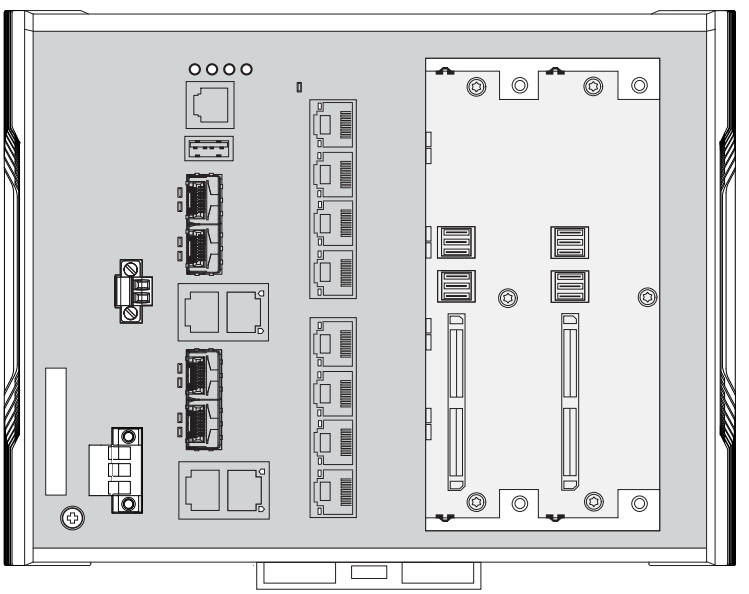
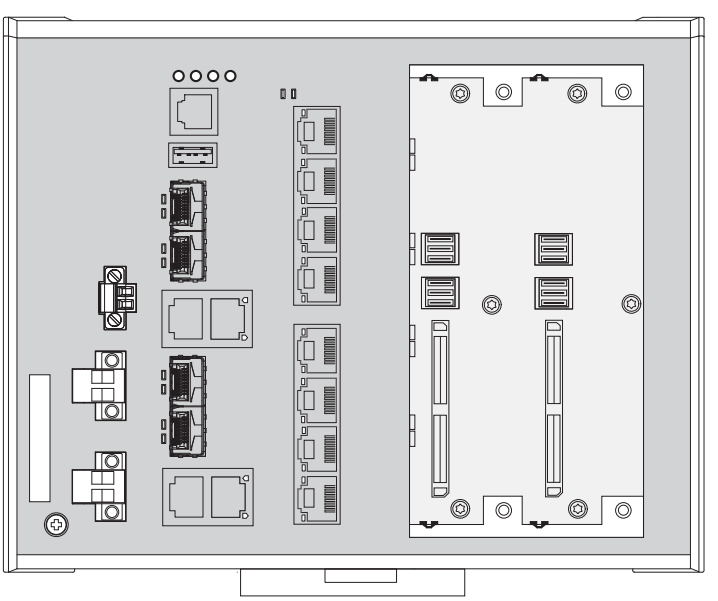
HIRSCHMANN
A BELDEN BRAND

User Manual

Installation
Industrial Ethernet Rail Switch Power
RSPE 30/32/35/37





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You can get the latest version of this manual on the Internet at the Hirschmann product site (www.hirschmann.com).

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Stuttgarter Str. 45-51
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Germany

Contents

Safety instructions

WARNING

UNCONTROLLED MACHINE ACTIONS
To avoid uncontrolled machine actions caused by data loss, configure all the data transmission devices individually.
Before you start any machine which is controlled via data transmission, be sure to complete the configuration of all data transmission devices.
Failure to follow these instructions can result in death, serious injury, or equipment damage.

General safety instructions

You operate this device with electricity. Improper usage of the device entails the risk of physical injury or significant property damage. The proper and safe operation of this device depends on proper handling during transportation, proper storage and installation, and careful operation and maintenance procedures.

- ☐ Before connecting any cable, read this document, and the safety instructions and warnings.
- ☐ Operate the device with undamaged components exclusively.
- ☐ The device is free of any service components. In case of a damaged or malfunctioning the device, turn off the supply voltage and return the device to Hirschmann for inspection.

Certified usage

- ☐ Use the product only for the application cases described in the Hirschmann product information, including this manual.
- ☐ Operate the product only according to the technical specifications. See “Technical data” on page 53.
- ☐ Connect to the product only components suitable for the requirements of the specific application case.

Installation site requirements

- ☐ Install the device in a fire enclosure according to EN 60950-1.
- ☐ Only for device variants featuring supply voltage with characteristic value K9 or KK:
  Install this device solely in a switch cabinet or in an operating site with restricted access, to which maintenance staff have exclusive access.
- ☐ Install the device at ambient temperatures greater than 113 °F (45 °C) in “restricted access locations” based on EN 60950-1 exclusively.

Device casing

Only technicians authorized by the manufacturer are permitted to open the housing.

- ☐ Never insert pointed objects (narrow screwdrivers, wires, etc.) into the device or into the connection terminals for electric conductors. Do not touch the connection terminals.
- ☐ Keep the ventilation slits free to ensure good air circulation.
- ☐ Mount the device in the vertical position.
- ☐ At ambient temperatures > 140 °F (60 °C):
  The surfaces of the device housing may become hot. Avoid touching the device while it is operating.

Qualification requirements for personnel

- ☐ Only allow qualified personnel to work on the device.

Qualified personnel have the following characteristics:

- ▶ Qualified personnel are properly trained. Training as well as practical knowledge and experience make up their qualifications. This is the prerequisite for grounding and labeling circuits, devices, and systems in accordance with current standards in safety technology.
- ▶ Qualified personnel are aware of the dangers that exist in their work.
- ▶ Qualified personnel are familiar with appropriate measures against these hazards in order to reduce the risk for themselves and others.
- ▶ Qualified personnel receive training on a regular basis.

National and international safety regulations

Verify that the electrical installation meets local or nationally applicable safety regulations.

Grounding the device

Grounding the device is by means of a separate ground connection on the device.

- ☐ Ground the device before connecting any other cables.
- ☐ Disconnect the grounding only after disconnecting all other cables.
- ☐ Always ground the device via the grounding screw.

Shielding ground

The overall shield of a connected shielded twisted pair cable is connected to the grounding connector on the front panel as a conductor.

- ☐ Beware of possible short circuits when connecting a cable section with conductive shielding braiding.

Requirements for connecting electrical wires

☐ Before connecting the electrical wires, **always** verify that the requirements listed are complied with.

All of the following requirements are complied with: ▶ The electrical wires are voltage-free. ▶ The cables used are permitted for the temperature range of the application case.

Table 1: Requirements for connecting electrical wires

All of the following requirements are complied with: ▶ The voltage connected complies with the requirements for a safety extra-low voltage (SELV) as per IEC/EN 60950-1. ▶ The connected voltage is limited by a current limitation device or a fuse. Observe the electrical threshold values for the signal contact. See “General technical data” on page 53.

Table 2: Requirements for connecting the signal contact

Device variant	Requirements	
All variants	**All** of the following requirements are complied with: ▶ The supply voltage corresponds to the voltage specified on the type plate of the device. ▶ The power supply conforms to overvoltage category I or II. ▶ The power supply has an easily accessible disconnecting device (for example a switch or a plug). This disconnecting device is clearly identified. So in the case of an emergency, it is clear which disconnecting device belongs to which power supply cable. ▶ The cross-section of the ground conductor is the same size as or bigger than the cross-section of the power supply cables. ▶ Relevant for North America: The power supply cables are suitable for ambient air temperatures of at least 167 °F (75 °C). The power supply cable wires are made of copper.	
Only for device variants featuring supply voltage with the characteristic value CC:	The wire diameter of the power supply cable is at least 1 mm² (North America: AWG16) on the supply voltage input.	
	The following requirements are **alternatively** complied with:	
	Alternative 1	The power supply complies with the requirements for a limited power source (LPS) as per EN 60950-1.
	Alternative 2	Relevant for North America: The power supply complies with the requirements according to NEC Class 2.
	Alternative 3	**All** of the following requirements are complied with: ▶ The power supply complies with the requirements for a safety extra-low voltage (SELV) as per IEC/EN 60950-1. ▶ A fuse suitable for DC voltage is located in the plus conductor of the power supply. The minus conductor is on ground potential. Otherwise, a fuse is also located in the minus conductor. Regarding the properties of this fuse: See “General technical data” on page 53.

Table 3: Requirements for connecting the supply voltage

Device variant	Requirements	
Exclusively for device variants featuring supply voltage with characteristic value PP:	The wire diameter of the power supply cable is at least 1 mm² (North America: AWG16) on the supply voltage input.	
	The following requirements are **alternatively** complied with:	
	Alternative 1	The power supply complies with the requirements for a limited power source (LPS) as per EN 60950-1.
	Alternative 3	**All** of the following requirements are complied with: ▶ The power supply complies with the requirements for a safety extra-low voltage (SELV) as per IEC/EN 60950-1. ▶ A fuse suitable for DC voltage is located in the plus conductor of the power supply. The minus conductor is on ground potential. Otherwise, a fuse is also located in the minus conductor. Regarding the properties of this fuse: See “General technical data” on page 53.
Only for device variants featuring supply voltage with characteristic value K9 or KK:	**All** of the following requirements are complied with: ▶ Supply with DC voltage: A fuse suitable for DC voltage is located in the plus conductor of the power supply. The minus conductor is on ground potential. Otherwise, a fuse is also located in the minus conductor. Regarding the properties of this fuse: See “General technical data” on page 53. The wire diameter of the power supply cable is at least 1 mm² (North America: AWG16) on the supply voltage input. ▶ Supply with AC voltage: A fuse is located in the outer conductor of the power supply. The neutral conductor is on ground potential at both voltage inputs. Otherwise, a fuse is also located in the neutral conductor. Regarding the properties of this fuse: See “General technical data” on page 53. The wire diameter of the power supply cable is at least 0.75 mm² (North America: AWG18) on the supply voltage input.	

Table 3: Requirements for connecting the supply voltage

Supply voltage

The supply voltage is connected to the device casing through protective elements exclusively.

☐ For supply voltage connections with protective conductor connection: First connect the protective conductor before connecting the wires for the supply voltage.

☐ For device variants featuring supply voltage with characteristic value CC:
For the redundant power supply, only use voltage sources whose negative terminal is grounded. The use of different voltage sources can lead to equipment damage.

ATEX directive 2014/34/EU – specific regulations for safe operation

Relevant for RSPE devices when operating in explosive gas atmospheres according to ATEX directive 2014/34/EU, the following applies:

- ☐ List of standards:
  EN 60079-0:2012, A11:2013
  EN 60079-15:2010
  Certificate No.: DEKRA 15ATEX0016X
- ☐ Use only device variants featuring supply voltage with characteristic value CC.
- ☐ Make sure that the device has the following label:

  II 3G Ex nA IIC T4 Gc DEKRA 15ATEX0016X
  for RSPE types

  Ambient rating and temperature code for RSPE types:
  T4: 0 °C ≤ Ta ≤ +60 °C for “S” types or
  T4: −40 °C ≤ Ta ≤ +70 °C for “T” or “E” types

- ☐ The modules shall be installed in a suitable enclosure in accordance with IEC 60079-15 providing a degree of protection of at least IP54 according to IEC 60529, taking into account the environmental conditions under which the equipment will be used.
- ☐ When the temperature under rated conditions exceeds 158 °F (70 °C) at the cable or conduit entry point, or 176 °F (80 °C) at the branching point of the conductors, the temperature specification of the selected cable and cable entries shall be in compliance with the actual measured temperature values.
- ☐ Provisions shall be made to prevent the rated voltage from being exceeded by transient disturbances of more than 119 V.
- ☐ Connectors shall be connected or disconnected exclusively in dead-voltage state.

The USB port shall remain disconnected.

Relevant for use in explosion hazard areas (Hazardous Locations, Class I, Division 2):

The **relay connections** are to be installed and used within their Entity Parameters as per Control Drawing 000182303DNR.

Avertissement - Risque d'explosion - Ne pas débrancher tant que le circuit est sous tension à moins que l'emplacement soit connu pour ne contenir aucune concentration de gaz inflammable.

Avertissement - Risque d'explosion - La substitution de tout composant peut rendre ce matériel incompatible pour une utilisation en classe I, division 2.

For Use in Hazardous Locations Class I Division 2 Groups A, B, C, D:

Only allowed for RSPE/RSPM model No´s. which are individually labeled "FOR USE IN HAZARDOUS LOCATIONS".

This equipment is suitable for use in Class I, Division 2,
Groups A, B, C, and D OR non-hazardous locations only.

Nonincendive field wiring circuits must be wired in accordance with the National Electrical Code (NEC), NFPA 70, article 501.

WARNING – EXPLOSION HAZARD
Substitution of any components may impair suitability for hazardous locations or explosive atmospheres.

WARNING – EXPLOSION HAZARD
Do not disconnect equipment unless power has been switched off or the area is known to be known to be non-hazardous.

Control Drawing for RSPE devices according to Class I Division 2 Hazardous Locations		
Rev.: 1	Document No.: 000182303DNR	Page 1/2

Ordinary Location,
Non-Hazardous Area,
Non-Explosive Atmosphere

Explosive Atmosphere
Class I Division 2
Groups A, B, C, D
Hazardous Location

WARNING!
The USB is for temporary connection only, for maintenance use. Do not use, connect or disconnect unless the area is known to be non-hazardous.
Connection or disconnection in an explosive atmosphere could result in an explosion.

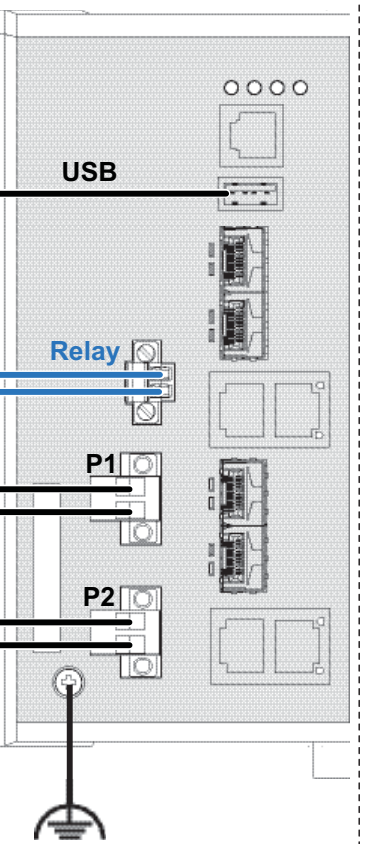
Relay contacts:
Equipment with nonincendive field wiring parameters.
Polarity is not relevant.

The relay terminals are dependent upon the following Entity parameters:

U_i	I_i	C_i	L_i
30 V	90 mA	2 nF	1 µH

Power Supply connectors

RSPE - Industrial Ethernet
Rail Switch Power Enhanced



The earth conductor must be at least of the same wire size (mm² or AWG) as the supply conductors.

Temperature Code: T4
Ambient Temperature rating:
Ta: 0 °C to +60 °C for "S" temperature types
Ta: −40 °C to +70 °C for "T" or "E" temperature types
(Refer to the temperature code of the type designation on the device.)

*) Notes:
The nonincendive field wiring circuit concept allows interconnection of nonincendive field wiring apparatus and associated nonincendive field wiring apparatus using any of the wiring methods permitted for unclassified locations when certain parametric conditions are met.
Capacity: $C_a \geq C_i + C_{Cable}$; Inductivity: $L_a \geq L_i + L_{Cable}$

The maximum cable length has to be determined as follows:
(a) max. Cable Length < $(L_a - L_i) / Cable_L$
("$Cable_L$" denotes the inductance per unit length of used cable)
and
(b) max. Cable Length < $(C_a - C_i) / Cable_C$
("$Cable_C$" denotes the capacitance per unit length of used cable)
The lower value of (a) and (b) is to apply.

Control Drawing for RSPE devices according to Class I Division 2 Hazardous Locations		
Rev.: 1	Document No.: 000182303DNR	Page 2/2

IECEx – Certification Scheme for Explosive Atmospheres

For RSPE devices labeled with an IECEx certificate number, the following applies:

☐ List of standards:
IEC 60079-0:2011+Cor.2012+Cor.2013
IEC 60079-15:2010

☐ The device is suitable for use in an area with a pollution degree of 2 as per IEC 60664-1.

☐ Make sure that the device has the following label:

Ex nA IIC T4 Gc **IECEx DEK 15.0013X**
for RSPE types

Environmental class and temperature code for RSPE types:
T4: 0 °C ≤ Ta ≤ +60 °C for “S“ types or
T4: −40 °C ≤ Ta ≤ +70 °C for “T“ or “E“ types

☐ The modules shall be installed in a suitable enclosure in accordance with IEC 60079-15 providing a degree of protection of at least IP54 according to IEC 60529, taking into account the environmental conditions under which the equipment will be used.

☐ When the temperature under rated conditions exceeds 158 °F (70 °C) at the cable or conduit entry point, or 176 °F (80 °C) at the branching point of the conductors, the temperature specification of the selected cable and cable entries shall be in compliance with the actual measured temperature values.

☐ Provisions shall be made to prevent the rated voltage from being exceeded by transient disturbances of more than 119 V.

☐ Connectors shall be connected or disconnected exclusively in dead-voltage state.

☐ The USB port shall remain disconnected.

CE marking

The labeled devices comply with the regulations contained in the following European directive(s):

Device variant	Directive
All variants	2014/30/EU (EMC) Directive of the European Parliament and the council for standardizing the regulations of member states with regard to electromagnetic compatibility. 2011/65/EU (RoHS) Directive of the European Parliament and of the Council on the restriction of the use of certain hazardous substances in electrical and electronic equipment.
Only for device variants featuring supply voltage with characteristic value K9 or KK:	2014/35/EU Directive of the European Parliament and of the Council on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits.

In accordance with the above-named EU directive(s), the EU conformity declaration will be at the disposal of the relevant authorities at the following address:

Hirschmann Automation and Control GmbH
Stuttgarter Str. 45-51
72654 Neckartenzlingen
www.hirschmann.com

The product can be used in the industrial sector.

- Interference immunity: EN 61000-6-2
- Emitted interference: EN 55032
- Reliability: EN 60950-1

You find more information on technical standards here:
“Technical data” on page 53

Warning! This is a class A device. This device can cause interference in living areas, and in this case the operator may be required to take appropriate measures.

Note: The assembly guidelines provided in these instructions must be strictly adhered to in order to observe the EMC threshold values.

LED or laser components

LED or LASER components according to IEC 60825-1 (2014):
CLASS 1 LASER PRODUCT
CLASS 1 LED PRODUCT

FCC note:

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference; (2) this device must accept any interference received, including interference that may cause undesired operation.
Appropriate testing has established that this device fulfills the requirements of a class A digital device in line with part 15 of the FCC regulations.
These requirements are designed to provide sufficient protection against interference when the device is being used in a business environment.
The device creates and uses high frequencies and can also radiate these frequencies. If it is not installed and used in accordance with this operating manual, it can cause radio transmission interference. The use of this device in a residential area can also cause interference, and in this case the user is obliged to cover the costs of removing the interference.

Recycling note

After usage, this device must be disposed of properly as electronic waste, in accordance with the current disposal regulations of your county, state, and country.

About this manual

The “Installation” user manual contains a device description, safety instructions, a description of the display, and the other information that you need to install the device.

Documentation mentioned in the "Installation" user manual that is not supplied with your device in print can be found as PDF download on the Internet at the Hirschmann product pages (www.hirschmann.com).

Key

The symbols used in this manual have the following meanings:

▶	Listing
☐	Work step
■	Subheading

1 Description

1.1 General description

The RSPE 30/32/35/37 devices are designed for the special requirements of industrial automation. They meet the relevant industry standards, provide very high operational reliability, even under extreme conditions, and also long-term reliability and flexibility.

You can choose from between a wide range of variants. You have the option to set up your device individually based on different criteria:

- Support of PoE(+)
- Temperature range
- Supply voltage range
- Certifications
- Redundancy functions

You have the option of choosing various media to connect to the end devices and other network components:

- Multimode optical fiber
- Singlemode optical fiber
- Twisted pair cable

The device is mounted by latching in place on a DIN rail.
The devices work without a fan.

By using media modules, you obtain up to 16 additional Fast Ethernet ports on a RSPM basic device.
You will find more information on the media modules in the “User Manual for Installation of RSPM”.

The redundancy concept allows the network to be reconfigured quickly.

There are convenient options for managing the device. Manage your devices via:

- Web browser
- SSH
- Telnet
- HiDiscovery (software for putting the device into operation)

- V.24 interface (locally on the device)
- network management software (for example Industrial HiVision)
  The Industrial HiVision Network Management software provides you with additional options for smooth configuration and monitoring: You find further information on the Internet at the Hirschmann product pages: www.hirschmann.com/en/Hirschmann_Produkte/Industrial_Ethernet/network-management-software/index.phtml

The devices provide you with a large range of functions, which the manuals for the operating software inform you about. You find these manuals in the form of PDF files for downloading on the Internet on the Hirschmann product pages (www.hirschmann.com).
The Hirschmann network components help you ensure continuous communication across all levels of the company.

1.2 Device name and product code

The device name corresponds to the product code. The product code is made up of characteristics with defined positions. The characteristic values stand for specific product properties.
You have numerous options of combining the device characteristics. You can determine the possible combinations using the Configurator which is available in the Belden E-Catalog (www.e-catalog.beldensolutions.com) on the web page of the device.

Item	Characteristic	Characteristic value	Description	
1 ... 4	Product	RSPE	Rail Switch Power Enhanced	
5	Data rate	3	10/100 Mbit/s and 10/100/1000 Mbit/s	
6	Hardware type	0	Standard	
		2	Standard with PoE(+)	
		5	Extended redundancy	
		7	Extended redundancy with PoE and PoE+	
7	(hyphen)	–		
8 ... 9	Number Fast Ethernet ports	24	24 ×	
10 ... 11	Number Gigabit Ethernet ports	04	4 ×	
12 ... 14	Configuration of the uplink ports	4O7	4 ×	Combo port for 10 [a]/100/1000 Mbit/s connections
15 ... 17	Configuration of the other ports	T	8 ×	RJ45 socket for 10/100 Mbit/s twisted pair connections
		99	2 ×	free slot for media module

Table 4: Device name and product code

Item	Characteristic	Characteristic value	Description	
18	(hyphen)	–		
19	Temperature range	S	Standard	+32 °F ... +140 °F (0 °C ... +60 °C)
		T	Extended	−40 °F ... +158 °F (−40 °C ... +70 °C)
		E	Extended with Conformal Coating	−40 °F ... +158 °F (−40 °C ... +70 °C)
20 ... 21	Supply voltage	CC	2 voltage inputs for redundant power supply	
			Rated voltage range 24 V DC ... 48 V DC	
		K9	1 voltage input	
			Rated voltage range 110 V AC ... 230 V AC, 50 Hz ... 60 Hz	
			Rated voltage range 60 V DC ... 250 V DC	
		KK	2 voltage inputs for redundant power supply	
			Rated voltage range 110 V AC ... 230 V AC, 50 Hz ... 60 Hz	
			Rated voltage range 60 V DC ... 250 V DC	
		PP	PoE	2 voltage inputs for redundant power supply
				Rated voltage range 47 V DC ... 57 V DC
			PoE+	2 voltage inputs for redundant power supply
				Rated voltage range 53 V D ... 57 V DC
22 ... 23	Certificates and declarations	You will find detailed information on the certificates and declarations applying to your device in a separate overview. See table 5 on page 21.		
24 ... 25	Software packages	99	Reserved	
26 ... 27	Customer-specific version	HH	Hirschmann Standard	
28	Hardware configuration	S	Standard	
		M	Fast MRP	
		P	PRP	
		H	HSR	
		HD	From software version 05.0 onward:	
			Hirschmann DLR	
		Note: You can exchange software with each other on the following device variants: ▶ M ▶ P ▶ H		
29	Software configuration	E	Entry (without configuration)	

Table 4: Device name and product code

Item	Characteristic	Characteristic value	Description
30 ... 31	Software level	2S	HiOS Layer 2 Standard
		2A	HiOS Layer 2 Advanced
		3S	HiOS Layer 3 Standard
32 ... 36	Software version	03.1.	Software version 03.1
		XX.X.	Current software version
37 ... 38	Maintenance	00	Bugfix version 00
		XX	Current bugfix version

Table 4: Device name and product code

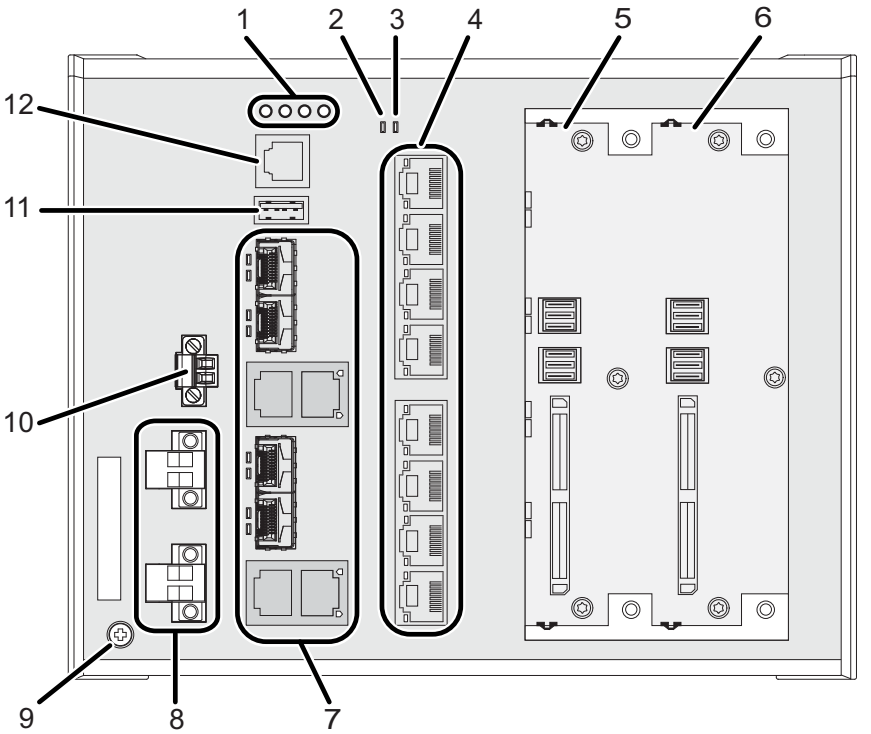
Application case	Certificates and declarations	Characteristic value[a]																		
		Z9	X9	W9	WX	WU	WD	WC	WB	WA	U9	UY	UX	UW	T9	TY	V9	VP	VU	P9
Standard applications	ATEX Zone 2			X	X	X	X	X	X	X				X						
	IECEx						X	X	X	X										
	CE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	EN 60950-1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	EN 61131-2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	FCC	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	ISA-12.12.01 – Class I, Div. 2		X		X	X	X	X					X							
	UL 61010-1, UL 61010-2-210		X		X	X	X	X				X	X	X		X		X	X	X
	UL 60950-1																			
Substation applications	IEC 61850-3																X	X	X	
	IEEE 1613																X	X	X	
Navy applications	GL					X	X		X		X	X	X	X					X	
Railway applications (trackside)	EN 50121-4														X	X				

Table 5: Assignment: application cases, certificates and declarations, characteristic values

a. X= Approval or self-declaration present

1.3 Device views

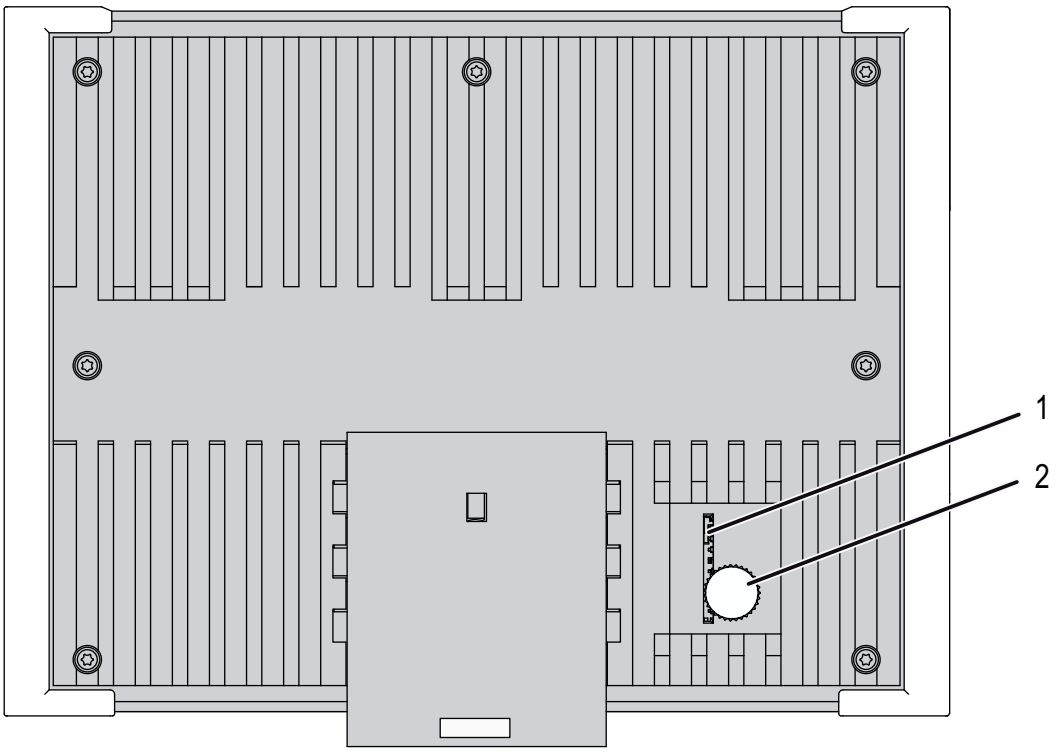
1.3.1 Front view



Front view (using the example RSPE30-24044O7T99-SCC...)				
1	LED display elements for device status			
2	LED display element for media module status			
3	only device variants RSPE 32 and RSPE 37: LED display element for media module status and PoE status			
4	Media module with	8 × RJ45 socket for 10/100 Mbit/s twisted pair connections		
5	Slot 1 for media module RSPM			
6	Slot 2 for media module RSPM			
7	4 × Combo-Port for 10 [a]/100/1000 Mbit/s connections			
8	Supply voltage connection			
	alternatively, depending on device variant	Supply voltage with the characteristic value:	CC	▶ 2 voltage inputs for redundant power supply ▶ 2-pin terminal block
		Supply voltage with the characteristic value:	K9	▶ 1 voltage input ▶ 3-pin terminal block
		Supply voltage with the characteristic value:	KK	▶ 2 voltage inputs for redundant power supply ▶ 3-pin terminal block
		Supply voltage with the characteristic value:	PP	▶ 2 voltage inputs for redundant power supply ▶ 2-pin terminal block
9	Grounding screw			
10	Connection for the signal contact			
11	USB interface			
12	V.24 interface			

a. only for twisted pair connections

1.3.2 Rear view



1	Slot for the SD card
2	Thumb screw

1.4 Power supply

You will find information on the characteristic values here:
“Device name and product code” on page 19

1.4.1 Supply voltage with the characteristic value K9

The following options for power supply are available:

- 1 × 3-pin terminal block
  You will find information on connecting the supply voltage here:
  See “Supply voltage with the characteristic value K9” on page 23.

1.4.2 Supply voltage with the characteristic value KK

The following options for redundant power supply are available:

- 2 × 3-pin terminal block
  You will find information on connecting the supply voltage here:
  See “Supply voltage with the characteristic value KK” on page 23.

1.4.3 Supply voltage with the characteristic value CC

The following options for redundant power supply are available:

- 2 × 2-pin terminal block
  You will find information on connecting the supply voltage here:
  See “Supply voltage with the characteristic value CC” on page 24.

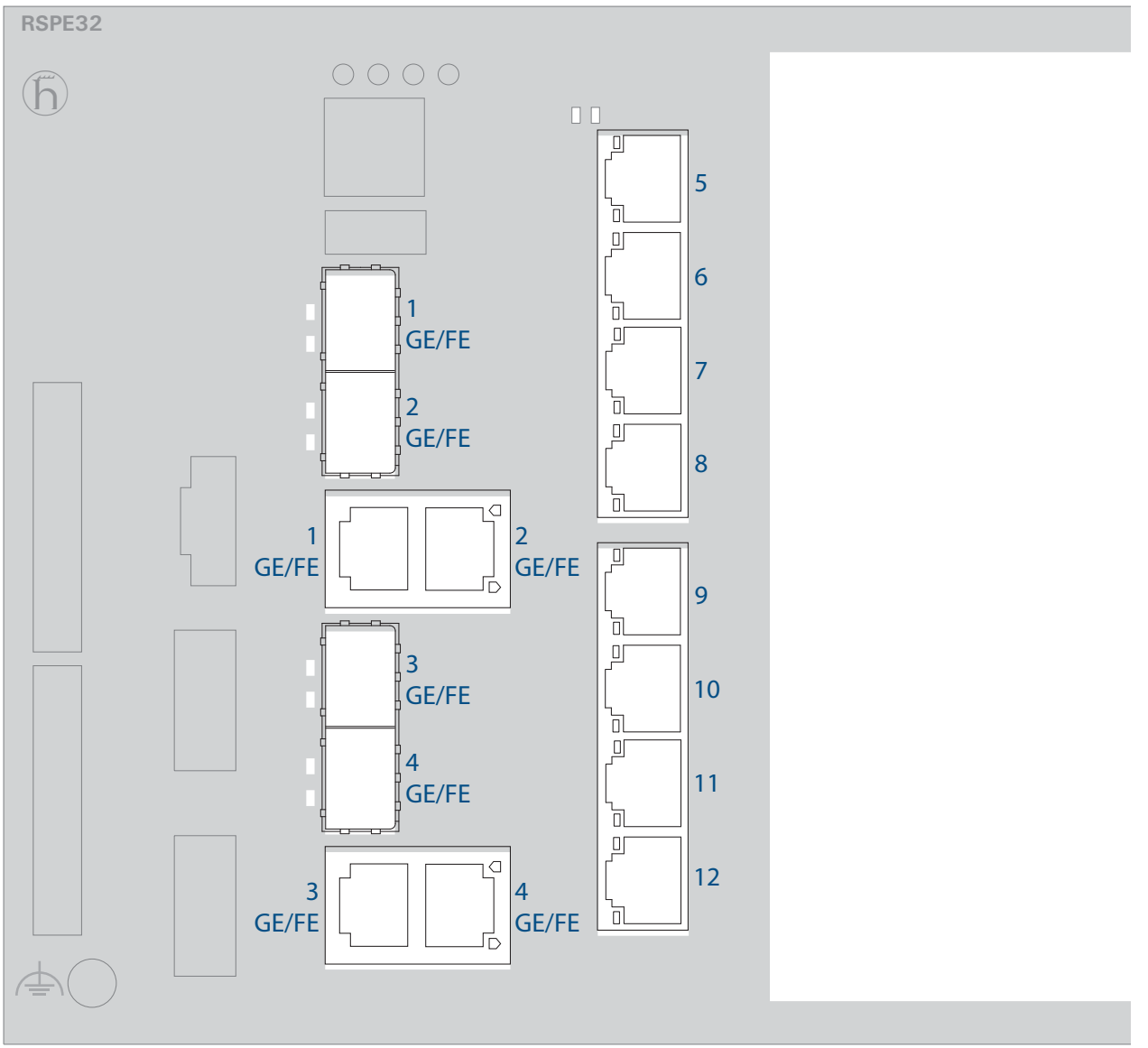
1.4.4 Supply voltage with the characteristic value PP

The following options for redundant power supply are available:

- 2 × 2-pin terminal block
  You will find information on connecting the supply voltage here:
  See “Supply voltage with characteristic value PP” on page 44.
  These device variants support PoE(+).
  Ensure that the external power supply unit you use to provide the PoE voltage fulfills the insulation requirements according to IEEE 802.3 (insulation resistance 48 V, output to the “rest of the world” 750 V DC for 60 seconds).

1.5 Ethernet ports

You can connect end devices and other segments to the device ports using twisted pair cables or optical fibers (F/O).



Port 1 GE/FE	Combo port 1 for Gigabit Ethernet and Fast Ethernet
Port 2 GE/FE	Combo port 2 for Gigabit Ethernet and Fast Ethernet
Port 3 GE/FE	Combo port 3 for Gigabit Ethernet and Fast Ethernet
Port 4 GE/FE	Combo port 4 for Gigabit Ethernet and Fast Ethernet
Ports 5 to 12	Twisted pair port for Fast Ethernet
	PoE-capable for the device variants RSPE 35 and RSPE 37

Table 6: Arrangement of the Ethernet ports on the device

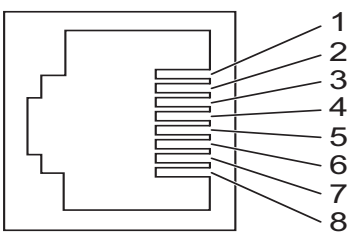
Note: By using media modules, you obtain up to 16 additional Fast Ethernet ports on a RSPM basic device.
You will find more information on the media modules in the “User Manual for Installation of RSPM”.

1.5.1 10/100 Mbit/s twisted pair port

This port is an RJ45 socket.
The 10/100 Mbit/s twisted pair port allows you to connect network components according to the IEEE 802.3 10BASE-T/100BASE-TX standard.
This port supports:

- Autonegotiation
- Autopolarity
- Autocrossing (if autonegotiation is activated)
- 100 Mbit/s half-duplex mode, 100 Mbit/s full duplex mode
- 10 Mbit/s half-duplex mode, 10 Mbit/s full duplex mode

Delivery state: Autonegotiation activated
The port casing is electrically connected to the front panel.



Pin	Function	
1	RD+	Receive path
2	RD−	Receive path
3	TD+	Transmission path
6	TD−	Transmission path
4,5,7,8	—	

Table 7: Pin assignment 10/100 Mbit/s twisted pair port, RJ45 socket, MDI-X mode

1.5.2 Gigabit combo port

The RSPE 30/32/35/37 device provides 4 combo ports for transmission speeds of up to 1000 Mbit/s.
See table 6 on page 25.

You have the option of alternatively connecting a twisted pair cable via a RJ45 socket or an optical fiber via a SFP transceiver to a combo port.
You obtain appropriate SFP transceivers as an accessory.
See “Accessories” on page 65.

By inserting a SFP transceiver, you deactivate automatically the corresponding twisted pair interface.

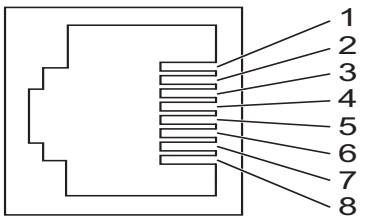
10/100/1000 Mbit/s twisted pair port

This port is an RJ45 socket.
The 10/100/1000 Mbit/s twisted pair port allows you to connect network components according to the IEEE 802.3 10BASE-T/100BASE-TX/1000BASE-T standard.
This port supports:

- Autonegotiation
- Autopolarity
- Autocrossing (if autonegotiation is activated)

- 1000 Mbit/s full duplex
- 100 Mbit/s half-duplex mode, 100 Mbit/s full duplex mode
- 10 Mbit/s half-duplex mode, 10 Mbit/s full duplex mode

Delivery state: Autonegotiation activated
The port casing is electrically connected to the front panel.
The pin assignment corresponds to MDI-X.



Pin	Function
1	BI_DB+
2	BI_DB−
3	BI_DA+
4	BI_DD+
5	BI_DD−
6	BI_DA−
7	BI_DC+
8	BI_DC−

Table 8: Pin assignments of the 10/100/1000 Mbit/s twisted pair port in 1000 Mbit/s mode, RJ45 socket, MDI-X mode

100/1000 Mbit/s F/O port

This port is an SFP slot.
The 100/1000 Mbit/s F/O port allows you to connect network components according to the IEEE 802.3 100BASE-FX/1000BASE-SX/1000BASE-LX standard.
This port supports:

- 1000 Mbit/s full duplex
- 100 Mbit/s half-duplex mode, 100 Mbit/s full duplex mode

State on delivery:

- 100 Mbit/s full duplex when using a Fast Ethernet SFP transceiver
- 1000 Mbit/s full duplex when using a Gigabit Ethernet SFP transceiver

1.5.3 100 Mbit/s F/O port (optional)

This port is an SFP slot.
This option is available to you, if you use a RSPM media module comprising F/O ports.
The 100 Mbit/s F/O port allows you to connect network components according to the IEEE 802.3 100BASE-FX standard.
This port supports:

- 100 Mbit/s half-duplex mode, 100 Mbit/s full duplex mode

Default setting: Full duplex

Note: Insert the media module with 8 F/O ports only in the media module slot 2.
See “Front view” on page 22.

You will find more information on the media modules in the “User Manual for Installation of RSPM”.

1.5.4 Support of PoE(+)

The RSPE 32 and RSPE 37 device variants support Power over Ethernet (PoE) and Power over Ethernet Plus (PoE+).
All Fast Ethernet ports are PoE-capable.
The Gigabit combo ports do not support PoE.
See “Device name and product code” on page 19.

The Fast Ethernet PSE ports allow you to connect network components as a PoE voltage sink according to the standard IEEE 802.3 10BASE-T/ 100BASE-TX and IEEE 802.3af/at.
With the presence of the PoE power supply, a separate power supply for the connected device is unnecessary.
The PoE power is supplied via the wire pairs transmitting the signal (phantom voltage).
The individual ports (joint PoE voltage) are not electrically insulated from each other.

Maximum power available to PoE end devices in total:
124 W
Maximum power available to a media module:
62 W

Note: Connect only PoE-supplier devices whose data connections are located in the interior of the building and are specified as SELV circuits.

The PoE support complies with the following technical standards:

Technical standard	Description	
IEEE 802.3af	Brief description	PoE
	Classes	max. Powered Device (PD) class 0 (15,4 W)
IEEE 802.3at	Brief description	PoE+
	Classes	max. Powered Device (PD) class 4 (30 W)

Table 9: PoE support: technical standards

In accordance with IEEE 802.3af and IEEE 802.3at:
- Endpoint PSE
- Alternative A.

1.6 Display elements

After the supply voltage is set up, the software starts and initializes itself. Afterwards, the device performs a self-test. During this process, various LEDs light up.

1.6.1 Device state

These LEDs provide information about conditions which affect the operation of the whole device.

LED	Display	Color	Activity	Meaning
Power	Supply voltage	—	none	Supply voltage is too low
		yellow	lights up	Device variants with redundant power supply: Supply voltage 1 **or** 2 is on
			flashes 4 times a period	Software update is running. Maintain the power supply.
		green	lights up	Device variants with redundant power supply: Supply voltage 1 **and** 2 is on.
				Device variants with single power supply: Supply voltage is on
ACA	Storage medium ACA21 ACA31	—	none	ACA storage medium not connected
		green	lights up	ACA storage medium connected
			flashes 3 times a period	Device writes to/reads from the storage medium
		yellow	lights up	ACA storage medium inoperative
RM	Ring Manager	—	none	No redundancy configured
		green	lights up	Redundancy exists
			flashes 1 time a period	Device is reporting an incorrect configuration of the RM function
		yellow	lights up	No redundancy exists
Status	Device Status	—	none	Device is starting and/or is not ready for operation
		green	lights up	Device is ready for operation. Characteristics can be configured
		red	lights up	Device is ready for operation. Device has detected at least one error in the monitoring results
			flashes 1 time a period	The boot parameters used when the device has been started differ from the boot parameters saved. Start the device again.
			flashes 4 times a period	Device has detected a multiple IP address

1.6.2 Media module status

Device variants RSPE 30 and RSPE 35

1 LED is located on the upper part of the media module.
This LED provides information on the supply voltage status of the media module.

LED	Display	Color	Activity	Meaning
Power	Supply voltage	—	none	Media module is inoperative
		green	lights up	Supply voltage is on

Device variants RSPE 32 and RSPE 37

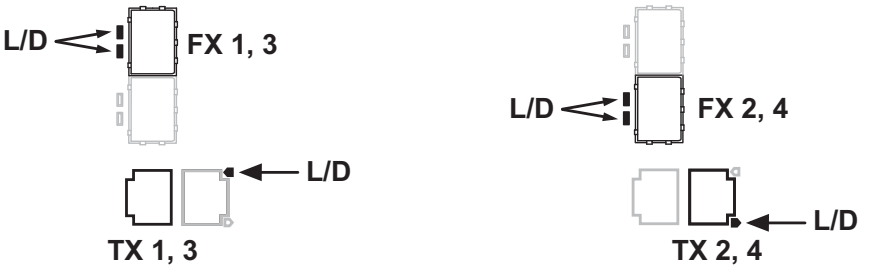
2 LEDs are located on the upper part of the media module.
These LEDs combined provide information on the supply voltage status and the PoE status of the media module.

LED	Display	Color	Activity	Meaning
Power	Supply voltage	—	none	Media module is inoperative
		green	lights up	Voltage supply to the media module is on Voltage supply to the PoE port is on
		yellow	lights up	PoE voltage is missing or is too low

1.6.3 Port status

These LEDs provide port-related information.
The LEDs are directly located on the ports.

Gigabit combo port



LED	Display	Color	Activity	Meaning
L/D	Link status	—	none	Device detects an invalid or missing link **Note:** When an SFP transceiver is connected, the corresponding twisted pair interface is automatically inactive.
		green	lights up	Device detects a valid link
			flashes 1 time a period	Port is switched to stand-by
			flashes 3 times a period	Port is switched off
		yellow	lights up	Device detects a **non-**supported SFP transceiver or a **non-**supported data rate
			flashing	Device is transmitting and/or receiving data
			flashes 1 time a period	Device detects at least one unauthorized MAC address (Port Security Violation)

Fast Ethernet port

LED	Display	Color	Activity	Meaning
L/D	Link status	—	none	Device detects an invalid or missing link
		green	lights up	Device detects a valid link
			flashes 1 time a period	Port is switched to stand-by
			flashes 3 times a period	Port is switched off
		yellow	lights up	Device detects a **non-**supported SFP transceiver or a **non-**supported data rate
			flashing	Device is transmitting and/or receiving data
			flashes 1 time a period	Device detects at least one unauthorized MAC address (Port Security Violation)
PoE	PoE status	—	none	RSPE 30, RSPE 35: LED is without any function
				RSPE 32, RSPE 37: No powered device connected
		green	lights up	Power device is supplied with PoE voltage
		yellow	flashes 1 time a period	Output budget has been exceeded Device has detected a connected powered device
			flashes 3 times a period	PoE administrator status deactivated

1.7 Management interfaces

1.7.1 V.24 interface (external management)

A serial interface is provided on the RJ11 socket (V.24 interface) for the local connection of an external management station (VT100 terminal or PC with corresponding terminal emulation). This enables you to set up a connection to the Command Line Interface CLI and to the System Monitor.

Note: The Terminal cable is available as an accessory.

VT100 terminal settings	
Speed	9600 Baud
Data	8 bit
Stopbit	1 bit
Handshake	off
Parity	none

The socket housing is electrically connected to the front panel of the device. The V.24 interface is electrically insulated from the supply voltage.

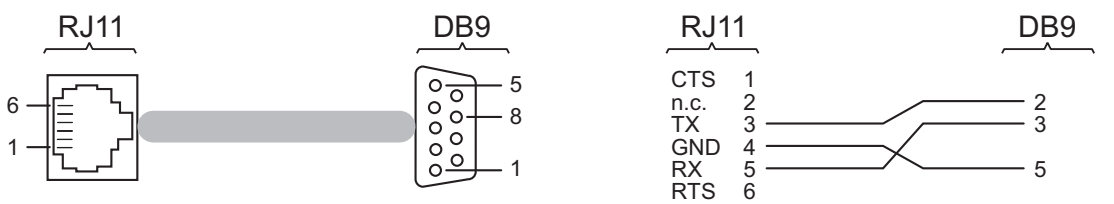


Figure 1: Pin assignment of the V.24 interface and the DB9 plug

1.7.2 SD card interface

The SD card interface allows you to connect the AutoConfiguration Adapter ACA31 storage medium. This is used for saving/loading the configuration data and diagnostic information, and for loading the software.
See “Accessories” on page 65.

For information about the position on the device see “Rear view” on page 23.

On the front of the device there is an LED display that informs you about the status of the interface.

Only use Hirschmann SD cards.

1.7.3 USB interface

The USB interface allows you to connect the AutoConfiguration Adapter ACA21 storage medium. This is used for saving/loading the configuration data and diagnostic information, and for loading the software.
See “Accessories” on page 65.

For information about the position on the device see “Front view” on page 22.

On the front of the device there is an LED display that informs you about the status of the interface.

The USB interface has the following properties:
- Supplies current of max. 500 mA
- Voltage not potential-separated
- Connectors: type A
- Supports the USB master mode
- Supports USB 2.0

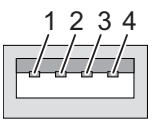
Figure	Pin	Operation
	1	VCC (VBus)
	2	− Data
	3	+ Data
	4	Ground (GND)

Table 10: Pin assignment of the USB interface

1.8 Signal contact

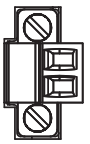


Figure 2: Signal contact: 2-pin terminal block with screw locking

The signal contact is a potential-free relay contact. The signal contact is open when the device is not connected to a power supply.
The signal contact allows you to control external devices or monitor device functions.
In the configuration, you specify how the device uses the signal contact.
You find detailed information regarding possible applications and configuration of the signal contact in the software user documentation on the Hirschmann product pages (www.hirschmann.com).

2 Installation

The devices have been developed for practical application in a harsh industrial environment.
On delivery, the device is ready for operation.

Perform the following steps to install and configure the device:
- Checking the package contents
- Installing the SD card (optional)
- Mounting a cover panel or a media module
- Installing and grounding the device
- Installing an SFP transceiver (optional)
- Connecting the terminal blocks
- Operating the device
- Connecting data cables
- Filling out the inscription label

2.1 Checking the package contents

Proceed as follows:
☐ Check whether the package includes all items named in the section “Scope of delivery” on page 64.
☐ Check the individual parts for transport damage.

2.2 Installing the SD card (optional)

Note: Only use the AutoConfiguration Adapter ACA31 storage medium.
See “Accessories” on page 65.

Proceed as follows:
☐ Deactivate the write protection on the SD card by pushing the write-protect lock towards the middle of the card.
☐ Push the SD card into the slot with the beveled corner facing upwards.
☐ Tighten the thumb screw hand-tight to fix the SD card.

2.3 Mounting a cover panel or a media module

Hirschmann supplies the RSPE 30/32/35/37 device with unused, uncovered media module slots.

2.3.1 Mounting a cover panel

If you do not use media modules, seal the media module slots with cover panels to keep the degree of protection; you obtain cover panels as an accessory.
See “Accessories” on page 65.

Proceed as follows:
☐ Place the cover panel onto the media module slot of the device.
☐ Fasten the cover panel to the device by tightening the 2 screws.

2.3.2 Mounting a media module

Hirschmann supplies the media modules ready for operation.
The media modules provide restricted hot-swap-capability. You have the option of mounting the media modules while the device is operating. To start the operation, it is necessary to restart the device.

Proceed as follows:
☐ Remove the cover panel (if mounted) from the media module slot on the device.
☐ Insert the media module into the slot on the device.
☐ Fasten the media module to the device by tightening the 2 screws.
☐ Restart the device.

2.4 Installing and grounding the device

⚠ WARNING

FIRE HAZARD

Install the device in a fire enclosure according to EN 60950-1.
Failure to follow this instruction can result in death, serious injury, or equipment damage.

⚠ WARNING

ELECTRIC SHOCK

Install this device solely in a switch cabinet or in an operating site with restricted access, to which maintenance staff have exclusive access.
Failure to follow this instruction can result in death, serious injury, or equipment damage.

2.4.1 Installing the device onto the DIN rail

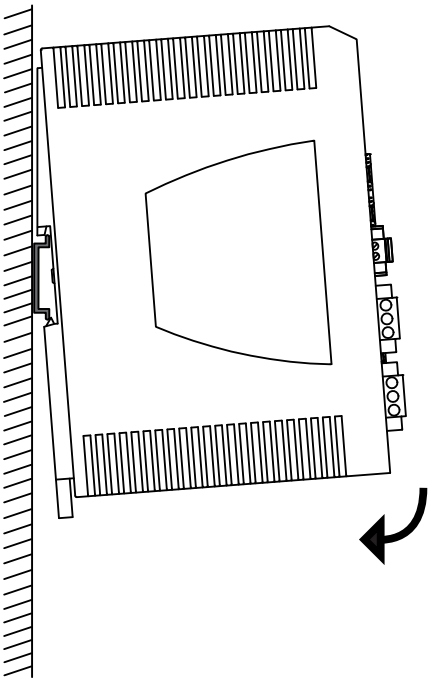
Verify that the device maintains the minimum clearing in order to meet the climatic conditions:

- Top and bottom device side: 3.94 in (10 cm)
- Left and right device side: 0.79 in (2 cm)

Undercutting the minimum clearing reduces the specified maximum operating temperature.
See “General technical data” on page 53.

To mount the device onto a horizontally mounted 35 mm DIN rail according to DIN EN 60715, proceed as follows:

☐ Slide the upper snap-in guide of the device into the DIN rail.
☐ Press the media module downwards onto the clip-in bar.
☐ Snap in the device.



Note: The overall shield of a connected shielded twisted pair cable is connected to the grounding connector on the front panel as a conductor.

2.4.2 Grounding the device

The housing is grounded via the separate ground screw on the bottom left of the front side of the device.
The device variants featuring supply voltage with characteristic value K9 and KK have a connection for protective grounding.
The device variants featuring supply voltage with characteristic value CC and PP have a connection for functional grounding.
You will find information on the characteristic values here:
“Device name and product code” on page 19

☐ Always ground the device via the grounding screw.

2.4.3 Installing an SFP transceiver (optional)

Prerequisites:
Exclusively use Hirschmann SFP transceivers.
See “Accessories” on page 65.

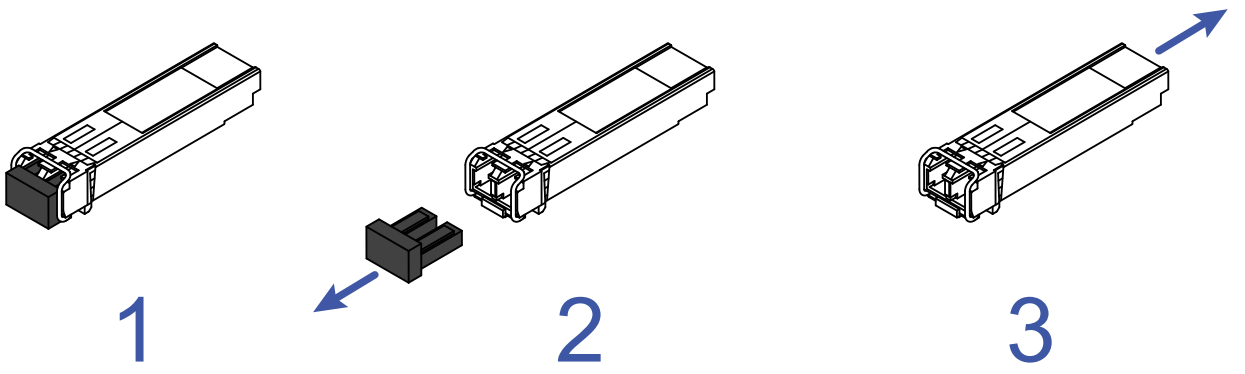


Figure 3: Installing SFP transceivers: Installation sequence

Proceed as follows:
☐ Take the SFP transceiver out of the transport packaging (1).
☐ Remove the protection cap from the SFP transceiver (2).
☐ Push the SFP transceiver with the lock closed into the slot until it latches in (3).

2.5 Connecting the terminal blocks

⚠ WARNING

ELECTRIC SHOCK

Before connecting the electrical wires, **always** verify that the requirements listed are complied with.
See “Requirements for connecting electrical wires” on page 7.

Never insert sharp objects (small screwdrivers, wires, etc.) into the connection terminals for electric conductors, and do not touch the terminals. **Failure to follow this instruction can result in death, serious injury, or equipment damage.**

Note: The supply voltage is connected to the device casing through protective elements exclusively.

2.5.1 Supply voltage with the characteristic value K9

You will find information on the characteristic values here:
“Device name and product code” on page 19

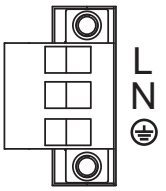


Figure 4: Supply voltage with the characteristic value K9: 3-pin terminal block with screw locking

Type of the voltages that can be connected	Specification of the supply voltage	Pin assignment	
DC voltage	Rated voltage range 60 V DC ... 250 V DC Voltage range incl. maximum tolerances 48 V DC ... 320 V DC	+/L	Plus terminal of the supply voltage
		-/N	Minus terminal of the supply voltage
		⏚	Protective conductor
AC voltage	Rated voltage range 110 V AC ... 230 V AC, 50 Hz ... 60 Hz Voltage range including maximum tolerances 88 V AC ... 265 V AC, 47 Hz ... 63 Hz	+/L	Outer conductor
		-/N	Neutral conductor
		⏚	Protective conductor

Table 11: Supply voltage with characteristic value K9: type and specification of the supply voltage, pin assignment

⚠ WARNING

ELECTRIC SHOCK

Install this device solely in a switch cabinet or in an operating site with restricted access, to which maintenance staff have exclusive access.
Failure to follow this instruction can result in death, serious injury, or equipment damage.

For the supply voltage to be connected, perform the following steps:
☐ Remove the terminal connector from the device.
☐ Connect the protective conductor with the clamp.

☐ Connect the wires according to the pin assignment on the device with the clamps.
☐ Fasten the wires connected by tightening the terminal screws.

2.5.2 Supply voltage with the characteristic value KK

You will find information on the characteristic values here:
“Device name and product code” on page 19

You have the option of supplying the supply voltage redundantly, without load distribution.
Both supply voltage inputs are uncoupled.
With a redundant supply, the supply voltage 1 (upper voltage input on the device) has priority.

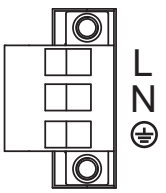


Figure 5: Supply voltage with the characteristic value KK: 3-pin terminal block with screw locking

Type of the voltages that can be connected	Specification of the supply voltage	Pin assignment	
DC voltage	Rated voltage range 60 V DC ... 250 V DC Voltage range incl. maximum tolerances 48 V DC ... 320 V DC	+/L	Plus terminal of the supply voltage
		-/N	Minus terminal of the supply voltage
		⏚	Protective conductor
AC voltage	Rated voltage range 110 V AC ... 230 V AC, 50 Hz ... 60 Hz Voltage range including maximum tolerances 88 V AC ... 265 V AC, 47 Hz ... 63 Hz	+/L	Outer conductor
		-/N	Neutral conductor
		⏚	Protective conductor

Table 12: Supply voltage with characteristic value KK: type and specification of the supply voltage, pin assignment

⚠ WARNING

ELECTRIC SHOCK

Install this device solely in a switch cabinet or in an operating site with restricted access, to which maintenance staff have exclusive access.
Failure to follow this instruction can result in death, serious injury, or equipment damage.

☐ Always ground the device via the grounding screw.

For **every** supply voltage to be connected, perform the following steps:
☐ Remove the terminal connector from the device.
☐ Connect the protective conductor with the clamp.
☐ Connect the wires according to the pin assignment on the device with the clamps.
☐ Fasten the wires connected by tightening the terminal screws.
☐ You find the prescribed tightening torque in chapter:
“General technical data” on page 53

With a non-redundant supply of the supply voltage, the device reports the loss of a supply voltage. You can prevent this message by changing the configuration in the Management.

2.5.3 Supply voltage with the characteristic value CC

You will find information on the characteristic values here:
“Device name and product code” on page 19

You have the option of supplying the supply voltage redundantly, without load distribution.
Both supply voltage inputs are uncoupled.

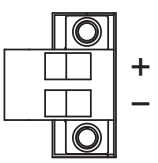


Figure 6: Supply voltage with the characteristic value CC: 2-pin terminal block with screw locking

Type of the voltages that can be connected	Specification of the supply voltage	Pin assignment	
DC voltage	Rated voltage range 24 V DC ... 48 V DC Voltage range incl. maximum tolerances 18 V DC ... 60 V DC	+	Plus terminal of the supply voltage
		–	Minus terminal of the supply voltage

Table 13: Supply voltage with characteristic value CC: type and specification of the supply voltage, pin assignment

For **every** supply voltage to be connected, perform the following steps:

☐ Remove the terminal connector from the device.

☐ Connect the wires according to the pin assignment on the device with the clamps.

☐ Fasten the wires connected by tightening the terminal screws.

▶ You find the prescribed tightening torque in chapter:
“General technical data” on page 53

With a non-redundant supply of the supply voltage, the device reports the loss of a supply voltage. You can prevent this message by applying the supply voltage via both inputs, or by changing the configuration in the Management.

2.5.4 Supply voltage with characteristic value PP

You will find information on the characteristic values here:
“Device name and product code” on page 19

You have the option of supplying the supply voltage redundantly, without load distribution.
Both supply voltage inputs are uncoupled.

Ensure that the external power supply unit you use to provide the PoE voltage fulfills the insulation requirements according to IEEE 802.3 (insulation resistance 48 V, output to the “rest of the world” 750 V DC for 60 seconds).

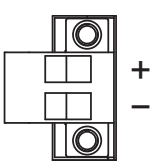


Figure 7: Supply voltage with the characteristic value PP: 2-pin terminal block with screw locking

Type of the voltages that can be connected	Specification of the supply voltage	Pin assignment
When using PoE: DC voltage	Rated voltage 48 V DC Voltage range incl. maximum tolerances 47 V DC ... 57 V DC	+ Plus terminal of the supply voltage – Minus terminal of the supply voltage
When using PoE+: DC voltage	Rated voltage 54 V DC Voltage range incl. maximum tolerances 53 V D ... 57 V DC	+ Plus terminal of the supply voltage – Minus terminal of the supply voltage
Without using PoE or PoE+: DC voltage	Rated voltage range 24 V DC ... 48 V DC Voltage range incl. maximum tolerances 19 V DC ... 60 V DC	+ Plus terminal of the supply voltage – Minus terminal of the supply voltage

Table 14: Supply voltage with characteristic value PP: type and specification of the supply voltage, pin assignment

For **every** supply voltage to be connected, perform the following steps:

☐ Remove the terminal connector from the device.

☐ Connect the wires according to the pin assignment on the device with the clamps.

☐ Fasten the wires connected by tightening the terminal screws.

▶ You find the prescribed tightening torque in chapter:
“General technical data” on page 53

With a non-redundant supply of the supply voltage, the device reports the loss of a supply voltage. You can prevent this message by applying the supply voltage via both inputs, or by changing the configuration in the Management.

2.5.5 Signal contact

☐ Connect the signal contact lines with the terminal block connections.

☐ Fasten the wires connected by tightening the terminal screws.

▶ You find the prescribed tightening torque in chapter:
“General technical data” on page 53

2.6 Operating the device

⚠ WARNING

ELECTRIC SHOCK

Before connecting the electrical wires, **always** verify that the requirements listed are complied with.
See “Requirements for connecting electrical wires” on page 7.

Ground the device before connecting any other cables.
Failure to follow this instruction can result in death, serious injury, or equipment damage.

Relevant for North America:
You find the prescribed tightening torque in chapter:
“General technical data” on page 53
Proceed as follows:
☐ Use screws to secure the connectors to the device.
☐ Enable the supply voltage.

2.7 Connecting data cables

Note the following general recommendations for data cable connections in environments with high electrical interference levels:
- ▶ Keep the length of the data cables as short as possible.
- ▶ Use optical data cables for the data transmission between the buildings.
- ▶ When using copper cables, provide a sufficient separation between the power supply cables and the data cables. Ideally, install the cables in separate cable channels.
- ▶ Verify that power supply cables and data cables do not run parallel over longer distances. If reducing the inductive coupling is necessary, verify that the power supply cables and data cables cross at a 90° angle.
- ▶ Use SF/UTP cables as per ISO/IEC 11801:2002.

☐ Connect the data cables according to your requirements.

2.8 Filling out the inscription label

The information field for the IP address helps you identify your device.

3 Making basic settings

The IP parameters must be entered when the device is installed for the first time. The device provides the following options for configuring IP addresses:

- Input via the V.24 interface
- Entry via the HiDiscovery protocol in the applications HiDiscovery or Industrial HiVision application
- Configuration via BOOTP
- Configuration via DHCP (Option 82)
- AutoConfiguration Adapter

Default settings

- IP address: The device looks for the IP address using DHCP
- Management password:
  user, password: public (read only)
  admin, password: private (read/write)
- V.24 data rate: 9600 Baud
- Ethernet ports: link status is not evaluated (signal contact)
- Optical ports: Full duplex
  TP ports: Autonegotiation
- RSTP (Rapid Spanning Tree) activated

4 Upgrading Software

The upgrade options for RSPE 30/32/35/37 device depend on the software level of the device.
See “Device name and product code” on page 19.

Note: For software version 04.0 or higher, “HiOS” is available as a common software image for all software levels.
You select only the desired redundancy function during the installation of the image. After finishing the installation and manually restarting the device, the device automatically activates the functions of the software level saved in the product code.

Software version		Software level according to the product code		
		2S	2A	3S
HiOS 03.1	Name of the software image	–	HiOS-2A	–
	Range of functions corresponds to	–	2A	–
From HiOS 04.0 onward	Name of the software image	HiOS	HiOS	HiOS
	Range of functions corresponds to	2S	2A	3S

Table 15: Upgrade options

5 Monitoring the ambient air temperature

Operate the device below the specified maximum ambient air temperature exclusively.
See “General technical data” on page 53.

The ambient air temperature is the temperature of the air at a distance of 2 in (5 cm) from the device. It depends on the installation conditions of the device, for example the distance from other devices or other objects, and the output of neighboring devices.

The temperature displayed in the CLI and the GUI is the internal temperature of the device. It is higher than the ambient air temperature. The maximum internal temperature of the device named in the technical data is a guideline that indicates to you that the maximum ambient air temperature has possibly been exceeded.

6 Maintenance and service

- When designing this device, Hirschmann largely avoided using high-wear parts. The parts subject to wear and tear are dimensioned to last longer than the lifetime of the product when it is operated normally. Operate this device according to the specifications.
- Relays are subject to natural wear. This wear depends on the frequency of the switching operations. Check the resistance of the closed relay contacts and the switching function depending on the frequency of the switching operations.
- Hirschmann is continually working on improving and developing their software. Check regularly whether there is an updated version of the software that provides you with additional benefits. You find information and software downloads on the Hirschmann product pages on the Internet (http://www.hirschmann.com).
- Depending on the degree of pollution in the operating environment, check at regular intervals that the ventilation slots in the device are not obstructed.

Note: You find information on settling complaints on the Internet at http://www.beldensolutions.com/en/Service/Repairs/index.phtml.

7 Disassembly

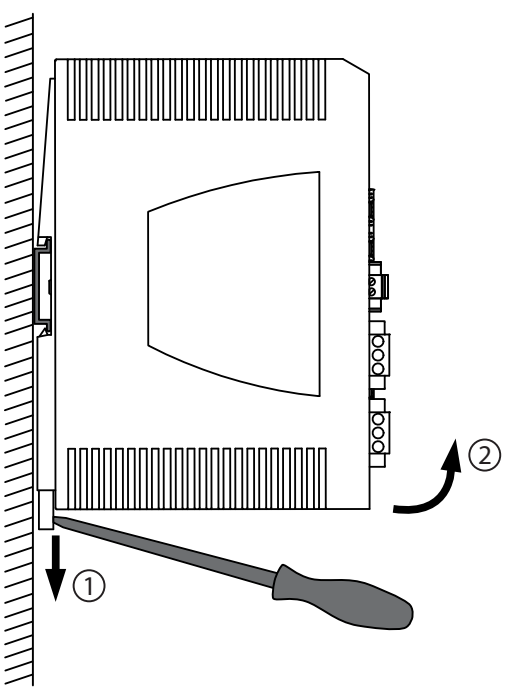
7.1 Removing the device

⚠ WARNING

ELECTRIC SHOCK

Disconnect the grounding only after disconnecting all other cables.
Failure to follow this instruction can result in death, serious injury, or equipment damage.

Proceed as follows:
- ☐ Disconnect the data cables.
- ☐ Disable the supply voltage.
- ☐ Disconnect the terminal blocks.
- ☐ Disconnect the grounding.
- ☐ To remove the device from the DIN rail, press the device downwards and pull it out from under the DIN rail.



7.2 Removing an SFP transceiver (optional)

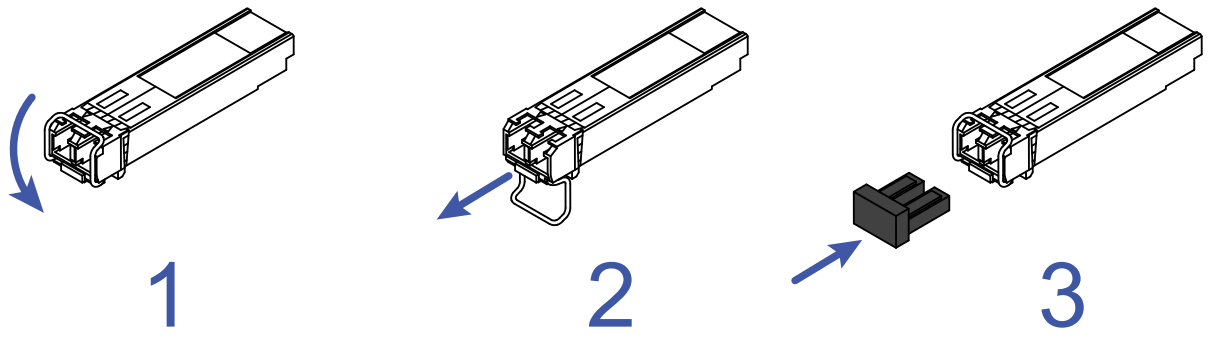


Figure 8: Removing an SFP transceiver: Removal sequence

Proceed as follows:
☐ Open the locking mechanism of the SFP transceiver (1).
☐ Pull the SFP transceiver out of the slot via the open locking mechanism (2).
☐ Close the SFP transceiver with the protection cap (3).

7.3 Removing a media module (optional)

You have the option to remove the media modules while the device is operating.
Proceed as follows:
☐ Loosen the 2 screws on the media module.
☐ Pull the media module out of the slot.
☐ Seal the media module slot on the device with a cover panel.
See “Accessories” on page 65.

8 Technical data

8.1 General technical data

Dimensions W × H × D	RSPE 30/32/35/37	See “Dimension drawings” on page 56.		
Weight	Devices with operating temperature characteristic value S (standard):	4.6 lb (2.2 kg)		
	Devices with operating temperature characteristic value E and T (extended):	5.5 lb (2.5 kg)		
Supply voltage with the characteristic value CC	Connection type	2-pin terminal block		
		Tightening torque		4.5 lb-in (0.51 Nm)
	Rated voltage	24 V DC ... 48 V DC		
	Voltage range incl. maximum tolerances	18 V DC ... 60 V DC		
	Rated power	RSPE30/32	for DC	0.6 A ... 1.3 A
		RSPE35/37	for DC	0.7 A ... 1.4 A
	Power loss buffer	> 10 ms at 20.4 V DC		
	Overload current protection at input	Non-replaceable fuse		
	Back-up fuse for each voltage input	Nominal rating: 1 A Characteristic: slow blow		
	Peak inrush current	< 4 A		
Supply voltage with the characteristic value K9 and KK	Connection type	3-pin terminal block		
		Tightening torque		4.5 lb-in (0.51 Nm)
	Rated voltage	60 V DC ... 250 V DC		
		110 V AC ... 230 V AC, 50 Hz ... 60 Hz		
	Voltage range incl. maximum tolerances	48 V DC ... 320 V DC		
		88 V AC ... 265 V AC, 47 Hz ... 63 Hz		
	Rated power	RSPE30/32	for AC for DC	0.25 A ... 0.4 A 0.2 A ... 0.5 A
		RSPE35/37	for AC for DC	0.25 A ... 0.4 A 0.6 A ... 0.2 A
	Power loss buffer	> 10 ms at 98 V AC		
	Overload current protection at input	Non-replaceable fuse		
	Back-up fuse	Nominal rating: 1 A ... 20 A Characteristic: slow blow		
	Peak inrush current	< 3.5 A		

Supply voltage with the characteristic value PP	Connection type	2-pin terminal block Tightening torque	4.5 lb-in (0.51 Nm)
	Rated voltage	When using PoE:	48 V DC
		When using PoE+:	54 V DC
		Without using PoE or PoE+:	24 V DC ... 48 V DC[a]
	Voltage range incl. maximum tolerances	When using PoE:	47 V DC ... 57 V DC
	Rated power	RSPE30/32 for DC	3.1 A ... 3.5 A
		RSPE35/37 for DC	3.1 A ... 3.5 A
		When using PoE+:	53 V D ... 57 V DC
		Without using PoE or PoE+:	19 V ... 60 V[a]
	Max. PoE power	In total:	124 W
		Per media module:	62 W
	Power loss buffer	> 10 ms at 20.4 V DC	
	Overload current protection at input	Non-replaceable fuse	
	Back-up fuse	Nominal rating: 6.3 A	
		Characteristic: slow blow	
	Peak inrush current	< 5 A	
Climatic conditions during operation	Minimum clearance around the device	Top and bottom device side: 3.94 in (10 cm) Left and right device side: 0.79 in (2 cm)	
		Derating[b]: 3 K at the following clearance: Top and bottom device side: 0.79 in (2 cm) Left and right device side: 0 in (0 cm)	
	Ambient air temperature[c].	Devices with operating temperature characteristic value S (standard): +32 °F ... +140 °F (0 °C ... +60 °C)[d]	
		Devices with operating temperature characteristic value E and T (extended): ▶ RSPE 32, RSPE 37: −40 °F ... +158 °F (−40 °C ... +70 °C)[e,f] −40 °F ... +185 °F (−40 °C ... +85 °C) for 16 hours (tested in accordance with IEC 60068-2-2)[d,g] ▶ RSPE 30, RSPE 35: −40 °F ... +158 °F (−40 °C ... +70 °C)[d] −40 °F ... +185 °F (−40 °C ... +85 °C) for 16 hours (tested in accordance with IEC 60068-2-2)[d]	
	Maximum inner temperature of device (guideline)	Devices with operating temperature characteristic value S (standard): 190 °F (88 °C)	
		Devices with operating temperature characteristic value E and T (extended): 208 °F (98 °C)	
	Humidity	5 % ... 95 % (non-condensing)	
	Air pressure	min. 700 hPa (+9842 ft; +3000 m) max. 1060 hPa (−1312 ft; −400 m)	

Climatic conditions during storage	Ambient air temperature[b]	−40 °F ... +185 °F (−40 °C ... +85 °C)
	Humidity	5 % ... 95 % (non-condensing)
	Air pressure	min. 700 hPa (+9842 ft; +3000 m) max. 1060 hPa (−1312 ft; −400 m)
Signal contact (exclusively for device variants featuring supply voltage with characteristic value CC)		
	Connection type	2-pin terminal block
	Tightening torque	3 lb-in (0.34 Nm)
	Nominal value	I_{max} = 1 A at U_{max} = 30 V AC
		I_{max} = 1 A at U_{max} = 60 V DC
		according to the UL Standards:
		I_{max} = 1 A at U_{max} = 30 V AC
		I_{max} = 1 A at U_{max} = 30 V DC
		according to the Standards ANSI/ISA 12.12.01-2011
		See Control Drawing in section Relevant for use in explosion hazard areas (Hazardous Locations, Class I, Division 2):.
Signal contact (only for device variants featuring supply voltage with characteristic value K9 and KK)		
	Connection type	2-pin terminal block
	Tightening torque	3 lb-in (0.34 Nm)
	Nominal value	I_{max} = 1 A at U_{max} = 230 V AC
		I_{max} = 1 A at U_{max} = 60 V DC
		I_{max} = 0.2 A at U_{max} = 125 V DC
		I_{max} = 0.1 A at U_{max} = 250 V DC
		according to the UL Standards:
		I_{max} = 1 A at U_{max} = 30 V AC
		I_{max} = 1 A at U_{max} = 30 V DC
		according to the Standards ANSI/ISA 12.12.01-2011
		See Control Drawing in section Relevant for use in explosion hazard areas (Hazardous Locations, Class I, Division 2):.
Pollution degree		2
Protection classes	Laser protection	Class 1 in compliance with IEC 60825-1
	Degree of protection	IP20

a. Operation with power supply with characteristic value PP without using PoE or PoE+ in the range 24 V DC (19 V DC) ... 48 V DC (60 V DC) is not covered by UL approvals.
b. Reduction of the maximum permitted ambient air temperature under specific conditions
c. Temperature of the ambient air at a distance of 2 in (5 cm) from the device
d. Hirschmann recommends to use SFP transceivers with “EEC” extension.
e. Use only SFP transceivers with the “EEC” extension, otherwise the standard temperature range applies.
f. when equipped with max. 8 SFP transceivers; if a higher number is connected, the following maximum values apply for the ambient air temperature:
- 9 to 12 transceivers: +149 °F (+65 °C); more than 12 transceivers: +140 °F (+60 °C)
g. when equipped with maximum 8 SFP transceivers; if a higher number is connected, the following maximum values apply for the ambient air temperature:
9 to 12 transceivers: +176 °F (+80 °C); more than 12 transceivers: +167 F (+75 °C)

8.2 Dimension drawings

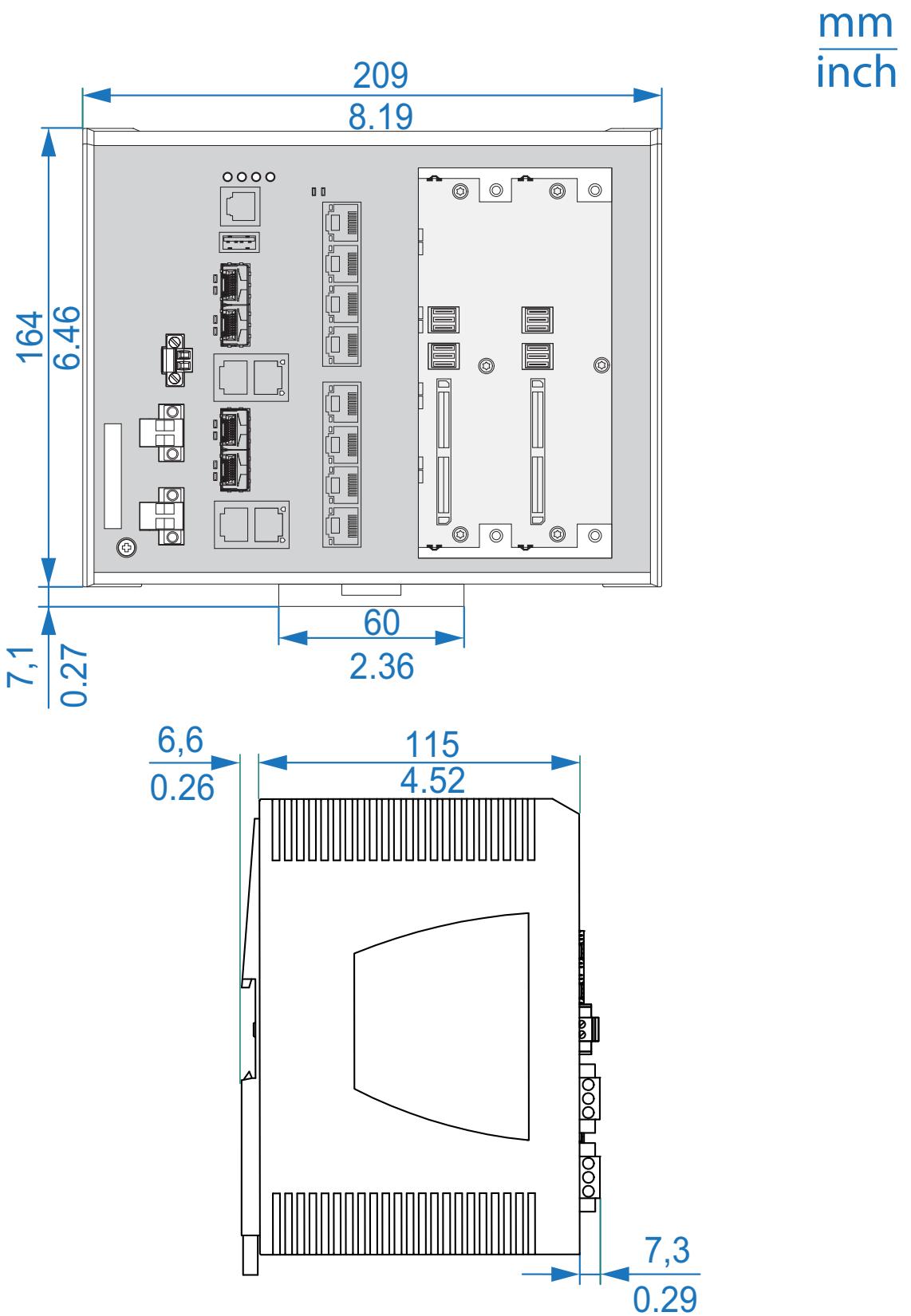


Figure 9: Dimensions of the device variants with operating temperature characteristic value S. For the characteristic value, cf. "Device name and product code" on page 19.

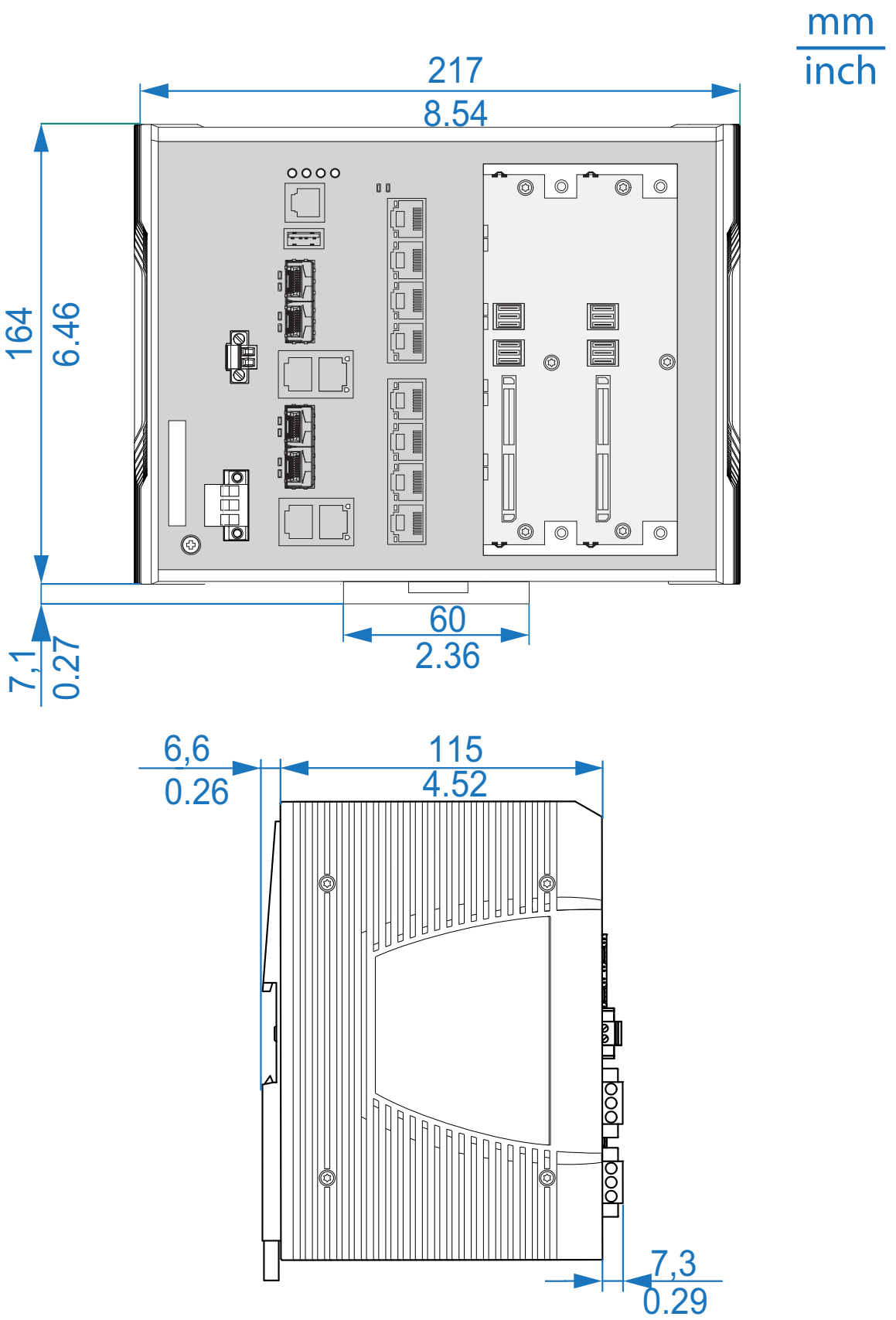


Figure 10: Dimensions of device variants with operating temperature characteristic value E and T. For the characteristic value, cf. "Device name and product code" on page 19.

8.3 EMC and immunity

EMC interference emission		Standard applications	Navy applications	Railway applications (trackside)	Substation applications
Radiated emission					
EN 55032		Class A	Class A	Class A	Class A
GL Guidelines		—	EMC 1	—	—
FCC 47 CFR Part 15		Class A	Class A	Class A	Class A
EN 61000-6-4		Fulfilled	Fulfilled	Fulfilled	Fulfilled
Conducted emission					
EN 55032	DC supply connection	Class A	Class A	Class A	Class A
GL Guidelines	DC supply connection	—	EMC 1	—	—
FCC 47 CFR Part 15	DC supply connection	Class A	Class A	Class A	Class A
EN 61000-6-4	DC supply connection	Fulfilled	Fulfilled	Fulfilled	Fulfilled
EN 55032	Telecommunication connections	Class A	Class A	Class A	Class A
EN 61000-6-4	Telecommunication connections	Fulfilled	Fulfilled	Fulfilled	Fulfilled

EMC interference immunity		Standard applications	Navy applications	Railway applications (trackside)	Substation applications
Electrostatic discharge					
EN 61000-4-2 IEEE C37.90.3	Contact discharge	±4 kV	±6 kV	±6 kV	±8 kV
EN 61000-4-2 IEEE C37.90.3	Air discharge	±8 kV	±8 kV	±8 kV	±15 kV
Electromagnetic field					
EN 61000-4-3	80 MHz ... 3000 MHz	10 V/m	10 V/m	20 V/m	10 V/m
IEEE 1613	80 MHz ... 1000 MHz	—	—	—	35 V/m
Fast transients (burst)					

EMC interference immunity		Standard applications	Navy applications	Railway applications (trackside)	Substation applications
EN 61000-4-4 IEEE C37.90.1	DC supply connection	±2 kV	±2 kV	±2 kV	±4 kV
EN 61000-4-4 IEEE C37.90.1	Data line	±4 kV	±4 kV	±2 kV	±4 kV
Voltage surges - DC supply connection					
EN 61000-4-5	line/ground	±2 kV	±2 kV	±2 kV	±2 kV
IEEE 1613	line/ground	—	—	—	±5 kV
EN 61000-4-5	line/line	±1 kV	±1 kV	±1 kV	±1 kV
Voltage surges - data line					
EN 61000-4-5	line/ground	±1 kV	±1 kV	±2 kV	±2 kV
Conducted disturbances					
EN 61000-4-6	150 kHz ... 80 MHz	10 V	10 V	10 V	10 V

EMC interference immunity		Standard applications	Navy applications	Railway applications (trackside)	Substation applications
Damped vibration – DC supply connection					
EN 61000-4-12 IEEE C37.90.1	line/ground	—	—	—	2.5 kV
EN 61000-4-12 IEEE C37.90.1	line/line	—	—	—	1 kV
Damped oscillation - data line					
EN 61000-4-12 IEEE C37.90.1	line/ground	—	—	—	2.5 kV
EN 61000-4-12	line/line	—	—	—	±1 kV
Pulse magnetic field					
EN 61000-4-9		—	—	300 A/m	—

Stability		Standard applications	Navy applications	Railway applications (trackside)	Substation applications
IEC 60068-2-6, test Fc	Vibration	5 Hz ... 8.4 Hz with 0.14 in. (3.5 mm) amplitude	2 Hz ... 13.2 Hz with 0.04 in (1 mm) amplitude	—	2 Hz ... 9 Hz with 0.11 in (3 mm) amplitude
		8.4 Hz ... 150 Hz with 1 g	13.2 Hz ... 200 Hz with 0.7 g	—	9 Hz ... 200 Hz with 1 g
		—	—	—	200 Hz ... 500 Hz with 1.5 g
IEC 60068-2-27, test Ea	Shock	15 g at 11 ms	—	—	10 g at 11 ms

8.4 Network range

Note: The line lengths specified for the transceivers apply for the respective fiber data (fiber attenuation and BLP/ dispersion).

Product code M-SFP-...	Mode[a]	Wave length	Fiber	System attenuation	Example for F/O cable length[b]	Fiber attenuation	BLP[c]/Dispersion
-SX/LC...	MM	850 nm	50/125 µm	0 dB ... 7.5 dB	0 mi ... 0.34 mi (0 km ... 0.55 km)	3.0 dB/km	400 MHz×km
-SX/LC...	MM	850 nm	62.5/125 µm	0 dB ... 7.5 dB	0 mi ... 0.17 mi (0 km ... 0.275 km)	3.2 dB/km	200 MHz×km
-MX/LC EEC	MM	1310 nm	50/125 µm	0 dB ... 12 dB	0 km ... 1.5 km	1.0 dB/km	800 MHz×km
-MX/LC EEC	MM	1310 nm	62.5/125 µm	0 dB ... 12 dB	0 km ... 0.5 km	1.0 dB/km	500 MHz×km
-LX/LC...	MM	1310 nm[d]	50/125 µm	0 dB ... 10.5 dB	0 mi ... 0.34 mi (0 km ... 0.55 km)	1.0 dB/km	800 MHz×km
-LX/LC...	MM	1310 nm[e]	62.5/125 µm	0 dB ... 10.5 dB	0 mi ... 0.34 mi (0 km ... 0.55 km)	1.0 dB/km	500 MHz×km
-LX/LC...	SM	1310 nm	9/125 µm	0 dB ... 10.5 dB	0 mi ... 12.43 mi (0 km ... 20 km)[f]	0.4 dB/km	3.5 ps/(nm×km)
-LX+/LC...	SM	1310 nm	9/125 µm	5 dB ... 20 dB	8.70 mi ... 26.10 mi (14 km ... 42 km)	0.4 dB/km	3.5 ps/(nm×km)
-LH/LC...	LH	1550 nm	9/125 µm	5 dB ... 22 dB	14.29 mi ... 49.71 mi (23 km ... 80 km)	0.25 dB/km	19 ps/(nm×km)
-LH+/LC	LH	1550 nm	9/125 µm	15 dB ... 30 dB	44.12 mi ... 67.11 mi (71 km ... 108 km)	0.25 dB/km	19 ps/(nm×km)
-LH+/LC	LH	1550 nm	9/125 µm	15 dB ... 30 dB	44.12 mi ... 79.54 mi (71 km ... 128 km)	0.21 dB/km (typically)	19 ps/(nm×km)

Table 16: Fiber port 1000BASE-FX (SFP fiber optic Gigabit Ethernet Transceiver)

a. MM = Multimode, SM = Singlemode, LH = Singlemode Longhaul
b. Including 3 dB system reserve when compliance with the fiber data is observed.
c. Using the bandwidth-length product is inappropriate for expansion calculations.
d. With F/O adapter compliant with IEEE 802.3-2002 Clause 38 (single-mode fiber offset-launch mode conditioning patch cord).
e. With F/O adapter compliant with IEEE 802.3-2002 Clause 38 (single-mode fiber offset-launch mode conditioning patch cord).
f. Including 2.5 dB system reserve when compliance with the fiber data is observed.

Product code M-SFP-BIDI...	Mode[a]	Wave length TX	Wave length RX	Fiber	System attenuation	Example for F/O cable length[b]	Fiber attenuation	Dispersion
Type A LX/LC EEC	SM	1310 nm	1550 nm	9/125 µm	0 dB ... 11 dB	0 km ... 12.43 mi (0 km ... 20 km)	0.4 dB/km	3.5 ps/(nm×km)
Type B LX/LC EEC	SM	1550 nm	1310 nm	9/125 µm	0 dB ... 11 dB	0 mi ... 12.43 mi (0 km ... 20 km)	0.25 dB/km	19 ps/(nm×km)
Type A LH/LC EEC	LH	1490 nm	1590 nm	9/125 µm	5 dB ... 24 dB	14.29 mi ... 49.71 mi (23 km ... 80 km)	0.25 dB/km	19 ps/(nm×km)
Type B LH/LC EEC	LH	1590 nm	1490 nm	9/125 µm	5 dB ... 24 dB	14.29 mi ... 49.71 mi (23 km ... 80 km)	0.25 dB/km	19 ps/(nm×km)

Table 17: F/O port (bidirectional Gigabit Ethernet SFP Transceiver)

a. MM = Multimode, SM = Singlemode, LH = Singlemode Longhaul
b. Including 3 dB system reserve when compliance with the fiber data is observed.

Product code M-FAST-SFP-...	Mode[a]	Wave length	Fiber	System attenuation	Example for F/O cable length[b]	Fiber attenuation	BLP/Dispersion
-MM/LC...	MM	1310 nm	50/125 µm	0 dB ... 8 dB	0 mi ... 3.11 mi (0 km ... 5 km)	1.0 dB/km	800 MHz×km
-MM/LC...	MM	1310 nm	62.5/125 µm	0 dB ... 11 dB	0 mi ... 2.49 mi (0 km ... 4 km)	1.0 dB/km	500 MHz×km
-SM/LC...	SM	1310 nm	9/125 µm	0 dB ... 13 dB	0 mi ... 15.53 mi (0 km ... 25 km)	0.4 dB/km	3.5 ps/(nm×km)
-SM+/LC...	SM	1310 nm	9/125 µm	10 dB ... 29 dB	15.53 mi ... 40.39 mi (25 km ... 65 km)	0.4 dB/km	3.5 ps/(nm×km)
-LH/LC...	SM	1550 nm	9/125 µm	10 dB ... 29 dB	29.20 mi ... 64.62 mi (47 km ... 104 km)	0.25 dB/km	19 ps/(nm×km)
-LH/LC...	SM	1550 nm	9/125 µm	10 dB ... 29 dB	14.29 mi ... 86.99 mi (55 km ... 140 km)	0.18 dB/km[c]	18 ps/(nm×km)

Table 18: Fiber port 100BASE-FX (SFP fiber optic Fast Ethernet Transceiver)

a. MM = Multimode, SM = Singlemode, LH = Singlemode Longhaul
b. Including 3 dB system reserve when compliance with the fiber data is observed.
c. With ultra-low-loss optical fiber.

10/100/1000 Mbit/s twisted pair port	
Length of a twisted pair segment	max. 328 ft (100 m) (for Cat5e cable)

Table 19: Network range: 10/100/1000 Mbit/s twisted pair port

8.5 Power consumption/power output, order numbers

The order numbers correspond to the product codes of the devices.
See “Device name and product code” on page 19.

Device name		Maximum power consumption[a]	Power output
RSPE 30		16 W	55 Btu (IT)/h
RSPE 32	including 124 W PoE output power	151 W	92 Btu (IT)/h
RSPE 35		18 W	61 Btu (IT)/h
RSPE 37	including 124 W PoE output power	153 W	98 Btu (IT)/h
RSPM20-4Z64Z6...		9 W	31 Btu (IT)/h
RSPM20-4T14T1...		2 W	7 Btu (IT)/h
RSPM20-4T14Z6...		5 W	17 Btu (IT)/h
RSPM22-4T14T1...	including PoE output power	2 W	7 Btu (IT)/h
RSPM22-4T14Z6...	including PoE output power	5 W	17 Btu (IT)/h

a. You can find the total power consumption specifications for basic modules that are to be installed in the “User Manual Installation RSPM”.

8.6 Scope of delivery, order numbers and accessories

Scope of delivery

Number	Article
1 ×	Device
1 ×	2-pin terminal block for signal contact
1 ×	3-pin terminal block for the supply voltage (only for device variants featuring supply voltage with characteristic value K9)
2 ×	3-pin terminal block for the supply voltage (only for device variants featuring supply voltage with characteristic value KK)
2 ×	2-pin terminal block for the supply voltage (only for device variants featuring supply voltage with characteristic value CC or PP)
1 ×	General safety instructions

Accessories

Note that products recommended as accessories may have different characteristics to those of the device, which may limit the application range of the overall system. For example, if you add an accessory with IP20 to a device with IP65, the degree of protection of the overall system is reduced to IP20.

Name	Order number
Terminal cable	943 301-001
Network management software Industrial HiVision	943 156-xxx
For device variants featuring supply voltage with characteristic value K9 or KK: 3-pin terminal block for supply voltage (50 pieces)	943 845-008
For device variants featuring supply voltage with characteristic value CC or PP: 2-pin terminal block (50 pieces) for supply voltage	943 845-009
2-pin terminal block for signal contact (50 pcs.)	943 845-010
Power Cord	942 000-001
Protection cap for RJ45 socket (50 pieces)	943 936-001
Protection cap for SFP slot (25 pieces)	943 942-001
Cover panel for unused module slot	942-131-001
AutoConfiguration Adapter ACA31	942 074-001
AutoConfiguration Adapter ACA21-USB (EEC)	943 271-003
AutoConfiguration Adapter ACA22-USB (EEC)	942 124-001

Gigabit Ethernet SFP transceiver	Order number
M-SFP-TX/RJ45	943 977-001
M-SFP-TX/RJ45 EEC	942 161-001
The following operating conditions apply to twisted pair transceivers: ▶ Usable with: - HiOS as of software version 03.0.00 - Classic Switch software, as of software version 04.1.00. - HiSecOS as of software version 01.2.00 Do not use with the following devices: - SPIDER II- MSP/MSM - EES ▶ Longer RSTP switching times and link loss detection times compared to twisted pair ports provided by the device directly. ▶ Not applicable for combo and Fast Ethernet ports. ▶ Only support of the autonegotiation mode including autocrossing.	
M-SFP-SX/LC	943 014-001
M-SFP-SX/LC EEC	943 896-001
M-SFP-MX/LC EEC	942 108-001
M-SFP-LX/LC	943 015-001
M-SFP-LX/LC EEC	943 897-001
M-SFP-LX+/LC	942 023-001
M-SFP-LX+/ LC EEC	942 024-001
M-SFP-LH/LC	943 042-001
M-SFP-LH/LC EEC	943 898-001

Gigabit Ethernet SFP transceiver	Order number
M-SFP-LH+/LC	943 049-001
M-SFP-LH+/LC EEC	942 119-001
SFP-GIG-LX/LC[a]	942 196-001
SFP-GIG-LX/LC EEC[a]	942 196-002

a. You find further information on certifications on the Internet at the Hirschmann product pages (www.hirschmann.com).

Bidirectional Gigabit Ethernet SFP transceiver	Order number
M-SFP-BIDI Type A LX/LC EEC	943 974-001
M-SFP-BIDI Type B LX/LC EEC	943 974-002
M-SFP-BIDI Type A LH/LC EEC	943 975-001
M-SFP-BIDI Type B LH/LC EEC	943 975-002
M-SFP-BIDI Bundle LX/LC EEC (type A + B)	943 974-101
M-SFP-BIDI Bundle LH/LC EEC (type A + B)	943 975-101

Fast Ethernet SFP transceiver	Order number
M-FAST SFP-TX/RJ45	942 098-001
M-FAST SFP-TX/RJ45 EEC	942 098-002

The following operating conditions apply to twisted pair transceivers:

- Usable with:
  - HiOS as of software version 03.0.00
  - for PRP ports on RSP devices, as of software version 02.0.01
  - for PRP ports on EES devices, as of software version 02.0.02
  - Classic switch software as of software version 08.0.00
  - HiSecOS as of software version 01.2.00
- Longer RSTP switching times and link loss detection times compared to twisted pair ports provided by the device directly.
- Not applicable for combo ports.
- Not applicable for ports which support only Gigabit Ethernet.
- To set autocrossing manually is currently not possible.

M-FAST SFP-MM/LC	943 865-001
M-FAST SFP-MM/LC EEC	943 945-001
M-FAST SFP-SM/LC	943 866-001
M-FAST SFP-SM/LC EEC	943 946-001
M-FAST SFP-SM+/LC	943 867-001
M-FAST SFP-SM+/LC EEC	943 947-001
M-FAST SFP-LH/LC	943 868-001
M-FAST SFP-LH/LC EEC	943 948-001
SFP-FAST-MM/LC[a]	942 194-001
SFP-FAST-MM/LC EEC[a]	942 194-002
SFP-FAST-SM/LC[a]	942 195-001
SFP-FAST-SM/LC EEC[a]	942 195-002

a. You find further information on certifications on the Internet at the Hirschmann product pages (www.hirschmann.com).

9 Underlying technical standards

Name	
CSA C22.2 No. 142	Canadian National Standard(s) – Process Control Equipment – Industrial Products
ANSI/ISA-12.12.01	Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations
EN 50121-4	Railway applications – EMC – Emission and immunity of the signaling and telecommunications apparatus (Rail Trackside)
EN 55032	Electromagnetic compatibility of multimedia equipment – Emission Requirements
EN 60950-1	Information technology equipment – Safety – Part 1: General requirements
EN 61000-6-2	Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity for industrial environments
EN 61131-2	Programmable controllers – Part 2: Equipment requirements and tests
FCC 47 CFR Part 15	Code of Federal Regulations
German Lloyd	Classification and Construction Guidelines VI-7-3 Part 1 Ed.2003
IEC/EN 61850-3	Communication networks and systems for power utility automation - Part 3: General requirements.
IEEE 1613	IEEE Standard Environmental and Testing Requirements for Communication Networking Devices in Electric Power Substations
IEEE 802.1AB	Station and Media Access Control Connectivity Discovery
IEEE 802.1D	MAC Bridges (switching function)
IEEE 802.1Q	Virtual LANs (VLANs, MRP, Spanning Tree)
IEEE 802.3	Ethernet
UL/IEC 61010-1, UL/ IEC 61010-2-201	Safety for Control Equipment
UL 60950-1	Information technology equipment – Safety – Part 1: General requirements

Table 20: List of the technical standards

The device has an approval based on a specific standard only if the approval indicator appears on the device casing.
If your device has a shipping approval according to Germanischer Lloyd, you find the approval mark printed on the device label. You will find out whether your device has other shipping approvals on the Hirschmann website under www.hirschmann.com in the product information.
The device generally fulfills the technical standards named in their current versions.

A Further support

Technical questions

For technical questions, please contact any Hirschmann dealer in your area or Hirschmann directly.

You find the addresses of our partners on the Internet at http://www.hirschmann.com.

A list of local telephone numbers and email addresses for technical support directly from Hirschmann is available at https://hirschmann-support.belden.eu.com.

This site also includes a free of charge knowledge base and a software download section.

Hirschmann Competence Center

The Hirschmann Competence Center is ahead of its competitors on three counts with its complete range of innovative services:

- Consulting incorporates comprehensive technical advice, from system evaluation through network planning to project planning.
- Training offers you an introduction to the basics, product briefing and user training with certification.
  You find the training courses on technology and products currently available at http://www.hicomcenter.com.
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