4.3 Product properties and device views

4.3.1 SCALANCE X101-1

Possible attachments

The SCALANCE X101-1 media converter has an RJ-45 jack and a BFOC socket for connecting end devices or further network segments.

Note

The BFOC socket (Bayonet Fiber Optic Connector) corresponds to the ST socket.

Figure 4-1 SCALANCE X101-1

4.3.2 SCALANCE X101-1LD

Possible attachments

The SCALANCE X101-1LD media converter has an RJ-45 jack and a BFOC socket for connecting end devices or further network segments.

Note

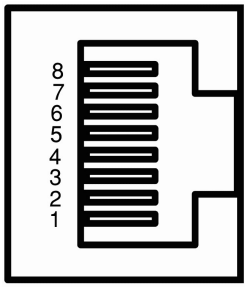
The BFOC socket (Bayonet Fiber Optic Connector) corresponds to the ST socket.

Figure 4-2 SCALANCE X101-1LD

4.4 TP ports (twisted pair)

RJ-45 connector pinout

With SCALANCE X-100 media converters, the twisted-pair port is designed as an RJ-45 jack with the MDI-X pin assignment (Medium Dependent Interface Autocrossover) of a network component.



Pin number	Assignment
Pin 8	n. c.
Pin 7	n. c.
Pin 6	TD-
Pin 5	n. c.
Pin 4	n. c.
Pin 3	TD+
Pin 2	RD-
Pin 1	RD+

Note

Permitted cable lengths

TP cords or TP-XP cords with a maximum length of 10 m can be connected to the TP port with the RJ-45 jack.

With the IE FC cables and IE FC RJ-45 plugs 180, an overall cable length of a maximum of 100 m is permitted between two devices depending on the cable type.

Autonegotiation

With the autonegotiation mechanism, repeaters and end devices can automatically determine the transmission speed and the transmission mode of the partner port. This makes it possible to configure different devices automatically.

Two components connected to a link segment can exchange information about the data transfer and can adapt their settings to each other. The mode with the highest possible speed is set.

Note

Devices not supporting autonegotiation must be set permanently to 100 Mbps half duplex or 10 Mbps half duplex.

Auto polarity exchange

If the pair of receiving cables is connected incorrectly (RD+ and RD- interchanged), the polarity is adapted automatically.

MDI / MDI-X autocrossover function

With the MPI/MDI-X autocrossover function, the send and receive contacts of an Ethernet port are assigned automatically. The assignment depends on the cable with which the communications partner is connected. This means that it does not matter whether the port is connected using a patch cable or crossover cable. This prevents malfunctions resulting from mismatching send and receive lines. This makes installation much easier for the user.

The SCALANCE X-100 media converters all support the MDI / MDI-X autocrossover function.

4.5 FO port (fiber optic)

NOTICE

Failure of the data traffic due to contamination of optical plug-in connections

Optical sockets and plugs are sensitive to contamination of the end face. Contamination can lead to the failure of the optical transmission network. Take the following precautions to avoid functional impairments:

- Clean the end face of field-assembled connectors carefully before connecting. No residues of processing may remain on the connector.
- Only remove the dust caps of optical transceivers and pre-configured cables shortly before connecting the cables.
- Close unused optical sockets and plugs as well as pluggable transceivers and slots with the supplied protective caps.

NOTICE
No link building with active plug-in transceivers If you connect a SCALANCE X101-1 or SCALANCE X101-1LD media converter to the port of a partner device in which an active plug-in transceiver is plugged in, the media converter does not establish a link. The SCALANCE X101-1 and SCALANCE X101-1LD media converters are not compatible with the following plug-in transceivers: • SFP991-1A (6GK5991-1AD00-8GA0) • SFP991-1LD A (6GK5991-1AF00-8GA0)

NOTICE
No link building with partner device If you connect a SCALANCE X101-1 or SCALANCE X101-1LD media converter to one of the following partner devices, the media converter does not establish a link. The SCALANCE X101-1 and SCALANCE X101-1LD media converters are not compatible with the following partner devices: • SCALANCE XB108-2(SC) (6GK5108-2BD00-2AB2) • SCALANCE XB108-2(ST) (6GK5108-2BB00-2AB2)

4.5.1 SCALANCE X101-1

Transmission speed

The transmission speed of the optical Fast Ethernet port is 100 Mbps.

Transmission mode

The transmission mode for 100Base-FX is specified in the IEEE 802.3 standard.

Since the full duplex mode and the transmission speed cannot be modified for optical transmission, autonegotiation cannot be used.

Transmission medium

Data transmission is via multimode fiber-optic cable (FO cable). The transceiver wavelength is 1300 nm.

Multimode FO cable is used with a core diameter of 50 or 62.5 µm. The light source is an LED.

The outer diameter of the FO cable is 125 µm.

Range

The maximum transmission range (segment length) is as follows:

- with 62.5/125 µm fiber multimode SIMATIC NET cable: 4 km
- with 50.0/125 µm fiber multimode SIMATIC NET cable: 5 km

Connectors

The cables are connected using BFOC sockets.

4.5.2 SCALANCE X101-1LD

Transmission speed

The transmission speed of the optical Fast Ethernet port is 100 Mbps.

Transmission mode

The transmission mode for 100Base-LX is specified in the IEEE 802.3 standard.

Since the full duplex mode and the transmission speed cannot be modified for optical transmission, autonegotiation cannot be used.

Transmission medium

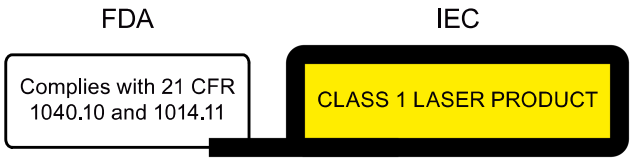
Data transmission is over single-mode fiber-optic cable (FO cable). The transceiver wavelength is 1310 nm.

Single-mode fiber-optic cable with a core diameter of 10 µm is used.

The outer diameter of the FO cable is 125 µm.

Sender

The light source is an "eye safe" class 1 laser with a wavelength of 1310 nm.



Range

The maximum transmission range (segment length) is 26 km with a signal attenuation of the fiber-optic cable of ≤ 0.5 dB/km.

Connectors

The cables are connected using BFOC sockets.

GI-PCF

For segment lengths longer than 100 m, you can use GI-PCF cables. Note the information of the manufacturer.

4.6 LEDs

Fault LED "F" (red LED)

The fault LED indicates the incorrect functioning of the device.

LED color	LED status	Meaning
Red	Lit	The SCALANCE X-100 media converter detects a fault. At the same time, the signaling contact opens. The following faults/errors are detected: 1. Link down event on a monitored port. 2. Loss of the power supply of one of the two redundant power supplies or the power supply drops below 14 V.
-	Off	No problem has been detected by the SCALANCE X-100 media converter.

Power LED "L" (green LED)

The power LED shows the status of the power supply.

LED color	LED status	Meaning
Green	Lit	Power supply L1 or L2 is connected.
-	Off	Power supply L1 and L2 are not connected or L1 and L2 <14 V.

Note

If the green LED is not lit, no other signal LED lights up either.

Port LEDs "P" (green/yellow LEDs)

The port LEDs indicate the status of the ports.

LED color	LED status	Port LED	Meaning
Green	Lit	P1	Link exists, no data reception at port
Green	Lit	P2	Link exists, no data reception at port
Yellow	Lit	P1	Link exists, data reception at port

LED color	LED status	Port LED	Meaning
Yellow	Lit	P2	Link exists, data reception at port
Yellow	Flashing	P1 + P2	Setting or display of the fault mask

Note

In standalone mode, the link status of the port LEDs is only displayed if the same link status is detected at both ports P1 and P2.
In transparent link mode, the link status at the optical port (P2) is detected and displayed even without a link at the electrical port P1.

Transparent link LED "TL" (green LED)

The transparent link LED indicates the mode of the device.

LED color	LED status	Meaning
Green	Lit	Transparent link parameters set.
-	Off	Stand-alone mode. End devices are connected to both ports of the media converter (no cascading).

4.7 SET button

Function

With the SET button, you can display and change the set fault mask. You can also set the transparent link mode if the media converter supports cascading. For more detailed information, refer to the section "Cascade (Page 14)".

Setting the fault mask

Factory setting

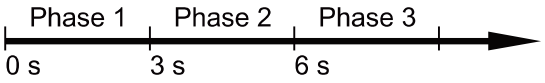
When supplied (factory defaults), the fault mask is set so that the power supply L1+/M1 is monitored. No ports are monitored.

If you connect a power supply to L2+/M2, adapt the fault mask accordingly: Delete the error LED and the signaling contact or set the fault mask to the power supply L2+/M2.

Changing the setting

The changed settings remain after cycling power to the device.

Different settings are made depending on how long you hold down the SET button, as described in the following table:



Time the button is pressed in seconds

Phase	Description	
1	LEDs flash at 5 Hz	The currently set fault mask is displayed. The LEDs of the monitored ports flash. If no fault mask is set, all port LEDs flash one after the other.
	If you release the button in phase 1, this has no effect.	
2	LEDs flash at 2.5 Hz	The current status is displayed. • The LEDs of the ports at which there is currently a link flash. • The LEDs of the connected power supply flash.
	If you release the button in phase 2, this has no effect.	
3	This new status is adopted and stored as the new fault mask in phase 3.	
	LEDs flashing	If you release the SET button while the LEDs are still flashing, saving is aborted.
	LEDs lit	If you release the SET button as soon as the LEDs light up, the current settings will be stored. The stored status is displayed. • The monitored ports are indicated by statically lit LEDs. • The monitored power supply is indicated by statically lit LEDs.

Note

If an empty fault mask is set or needs to be set, the 2 port LEDs flash alternately. If the fault mask is empty, no port is monitored.

Error/fault

If the link is lost at a monitored port or a monitored power supply is lost, this is signaled as follows:

- the red fault LED lights up
- the signaling contact is opened

Setting transparent link mode

Factory setting

When shipped, the transparent link mode is disabled. The media converter is in standalone mode. A cascade is not possible.

Enabling transparent link mode

To enable the transparent link mode, press the SET button and keep it pressed for 0.5 seconds.
The transparent link LED lights up. The transparent link mode is enabled.

Disabling transparent link mode

To disable the transparent link mode, press the SET button and keep it pressed for 0.5 seconds.
The transparent link LED is off. The transparent link mode is disabled. The media converter is in standalone mode.