

7XV5452 Optical Repeater, 820 nm / 1300 nm up to 8.5 km



Fig. 14/20
Optical repeater

Function overview

- Minimum baud rate: 9600 baud /
Maximum baud rate: 1.5 Mbaud
- No setting of baud rate necessary
- Protocol transparency¹⁾/full duplex operation
- Selectable: Light ON / Light OFF in idle state on 820 nm side; on 1300 nm side: light always ON in idle state
- Distance spanned on 820 nm side: 1.5 km with multi-mode fiber 62.5/125 μm
- Distance spanned on 1300 nm side: 8.5 km with multi-mode fiber 62.5/125 μm , attenuation loss 2.0 dB/km
- Wide-range power supply with self-supervision function and alarm relay

Description

The optical repeater 820 nm/1300 nm converts serial information received with a wavelength of 820 nm on multi-mode FO cable to a wavelength of 1300 nm, and vice versa. Operating in pairs, it is possible to transmit serial information with rates between 9.6 kbaud and 1.5 Mbaud interference-free in full duplex mode over distances of up to 8.5 km.

When used in combination with 7SD5 line differential relays, it allows cost-effective bidirectional transmission of serial differential protection data via multi-mode FO cables over long distances. The protection relay is directly coupled to the repeater via the 820 nm optical interface. For transmission routes with mono-mode FO cables (up to 14 km) there is the 7XV5451 version.

1) See warning overleaf.

Application

The optical repeater / converter can be used for interfacing differential relays from the 7SD5 and SIPROTEC ranges (Fig. 14/20). The connection is directly at the optical interfaces of the relays. The maximum distance spanned with multi-mode FO cable is 8.5 km. In combination with a binary signal transducer 7XV5653 the maximum transmission distance can be extended from 3 km (with multi-mode FO cable) to 8.5 km (Fig. 14/21). The binary signal transducer can pick up 2 isolated signals via binary inputs and emit them on the remote side via floating contacts, e.g. in the form of line protection with the 7SJ531 relay.

Caution: In the transmission of other serial protocols, e.g. IEC 60870-5-103, IEC 61850-5-101, DIGSI, DNP3, MODBUS etc., problems have occurred. We therefore strongly advise against use in such applications.

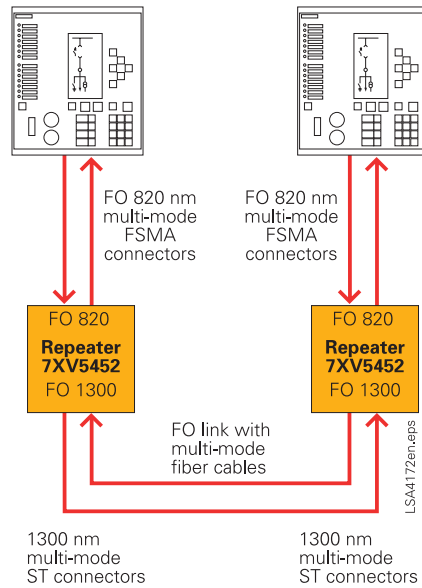


Fig. 14/21
Interface on the line differential relay

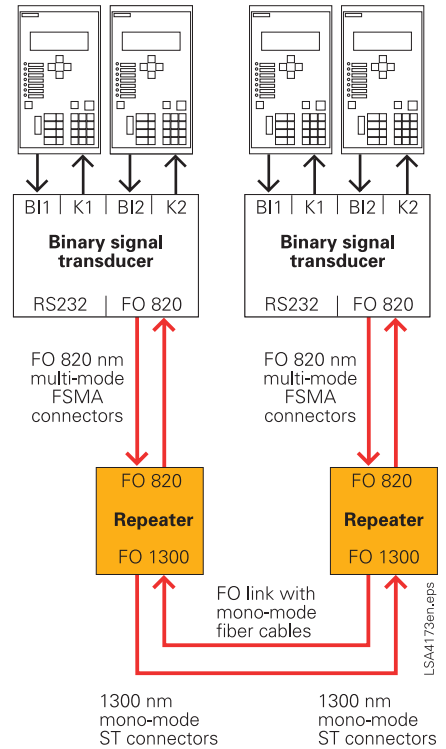


Fig. 14/22
Binary signal transmission up to 8.5 km

Technical data

Supply voltage	
24 to 250 V DC	± 20 % and
60 to 230 V AC	± 20 % without switchover
Current consumption	
Approx. 0.1 to 0.2 A	
LEDs	
2 LEDs green yellow	Operating voltage o.k. Receiving data on 1300 nm side
Connectors	
Power supply	2-pin Phoenix screw-type terminal
820 nm line	FSMA screw-type connectors for multi-mode FO cable
1300 nm line	ST connectors for multi-mode FO cable
Alarm contact	2-pin Phoenix screw-type terminal
Controls	
1 DIP switch for setting idle state light	
Housing	
Plastic housing, EG90, charcoal grey; 90 x 75 x 105 mm (W x H x D) for snap-on-mounting onto 35 mm DIN EN 50022 rail	

Selection and ordering data

Description	Order No.
<i>7XV5452 optical repeater 820 nm/1300 nm multi-mode FO cable</i>	<i>7XV5452-0AA00</i>
Optical repeater for mounting rail As supplement to line differential relay 7SD5, 35 mm in plastic housing Auxiliary voltage 24 to 250 V DC and 110 to 220 V AC with alarm relay Connection to remote station via FO 1300 nm for multi-mode FO cable up to 8.5 km with ST connector Connection of PC, star couplers, protection relay via FO 820 nm for 62.5 μm glass fiber up to 1.5 km with FSMA connector Cascadable	