

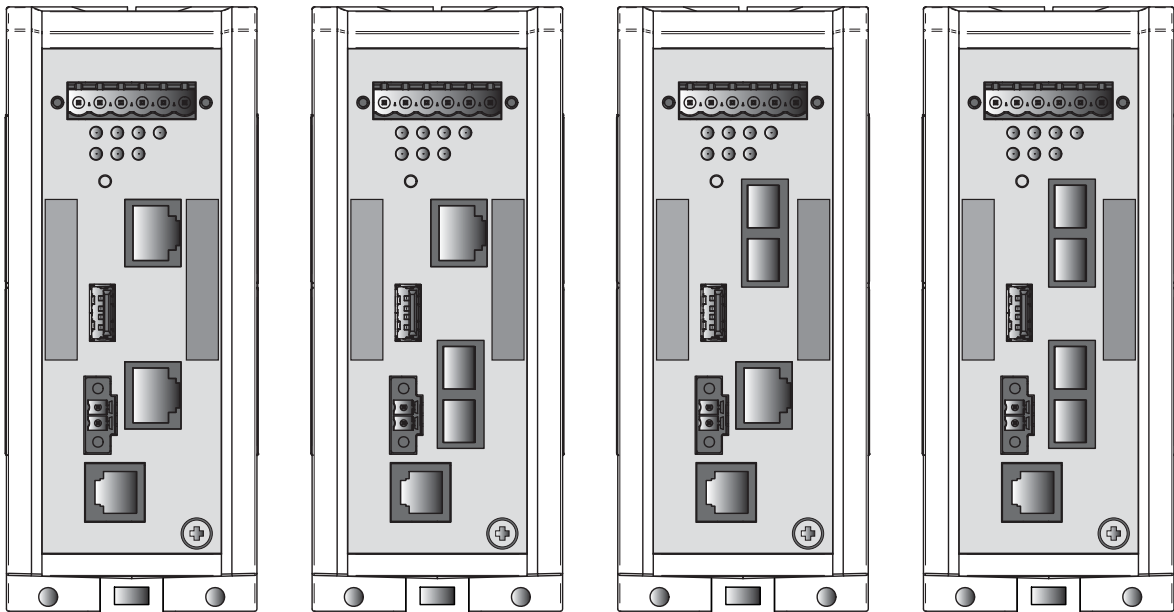


HIRSCHMANN

A **BELDEN** BRAND

User Manual

Installation Industrial Ethernet Firewall EAGLE One



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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:
<https://www.doc.hirschmann.com>

Hirschmann Automation and Control GmbH
Stuttgarter Str. 45-51
72654 Neckartenzlingen
Germany

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Important information

Note: Read these instructions carefully, and familiarize yourself with the device before trying to install, operate, or maintain it. The following notes may appear throughout this documentation or on the device. These notes warn of potential hazards or call attention to information that clarifies or simplifies a procedure.

■ Symbol explanation



This is a general warning symbol. This symbol alerts you to potential personal injury hazards. Observe all safety notes that follow this symbol to avoid possible injury or death.



If this symbol is displayed in addition to a safety instruction of the type “Danger” or “Warning”, it means that there is a danger of electric shock and failure to observe the instructions will inevitably result in injury.



This symbol indicates the danger of hot surfaces on the device. In connection with safety instructions, non-observance of the instructions will inevitably result in injuries.



DANGER

DANGER draws attention to an immediately dangerous situation, which will **inevitably** result in a serious or fatal accident if not observed.



WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, **could** result in death or serious injury.



CAUTION

CAUTION indicates a possible danger which, if not avoided, **may** result in minor injuries.

NOTICE

NOTICE provides information about procedures that do not involve the risk of injury.

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 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.

■ **Certified usage**

- ☐ Use the product only for the application cases described in the Hirschmann product information, including this manual.
- ☐ Operate the product only according to the technical specifications.
[See “Technical data” on page 51.](#)
- ☐ 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 grounding connector on the front panel as a conductor.

■ **Supply voltage**

The supply voltage is electrically isolated from the casing.

- ☐ Exclusively connect 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 (for example a switch or a plug). This disconnecting device is clearly identified. So in the case of an emergency, it is clear which disconnecting device belongs to which power supply cable.
 - ▶ The electrical wires are voltage-free.
 - ▶ The power supply is Class 2 compliant.
 - ▶ The supply voltage inputs are designed for operation with safety extra-low voltage. Connect only SELV circuits with voltage restrictions in line with IEC/EN 60950-1 to the supply voltage connections.
 - ▶ Supply with AC voltage:
A back-up fuse is located in the outer conductor of the power supply.
The neutral conductor is on ground potential at both voltage inputs. Otherwise, a back-up fuse is also located in the neutral conductor. Regarding the properties of this back-up fuse: [See “General technical data” on page 51.](#)

- ▶ Supply with DC voltage:
A back-up fuse suitable for DC voltage is located in the plus conductor of the power supply.
The minus conductor is on ground potential. Otherwise, a back-up fuse is also located in the minus conductor.
Regarding the properties of this back-up fuse: [See “General technical data” on page 51.](#)
- ▶ The wire diameter of the power supply cable is at least 1 mm² (North America: AWG16) on the supply voltage input.
- ▶ The cross-section of the protective conductor is the same size as or bigger than the cross-section of the power supply cables.
- ▶ The cables used are permitted for the temperature range of the application case.
- ▶ Relevant for North America:
Exclusively use 60/75 °C (140/167 °F) or 75 °C (167 °F) copper (Cu) wire.
- ☐ 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.

■ Input/output interfaces

Every time you connect the electrical conductors, make sure that 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 51.](#)

Observe the electrical threshold values for the digital input.

[See “Digital input” on page 52.](#)

■ Installation site requirements

- ☐ Verify that there is at least 10 cm (4 in) of space above and below the device.
- ☐ Verify that there is at least 2 cm (0.8 in) of space on the right and left sides of the device.
- ☐ Install the device in a fire enclosure according to IEC 60950-1.

■ **Strain relief**

Note: If the strain relief is insufficient, there is a potential risk of torsion, contact problems and creeping interruptions.

- ☐ Relieve the connection points of cables and lines from mechanical stress.
- ☐ Design strain reliefs in such a way that they help prevent any mechanical damage to cables, wires or conductors caused by external influences or their own weight.
- ☐ To help prevent damage to device connections, connectors and cables, follow the instructions for proper installation in accordance with DIN VDE 0100-520:2013-06, sections 522.6, 522.7 and 522.13.

■ **Device casing**

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

- ☐ Never insert pointed objects (narrow screwdrivers, wires, etc.) into the device or into the connection terminals for electric conductors. Do not touch the connection terminals.
- ☐ Keep the ventilation slits free to ensure good air circulation.
- ☐ Mount the device in the vertical position.
- ☐ At ambient air temperatures $> +60\text{ }^{\circ}\text{C}$ ($+140\text{ }^{\circ}\text{F}$):
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 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.

► **2014/34/EU (ATEX)**

Directive of the European Parliament and of the Council on the harmonisation of the laws of the Member States relating to equipment and protective systems intended for use in potentially explosive atmospheres.

The ATEX Directive applies exclusively to the device variants labeled with an ATEX certificate number:

See “[ATEX directive 2014/34/EU – specific regulations for safe operation](#)” on page 16.

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

You find the EU conformity declaration as PDF file for downloading on the Internet at: <https://www.doc.hirschmann.com/certificates.html>

The device can be used in industrial environments.

► Interference immunity: EN 61000-6-2

► Emitted interference: EN 55032

You find more information on technical standards here:

See “[Technical data](#)” on page 51.

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.

■ **UKCA marking**

The labeled devices comply with the following UK regulations:

► **S.I. 2012 No. 3032**

Restriction of the Use of Certain Hazardous Substances in Electrical and Electronical Equipment Regulations

► **S.I. 2016 No. 1091**

Electromagnetic Compatibility Regulations 2016

► **S.I. 2016 No. 1107**

Equipment and Protective Systems Intended for use in Potentially Explosive Atmospheres Regulations 2016

Note: The regulation applies exclusively to the device variants labeled with a UKEX certificate number: [See “UK regulation S.I. 2016:1107 \(as amended by S.I. 2019:696\) - Schedule 3A, Part 6” on page 19.](#)



The UKCA conformity declaration will be available to the relevant authorities at the following address:

Belden UK Ltd.

1 The Technology Centre, Station Road
Framlingham, IP13 9EZ, United Kingdom

You find the UKCA conformity declaration as PDF file for downloading on the Internet at: <https://www.doc.hirschmann.com/certificates.html>

The device can be used in industrial environments.

► Interference immunity: EN 61000-6-2

► Emitted interference: EN 55032

You find more information on technical standards here:

[See “Technical data” on page 51.](#)

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 in North America**

☐ Use this device solely in Class 2 Circuits.

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

The **relay connections** are to be installed and used within their Entity Parameters as per the following Control Drawing 000174247DNR.

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

Nonincendive field wiring parameters:

**THE RELAY TERMINALS ARE DEPENDENT UPON
THE FOLLOWING ENTITY
PARAMETERS: *)**



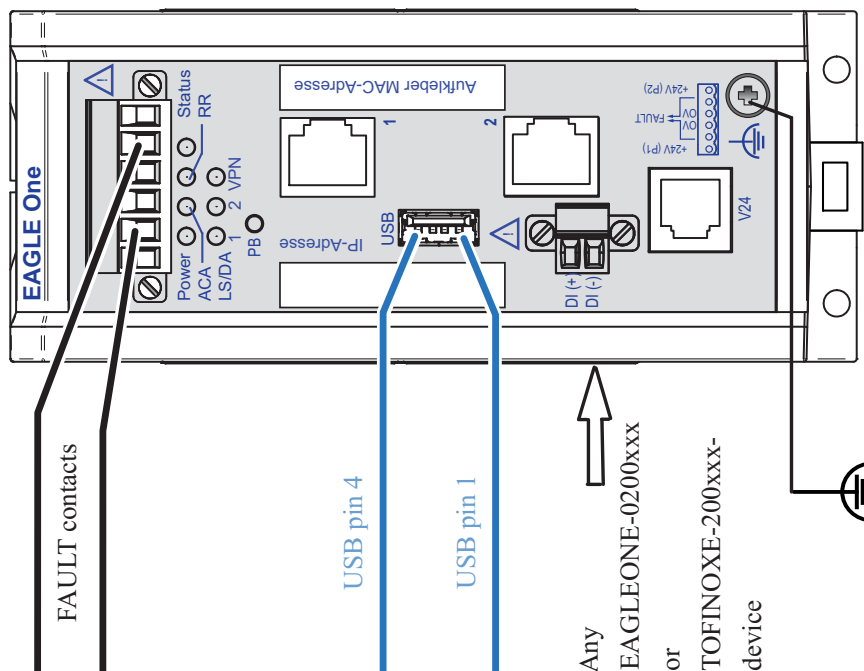
V_{max}	I_{max}	C_i	L_i
30 V	90 mA	3 nF	1 μ H

**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.**



Class I Division 2

Groups A, B, C, D Hazardous Location



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

CONTROL DRAWING to EAGLEONE and TOFINOXE series
devices for use in Hazardous Locations
Class I Division 2, Groups A, B, C, D



Rev. 0 2014-12-01 Document No.: 000174247DNR

Page 1/2

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

For use in HAZARDOUS LOCATIONS only allowed for model No's. which are labelled accordingly.



Nonincendive field wiring circuits must be wired in accordance with the National Electrical Code (NEC), NFPA 70, article 501.
USB AND RELAY CONTACTS (FAULT): Install per Control Drawing 000174247DNR.

WARNING - EXPLOSION HAZARD – SUBSTITUTION OF ANY COMPONENTS MAY IMPAIR SUITABILITY 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.

***) 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: $C_a + C_{cable}$; **Inductivity:** $L_a + L_{cable}$

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 $< max. Cable Length < (C_a - C_i) / Cable_C$
 - (“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/yy (Date of manufactur w - week, y - year. Refer to the device label).

CONTROL DRAWING to EAGLEONE and TOFINOXE series
 devices for use in Hazardous Locations
 Class I Division 2, Groups A, B, C, D



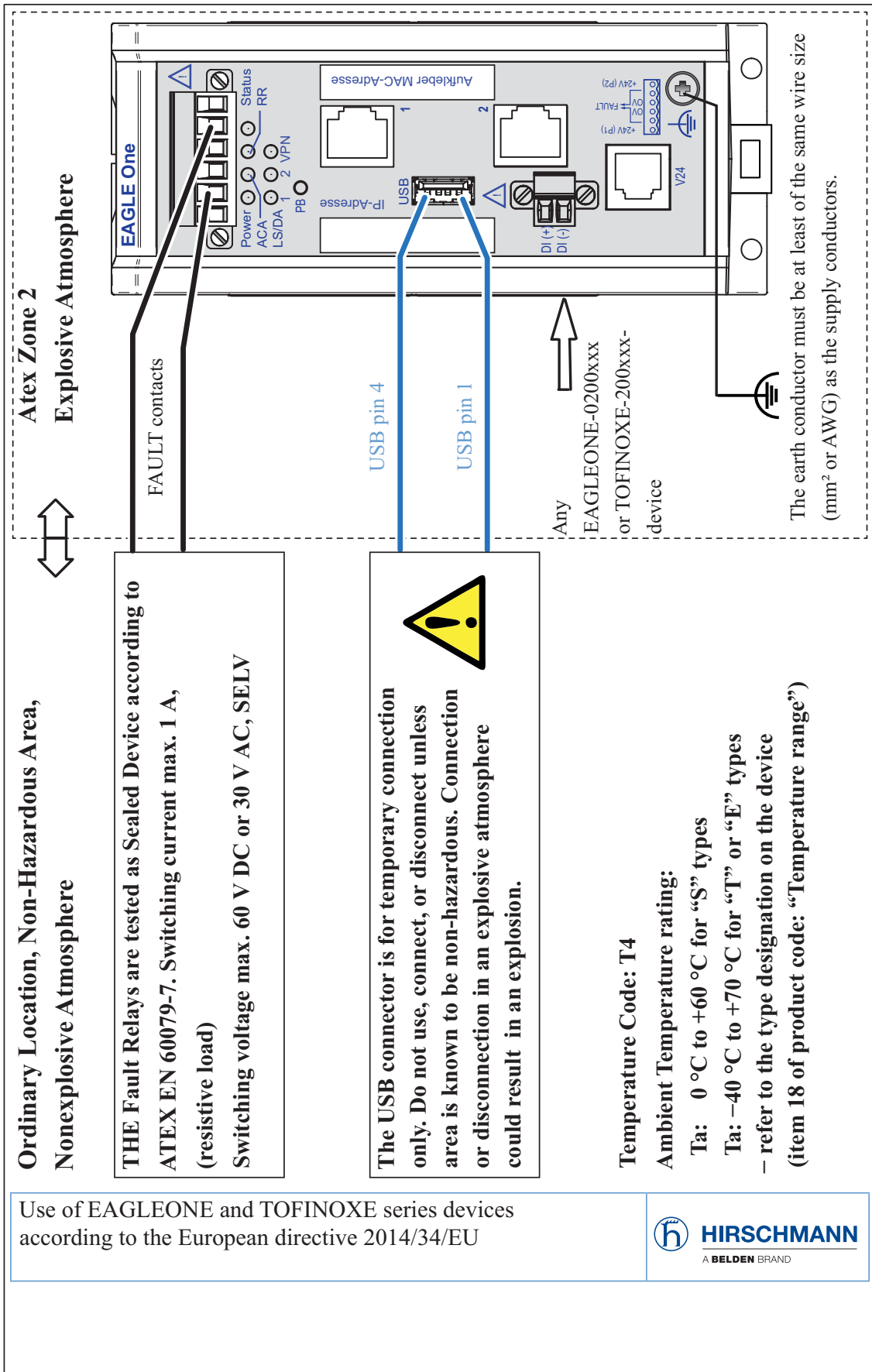
Rev. 0 2014-12-01 Document No.: 000174247DNR

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

In Ex Zone 2, only the devices with a corresponding label may be operated.

The **devices** are to be installed and used according to the European Directive 2014/34/EU. Details see the next 2 pages.



For Use in explosive atmospheres according to the European directive 2014/34/EU:

Applied Standards: EN IEC 60079-0

EN 60079-7



The Use in Hazardous Locations with explosive atmospheres is only allowed for EAGLEONE or TOFINOXE model No's. which are labeled accordingly - including "Ex II 3 G", "Ex ec nC IIC T4 Gc" "DEKRA 13ATEX0184X".

SPECIAL CONDITIONS FOR SAFE USE:

- The modules shall be installed in a suitable enclosure in accordance with EN IEC 60079-0 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.
- Provisions shall be made to prevent the rated voltage from being exceeded by transient disturbances of more than 119 V.
- 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 shall be in compliance with the actual measured temperature values.

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DOM: ww/yy (Date of manufactur w - week, y - year. Refer to the device label).

Use of EAGLEONE and TOFINOXE series devices
according to the European directive 2014/34/EU



■ **UK regulation S.I. 2016:1107
(as amended by S.I. 2019:696) - Schedule 3A, Part 6**

In Ex Zone 2, only the devices with a corresponding label may be operated.

The **devices** are to be installed and used according to UK S.I. 2016:1107.
Details see the next 2 pages.

Ordinary Location, Non-Hazardous Area, Nonexplosive Atmosphere

Zone 2 Explosive Atmosphere



The Fault Relays are tested as Sealed Device according to ATEX EN 60079-7. Switching current max. 1 A, (resistive load)
Switching voltage max. 60 V DC or 30 V AC, SELV

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.



Temperature Code: T4

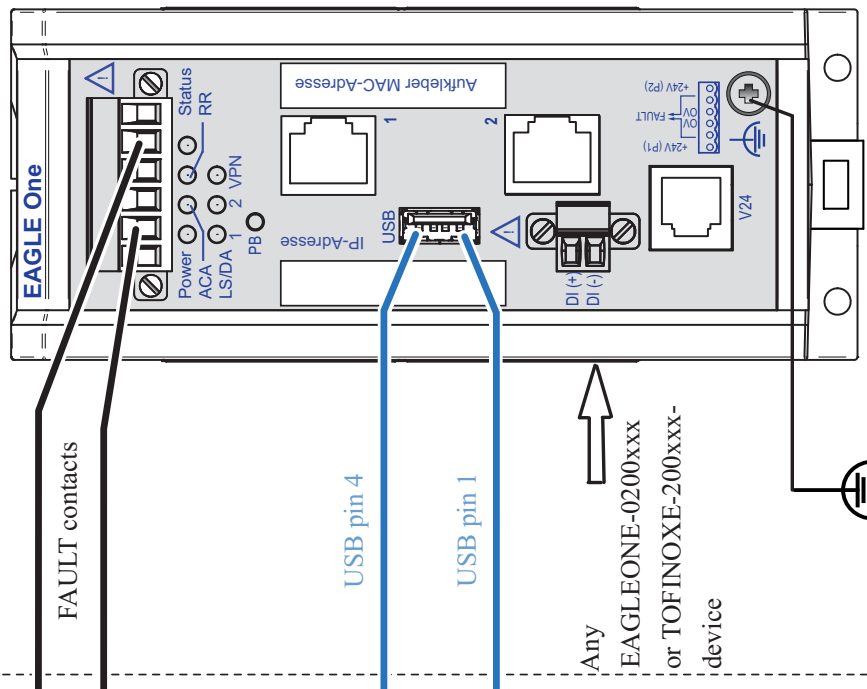
Ambient Temperature rating:

Ta: 0 °C to +60 °C for “S” types

Ta: -40 °C to +70 °C for “T” or “E” types

– refer to the type designation on the device (item 18 of product code: “Temperature range”)

Use of EAGLEONE and TOFINOXE series devices according to the UK regulation S.I. 2016:1107 (as amended by S.I. 2019:696) - Schedule 3A, Part 6



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

For Use in explosive atmospheres according to the UK regulation S.I. 2016:1107 (as amended by

S.I: 2019:696) - Schedule 3A, Part 6:

Applied Standards: EN IEC 60079-0

EN 60079-7



The Use in Hazardous Locations with explosive atmospheres is only allowed for EAGLEONE or TOFINOXE model No's. which are labeled accordingly - including "Ex II 3 G", "Ex ec nC IIC T4 Gc" "DEKRA 21UKEX0070X".

SPECIAL CONDITIONS FOR SAFE USE:

- The modules shall be installed in a suitable enclosure in accordance with EN IEC 60079-0 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.
- Provisions shall be made to prevent the rated voltage from being exceeded by transient disturbances of more than 119 V.
- 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 shall be in compliance with the actual measured temperature values.

Manufactured in 72654 Neckartenzlingen / Germany by Hirschmann Automation and Control GmbH.

DOM: ww/yy (Date of manufacture w - week, y - year. Refer to the device label).

Use of EAGLEONE and TOFINOXE series devices according to the UK regulation S.I. 2016:1107 (as amended by S.I. 2019:696) - Schedule 3A, Part 6



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■ **FCC note**

Supplier's Declaration of Conformity 47 CFR § 2.1077 Compliance Information

EAGLE One

U.S. Contact Information

Belden – St. Louis
1 N. Brentwood Blvd. 15th Floor
St. Louis, Missouri 63105, United States
Phone: 314.854.8000

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, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

■ **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 Internet at <https://www.doc.hirschmann.com>:

- ▶ Installation user manual
- ▶ Configuration user manual
- ▶ Command Line Interface reference manual
- ▶ Reference manual for the graphical user interface

Key

The symbols used in this manual have the following meanings:

▶	Listing
□	Work step
■	Subheading

1 Description

1.1 General description

The EAGLE One devices support the authentication, security and confidentiality of communication within production networks, but also beyond company boundaries.

The EAGLE One devices support the following network modes:

- ▶ Transparent mode
- ▶ Router mode
- ▶ PPPoE mode

The EAGLE One devices are used everywhere that security-sensitive network cells require a connection from the internal network to the external network. The EAGLE One devices are the link between the internal network and the external network from which unauthorized access is possible. In its function as a link, the EAGLE One devices help you to protect the security-sensitive cell from undesired data traffic along the connection to the external network.

Typical uses are:

- ▶ Helping protect individual production cells in a flat company network
- ▶ Helping protect individual production cells in a routed company network
- ▶ Coupling identical production cells to a company network
- ▶ Connecting a production cell with the office network via a public network
- ▶ Helping provide protected service access
- ▶ Separation of machine common parts

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

- ▶ Types of connectors
- ▶ Temperature range
- ▶ Certifications

The device is designed for the special requirements of industrial automation. The device meets the relevant industry standards, provides very high operational reliability, even under extreme conditions, and also long-term reliability and flexibility.

The devices allow you to set up switched and routed industrial Ethernet networks that conform to the IEEE 802.3 standard.

The following installation options are available:

- ▶ Mounting on the DIN rail
- ▶ Mounting on a vertical flat surface

The device works without a fan.

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

- ▶ Web browser
- ▶ V.24 interface (locally on the device)
- ▶ HiDiscovery (software for putting the device into operation)
- ▶ SSH
- ▶ Network management software (for example Industrial HiVision)
The Network Management Software Industrial HiVision provides you with options for smooth configuration and monitoring. You find further information on the Internet at the Hirschmann product pages:
<http://www.hirschmann.com/en/QR/INET-Industrial-HiVision>

The device provides you with a large range of functions, which the manuals for the operating software inform you about. You can download these manuals as PDF files from the Internet at: <https://www.doc.hirschmann.com>

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	Product characteristic	Characteristic value	Description
1 ... 8	Device	EAGLEONE	2 port Eagle router
9	–		
10 ... 11	Number: Fast Ethernet ports	02	2 × Fast Ethernet ports
12 ... 13	Number: Gigabit Ethernet ports	00	0 × Gigabit Ethernet ports
14 ... 15	Ethernet port 1	T1	1 × RJ45 socket for 10/100 Mbit/s Twisted pair connections
	M2	1 ×	DSC multimode socket for 100 Mbit/s F/O connections
	S2	1 ×	DSC singlemode socket for 100 Mbit/s F/O connections

Table 1: Device name and product code

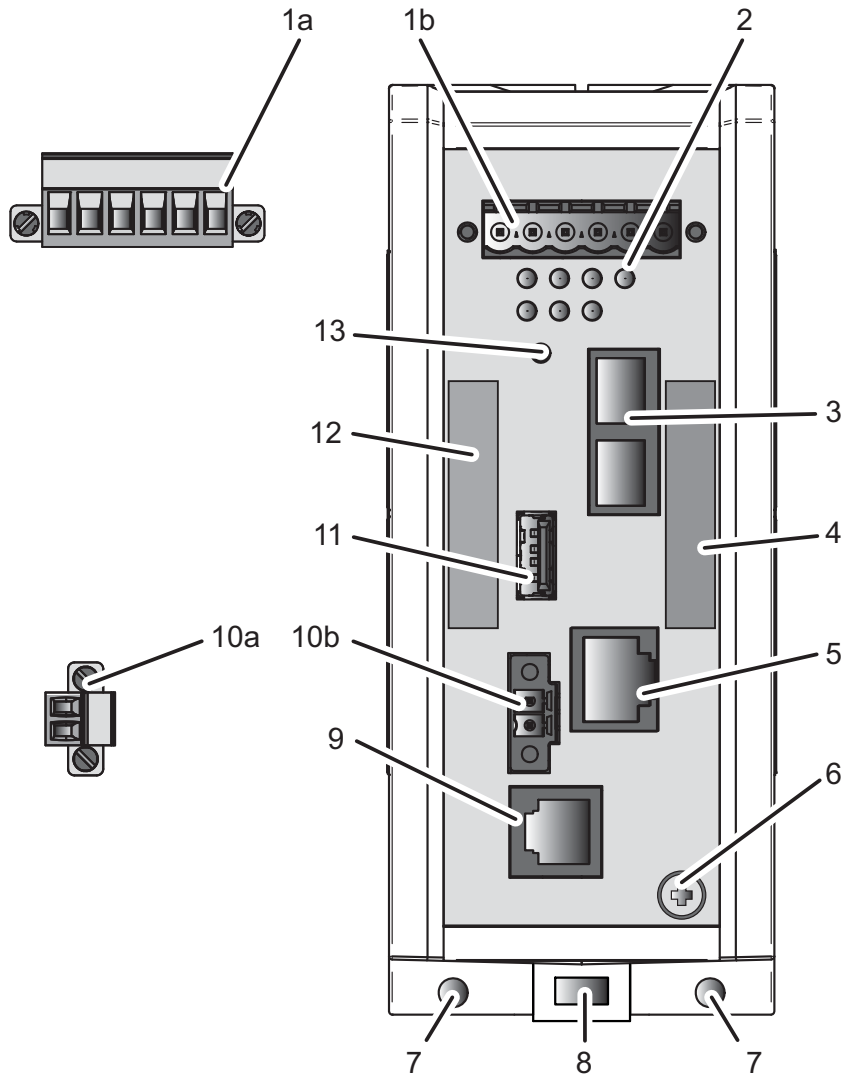
Item	Product characteristic	Characteristic value	Description
16 ... 17	Ethernet port 2 EXTERN	T1	1 × RJ45 socket for 10/100 Mbit/s Twisted pair connections
		M2	1 × DSC multimode socket for 100 Mbit/s F/O connections
		S2	1 × DSC singlemode socket for 100 Mbit/s F/O connections
18	Temperature range	E	Extended with Conformal Coating -40 °C ... +70 °C (-40 °F ... +158 °F)
		S	Standard 0 °C ... +60 °C (+32 °F ... +140 °F)
		T	Extended -40 °C ... +70 °C (-40 °F ... +158 °F)
19 ... 20	Supply voltage	DD	2 voltage inputs for redundant power supply
			Rated voltage range 12 V DC ... 48 V DC
			Rated voltage 24 V DC
21 ... 22	Certificates and declarations	Note: You will find detailed information on the certificates and declarations applying to your device in a separate overview. See table 2 on page 28.	
23 ... 26	Software packages	0000	Basic Software-Packages
27 ... 28	Customer-specific version	HH	Hirschmann Standard
29	Software configuration	E	Entry (Hirschmann Standard)
30 ... 34	Software version	05.3	Software version 05.3
		XX.X	Current software version
35 ... 36	Bug fix	00	Bugfix version 00
		XX	Current bugfix version

Table 1: Device name and product code

Application case	Certificates and declarations	Characteristic value														
		T9	TY	U9	UT	UX	UY	V9	VT	VU	VY	W9	WX	X9	Y9	Z9
Standard applications	CE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	IEC 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
	UL 508		X		X	X	X		X	X	X		X	X	X	
Oil and gas applications	ATEX Zone 2											X	X			
	ISA-12.12.01 – Class I, Div. 2					X							X	X		
Substation applications	IEC 61850-3							X	X	X	X					
	IEEE 1613							X	X	X	X					
Navy applications	DNV			X	X	X	X			X						
Railway applications (trackside)	EN 50121-4	X	X		X				X							

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

1.3 Device view



1a	6-pin terminal block with screw lock for redundant power supply and signal contact	
1b	Terminal block connection	
2	LED display elements	
3	Ethernet port 1	
	alternatively, depending on device variant	RJ45 socket for 10/100 Mbit/s Twisted pair connections DSC multimode socket for 100 Mbit/s F/O connections
4	MAC address of device (label)	
5	Ethernet port 2 EXTERN	
	alternatively, depending on device variant	RJ45 socket for 10/100 Mbit/s Twisted pair connections DSC multimode socket for 100 Mbit/s F/O connections
6	Grounding screw	
7	Hole for mounting using a wall mounting plate	
8	Locking gate for removing the device	
9	V.24 interface	
10a	2 pin, screwable terminal block for digital input	

Table 3: Front view (using the example Eagle-One-0200M2T1.....)

10b	Terminal block connection
11	ACA21-USB interface
12	Label area for IP address of device
13	Button (no function in the existing device version)

Table 3: Front view (using the example Eagle-One-0200M2T1.....)

1.4 Power supply

A 6-pin, screwable terminal block is available for the redundant supply to the device.

Further information:

[See “Connecting the power supply and the signal contact lines” on page 39.](#)

1.5 Ethernet ports

1.5.1 10/100 Mbit/s twisted pair port

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

This port supports:

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

Delivery state: Autonegotiation activated

The port casing is electrically connected to the front panel.

The pin assignment corresponds to MDI-X.

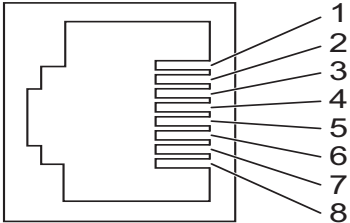
	Pin	Function
	1	RD+ Receive path
	2	RD- Receive path
	3	TD+ Transmission path
	4	
	5	
	6	TD- Transmission path
	7	
	8	
	4, 5, 7, 8	–

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

1.5.2 100 Mbit/s F/O port

The 100 Mbit/s F/O port allows you to connect network components according to the IEEE 802.3 100BASE-FX standard.

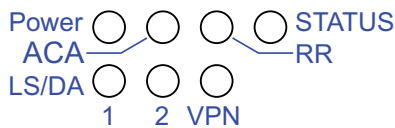
This port supports:

- ▶ Full or half duplex mode

Default setting: Full duplex

1.6 Display elements

After the supply voltage is set up, the software starts and initializes itself. Afterwards, the device performs a self-test.



1.6.1 Device status

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	Supply voltage 1 or 2 is on
		green	lights up	Supply voltage 1 and 2 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	The signal contact is open - it is reporting a detected error.
RR	Router redundancy	—	none	No router redundancy configured.
		green	lights up	The device is in the Router Redundancy Master mode.
		yellow	Long flashing lights up	The device is in the Router Redundancy Backup mode. The device is in the Router Redundancy Master mode, and the communication with the backup device is disturbed.
ACA	Storage medium ACA21-USB	—	none	No ACA connected
		green	lights up	ACA storage medium connected
			flashes 1 × a period	The device writes to the storage medium.
			flashes 2 times a period	The device reads from the storage medium.
		yellow	lights up	ACA storage medium inoperative

1.6.2 Additional status information

LED	Display	Color	Activity	Meaning
VPN	Virtual Private Network	—	none	At least one of the following cases applies: <ul style="list-style-type: none">▶ The VPN status display is switched off.▶ No VPN connection is active.▶ No active VPN connection is in the "up" status.
		green	lights up	The VPN status display is switched on, and at least 1 VPN connection is active and in the "up" status.

1.6.3 Port status

These LEDs display port-related information.

LED	Display	Color	Activity	Meaning
L/D	Link status	—	none	Device detects an invalid or missing link
		green	lights up	Device detects a valid link
			flashes 3 × a period	Port is switched off
		yellow	flashing	Device is transmitting and/or receiving data

1.7 Management interfaces

1.7.1 V.24 interface (external management)

The V.24 interface is a serial interface for the local connection of an external network management station (VT100 terminal or PC with terminal emulation). The interface allows you to set up a data connection to the Command Line Interface (CLI) and to the system monitor. The V.24 interface is an RJ11 socket.

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

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

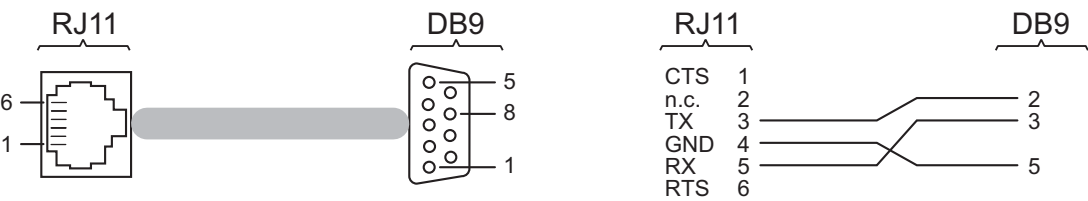


Figure 1: Pin assignment of the V.24 interface and the DB9 plug

Note: The Terminal cable is available as an accessory. See [“Accessories” on page 59](#).

1.7.2 ACA21-USB interface

This interface offers you the ability to connect the storage medium AutoConfiguration Adapter ACA21-USB. This storage medium is used for saving/loading the configuration and diagnostic functions, and for loading the software.

The USB interface has the following properties:

- ▶ Supports the USB master mode
- ▶ Supports USB 1.1 (data rate max. 12 MBit/s)
- ▶ Connectors: type A
- ▶ Supplies current of max. 500 mA
- ▶ Voltage not potential-separated

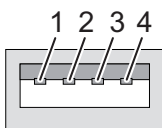
Figure	Pin	Function
	1	VCC (VBus)
	2	- Data
	3	+ Data
	4	Ground (GND)

Table 5: Pin assignment of the USB interface

1.8 Input/output interfaces

1.8.1 Signal contact

The signal contact is a potential-free relay contact.

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

Further information:

[See “Supply voltage” on page 39.](#)

1.8.2 Digital input

Further information:

[See “Supply voltage” on page 39.](#)

2 Installation

Before installing and starting up the device, read the safety instructions.
See [“Safety instructions” on page 7](#).

2.1 Overview

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](#)
- ▶ [Connecting the power supply and the signal contact lines](#)
- ▶ [Wiring the digital input \(optional\)](#)
- ▶ [Operating the device](#)
- ▶ [Connecting data cables](#)

2.2 Checking the package contents

- ☐ Check whether the package includes all items named in the section [“Scope of delivery” on page 58](#).
- ☐ Check the individual parts for transport damage.

2.3 Installing and grounding the device



WARNING

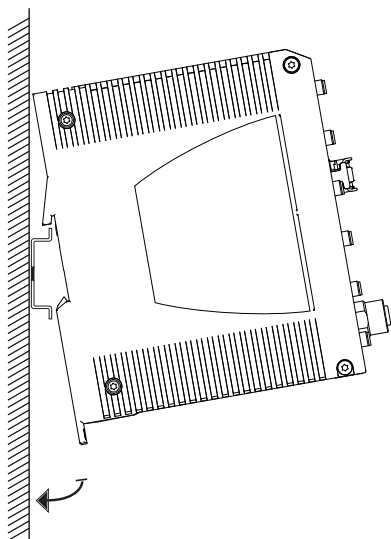
FIRE HAZARD

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

Failure to follow this instruction can result in death, serious injury, or equipment damage.

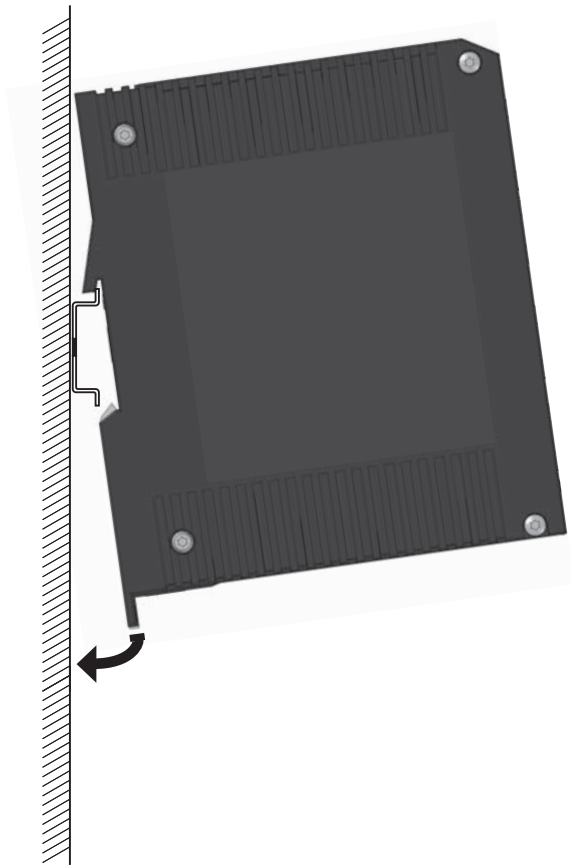
2.3.1 Installing the device onto the DIN rail

- ☐ Verify that there is at least 10 cm (4 in) of space above and below the device.
- ☐ Verify that there is at least 2 cm (0.8 in) of space on the right and left sides of the device.



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 the rail lock slide down using a screwdriver, and press the lower part of the device against the DIN rail.
- ☐ Snap in the device by releasing the rail lock slide.



2.3.2 Mounting on a vertical flat surface

You have the option of attaching the device to a vertical flat surface. This requires a wall mounting plate, which you purchase as a separate accessory.

See [“Accessories” on page 59](#).

The wall mounting plate comes without mounting hardware.

- ☐ Obtain mounting hardware which is suitable for your requirements.

The wall mounting plate is provided with a Mounting Note that takes you through the mounting procedure.

- ☐ Follow the Mounting Note provided with the accessory.

2.3.3 Grounding the device



WARNING


ELECTRIC SHOCK

Ground the device before connecting any other cables.

Failure to follow this instruction can result in death, serious injury, or equipment damage.

The device has a functional ground connection.
The device is grounded via the separate ground screw.
☐ Ground the device via the ground screw.

2.4 Connecting the terminal blocks

**WARNING**

ELECTRIC SHOCK

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.

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

[See “Supply voltage” on page 39.](#)

[See “Input/output interfaces” on page 9.](#)

Failure to follow this instruction can result in death, serious injury, or equipment damage.

2.4.1 Connecting the power supply and the signal contact lines

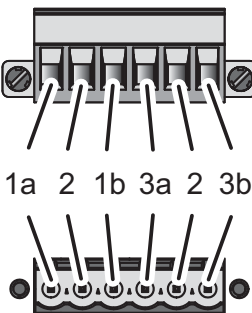
	1	Supply voltage connection 1
	1a	24 V
	1b	0 V
	2	Connection for the signal contact
	3	Supply voltage connection 2
	3a	0 V
	3b	24 V

Table 6: Pin assignment: 6 pin, screwable terminal block (on the top), connection to the device (at the bottom)

■ 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.

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

Type of the voltages that can be connected	Specification of the supply voltage	Pin assignment on the device
DC voltage	Rated voltage range 12 V DC ... 48 V DC Voltage range incl. maximum tolerances 9.6 V DC ... 60 V DC	24 V Plus terminal of the supply voltage
		0 V Minus terminal of the supply voltage
AC voltage	Rated voltage 24 V AC Voltage range including maximum tolerances 18 V AC ... 30 V AC	24 V Outer conductor
		0 V Neutral conductor

Table 7: Type and specification of the supply voltage, pin assignment on the device

- ☐ Remove the terminal connector from the device.
- ☐ Connect the wires according to the pin assignment on the device with the clamps.
- ☐ Fasten the wires in the terminal block by tightening the terminal screws.

■ **Signal contact (optional)**

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

2.4.2 Wiring the digital input (optional)

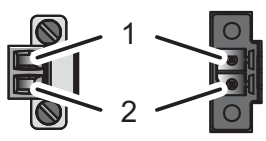
	Pin	Signal, terminal	Function
	1	DI (+)	Signal input
	2	DI (-)	Reference potential

Table 8: Pin assignment: 2 pin, screwable terminal block (on the left), connection to the device (to the right)

- ☐ Remove the terminal connector from the device.
- ☐ Connect the wires according to the pin assignment on the device with the clamps.
- ☐ Fasten the wires in the terminal block by tightening the terminal screws.

2.5 Operating the device



WARNING

ELECTRIC SHOCK

Exclusively connect a supply voltage that corresponds to the type plate of your device.

Failure to follow this instruction can result in death, serious injury, or equipment damage.

Note: The torque for tightening the supply voltage terminal block on the device is 0.51 Nm (4.5 lb-in).

The torque for tightening the terminal block on the digital input of the device is 0.34 Nm (3 lb-in).

- ☐ Mount the terminal block for the supply voltage and the signal contact using screws.
- ☐ Optional: Mount the terminal block for the digital input by screwing.
- ☐ Enable the supply voltage.

2.6 Connecting data cables

Note the following general recommendations for data cable connections in environments with high electrical interference levels:

- ☐ Keep the length of the data cables as short as possible.
- ☐ Use optical data cables for the data transmission between the buildings.
- ☐ When using copper cables, provide a sufficient separation between the power supply cables and the data cables. Ideally, install the cables in separate cable channels.
- ☐ Verify that power supply cables and data cables do not run parallel over longer distances. To reduce inductive coupling, verify that the power supply cables and data cables cross at a 90 ° angle.
- ☐ Use shielded data cables for gigabit transmission via copper cables, for example SF/UTP cables according to ISO/IEC 11801. To meet EN 50121-4 and marine application requirements, use shielded data cables at all transmission rates.
- ☐ Connect the data cables according to your requirements.

[See “Ethernet ports” on page 31.](#)

Note: Verify that you connect only optical ports with the same optical transmission properties with each other.

Further information:

[See “10/100 Mbit/s twisted pair port” on page 31.](#)

Further information:

[See “100 Mbit/s F/O port” on page 31.](#)

- ☐ Connect the device via the port to the internal network or the local computer that you want to help protect.
- ☐ Connect the device via the port to the external network, such as the Internet. This network is used to set up the connections to the external device or external network.

3 Configuration

2 or more devices configured with the same IP address can cause unpredictable operation of your network.

Install and maintain a process that assigns a unique IP address to every device in the network.

3.1 Making basic settings

In case of initial installation, enter the IP parameters. The device provides multiple options for configuring IP addresses:

- ▶ Entry via V.24 connection
- ▶ Entry using the HiDiscovery protocol via the HiDiscovery or Industrial HiVision application (via internal port)
- ▶ AutoConfiguration Adapter
- ▶ Web Interface
- ▶ SSH

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

■ Default settings

- ▶ Ethernet ports: link status is not evaluated (signal contact)
- ▶ IP address: DHCP default setting off
Static IP address: 192.168.1.1/24
- ▶ Optical 100 Mbit/s ports: 100 Mbit/s full duplex
Other ports: autonegotiation
- ▶ Password for management:
user, password: public (read only)
admin, password: private (read/write)
- ▶ V.24 data rate: 9600 Baud

3.2 Firewall and VPN functions

3.2.1 Firewall functions

The EAGLE One device supports the following firewall modes:

- ▶ Stateful Inspection Firewall
- ▶ Transparent Firewall
- ▶ Configurable firewall rules:
 - ▶ Incoming/outgoing data traffic
 - ▶ Modem access
 - ▶ External Management access
- ▶ IP Masquerading, 1-to-1 NAT, port forwarding
- ▶ IP Spoofing Protection

3.2.2 VPN functions

The EAGLE One device supports the following Virtual Private Network (VPN) functions:

- ▶ Multipoint VPN: Router Mode
- ▶ VPN protocols: IPSec
- ▶ Encryption algorithms:
 - ▶ DES-56
 - ▶ 3DES-168
 - ▶ AES-128, AES-192, AES-256
- ▶ Authentication:
 - ▶ Pre-shared key (PSK)
 - ▶ X.509v3 certificates
- ▶ Hashing algorithms: MD5, SHA-1
- ▶ NAT-T support

3.3 Operating modes

This device supports you in protecting the internal network against the influences of external networks.

3.3.1 Delivery state

On delivery, the device works in the Transparent mode. In this mode, no network settings (e.g., for subnetworks) are required for operation.

The firewall has been preconfigured so that the IP data traffic from the internal network is possible; however, traffic from the external network to the internal one is not possible. Thus, even the delivery state helps to prevent unauthorized access from the external network.

3.3.2 Transparent mode

The Transparent mode is a transparent bridge mode. In this mode, the device operates as a 2-port bridge, whereby the device transmits IP and ARP packets corresponding to the firewall rules exclusively.

In the delivery state, you have the option of accessing the device via address 192.168.1.1/24 without configuring the IP address.

3.3.3 Router mode

In the Router mode, the device works as a 2-port router. You find a detailed description of the IP configuration in the “Configuration” user manual of the EAGLE One device.

Note: In the Router and Transparent modes, the device provides an additional network access option to the internal network. This access is through the V.24 interface of the EAGLE One device via PPP. In this case, communication is possible with the EAGLE One device and with the devices in the internal network (according to the firewall rules for the modem connection).

3.3.4 PPPoE mode

In PPPoE mode, the EAGLE One device works like in the router mode, with the difference that the device uses the PPPoE protocol at the external port. This provides you the option of connecting to the Internet through a DSL modem.

3.4 Starting configuration

To access the EAGLE One, proceed as follows (device in the delivery state):

- ☐ Install the required Java plugin on your computer.
You find information about the plug-in and its installation in the “User Manual Configuration”.
- ☐ Connect your computer to the internal port, and start an https-capable Web browser on your computer in order to configure the EAGLE One.
- ☐ Enter the following address in the Web browser:
`https://192.168.1.1/`

Result: The browser sets up an HTTPS connection to the EAGLE One. The browser displays a security message.

- ☐ Confirm the security message with “Yes”.
- ☐ To login to the device, enter the following:
 - Login: admin –
 - Password: private
 - (case-sensitive)

Result: The browser displays the administrator website of the EAGLE One.

- ☐ Specify the settings of the device in accordance with the “User Manual Configuration”.

Alternatively, you have the option of performing the IP configuration for the Transparent mode using the HiDiscovery protocol.

Note: If the browser does not set up the configuration connection to the EAGLE One, you find detailed information in the “User Manual Configuration - Industrial Ethernet Firewall EAGLE One”.

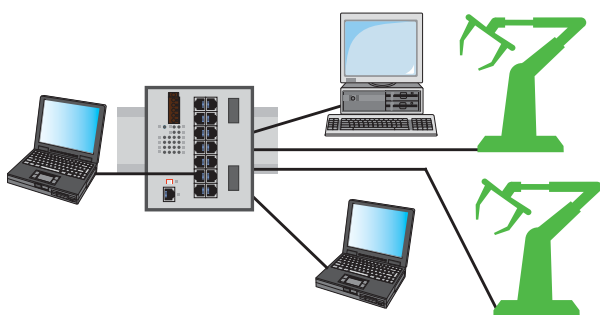


Figure 2: Configuration before the installation of the EAGLE One

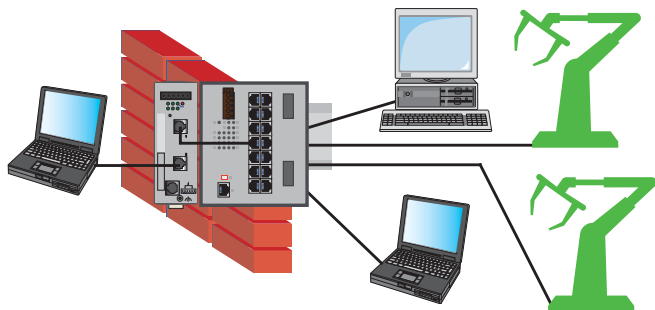


Figure 3: Configuration after the installation of the EAGLE One

4 Monitoring the ambient air temperature

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

See [“General technical data” on page 51](#).

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

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

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 (<http://www.hirschmann.com>).
- ▶ Depending on the degree of pollution in the operating environment, check at regular intervals that the ventilation slots in the device are not obstructed.

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

6 Disassembly



WARNING

ELECTRIC SHOCK

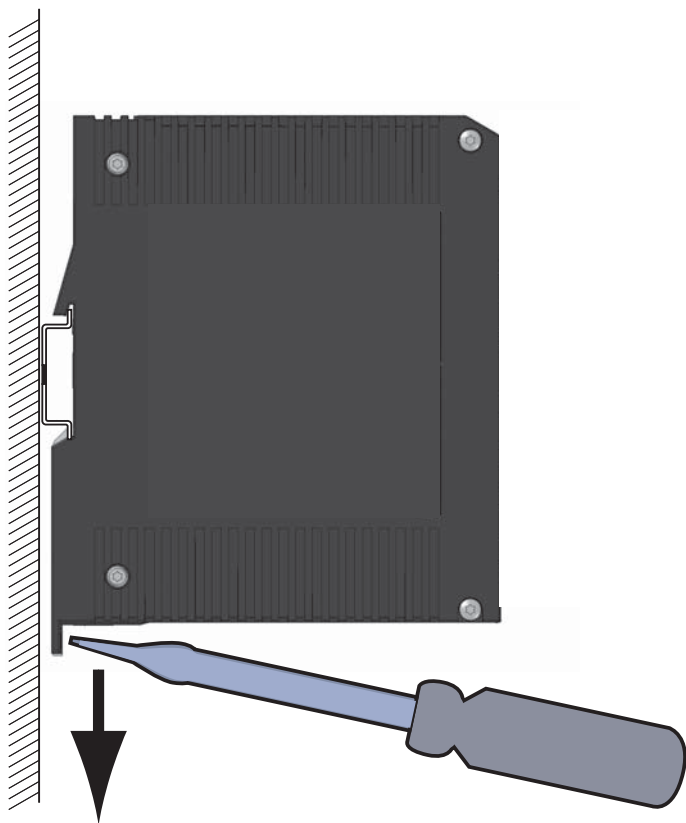
Disconnect the grounding only after disconnecting all other cables.

Failure to follow this instruction can result in death, serious injury, or equipment damage.

- ☐ Disconnect the data cables.
- ☐ Disable the supply voltage.
- ☐ Disconnect the terminal blocks.
- ☐ Disconnect the grounding.

To remove the device from the DIN rail, perform the following work steps:

- ☐ Insert a screwdriver horizontally below the housing into the locking gate.
- ☐ Pull the locking gate down without tilting the screwdriver.
- ☐ Lift the bottom of the device away from the DIN rail.



7 Technical data

■ General technical data

Dimensions W × H × D	See “Dimension drawings” on page 53.			
Weight	660 g			
Power supply	▶ 2 voltage inputs for redundant power supply			
	▶ Safety extra-low voltage (SELV), redundant inputs disconnected			
	Rated voltage AC	24 V AC, Class 2		
	Voltage range AC incl. maximum tolerances	18 V AC ... 30 V AC, Class 2		
	Rated voltage range DC	12 V DC ... 48 V DC, Class 2		
	Voltage range DC including maximum tolerances	9.6 V DC ... 60 V DC, Class 2		
	Connection type	6-pin terminal block with screw lock for redundant power supply and signal contact		
	Power failure bypass	> 10 ms at 20.4 V DC or AC > 2 ms at 10.2 V DC		
	Overload current protection on the device	Non-replaceable fuse		
	Limited power source (LPS) according to IEC 60950-1 or ES1 + PS2 according to IEC/EN 62368-1	without back-up fuse		
	Safety Extra-low Voltage (SELV) according to IEC 60950-1 or ES1 according to IEC/EN 62368-1	with back-up fuse		
	Back-up fuse for each voltage input when supply is via 2 inputs	Nominal value at 48 V	1 A	
		Nominal value at 24 V	1 A ... 2 A	
		Nominal value at 12 V	1 A ... 2.5 A	
		Characteristic:	slow blow	
	Back-up fuse when using 1 voltage input ^a	Nominal value at 48 V	1 A ... 2 A	
Nominal value at 24 V		1 A ... 4 A		
Nominal value at 12 V		1 A ... 5 A		
Characteristic:		slow blow		
Peak inrush current	<14 A			

Climatic conditions during operation	Ambient air temperature ^b	Devices with operating temperature characteristic value S (Standard): 0 °C ... +60 °C (+32 °F ... +140 °F) Devices with operating temperature characteristic value E and T (extended): -40 °C ... +70 °C (-40 °F ... +158 °F)
	Maximum inner temperature of device (guideline)	Devices with operating temperature characteristic value S (Standard): 80 °C (176 °F) Devices with operating temperature characteristic value E and T (extended): +90 °C (+194 °F)
	Humidity	10 % ... 95 % (non-condensing)
	Air pressure	min. 795 hPa (+2000 m ASL; +6562 ft ASL) max. 1060 hPa (-400 m ASL; -1312 ft ASL)
Climatic conditions during storage	Ambient air temperature ^b	-40 °C ... +85 °C (-40 °F ... +185 °F)
	Humidity	10 % ... 95 % (non-condensing)
	Air pressure	min. 700 hPa (+3000 m ASL; +9842 ft ASL) max. 1060 hPa (-400 m ASL; -1312 ft ASL)
Signal contact FAULT	Switching current	max. 1 A, SELV
	Switching voltage	max. 60 V DC, SELV
		Relevant for North America: max. 30 V DC, Class 2, resistive load
Pollution degree		2
Protection classes	Laser protection	Class 1 in compliance with IEC 60825-1
	Degree of protection	IP20

- a. As an alternative to the back-up fuse is possible:
Supply voltage based on NEC Class 2 or EN 60950-1 Limited Power Source
- b. Temperature of the ambient air at a distance of 5 cm (2 in) from the device

■ 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
Connection type	2 pin, screwable terminal block for digital input
Tightening torque	0.34 Nm (3 lb-in)

Note: For the pin assignment see ["Wiring the digital input \(optional\)" on page 41](#).

■ Dimension drawings

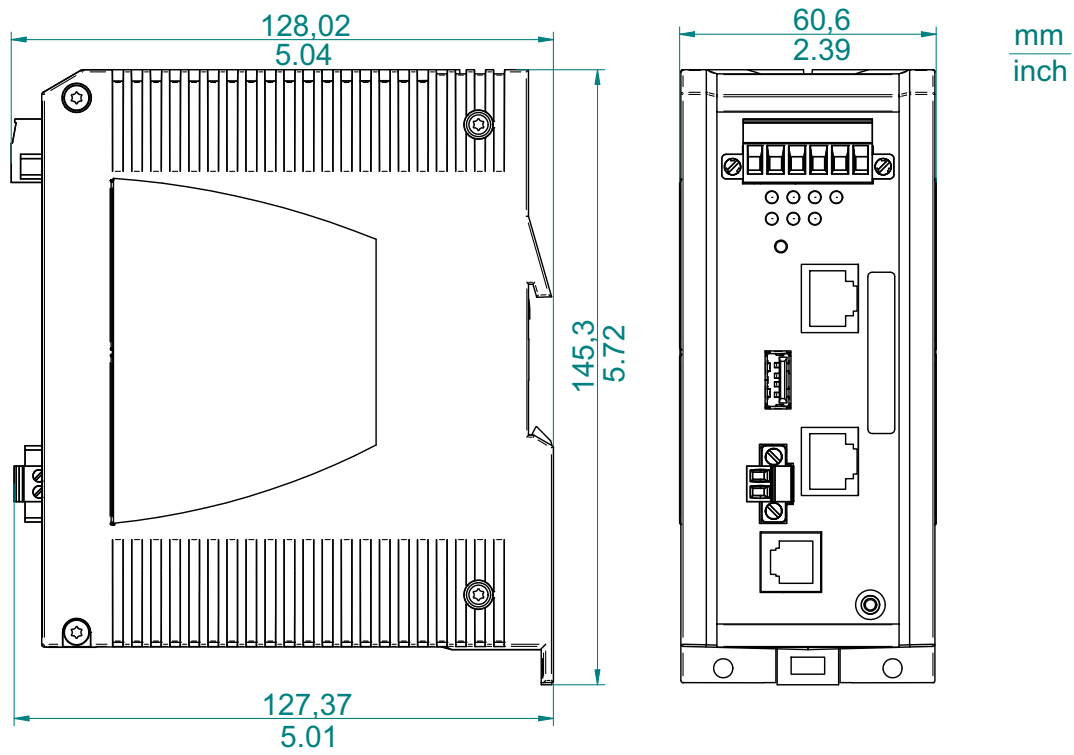


Figure 4: Dimensions

■ EMC and immunity

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

[See table 2 on page 28.](#)

Immunity		Standard applications	Navy applications	Railway applications	Substation applications
IEC 60068-2-6, test Fc	Vibration	5 Hz ... 8.4 Hz with 3.5 mm (0.14 in) amplitude	2 Hz ... 13.2 Hz with 1 mm (0.04 in) amplitude	—	2 Hz ... 9 Hz with 3 mm (0.11 in) amplitude
		—	—	—	—
		8.4 Hz ... 150 Hz with 1 g	13.2 Hz ... 100 Hz with 0.7 g	—	9 Hz ... 200 Hz with 1 g
		—	—	—	—
IEC 60068-2-27, test Ea	Shock	—	—	—	200 Hz ... 500 Hz with 1.5 g
		15 g at 11 ms	—	—	0.53 oz (10 g) at 11 ms

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

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

EMC interference immunity		Standard applications	Navy applications	Railway applications (trackside)	Substation applications
Electrostatic discharge					
EN 61000-4-2 IEEE C37.90.3	Contact discharge	±4 kV	±6 kV	±6 kV	±8 kV
EN 61000-4-2 IEEE C37.90.3	Air discharge	±8 kV	±8 kV	±8 kV	±15 kV
Electromagnetic field					
EN 61000-4-3	80 MHz ... 3000 MHz	10 V/m	10 V/m	20 V/m	10 V/m
IEEE 1613	80 MHz ... 1000 MHz	—	—	—	35 V/m
Fast transients (burst)					
EN 61000-4-4 IEEE C37.90.1	AC/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	±4 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	±4 kV

EMC interference immunity		Standard applications	Navy applications	Railway applications (trackside)	Substation applications
Conducted disturbances					
EN 61000-4-6	150 kHz ... 80 MHz	10 V	10 V	10 V	10 V

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

■ Network range

Ports	Wave length	Fiber	System attenuati on	Example for F/O cable length ^a	Fiber attenuation	BLP/Dispersion
MM	1300 nm	50/125 µm	0-8 dB	0-5 km	1.0 dB/km	800 MHz*km
MM	1300 nm	62.5/125 µm	0-11 dB	0-4 km	1.0 dB/km	500 MHz*km

Table 9: F/O port 100BASE-FX

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

MM = Multimode

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

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

■ Power consumption/power output

Device variant	Maximum power consumption	Power output
EAGLEONE-0200T1T1.....	5 W	17 Btu (IT)/h
EAGLEONE-0200T1M2.....	6 W	20 Btu (IT)/h
EAGLEONE-0200M2T1.....		
EAGLEONE-0200M2M2.....	7 W	24 Btu (IT)/h

■ Scope of delivery

Amount	Article
1 ×	Device
1 ×	6-pin terminal block with screw lock for redundant power supply and signal contact
1 ×	2 pin, screwable terminal block for digital input
1 ×	Safety and general information sheet

■ Accessories

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

Other accessories	Order number
AutoConfiguration Adapter ACA21-USB (EEC)	943 271-003
Terminal cable	943 301-001
6-pin, screwable terminal block (50 pcs.)	943 845-013
Wall mounting plate for DIN rail mounting, width 2.36 in. (60 mm)	943 971-003
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
Industrial HiVision Network Management Software	943 156-xxx

■ Underlying technical standards

Name	
ANSI/UL 121201	Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations
EN 50121-4	Railway applications – EMC – Emission and immunity of the signaling and telecommunications apparatus (Rail Trackside)
EN 55032	Electromagnetic compatibility of multimedia equipment – Emission Requirements
EN 60079-0	Explosive atmospheres – Part 0: Equipment – General requirements
IEC/EN 60079-15	Explosive atmospheres – Part 15: Equipment protection by type of protection “n”
IEC 60950-1	Information technology equipment – Safety – Part 1: General requirements
IEC/EN 62368-1	Equipment for audio/video, information and communication technology - Part 1: safety requirements
EN 61000-6-2	Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity for industrial environments
EN 61000-6-4	Electromagnetic compatibility (EMC) – Part 6-4: Generic standards – Emitted interference in industrial environments
EN 61131-2	Programmable controllers – Part 2: Equipment requirements and tests
FCC 47 CFR Part 15	Code of Federal Regulations
DNV-CG-0339	Environmental test specification for electrical, electronic and programmable equipment and systems.
IEC 60825-1	Laser product safety
IEC/EN 61850-3	Communication networks and systems for power utility automation - Part 3: General requirements.
IEEE 1613	IEEE Standard Environmental and Testing Requirements for Communication Networking Devices in Electric Power Substations
UL 508	Safety for Industrial Control Equipment

Table 11: List of the technical standards

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

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

If your device has a shipping approval according to DNV, 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 at www.hirschmann.com in the product information.

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.

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The Customer Innovation 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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