HIRSCHMANN
A **BELDEN** BRAND

User Manual

Installation
Industrial Ethernet Rail Switch Power
RSP 20/25/30/35

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 assembly, and conscientious operation and maintenance procedures. Improper use of this device is associated with the risk of personal injury or property damage.

☐ Read this documentation as well as the safety instructions and warnings before connecting any cables.

☐ Never start operation with damaged components.

☐ The device does not contain any service components. If the device is not functioning correctly, or if it is damaged, turn off the power supply and return the device to Hirschmann for inspection.

⚠ 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.

■ 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 40.

■ **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.

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

■ **Working voltage**
  The working voltage is connected to the chassis through protective elements exclusively.
  ☐ Connect only a working voltage that corresponds to the type plate of your device.
  ☐ Only for device variants featuring working voltage with the characteristic value K9 or KK:
    See "Device name and product code" on page 13.
    Every time you connect the electrical conductors, make sure that the following requirements are met:
    ▶ The power supply conforms to overvoltage category I or II.
    ▶ The power supply has an easily accessible disconnecting device (e.g., 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 electrical wires are voltage-free.
    ▶ 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 40.
    ▶ Supply with AC voltage:
      A fuse is located in the outer conductor of the power supply.
      The neutral conductor is on ground potential. Otherwise, a fuse is also located in the neutral conductor.
      Regarding the properties of this fuse: See "General technical data" on page 40.
    ▶ Supply with AC voltage:
      The wire diameter of the power supply cable is at least 0.75 mm²
      (North America: AWG18) on the working voltage input.

▶ Supply with DC voltage:
The wire diameter of the power supply cable is at least 1 mm² (North America: AWG16) on the working voltage input.

▶ The cross-section of the protective conductor is the same size as or bigger than the cross-section of the power supply cables.

▶ The power supply cables used are permitted for the temperature range required by the application case.

▶ Relevant for North America:
The power cords are suitable for ambient air temperatures of at least 167 °F (75 °C). The power cord wires are made of copper.

Start connecting the electrical wires only if **all** the above safety requirements are fulfilled.

☐ Solely for device variants with the characteristic value CC for the working voltage:
See "Device name and product code" on page 13.
Every time you connect the electrical conductors, make sure that the following requirements are met:

▶ The power supply is Class 2 compliant.

▶ The power supply conforms to overvoltage category I or II.

▶ The working voltage inputs are designed for operation with safety extra-low voltage. Connect only SELV circuits with voltage restrictions in line with IEC/EN 60950-1 to the working voltage connections.

▶ The power supply has an easily accessible disconnecting device (e.g., 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 electrical wires are voltage-free.

▶ 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 40.

▶ The wire diameter of the power supply cable is at least 1 mm² (North America: AWG16) on the working voltage input.

▶ The cross-section of the ground conductor is the same size as or bigger than the cross-section of the power supply cables.

- ▶ The power supply cables used are permitted for the temperature range required by the application case.
- ▶ Relevant for North America:
  The power cords are suitable for ambient air temperatures of at least 167 °F (75 °C). The power cord wires are made of copper.

Start connecting the electrical wires only if **all** the above safety requirements are fulfilled.

- ☐ Internal fuses are triggered solely in the case of a detected error in the device. In case of damage or malfunction of the device, turn off the working voltage and return the device to the plant for inspection.
- ☐ For operating voltage connections with a protective conductor connection: connect the protective conductor before connecting the conductors for the operating voltage.
- ☐ Only switch on the operating voltage for the device when the following requirements are fulfilled:
  - ▶ The housing is closed
  - ▶ The terminal blocks are wired correctly
  - ▶ The terminal blocks for the operating supply are connected

■ Signal contact

For the signal contact to be connected, make sure the following requirements are met:

- ▶ The device is grounded.
- ▶ The signal contact connection wires are voltage-free.
- ▶ 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 40.

Start connecting the signal contact solely if **all** the above requirements are fulfilled.

■ Installation site requirements

- ☐ Install the device in a fire protected enclosure according to EN 60950-1.
- ☐ Only for device variants featuring working voltage with the characteristic value K9 or KK:
  See "Device name and product code" on page 13.
  Install this device solely in a switch cabinet or in an operating site with restricted access, to which maintenance staff have exclusive access.

■ **Housing**

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.

□ Install 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.

■ **CE marking**

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

Device variant	Directive
All variants	2004/108/EC (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 working voltage with the characteristic value K9 or KK:	2006/95/EC Directive of the European Parliament and the council for standardizing the regulations of member states with regard to electrical equipment to be used within specific voltage ranges.

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
Germany
Tel.: +49 1805 141538

The product 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:

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 (2007):
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.
The following manuals are available as PDF files on the CD/DVD supplied:
▶ Installation user manual
▶ Basic Configuration user manual
▶ Redundancy Configuration user manual
▶ Reference manual for the graphical user interface
▶ Command Line Interface user manual

The Industrial HiVision network management software provides you with additional options for smooth configuration and monitoring:
▶ ActiveX control for SCADA integration
▶ Auto-topology discovery
▶ Browser interface
▶ Client/server structure
▶ Event handling
▶ Event log
▶ Simultaneous configuration of multiple devices
▶ Graphical user interface with network layout
▶ SNMP/OPC gateway

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:
▶ Number of ports
▶ Transmission speed
▶ Types of connectors
▶ Temperature range
▶ Working voltage range
▶ Certifications
▶ Redundancy functions

The RSP 20/25/30/35 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.

The devices work without a fan.

The device is mounted by latching in place on a hat rail.

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

The redundancy concept allows the network to be reconfigured quickly.

There are convenient options for managing the device. Administer your devices via:
▶ a Web browser
▶ SSH
▶ Telnet
▶ HiDiscovery (Software for putting the device into operation)
▶ Network management software (e.g. Industrial HiVision)
▶ a V.24 interface (locally on the device)

The devices provide you with a large range of functions, which the manuals for the operating software inform you about. You will find these manuals as PDF files on the enclosed CD/DVD, or you can download them from 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.

Item	Characteristic	Characteristic value	Description	
1 ... 5	Product	RSP20	Fast Ethernet switch	
		RSP25	Fast Ethernet switch with extended redundancy function	
		RSP30	Gigabit Ethernet switch	
		RSP35	Gigabit Ethernet switch with extended redundancy function	
6	(hyphen)	−		
7 ... 8	Number Fast Ethernet ports	08	8 ×	
		11	11 ×	
9 ... 10	Number Gigabit Ethernet ports	00	0 ×	
		03	3 ×	
11 ... 13	Configuration of the uplink ports	3Z6	3 ×	SFP slot for 100 Mbit/s connections twisted pair and F/O
		3O6	3 ×	SFP slot for 100/1000 Mbit/s connections twisted pair and F/O
14 ... 15	Configuration of the other ports	TT	8 ×	RJ45 socket for 10/100 Mbit/s twisted pair connections
		ZT	4 ×	RJ45 socket for 10/100 Mbit/s twisted pair connections
			4 ×	SFP slot for 100 Mbit/s connections twisted pair and F/O
16	(hyphen)	−		
17	Temperature range	S	Standard	0 °C ... +60 °C (+32 °F ... +140 °F)
		T	Extended	−40 °F ... +158 °F (−40 °C ... +70 °C)
		E	Extended with conformal coating	−40 °F ... +158 °F (−40 °C ... +70 °C)
18 ... 19	Working voltage	CC	2 voltage inputs for redundant power supply	
			Rated voltage range DC 24 V ... 48 V	
		K9	1 voltage input	
			Rated voltage range AC 110 V ... 230 V, 50 Hz ... 60 Hz	
			Rated voltage range DC 60 V ... 250 V	
		KK	2 voltage inputs for redundant power supply	
			Rated voltage range AC 110 V ... 230 V, 50 Hz ... 60 Hz	
			Rated voltage range DC 60 V ... 250 V	

Table 1:   Device name and product code

Item	Characteristic	Characteristic value	Description
20 ... 21	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 14.
22 ... 23	Customer-specific version	HS	Hirschmann Standard
		HM	Hirschmann Fast MRP
		HP	Hirschmann PRP
		HH	Hirschmann HSR
		Note: The following redundancy functions are interchangeable with each other: ▶ HM ▶ HP ▶ HH	
24	Software configuration	E	Entry (without configuration)
25 ... 26	Software level	2S	HiOS Layer 2 Standard
		2A	HiOS Layer 2 Advanced
		3S	HiOS Layer 3 Standard
27 ... 31	Software version	02.0.	Software version 02.0
		XX.X.	Current software version

Table 1: Device name and product code

Application case	Certificates and declarations	Characteristic value[a]			
		V9	VY	Y9	Z9
Standard applications	CE	X	X	X	X
	FCC	X	X	X	X
	EN 60950-1	X	X	X	X
	EN 61131-2	X	X	X	X
	UL 508		X	X	
Substation applications	IEC 61850-3	X	X		
	IEEE 1613	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

Position	Description
1...3	**Produkt: Rail Switch Power**
4...5	**Fast Ethernet**
6	**—**
7...8	**Number of 10/100 Mbit/s ports: 11**
9...10	**Number of 100/1000 Mbit/s ports: 0**
11...13	**Configuration of the uplink ports: 3 × SFP slot for 100 Mbit/s F/O / TP**
14...15	**Configuration of the other ports: 8 × RJ-45 socket for 10/100 Mbit/s TP**
16	**—**
17	**Temperature range: Standard: +32 °F ... +140 °F (0 °C ... +60 °C)**
18...19	**Working voltage: 2 voltage inputs, 24 V DC ... 48 V DC**
20...21	**Certificates and declarations: CE, FCC, EN 61131-2, EN 60950-1**
22...23	**Customer-specific version: Hirschmann standard**
24	**Software configuration: Entry (without configuration)**
25...26	**Software level: HiOS Layer 2 Standard**
27...31	**Software version: Current software version**

| RSP | 20 | - | 11 | 00 | 3Z6 | TT | - | S | CC | Z9 | HS | E | 2S | XX.X. |

Table 3:   Sample product code RSP20-11003Z6TT-SCCZ9HSE2SXX.X.

1.3 Combination options

Item	1 ... 3	4 ... 5	6	7 ... 8	9 ... 10	11 ... 13	14 ... 15	16	17	18 ... 19	20 ... 21	22 ... 23	24	25 ... 26
Charac-teristic	Product	Data rate and hard-ware type		Number Fast Ethernet ports	Number Gigabit Ethernet ports	Configu-ration of the uplink ports	Configu-ration of the other ports		Temper ature range	Working voltage	Certificates and declara-tions	Customer-specific version	Soft-ware configu-ration	Software level
Charac-teristic value	RSP	20	–	11	00	3Z6	TT; ZT	–	S; T; E	CC; K9; KK	Z9; Y9; V9; VY	HS	E	2A; 2S; 3S
		25	–	11	00	3Z6	TT; ZT	–	S; T; E	CC; K9; KK	Z9; Y9; V9; VY	HM; HP; HH	E	2A; 2S; 3S
		30	–	08	03	3O6	TT; ZT	–	S; T; E	CC; K9; KK	Z9; Y9; V9; VY	HS	E	2A; 2S; 3S
		35	–	08	03	3O6	TT; ZT	–	S; T; E	CC; K9; KK	Z9; Y9; V9; VY	HM; HP; HH	E	2A; 2S; 3S

Table 4: Combination options of the RSP 20/25/30/35 device variants

1.4 Device views

1.4.1 Front view
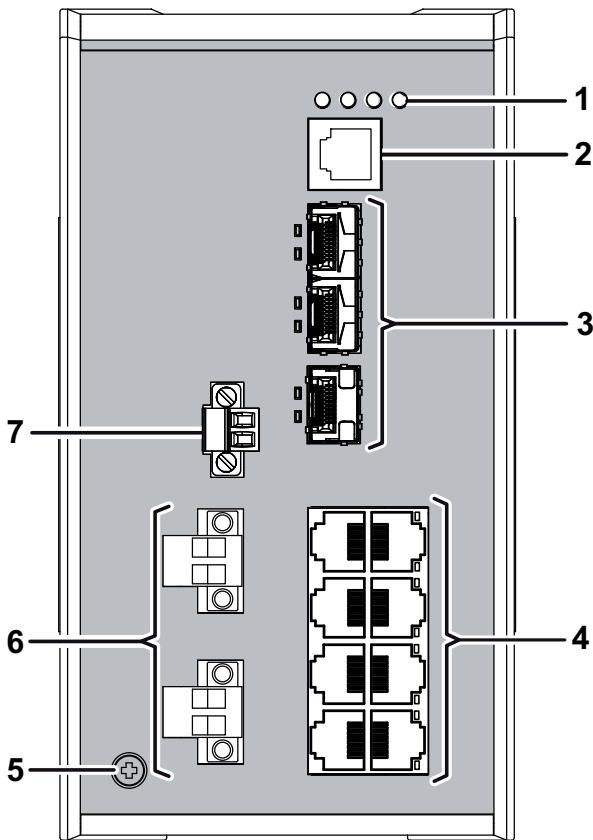
1	LED display elements for device status
2	V.24 interface
3	3 × SFP slot for 100 Mbit/s connections
4	8 × 10/100 Mbit/s twisted pair ports
5	Grounding screw
6	Working voltage connection		
	alternatively, depending on device variant	Operating voltage characteristic value: CC	▶ 2 voltage inputs for redundant power supply ▶ 2-pin terminal block
		Operating voltage characteristic value: K9	▶ 1 voltage input ▶ 3-pin terminal block
		Operating voltage characteristic value: KK	▶ 2 voltage inputs for redundant power supply ▶ 3-pin terminal block
7	Connection for the signal contact

Table 5: Front view (using the example RSP20-11003Z6TT-SCC...)

1.4.2   Rear view
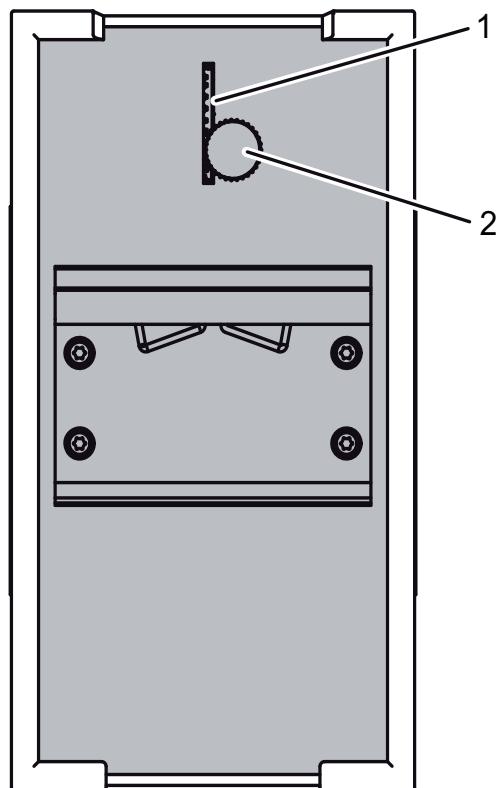
1	Slot for the SD card
2	Knurled screw

1.5   Power supply

You will find information on the characteristic values here:

1.5.1   Working voltage characteristic value K9

For the power supply of the device, a 3-pin terminal block is available.

For further information see .

1.5.2   Working voltage with the characteristic value KK

For the redundant power supply of the device, two 3-pin terminal blocks are available.

For further information see .

1.5.3 Working voltage characteristic value CC

For the redundant power supply of the device, two 2-pin terminal blocks are available.

For further information see "Working voltage characteristic value CC" on page 31.

1.6 Ethernet ports

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

1.6.1 10/100 Mbit/s twisted pair port

This port is an RJ45 socket.
See table 5 on page 17.
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	1	RD+	Receive path
2	2	RD−	Receive path
3	3	TD+	Transmission path
4	6	TD−	Transmission path
5 6 7 8	4,5,7,8	—	
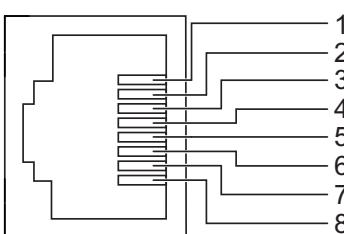
Table 6:   Pin assignment of the 10/100 Mbit/ twisted pair port, RJ-45 socket, MDI-X mode

1.6.2 100/1000 Mbit/s twisted pair port (optional)

This port is an SFP slot.
The 100/1000-Mbit/s twisted pair port offers you the possibility to connect network components according to the IEEE 802.3 100BASE-FX/1000BASE-SX/1000BASE-LX standard.

This port supports:
▶ Autonegotiation
▶ Full duplex mode

	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 7:   Pin assignment of the 10/100/1000 Mbit/s twisted pair port, RJ45 socket, 1000 Mbit/s mode, MDI-X mode

1.6.3 100 Mbit/s F/O port

This port is an SFP slot.
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

1.6.4 100/1000 Mbit/s F/O port (optional)

This port is an SFP slot.
The 100/1000 Mbit/s F/O port offers you the ability 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

1.7 Display elements

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

1.7.1 Device state

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

ACA — — RM
Power ◯ ◯ ◯ ◯ Status

LED	Display	Color	Activity	Meaning
Power	Working voltage	—	None	Working voltage is too low
		Yellow	Lights up	Device variants with redundant power supply: Working 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: Working voltages 1 **and** 2 are on
				Device variants with single power supply: Operating voltage is on
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
ACA	Storage medium 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

Applies to software releases **before** 02.0.00:

LED	Display	Color	Activity	Meaning
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 inoperative
			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.

Applies to software releases **after** 02.0.00:

LED	Display	Color	Activity	Meaning
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

1.7.2 Port state

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

Applies to software releases **before** 02.0.00:

Display	Color	Activity	Meaning
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	Flashing	Device is transmitting and/or receiving data

Applies to software releases **after** 02.0.00:

Display	Color	Activity	Meaning
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)

1.8 Management interfaces

1.8.1 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 a connection to the Command Line Interface (CLI) and the system monitor to be made.

VT 100 terminal settings	
Speed	9,600 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 working voltage.
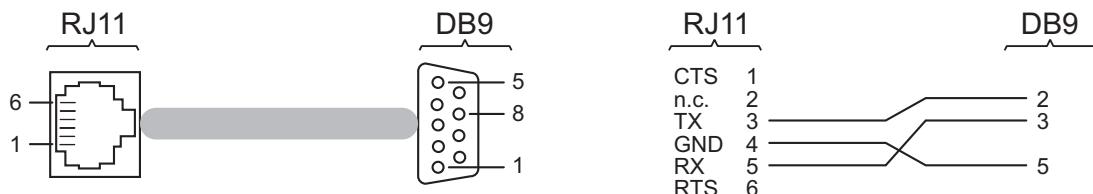
Figure 1: Pin assignment of the V.24 interface and the DB9 connector

Note: You find the order number for the terminal cable, which is available as accessory, under "Accessories" on page 48.

1.8.2 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 48.

For information about the position on the device see "Rear view" on page 18.

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.

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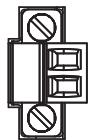
Figure 2: Signal contact: 2-pin terminal block with screw locking

The signal contact is a potential-free relay contact.
The device allows you to perform remote diagnosis via the signal contact. In the process, the device signals events such as a line interruption. When an event occurs, the device opens the relay contact and interrupts the closed circuit. The management setting specifies which events switch a contact. You can also use the management to switch the signal contact manually and thus control external devices.

2 Installation

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

The following steps should be performed to install and configure a device:
- ▶ Checking the package contents
- ▶ Installing the SD card (optional)
- ▶ 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 47.
- ☐ 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 48.

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   Installing and grounding the device

⚠ **WARNING**
FIRE HAZARD Install the device in a fire protected enclosure according to EN 60950-1. **Failure to follow these instructions 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 these instructions can result in death, serious injury, or equipment damage.**

2.3.1   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 on page 40 "General technical data").

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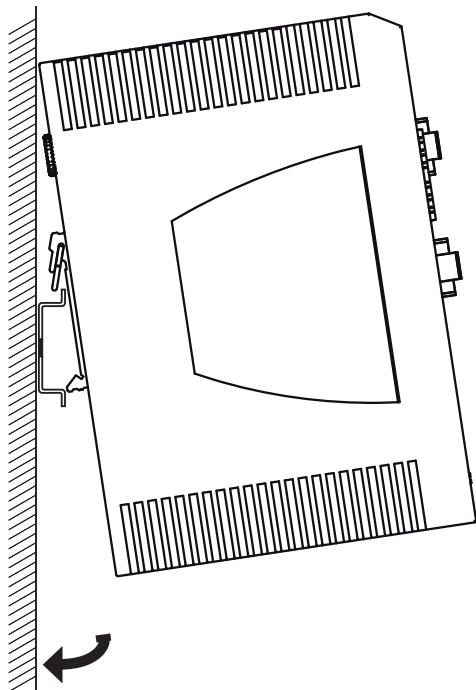
Note: The overall shield of a connected shielded twisted pair cable is connected to the ground connector on the front panel as a conductor.

2.3.2   Grounding the device

The housing is grounded via the separate ground screw on the bottom left of the front panel.
The device variants featuring working voltage with the characteristic value K9 and KK have 1 connection for protective grounding.
The device variants with working voltage characteristic value CC have a connection for functional grounding.

☐ Ground the device via the ground screw.

2.4 Installing an SFP transceiver (optional)

For this device, only use suitable SFP modules from Hirschmann.

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.
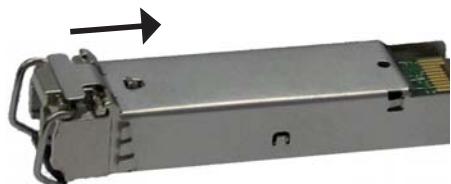
2.5 Connecting the terminal blocks

⚠ WARNING
ELECTRIC SHOCK Connect only a working voltage that corresponds to the type plate of your device. Never insert sharp objects (small screwdrivers, wires, etc.) into the connection terminals for electric conductors, and do not touch the terminals. **Failure to follow these instructions can result in death, serious injury, or equipment damage.**

Note: The working voltage is connected to the chassis through protective elements exclusively.

2.5.1 Working voltage characteristic value K9

You will find information on the characteristic values here:
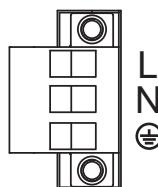
Figure 3: Working voltage characteristic value K9: 3-pin terminal block with screw locking

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

Table 8: Working voltage characteristic value K9: type and specification of the working voltage, connections

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⚠ 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 these instructions can result in death, serious injury, or equipment damage.

For the operating voltage to be connected, perform the following steps:
☐ Remove the power connector from the device.
☐ Connect the protective conductor according to the pin assignment on the device 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 Working voltage with the characteristic value KK

You will find information on the characteristic values here:

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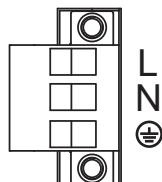

Figure 4: Working voltage with the characteristic value KK: 3-pin terminal block with screw locking

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

Table 9: Working voltage with the characteristic value KK: type and specification of the working voltage, connections

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⚠ 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 these instructions can result in death, serious injury, or equipment damage.

For **every** working voltage to be connected, perform the following steps:
☐ Remove the power connector from the device.
☐ Connect the protective conductor according to the pin assignment on the device 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.

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

2.5.3 Working voltage characteristic value CC

You will find information on the characteristic values here:

You have the option of supplying the working voltage redundantly, without load distribution.
Both working voltage inputs are uncoupled.
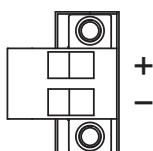
*Figure 5: Working voltage characteristic value CC: 2-pin terminal block with screw locking*

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

Table 10: Working voltage characteristic value CC: type and specification of the working voltage, connections

For **every** working voltage to be connected, perform the following steps:
☐ Remove the power 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.

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

2.5.4 Signal contact

☐ Connect the signal contact wires with the connectors of the terminal block.
☐ Fasten the wires connected by tightening the terminal screws.

2.6 Operating the device

Relevant for North America:
The torque for tightening the working voltage terminal block on the device is 4.5 lb-in (0.51 Nm).
The torque for tightening the terminal block for the signal contact on the device is 3 lb-in (0.34 Nm).

Proceed as follows:
☐ Use screws to secure the connectors to the device.
☐ Enable the working voltage.

2.7   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 .

2.8   Filling out the inscription label

The inscription label for the IP address on the front of the device 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:
- ▶ Entry via V.24 connection
- ▶ Entry with the aid of the HiDiscovery logs on the applications HiDiscovery or Industrial HiVision
- ▶ Configuration via BOOTP
- ▶ Configuration via DHCP (Option 82)
- ▶ AutoConfiguration Adapter

Further information on the basic settings of the device can be found in the user manual on the CD/DVD.

■ 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: 9,600 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 your RSP 20/25/30/35 device depend on the software level of the device.

Note: For software version 04.0 or higher, "HiOS" is available as a common software image for the software levels 2A and 3S.
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.
For the software level 2S, the software image "HiOS-2S" remains available.

Software version		Software level according to the product code		
		2S	**2A**	**3S**
HiOS 02.0	Name of the software image	HiOS-2S	–	–
	Range of functions corresponds to	2S	–	–
HiOS 03.0	Name of the software image	HiOS-2S	HiOS-2A	HiOS-2A
	Range of functions corresponds to	2S	2A	2A
From HiOS 04.0 onward	Name of the software image	HiOS-2S	HiOS	HiOS
	Range of functions corresponds to	2S	2A	3S

Table 11: 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 40.

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, e.g. 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 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 .

7 Disassembly

7.1 Removing the device

┌───┐
│   ⚠ **WARNING**   │
├───┤
│ **ELECTRIC SHOCK**   │
│   │
│ Disconnect the grounding only after disconnecting all other cables. │
│   │
│ **Failure to follow these instructions can result in death, serious injury, or equipment damage.** │
└───┘

Proceed as follows:
- ☐ Disconnect the data cables.
- ☐ Disable the working voltage.
- ☐ Disconnect the terminal blocks.
- ☐ Disconnect the grounding.
- ☐ Insert a screwdriver horizontally below the housing into the locking gate.
- ☐ Without tilting the screwdriver, pull the locking gate down and tilt the device upwards.
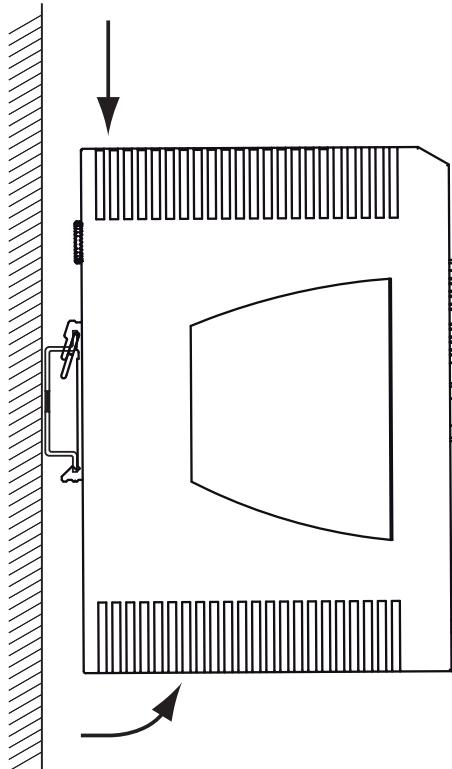
7.2   Removing an SFP transceiver (optional)

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.

8 Technical data

■ General technical data

Dimensions W × H × D	RSP 20/25/30/35		
Weight	RSP 20/25/30/35-.......TT-S......	approx. 1.2 kg	
	RSP 20/25/30/35-.......TT-T...... RSP 20/25/30/35-.......TT-E......	approx. 1.5 kg	
	RSP 20/25/30/35-.......ZT-S......	approx. 1.3 kg	
	RSP 20/25/30/35-.......ZT-T...... RSP 20/25/30/35-.......ZT-E......	approx. 1.6 kg	
Power supply Working voltage with the characteristic value CC	Nominal voltage DC	24 V ... 48 V Class 2	
	Voltage range DC incl. maximum tolerances	18 V ... 60 V Class 2	
	Connection type	2-pin terminal block	
	Power failure bypass	> 10 ms at 20.4 V DC	
	Overload current protection at input	Non-replaceable fuse	
	Back-up fuse for each voltage input	Nominal rating: Characteristic:	1 A slow blow
	Peak inrush current	< 4 A	
Power supply Working voltage with the characteristic value K9 and KK	Nominal voltage AC	110 V ... 230 V, 50 Hz ... 60 Hz	
	Voltage range AC incl. maximum tolerances	88 V ... 265 V, 47 Hz ... 63 Hz	
	Nominal voltage DC	60 V ... 250 V	
	Voltage range DC incl. maximum tolerances	48 V ... 320 V	
	Connection type	3-pin terminal block	
	Power failure bypass	> 10 ms at 98 V AC	
	Overload current protection at input	Non-replaceable fuse	
	Back-up fuse	Nominal rating: Characteristic:	1 A ... 20 A slow blow
	Peak inrush current	< 3.5 A	

Installation RSP 20/25/30/35
Release 08 08/2014

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[a]: refer to the Hirschmann product web page under http://www.hirschmann.com
	Ambient air temperature[b]	Devices with operating temperature characteristic value S (standard): +32 °F ... +140 °F (0 °C ... +60 °C) [c]
		Devices with operating temperature characteristic value E and T (extended): −40 °F ... +158 °F (−40 °C ... +70 °C)[d,e] −40 °F ... +185 °F (−40 °C ... +85 °C) for 16 hours (tested in accordance with IEC 60068-2-2) [d,f]
	Maximum inner temperature of device (guideline)	Devices with operating temperature characteristic value S (standard): 86 °C
		Devices with operating temperature characteristic value E and T (extended): 91 °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[b]	−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)
Signal contact	Switching current	max. 1 A, SELV
	Switching voltage	max. 60 V DC or max. 30 V AC, SELV
Pollution degree		2
Protection classes	Laser protection	Class 1 in compliance with IEC 60825-1
	Degree of protection	IP20

a. Reduction of the maximum permitted ambient air temperature when undercutting the minimum clearance
b. Temperature of the ambient air at a distance of 2 inches (5 cm) from the device
c. Hirschmann recommends to use SFP transceivers with the "EEC" extension.
d. Use only SFP transceivers with the "EEC" extension, otherwise the standard temperature range applies.
e. when equipped with max. 4 SFP transceivers; if a higher number is connected, the following maximum values apply for the ambient air temperature:
5 transceivers: +154 °F (+68 °C); 6 transceivers: +149 °F (+67 °C); 7 transceivers: +140 °F (+65 °C)
f. when equipped with max. 4 SFP transceivers

■ Dimension drawings
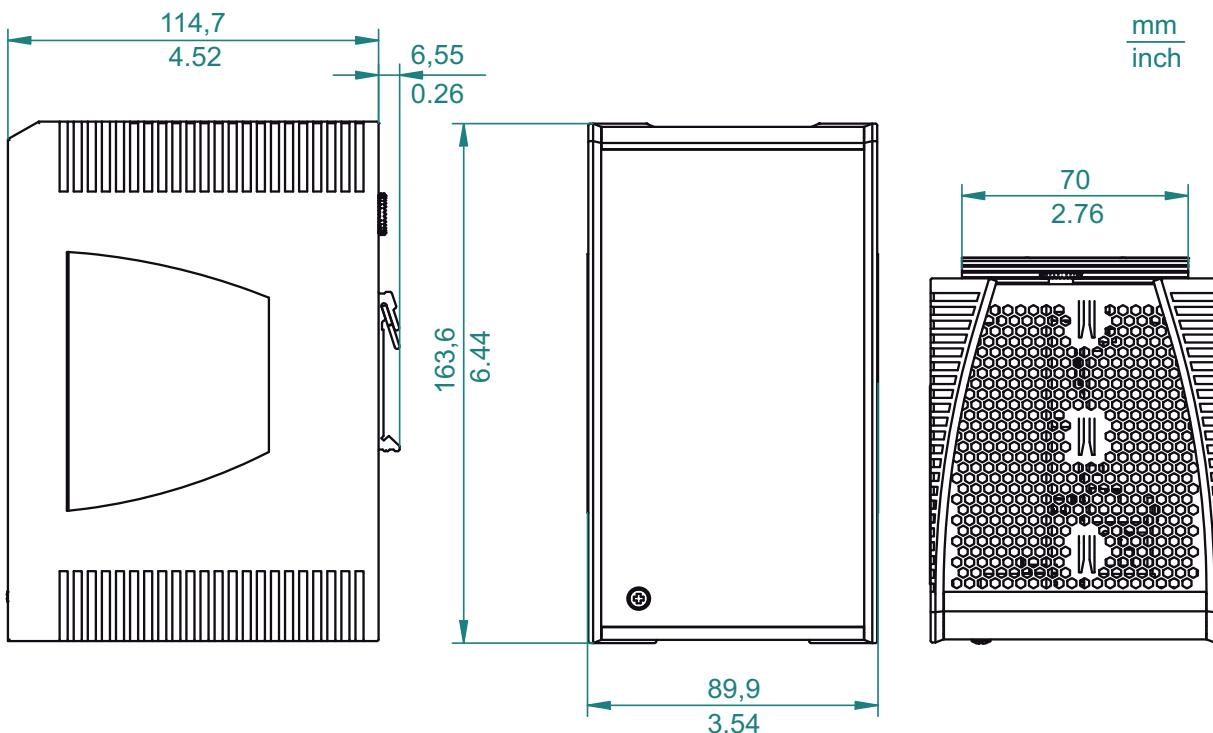
Figure 6: Dimensions of the device variants with operating temperature character-
istic value S. For the characteristic value, cf. *"Device name and product
code" on page 13*.
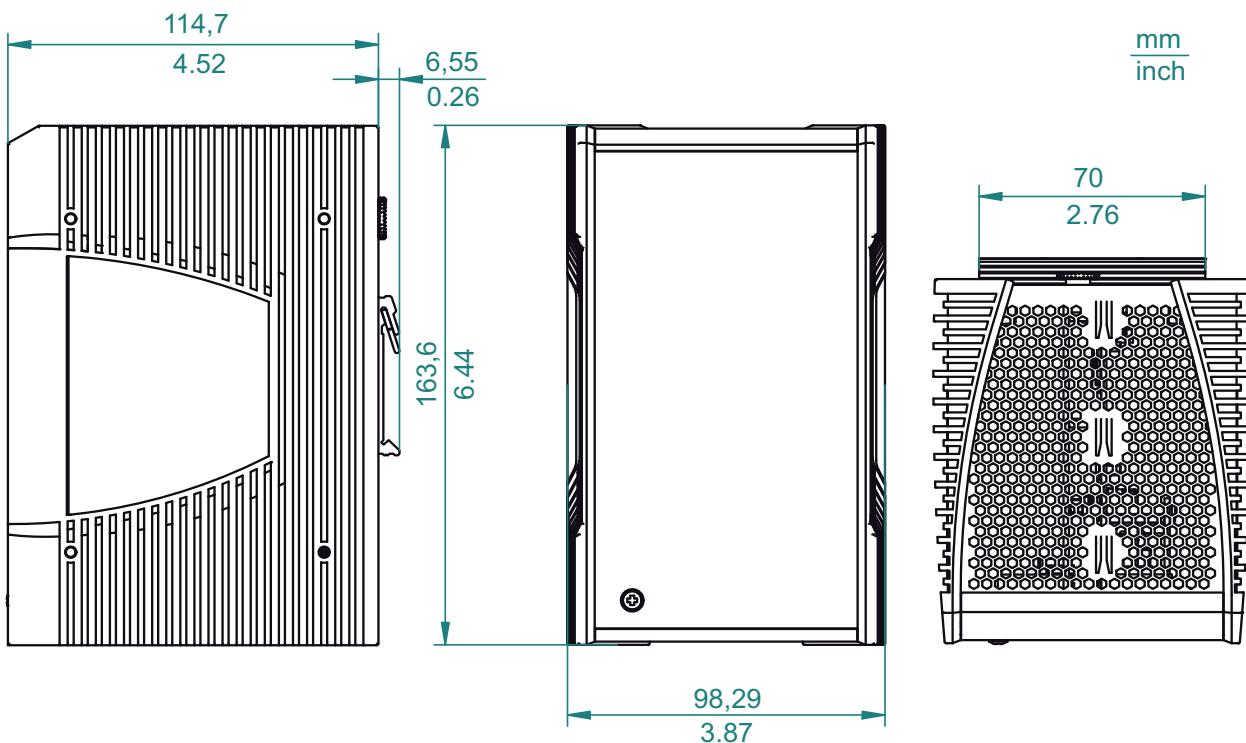
Figure 7: Dimensions of device variants with operating temperature characteristic
value E and T. For the characteristic value, cf. *"Device name and product
code" on page 13*.

■ EMC and immunity

Note: You will find detailed information on the certificates and declarations applying to your device in a separate overview.

Stability		Standard applications	Substation applications
IEC 60068-2-6, test Fc	Vibration	—	2 Hz ... 9 Hz with 0.12 in. (3 mm) amplitude
		5 Hz ... 8.4 Hz with 0.14 in. (3.5 mm) amplitude	5 Hz ... 8.4 Hz with 0.14 in. (3.5 mm) amplitude
		8.4 Hz ... 150 Hz with 1 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	15 g at 11 ms

EMC interference emission		Standard applications	Substation applications
Radiated emission			
EN 55022		Class A	Class A
GL Guidelines		—	—
FCC 47 CFR Part 15		Class A	Class A
EN 61000-6-4		Fulfilled	Fulfilled
Conducted emission			
EN 55022	AC and DC supply connections	Class A	Class A
GL Guidelines	AC and DC supply connections	—	—
FCC 47 CFR Part 15	AC and DC supply connections	Class A	Class A
EN 61000-6-4	AC and DC supply connections	Fulfilled	Fulfilled
EN 55022	Telecommunication connections	Class A	Class A
EN 61000-6-4	Telecommunication connections	Fulfilled	Fulfilled

EMC interference immunity		Standard applications	Substation applications
Electrostatic discharge			
EN 61000-4-2 IEEE C37.90.3	Contact discharge	± 4 kV	± 8 kV
EN 61000-4-2 IEEE C37.90.3	Air discharge	± 8 kV	± 15 kV
Electromagnetic field			
EN 61000-4-3	80 MHz ... 3000 MHz	10 V/m	10 V/m
IEEE 1613	80 MHz ... 1000 MHz	—	35 V/m
Fast transients (burst)			
EN 61000-4-4 IEEE C37.90.1	AC/DC supply connection	± 2 kV	± 4 kV
EN 61000-4-4 IEEE C37.90.1	Data line	± 4 kV	± 4 kV
Voltage surges - DC supply connection			
EN 61000-4-5	line/ground	± 2 kV	± 2 kV
IEEE 1613	line/ground	—	± 5 kV
EN 61000-4-5	line/line	± 1 kV	± 1 kV
Voltage surges - AC supply connection			
EN 61000-4-5	line/ground	± 2 kV	± 4 kV
IEEE 1613	line/ground	—	± 5 kV
EN 61000-4-5	line/line	± 1 kV	± 2 kV
Voltage surges - data line			
EN 61000-4-5	line/ground	± 1 kV	± 4 kV
Conducted disturbances			
EN 61000-4-6	150 kHz ... 80 MHz	10 V	10 V
Damped oscillation - AC/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

■ 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-...		Wave length	Fiber	System attenuation	Example for F/O line length [a]	Fiber attenuation	BLP[b]/ dispersion
-SX/LC...	MM	850 nm	50/125 µm	0-7.5 dB	0-550 m	3.0 dB/km	400 MHz×km
-SX/LC...	MM	850 nm	62.5/125 µm	0-7.5 dB	0-275 m	3.2 dB/km	200 MHz×km
-MX/LC EEC	MM	1310 nm	50/125 µm	0-12 dB	0-1.5 km	1.0 dB/km	800 MHz×km
-MX/LC EEC	MM	1310 nm	62.5/125 µm	0-12 dB	0-500 m	1.0 dB/km	500 MHz×km
-LX/LC...	MM	1310 nm[c]	50/125 µm	0-10.5 dB	0-550 m	1.0 dB/km	800 MHz×km
-LX/LC...	MM	1310 nm[c]	62.5/125 µm	0-10.5 dB	0-550 m	1.0 dB/km	500 MHz×km
-LX/LC...	SM	1310 nm	9/125 µm	0-10.5 dB	0-20 km[d]	0.4 dB/km	3.5 ps/(nm×km)
-LX+/LC...	SM	1310 nm	9/125 µm	5-20 dB	14-42 km	0.4 dB/km	3.5 ps/(nm×km)
-LH/LC...	LH	1550 nm	9/125 µm	5-22 dB	23-80 km	0.25 dB/km	19 ps/(nm×km)
-LH+/LC	LH	1550 nm	9/125 µm	15-30 dB	71-108 km	0.25 dB/km	19 ps/(nm×km)
-LH+/LC	LH	1550 nm	9/125 µm	15-30 dB	71-128 km	0.21 dB/km (typically)	19 ps/(nm×km)

Table 12: Fiber port 1000BASE-FX (SFP fiber optic Gigabit Ethernet Transceiver)

a. including 3 dB system reserve when compliance with the fiber data is observed
b. Using the bandwidth length product is inappropriate for expansion calculations.
c. With F/O adapter compliant with IEEE 802.3-2002 clause 38 (single-mode fiber offset-launch mode conditioning patch cord)
d. including 2.5 dB system reserve when compliance with the fiber data is observed

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

Table 13: F/O port (bidirectional Gigabit Ethernet SFP Transceiver)

a. including 3 dB system reserve when compliance with the fiber data is observed

Product code M-FAST-SFP-...		Wave length	Fiber	System attenua-tion	Example for F/O line length [a]	Fiber atten-uation	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 14:   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, order numbers

The order numbers correspond to the product codes of the devices.

Device name	Maximum power consumption	Power output
RSP20-11003Z6TT...	15 W	51 BTU (IT)/h
RSP20-11003Z6ZT...	18 W	61 BTU (IT)/h
RSP25-11003Z6TT...	19 W	65 BTU (IT)/h
RSP25-11003Z6ZT...	22 W	75 BTU (IT)/h
RSP30-08033O6TT...	15 W	51 BTU (IT)/h
RSP30-08033O6ZT...	18 W	61 BTU (IT)/h
RSP35-08033O6TT...	19 W	65 BTU (IT)/h
RSP35-08033O6ZT...	22 W	75 BTU (IT)/h

■ Scope of delivery

Number	Article
1 ×	Device
1 ×	2-pin terminal block for signal contact
1 ×	3-pin terminal block for the working voltage (solely for device variants with the characteristic value K9 for the working voltage)
2 ×	3-pin terminal block for the working voltage (only for device variants featuring working voltage with the characteristic value KK)
2 ×	2-pin terminal block for the working voltage (solely for device variants with the characteristic value CC for the working voltage)
1 ×	Installation user manual
1 ×	CD/DVD with manual

■ 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
Terminal cable	943 301-001
AutoConfiguration Adapter ACA 31	942 074-001
Network management software Industrial HiVision	943 156-xxx
For device variants with the characteristic value K9 or KK for the working voltage: 3-pin terminal block (50 pieces) for working voltage	943 845-008
For device variants with the characteristic value CC for the working voltage: 2-pin terminal block (50 pieces) for working voltage	943 845-009
2-pin terminal block (50 pieces) for signal contact	943 845-010
Power Cord	942 000-001
Dust protection cap (50 pieces) for RJ 45 sockets	943 936-001
Dust protection cap (25 pieces) for RJ 45 slot	943 942-001
Gigabit Ethernet SFP transceiver	**Order number**
M-SFP-TX/RJ45	943 977-001

Note the following for the M-SFP-TX/RJ45 transceiver:
▶ Can be used with:
    - HiOS from software version 03.0.00
    - Classic Switch Software from software version 04.1.00
    - HiSecOS from software version 01.2.00
    Not for use with the following devices:
    - SPIDER II
    - MSP/MSM
    - EES
▶ Twisted pair ports that are implemented using this transceiver have increased link failure detection times compared to twisted pair ports that are directly available in the device.
▶ When using this SFP transceiver, expect increased switching times with the RSTP.
▶ Cannot be used in combo ports.

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
M-SFP-LH+/LC	943 049-001
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

Bidirectional Gigabit Ethernet SFP transceiver	Order number
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

Note the following for the M-FAST SFP-TX... transceiver:
▶ Can be used with:
  - HiOS from software version 03.0.00
  - On the PRP ports of the RSP devices starting with software version 02.0.01
  - On the PRP ports of the EES devices starting with software version 02.0.02
  - Classic Switch Software from software version 08.0.00
  - HiSecOS ab Software-Version 01.2.00
▶ Twisted-pair ports realized through this transceiver have longer link failure detection times compared with twisted-pair ports provided by the device directly.
▶ When using these SFP transceivers, assume a higher switching 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
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
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 508	Safety for Industrial Control Equipment
UL 60950-1	Safety for Information Technology Equipment

Table 15:   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.
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

Contact our support at
https://hirschmann-support.belden.eu.com

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▶ Training offers you an introduction to the basics, product briefing and user training with certification.
  The current technology and product training courses can be found at
  http://www.hicomcenter.com
▶ Support ranges from the first installation through the standby service to maintenance concepts.

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