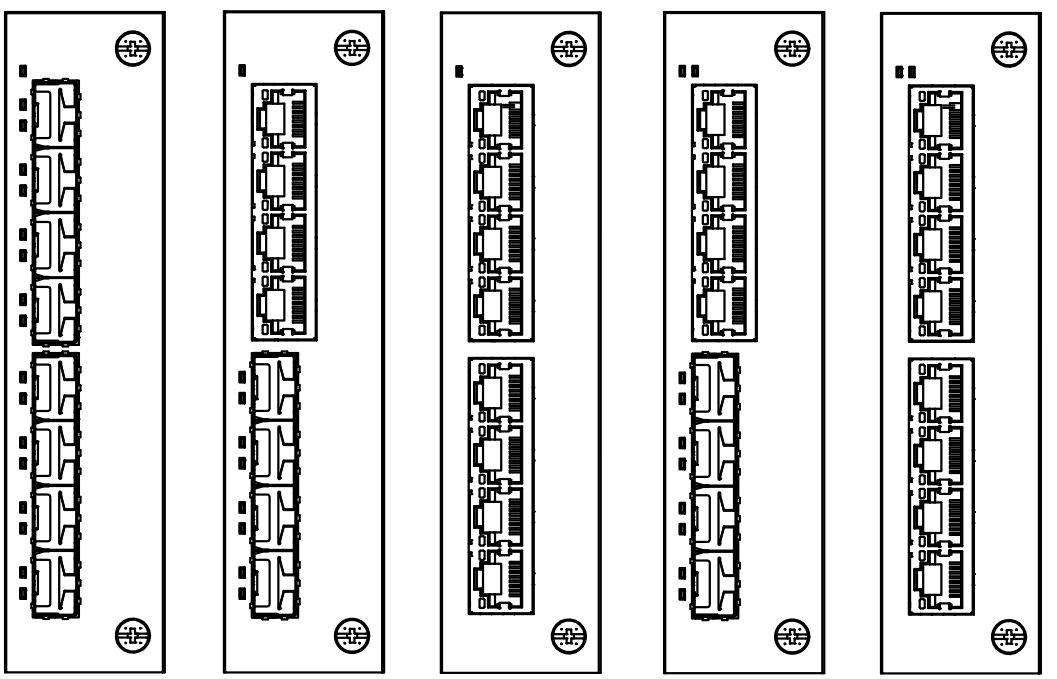
HIRSCHMANN
A BELDEN BRAND

User Manual

Installation
Industrial Ethernet Rail Switch Power Media Module
RSPM



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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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Contents

Safety instructions

General safety instructions

- You operate this device with electricity. The proper and safe operation of this device depends on proper handling during transportation, proper storage and installation, and careful operation and maintenance procedures. Improper usage of the device entails the risk of physical injury or significant property damage.
- Before connecting any cable, read this document, and the safety instructions and warnings.
- Operate the device with undamaged components exclusively.
- Follow precisely the prescribed safety requirements for the voltage connections. You will find detailed information regarding the voltage supply in the “User Manual Installation RSPE”.
- The device is free of any service components. In case of a damaged or malfunctioning the device, turn off the working voltage and return the device to Hirschmann for inspection.

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.

Certified usage

Use the device solely for the application cases described in the Hirschmann product information, including this manual.

Operate the device solely according to the technical specifications.

See “Technical data” on page 24.

National and international safety regulations

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

Shielded ground

The shielded ground wire of the twisted pairs cables is connected to the front panel as a conductor.

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

ESD Guidelines

The modules are equipped with electrostatically sensitive components. These can be destroyed, or their life cycles reduced, by the effects of an electrical field or by a charge equalization if the connections are touched. You will find information about electrostatically endangered assemblies in DIN EN 61340-5-1 (2007-08) and DIN EN 61340-5-2 (2007-08).

CE marking

The statements in this chapter refer only to media modules which are completely and correctly mounted in a RSPE device (see on page 20 “Mounting a media module”).

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

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.

2004/108/EC (EMC)
Directive of the European Parliament and the council for standardizing the regulations of member states with regard to electromagnetic compatibility.

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
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72654 Neckartenzlingen
Germany
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The device can be used in the industrial sector.

- Interference immunity: EN 61000-6-2
- Emitted interference: EN 55022
- Reliability: EN 60950-1

You find more information on technical and industry standards here:
“Technical data” on page 24

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.

LED or laser components

LED or LASER components according to IEC 60825-1 (2007):
CLASS 1 LASER PRODUCT
CLASS 1 LED PRODUCT

Note: You will find additional warning and safety information in the “User Manual Installation RSPE”.

FCC note:

The statements in this chapter refer only to media modules which are completely and correctly mounted in a RSPE device (see on page 20 “Mounting a media module”).

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.

Key

The symbols used in this manual have the following meanings:

▶	Listing
☐	Work step
■	Subheading

1 Description

1.1 General description

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

- Types of connectors
- Support of PoE and PoE+
- Temperature range
- Certifications

The RSPM media modules are designed for the special requirements of industrial automation. They meet the relevant technical standards, provide very high operational reliability, even under extreme conditions, and also long-term reliability and flexibility.

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

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

1.2 Device name and product code

Item	Characteristic	Characteristic value	Description	
1 ... 4	Product	RSPM	Rail Switch Power Media Module	
5	Data rate	2	10/100 Mbit/s	
6	Hardware type	0	Standard	
		2	Standard with PoE and PoE+	
7	(hyphen)	–		
8 ... 10	Port configuration Part A	4Z6	4 ×	SFP slot for 100 Mbit/s F/O connections
		4T1	4 ×	RJ45 socket for 10/100 Mbit/s twisted pair connections
11 ... 13	Port configuration Part B	4Z6	4 ×	SFP slot for 100 Mbit/s F/O connections
		4T1	4 ×	RJ45 socket for 10/100 Mbit/s twisted pair connections
14	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)
15 ... 16	Certificates and declarations	You will find detailed information on the certificates and declarations applying to your device in a separate overview. See table 2 on page 11.		
17 ... 18	Customer-specific version	HH	Hirschmann Standard	
19	Hardware configuration	S	Standard	
20	Software configuration	9	without configuration	
21 ... 25	Software version	99.9.	without software	
26 ... 27	Maintenance	99	without software	

Table 1: Device name and product code

Application case	Certificates and declarations	Characteristic value[a]											
		Z9	**Y9**	**X9**	**V9**	**VY**	**VU**	**VT**	**U9**	**UY**	**UT**	**T9**	**TY**
Standard applications	CE	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
	EN 61131-2	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
	ISA 12.12.01 – Class I, Div. 2			(X)									
	UL 61010-1, UL 61010-2-210		(X)	(X)		(X)	(X)	(X)		(X)			(X)
	UL 60950-1		(x)	(x)		(x)	(x)	(x)		(x)			(x)
Substation applications	IEC 61850-3				X	X	X	X					
	IEEE 1613				X	X	X	X					
Navy applications	GL						(X)		(X)	(X)	(X)		
Railway applications	EN 50121-4							X			X	X	X

Table 2: Assignment: application cases, certificates and declarations, characteristic values

a. X = Certificate or declaration present
(X) = Certificate or declaration in preparation
(x) = Certificate or declaration available upon request

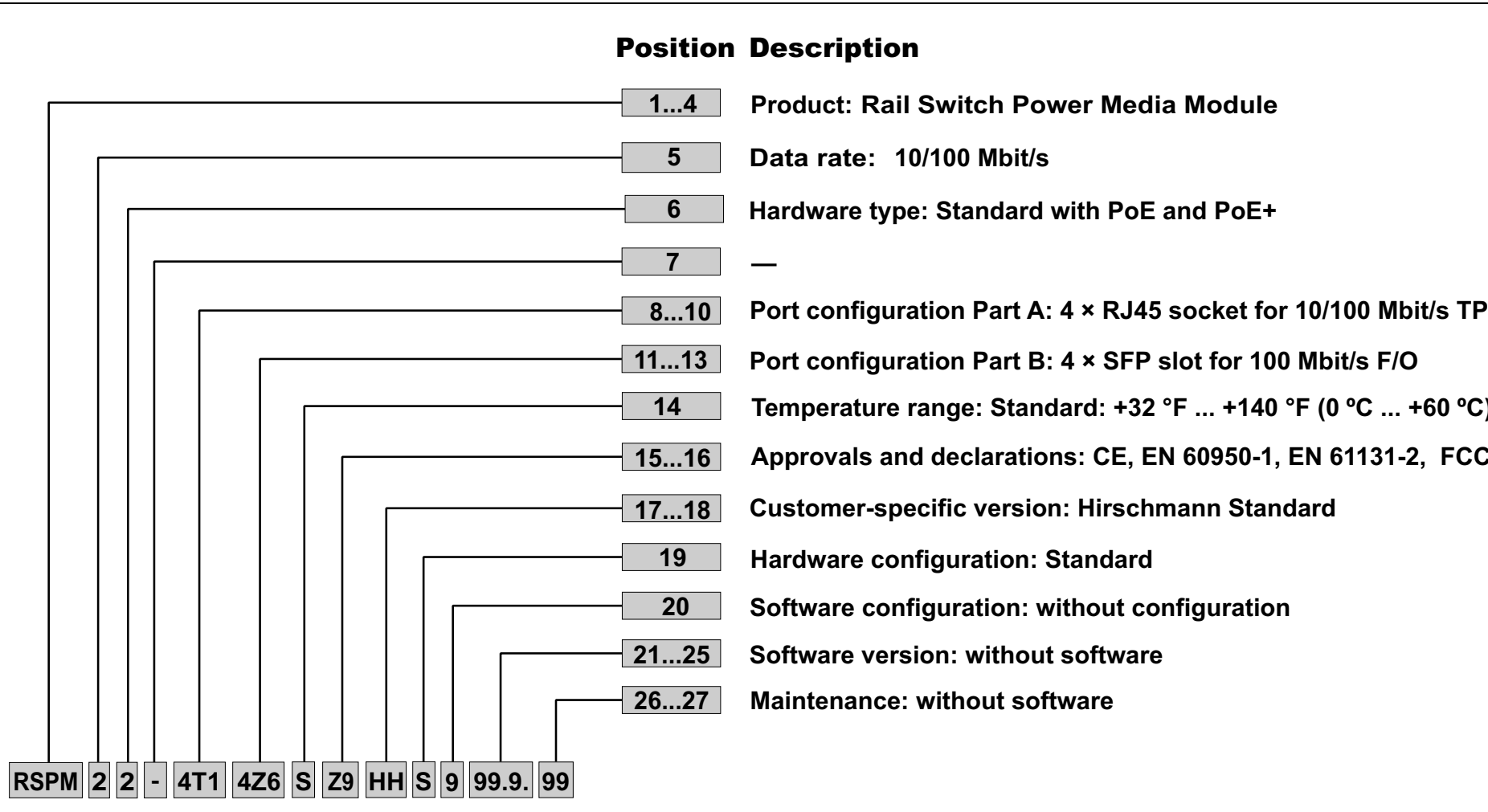


Table 3: Sample product code RSPM22-4T14Z6SZ9HHS999.9.99

1.3 Combination options

Item	1 ... 4	5 ... 6	7	8 ... 10	11 ... 13	14	15 ... 16	17 ... 18	19	20	21 ... 25	26 ... 27
Product characteristic	Device	Data rate and hardware type		Port configuration Part A	Port configuration Part B	Temperature range	Certificates and declarations	Customer-specific version	Hardware configuration	Software configuration	Software version	Maintenance
Attribute values	RSPM	20	–	4Z6	4Z6	S; T; E	T9; TY; U9; UT; UY; V9; VT; VU; VY; X9; Y9; Z9	HH	S	9	99.9.	99
				4T1	4Z6							
				4T1	4T1							
	RSPM	22	–	4T1	4Z6	S; T; E	T9; TY; U9; UT; UY; V9; VT; VU; VY; X9; Y9; Z9	HH	S	9	99.9.	99
				4T1	4T1							

Table 4: Combination options of the RSPM device variants

1.4 Media module variants

The media modules have different interface types.
The different interfaces of the media modules provide you with the following functions:

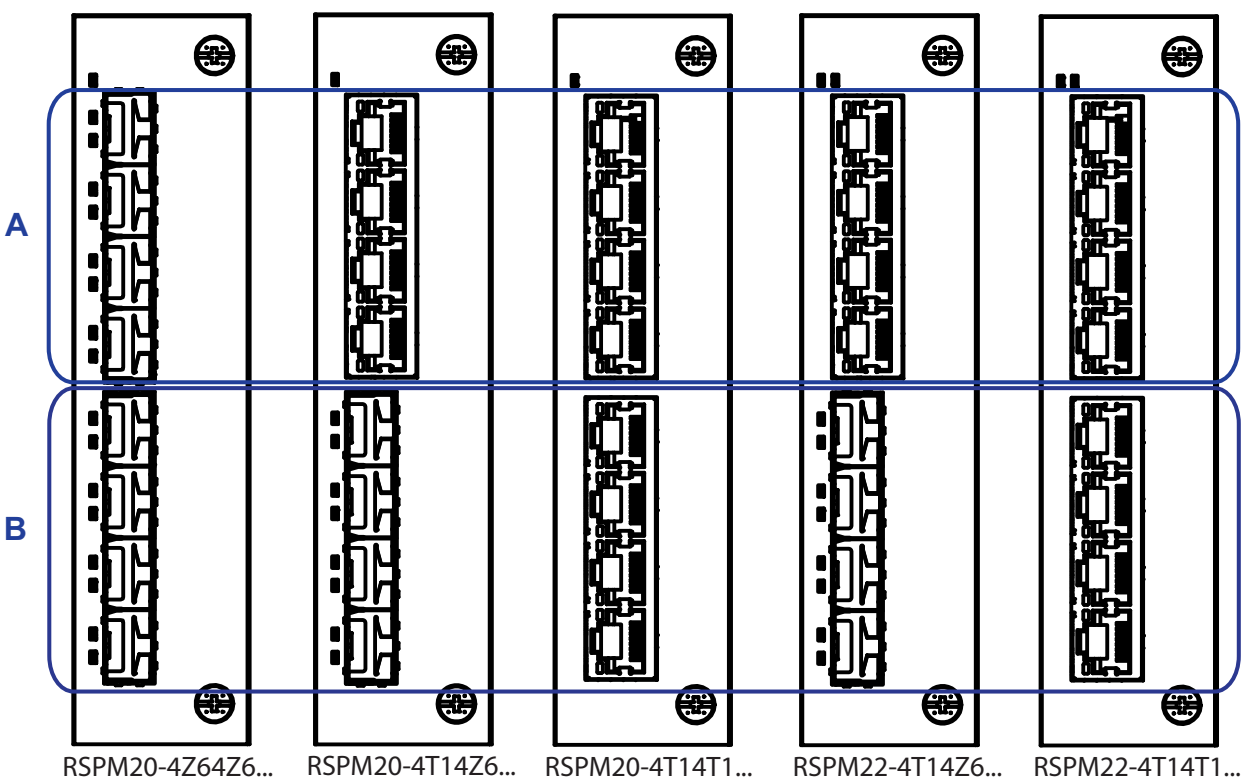
- Specific functions of the TP/TX interface
  - Auto Polarity Exchange
  - Autocrossing (device may be connected with a crossed-over or an un-crossed cable)
  - Autonegotiation (selecting the operating mode: speed/duplex)
  - Link Control
- Specific functions of the F/O interface
  - Link Down monitoring

1.4.1 Port configuration

The 8 ports of the media modules are arranged in the port configuration parts A and B, each part comprising 4 ports.
The media module variants provide one of the following interface types for each port configuration part:

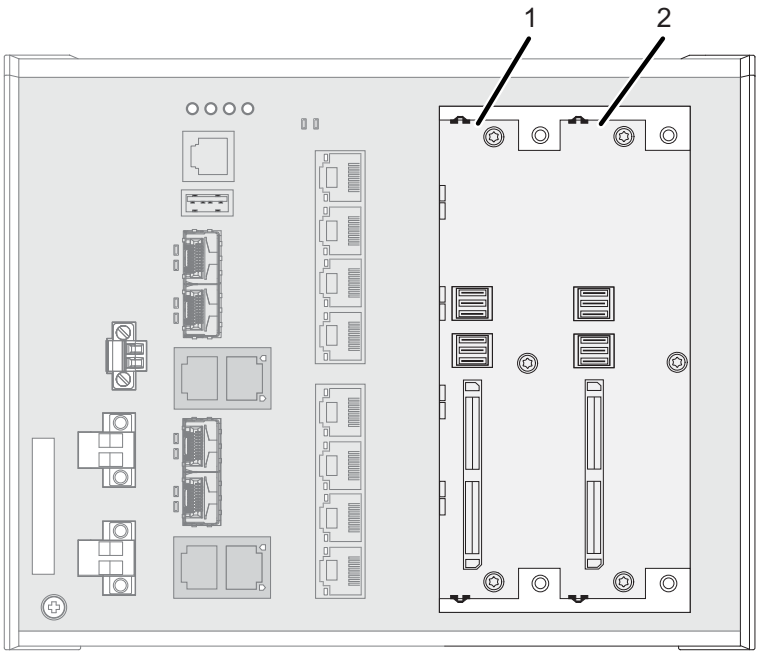
- SFP slot for 100 Mbit/s F/O connections
- RJ45 socket for 10/100 Mbit/s twisted pair connections

See “Device name and product code” on page 10.



A	Port configuration	Part A
B	Port configuration	Part B

1.4.2 Media module slots on the RSPE device



1	Slot 1 for media module RSPM All media modules are pluggable except RSPM20-4Z64Z6... (8 F/O ports)
2	Slot 2 for media module RSPM All media modules are pluggable.

1.5 Ethernet ports

You have the option to connect terminal devices or other segments to the ports of the media modules via twisted-pair cables or F/O cables.
Connect the ports of the media modules plugged into the basic module as required in order to set up your industrial Ethernet or expand your existing network.

1.5.1 100 Mbit/s F/O port

This port is an SFP slot.
See “Accessories” on page 31.
The 100 Mbit/s F/O port offers you the ability 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

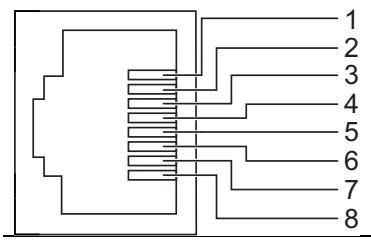
Note: Insert the RSPM20-4Z64Z6... media module in the media module slot 2 only.
See “Media module slots on the RSPE device” on page 15.

1.5.2 10/100 Mbit/s twisted pair port

This port is an RJ45 socket.
The 10/100 Mbit/s twisted pair port offers you the ability 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 active
The socket housing is electrically connected with 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 5: Pin assignment of the 10/100 Mbit/ twisted pair port, RJ-45 socket, MDI-X mode

1.5.3 Support of PoE and PoE+

The media module variant RSPM 22 in connection with the RSPE32 and RSPE 37 device variants supports Power over Ethernet (PoE) and Power over Ethernet Plus (PoE+).
See “Device name and product code” on page 10.
The 10/100 Mbit/s twisted pair port allows 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 6: PoE support: technical standards

In accordance with IEEE 802.3af and IEEE 802.3at:

- Endpoint PSE
- Alternative A.

1.6 Display elements

1.6.1 Media module status

Device variant RSPM 20

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

Power

LED	Display	Color	Activity	Meaning
Power	Working voltage	—	None	Media module is inoperative
		Green	Lights up	Operating voltage is on

Device variant RSPM 22

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

Power

LED	Display	Color	Activity	Meaning
Power	Working 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

1.6.2 Port state

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

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	RSPM 20: LED is without any function
				RSPM 22: 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

2 Installation

The devices have been developed for practical application in a harsh industrial environment.
Hirschmann supplies the media modules ready for operation.

The following steps should be performed to install and configure a device:

- Checking the package contents
- Mounting a media module
- Installing an SFP transceiver (optional)
- Connecting data cables

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 30.
☐ Check the individual parts for transport damage.

2.2 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 dummy 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.

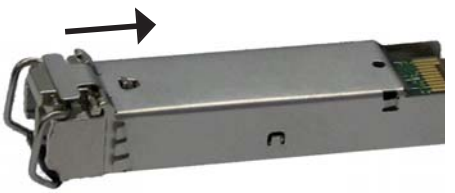
2.3 Installing an SFP transceiver (optional)

For this device, only use suitable SFP modules from Hirschmann.
See “Accessories” on page 31.

Proceed as follows:

☐ Remove the protective cap from the SFP transceiver.

☐ Push the SFP transceiver with the lock closed into the socket until you hear it latch in.



2.4 Connecting data cables

In general, adhere to the following 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 gap between the power supply cables and the data cables. Ideally, install the cables in separate cable channels.
- Use shielded cables.

☐ Connect the data cable according to your requirements.

For further information see “Device name and product code” on page 10.

3 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 are 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 (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 will find information about the complaints and returns procedures on the Internet under
http://www.beldensolutions.com/en/Service/Repairs/index.phtml .

4 Disassembly

4.1 Removing an SFP transceiver (optional)

Proceed as follows:

☐ Pull the SFP transceiver out of the socket by means of the opened lock.

☐ Close the SFP transceiver with the protective cap.

4.2 Removing a media module

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 to the front out of the slot.

☐ Close the media module slot on the device with a dummy panel.
See “Accessories” on page 31.

5 Technical data

General technical data

Dimensions	RSPM	See “Dimension drawings” on page 25.
Weight	RSPM20-4Z64Z6...	0.64 lb (290 g)
	RSPM20-4T14T1... RSPM22-4T14T1...	0.29 lb (130 g)
	RSPM20-4T14Z6... RSPM22-4T14Z6...	0.49 lb (220 g)
Climatic conditions during operation	Ambient air temperature[a]	Devices with operating temperature characteristic value S (standard): +32 °F ... +140 °F (0 °C ... +60 °C) [b]
		Devices with the operating temperature characteristic value E and T (Extended) [c]: −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	minimum 700 hPa (+9842 ft; +3000 m) maximum 1060 hPa (−1312 ft; −400 m)
Climatic conditions during storage	Ambient air temperature[a]	−40 °F ... +185 °F (−40 °C ... +85 °C)
	Humidity	5 % ... 95 % (non-condensing)
	Air pressure	minimum 700 hPa (+9842 ft; +3000 m) maximum 1060 hPa (−1312 ft; −400 m)
Pollution degree		2
Protection classes	Laser protection	Class 1 in compliance with IEC 60825-1
	Degree of protection of the RSPE device	IP20

a. Temperature of the ambient air at a distance of 2 inches (5 cm) from the device
b. Hirschmann recommends to use SFP transceivers with the "EEC" extension.
c. Note the specifications for the basic device in the “User Manual Installation RSPE”.
d. Use SFP transceivers with the “EEC” extension only, otherwise the standard temperature range applies.

Dimension drawings

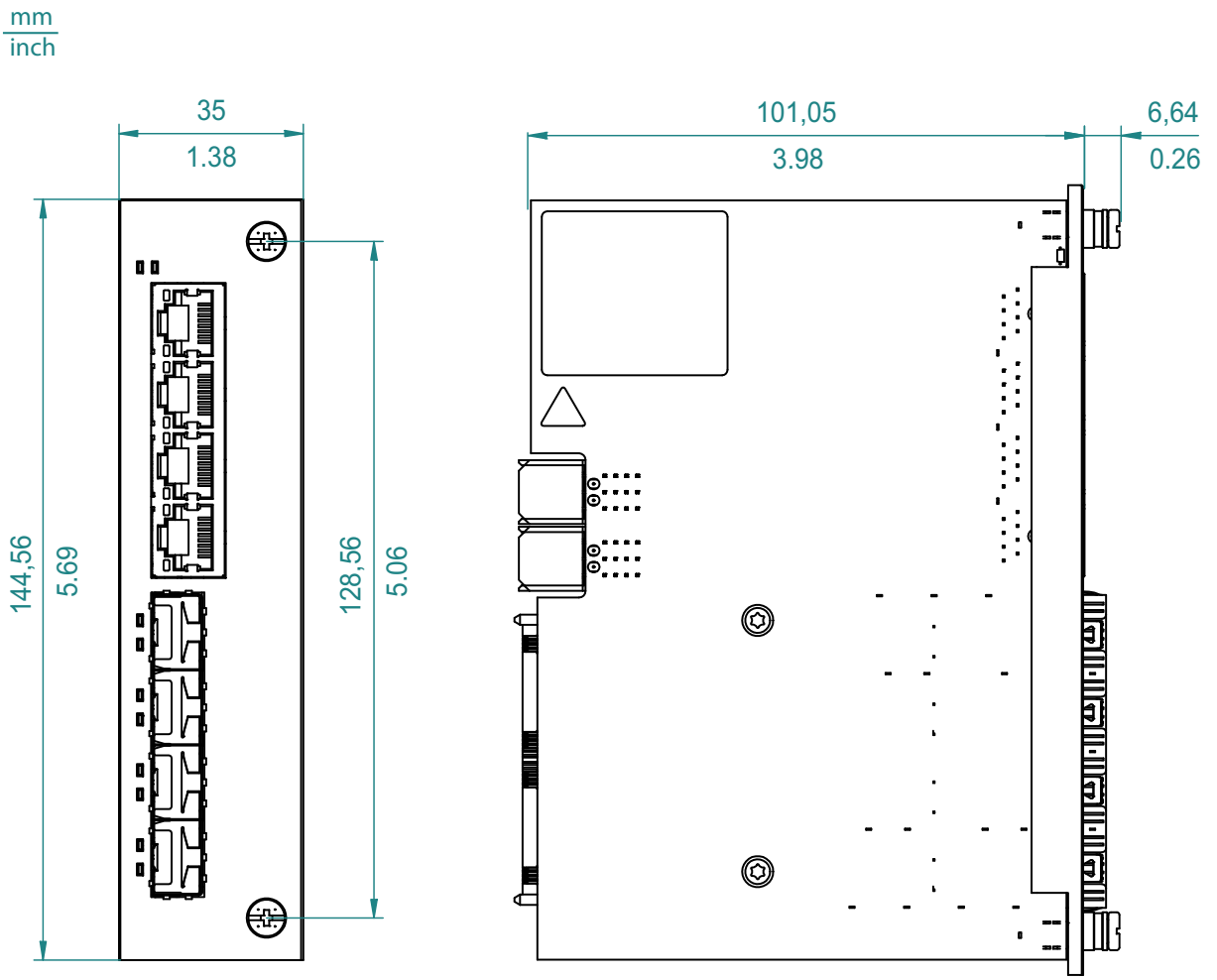


Figure 1: Dimensions of a media module

EMC and immunity

EMC interference emission		Standard applications[a]	Merchant Navy [b]	Railway applications (trackside) [c]	Substation applications [d]
Radiated emission					
EN 55022		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 55022	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 55022	Telecommunication connections	Class A	Class A	Class A	Class A
EN 61000-6-4	Telecommunication connections	Fulfilled	Fulfilled	Fulfilled	Fulfilled

a. EN 61131-2, CE, FCC – applies to all devices
b. Merchant Navy – applies to devices with the certification codes VU, U9, UY, UW, UX
c. EN 50121-4 – applies to devices with the certification codes VT, T9, TY
d. EN 61850-3, IEEE 1613 – applies to devices with the certification codes V9, VY, VU, VT

EMC interference immunity		Standard applications[a]	Merchant Navy [b]	Railway applications (trackside) [c]	Substation applications [d]
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

EMC interference immunity		Standard applications[a]	Merchant Navy [b]	Railway applications (trackside) [c]	Substation applications [d]
IEEE 1613	80 MHz ... 1000 MHz	—	—	—	35 V/m
Fast transients (burst)					
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[a]	Merchant Navy [b]	Railway applications (trackside) [c]	Substation applications [d]
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 fields					
EN 61000-4-9		—	—	300 A/m	—

a. EN 61131-2, CE, FCC – applies to all devices
b. Merchant Navy – applies to devices with the certification codes VU, U9, UY, UW, UX
c. EN 50121-4 – applies to devices with the certification codes VT, T9, TY
d. EN 61850-3, IEEE 1613 – applies to devices with the certification codes V9, VY, VU, VT

Stability		Standard applications[a]	Merchant Navy [b]	Railway applications (trackside) [c]	Substation applications [d]
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 0.12 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	0.53 oz (15 g) at 11 ms	—	—	0.35 oz (10 g) at 11 ms

a. EN 61131-2, CE, FCC – applies to all devices
b. Merchant Navy – applies to devices with the certification codes VU, U9, UY, UW, UX
c. EN 50121-4 – applies to devices with the certification codes VT, T9, TY
d. EN 61850-3, IEEE 1613 – applies to devices with the certification codes V9, VY, VU, VT

Network range

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

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

Table 7: Fiber port 100BASE-FX (SFP fiber optic Fast Ethernet Transceiver)

a. including 3 dB system reserve when compliance with the fiber data is observed
b. with ultra-low-loss optical fiber

MM = Multimode, SM = Singlemode, LH = Singlemode Longhaul

10/100/1000 Mbit/s twisted pair port	
Length of a twisted pair segment	max. 100 m (for cat5e cable)

Power consumption/power output

The order numbers correspond to the product codes of the devices.
See “Device name and product code” on page 10.

Device name	Maximum power consumption[a]	Power output
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. The total power consumption is made up of the power to the basic module and the power to the media modules used.

Scope of delivery

Number	Article
1 ×	Installation user manual
1 ×	Device

Accessories

Note: Please note that recommended accessories for the products possibly have different characteristics than the device and thus limit the application area of the overall system. For example, adding an accessory having the class of protection IP 20 to a device having the class of protection IP 65 reduces the class of protection of the overall system to IP 20.

Name	Order number
Dust protection cap (50 pieces) for RJ 45 sockets	943 936-001
Dust protection cap (25 pieces) for RJ 45 slot	943 942-001
Dummy panel for unused module slot	942-131-001

Fast Ethernet SFP transceiver	Order number
M-FAST SFP-TX/RJ45	942 098-001
M-FAST SFP-TX/RJ45 EEC	942 098-002
Note the following for the M-FAST SFP-TX... transceivers: ▶ Twisted pair ports realized through these transceivers have longer link failure detection times when compared to twisted pair ports provided by the device. ▶ When using these SFP transceivers, assume a higher failover time for RSTP. ▶ Not applicable for combo ports.	
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

Underlying technical standards

Name	
CSA C22.2 No. 142	Canadian National Standard(s) – Process Control Equipment – Industrial Products
ISA 12.12.01, CSA C22.2 No. 213	Nonincendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations
EN 50121-4	Railway applications – EMC – Emission and immunity of the signalling and telecommunications apparatus (Rail Trackside)
EN 55022	Information technology equipment – Radio disturbance characteristics – Limits and methods of measurement
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 in substations – 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 61010-1, UL 61010-2-210	Safety for Control Equipment
UL 60950-1	Safety for Information Technology Equipment

Table 8: List of technical and industry standards

The device has an approval based on a specific standard or de facto standard only if the approval indicator appears on the housing.
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 and industry 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 will find the addresses of our partners on the Internet at
http://www.hirschmann.com

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https://hirschmann-support.belden.eu.com

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