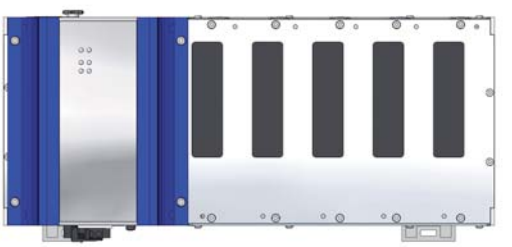
HIRSCHMANN
A BELDEN BRAND

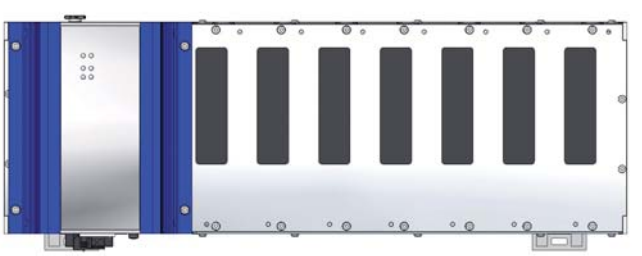
User Manual

Installation
MICE Switch Power
MSP30/32

MSP30/MSP32-0804...



MSP30/MSP32-1604...



MSP30/MSP32-2404...

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Hirschmann can accept no responsibility for damages, resulting from the use of the network components or the associated operating software. In addition, we refer to the conditions of use specified in the license contract.

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

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Contents

Safety instructions

⚠ 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.

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.

Intended usage

☐ Use the product only for the application cases described in the Hirschmann product information, including this manual.
☐ Operate the product only according to the technical specifications. See “Technical data” on page 49.
☐ Connect to the product only components suitable for the requirements of the specific application case.

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.

Supply voltage

☐ Connect only a supply voltage that corresponds to the type plate of your device.
☐ **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 disconnecting device is clearly identified so that in the case of an emergency, it is clear which disconnecting device belongs to which line.
- The electrical wires are voltage-free.
- A fuse suitable for DC voltage is located in the plus conductor of the power supply.
  Regarding the properties of this fuse: See “General technical data” on page 49.
- A fuse suitable for DC voltage is located in the minus conductor of the supply voltage, if this is not grounded.
  Regarding the properties of this fuse: See “General technical data” on page 49.
- The wire diameter of the supply voltage at the input is at least 1 mm² (North America AWG16).

- ▶ The cables used are permitted for the temperature range of 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.

☐ Use undamaged parts.

☐ 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.

☐ 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

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

Installation site requirements

☐ Verify that there is at least 4 in (10 cm) of space above and below the device.

☐ Verify that there is at least 0.8 in (2 cm) of space on the right and left sides of the device.

☐ Install the device at ambient temperatures greater than 113 °F (45 °C) in “restricted access locations” based on EN 60950-1 exclusively.

Device casing

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

- ☐ The switch basic module is an inseparable unit. The switch basic module may be damaged by detachment of the display and connection part.
- ☐ Keep the ventilation slits free to ensure good air circulation.
- ☐ Make sure there is at least 3.94 inches (10 cm) of space in front of the ventilation slits of the housing.
- ☐ Never insert sharp objects (small screwdrivers, wires, etc.) into the inside of the device.
- ☐ Never insert sharp objects (small screwdrivers, wires, etc.) into the connection terminals for the supply voltage or the signal contact, and do not touch the terminals!
- ☐ If you are operating the device in a living area or office environment, only operate it in switch cabinets with fire protection characteristics in accordance with EN 60950-1.
- ☐ The surfaces of the device housing may become hot. Avoid touching the device while it is operating.

LED or laser components

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

CE marking

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

2011/65/EU (RoHS)
Directive of the European Parliament and of the Council on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

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

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

Hirschmann Automation and Control GmbH
Stuttgarter Str. 45-51
72654 Neckartenzlingen
Germany
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The device can be used in the industrial sector.

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

You find more information on technical standards here:
“Technical data” on page 49.

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.

Relevant for Use as Industrial Control Equipment (according to the Standards UL508 / CSA C22.2 No. 142-1987)

When using the MSP30/32 devices as industrial control equipment the following restrictions apply:
Max. surrounding air temperature: +60 °C
(... to apply for operating temperature characteristic values S, T or E)
Use Copper Conductors only.
Temperature rating of field installed conductors:
Use 75 °C conductors only.
For use in Polution Degree 2 Environment only.
Digital Output - Relay (Fault): max. 30 V DC, 1 A, resistive load.

Relevant for Use in Hazardous Locations Class I Div. 2 Groups A, B ,C and D (according to the Standards ANSI/ISA12.12.01-2013 / CSA C22.2 No.213-M1987)

This equipment is suitable for use in Class I, Division 2, Groups A, B ,C, D– OR non-hazardous locations, if labeled "FOR USE IN HAZARDOUS LOCATIONS".

Additional to the restrictions refering UL508 the following restrictionsapply:
Ta: -40°F ... +140°F (-40°C ... +60°C), Temperature Code: T4
for temperature range characteristic value T and E
Ta: +32°F ... +140°F (0°C ... +60°C), Temperature Code: T4
for temperature range characteristic value S.

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

WARNING - EXPLOSION HAZARD - Substitution of any componentsmay impair suitability for Class I, Division 2.

⚠ - For installation and use of the MSP- modules the Control Drawing No.000172843DNR is to apply - see the next two pages.

⚠ - The SD card has to be secured with the knurled thump-screw. Do not connect or disconnect the SD card unless area is known to be non-hazardous. Connection or disconnection in an explosive atmosphere could result in an explosion.
Note: For information about the position on the device see “View from above” on page 23.

⚠ - For installation and use of the MSM20/24/40/42 Media Modulesrefer to the document "USER MANUAL Installation" document to the Media Modules MSM20/24/40/42.

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.

Ordinary Location, Non-Hazardous Area, Nonexplosive Atmosphere

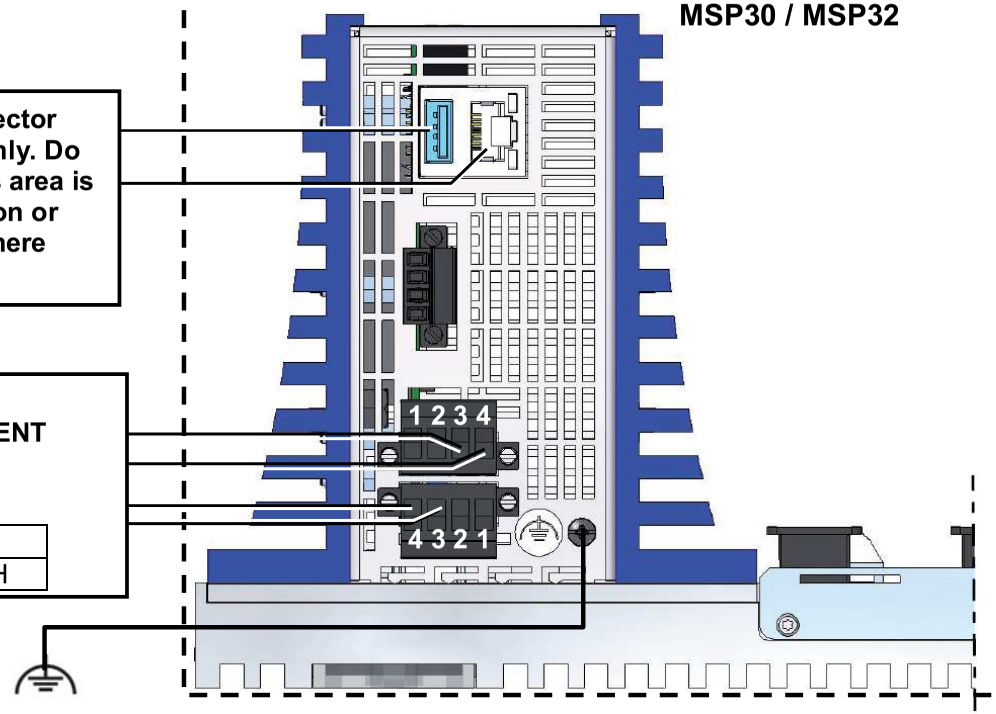
Class I Division 2 Groups A, B, C, D Hazardous Location

MSP30 / MSP32

The USB connector and the V.24 connector (RJ45) are 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.

Nonincendive field wiring parameters:
THE RELAY TERMINALS ARE DEPENDENT UPON THE FOLLOWING ENTITY PARAMETERS: *)

U_i	I_i	C_i	L_i
30 V	90 mA	3 nF	1 µH



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

CONTROL DRAWING for MSP30 and MSP32 devices for Use in Hazardous Locations Class I Division 2 , Groups A, B, C, D		HIRSCHMANN A BELDEN BRAND
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For Use in Hazardous Locations Class I Division 2 Groups A, B ,C ,D:

Only allowed for MSP30 or MS32 model No´s. which are individually labelled "FOR USE IN HARDOUS LOCATIONS"

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

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

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

***) Notes:**

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

Capacity: $C_a \geq C_i + C_{Cable}$; **Inductivity:** $L_a \geq L_i + L_{Cable}$

The maximum cable length has to be determined as follows:

(a) max. Cable Length $< (L_a - L_i) /$ **Cable** $_L$

("Cable $_L$ " denotes the inductance per unit length of used cable) **and**

(b) max. Cable Length $< (C_a - C_i) /$ **Cable** $_C$

("Cable $_C$ " denotes the capacitance per unit length of used cable).

The lower value of (a) and (b) is to apply.

Manufactured in 72654 Neckartenzlingen / Germany by Hirschmann Automation and Control GmbH.
DOM: ww/yyyy (Date of manufactur w - week, Y - year. Refer to the device label).

CONTROL DRAWING for MSP30 and MSP32 devices for Use in Hazardous Locations Class I Division 2 , Groups A, B, C, D		HIRSCHMANN A BELDEN BRAND
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Relevant for use in Ex Zone 2 according to ATEX 95 (European directive 94/9/EC)

In Ex zone 2, only devices with a corresponding label may be operated. When operating the MSP30/32 devices in Ex zone 2, the following applies:

II 3G
Ex nA IIC T4 Gc
Ta: –40 °C ... +70 °C for characteristic values T and E for temperature range
Ta: 0 °C ... +60 °C for characteristic value S for temperature range
DEKRA 13ATEX0090 X

Temperature code T4	
List of standards:	EN 60079-0:2012
	EN 60079-15: 2010

DO NOT OPEN THE DEVICE WHEN IT IS ELECTRICALLY CHARGED. THE USB CONNECTOR MUST NOT BE USED WHEN THE DEVICE IS OPERATED IN EXPLOSIVE HAZARDOUS LOCATIONS.

⚠ **Specific regulations for safe operation**

☐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 158 °F (70 °C) on the cable or at conduit entry point, or 176 °F (80 °C) at the branching point of the conductors, take measures so that the temperature specification of the selected cable is 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 119V.

☐ If an SD card is used, it has to be secured with a knurled screw. For information about the position on the device see “View from above” on page 23.

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:

- Basic Configuration user manual
- User Manual Installation MSM20/22/24/40/42
- User Manual Installation MSP30/32
- Redundancy Configuration user manual
- Command Line Interface reference manual
- Reference manual for the graphical user interface

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 device 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
- Types of connectors
- Supply voltage range
- Temperature range
- Transmission speed
- Certifications

The MSP30/32 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.

The devices work without a fan.

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

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

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

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

- network management software (e.g. Industrial HiVision)
- a Web browser
- a V.24 interface (locally on the device)
- HiDiscovery (Software for putting the device into operation)
- SSH
- Telnet

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 ... 3	Product	MSP	MICE Switch Power	
4	Data rate	3	10 [a]/100 Mbit/s ports 10 [a]/100/1000 Mbit/s ports	
5	Hardware type	0	Standard	
		2	Suitable for PoE or PoE+	
6	(hyphen)	-		
7 ... 8	Number: 10 [a]/100 Mbit/s ports	08	8 ×	
		16	16 ×	
		24	24 ×	
9 ... 10	Number: 10 [a]/100/1000 Mbit/s ports	04	4 ×	
11	Number: 10 [a]/100/1000/10000 Mbit/s ports	0	0 ×	
12	Temperature range	S	Standard	0 °C ... +60 °C (+32 °F ... +140 °F)
		T	Extended	−40 °F ... +158 °F (−40 °C ... +70 °C)
				under UL conditions: max. +140 °F (+60 °C)
		E	Extended with conformal coating	−40 °F ... +158 °F (−40 °C ... +70 °C)
				under UL conditions: max. +140 °F (+60 °C)
13	Supply voltage	C	2 voltage inputs for redundant power supply	
			Rated voltage range DC 24 ... 48 V	
		P	PoE 	2 voltage inputs for redundant power supply
				Rated voltage range DC 47 V... 57 V
			PoE + 	2 voltage inputs for redundant power supply
				Rated voltage range DC 53 V... 57 V
14 ... 15	Certificates and declarations [b]	**Note:** You will find detailed information on the certificates and declarations applying to your device in a separate overview. See table 2 on page 19.		

Table 1: Device name and product code

Item	Characteristic	Characteristic value	Description
16 ... 17	Software packages	99	Reserved
		UR	Unicast Routing
		MR	Unicast + Multicast Routing
18 ... 19	Customer-specific version	HH	Hirschmann standard
		HX	Hirschmann Extreme Conditions
		MX	MAN Extreme Conditions
20	Software configuration	E	Entry (Hirschmann Standard)
21 ... 22	Software level	2A	HiOS Layer 2 Advanced
		3A	HiOS Layer 3 Advanced
23 ... 27	Software version	04.0.	Software version 04.0
		XX.X	Current software version

Table 1: Device name and product code

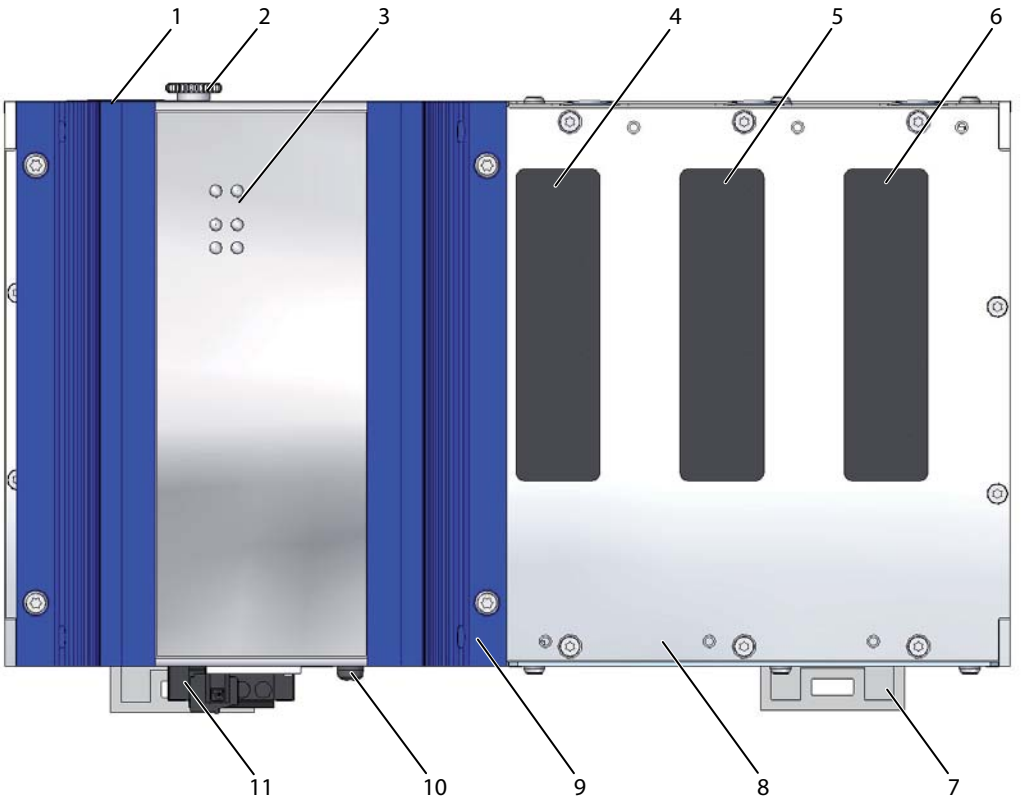
a. Only for twisted pair connections
b. Certificates and declarations in brackets are being prepared.

Application case	Certificates and declarations	Characteristic value														
		T9	TY	U9	UW	UX	UY	V9	VT	VU	VY	W9	WY	X9	Y9	Z9
Standard applications	ATEX Zone 2				X							X	X			
	CE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	EN 60950-1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	EN 61131-2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	FCC	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	ISA 12.12.01 – Class I, Div. 2					X								X		
	UL 508		X		X	X	X		X	X	X		X	X	X	
Substation applications	IEC 61850-3							X	X	X	X					
	IEEE 1613							X	X	X	X					
Navy applications	GL			X	X	X	X			X						
Railway applications	EN 50121-4	X	X						X							

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

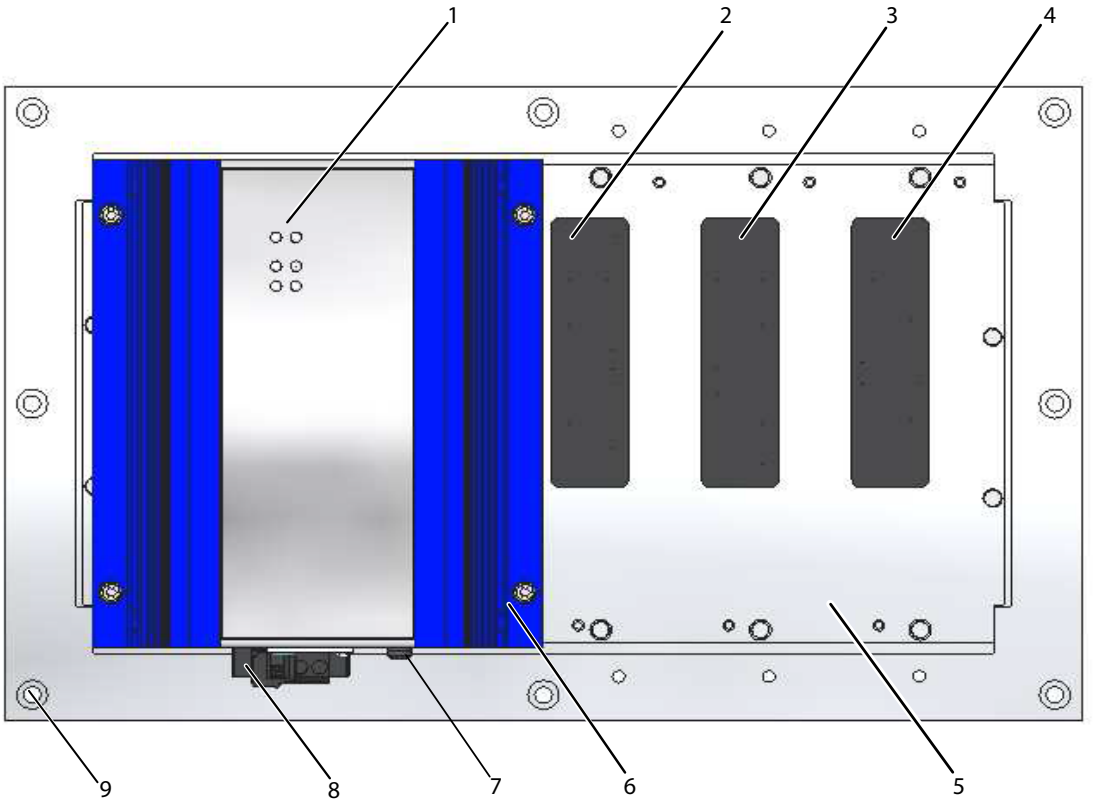
1.3 Device views

1.3.1 Front view



1	Slot for the SD card	
2	Knurled screw	
3	LED display elements for device status	
4	Slot 1 for media modules	
5	Slot 2 for media modules	
6	Slot 3 for media modules	
7	Locking gate for removing the device	
8	Backplane	(switch basic module MSP30/32)
9	Power module	(switch basic module MSP30/32)
10	Grounding screw	
11	Terminal block, V.24 port, USB port, signal contacts	

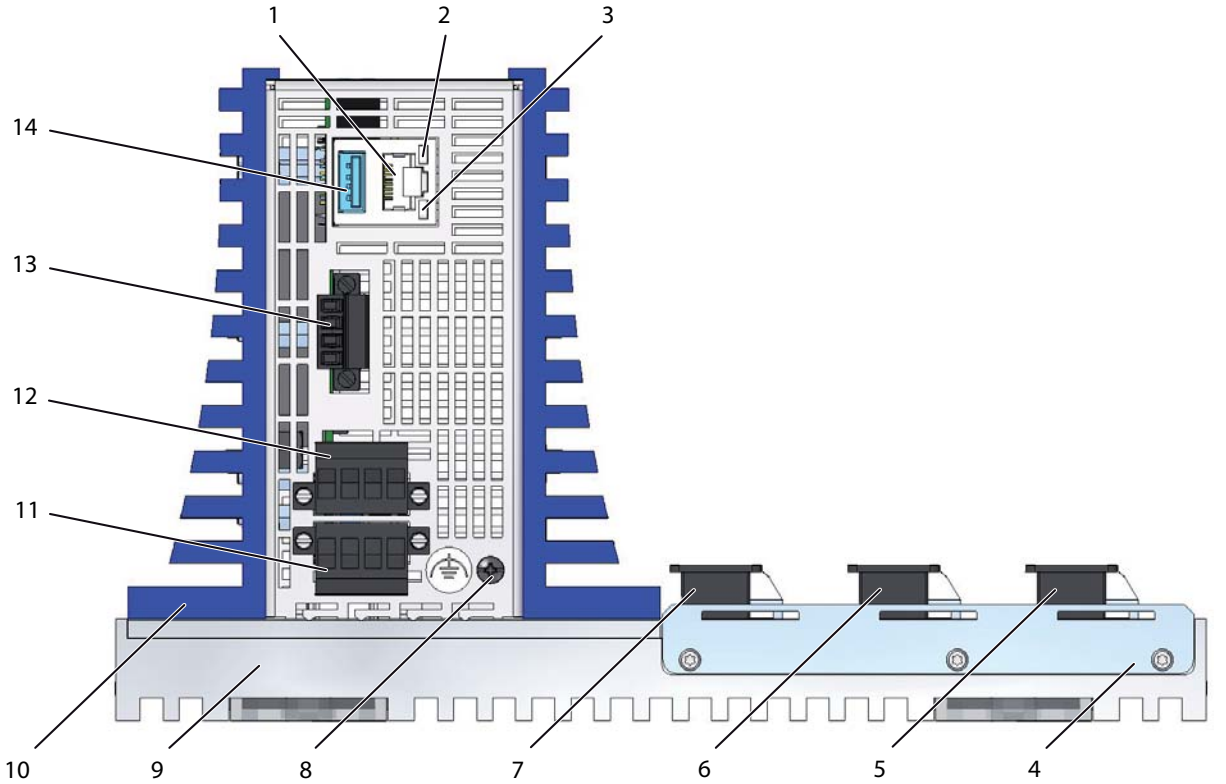
Table 3: Front view (using the example MSP30/32-0804.....HH...)



1	LED display elements for device status	
2	Slot 1 for media modules	
3	Slot 2 for media modules	
4	Slot 3 for media modules	
5	Backplane	(Switch basic module MSP30)
6	Power module	(Switch basic module MSP30)
7	Grounding screw	
8	Terminal block, V.24 port, USB port, signal contacts	
9	Fastening hole	

Table 4: Front view (using the example MSP30-0804.....HX/MX...)

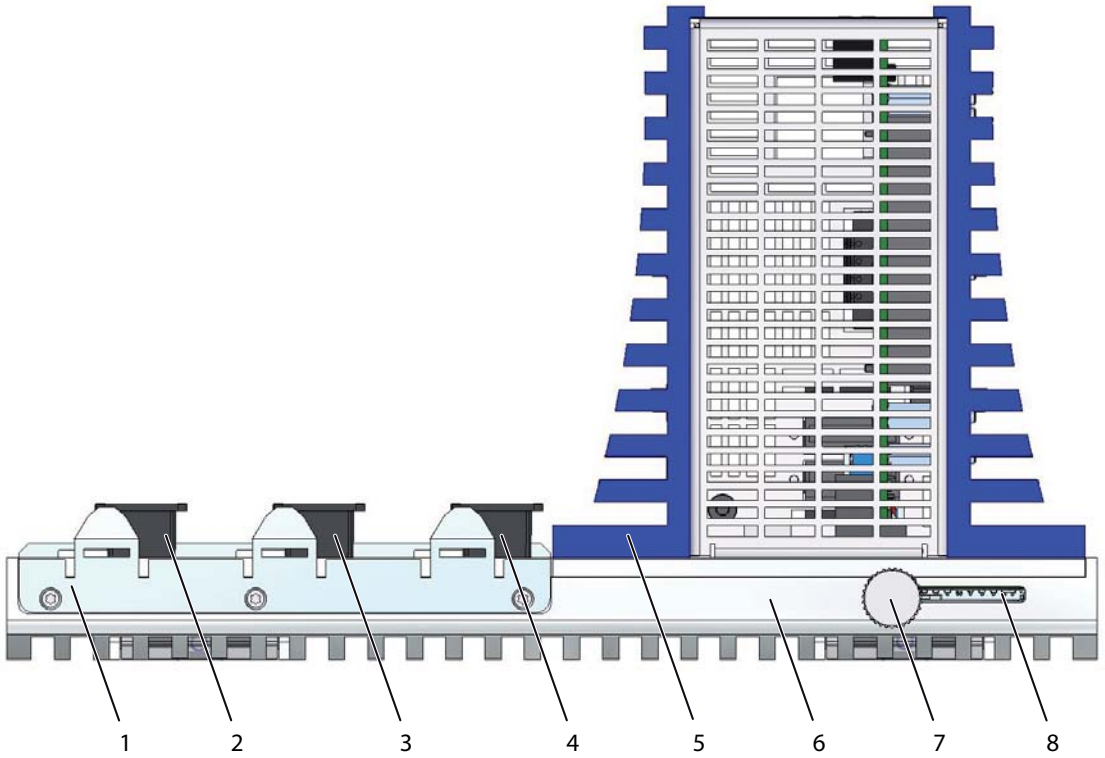
1.3.2 View from below



1	V.24 interface	
2	LED display elements (no function in the existing device version)	
3	LED display elements (no function in the existing device version)	
4	Positioning bar	
5	Slot 3 for media modules	
6	Slot 2 for media modules	
7	Slot 1 for media modules	
8	Grounding screw	
9	Backplane	(switch basic module MSP30/32)
10	Power module	(switch basic module MSP30/32)
11	Supply voltage connection	▶ Connection for the signal contact ▶ Low voltage input ▶ Power supply input for redundant power supply ▶ 4-pin terminal block
12	Supply voltage connection	▶ Connection for the signal contact ▶ Low voltage input ▶ Power supply input for redundant power supply ▶ 4-pin terminal block
13	Connection for 2 digital inputs	
14	USB interface	The device supports the ACA21/ACA22 starting with the software version 3.0.

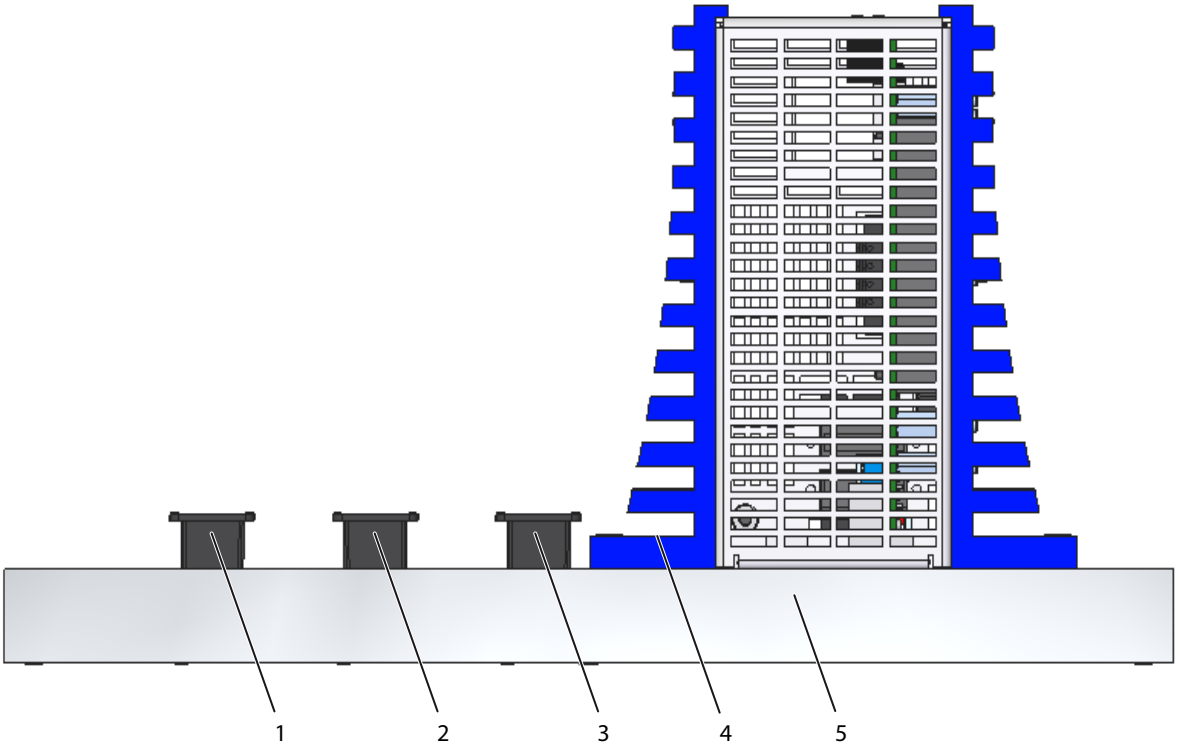
Table 5: View from below (using the example MSP30/32-0804.....HH...)

1.3.3 View from above



1	Female multipoint connector	
2	Slot 3 for media modules	
3	Slot 2 for media modules	
4	Slot 1 for media modules	
5	Power module	(switch basic module MSP30/32)
6	Backplane	(switch basic module MSP30/32)
7	Knurled screw	
8	Slot for the SD card	

Table 6: View from above (using the example MSP30/32-0804.....HH...)



1	Slot 3 for media modules	
2	Slot 2 for media modules	
3	Slot 1 for media modules	
4	Power module	(Switch basic module MSP30)
5	Backplane	(Switch basic module MSP30)

Table 7: View from above (using the example MSP30-0804.....HX/MX...)

1.4 Number of ports and connections

Depending on the variant, the basic modules provide you with the following number of slots for media modules and the following maximum number of connectable network segments:

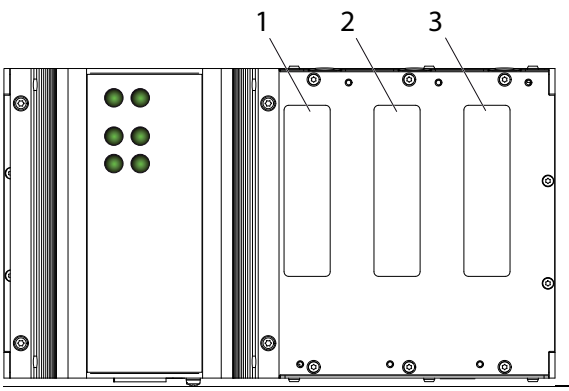
Basic module	Total number of slots	Number of slots for 10/100 Mbit/s (FE)	Number of slots for 1000 Mbit/s (GE)	Max. number of connectable 10/100 Mbit/s network segments	Max. number of connectable 1000 Mbit/s network segments
MSP30-0804... MSP32-0804...	3	2	1	12	4
MSP30-1604... MSP32-1604...	5	4	1	20	4
MSP30-2404... MSP32-2404...	7	6	1	28	4

Table 8: Number of slots and maximum connectable network segments

The maximum data rate of the media modules depends on the slot on the basic module. Some of the media modules only support data rates up to a maximum of 10/100 Mbit/s.
See “Device name and product code” on page 17.

You will find the arrangement and sequence of the slots in the basic module in the following overview:

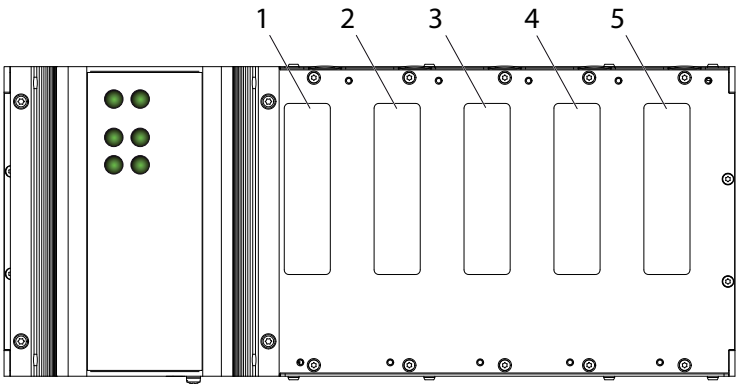
MSP30/32-0804...



1	10 [a]/100/1000 Mbit/s
2	10 [a]/100 Mbit/s
3	10 [a]/100 Mbit/s

a. only for twisted pair connections

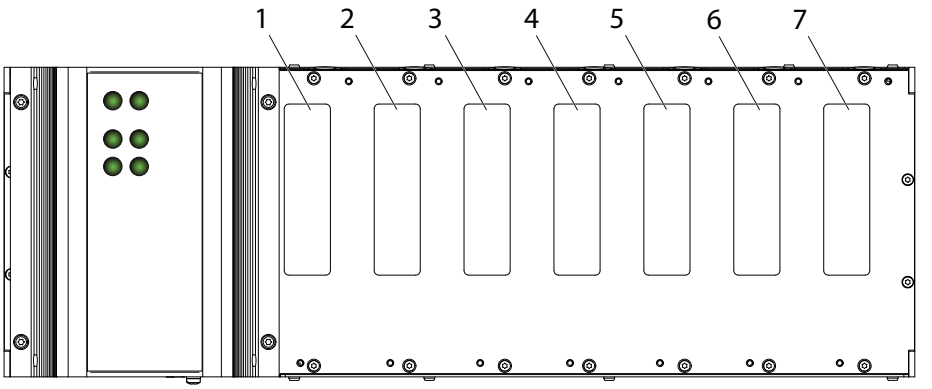
MSP30/32-1604...



1	10 [a]/100/1000 Mbit/s
2	10 [a]/100 Mbit/s
3	10 [a]/100 Mbit/s
4	10 [a]/100 Mbit/s
5	10 [a]/100 Mbit/s

a. only for twisted pair connections

MSP30/32-2404...



1	10 [a]/100/1000 Mbit/s
2	10 [a]/100 Mbit/s
3	10 [a]/100 Mbit/s
4	10 [a]/100 Mbit/s
5	10 [a]/100 Mbit/s
6	10 [a]/100 Mbit/s
7	10 [a]/100 Mbit/s

a. only for twisted pair connections

You will find more information on the connections in the “User Manual Installation MSM20/22/24/40/42“.

1.5 Power supply

1.5.1 Supply voltage with the characteristic value C

For the redundant supply of the device, two 4-pin terminal blocks are available.

For further information see “Supply voltage with the characteristic value C” on page 37.

1.5.2 Supply voltage with the characteristic value P

For the redundant supply of the device, two 4-pin terminal blocks are available.
The MSP32 device variant supports Power over Ethernet (PoE) or Power over Ethernet Plus (PoE+).

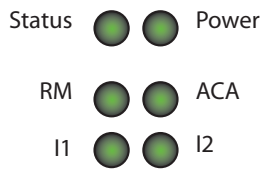
For further information see “Supply voltage with the characteristic value P” on page 38.

1.6 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.

1.6.1 Device state

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



LED	Display	Color	Activity	Meaning
Power	Supply voltage	—	None	Supply voltage is too low
		Yellow	Lights up	Device variants with redundant power supply: Supply voltage 1 **or** 2 is on
			flashes 4 times a period	Software update is running. Maintain the power supply.
		Green	Lights up	Device variants with redundant power supply: Supply voltages 1 **and** 2 are on
				Device variants with single power supply: Supply voltage is on
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
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

LED	Display	Color	Activity	Meaning
ACA	Storage medium ACA	—	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

1.6.2 Digital input

LED	Display	Color	Activity	Meaning
I1	LED display element for input	—	None	Low level input voltage
		Green	Lights up	High level input voltage
I2	LED display element for input	—	None	Low level input voltage
		Green	Lights up	High level input voltage

1.7 Management interfaces

1.7.1 V.24 interface (external management)

A serial interface is provided on the RJ45 socket (V.24 interface) for the local connection of an external management station (VT100 terminal or PC with corresponding terminal emulation). This gives you the option to set up a connection to the Command Line Interface (CLI) and to the system monitor.

VT 100 terminal settings	
Speed	9600 Baud
Data	8 bit
Stopbit	1 bit
Handshake	off
Parity	none

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

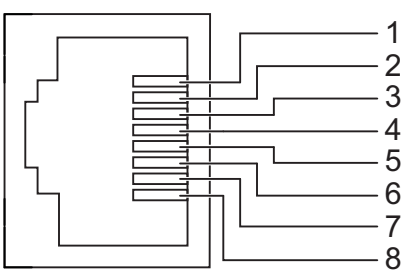
Figure	Pin assignment	Function
	1	—
	2	—
	3	TX
	4	GND
	5	—
	6	RX
	7	—
	8	—

Table 9: Pin assignment of the V.24 interface

Note: For information about the position on the device see “View from below” on page 22.
The terminal cable is available as an accessory.
See “Accessories” on page 59.

1.7.2 SD card interface (optional)

Applies only to device variants featuring customer-specific version with the characteristic value HH.

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.

Note: For information about the position on the device see “View from above” on page 23.
On the front of the device there is an LED display that informs you about the status of the interface.
Only use Hirschmann SD cards.

1.7.3 USB interface

Note: Applies for the approval Germischer Lloyd (GL): Note that the USB interface of theMSP30/32 and MSM20/22/24/40/42 is for service purposes exclusively. Do not connect any USB adapter during normal operation. Do not connect any USB adapter during normal operation.

The USB interface allows you to connect the AutoConfiguration Adapter ACA21 storage medium. This is used for saving/loading the configuration data and diagnostic information, and for loading the software.
The device supports the ACA21/ACA22 starting with the software version 3.0.

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

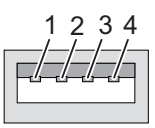
Figure	Pin	Operation
	1	VCC (VBus)
	2	− Data
	3	+ Data
	4	Ground (GND)

Table 10: Pin assignment of the USB interface

Note: For information about the position on the device see “View from below” on page 22.

1.8 Input/output interfaces

1.8.1 Signal contact

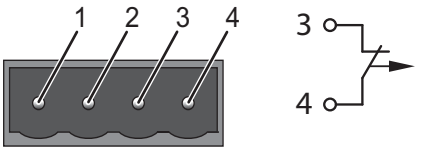
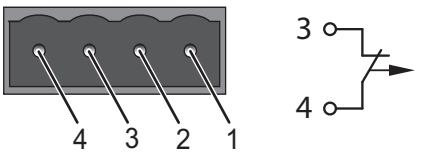
Figure	Pin	Function
Connection for voltage supply with a signal contact		P1
	1	Plus terminal of the supply voltage
	2	Minus terminal of the supply voltage
	3	**FAULT**
	4	**FAULT**
Connection for voltage supply with a signal contact		P2
	1	Plus terminal of the supply voltage
	2	Minus terminal of the supply voltage
	3	**FAULT**
	4	**FAULT**

Table 11: Pin assignment of the 4-pin terminal block for connecting the signal contact

In the state on delivery, the signal contact indicates the device status. It can be configured using the device management.

Note: For information about the position on the device see “View from below” on page 22.

1.8.2 Digital input

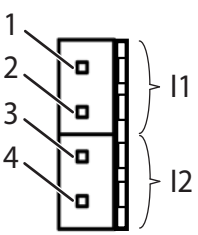
Figure		Pin	Signal, terminal	Function
	Input 1 (I1)	1	IN-1	Signal input, channel 1
		2	IN-1-GND	Reference potential, channel 1
	Input 2 (I2)	3	IN-2	Signal input, channel 2
		4	IN-2-GND	Reference potential, channel 2

Table 12: Pin assignment of the input interface

Note: For information about the position on the device see “View from below” on page 22.

2 Installation

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

Perform the following steps to install and configure the device:

- Checking the package contents
- Installing the SD card (optional)
- Installing and grounding the device
- Connecting the terminal blocks
- Installing terminal blocks, switching on the supply voltage
- Installing media modules

2.1 Checking the package contents

☐ Check whether the package includes all items named in the section “Scope of delivery” on page 59.
☐ Check the individual parts for transport damage.

2.2 Installing the SD card (optional)

Applies only to device variants featuring customer-specific version with the characteristic value HH.

Note: Only use the AutoConfiguration Adapter ACA31 storage medium. See “Accessories” on page 59.

☐ 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.

Note: For information about the position on the device see “View from above” on page 23.

2.3 Installing and grounding the device

⚠ WARNING

FIRE HAZARD

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

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

⚠ WARNING

RISK OF BURNING

Install the device at ambient temperatures greater than 113 °F (45 °C) in “restricted access locations” based on EN 60950-1 exclusively.

The surfaces of the device housing may become hot. Avoid touching the device while it is operating.

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

- When you are selecting the installation location, make sure you observe the climatic threshold values specified in the technical data.
  Prevent heat from the surroundings from affecting the device.
- Verify that there is at least 4 in (10 cm) of space above and below the device.

2.3.1 Installing the device onto the DIN rail

The device variants featuring customer-specific version with the characteristic value HH are suitable for mounting on a DIN rail.
Proceed as follows:

☐ Install the device on a horizontally mounted 1.38 inch (35 mm) DIN rail in accordance with DIN EN 60715.

☐ Insert the upper snap-in guide of the device into the DIN rail and press the device down against the DIN rail until it snaps into place.

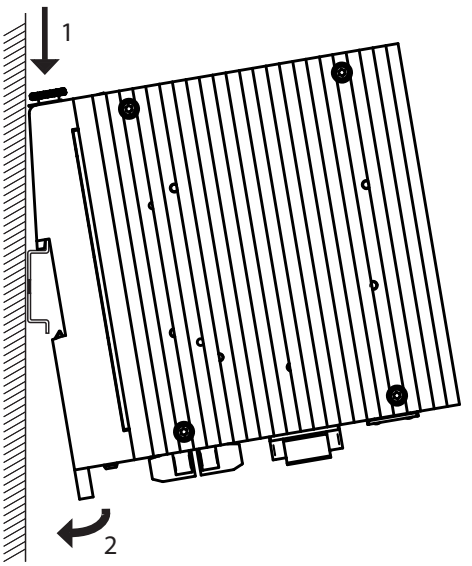


Figure 1: Mounting on the DIN rail

2.3.2 Mounting on a flat surface

The device variants featuring customer-specific version with the characteristic value HX and MX are suitable for mounting on a flat surface.
Proceed as follows:

☐ You will find the drilling dimensions for mounting the device in the chapter“Dimension drawings” on page 51.

☐ Mount the device with cylinder head screws M4 × 30 to the flat surface.

2.3.3 Grounding the device

⚠ WARNING

ELECTRIC SHOCK

Ground the device before connecting any other cables.

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

The device is grounded via the separate ground screw on the bottom right of the bottom of the device.
Both power supply unit variants have a function ground.
☐ Ground the device via the ground screw.

Note: For information about the position on the device see “View from below” on page 22.

2.4 Connecting the terminal blocks

⚠ WARNING

ELECTRIC SHOCK

Never insert sharp objects (small screwdrivers, wires, etc.) into the connection terminals for the supply voltage, the signal contact or the input, and do not touch the terminals!

Start connecting the electrical wires only if **all** the above safety requirements are fulfilled.
See “Supply voltage” on page 6.

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

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

2.4.1 Supply voltage with the characteristic value C

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

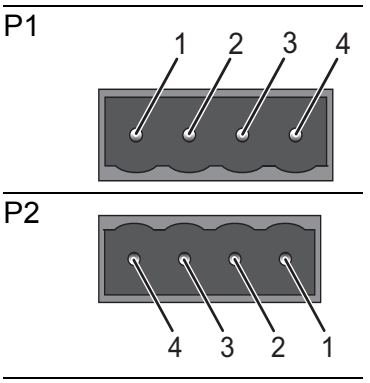


Table 13: Supply voltage with the characteristic value C: two 4-pin terminal blocks

Type of the voltages that can be connected	Specification of the supply voltage	Pin	Terminal block	Connections
DC voltage	Nominal voltage range DC: 24 V ... 48 V Voltage range DC incl. maximum tolerances: 18 V ... 60 V	1	P1	Plus terminal of the supply voltage
		1	P2	
		2	P1	Minus terminal of the supply voltage
		2	P2	

Table 14: Supply voltage with the characteristic value C: type and specification of the supply voltage, connections

☐ Remove the power connector from the device.
☐ Connect the protective conductor according to the pin assignment on the device with the clamp.
☐ Connect the lines for the supply voltage to the + and - terminals.

With non-redundant supply of the mains voltage, the device reports a power failure. You can avoid this message by changing the configuration in the management, or, with power supply units of the same type, by feeding the supply voltage in through both inputs.

2.4.2 Supply voltage with the characteristic value P

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

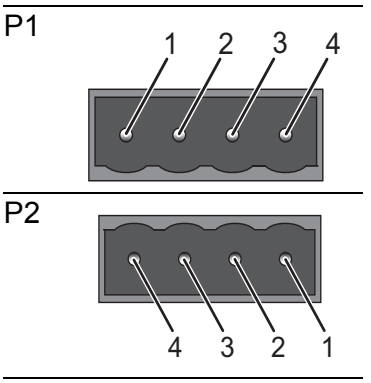


Table 15: Supply voltage with the characteristic value P: two 4-pin terminal blocks

Type of the voltages that can be connected	Specification of the supply voltage	Pin	Terminal block	Connections
Device variants with PoE: DC voltage	Nominal voltage DC: 48 V Voltage range DC incl. maximum tolerances: 45 V ... 57 V	1	P1	Plus terminal of the supply voltage
		1	P2	
		2	P1	Minus terminal of the supply voltage
		2	P2	
Device variants with PoE Plus: DC voltage	Nominal voltage DC: 54 V Voltage range DC incl. maximum tolerances: 51 V ... 57 V	1	P1	Plus terminal of the supply voltage
		1	P2	
		2	P1	Minus terminal of the supply voltage
		2	P2	

Table 16: Supply voltage with the characteristic value P: type and specification of the supply voltage, connections

☐ Remove the power connector from the device.
☐ Connect the protective conductor according to the pin assignment on the device with the clamp.
☐ Connect the lines for the supply voltage to the + and - terminals.

2.4.3 Signal contact

For every signal contact to be connected, make sure the following requirements are met:
▶ The electrical 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 49.
☐ Connect the signal contact wires with the connectors of the terminal block.

2.5 Connecting the ferrite

Applies only to the MSP30/32-0804 device variants with approvals for marine applications.
To adhere to EMC conformity, you connect the ferrite supplied to the voltage input via the power supply cable.

☐ Insert the power supply cable through the ferrite 3 times.
☐ Position the ferrite as close as possible to the voltage input (max. distance 19.7 inches (50 cm)).
☐ Lock the ferrite.

Note: To open the ferrite use the key supplied.

Figure 2: Connecting the ferrite to the voltage supply line

2.6 Installing terminal blocks, switching on the supply voltage

⚠ WARNING

ELECTRIC SHOCK

Connect only a supply voltage that corresponds to the type plate of your device.

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

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

☐ Use screws to secure the connectors to the device.
☐ Enable the supply voltage.

2.7 Installing media modules

Hirschmann supplies the media modules ready for operation.
You have the option to mount the media modules while the device is operating.

2.7.1 Device variants featuring customer-specific version with the characteristic value HH

Proceed as follows:

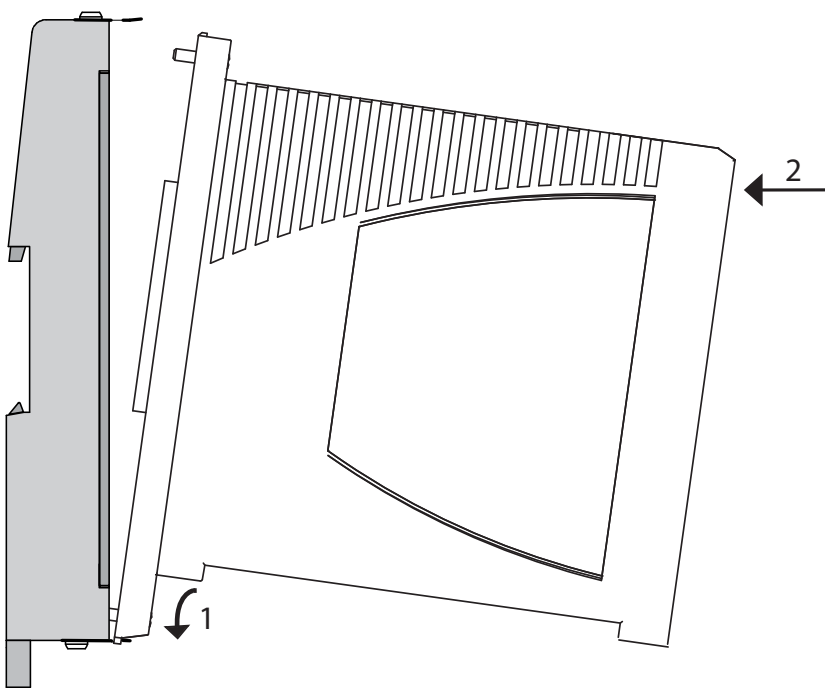
☐ Remove the protective cap from the slot for the media module on the device.

☐ Insert the latch on the bottom of the media module into the opening in the lower positioning bar of the basic module.

☐ Press the media module against the basic module until the latch on the top of the media module snaps into the upper female multipoint connector.

☐ Fasten the media modules with 2 screws in the backplane.

Note: With certification type “Z9” you can omit using screws to fasten the media module.
See “Device name and product code” on page 17.



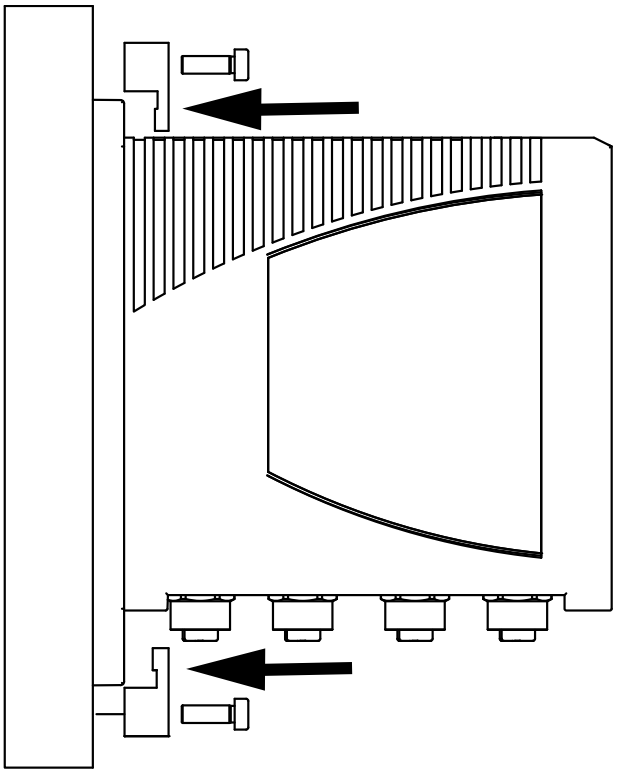
2.7.2 Device variants featuring customer-specific version with the characteristic value HX, MX

Proceed as follows:

☐ Remove the protective cap from the slot for the media module on the device.

☐ Mount the media module on the slot.

☐ Fasten the device with the hardware elements provided by screwing to the basic device.



3 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:

- AutoConfiguration Adapter
- Entry with the aid of the HiDiscovery logs on the applications HiDiscovery or Industrial HiVision
- Entry via V.24 connection
- Configuration via BOOTP
- Configuration via DHCP (Option 82)

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

Default settings

- Ethernet ports: link status is not evaluated (signal contact)
- IP address: The device looks for the IP address using DHCP
- Optical ports: Full duplex
  TP ports: Autonegotiation
- Management password:
  user, password: public (read only)
  admin, password: private (read/write)
- Rapid Spanning Tree Protocol: activated
- V.24 data rate: 9,600 Baud

Monitoring the ambient air temperature

Operate the device below the specified maximum ambient air temperature exclusively.
See “General technical data” on page 49.

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 up to 68 °F (20 °C) higher than the ambient temperature. This depends on the configuration of your device.

4 Upgrading Software

The upgrade options for your MSP30/32 device depend on the software level of the device.
See “Device name and product code” on page 17.

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

Software version		Software level according to the product code		
		2A	3A (UR)	3A (MR)
Up to HiOS 03.0	Name of the software image	HiOS-2A	HiOS-2A	HiOS-2A
	Range of functions corresponds to	2A	2A	2A
From HiOS 04.0 onward	Name of the software image	HiOS	HiOS	HiOS
	Range of functions corresponds to	2A	3A (UR)	3A (MR)

Table 17: Upgrade options

5 Maintenance and service

- When designing this device, Hirschmann largely avoided using high-wear parts. The parts subject to wear and tear are dimensioned to last longer than the lifetime of the product when it is operated normally. Operate this device according to the specifications.
- Relays are subject to natural wear. This wear depends on the frequency of the switching operations. Check the resistance of the closed relay contacts and the switching function depending on the frequency of the switching operations.
- Hirschmann is continually working on improving and developing their software. Check regularly whether there is an updated version of the software that provides you with additional benefits. You find information and software downloads on the Hirschmann product pages on the Internet (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.

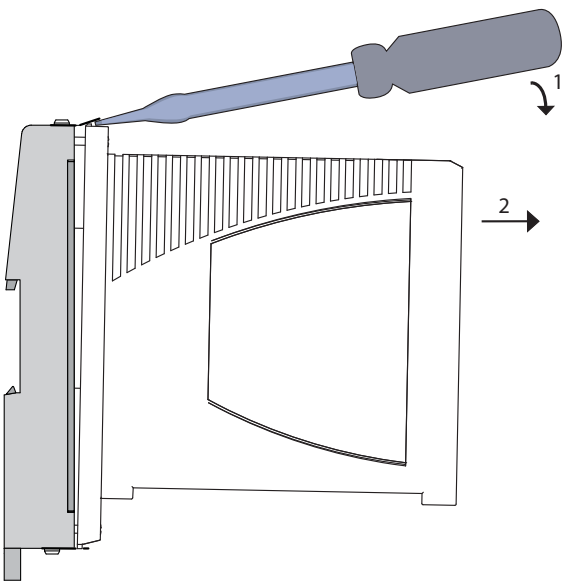
Note: You will find information about the complaints and returns procedures on the Internet under
http://www.beldensolutions.com/en/Service/Repairs/index.phtml .

6 Disassembly

6.1 Removing a media module

You have the option to remove the media modules while the device is operating.

6.1.1 Device variants featuring customer-specific version with the characteristic value HH



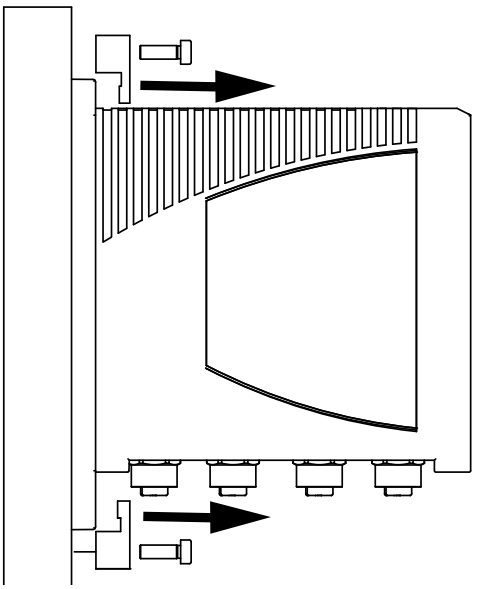
Proceed as follows:

☐ Disconnect the data cables.

☐ Insert a screwdriver between the female multipoint connector and the media module.

☐ Use the screwdriver to carefully lever the female multipoint connector away from the media module and pull the media module out of the slot.

6.1.2 Device variants featuring customer-specific version with the characteristic value HX, MX



Proceed as follows:
☐ Disconnect the data cables.
☐ Loosen the screws on the hardware elements.
☐ Pull the media module out of the slot.

6.2 Removing the device

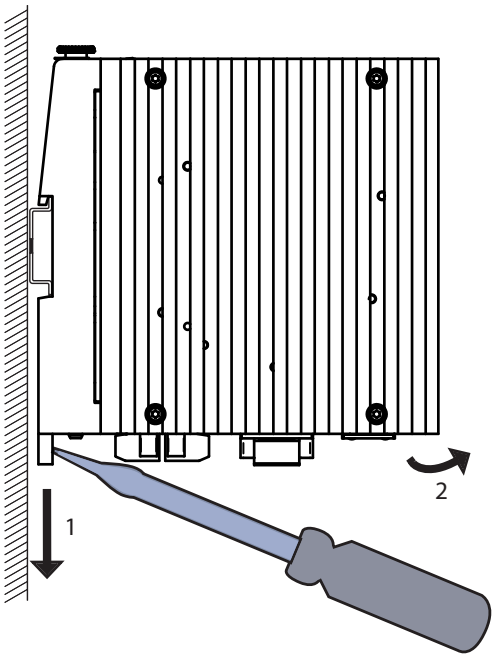
⚠ WARNING

ELECTRIC SHOCK

Disconnect all other connections before you disconnect the ground.

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

6.2.1 Device variants featuring customer-specific version with the characteristic value HH



Proceed as follows:
- ☐ Disable the supply voltage.
- ☐ Disconnect the data cables.
- ☐ 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.

6.2.2 Device variants featuring customer-specific version with the characteristic value HX, MX

Proceed as follows:
- ☐ Disable the supply voltage.
- ☐ Disconnect the data cables.
- ☐ Disconnect the terminal blocks.
- ☐ Disconnect the grounding.
- ☐ Remove the screws.

7 Technical data

General technical data

Dimensions W × H × D	MSP30-0804.....HH...	9.33 in. × 5.83 in. × 5.59 in. (237 mm × 148 mm × 142 mm)	
	MSP32-0804.....HH...	9.33 in. × 5.83 in. × 5.59 in. (237 mm × 148 mm × 142 mm)	
	MSP30-1604.....HH...	12.36 in. × 5.83 in. × 5.59 in. (314 mm × 148 mm × 142 mm)	
	MSP32-1604.....HH...	12.36 in. × 5.83 in. × 5.59 in. (314 mm × 148 mm × 142 mm)	
	MSP30-2404.....HH...	15.39 in. × 5.83 in. × 5.59 in. (391 mm × 148 mm × 142 mm)	
	MSP32-2404.....HH...	15.39 in. × 5.83 in. × 5.59 in. (391 mm × 148 mm × 142 mm)	
	MSP30-0804.....HX...	10.91 in. × 6.81 in. × 5.51 in. (277 mm × 173 mm × 140 mm)	
	MSP30-0804.....MX...		
	MSP30-1604.....HX...	13.94 in. × 6.81 in. × 5.51 in. (354 mm × 173 mm × 140 mm)	
	MSP30-1604.....MX...		
	MSP30-2404.....HX...	16.97 in. × 6.81 in. × 5.51 in. (431 mm × 173 mm × 140 mm)	
	MSP30-2404.....MX...		
Weight	MSP30-0804.....HH...	4.6 lb (2.1 kg)	
	MSP32-0804.....HH...	4.6 lb (2.2 kg)	
	MSP30-1604.....HH...	5.3 lb (2.4 kg)	
	MSP32-1604.....HH...	5.5 lb (2.5 kg)	
	MSP30-2404.....HH...	5.9 lb (2.65 kg)	
	MSP32-2404.....HH...	6.1 lb (2.75 kg)	
	MSP30-0804.....HX...	6.8 lb (3.1 kg)	
	MSP30-0804.....MX...		
	MSP30-1604.....HX...	7.9 lb (3.6 kg)	
	MSP30-1604.....MX...		
	MSP30-2404.....HX...	8.8 lb (4.0 kg)	
	MSP30-2404.....MX...		
Supply voltage with the characteristic value C	Rated voltage range DC	24 V ... 48 V	
	Voltage range DC incl. maximum tolerances	18 V ... 60 V	
	Connection type	4-pin terminal block	
	Power loss buffer	> 10 ms at 20.4 V DC (applies only to the basic module)	
	Overload current protection at input	Non-replaceable fuse	
	Back-up fuse	Nominal rating:	6.3 A
		Characteristic:	slow blow
	Peak inrush current	< 5 A	

Supply voltage with the characteristic value P	Nominal voltage DC	Device variants with PoE:	48 V
		Device variants with PoE Plus:	54 V
	Voltage range DC incl. maximum tolerances	Device variants with PoE:	45 V ... 57 V
		Device variants with PoE Plus:	51 V ... 57 V
	Max. PoE power	124 W	
	Connection type	4-pin terminal block	
	Power loss buffer	> 10 ms at 20.4 V DC (applies only to the basic module)	
	Overload current protection at input	Non-replaceable fuse	
	Back-up fuse	Nominal rating:	6.3 A
		Characteristic:	slow blow
	Peak inrush current	< 5 A	
Climatic conditions during operation	Ambient air temperature[a]	Devices with operating temperature characteristic value S (standard): +32 °F ... +140 °F (0 °C ... +60 °C) [b]	
		Devices with operating temperature characteristic value E and T (extended): −40 °F ... +158 °F (−40 °C ... +70 °C) [c] −40 °F ... +185 °F (−40 °C ... +85 °C) for 16 hours (tested in accordance with IEC 60068-2-2) [c]	
		under UL conditions: max. +140 °F (+60 °C)	
	Humidity	5 % ... 95 % (non-condensing)	
	Air pressure	minimum 700 hPa (+9842 ft; +3000 m) maximum 1060 hPa (−1312 ft; −400 m)	
Climatic conditions during storage	Ambient air temperature[a]	−40 °F ... +185 °F (−40 °C ... +85 °C)	
	Humidity	5 % ... 95 % (non-condensing)	
	Air pressure	minimum 700 hPa (+9842 ft; +3000 m) maximum 1060 hPa (−1312 ft; −400 m)	
“FAULT” signal contact	Switching current	max. 1 A, SELV	
	Switching voltage	max. 60 V DC or max. 30 V AC, SELV	
		under UL conditions: max. 30 V DC, resistive load	
Pollution degree		2	
Protection classes	Laser protection	Class 1 in compliance with IEC 60825-1	
	Degree of protection	IP20	

a. Temperature of the ambient air at a distance of 2 inches (5 cm) from the device
b. Hirschmann recommends to use SFP transceivers with the "EEC" extension.
c. Only use SFP transceivers with the “EEC” extension, otherwise the standard temperature range applies.

Digital input

Maximum permitted input voltage range	−32 V DC … +32 V DC
Nominal input voltage	+24 V DC
Input voltage, low level, status "0"	-0.3 V DC … +5.0 V DC
Input voltage, high level, status "1"	+11 V DC … +30 V DC
Maximum input current at 24 V input voltage	15 mA
Input characteristic according to IEC 61131-2 (current-consuming)	Type 3

Note: For the pin assignment see “Digital input” on page 32.

Dimension drawings

Dimensions of device variants

See “Device name and product code” on page 17.

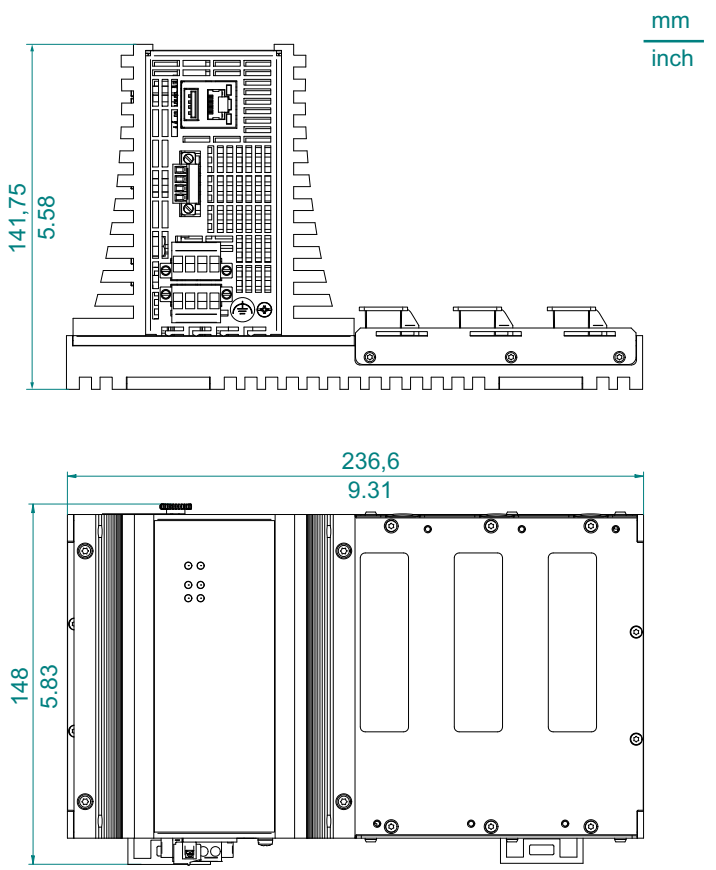


Figure 3: MSP30/32-0804.....HH...

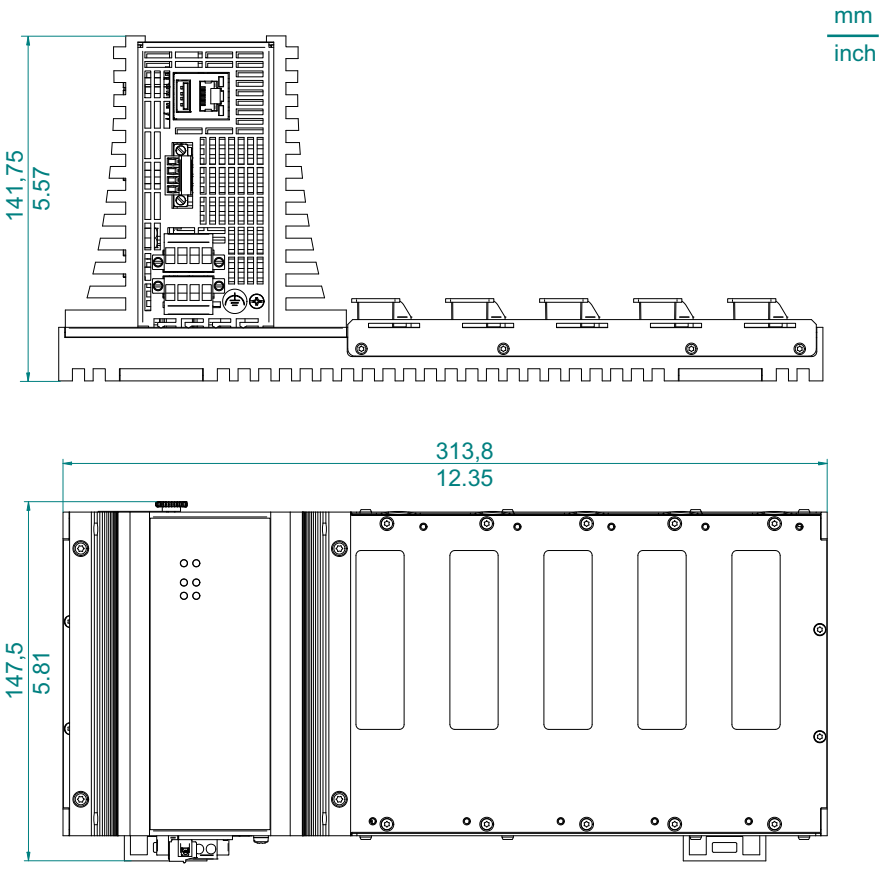


Figure 4: MSP30/32-1604.....HH...

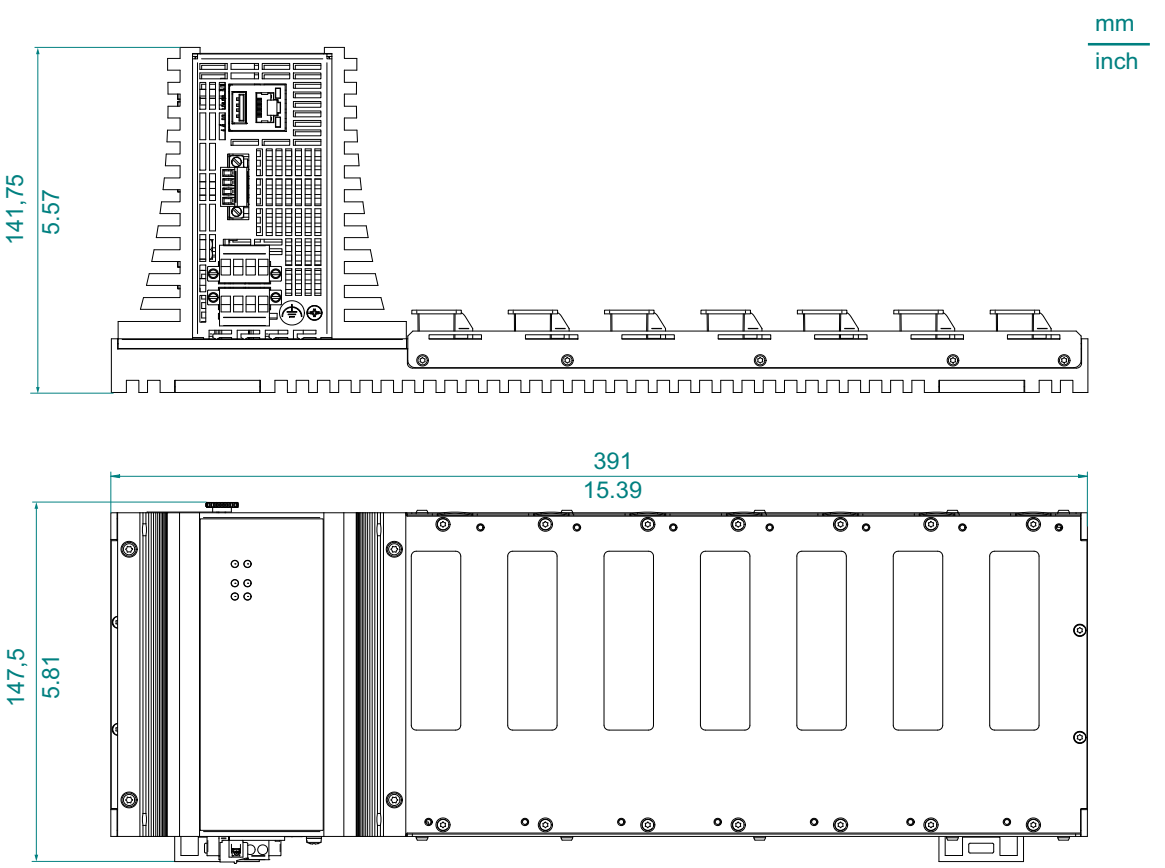


Figure 5: MSP30/32-2404.....HH...

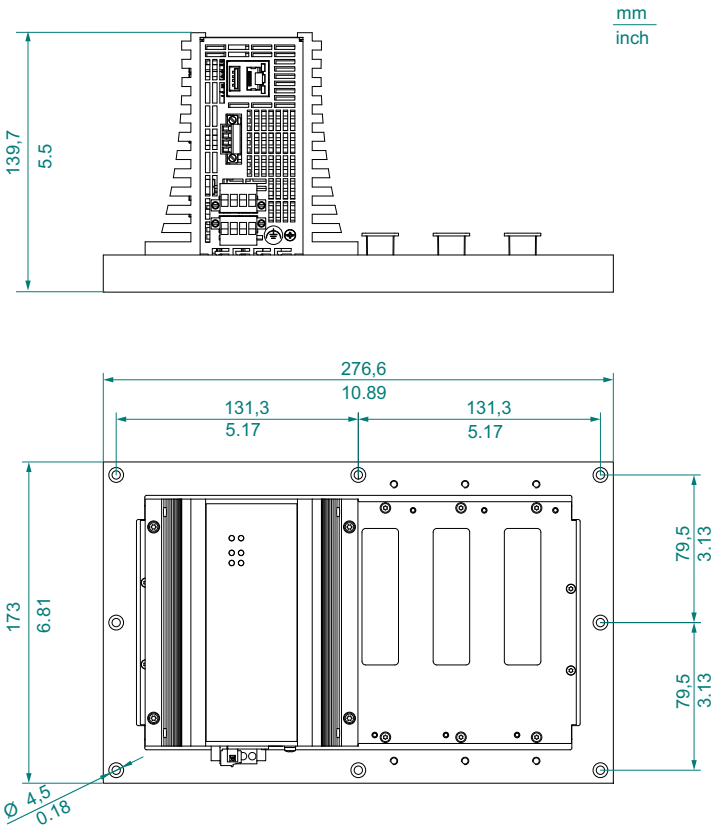


Figure 6: MSP30-0804.....HX/MX...

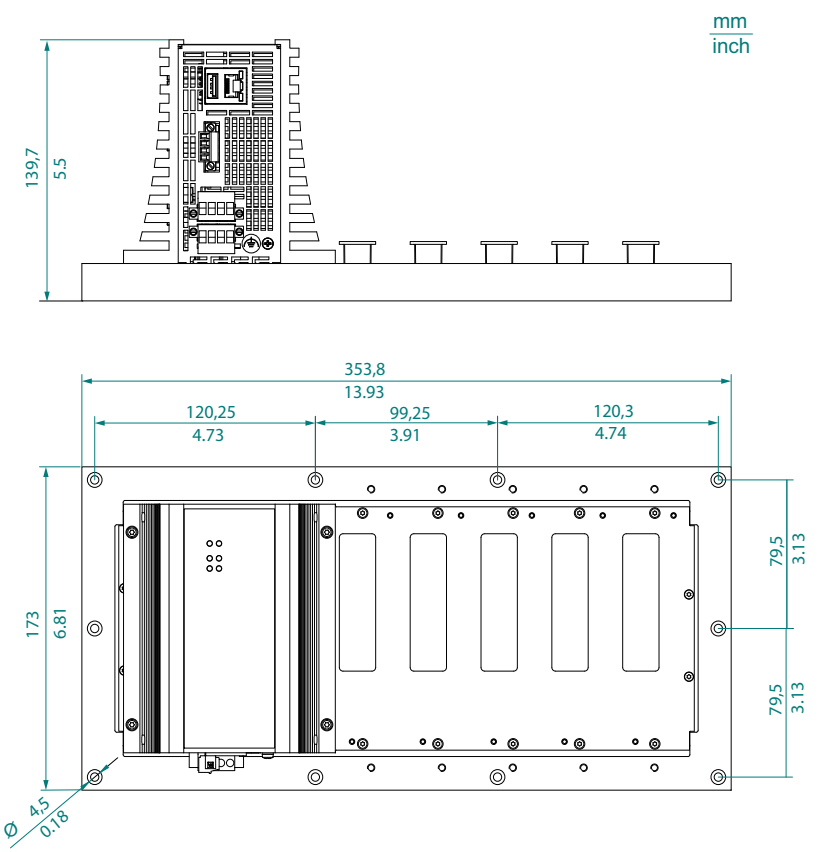


Figure 7: MSP30-1604.....HX/MX...

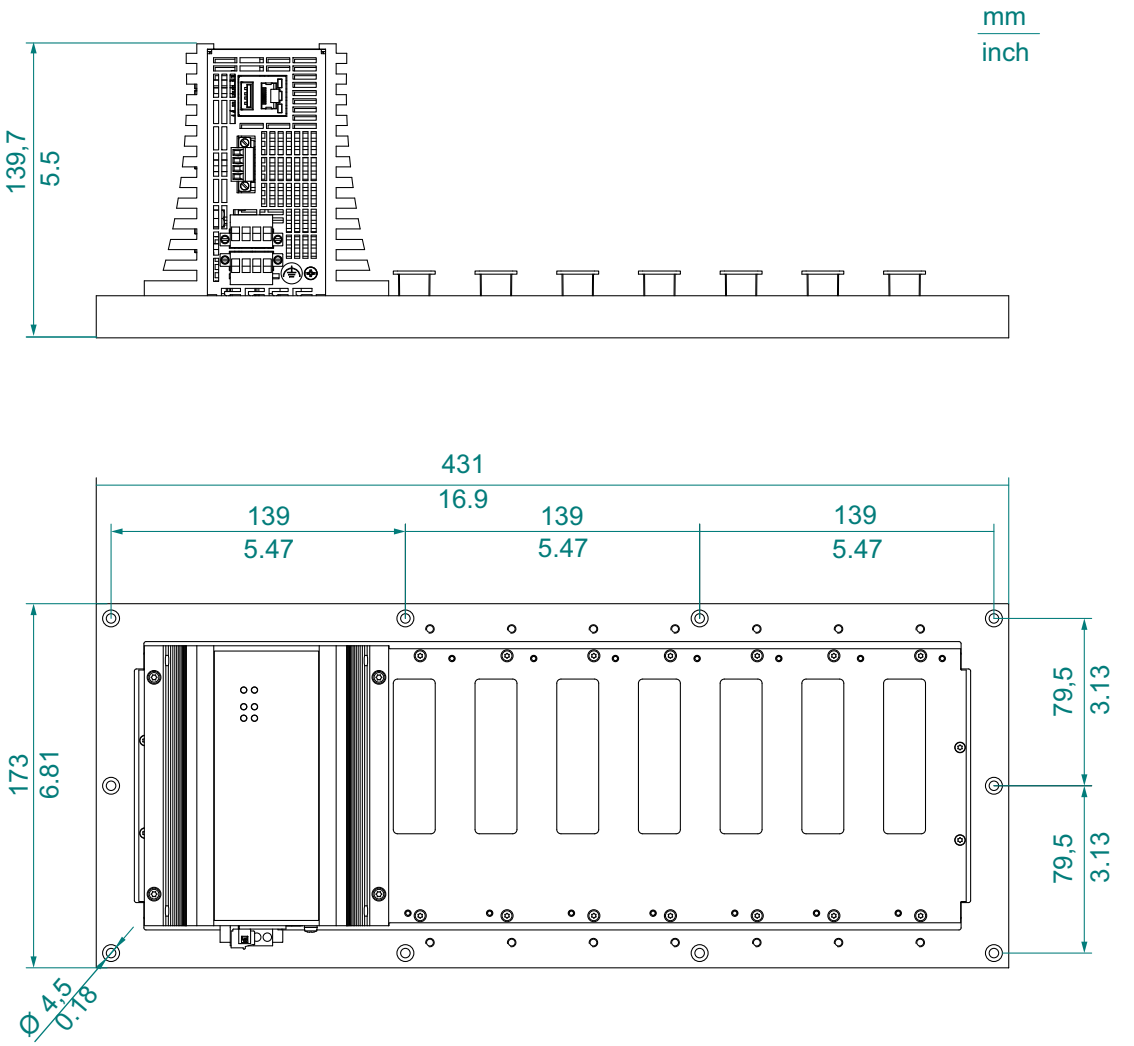


Figure 8: MSP30-2404.....HX/MX...

EMC and immunity

EMC interference emission		Standard applications[a]	Merchant Navy [b]	Railway applications (trackside) [c]	Substation applications [d]
Radiated emission					
EN 55022		Class A	Class A	Class A	Class A
GL Guidelines		—	EMC 1	—	—
FCC 47 CFR Part 15		Class A	Class A	Class A	Class A
EN 61000-6-4		Fulfilled	Fulfilled	Fulfilled	Fulfilled
Conducted emission					
EN 55022	DC supply connection	Class A	Class A	Class A	Class A
GL Guidelines	DC supply connection	—	EMC 1	—	—
FCC 47 CFR Part 15	DC supply connection	Class A	Class A	Class A	Class A
EN 61000-6-4	DC supply connection	Fulfilled	Fulfilled	Fulfilled	Fulfilled
EN 55022	Telecommunication connections	Class A	Class A	Class A	Class A
EN 61000-6-4	Telecommunication connections	Fulfilled	Fulfilled	Fulfilled	Fulfilled

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

EMC interference immunity		Standard applications[a]	Merchant Navy [b]	Railway applications (trackside) [c]	Substation applications [d]
Electrostatic discharge					
EN 61000-4-2 IEEE C37.90.3	Contact discharge	± 4 kV	± 6 kV	± 6 kV	± 8 kV
EN 61000-4-2 IEEE C37.90.3	Air discharge	± 8 kV	± 8 kV	± 8 kV	± 15 kV
Electromagnetic field					
EN 61000-4-3	80 MHz ... 3000 MHz	10 V/m	10 V/m	20 V/m	10 V/m
IEEE 1613	80 MHz ... 1000 MHz	—	—	—	35 V/m
Fast transients (burst)					
EN 61000-4-4 IEEE C37.90.1	DC supply connection	± 2 kV	± 2 kV	± 2 kV	± 4 kV
EN 61000-4-4 IEEE C37.90.1	Data line	± 4 kV	± 4 kV	± 2 kV	± 4 kV
Voltage surges - DC supply connection					
EN 61000-4-5	line/ground	± 2 kV	± 2 kV	± 2 kV	± 2 kV
IEEE 1613	line/ground	—	—	—	± 5 kV
EN 61000-4-5	line/line	± 1 kV	± 1 kV	± 1 kV	± 1 kV
Voltage surges - data line					
EN 61000-4-5	line/ground	± 1 kV	± 1 kV	± 2 kV	± 2 kV
Conducted disturbances					
EN 61000-4-6	150 kHz ... 80 MHz	10 V	10 V	10 V	10 V

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

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

Stability		Standard applications[a]	Merchant Navy [b]	Railway applications (trackside) [c]	Substation applications [d]
IEC 60068-2-6, test Fc	Vibration	5 Hz ... 8.4 Hz with 0.14 in. (3.5 mm) amplitude	2 Hz ... 13.2 Hz with 1 mm amplitude[e]	—	2 Hz ... 9 Hz with 0.12 in. (3 mm) amplitude
		8.4 Hz ... 150 Hz with 1 g	13.2 Hz ... 200 Hz with 0.7 g[e]	—	9 Hz ... 200 Hz with 1 g
		—	—	—	200 Hz ... 500 Hz with 1.5 g
		—	2 Hz ... 25 Hz with 1.6 mm amplitude[f]	—	—
		—	25.0 Hz ... 100 Hz with 4g[f]	—	—
IEC 60068-2-27, test Ea	Shock	15 g at 11 ms	—	—	10 g at 11 ms

a. EN 61131-2, CE, FCC – applies to all devices
b. Merchant Navy – applies to devices with the certification codes VU, U9, UY, UW, UX
c. EN 50121-4 – applies to devices with the certification codes VT, T9, TY
d. EN 61850-3, IEEE 1613 – applies to devices with the certification codes V9, VY, VU, VT
e. Applies to device variants featuring customer-specific version with the characteristic value HH
f. Applies to device variants featuring customer-specific version with the characteristic value HX, MX

Power consumption/power output

Device name	Maximum power consumption[a]	Power output
MSP30-0804...	16.0 W	55.0 BTU (IT)/h
MSP30-1604...	17.0 W	58.0 BTU (IT)/h
MSP30-2404...	18.0 W	61.0 BTU (IT)/h
MSP32-0804...	17.0 W	58.0 BTU (IT)/h
MSP32-1604...	18.0 W	61.0 BTU (IT)/h
MSP32-2404...	19.0 W	65.0 BTU (IT)/h

a. You can find the total power consumption specifications for basic modules that are to be installed in the “User Manual Installation MSM20/22/24/40/42”.

Scope of delivery

Number	Article
1 ×	4-pin terminal block for digital input
1 ×	Installation user manual
1 ×	CD/DVD with manual
1 ×	Device (backplane and power module)
2 ×	4-pin terminal block for supply voltage

Accessories

Designation	Order number
AutoConfiguration Adapter ACA21-USB (EEC)	943 271-003
Network management software Industrial HiVision	943 156-xxx
Terminal cable: RJ45 on USB	942 096-001
Terminal cable: RJ45 on Sub-D, 9-pin	942 097-001

Gigabit Ethernet SFP transceiver	Order number
M-SFP-SX/LC	943 014-001
M-SFP-SX/LC EEC	943 896-001
M-SFP-MX/LC	942 035-001
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

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

Fast Ethernet SFP transceiver	Order number
M-FAST SFP-TX/RJ45	942 098-001
M-FAST SFP-TX/RJ45 EEC	942 098-002
The following operating conditions apply to twisted pair transceivers: ▶ Usable with: - HiOS as of software version 03.0.00 - for PRP ports on RSP devices, as of software version 02.0.01 - for PRP ports on EES devices, as of software version 02.0.02 - Classic switch software as of software version 08.0.00 - HiSecOS ab Software-Version 01.2.00 ▶ Longer RSTP switching times and link loss detection times compared to twisted pair ports provided by the device directly. ▶ Not applicable for combo ports. ▶ Not applicable for ports which support only Gigabit Ethernet. ▶ To set autocrossing manually is currently not possible.	
M-FAST SFP-MM/LC	943 865-001
M-FAST SFP-MM/LC EEC	943 945-001
M-FAST SFP-SM/LC	943 866-001
M-FAST SFP-SM/LC EEC	943 946-001
M-FAST SFP-SM+/LC	943 867-001
M-FAST SFP-SM+/LC EEC	943 947-001
M-FAST SFP-LH/LC	943 868-001
M-FAST SFP-LH/LC EEC	943 948-001

Note: Some products recommended as accessories do not support the entire temperature range specified for the device and can thus restrict the possible range of usage for the overall system.

Underlying technical standards

Designation	
CSA C22.2 No. 142	Canadian National Standard(s) – Process Control Equipment Industrial Products
EN 50121-4	Railway applications – EMC – emitted interference and interference immunity for signal and telecommunication systems
EN 55022	IT equipment – radio interference characteristics
EN 60950-1	Safety for the installation of IT equipment
EN 61000-6-2	Generic norm – immunity in industrial environments
EN 61131-2	Programmable logic controllers
FCC 47 CFR Part 15	Code of Federal Regulations
Germanischer Lloyd	Classification and Construction Guidelines VI-7-3 Part 1 Ed.2003
IEC/EN 61850-3	Communications networks and systems in stations
IEEE 1613	Standard Environment and Testing Requirements for Communication Networking Devices in Electric Power Substations
IEEE 802.1AB	Station and Media Access Control Connectivity Discovery
IEEE 802.1D	Media Access Control Bridges
IEEE 802.1Q	Virtual Bridged Local Area Networks
IEEE 802.3	Ethernet
ISA 12.12.01	Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations
NEMA TS 2	Traffic Controller Assemblies with NTCIP Requirements (environmental requirements)
UL 508	Safety for Industrial Control Equipment

Table 18: List of norms and standards

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

A Further Support

Technical Questions

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

You 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

You can contact us

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