

## 7XV5451 Optical Repeater, 820 nm Multi-Mode FO Cable to 1300 nm Mono-Mode FO Cable



Fig. 14/17  
Optical repeater

### Function overview

- Minimum baud rate: 9600 baud /  
Maximum baud rate: 1.5 Mbaud
- Distance spanned on 820 nm side:  
1.5 km with multi-mode FO cable  
62.5/125  $\mu\text{m}$
- Distance spanned on 1300 nm side:  
approx. 14 km with mono-mode  
FO cable, attenuation 0.36 dB/km  
(depending on version)
- Wide-range power supply with self-  
supervision function and alarm relay
- No setting of baud rate necessary
- Protocol transparency/full duplex  
operation
- Light idle state: Light ON / light OFF  
(selectable) in idle state for 820 nm in-  
terface (not for 1300 nm interface)

### 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. This allows devices to be connected to mono-mode FO cables that are commonly used for long-distance data communication, and thus serial information to be transmitted with rates between 9.6 kbaud and 1.5 Mbaud interference-free in full duplex mode over distances of up to 14 km.

When used in combination with 7SD5/7SD6 line differential relays, it makes cost-effective bidirectional transmission of serial differential protection data possible via mono-mode FO cables over long distances. The protection relay is directly coupled to the repeater via the 820 nm optical interface.

It should not be used together with serial protocols like the DIGSI protocol, IEC 60870-5-103/101 and other serial protocols.

**Application**

The optical repeater / converter can be used for the connection of two 7SD5/7SD6 line differential relays if mono-mode FO cables are installed between the relays. Connection between the converter and the optical interfaces of the relays is established via FSMA connectors and multi-mode FO cables. The maximum distance spanned with mono-mode FO cables is approx. 14 km. ST connectors are used for connecting the FO cables on the mono-mode side.

In combination with the 7XV5653 binary signal transducer, the maximum transmission distance can be extended from 3 km with multi-mode FO cables (direct link of two transducers) to 14 km with mono-mode FO cables. The 820 nm to 1300 nm converter for this application is also necessary if mono-mode FO cables are installed.

**Construction**

The 7XV5451 repeater is provided with a snap-on mounting housing for a 35 mm EN 50022 rail. Auxiliary power supplies can be connected via screw-type terminals. The fiber-optic cables are connected by ST connectors. The unit is free of silicone and halogen as well as flame-retardant.

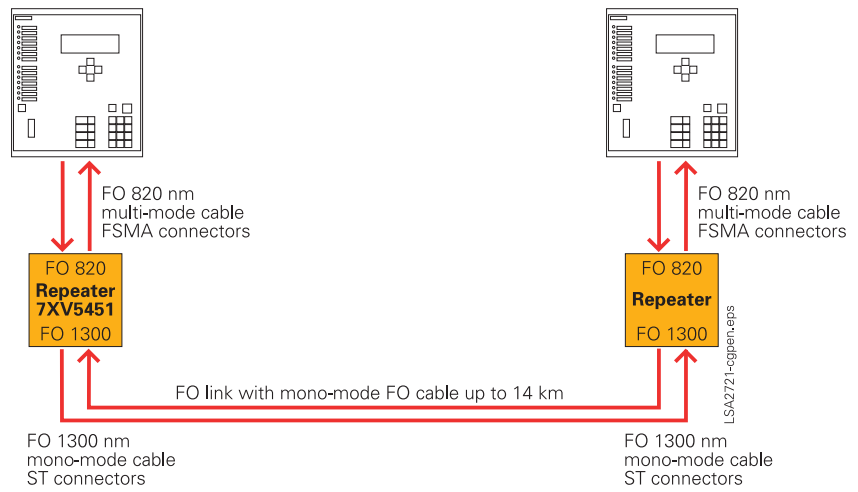
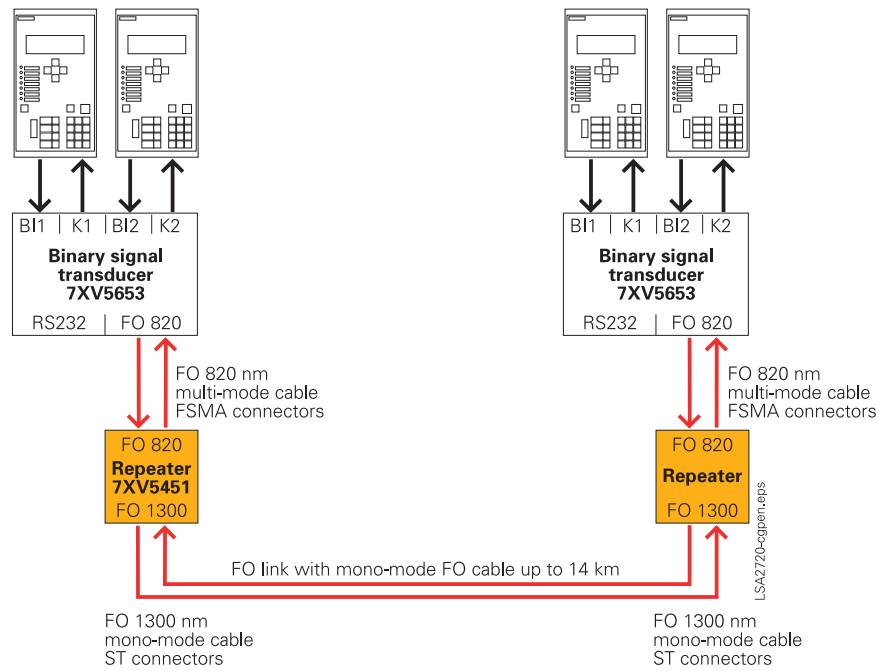


Fig. 14/18 Connection of two different relays



BI - Binary input  
K - output contact

Fig. 14/19 Binary signal transducer with mono-mode FO connection

## Technical data

<b>Rated auxiliary voltage</b>	
24 to 250 V DC and 60 to 230 V AC	± 20 % without switchover
<b>Current consumption</b>	
Approx. 0.1 to 0.2 A	
<b>LEDs</b>	
2 LEDs	
Green	Operating voltage o.k.
Yellow	Receiving data on 1300 nm side
<b>Connectors</b>	
Power supply	2-pole Phoenix screw-type terminal
820 nm line	FSMA screw-type connectors
1300 nm line	ST connectors for mono-mode FO cable
Max. distance	Up to 14 km, with max. 9 dB FO attenuation
Alarm contact	2-pole Phoenix screw-type terminal
<b>Light idle state</b>	
Light ON/OFF selectable	By jumpers
<b>Housing</b>	
Plastic housing, EG90, charcoal grey; 90 x 75 x 105 mm (W x H x D) for snap-on mounting onto 35 mm EN 50022 rail	

For more detailed information, please visit us on the Internet at: [www.siprotec.com](http://www.siprotec.com), download area, accessories.

## Selection and ordering data

Description	Order No.
<i>7XV5451 optical repeater 820 nm / 1300 nm<sup>1)</sup></i>	<i>7XV5451-0AA00</i>

Optical repeater with plastic housing for snap-on mounting onto 35 mm rail.

Rated auxiliary voltage 24 - 250 V DC and 110 - 230 V AC with alarm contact.

Connection of PC, star couplers or modems via FO cable for 62.5 / 125 μm or 50 / 120 μm and 820 nm wavelength (multi-mode FO cable) with FSMA connectors; max. distance 1.5 km.

Cascadable; designed also for use in combination with the 7SD5/7SD6 line differential protection relays.

Connection of remote side for 1300 nm mono-mode FO cable with ST connector, max. distance approx. 14 km

Fiber-optic connectors for 820 nm multi-mode FO cable with FSMA connector<sup>1)</sup>

1) As of November 2004, the device will be replaced by 7XV5461, which offers the same functionality. Delivery terminated 09/2005.

Dimension drawings in mm / inch



**Fig. 16/39**  
Converter devices for rail mounting