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Brief Instruction *FLEXtra*® *twinRepeater*
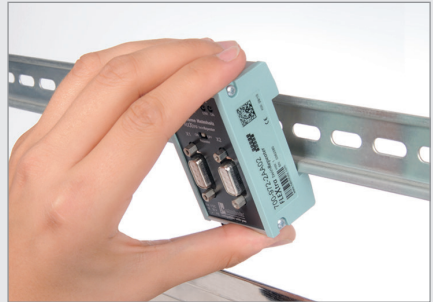
Version

3 en | from HW 4

Application and functional description

In spite of its compact design, the FLEXtra® twinRepeater is a completely normal PROFIBUS Repeater. It regenerates the signals in flank slope, level and duty cycle.

Mounting

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

Switching repeat function

A switch labelled with "Repeater" is installed under the "Power" LED for switching off the repeat function. In the "OFF" switch position, no communication between the two interfaces is possible.
Note: The switch to „OFF" is useful for pulling and plugging of segments.

Connection of the PROFIBUS line

The PROFIBUS is plugged into the device using commercially available PROFIBUS connectors. Refer to the documentation for the PROFIBUS connectors how you connect the connectors correctly.

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.
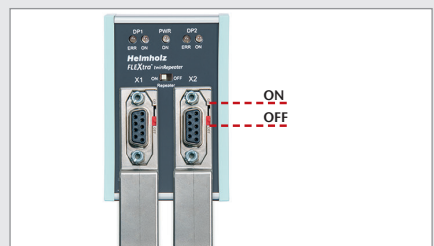

Terminating resistors

Check the setting of the bus terminator (switch on the top side of the plugged-in PROFIBUS connector).
If the twinRepeater is located at the end of a segment, you must activate the bus termination (ON).

If the twinRepeater is located in the middle of a segment (e.g. to open a branch line), you must deactivate the bus termination (OFF). Some examples can be found on the following pages.

LED description

|	LED			DIP switch
	PWR	DP 1/2		
	-ON-	-ERR-	-ON-	Repeater
Baud rate is detected, the FLEXtra® twinRepeater is restarted	🟢	🟢	⚪	ON
Automatic restart e.g. in the case of signal loss	⚪	🔴	⚪	ON
FLEXtra® twinRepeater ready for operation, baud rate detected	🟢	🟢	🟡	ON
Repeat function deactivated	🟢	🔴	⚪	OFF
Invalid telegrams are received	🟢	🔴	🟡	ON
There is a short circuit	🟢	🔴	⚪	ON
Data is being received	🟢	🟢	🟡	ON

Legend

🟢 *LED on*   🟢 *LED flashes slowly*   🟢 *LED flashes quickly*   ⚪ *LED off*

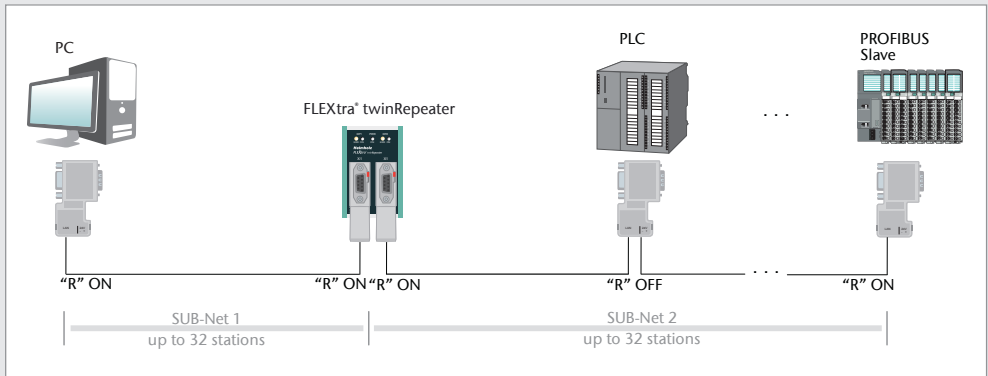🔴 *LED on*   🔴 *Flash frequency depends on the number of invalid telegrams (steady light possible).*

🟡 *Flash frequency depends on baud rate and number of participants of the port (steady light possible).*

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.

PC   FLEXtra® twinRepeater   PLC   PROFIBUS Slave

. . .

"R" ON   "R" ON "R" ON   "R" OFF   "R" ON

. . .

SUB-Net 1
up to 32 stations

SUB-Net 2
up to 32 stations

Example 2:
Long section with high baud rate.

PLC   FLEXtra® twinRepeater   FLEXtra® twinRepeater   PROFIBUS Slave

up to 1000 m
(similarly at 12 Mbit)

"R" ON   "R" ON "R" ON   "R" ON "R" ON   "R" ON
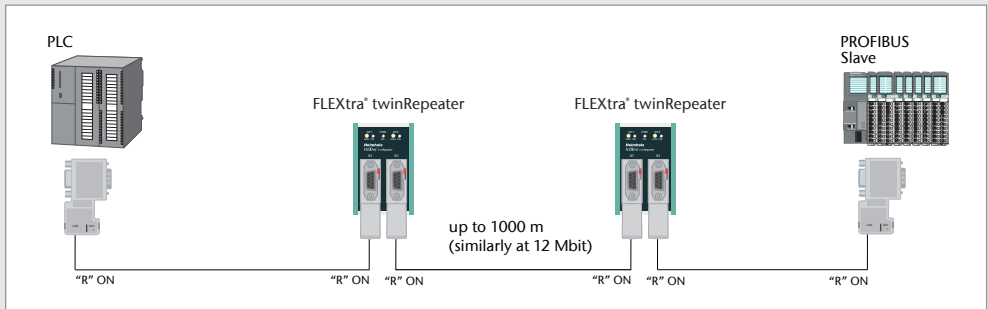
Application examples
Example 3:
Complex bus structure

PC　　　　　PLC

FLEXtra® twinRepeater

PROFIBUS Slave　　　　. . .　　　PROFIBUS Slave

"R" ON　　　"R" OFF

"R" ON　　　"R" OFF　　　　　　　　"R" OFF　　　. . .　　　"R" ON

SUB-Net 1
up to 32 stations

PROFIBUS Slave　　　PROFIBUS Slave　　　PC

"R" OFF　　　"R" OFF　　　"R" ON

SUB-Net 2
up to 32 stations
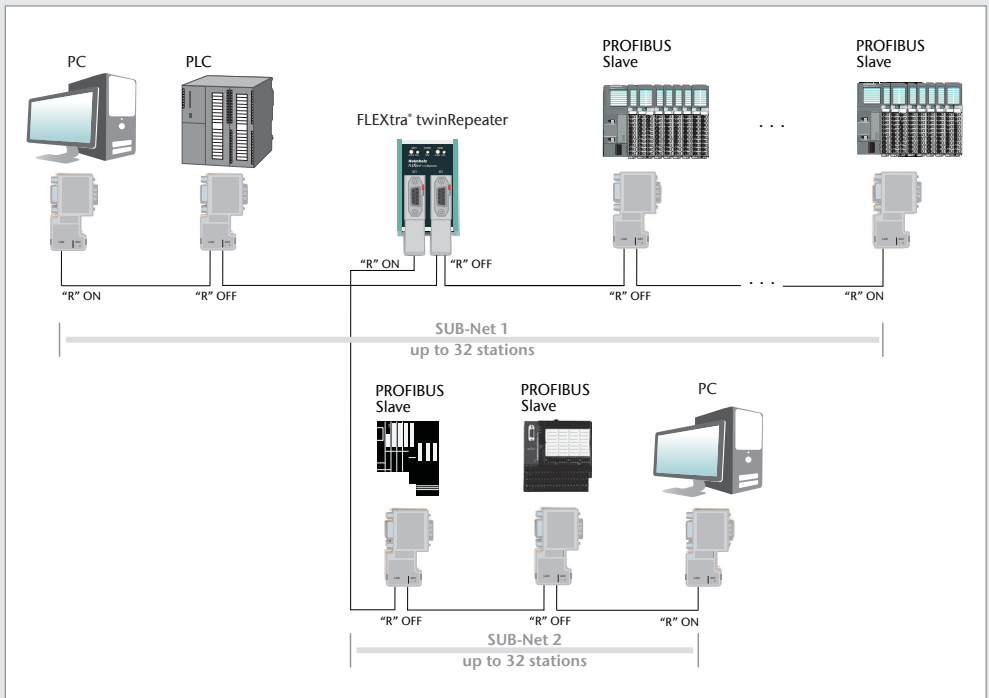
Technical Data

Dimensions in mm (D x W x H)	35 x 51 x 72
Weight	approx. 110 g
Housing	IP 20

Power supply
• *Voltage*
• *Electrical isolation*
• *Current consumption*
  · *incl. 5V-consumer load*
  · *incl. 24V-consumer load*
	
	+18 ... 30 V DC
	500 V
	
	max. 160 mA
	max. 560 mA

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