

Communication

Converters – RS485 Optical Fiber Converter

7XV5650/51

Description

The RS485 optical fiber converter 7XV5650/51 makes it possible to connect up to 31 devices via a bus-capable electrical RS485 interface. It creates an optical connection to a central controller or a star coupler.

Benefits

- Baud rate: 9.6 to 115 kBd
- Topologies:
 - 7XV5650: Optical star structure
 - 7XV5651: Optical linear structure
- Protocol transparency
- Non-flickering light:
 - Can be switched to light ON/light OFF
- Radius: 1.5 km at 62.5/125 μm , fiber-optic cable
- 120 Ω load resistor for the RS485 bus, activated/deactivated via DIP switches
- Wide-range power supply with self monitoring and alarm relay

Applications

The converter was developed for use in switchgear for interference-free transmission of serial data with transmission rates between 9.6 and 115.2 kBd via multimode fiber-optic cable.

The 7XV5651 converter is designed to operate as a T-coupler. That is, data can be distributed linearly allowing cost-effective optical bus systems to be built. The 7XV5650 version was designed for star topologies via optical fiber connections.

Optical Fiber Converter 7XV565x-0CA00

3.5 The following improvements are planned for the functional follow-up model ... -0CA00:

- Increased EMC (incl. new standards), adaptation for SIPROTEC 5
- Higher temperature ranges



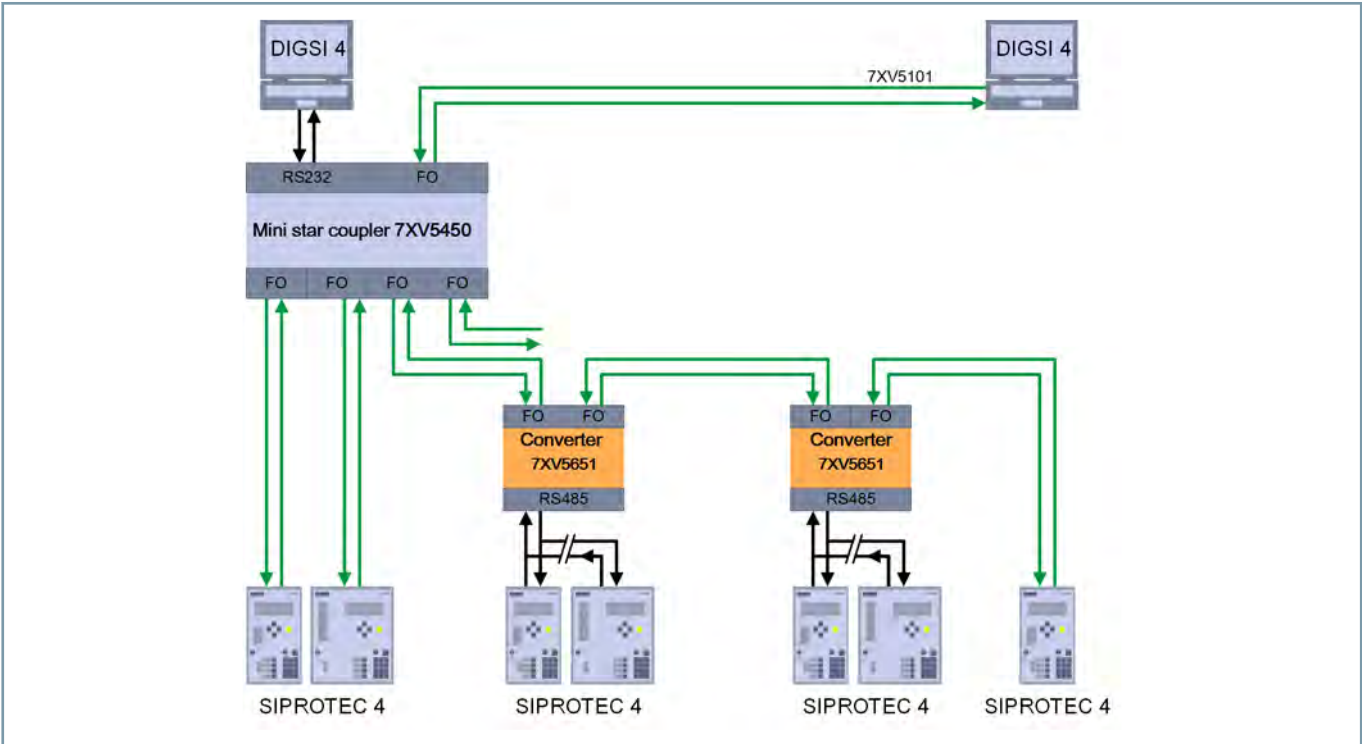
[pic_7XV5650_51_2_...]

Figure 3.5/1 RS485 Optical Fiber Converter

- Additional UL approval
- Metal housing (KU-2M basis) in place of plastic
- Other form factor; converter size the same as CC-2M
- Grounded housing
- Switchable signal relay/GOK (3 terminals)
- Ring redundancy expansion for 2-channel version
- Additional LED to display power/error

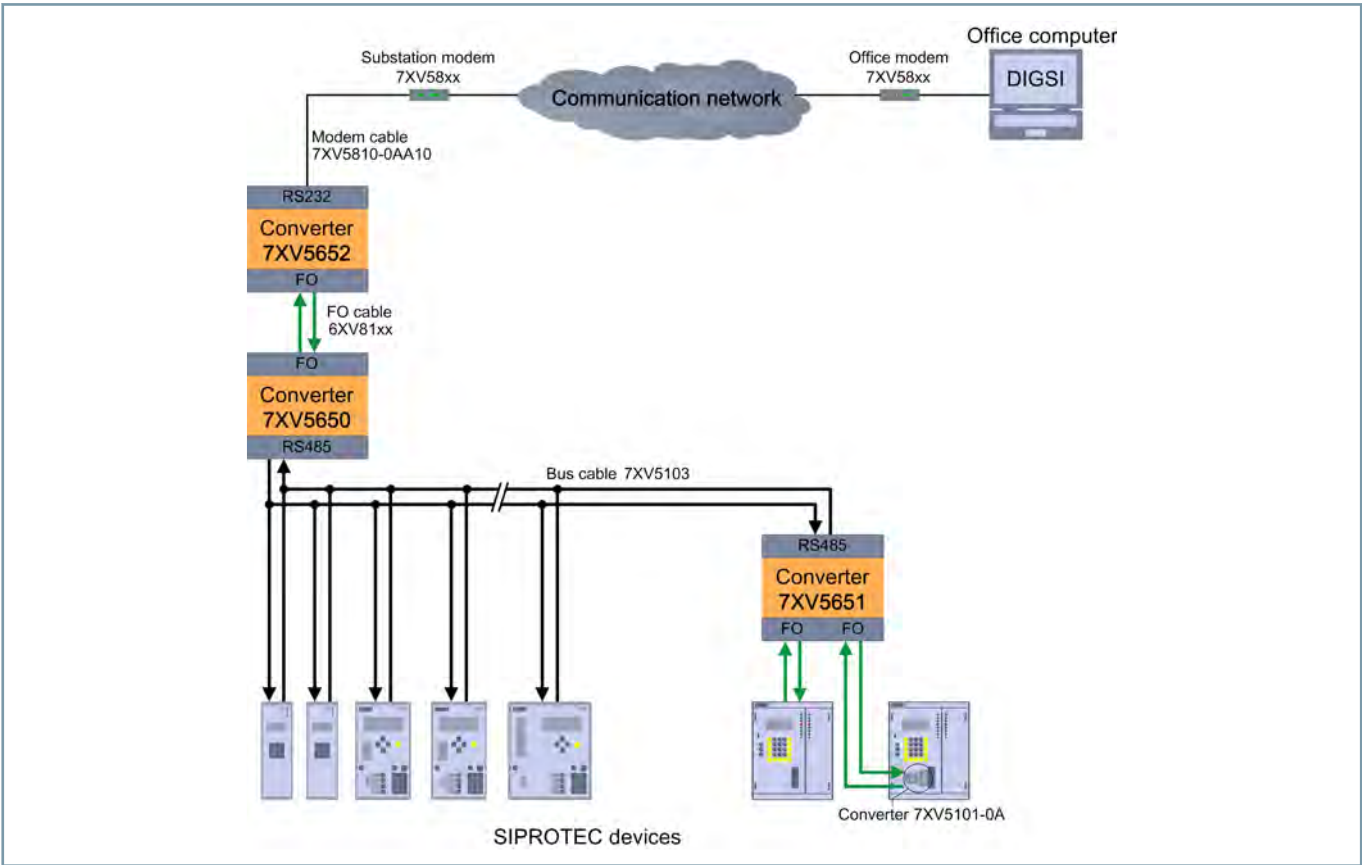
Application

The converters can be used in an optical linear structure or in an optical star structure. Use in an optical linear structure allows interference-free connection of devices using fiber-optic cables; for indoor installation, a cost-effective RS485 bus may be used.



[dw_line-structure_rs485-bus, 3, en_US]

Figure 3.5/2 Optical linear Structure with connected RS485 Interfaces



[dw_connec_optical-interface_rs485-bus, 2, en_US]

Figure 3.5/3 Connecting Optical Interfaces to an RS485 Bus

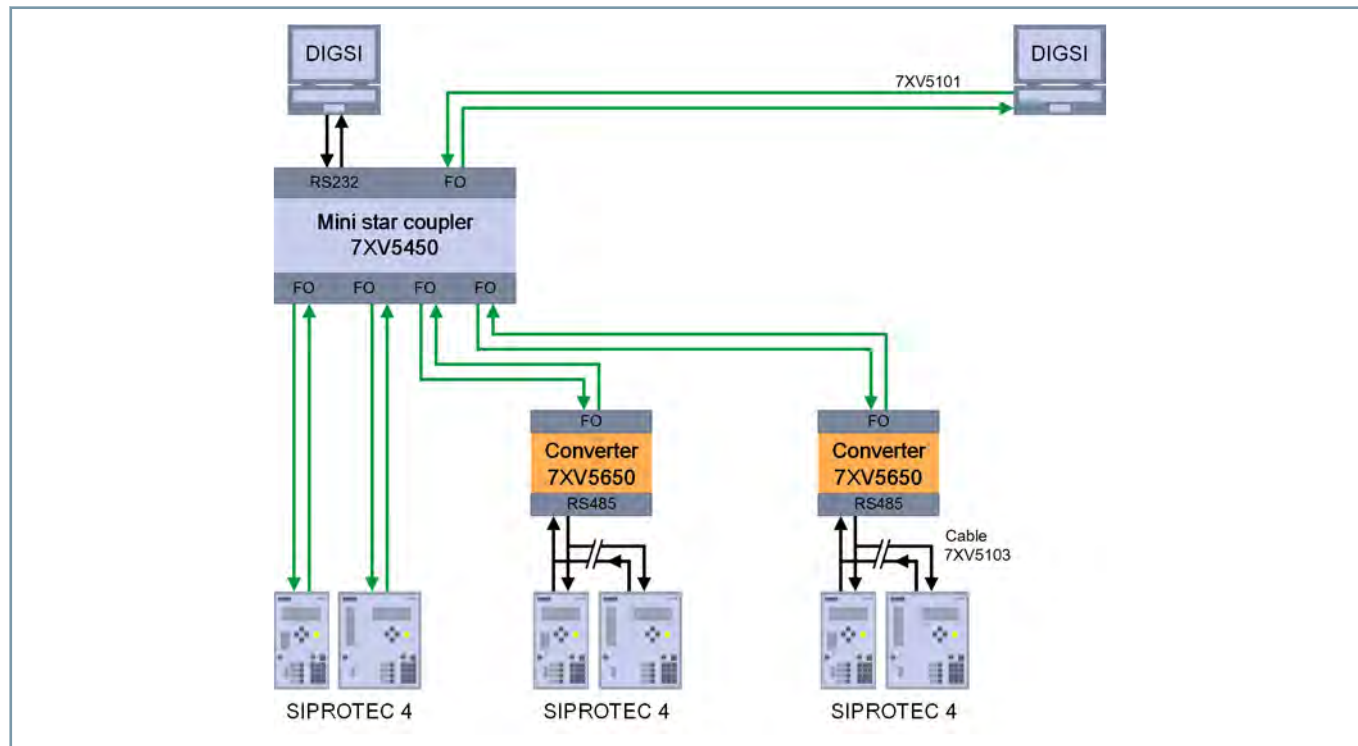
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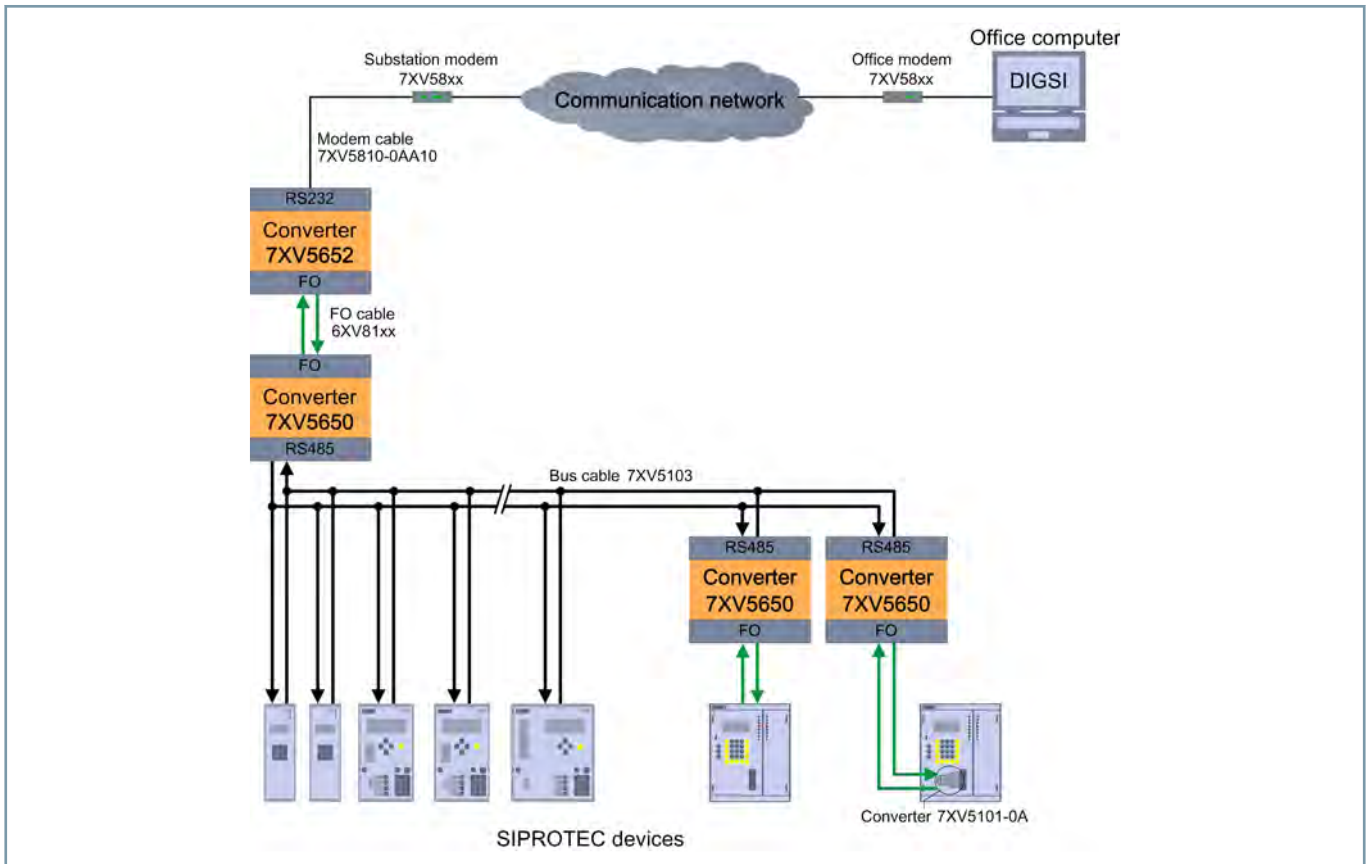
Several devices with an optical interface and DIGSI or IEC 60870-5-103 protocol can be connected to an existing

RS485 bus topology. Within one system, the data format and the baud rate must be set to the same values.



[dw_optical_star-coupler_with_RS485_interface, 3, en_US]

Figure 3.5/4 Optical Star Structure with connected RS485 Interfaces



[dw_connec_optical-interface_rs485-bus_01_2_en_US]

Figure 3.5/5 Connecting Optical Interfaces to an RS485 Bus

Technical Data

Auxiliary Voltage	
Rated input voltage	
• Direct voltage	DC 24 V to 250 V \pm 20 %
• Alternating voltage	AC 60 V to 230 V \pm 20 % / 45 to 65
Internal fuse	1.25 A slow-blow (soldered)
Protection class	III
Power consumption	For rated voltage (typical value)
• Direct voltage	3 W
• Alternating voltage	2.5 W; 3.5 VA

LEDs	
3 LEDs	
Green	Operating voltage OK
Yellow	Data reception via optical fiber channel 1
Yellow	Data reception via optical fiber channel 2 (7XV5651 only) Transmitting data

Connector Plug	
Power supply	2-pole Phoenix screw terminal
Fiber-optic cables	820 nm, ST connector

Connector Plug	
RS485	9-pole D-sub socket 2-pole Phoenix screw terminal
Signaling contact	2-pole Phoenix screw terminal

Non-Flickering Light	
Can be switched to light ON/OFF	

Housing	
Plastic case, EG90, dark gray; 90×75×105 mm (W×H×D) for snap-on mounting to 35-mm DIN rail according to EN 60715	

You can find additional technical data in the manual at:
www.siemens.com/accessories

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Surface Mounting

The converter has a housing for snap-on mounting to a 35-mm DIN rail according to EN 60715. Auxiliary voltage can be provided via screw connections. The fiber-optic cables are connected using ST connectors. The device contains no silicone or halogen and is very flame-resistant.

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Selection and Ordering Data

Description	Order no.												
	1	2	3	4	5	6	7	8	9	10	11	12	
Converter, optical fiber 820 nm to RS485	7	X	V	5	6	5	□	–	0	C	A	0	0
							▲						
Converter with one RS485 interface and 2 optical fiber ST sockets (receive and transmit) 1 optical channel Not suitable for PROFIBUS Linear structure up to 115 Kbps Auxiliary voltage, DC 24 V to 250 V and AC 110/230 V without switchover Connecting protection devices or RTU with an RS485 interface using 9-pole D-sub connector plugs Connecting PC via modem using optical fiber 820 nm, via ST connectors for optical fiber 62.5 μm DIN rail mounting, metal housing							0						
Converter with one RS485 interface and 4 optical fiber ST sockets (2 times receive and transmit) 2 optical channels Not suitable for PROFIBUS With RTU ring redundancy Linear structure up to 115 Kbps Auxiliary voltage, DC 24 V to 250 V and AC 110/230 V Connecting protection devices with an RS485 interface using 9-pole D-sub connector plugs 4 fiberglass connections for 62.5/125 μm Multimode optical fiber using ST connectors DIN rail mounting, metal housing							1						