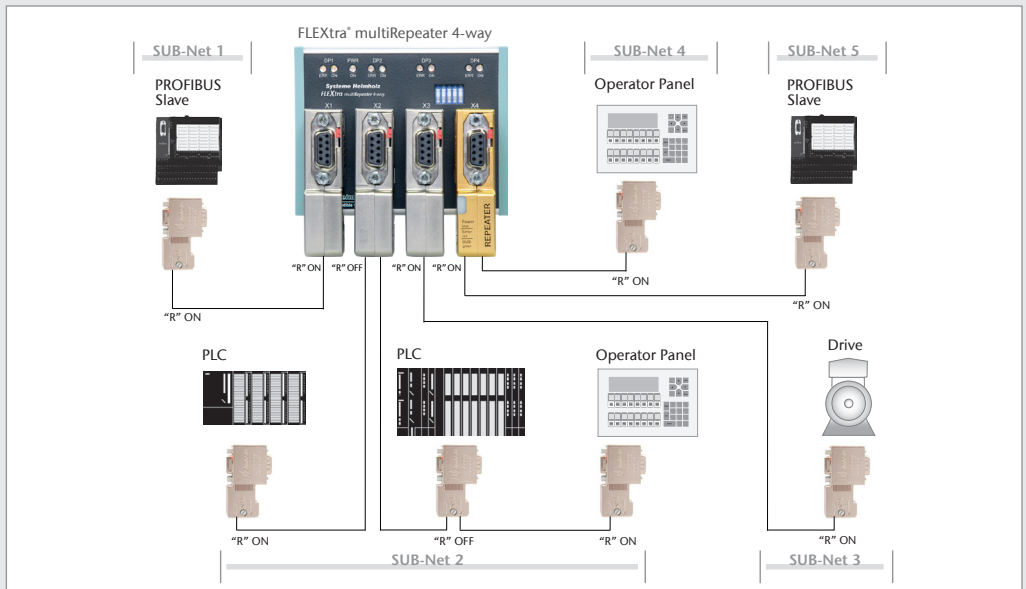
Application examples

Example 3:
Complex star structure.

Example 4:
Extension by one line. The Compact Repeater can be used for this.

Technical Data FLEXtra® multiRepeater 4-way

Dimensions in mm (D x W x H)	72 x 94 x 35
Weight	approx. 180 g

Power supply
• *Voltage*
• *Electrical isolation*
• *Current consumption*
  · *incl. 5V-consumer load*
  · *incl. 24V-consumer load*
	+18 ... 30 V DC
	500 V, between segments
	typ. 280 mA at DC 24 V, without load
	max. 320 mA
	max. 1120 mA

Technical Data FLEXtra® multiRepeater 6-way

Dimensions in mm (D x W x H)	72 x 137 x 35
Weight	approx. 275 g

Power supply
• *Voltage*
• *Electrical isolation*
• *Current consumption*
  · *incl. 5V-consumer load*
  · *incl. 24V-consumer load*
	+18 ... 30 V DC
	500 V, between segments
	typ. 280 mA at DC 24 V, without load
	max. 480 mA
	max. 1680 mA

Technical Data of both FLEXtra® multiRepeater

Output voltage ports • *Voltage 1* • *Voltage 2*	 5 V, max. 150 mA +18 ... 30 V DC, max. 200 mA (like supply voltage)
Permitted ambient conditions • *Ambient temperature in operation* • *Transport and storage temperature*	 0°C ... +60°C -25°C ... +75°C
PROFIBUS Interface	
Transmission rate	9.6 | 19.2 | 45.45 | 93.75 | 187.5 | 500 kbps 1.5 | 3 | 6 und 12 Mbps automatic detection
Protocol PROFIBUS DP	according to EN 61 158-2:2011-09
Connection socket Ports	 SUB-D 9-pin
Special features	Quality assurance according to ISO 9001:2008
Maintenance	maintenance-free, no battery