SIEMENS

SIMATIC NET

SCALANCE Industrial Ethernet SCALANCE X-100 and SCALANCE X-200 Product Line

Operating instructions

Introduction 1

Network topologies 2

Product properties 3

Installation and maintenance 4

Configuration / diagnostics using remote mechanisms 5

IRT technology with SCALANCE X-200 6

PROFINET IO functionality 7

Approvals and markings 8

References 9

Dimension drawings 10

09/2006
A5E00349864 Release 7

Validity of the Operating Instructions

These operating instructions are valid for the following devices:

SIMATIC NET SCALANCE X108 6GK5108-0BA00-2AA3

SIMATIC NET SCALANCE X104-2 6GK5104-2BB00-2AA3

SIMATIC NET SCALANCE X106-1 6GK5106-1BB00-2AA3

SIMATIC NET SCALANCE X208 6GK5208-0BA00-2AA3

SIMATIC NET SCALANCE X208PRO 6GK5208-0HA00-2AA6

SIMATIC NET SCALANCE X204-2 6GK5204-2BB00-2AA3

SIMATIC NET SCALANCE X206-1 6GK5206-1BB00-2AA3

SIMATIC NET SCALANCE X204-2LD 6GK5204-2BC00-2AA3

SIMATIC NET SCALANCE X206-1LD 6GK5206-1BC00-2AA3

SIMATIC NET SCALANCE X202-2IRT 6GK5202-2BB00-2BA3

SIMATIC NET SCALANCE X204IRT 6GK5204-0BA00-2BA3

SIMATIC NET SCALANCE X202-2P IRT 6GK5202-2BH00-2BA3

SIMATIC NET SCALANCE X201-3P IRT 6GK5201-3BH00-2BA3

SIMATIC NET SCALANCE X200-4P IRT 6GK5200-4AH00-2BA3

Further documentation

The "SIMATIC NET Industrial Ethernet Twisted Pair and Fiber Optic Networks“ manual contains additional information on other SIMATIC NET products that you can operate along with the devices of the SCALANCE X-100 and X-200 product lines in an Industrial Ethernet network.

Finding information

To help you to find the information you require more quickly, the manual includes not only the table of contents but also the following sections in the Appendix:

- Index
- Glossary

Audience

These operating instructions are intended for persons involved in commissioning networks with the devices of the SCALANCE X-100 and X-200 product lines.

Standards and approvals

The devices of the SCALANCE X-100 and X-200 product lines meet the requirements for the CE mark. You will find detailed information in the section "Approvals and markings" in these operating instructions.

Product properties

3

3.1 Overview of the product characteristics

Table 3-1 Overview of the product characteristics

Device type SCALANCE									
	X108	X104-2	X106-1	X208	X208PRO	X204-2	X206-1	X204-2 LD	X206-1 LD
SIMATIC environment	+	+	+	+	+	+	+	+	+
Diagnostics LED	+	+	+	+	+	+	+	+	+
24 V DC	+	+	+	+	+	+	+	+	+
Compact housing (securing collar, etc.)	+	+	+	+	+	+	+	+	+
2x 24 V DC	+	+	+	+	+	+	+	+	+
Signaling contact + on-site operation	+	+	+	+	+	+	+	+	+
Diagnostics: Web, SNMP, PROFINET	-	-	-	+	+	+	+	+	+
C-PLUG	-	-	-	+	+	+	+	+	+
IRT capability	-	-	-	-	-	-	-	-	-
Fast learning	-	-	-	+	+	+	+	+	+
Passive listening	-	-	-	+	+	+	+	+	+
Log table	-	-	-	-	-	-	-	-	-
SNTP + SICLOCK	-	-	-	-	-	-	-	-	-
Cut through	-	-	-	-	-	-	-	-	-
Use in ring possible (not as RM)	-	-	-	+	+	+	+	+	+
Redundancy manager	-	-	-	-	-	-	-	-	-
Standby manager	-	-	-	-	-	-	-	-	-

Fast learning:
Fast recognition of MAC addresses on the device that change during operation (for example, when an end node is reconnected).

Table 3-3 Overview of the connection options

Fast Ethernet 10/100 Mbps	**Device type SCALANCE**								
	X108	**X104-2**	**X106-1**	**X208**	**X208PRO**	**X204-2**	**X206-1**	**X204-2 LD**	**X206-1 LD**
TP (RJ-45)	8	4	6	8	-	4	6	4	6
M12 208PRO only	-	-	-	-	8	-	-	-	-
Fiber multimode (BFOC)	-	2	1	-	-	2	1	-	-
Fiber single mode (BFOC)	-	-	-	-	-	-	-	2	1
Fiber POF / PCF (SC-RJ)	-	-	-	-	-	-	-	-	-
The following ports are set as ring ports when supplied	-	-	-	P1, P2	P1, P2	P5, P6	P1, P2	P5, P6	P1, P2

Table 3-4 Overview of the connection options for IRT devices

Fast Ethernet 10/100 Mbps	**Device type SCALANCE**				
	X202-2IRT	**X204IRT**	**X202-2P IRT**	**X201-3P IRT**	**X200-4P IRT**
TP (RJ-45)	2	4	2	1	-
Fiber multimode (BFOC)	2	-	-	-	-
Fiber single mode (BFOC)	-	-	-	-	-
Fiber POF / PCF (SC-RJ)	-	-	2	3	4
The following ports are set as ring ports when supplied	P3, P4	P1, P2	P3, P4	P3, P4	P3, P4

3.9 SCALANCE X204-2

3.9.1 SCALANCE X204-2 product characteristics

Possible attachments

The SCALANCE X204-2 has four RJ-45 jacks and two BFOC ports for the connection of end devices or other network segments.

Note

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



Figure 3-11 SCALANCE X204-2

3.9.2 SCALANCE X204-2 TP ports

Connector pinout

On the SCALANCE X204-2, the TP ports are implemented as RJ-45 jacks with MDI-X assignment (Medium Dependent Interface–Autocrossover) of a network component.

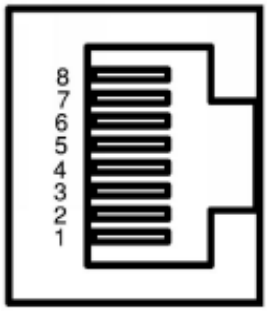


Figure 3-12 RJ-45 jack

Table 3-12 Pin assignment

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+

Notice

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

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

Autonegotiation

Autonegotiation means the automatic detection of the functionality of the port at the opposite end. Using autonegotiation, repeaters or end devices can detect the functionality available at the port of a partner device allowing automatic configuration of different types of device. With autonegotiation, two components connected to a link segment can exchange parameters and set themselves to match the supported communication functionality.

Note

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

Note

The SCALANCE X204-2 is a plug-and-play device that does not require settings to be made for commissioning.

MDI /MDIX autocrossover function

The advantage of the MDI /MDIX autocrossover function is that straight-through cables can be used throughout and crossover Ethernet cables are unnecessary. This prevents malfunctions resulting from mismatching send and receive wires. This makes installation much easier for the user.

The devices of the SCALANCE X-100 and X-200 product lines all support the MDI / MDIX autocrossover function.

Notice

Please note that the direct connection of two ports on the switch or accidental connection over several switches causes an illegal loop. Such a loop can lead to network overload and network failures.

Auto polarity exchange

If the pair of receiving cables are incorrectly connected (RD+ and RD- swapped over), the polarity is reversed automatically.

3.9.3 SCALANCE X204-2 FO ports

Transmission rate

The transmission rate of the optical Fast Ethernet ports 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 rate cannot be modified for optical transmission, autonegotiation cannot be selected.

Transmission medium

Data transmission is over multimode fiber-optic cable (FOC). The wavelength is 1310 nm.

Multimode fiber-optic cables are used with a core of 50 or 62.5 µm; the light source is an LED.

The outer diameter of the FOC is 125 µm.

Transmission range

The maximum transmission range (segment length) is 3 km.

Connectors

The cables are connected over BFOC sockets.

3.20 Displays

3.20.1 Fault indicator (red LED)

Fault indicator (red LED)

If the red LED is lit, the SCALANCE X-100/200 has detected a problem.
The signaling contact opens at the same time.

The LED signals that the device can adopt the following statuses:

Device type SCALANCE	LED lit red	LED flashing red	LED not lit
X108	1, 2	-	10
X104-2	1, 2	-	10
X106-1	1, 2	-	10
X208	1, 2, 3, 4	9	10
X208PRO	1, 2, 3, 4	9	10
X204-2	1, 2, 3, 4	9	10
X206-1	1, 2, 3, 4	9	10
X204-2 LD	1, 2, 3, 4	9	10
X206-1 LD	1, 2, 3, 4	9	10
X202-2IRT	1, 2, 3, 4, 5, 6, 7	9	10
X204IRT	1, 2, 3, 4, 5, 6, 7	9	10
X202-2P IRT	1, 2, 3, 4, 5, 6, 7, 8	9	10
X201-3P IRT	1, 2, 3, 4, 5, 6, 7, 8	9	10
X200-4P IRT	1, 2, 3, 4, 5, 6, 7, 8	9	10

1. Link down event on a monitored port.
2. Failure of one of the two redundant power supplies.
3. C-PLUG
4. Device startup, the LED is lit for approx. 20 seconds.
5. There is a BUS fault BF in PROFINET. Date exchange with the controller could not be established.
6. Redundancy manager connected through.
7. Switchover of standby connection.
8. Maintenance request or maintenance requirement.
9. An internal fault was detected. Inform the maintenance personnel and, if necessary, send the device in for repair.
10. No fault detected by the SCALANCE X-100/200.

3.20.2 Power display

Power display

The LEDs signal that the device can adopt the following statuses:

The status of the power supply is indicated by two green LEDs or one green/yellow LED:

Device type SCALANCE	Green LED lit	Yellow-green LED		LED not lit
		LED lit green	LED lit yellow	
X108	1	-	-	4
X104-2	1	-	-	4
X106-1	1	-	-	4
X208	1	-	-	4
X208PRO	1	-	-	4
X204-2	1	-	-	4
X206-1	1	-	-	4
X204-2 LD	1	-	-	4
X206-1 LD	1	-	-	4
X202-2IRT	1	-	-	4
X204IRT	-	2	3	4
X202-2P IRT	-	2	3	4
X201-3P IRT	-	2	3	4
X200-4P IRT	-	2	3	4

1. Power supply L1 or L2 is connected.
2. Both L power supplies are connected (redundant supply).
3. One L power supply is connected (non-redundant supply).
4. Power supply L1 and/or L2 not connected or <14 V.

3.20.3 Port status indicator (green/yellow LEDs)

Port status indicator (green/yellow LEDs)

The LEDs signal that the device can adopt the following statuses.
The status of the interfaces is indicated by two-color LEDs:

Device type SCALANCE		LED lit green	LED lit yellow	LED flashes yellow	LED flashes green
	Number of port LEDs				
X108	8 port LEDs	1	2	4	-
X104-2	6 port LEDs	1	2	4	-
X106-1	7 port LEDs	1	2	4	-
X208	8 port LEDs	1	2, 3	4	5, 6
X208PRO	8 port LEDs	1	2, 3	4	5
X204-2	6 port LEDs	1	2, 3	4	5, 6
X206-1	7 port LEDs	1	2, 3	4	5, 6
X204-2 LD	6 port LEDs	1	2, 3	4	5, 6
X206-1 LD	7 port LEDs	1	2, 3	4	5, 6
X202-2IRT	4 port LEDs	1	2, 3	4	5, 6
X204IRT	4 port LEDs	1	2, 3	4	5, 6
X202-2P IRT	4 port LEDs	1	2, 3	4	5, 6
X201-3P IRT	4 port LEDs	1	2, 3	4	5, 6
X200-4P IRT	4 port LEDs	1	2, 3	4	5, 6

1. TP link exists, no data reception.
2. TP link, data received at TP port.
3. Device startup, the LED is lit for approx. 6 seconds.
4. Setting or display of the fault mask.
5. The "Show Location" function was enabled over Ethernet (for example, PST tool).
   The button was pressed for longer than 15 seconds to reset the configuration.
6. PROFINET IO operation was started with the PN IO controller, the attempt to change the fault mask with the button was rejected by all the port LEDs flashing once.

3.20.7 LED display during startup

LED display during startup

Device type SCALANCE	When the device starts up, the following LEDs light up in the following order:
	1. Power LEDs (green) light up immediately after turning on the power. 2. Port LEDs (yellow) light up for approx. 6 seconds, the red LED is off. 3. Port LEDs go off, the red error LED is lit for approx. 20 seconds. 4. After the port LEDs go off, the correct link status is displayed after approx. 2 seconds. 5. The device is now ready for operation.
X108	-
X104-2	-
X106-1	-
X208	+
X208PRO	+
X204-2	+
X206-1	+
X204-2 LD	+
X206-1 LD	+
X202-2IRT	+
X204IRT	+
X202-2P IRT	+
X201-3P IRT	+
X200-4P IRT	+

3.21 Technical specifications

Table 3-20 Ports

Device type SCALANCE	Attachment of end devices or network components over twisted pair	Connecting end devices or network components over fiber-optic	Connector for power supply	Connector for signaling contact
X108	8 x RJ-45 jacks with MDI-X pinning 10/100 Mbps (half/ full duplex)	-	1x4-pin plug-in terminal block	1x2-pin plug-in terminal block
X104-2	4 x RJ-45 sockets with MDI-X pinning 10/100 Mbps (half/ full duplex)	2x2 BFOC sockets (100 Mbps, full duplex to 100BaseFX)	1x4-pin plug-in terminal block	1x2-pin plug-in terminal block
X106-1	6 x RJ-45 sockets with MDI-X pinning 10/100 Mbps (half/full duplex)	2 BFOC sockets (100 Mbps, full duplex to 100BaseFX)	1x4-pin plug-in terminal block	1x2-pin plug-in terminal block
X208	8 x RJ-45 jacks with MDI-X pinning 10/100 Mbps (half/ full duplex)	-	1x4-pin plug-in terminal block	1x2-pin plug-in terminal block
X208PRO	8x4-pin M12 sockets, d-coded with MDI-X pinning 10/100 Mbps (half/full duplex)	-	2x4-pin a-coded M12 plugs	1x5-pin b-coded M12 plugs
X204-2	4 x RJ-45 sockets with MDI-X pinning 10/100 Mbps (half/ full duplex)	2x2 BFOC sockets (100 Mbps, full duplex to 100BaseFX)	1x4-pin plug-in terminal block	1x2-pin plug-in terminal block
X206-1	6 x RJ-45 sockets with MDI-X pinning 10/100 Mbps (half/full duplex)	2 BFOC sockets (100 Mbps, full duplex to 100BaseFX)	1x4-pin plug-in terminal block	1x2-pin plug-in terminal block
X204-2 LD	4 x RJ-45 sockets with MDI-X pinning 10/100 Mbps (half/ full duplex)	2x2 BFOC sockets (100 Mbps, full duplex to 100BaseFX)	1x4-pin plug-in terminal block	1x2-pin plug-in terminal block
X206-1 LD	6 x RJ-45 sockets with MDI-X pinning 10/100 Mbps (half/full duplex)	2 BFOC sockets (100 Mbps, full duplex to 100BaseFX)	1x4-pin plug-in terminal block	1x2-pin plug-in terminal block
X202-2IRT	2 x RJ-45 jacks with MDI-X pinning 10/100 Mbps (half/full duplex)	2x2 BFOC sockets (100 Mbps, full duplex to 100BaseFX)	1x4-pin plug-in terminal block	1x2-pin plug-in terminal block
X204IRT	4 x RJ-45 sockets with MDI-X pinning 10/100 Mbps (half/ full duplex)	-	1x4-pin plug-in terminal block	1x2-pin plug-in terminal block
X202-2P IRT	2 x RJ-45 jacks with MDI-X pinning 10/100 Mbps (half/full duplex)	2 SC RJ sockets (100 Mbps, full duplex to 100BaseFX)	1x4-pin plug-in terminal block	1x2-pin plug-in terminal block
X201-3P IRT	1x RJ-45 socket with MDI-X pinning 10/100 Mbps (half/ full duplex)	3 SC RJ sockets (100 Mbps, full duplex to 100BaseFX)	1x4-pin plug-in terminal block	1x2-pin plug-in terminal block

Device type SCALANCE	Attachment of end devices or network components over twisted pair	Connecting end devices or network components over fiber-optic	Connector for power supply	Connector for signaling contact
X200-4P IRT		4 SC RJ sockets (100 Mbps, full duplex to 100BaseFX)	1x4-pin plug-in terminal block	1x2-pin plug-in terminal block

Table 3-21 Electrical data

Device type SCALANCE	Power supply 2 x 24 V DC (18-32 V DC) Safety extra-low voltage (SELV)	Power loss at 24 V DC	Current consumption at rated voltage	Overcurrent protection at input PTC resettable fuse (0.6 A / 60 V)
X108	+	3.36 W	140 mA	+
X104-2	+	4.2 W	175 mA	+
X106-1	+	3.6 W	150 mA	+
X208	+	4.4 W	185 mA	+
X208PRO	+	4.4 W	185 mA	+
X204-2	+	5.16 W	215 mA	+
X206-1	+	4.8 W	200 mA	+
X204-2 LD	+	5.16 W	215 mA	+
X206-1 LD	+	4.8 W	200 mA	+
X202-2IRT	+	6.0 W	300 mA	+
X204IRT	+	4.8 W	200 mA	+
X202-2P IRT	+	7.2 W	300 mA	PTC resettable fuse (1.1 A / 33 V)
X201-3P IRT	+	8.4 W	350 mA	PTC resettable fuse (1.1 A / 33 V)
X200-4P IRT	+	9.6 W	400 mA	PTC resettable fuse (1.1 A / 33 V)

Table 3-22 Signaling contact

Device type SCALANCE	Voltage at signaling contact	Current through signaling contact
X108	24 V DC	max. 100 mA
X104-2	24 V DC	max. 100 mA
X106-1	24 V DC	max. 100 mA
X208	24 V DC	max. 100 mA
X208PRO	24 V DC	max. 100 mA
X204-2	24 V DC	max. 100 mA
X206-1	24 V DC	max. 100 mA
X204-2 LD	24 V DC	max. 100 mA
X206-1 LD	24 V DC	max. 100 mA
X202-2IRT	24 V DC	max. 100 mA
X204IRT	24 V DC	max. 100 mA
X202-2P IRT	24 V DC	max. 100 mA
X201-3P IRT	24 V DC	max. 100 mA
X200-4P IRT	24 V DC	max. 100 mA

Table 3-23 Permitted cable lengths (copper)

Device type SCALANCE	0 - 55 m IE TP torsion cable with IE FC RJ-45 Plug 180 or 0 - 45 m IE TP torsion cable with IE outlet RJ-45 + 10 m TP cord	0 - 85 m IE FC TP marine/trailing/ flexible cable with IE FC RJ-45 Plug 180 or 0 75 m IE FC TP marine/ trailing/flexible cable + 10 m TP cord over IE FC outlet RJ-45	0 - 100 m IE FC TP standard cable with IE FC RJ-45 plug 180 or over IE FC outlet RJ-45 with 0 90 m IE FC TP standard cable + 10 m TP cord
X108	+	+	+
X104-2	+	+	+
X106-1	+	+	+
X208	+	+	+
X208PRO	0 - 55 m IE TP torsion cable with IE FC M12 Plug Pro	0 - 85 m IE FC TP marine/trailing/flexible cable with IE M12 Plug PRO	0 - 100 m IE FC TP standard cable with IE M12 Plug PRO
X204-2	+	+	+
X206-1	+	+	+
X204-2 LD	+	+	+
X206-1 LD	+	+	+
X202-2IRT	+	+	+
X204IRT	+	+	+
X202-2P IRT	+	+	+
X201-3P IRT	+	+	+
X200-4P IRT	-	-	-

Table 3-24 Permitted cable lengths (fiber-optic)

Device type SCALANCE	1 - 50 m 980/1000 plastic optical fiber (POF)	1 - 100 m 200/230 polymer cladded fiber (PCF) 6 dB max. permitted FO cable attenuation with 3 dB link power margin	0 - 3000 m glass FOC 62.5/125 µm or 50/125 µm glass fiber; ≤ 1 dB/km at 1300 nm; 600 MHz x km; 6 dB max. permitted FO cable attenuation with 3 dB link power margin	0 - 26000 m glass FOC 10/125 µm single mode fiber; 0.5 dB/km at 1300 nm; 13 dB max. permitted FO cable attenuation with 2 dB link power margin
X108	-	-	-	-
X104-2	-	-	+	-
X106-1	-	-	+	-
X208	-	-	-	-
X208PRO	-	-	-	-
X204-2	-	-	+	-
X206-1	-	-	+	-
X204-2 LD	-	-	-	+
X206-1 LD	-	-	-	+
X202-2IRT	-	-	+	-
X204IRT	-	-	-	-
X202-2P IRT	+	+	-	-
X201-3P IRT	+	+	-	-
X200-4P IRT	+	+	-	-

Table 3-25 Aging time/ MTBF

Device type SCALANCE	Aging time
X108	30 seconds
X104-2	30 seconds
X106-1	30 seconds
X208	30 seconds
X208PRO	30 seconds
X204-2	30 seconds
X206-1	30 seconds
X204-2 LD	30 seconds
X206-1 LD	30 seconds
X202-2IRT	30 seconds [1)]
X204IRT	30 seconds [1)]
X202-2P IRT	30 seconds [1)]
X201-3P IRT	30 seconds [1)]
X200-4P IRT	30 seconds [1)]

[1] supports fast learning: Quick recognition of MAC addresses on the device that change during operation (for example, when an end node is reconnected).

Device type SCALANCE	MTBF
X108	139.83 years
X104-2	134.87 years
X106-1	136.65 years
X208	112.56 years
X208PRO	115.48 years
X204-2	109.30 years
X206-1	110.47 years
X204-2 LD	109.28 years
X206-1 LD	110.44 years
X202-2IRT	70.90 years
X204IRT	80.58 years
X202-2P IRT	83.72 years
X201-3P IRT	78.03 years
X200-4P IRT	73.06 years

Table 3-26 Permitted ambient conditions

Device type SCALANCE	Operating temperature	Storage/transport temperature	Relative humidity in operation	Operating altitude at max. xx°C ambient temperature
X108	-20 °C through +70 °C	-40 °C through +70 °C	‹ 95 % (no condensation)	2000 m at max. 56 °C 3000 m at max. 50 °C
X104-2	-10 °C through +60 °C	-40 °C through +70 °C	‹ 95 % (no condensation)	2000 m at max. 56 °C 3000 m at max. 50 °C
X106-1	-10 °C through +60 °C	-40 °C through +70 °C	‹ 95 % (no condensation)	2000 m at max. 56 °C 3000 m at max. 50 °C
X208	-20 °C through +70 °C	-40 °C through +70 °C	‹ 95 % (no condensation)	2000 m at max. 56 °C 3000 m at max. 50 °C
X208PRO	-20 °C through +70 °C	-40 °C through +70 °C	‹ 95 % (no condensation)	2000 m at max. 56 °C 3000 m at max. 50 °C
X204-2	-10 °C through +60 °C	-40 °C through +70 °C	‹ 95 % (no condensation)	2000 m at max. 56 °C 3000 m at max. 50 °C
X206-1	-10 °C through +60 °C	-40 °C through +70 °C	‹ 95 % (no condensation)	2000 m at max. 56 °C 3000 m at max. 50 °C
X204-2 LD	0 °C through +60 °C	-40 °C through +70 °C	‹ 95 % (no condensation)	2000 m at max. 56 °C 3000 m at max. 50 °C
X206-1 LD	0 °C through +60 °C	-40 °C through +70 °C	‹ 95 % (no condensation)	2000 m at max. 56 °C 3000 m at max. 50 °C
X202-2IRT	-10 °C through +60 °C	-40 °C through +70 °C	‹ 95 % (no condensation)	2000 m at max. 56 °C 3000 m at max. 50 °C
X204IRT	-20 °C through +70 °C	-40 °C through +70 °C	‹ 95 % (no condensation)	2000 m at max. 56 °C 3000 m at max. 50 °C
X202-2P IRT	0 °C through +60 °C	-40 °C through +70 °C	‹ 95 % (no condensation)	2000 m at max. 56 °C 3000 m at max. 50 °C
X201-3P IRT	0 °C through +50 °C	-40 °C through +70 °C	‹ 95 % (no condensation)	2000 m at max. 56 °C 3000 m at max. 50 °C
X200-4P IRT	0 °C through +40 °C	-40 °C through +70 °C	‹ 95 % (no condensation)	2000 m at max. 56 °C 3000 m at max. 50 °C

Here, you can set the Ethernet ports with which the switch is connected to the redundant ring.

Note

By default, the following ring ports are set:

SCALANCE X208: TP port 1 and TP port 2

SCALANCE X204-2: FO port 5 and FO port 6

SCALANCE X206-1: TP port 1 and TP port 2

Note

SCALANCE X-200 devices can be operated in a redundant ring if one of the following devices is used as a redundancy manager:

OSM ITP62 order number: 6GK1105-2AA10
OSM TP62 order number: 6GK1105-2AB10
OSM ITP53 order number: 6GK1105-2AD10
OSM BC08 order number: 6GK1105-4AA00
OSM TP22 order number: 6GK1105-2AE00
ESM TP40 order number: 6GK1105-3AC00
ESM TP80 order number: 6GK1105-3AB10
ESM ITP80 order number: 6GK1105-3AA10
SCALANCE X414-3E order number: 6GK5414-3FC00-2AA2

Approvals and markings

8

Product Name:

SIMATIC NET	SCALANCE X108	6GK5 108-0BA00-2AA3
SIMATIC NET	SCALANCE X104-2	6GK5 104-2BB00-2AA3
SIMATIC NET	SCALANCE X106-1	6GK5 106-1BB00-2AA3
SIMATIC NET	SCALANCE X208	6GK5 208-0BA00-2AA3
SIMATIC NET	SCALANCE X208PRO	6GK5 208-0HA00-2AA6
SIMATIC NET	SCALANCE X204-2	6GK5 204-2BB00-2AA3
SIMATIC NET	SCALANCE X206-1	6GK5 206-1BB00-2AA3
SIMATIC NET	SCALANCE X204-2LD	6GK5 204-2BC00-2AA3
SIMATIC NET	SCALANCE X206-1LD	6GK5 206-1BC00-2AA3
SIMATIC NET	SCALANCE X202-2IRT	6GK5 202-2BB00-2BA3
SIMATIC NET	SCALANCE X204IRT	6GK5 204-0BA00-2BA3
SIMATIC NET	SCALANCE X202-2P IRT	6GK5 202-2BH00-2BA3
SIMATIC NET	SCALANCE X201-3P IRT	6GK5 201-3BH00-2BA3
SIMATIC NET	SCALANCE X200-4P IRT	6GK5 200-4AH00-2BA3

EMC Guidelines

89/336/EEC "Electromagnetic Compatibility"

Area of application

The products are designed for use in an industrial environment:

Area of application	Requirements	
	RF interference level	Immunity to interference
Industrial area	EN 61000-6-4 Class A: 2001	EN 61000-6-2: 2001

Installation Guidelines

The products meet the requirements if you keep to the installation instructions and safety-related notices as described here and in the manual "SIMATIC NET Industrial Ethernet Twisted Pair and Fiber Optic Networks" /1/ when installing and operating the device.

Approvals

Device type SCALANCE	c-UL-us	c-UL-us for hazardous locations[1]	FM[1]	C-TICK	CE	ATEX Zone 2[1]	E1
X108	UL 60950-1 CSA C22.2 No. 60950-1	UL 1604, UL 2279Pt.15 CL.1, Div.2 GP. A.B.C.D T.. CL.1, Zone 2, GP, IIC, T.. CL.1, Zone2, AEx nC IIC T..	FM 3611 CL.1, Div.2 GP. A.B.C.D T.. CL.1, Zone 2, GP. IIC, T.. Ta:..	AS/NZS 2064 (Class A).	EN 61000-6-4 Class A, EN 61000-6-2	EN60079-15 II 3 G EEx nA II T.. KEMA 03 ATEX 1226 X	ECE-G 95/54/EEC test number 024734
X104-2	UL 60950-1 CSA C22.2 No. 60950-1	UL 1604, UL 2279Pt.15 CL.1, Div.2 GP. A.B.C.D T.. CL.1, Zone 2, GP, IIC, T.. CL.1, Zone2, AEx nC IIC T..	FM 3611 CL.1, Div.2 GP. A.B.C.D T.. CL.1, Zone 2, GP. IIC, T.. Ta:..	AS/NZS 2064 (Class A).	EN 61000-6-4 Class A, EN 61000-6-2	EN60079-15 II 3 G EEx nA II T.. KEMA 03 ATEX 1226 X	-
X106-1	UL 60950-1 CSA C22.2 No. 60950-1	UL 1604, UL 2279Pt.15 CL.1, Div.2 GP. A.B.C.D T.. CL.1, Zone 2, GP, IIC, T.. CL.1, Zone2, AEx nC IIC T..	FM 3611 CL.1, Div.2 GP. A.B.C.D T.. CL.1, Zone 2, GP. IIC, T.. Ta:..	AS/NZS 2064 (Class A).	EN 61000-6-4 Class A, EN 61000-6-2	EN60079-15 II 3 G EEx nA II T.. KEMA 03 ATEX 1226 X	-
X208	UL 60950-1 CSA C22.2 No. 60950-1	UL 1604, UL 2279Pt.15 CL.1, Div.2 GP. A.B.C.D T.. CL.1, Zone 2, GP, IIC, T.. CL.1, Zone2, AEx nC IIC T..	FM 3611 CL.1, Div.2 GP. A.B.C.D T.. CL.1, Zone 2, GP. IIC, T.. Ta:..	AS/NZS 2064 (Class A).	EN 61000-6-4 Class A, EN 61000-6-2	EN60079-15 II 3 G EEx nA II T.. KEMA 03 ATEX 1226 X	-
X208PRO	UL 60950-1 CSA C22.2 No. 60950-1	UL 1604, UL 2279Pt.15 CL.1, Div.2 GP. A.B.C.D T.. CL.1, Zone 2, GP, IIC, T.. CL.1, Zone2, AEx nC IIC T..	FM 3611 CL.1, Div.2 GP. A.B.C.D T.. CL.1, Zone 2, GP. IIC, T.. Ta:..	AS/NZS 2064 (Class A).	EN 61000-6-4 Class A, EN 61000-6-2	EN60079-15 II 3 G EEx nA II T.. KEMA 03 ATEX 1226 X	-
X204-2	UL 60950-1 CSA C22.2 No. 60950-1	UL 1604, UL 2279Pt.15 CL.1, Div.2 GP. A.B.C.D T.. CL.1, Zone 2, GP, IIC, T.. CL.1, Zone2, AEx nC IIC T..	FM 3611 CL.1, Div.2 GP. A.B.C.D T.. CL.1, Zone 2, GP. IIC, T.. Ta:..	AS/NZS 2064 (Class A).	EN 61000-6-4 Class A, EN 61000-6-2	EN60079-15 II 3 G EEx nA II T.. KEMA 03 ATEX 1226 X	-

Dimension drawings

10

10.1 Dimension drawing

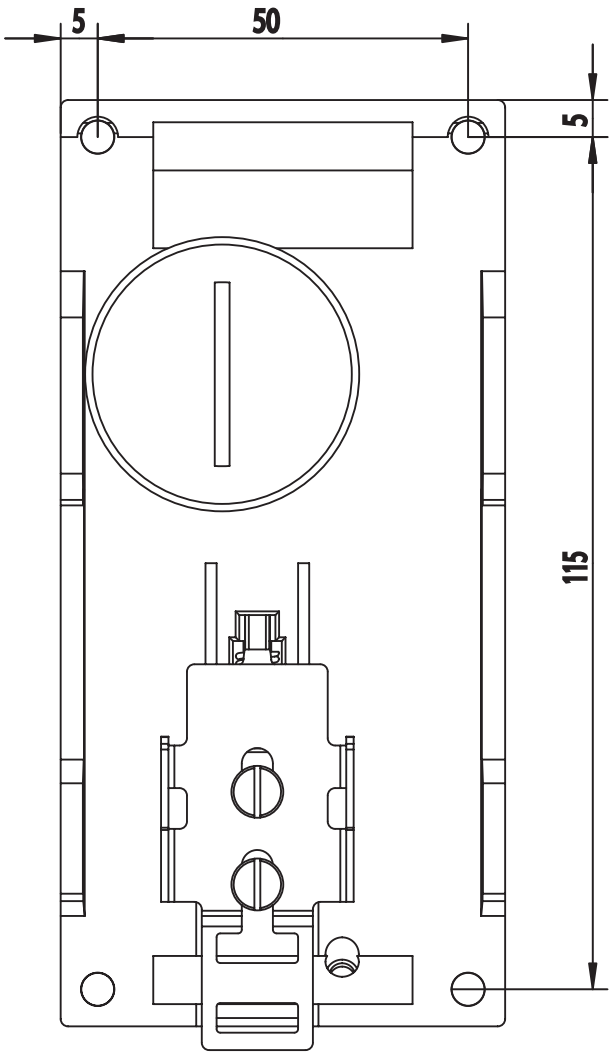


Figure 10-1 Dimension drawing SCALANCE X104-2, X106-1, X108, X208, X206-1, X204-2, X202-2IRT, X204IRT, X204-2LD, X206-1LD, X202-2P IRT, X202-4P IRT, X201-3P IRT, X200-4P IRT