



# HIRSCHMANN

A **BELDEN** BRAND

## User Manual

### Installation

### Industrial Ethernet Rail Switch

### RS20/RS30-...U Family (unmanaged)



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

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# Safety instructions



## WARNING

### UNCONTROLLED MACHINE ACTIONS

To avoid uncontrolled machine actions caused by data loss, configure all the data transmission devices individually.

Before you start any machine which is controlled via data transmission, be sure to complete the configuration of all data transmission devices.

**Failure to follow these instructions can result in death, serious injury, or equipment damage.**

### ■ General safety instructions

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

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

### ■ Certified usage

Use the 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 38](#).

### ■ Supply voltage

The supply voltage is electrically isolated from the housing.

- ☐ The devices 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 supply voltage connections and signal contacts.
- ☐ Connect only a supply voltage that corresponds to the type plate of your device.

- ☐ Ground the device before connecting any other cables.
- ☐ Observe the maximum values for the contact load of the signal contact.
- ☐ Relevant for North America:  
The device may only be connected to a Class 2 supply voltage that fulfills the requirements of the National Electrical Code, Table 11(b). If the voltage is being supplied redundantly (two different voltage sources), the combined supply voltages must fulfill the requirements of the National Electrical Code, Table 11(b).
- ☐ Relevant for North America: For use in class 2 circuits.  
Use 60/75 °C (140/167 °F) or 75 °C (167 °F) copper (Cu) wire only.
- ☐ Internal fuses are triggered only in the case of a detected error in the device. In case of damage or malfunction of the device, turn off the supply voltage and return the device to the plant for inspection.

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

- ☐ Enable the supply voltage for the device only when the following requirements are fulfilled:
  - ▶ the housing is closed
  - ▶ the terminal blocks are wired correctly
  - ▶ the terminal blocks for the power supply are connected

## ■ **Grounding the device**

The housing is grounded via the separate ground screw on the bottom left of the front panel.

- ☐ For the ground conductor, use a wire diameter of at least 1.0 mm<sup>2</sup>.
- ☐ Ground the device before connecting any other cables.
- ☐ Disconnect the grounding only after disconnecting all other cables.

## ■ **Shielding ground**

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

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

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

Relevant for North America for devices certified for Hazardous Locations: Power, input and output (I/O) wiring must be in accordance with Class I, Division 2 wiring methods [Article 501-4(b) of the National Electrical Code, NFPA 70] and in accordance with the authority having jurisdiction.

SUITABLE FOR USE IN CLASS I, DIVISION 2, GROUPS A, B, C AND D HAZARDOUS LOCATIONS, OR NON-HAZARDOUS LOCATIONS ONLY.

WARNING – EXPLOSION HAZARD – SUBSTITUTION OF ANY COMPONENTS MAY IMPAIR SUITABLE FOR CLASS I, DIVISION 2.

WARNING – EXPLOSION HAZARD – DO NOT DISCONNECT EQUIPMENT WHILE THE CIRCUIT IS LIVE OR UNLESS THE AREA IS KNOWN TO BE FREE OF IGNITABLE CONCENTRATIONS.

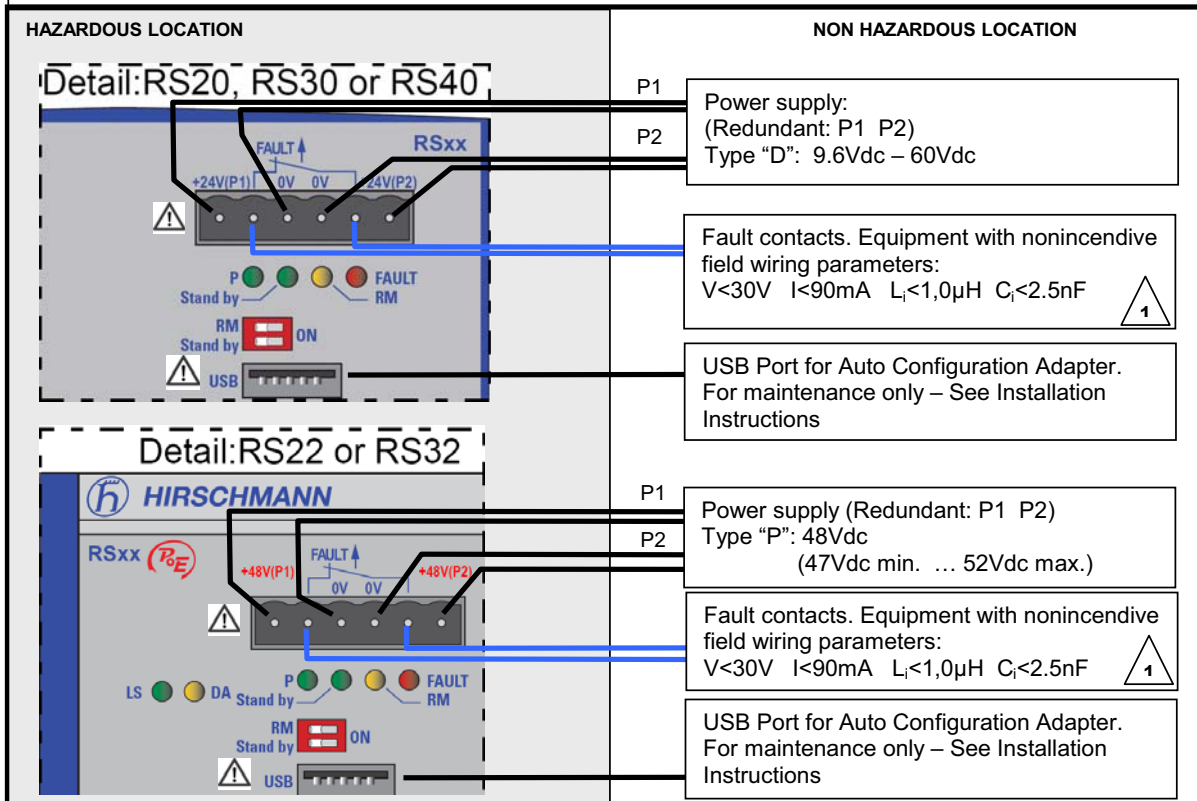
The USB connector is for temporary connection only. Do not use, connect, or disconnect unless area is known to be non-hazardous. Connection or disconnection in an explosive atmosphere could result in an explosion.

Peripheral equipment must be suitable for the location it is used in. Use 60/75 °C (140/167 °F) or 75 °C (167 °F) copper (Cu) wire only.

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

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

# CONTROL DRAWING: Hazardous Locations Class I, Division 2, Groups A, B ,C ,D



## Notes:



The nonincendive field wiring circuit concept allows interconnection of nonincendive field wiring apparatus and associated nonincendive field wiring apparatus using any of the wiring methods permitted for unclassified locations when certain parametric conditions are met.

$$C_a \geq C_i + C_{Cable} ; L_a \geq L_i + L_{Cable}$$

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

## Nonincendive Field Wiring Parameters:

Entity Parameters ... for Class I, Division 2, Groups A,B,C,D =>	$V_{max}$ [V]	$I_{max}$ [mA]	$C_i$ [nF]	$L_i$ [μH]
<b>Fault contacts</b>	30	90	2.5	1.0



**WARNING - EXPLOSION HAZARD – SUBSTITUTION OF ANY COMPONENTS MAY IMPAIR SUITABILITY FOR HAZARDOUS LOCATIONS OR EXPLOSIVE ATMOSPHERES.**

**WARNING - EXPLOSION HAZARD - DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NON-HAZARDOUS.**

**DO NOT OPEN WHEN ENERGIZED.**



## CONTROL DRAWING for RS20, RS22, RS30, RS32 and RS40 Family

Size A4 | Document No.: 000157671DNR

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Sheet 1 of 1

Rev. 0



## ■ **ATEX directive 94/9/EG – specific regulations for safe operation**

Relevant for RS20/RS30-...U devices when operating in explosive gas atmospheres according to ATEX Directive 94/9 EC, the following applies:

- ☐ List of standards:  
EN 60079-0:2009  
EN 60079-15:2010  
Certificate No.: DEKRA 11ATEX0139 X.
- ☐ Make sure that the device has the following label:  
 **II 3 GEx nA IIC T4 Gc**      **DEKRA 11ATEX0139 X**

Ambient rating:

**Ta: 0 °C ... +60 °C for “U” types**

(item 17 of nomenclature breakdown).

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



The USB port shall remain disconnected.

## ■ IECEx – Certification Scheme for Explosive Atmospheres



For RS20/RS30-...U devices labeled with an IECEx certificate number, the following applies:

- ☐ List of standards:  
IEC 60079-0:2011 + Corr.2012 + Corr.2013  
IEC 60079-15:2010
- ☐ The equipment shall only be used in an area of not more than pollution degree 2, as defined in IEC 60664-1.
- ☐ Make sure that the device has the following label:



**Ex nA IIC T4 Gc IECEx DEK 14.0077X**

Ambient rating and temperature code:

**T4:  $0\text{ }^{\circ}\text{C} \leq T_a \leq +60\text{ }^{\circ}\text{C}$  for “S” types**

(item 14 of nomenclature breakdown) or

**T4:  $-40\text{ }^{\circ}\text{C} \leq T_a \leq +70\text{ }^{\circ}\text{C}$  for “T” or “E” types**

(item 14 of nomenclature breakdown).

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



- ☐ DIP switches shall be switched exclusively in dead-voltage state.
- ☐ The USB port shall remain disconnected.

## ■ **Device casing**

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

- ☐ Never insert pointed objects (narrow screwdrivers, wires, etc.) into the device or into the connection terminals for electric conductors. Do not touch the connection terminals.
- ☐ Keep the ventilation slits free to ensure good air circulation.  
[See "General technical data" on page 38.](#)
- ☐ 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.

## ■ **Installation site requirements**

- ☐ When you are selecting the installation location, make sure you observe the climatic threshold values specified in the technical data.
- ☐ Operate the device at the specified ambient temperature (temperature of the ambient air at a distance of 2 inches (5 cm) from the device) and at the specified relative humidity exclusively.
- ☐ Use the device in an environment with a maximum pollution degree that complies with the specifications in the technical data.
- ☐ Install the device in a fire protected enclosure according to EN 60950-1.  
If installed in a living area or office environment, the device must be operated only in switch cabinets with fire protection characteristics according to EN 60950-1.

## ■ **Qualification requirements for personnel**

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

## ■ **National and international safety regulations**

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

## ■ **CE marking**

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

2011/65/EU and 2015/863/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.

2014/30/EU (EMC)

Directive of the European Parliament and of the Council on the harmonisation of the laws of the Member States relating 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  
Stuttgarter Str. 45-51  
72654 Neckartenzlingen

The device can be used in the industrial sector.

- ▶ Interference immunity: EN 61000-6-2
- ▶ Emitted interference: EN 55032

**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.

## Key

The symbols used in this manual have the following meanings:

▶	Listing
□	Work step
■	Subheading

# 1 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
- ▶ Media type
- ▶ Types of connectors
- ▶ Temperature range
- ▶ Certifications

The RS20/RS30-...U 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 allow you to set up switched industrial Ethernet networks that conform to the IEEE 802.3 standard using copper wires or optical fibers in a line structure.

The devices work without a fan.

The voltage is supplied redundantly.

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

Depending on the device variant, you can choose various media to connect terminal devices and other infrastructure components:

- ▶ twisted pair cable
- ▶ multimode F/O
- ▶ singlemode F/O

The twisted pair ports support:

- ▶ Autocrossing
- ▶ Autonegotiation
- ▶ Autopolarity

The Hirschmann network components help you ensure continuous communication across all levels of the company.

## 1.1 Description of the device variants

The devices differ with regard to the number of interfaces and the media type for connecting segments.

The table below shows 2 port categories for each product variant: uplink-ports, and other ports. The table also shows for each product category the number of ports you can select, and the type of ports. In the port type column, the abbreviations F/O (optical fiber) and TP (twisted pair) designate the media type. The abbreviations DSC, ST, SFP, and RJ45 indicate the socket type.

Variant	Uplink ports		Other ports	
	Number	Type	Number	Type
RS20-...U	2	10/100 Mbit/s, media selectable, DSC, ST, RJ45	6, 14, 22	10/100 Mbit/s, TP, RJ45
	3	10/100 Mbit/s, media selectable, DSC, ST, RJ45	6, 14, 22	10/100 Mbit/s, TP, RJ45
RS30-...U	2	1000 Mbit/s, media selectable, SFP, RJ45	8, 16, 24	10/100 Mbit/s, TP, RJ45
	4	2x100/1000 Mbit/s, 2x 100 Mbit/s, F/O, SFP	6, 14, 22	10/100 Mbit/s, TP, RJ45

Table 1: Number and type of ports

### 1.1.1 Combination options for RS20/30-...U

The product designation of your device is made from combining the desired product characteristics in accordance with the following table. You will find the corresponding short designation in columns 3 and 4.

You have numerous options of combining the device characteristics. You can determine the possible combinations using the configurator which is available in the Belden E-Catalog ([www.e-catalog.beldensolutions.com](http://www.e-catalog.beldensolutions.com)) on the web page of the device.

Position	Characteristic	Ident.	Ident.2 a)	Property
1 to 4	Product	RS20		Rail Switch without gigabit ports
		RS30		Rail Switch with gigabit ports
5	- (hyphen)	-		

Table 2: Combination options for the RS20...U/RS30...U device variants



Position	Characteristic	Ident.	Ident.2 a)	Property
6 bis 7	Number of 10/100 Mbit/s ports	08		8 × 10/100 Mbit/s Ethernet
		09		9 × 10/100 Mbit/s Ethernet
		16		16 × 10/100 Mbit/s Ethernet
		17		17 × 10/100 Mbit/s Ethernet
		24		24 × 10/100 Mbit/s Ethernet
		25		25 × 10/100 Mbit/s Ethernet
8 and 9	Number of 1000 Mbit/s ports	00		0 × 1000 Mbit/s Ethernet
		02		2 × 1000 Mbit/s Ethernet
10 and 11 a)	Uplink port(s) 1 port (Ident. column) or alternatively 2 ports (Ident.2 column)	T1		Twisted Pair TX, RJ45
		M2	MM <sup>b)</sup>	Multimode FX, DSC, 100 Mbit/s
		M4	NN <sup>b)</sup>	Multimode FX, ST, 100 Mbit/s
		S2	VV <sup>b)</sup>	Singlemode FX, DSC, 100 Mbit/s
		S4	UU <sup>b)</sup>	Singlemode FX, ST, 100 Mbit/s
		L2	LL <sup>b)</sup>	Singlemode Longhaul, DSC, 100 Mbit/s
		O6	OO <sup>c)</sup>	SFP slot, 100 <sup>d)</sup> /1000 Mbit/s
		Z6	ZZ <sup>c)</sup>	SFP slot, 100 Mbit/s
12 and 13 a)	See items 10 and 11			
14	Temperature range	S		Standard: +32 °F to +140 °F (0 °C to +60 °C)
		T		Extended -40 °F to +158 °F (-40 °C to +70 °C) <sup>e)</sup>
		E		Extended -40 °F to +158 °F (-40 °C to +70 °C ), Conformal Coating <sup>d)</sup>
15	Voltage range	D		9.6 V DC to 60 V DC or 18 V AC to 30 V AC
16	Approval	A		CE, UL508, ISA 12.12.01 (UL1604)
		H <sup>f)</sup>		CE, UL508, ISA 12.12.01 (UL1604), GL, Railway (along track), Sub Station
		B <sup>e)</sup>		CE, UL508, ISA 12.12.01 (UL1604), GL, Railway (along track), Sub Station, Hazardous Location/ATEX/IECEX
17	Software variant	U		Unmanaged

**Table 2:**      *Combination options for the RS20...U/RS30...U device variants*

- a. For device variants with 2 uplink ports you use the “Ident.” column for items 10+11 and for items 12+13.  
For device variants with 3 uplink ports you use the “Ident.2” column for items 10+11 and the “Ident.” column for items 12+13.  
For device variants with 4 uplink ports you use the “Ident.2” column for items 10+11 and for items 12+13.
- b. For RS20-0900...U, RS20-1700...U, RS20-2500...U
- c. In combination with “2nd uplink port” “ZZ” and “1st uplink port” “OO”.
- d. Only for “OO” combination
- e. Not when using GG or G2 transceivers.
- f. Without railway certification EN50155 (Train).

## 1.1.2 Number of ports and media for RS20...U

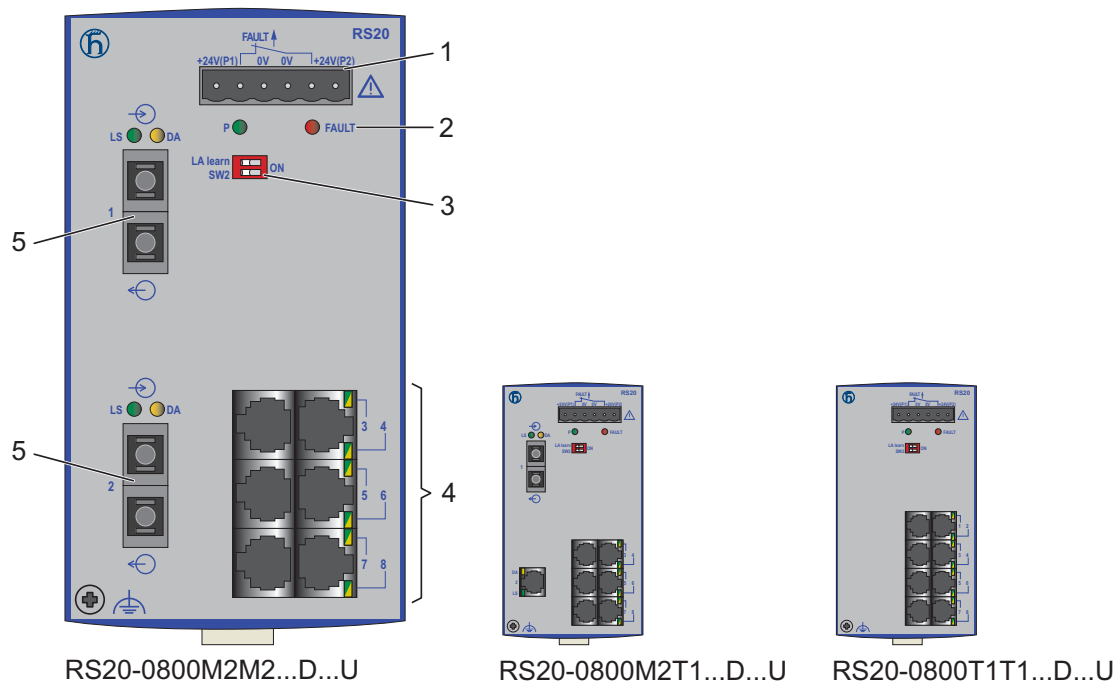


Figure 1: Device variants with 8 \* 10/100 Mbit/s ports (RS20-0800...U)

1 – plug-in terminal block, 6-pin

2 – LED display elements

3 – 2-pin DIP switch

4 – ports in compliance with 10/100BASE-T(X) (RJ45 connections)

5 – port 1 + port 2, free choice of connections:

T1: Twisted-pair T(X), RJ45, 10/100 Mbit/s

M2: Multimode FX, DSC, 100 Mbit/s

M4: Multimode FX, ST, 100 Mbit/s

S2: Singlemode FX, DSC, 100 Mbit/s

S4: Singlemode FX, ST, 100 Mbit/s

L2: Singlemode Longhaul FX, DSC, 100 Mbit/s

G2: Singlemode Longhaul+ FX, DSC, 100 Mbit/s, 200 km

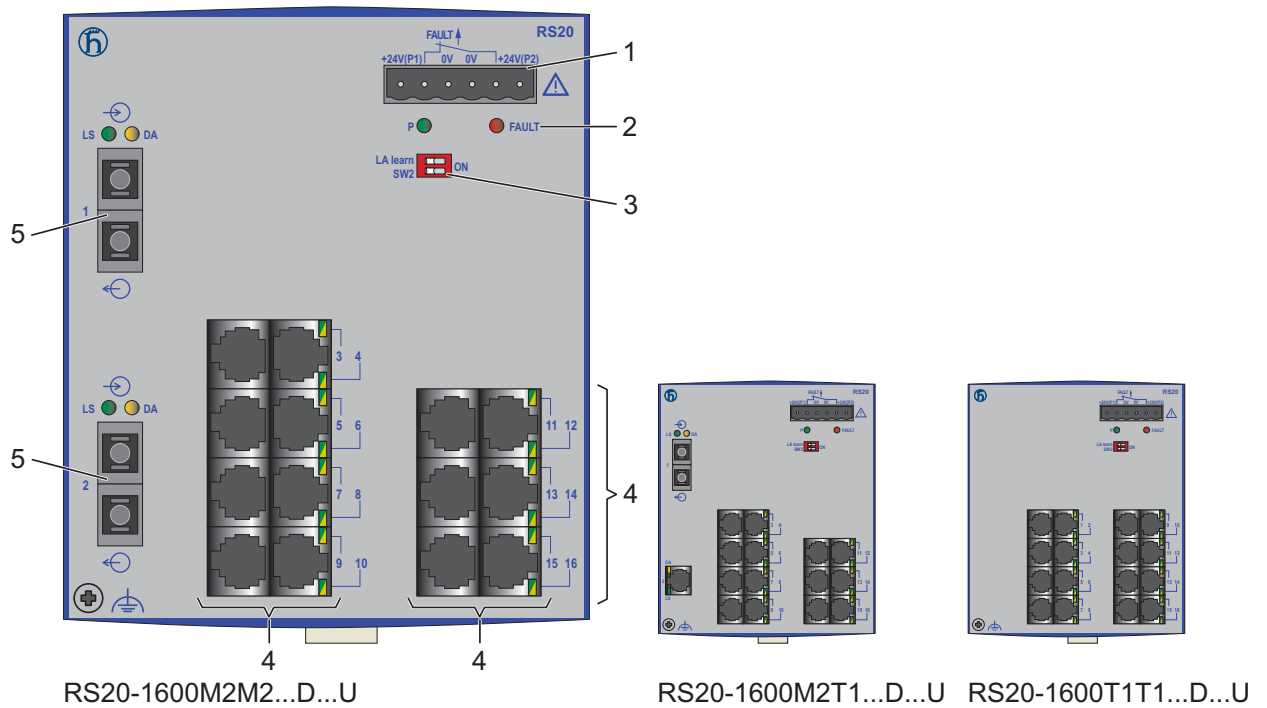


Figure 2: Device variants with 16 \* 10/100 Mbit/s ports (RS20-1600...U)  
1 to 5 – see figure 1

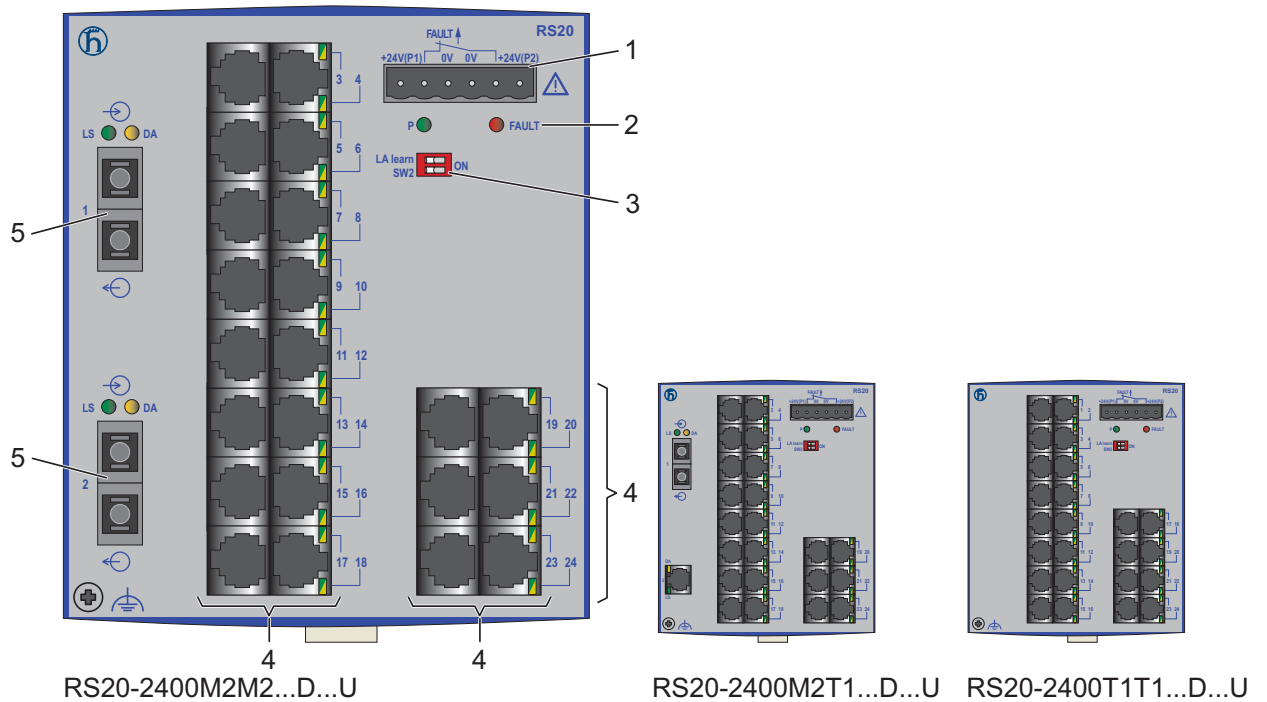


Figure 3: Device variants with 24 \* 10/100 Mbit/s ports (RS20-2400...U)  
1 to 5 – see figure 1

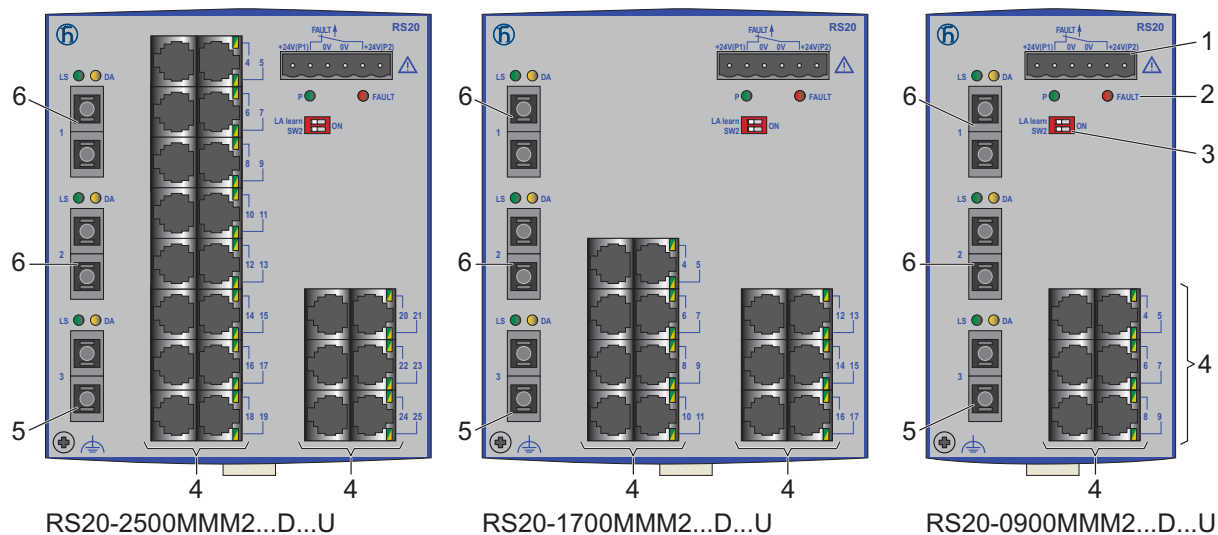


Figure 4: Device variants with 3 uplink ports (100 Mbit/s)

1 to 4 – see [figure 1](#)

5 – port 3, free choice of connection:

T1: Twisted-pair T(X), RJ45, 10/100 Mbit/s

M2: Multimode FX, DSC, 100 Mbit/s

M4: Multimode FX, ST, 100 Mbit/s

S2: Singlemode FX, DSC, 100 Mbit/s

S4: Singlemode FX, ST, 100 Mbit/s

L2: Singlemode Longhaul FX, DSC, 100 Mbit/s

G2: Singlemode Longhaul+ FX, DSC, 100 Mbit/s, 200 km

6 – port 1 + port 2, free choice of connections:

MM: Multimode FX, DSC, 100 Mbit/s

NN: Multimode FX, ST, 100 Mbit/s

VV: Singlemode FX, DSC, 100 Mbit/s

UU: Singlemode FX, ST, 100 Mbit/s

### 1.1.3 Number of ports and media for RS30...U

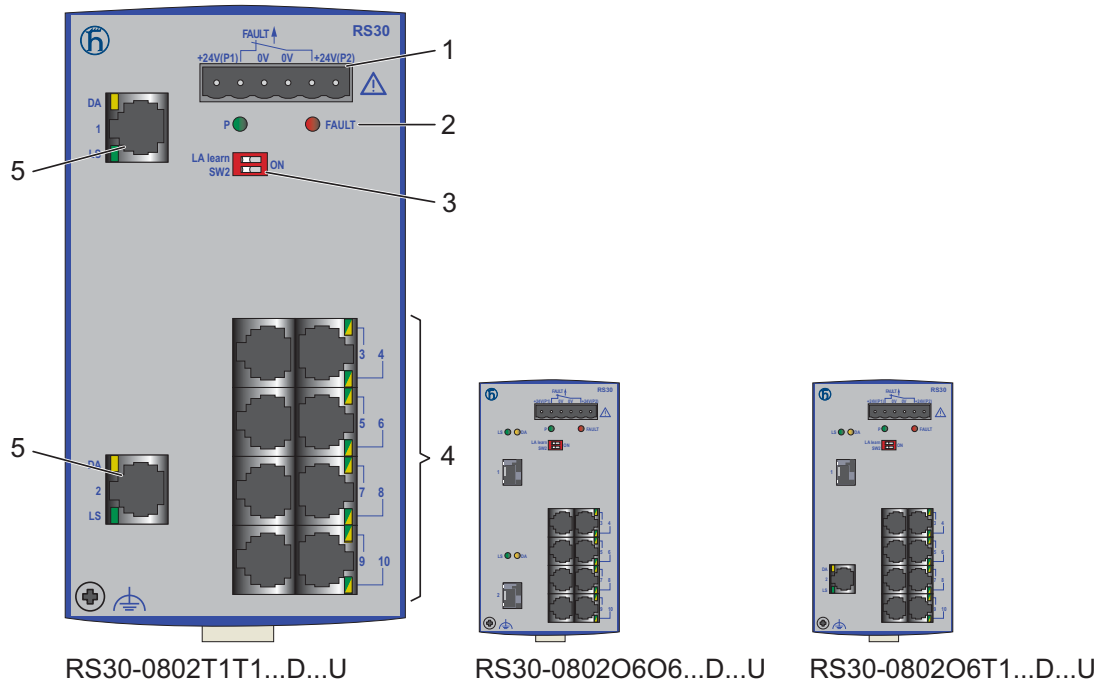


Figure 5: Device variants with 2 \* 1000 Mbit/s ports and 8 \* 10/100 Mbit/s ports (RS30-0802...U)

1 – plug-in terminal block, 6-pin

2 – LED display elements

3 – 2-pin DIP switch

4 – ports in compliance with 10/100BASE-T(X) (RJ45 connections)

5 – port 1 + port 2, free choice of connections:

T1: Twisted-pair T(X), RJ45, 10/100/1000 Mbit/s

O6: SX/LX, SFP slot, 1000 Mbit/s

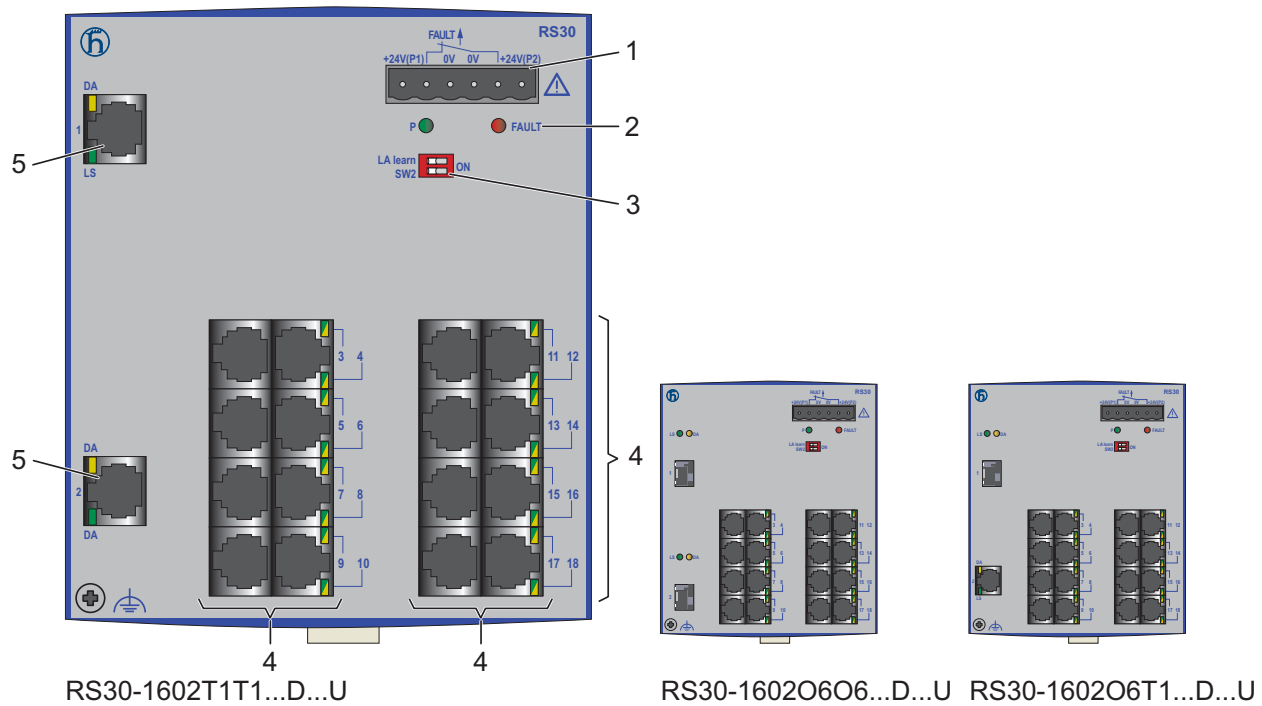


Figure 6: Device variants with 2 \* 1000 Mbit/s ports and 16 \* 10/100 Mbit/s ports (RS30-1602...U)  
1 to 5 – see [figure 5](#)

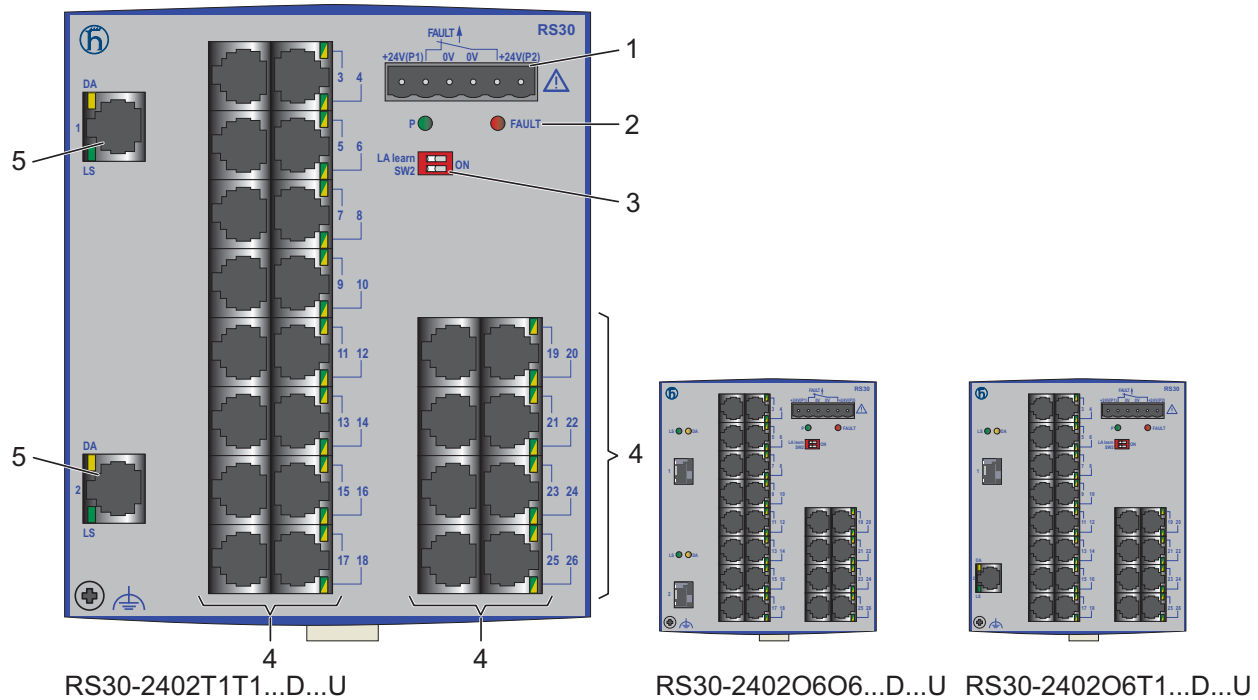
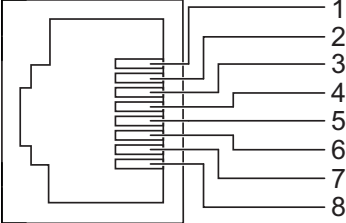


Figure 7: Device variants with 2 \* 1000 Mbit/s ports and 24 \* 10/100 Mbit/s ports (RS30-2402...U)  
1 to 5 – see [figure 5](#)



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

**Table 3:** Pin assignment of the 10/100 Mbit/ twisted pair port, RJ-45 socket, MDI-X mode

### 1.2.2 10/100/1000 Mbit/s twisted pair port

This port is an RJ45 socket.

The 10/100/1000 Mbit/s twisted pair port offers you the ability to connect network components according to the IEEE 802.3 10BASE-T/100BASE-TX/1000BASE-T standard.

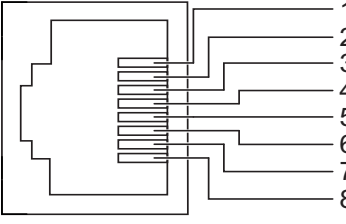
This port supports:

- Autonegotiation
- Autopolarity
- Autocrossing

Delivery state: autonegotiation active

The socket housing is electrically connected with the front panel.

The pin assignment corresponds to MDI-X.

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

**Table 4:** Pin assignment of 10/100/1000 Mbit/s twisted pair port, RJ45 socket, 1000 Mbit/s mode, MDI-X mode



### 1.2.3 100 Mbit/s F/O port

In device variants RS20...U, these ports are DSC connectors or ST connectors.

In device variants RS30...U, these ports are SFP slots.

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:

- Full duplex mode

Default setting: Full duplex

**Note:** Verify that the LH ports are connected only with LH ports, SM ports only with SM ports, and MM ports only with MM ports.

### 1.2.4 1000 Mbit/s F/O port

This port is an SFP slot.

The 1000 Mbit/s F/O port offers you the ability to connect network components according to the IEEE 802.3 100BASE-SX/1000BASE-LX standard.

This port supports:

- Autonegotiation

For device variants with the designation RS30-...02OOZZ... and RS32-...02OOZZ... (4 uplink ports with SFP slot), you have the option of using either Gigabit Ethernet SFP transceivers or Fast Ethernet SFP transceivers at the two top ports, and Fast Ethernet SFP transceivers at the two bottom ports.

[See “Accessories” on page 44.](#)

**Note:** Verify that you connect LH ports only with LH ports, SX ports only with SX ports, and LX ports only with LX ports.

# 1.3      Display elements

After the supply voltage is switched on, the device performs a self-test.

## 1.3.1      Device state

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



Figure 9: Device status LEDs

P - Power (green/yellow LED)	
Glowing green	Both supply voltages are on
Glowing yellow	There is only one supply voltage (P1 or P2) on
Not glowing	Supply voltages P1 and P2 are too low
FAULT - detected error, signal contact (red LED) <sup>a</sup>	
Glowing red	The signal contact is open, i.e. it is reporting a detected error.
Not glowing	The signal contact is closed, i.e. it is not reporting a detected error.

a. If the manual adjustment is active on the “FAULT” signal contact, then the detected error display is independent of the setting of the signal contact.

### 1.3.2 Port state

These LEDs display port-related information.

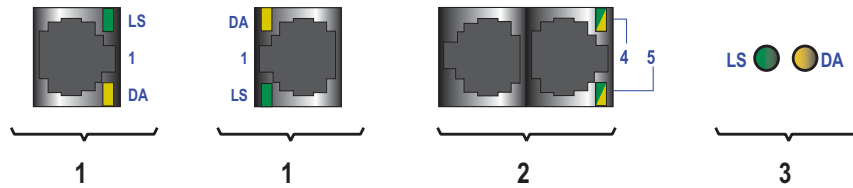


Figure 10: Port status LEDs

1 – Port status LEDs for isolated or single-row RJ45 sockets: one green and one yellow LED per port.

2 – Port status LEDs for double-row RJ45 sockets: one LED per port, glowing/flashing either green or yellow.

3 – Port status LEDs for DSC, ST, SFP

LS - link status (green LED)	
Not glowing	No valid connection.
Lights up green	Valid connection.
Not glowing, and flashes approx. every 5 seconds	Link monitoring is enabled for the port - no valid connection
Glowing green, and goes out briefly approx. every 5 seconds	Link monitoring is enabled for the port - valid connection
DA - data (yellow LED)	
Not glowing	No data reception at corresponding port
Flashing yellow	Data reception at corresponding port

## 2 Installation

The devices have been developed for practical application in a harsh industrial environment.

On delivery, the device is ready for operation.

Perform the following steps to install and configure the device:

- ▶ [Checking the package contents](#)
- ▶ [Installing and grounding the device](#)
- ▶ [Installing an SFP transceiver \(optional\)](#)
- ▶ [Adjust DIP switch settings](#)
- ▶ [Connecting the terminal block](#)
- ▶ [Mounting the terminal block](#)
- ▶ [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 43](#).
- ☐ Check the individual parts for transport damage.

### 2.2 Installing and grounding the device



#### **WARNING**

##### **FIRE HAZARD**

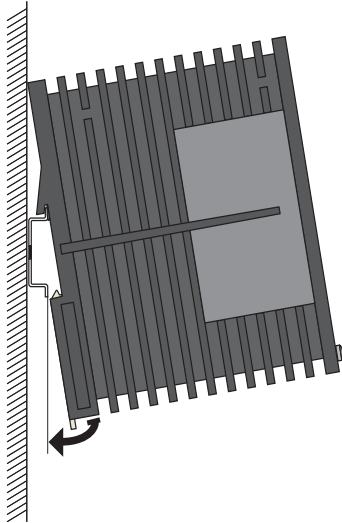
Install the device in a fire protected enclosure according to EN 60950-1.

**Failure to follow these instructions can result in death, serious injury, or equipment damage.**

### 2.2.1 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)



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.
- ☐ Pull down the locking gate using a screwdriver and press the lower part of the device against the DIN rail.
- ☐ Snap in the device by releasing the locking gate.

**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 Grounding the device

For the ground conductor, use a wire diameter of at least 1.0 mm<sup>2</sup>.  
The device is grounded by the separate ground screw on the front panel.

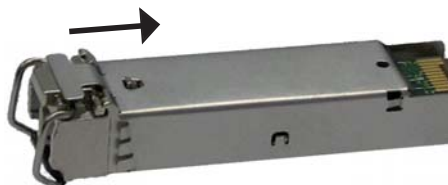
## 2.4 Installing an SFP transceiver (optional)

Use only Hirschmann SFP transceivers which are suitable for usage with the device.

See [“Accessories” on page 44](#).

Proceed as follows:

- ☐ Remove the protective cap from the SFP transceiver.
- ☐ Push the SFP transceiver with the lock closed into the slot until it latches in.



## 2.5 Adjust DIP switch settings

The 2-pin DIP switch on the front panel of the device gives you the following options:



Figure 11: 2-pin DIP switch

LAlearn switch Position	Learn ports	Link monitoring
ON	on	on
OFF	off	off

**Note:** DIP switch “SW2” is not being used, so the switch setting has no effect.

State on delivery: both DIP switches “OFF”.

No ports have been learned, and link monitoring is disabled on the ports.

- ☐ Before starting operation of the device, check whether the default settings of the DIP switch correspond to your requirements.

## 2.6 Connecting the terminal block



### WARNING

#### ELECTRIC SHOCK

Connect only a supply 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. Observe the maximum values for the contact load of the signal contact.

**Failure to follow these instructions can result in death, serious injury, or equipment damage.**

The supply voltage and the signal contact are connected via a 6-pin terminal block with a snap lock.

### 2.6.1 Supply voltage

The supply voltage can be connected redundantly. Both inputs are uncoupled. There is no distributed load. With redundant supply, the power supply unit with the higher output voltage supplies the device on its own. The supply voltage is electrically isolated from the housing.

You can choose between DC or AC voltage when connecting the supply voltage. You use the +24V and 0V pins to connect the AC voltage (see figure 12).

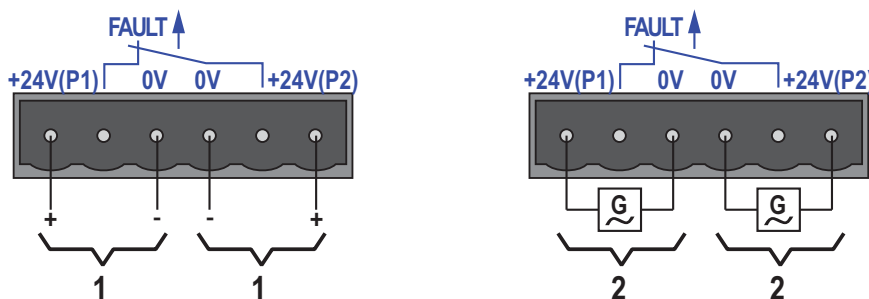


Figure 12: Connecting the supply voltage at the 6-pin terminal block

1 – DC voltage, voltage range: 9.6 V DC to 60 V DC

2 – AC voltage, voltage range: 18 V AC to 30 V AC

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

### 2.6.2 “FAULT” signal contact

- ▶ The signal contact (“FAULT”, for pin assignment of terminal block, see [figure 12](#)) monitors the functioning of the device, thus enabling remote diagnostics.

The potential-free signal contact (relay contact, closed circuit) reports through a break in contact:

- ▶ The detected inoperability of at least one of the two voltage supplies (voltage supply 1 or 2 is below the threshold value).
  - ▶ The device is not operational.
  - ▶ The defective link status of at least one port with active link monitoring. In delivery state, link monitoring is inactive.
  - ▶ Failure of the ring redundancy reserve.
  - ▶ Errors detected during the self-diagnostic test.
- ☐ Pull the terminal block off the device and connect the power supply and signal lines.

## 2.7 Mounting the terminal block

- ☐ Mount the terminal block for the voltage supply and signal contact on the front of the device using the snap lock. Verify that the snap lock latches in place.

## 2.8 Operating the device

- ☐ By connecting the supply voltage via the terminal block, you start the operation of the device.

## 2.9 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.

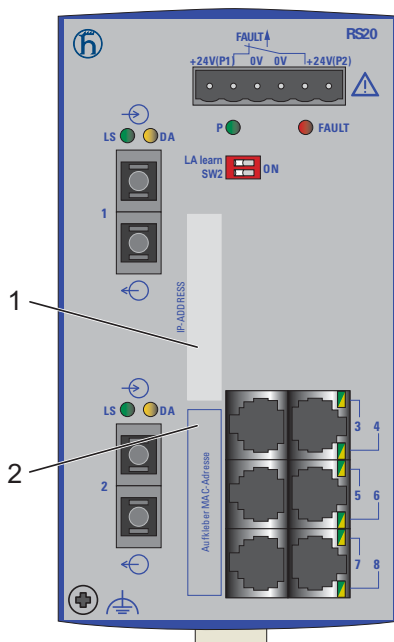


- ▶ When using copper cables, provide a sufficient separation between the power supply cables and the data cables. Ideally, install the cables in separate cable channels.
- ▶ Used shielded cables (SF/UTP cables as per ISO/IEC 11801:2002).
- ☐ Connect the data cables according to your requirements.

For further information see [“Description of the device variants” on page 16](#).

## 2.10 Filling out the inscription label

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



*Figure 13: Label area for IP address of device*  
 1 – IP address of device (label area)  
 2 – MAC address of device (label)

### **3 Monitoring the ambient air temperature**

Operate the device below the specified maximum ambient air temperature exclusively.

[See “General technical data” on page 38.](#)

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.

## 4 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.
- ▶ 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> .

## 5 Disassembly

### 5.1 Removing the device

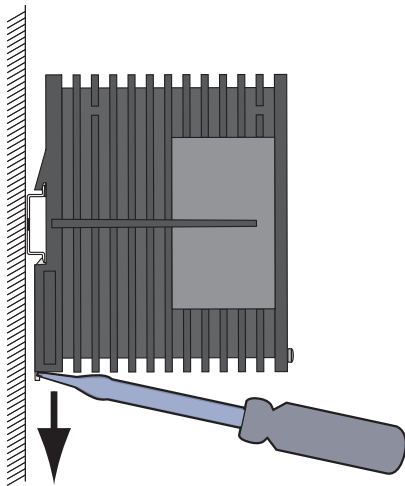


#### WARNING

##### 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 supply 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.

## 5.2 Removing an SFP transceiver (optional)

Proceed as follows:

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



- ☐ Close the SFP transceiver with the protective cap.

## 6 Technical data

### ■ General technical data

Dimensions W × H × D	RS20-08..., RS20-09..., RS30-0802	2.91 in. × 5.16 in. × 4.37 in. (74 mm × 131 mm × 111 mm)
	RS20-16..., RS20-17..., RS30-1602	131 mm × 111 mm
	RS20-24..., RS20-25..., RS30-2402	4.33 in. × 5.16 in. × 4.37 in. (110 mm × 131 mm × 111 mm)
		4.33 in. × 5.16 in. × 4.37 in. (110 mm × 131 mm × 111 mm)
Weight	RS20-08..., RS20-09..., RS30-0802	410 g
	RS20-16..., RS20-17..., RS30-1602	600 g
	RS20-24..., RS20-25..., RS30-2402	650 g
Power supply	Supply voltage	
	Rated voltage range DC	12 V ... 48 V
	Rated voltage range AC	24 V AC
		Safety extra-low voltage (SELV), redundant inputs disconnected
		Relevant for North America: NEC Class 2 power source max. 5A.
	Max. voltage range DC	min. 9.6 to max. 60 V DC
	Max. voltage range AC	min. 18 to max. 30 V AC
		(Not applicable under UL regulations)
	Peak inrush current	< 15 A
Overload current protection at input	Non-replaceable fuse	
Insulation voltage between supply voltage connections and housing	800 V DC Protective elements limit the insulation voltage to 90 V DC (1 mA)	
“FAULT” signal contact	Switching current	max. 1 A, SELV
	Switching voltage	max. 60 V DC or max. 30 V AC, SELV
Environment	Storage temperature (ambient air)	Standard: -40 °F ... +158 °F (-40 °C ... +70 °C) Extended -40 °F ... +185 °F (-40 °C ... +85 °C)
	Humidity	10 % ... 95 % (non-condensing)
	Air pressure	Up to 2000 m (795 hPa), higher altitudes on request
	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)
Operating temperature	Standard	0 °C ... +60 °C (+32 °F ... +140 °F)
	Extended	-40 °F ... +158 °F (-40 °C ... +70 °C) <sup>a</sup>
Pollution degree	2	
Protection classes	Laser protection	Class 1 in compliance with IEC 60825-1
	Degree of protection	IP20

a. Use SFP transceivers with the “EEC” extension only, otherwise the standard temperature range applies.

## ■ Dimension drawings

mm  
inch

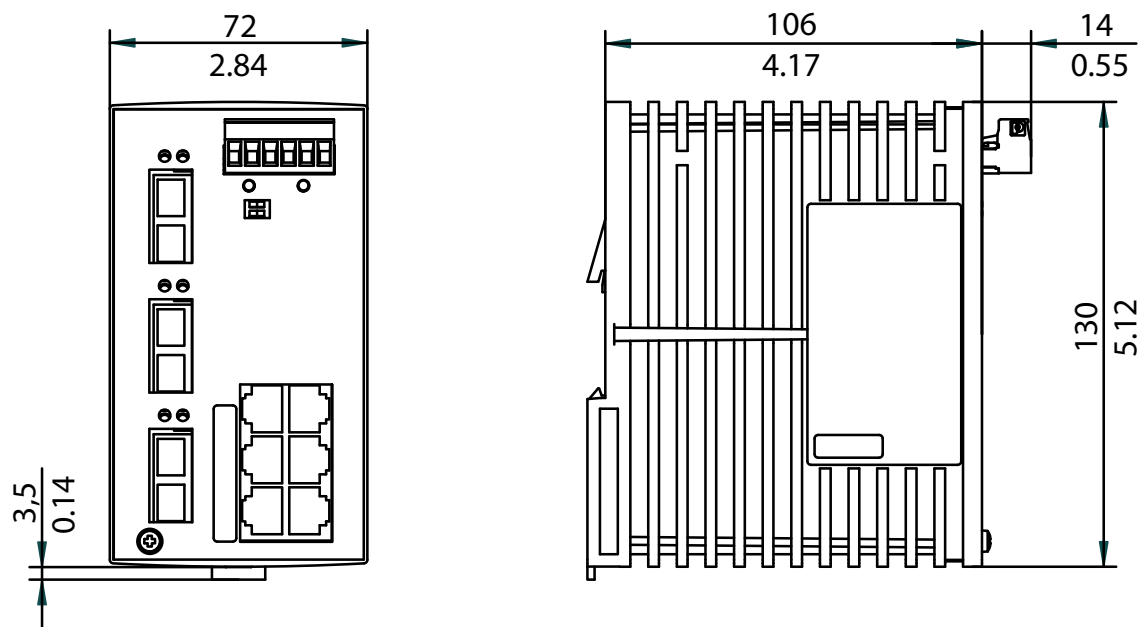


Figure 14: Dimensions of device variants RS20...U/RS30...U with 8 to max. 10 ports

mm  
inch

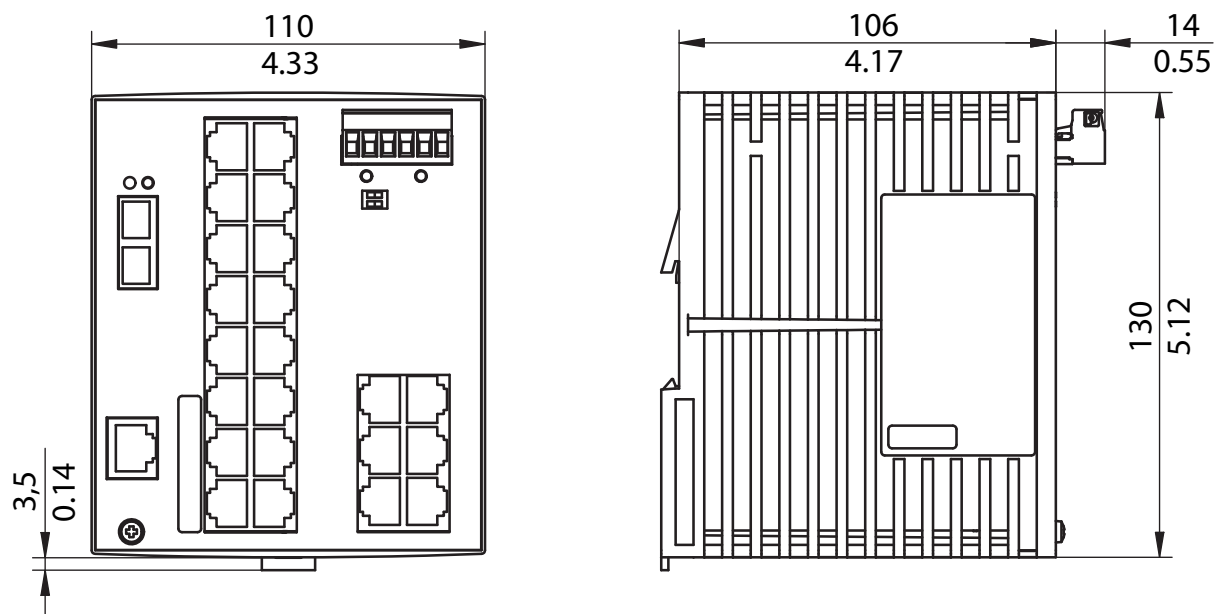


Figure 15: Dimensions of device variants RS20...U/RS30...U with 16 to max. 26 ports

## ■ EMC and immunity

EMC compliance – IEC/EN 61000-6-2:2005 EMI TYPE tests, test acc. to:		A <sup>a)</sup>	B <sup>a)</sup>	H <sup>a)</sup>
IEC/EN 61000-4-2	Electrostatic discharge			
	Contact discharge	4 kV	8 kV	8 kV
	Air discharge	8 kV	15 kV	15 kV
IEC/EN 61000-4-3	Electromagnetic field			
	80 MHz ... 3000 MHz	10 V/m	20 V/m	20 V/m
IEC/EN 61000-4-4	Fast transients (burst)			
	Power line	2 kV	4 kV	4 kV
	Data line	1 kV	4 kV	4 kV
IEC/EN 61000-4-5	Voltage surges			
	Power line, line / line	0.5 kV	1 kV	1 kV
	Power line, line / ground	1 kV	2 kV	2 kV
	Data line	1 kV	4 kV	4 kV
IEC/EN 61000-4-6	Conducted disturbances			
	10 kHz - 150 kHz	3 V	3 V	3 V
	150 kHz ... 80 MHz	10 V	10 V	10 V
EN 61000-4-9	Pulse magnetic fields	—	300 A/m	300 A/m
EMC interference emission		A <sup>a)</sup>	B <sup>a)</sup>	H <sup>a)</sup>
EN 55032	Class A	Yes	Yes	Yes
FCC 47 CFR Part 15	Class A	Yes	Yes	Yes
German Lloyd	Classification + Construction Guidelines VI-7-3 Part 1 Ed.2001	—	Yes	Yes
Stability		A <sup>a)</sup>	B <sup>a)</sup>	H <sup>a)</sup>
Vibration	IEC 60068-2-6 Test FC test level according to IEC 61131-2	Yes	Yes	Yes
	Germanischer Lloyd Guidelines for the Performance of Type Tests Part 1	—	Yes	Yes
	IEC 870-2-2 table 3 normal installation according to EN 61850-3	—	Yes	Yes
Shock	IEC 60068-2-27 Test Ea test level according to IEC 61131-2	Yes	Yes	Yes
	IEC 870-2-2 table 3 normal installation according to EN 61850-3	—	Yes	Yes

- a. Product code A: Approval = CE, UL  
 Product code B: Approval = CE, UL, GL, railway (trackside), Substation, HazLoc/ATEX/IECEX  
 Produktcode H: Zulassung = CE, UL, GL, Bahn (Gleisbereich), Sub Station



## ■ 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 <sup>a</sup>	Fiber attenuation	BLP <sup>b</sup> /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 <sup>c</sup>	50/125 µm	0-10.5 dB	0-550 m	1.0 dB/km	800 MHz×km
-LX/LC...	MM 1310 nm <sup>c</sup>	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 <sup>d</sup>	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 5: 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 <sup>a</sup>	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 6: 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 attenuation	Example for F/O line length <sup>a</sup>	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 <sup>b</sup> 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

Product code	Wave length	Fiber	System attenuation	Example for F/O line length <sup>a</sup>	Fiber attenuation	BLP/dispersion
-M2, -MM	MM	1300 nm	50/125 μm	0-8 dB	0-5 km	1.0 dB/km 800 MHz×km
-M2, -MM	MM	1300 nm	62.5/125 μm	0-11 dB	0-4 km	1.0 dB/km 500 MHz×km
-S2, -VV	SM	1300 nm	9/125 μm	0-16 dB	0-30 km	0.4 dB/km 3.5 ps/(nm×km)
-L2, -LL	LH	1550 nm	9/125 μm	7-29 dB	24-86 km	0.3 dB/km 19 ps/(nm×km)

**Table 8: F/O port 100BASE-FX**

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

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

Device name	Device model	Maximum power consumption	Power output
<b>2 uplink ports:</b>			
RS20-0800...	2xTX port	5.3 W	18.1 Btu (IT)/h
RS20-0800...	1xFX port, 1xTX port	6.5 W	22.2 Btu (IT)/h
RS20-0800...	2xFX port	7.3 W	26.3 Btu (IT)/h
RS20-1600...	2xTX port	9.4 W	32.1 Btu (IT)/h
RS20-1600...	1xFX port, 1xTX port	10.6 W	36.2 Btu (IT)/h
RS20-1600...	2xFX port	11.8 W	40.3 Btu (IT)/h
RS20-2400...	2xTX port	12.1 W	41.3 Btu (IT)/h
RS20-2400...	1xFX port, 1xTX port	13.3 W	45.4 Btu (IT)/h
RS20-2400...	2xFX port	15.5 W	52.9 Btu (IT)/h
RS30-0802...	2xTX port	8.9 W	30.4 Btu (IT)/h
RS30-0802...	1xFX port, 1xTX port	8.6 W	29.4 Btu (IT)/h
RS30-0802...	2xFX port	8.3 W	28.4 Btu (IT)/h

**Table 9: Power consumption/power output RS20-...U/RS30-...U**

Device name	Device model	Maximum power consumption	Power output
RS30-1602-...	2xTX port	13.0 W	44.4 Btu (IT)/h
RS30-1602-...	1xFX port, 1xTX port	12.7 W	43.4 Btu (IT)/h
RS30-1602-...	2xFX port	12.4 W	42.4 Btu (IT)/h
RS30-2402-...	2xTX port	15.7 W	53.6 Btu (IT)/h
RS30-2402-...	1xFX port, 1xTX port	15.4 W	52.6 Btu (IT)/h
RS30-2402-...	2xFX port	15.1 W	51.6 Btu (IT)/h
<b>3 uplink ports:</b>			
RS20-0900-...	3xFX port	9.6 W	32.8 Btu (IT)/h
RS20-1700-...	3xFX port	13.7 W	46.7 Btu (IT)/h
RS20-2500-...	3xFX port	16.4 W	56.0 Btu (IT)/h
<b>4 uplink ports:</b>			
RS30-0802-...	4xFX port	12.7 W	43.3 Btu (IT)/h
RS30-1602-...	4xFX port	16.8 W	57.3 Btu (IT)/h
RS30-2402-...	4xFX port	19.5 W	66.5 Btu (IT)/h

Table 9: Power consumption/power output RS20-...U/RS30-...U

## ■ Scope of delivery

Device	Scope of delivery
RS20-...U, RS30-...U	Device
	Terminal block for supply voltage and signal contact
	Installation user manual and CD-ROM

## ■ Order numbers/product description

The order numbers correspond to the product codes of the devices.  
[See “Combination options for RS20/30-...U” on page 16.](#)

## ■ Accessories

Note that products recommended as accessories may have different characteristics to those of the device, which may limit the application range of the overall system. For example, if you add an accessory with IP 20 to a device with IP 65, the IP of the overall system is reduced to 20.

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
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.

<b>Fast Ethernet SFP transceiver</b>	<b>Order number</b>
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

<b>Other accessories</b>	<b>Order number</b>
6-pin terminal block (50 pcs.)	943 845-006
Rail Power Supply RPS 30	943 662-003
Rail Power Supply RPS 80 EEC	943 662-080
Rail Power Supply RPS 120 EEC (CC)	943 662-121

## ■ Underlying technical standards

Standard	
EN 50121-4	Railway applications - EMC - emitted interference and interference immunity for signal and telecommunication systems
EN 55032	Electromagnetic compatibility of multimedia equipment – Emission Requirements
IEC/EN 60079-15	Explosive atmospheres – Part 15: Equipment protection by type of protection “n”
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
Germanischer Lloyd	Rules for Classification and Construction VI-7-2 – GL
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
CSA C22.2 No. 213	Canadian National Standard(s) for Nonincendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations
Korean Register of Shipping	Rules for the Classification of Steel Ships – KR
UL 508	Safety for Industrial Control Equipment

*Table 10: List of the technical standards*

The device has an approval based on a specific standard only if the approval indicator appears on the device casing.

If your device has a shipping approval according to Germanischer Lloyd, you find the approval mark printed on the device label. You will find out whether your device has other shipping approvals on the Hirschmann website under [www.hirschmann.com](http://www.hirschmann.com) in the product information.

The device generally fulfills the technical standards named in their current versions.

# A Further support

## Technical questions

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

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

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

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

## Hirschmann Competence Center

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

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- ▶ Training offers you an introduction to the basics, product briefing and user training with certification.  
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- ▶ Support ranges from the first installation through the standby service to maintenance concepts.

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