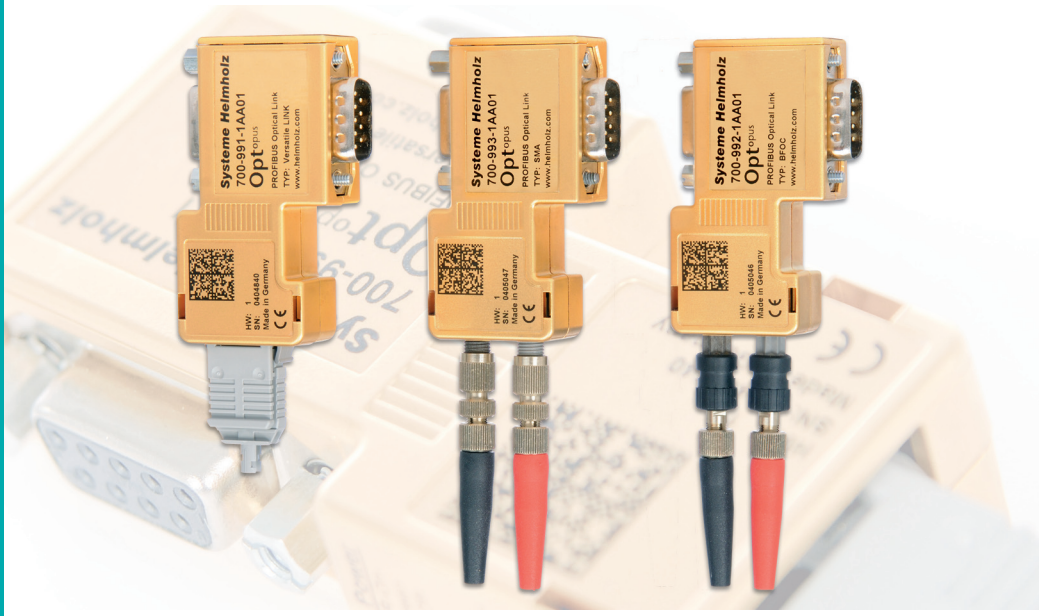
Brief instruction

Systeme Helmholz
compatible with you



Brief instruction

Optopus

Version

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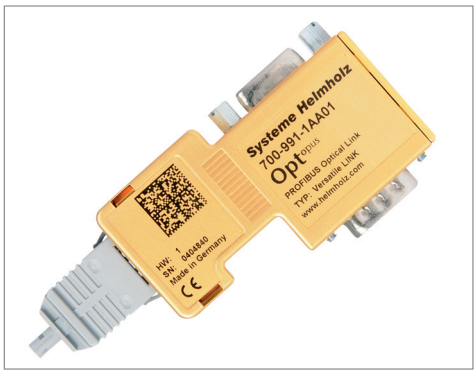
www.helmholz.com



Application and function description

The OPTopus PROFIBUS Optical Link is a normal PROFIBUS repeater despite its small dimensions. It permits the conversion of electrical PROFIBUS/MPI interfaces to optical PROFIBUS/MPI interfaces. It regenerates the signals with their rate of change, level, and pulse duty factor. It also provides the advantages of optical signal transmission for your PROFIBUS/MPI network.

It is available in three different versions:

OPTopus, PROFIBUS Optical Link, Versatile Link	700-991-1AA01
OPTopus, PROFIBUS Optical Link, BFOC	700-992-1AA01
OPTopus, PROFIBUS Optical Link, SMA	700-993-1AA01

1. Check the bus termination setting (switch on the top of the housing).

If the OPTopus PROFIBUS Optical Link is at the end of a segment, the bus termination must be ON.

If the OPTopus PROFIBUS Optical Link is in the middle of a segment (for example, to start a stub line), you must switch the bus termination OFF.

2. Connection of the FO cable to the underside of the device.

The following fibers can be used:

Polymer optical fiber (POF):

- 980/1000 µm
- Wavelength: 650 nm
- Attenuation approx. 160 dB/km

Polymer-clad fiber (PCF):

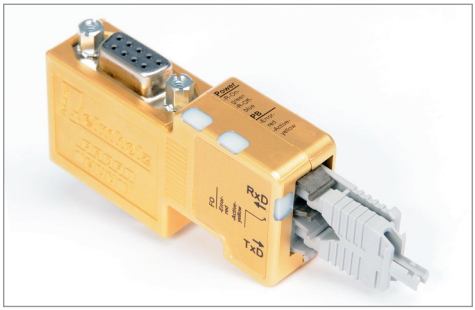
- 200/230 µm
- Wavelength: 650 nm
- Attenuation approx. 10dB/km

If a POF that is not ready-fitted with connectors is to be used with the FO connectors provided, please first perform steps A to C (see reverse side).

Connect the two devices via a cross-over cable, that is, the TxD fiber of the communication partner is connected to the RxD connection of the OPTopus PROFIBUS Optical Link. Connect the TxD connection of the OPTopus to the RxD connection of the communication partner.

3. The OPTopus PROFIBUS Optical Link is plugged directly into the SUB D female connector of the PROFIBUS station instead of the normal PROFIBUS device connector. It is locked in place with the two screws top and bottom.
The PROFIBUS station provide the OPTopus with 5V/100mA.

Note: *Please check this in the relevant manual of the PROFIBUS station.*



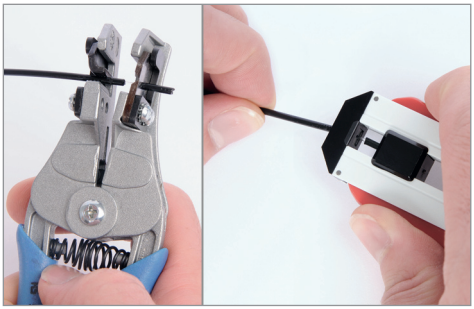
LED description

Power	Green	Bus termination switched on	Displays the status of the OPTopus Baud rate search: flashing Baud rate found: continuous
	Blue	Bus termination switched off	
PB	Red	Incorrect data are being received on the PROFIBUS interface	
	Yellow	Data are being received on the PROFIBUS interface	
FO	Red	Incorrect data are being received on the FO interface	
	Yellow	Data are being received on the FO interface	

Note: *When the power supply is connected, all the LEDs of the OPTopus light up briefly (approx. 0.5 seconds). If the OPTopus does not find a valid baud rate or if no data exchange is performed on the PROFIBUS or the FO interface, the OPTopus will perform an internal restart every 8 seconds. During this restart, the red error LEDs of the PROFIBUS and FO interface light up for 2 seconds and then the Power LED will begin to flash (repeated baud rate search).*

A) ***Cutting fibers***
Push the fiber into an opening of the cutting tool and press the cutter downward.

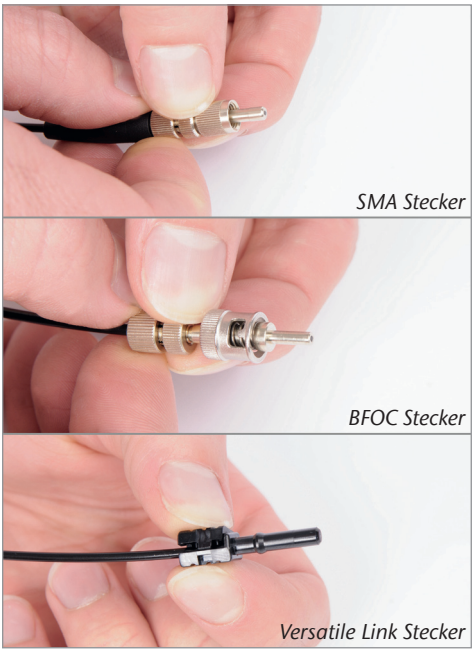
Note: *Each opening of the cutting tools must only be used to perform one cutting operation.*



B) ***Removing the fiber cladding***
Depending on the type of connector, you must remove a certain length of the fiber cladding:

Versatile Link:	Approx. 3 mm
SMA:	Approx. 6 mm
BFOC:	Approx. 11 mm

Note*: Use only tools intended for this purpose (not cable strippers for copper cables). Otherwise, the cladding of the fiber may be damaged, resulting in increased connector attenuation and therefore a shorter system range.*



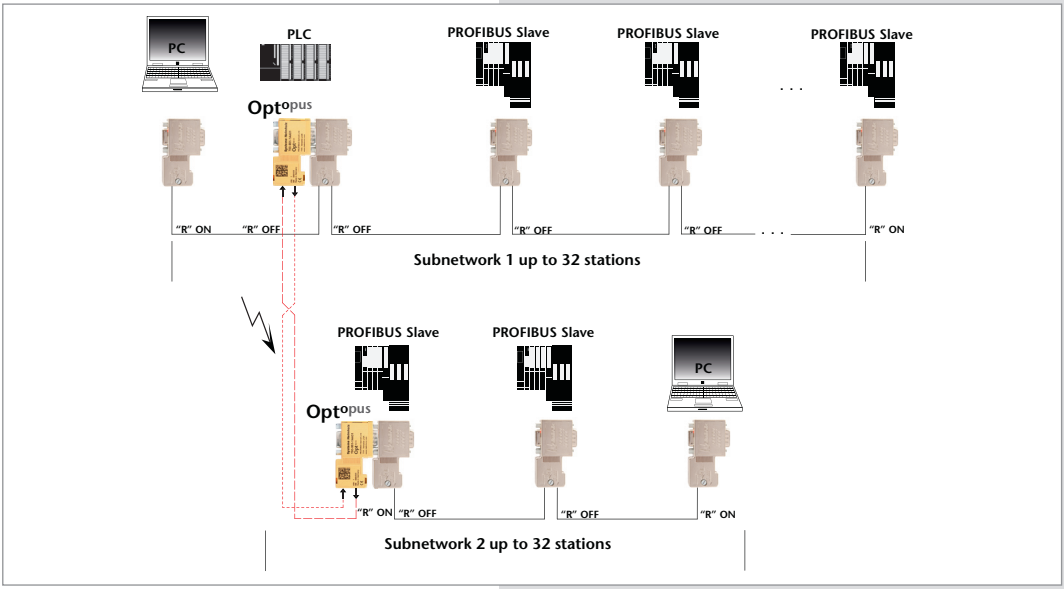
C) ***Attachment of the connectors to the fiber***
BFOC/SMA connectors:
Push the connector onto the fiber and screw the connector housing using the union nut.

Versatile link connector:
Push the connector onto the fiber and press the housing together until it latches.

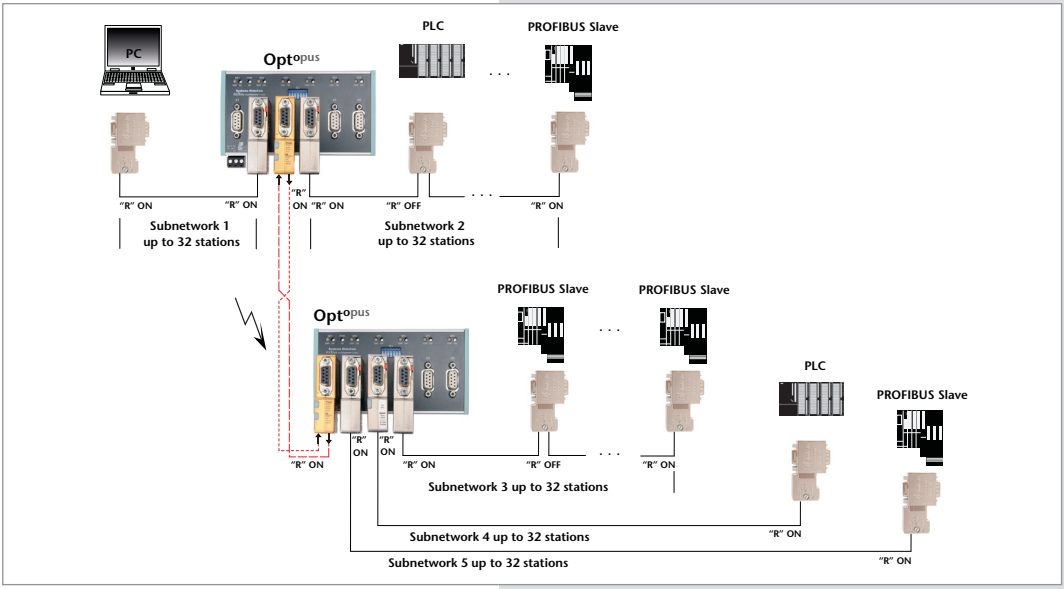
Note: *When attaching the connectors, make sure that the fiber ends flush with the connector at the front. The transmit or receive diode may be damaged if the fiber protrudes.*
Fixing the fiber too far inward can result in increased attenuation, shortening the transmission range of the system.

Application examples

Example 1:
Generation of a completely electrically isolated subnetwork.



Example 2:
Establishment of a link between two repeaters that is not subject to EMC interference.



Technical data

Dimensions (L x W x H)	64 x 40 x 17
Weight.	approx. 30 g
Housing	degree of protection IP 20
Power supply **Voltage** **Current consumption**	 +5 V DC typically 100 mA
Permissible ambient conditions • Ambient temperature during operation • Temperature during transportation and storage	 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 and 12 Mbps automatic detection
Protocol PROFIBUS DP	according to EN 61 158-2
Connector	SUB-D 9-way
Special features	Quality assurance per ISO 9001:2008
Maintenance	maintenance-free, no battery

Optical interface

Wavelength	650 nm
Numerical aperture transmit diode	0,50
Launchable optical power/Receiver sensitivity POF 980/1000 µm PCF 200/230 µm	 -7,5 dBm/-20 dBm -18 dBm/-22 dBm
Overdrive limit receiver	-3 dBm
Max. transmission distance POF 980/1000 µm (160 dB/km) PCF 200/230 µm (10 dB/km)	 up to 65 m up to 250 m

Note

We have checked the content of this Brief instruction for conformity with the hardware and software described. Nevertheless, because deviations cannot be ruled out, we cannot accept any liability for complete conformity. The information in this Brief instruction is regularly updated. When using purchased products, please heed the latest version of the Brief instruction, which can be viewed in the Internet at www.helmholz.com, from where it can also be downloaded.

Our customers are important to us. We are always glad to receive suggestions for improvement and ideas.

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