

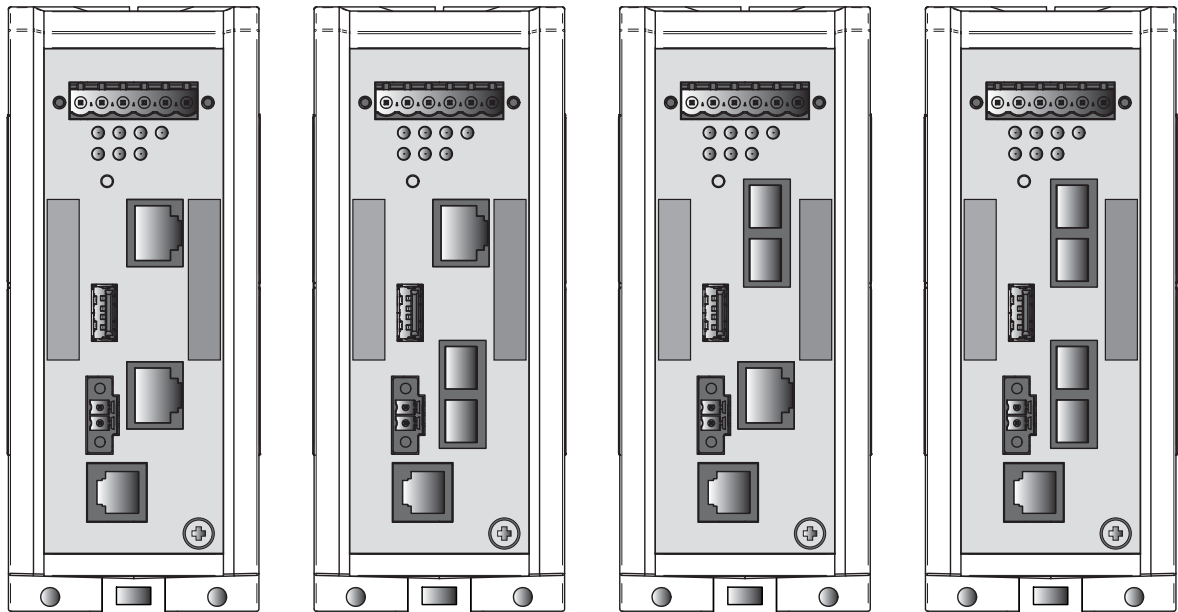


HIRSCHMANN

A **BELDEN** BRAND

User Manual

Installation Industrial Ethernet Firewall EAGLE One



040036001011013000

Installation EAGLE One
Release 01 10/2013

Technical support
<https://hirschmann-support.belden.eu.com>

The naming of copyrighted trademarks in this manual, even when not specially indicated, should not be taken to mean that these names may be considered as free in the sense of the trademark and tradename protection law and hence that they may be freely used by anyone.

© 2013 Hirschmann Automation and Control GmbH

Manuals and software are protected by copyright. All rights reserved. The copying, reproduction, translation, conversion into any electronic medium or machine scannable form is not permitted, either in whole or in part. An exception is the preparation of a backup copy of the software for your own use. For devices with embedded software, the end-user license agreement on the enclosed CD/DVD applies.

The performance features described here are binding only if they have been expressly agreed when the contract was made. This document was produced by Hirschmann Automation and Control GmbH according to the best of the company's knowledge. Hirschmann reserves the right to change the contents of this document without prior notice. Hirschmann can give no guarantee in respect of the correctness or accuracy of the information in this document.

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).

Printed in Germany
Hirschmann Automation and Control GmbH
Stuttgarter Str. 45-51
72654 Neckartenzlingen
Deutschland
Tel.: +49 1805 141538

Contents

| | |
|---|-----------|
| Safety instructions | 5 |
| About this manual | 11 |
| Key | 11 |
| 1 Description | 12 |
| 1.1 General description | 12 |
| 1.2 Device name and product code | 14 |
| 1.3 Combination options | 17 |
| 1.4 Device view | 18 |
| 1.5 Power supply | 19 |
| 1.6 Ethernet ports | 19 |
| 1.6.1 10/100 Mbit/s twisted pair port | 19 |
| 1.6.2 100 Mbit/s F/O port | 20 |
| 1.7 Display elements | 20 |
| 1.7.1 Device state | 20 |
| 1.7.2 Additional status information | 21 |
| 1.7.3 Port state | 21 |
| 1.8 Management interfaces | 21 |
| 1.8.1 V.24 interface (external management) | 21 |
| 1.8.2 ACA21-USB interface | 22 |
| 1.9 Input/output interfaces | 22 |
| 1.9.1 Signal contact | 22 |
| 1.9.2 Digital input | 23 |
| 2 Installation | 24 |
| 2.1 Overview | 24 |
| 2.2 Unpacking and checking the content of the package | 24 |
| 2.3 Installing and grounding the device | 24 |
| 2.3.1 Installing the device onto the DIN rail | 25 |
| 2.3.2 Mounting on a vertical flat surface | 25 |
| 2.3.3 Grounding the device | 26 |
| 2.4 Connecting the terminal blocks | 26 |
| 2.4.1 Connecting the power supply and signal lines | 26 |
| 2.4.2 Wiring the digital input (optional) | 28 |
| 2.5 Operating the device | 29 |
| 2.6 Connecting network cables | 29 |

| | | |
|----------|---|-----------|
| 3 | Configuration | 30 |
| 3.1 | Basic set-up | 30 |
| 3.2 | Firewall and VPN functions | 31 |
| 3.2.1 | Firewall functions | 31 |
| 3.2.2 | VPN functions | 31 |
| 3.3 | Operating modes | 31 |
| 3.3.1 | Delivery state | 31 |
| 3.3.2 | Transparent mode | 32 |
| 3.3.3 | Router mode | 32 |
| 3.3.4 | PPPoE mode | 32 |
| 3.4 | Start configuration | 32 |
| 4 | Monitoring the ambient air temperature | 34 |
| 5 | Maintenance and service | 35 |
| 6 | Disassembly | 36 |
| 7 | Technical data | 37 |
| A | Further Support | 49 |

Safety instructions

■ Certified usage

- Only use the device for application cases that are described in the Hirschmann product information, including this manual. Only operate the device according to the technical specifications.

■ Supply voltage

The supply voltage is electrically isolated from the housing.

- Ground the device before connecting the power supply. Disconnect the grounding last.
- Solely connect a supply voltage that corresponds to the type plate of your device.
- For **every** supply voltage to be connected, make sure the following requirements are met:
 - ▶ The power supply conforms to overvoltage category I or II.
 - ▶ The voltage supply has an easily accessible disconnecting device (e.g. a switch or a plug). This disconnecting device is clearly identified so that in the case of an emergency, it is clear which disconnecting device belongs to which line.
 - ▶ The lines to be connected are voltage-free.
 - ▶ Relevant for North America:
The power supply is Class 2 compliant.
 - ▶ The power supply inputs are designed for operation with safety extra-low voltage. Solely connect SELV circuits with voltage restrictions in line with IEC/EN 60950-1 to the supply voltage connections.
 - ▶ Supply with AC voltage:
A fuse is located in the outer conductor of the power supply. A fuse is also located in the neutral conductor, if this is not grounded. Regarding the properties of this fuse: [See “General technical data” on page 37.](#)
 - ▶ Supply with DC voltage:
A fuse suitable for DC voltage is located in the plus conductor of the power supply. A fuse is also located in the minus conductor, if this is not grounded. Regarding the properties of this fuse: [See “General technical data” on page 37.](#)
 - ▶ The wire diameter for the input supply line is at least 1 mm² (North America: AWG16).
 - ▶ The cross-section of the protective conductor cable is the same size as or bigger than the cross-section of the voltage supply cables.

- ▶ The connection cables used are permitted for the specified temperature range.
- ▶ Relevant for North America:
The supply voltage lines are made of copper wire, which is suitable for ambient temperatures of up to at least 167 °F (75 °C).

Only start connecting the supply voltage if **all** the above requirements are fulfilled.

- Verify that the electrical installation meets locally or nationally applicable safety regulations.
- Use undamaged parts.
- The device does not contain any service components. Internal fuses are only triggered if there is a fault in the device. If the device is not functioning correctly, or if it is damaged, switch off the voltage supply and return the device to the plant for inspection.

■ **Shielding ground**

The shield ground wire of the twisted pair lines is connected to the front panel as a conductor.

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

■ **Housing**

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

The device is grounded via the separate ground screw.

- Never insert pointed objects (narrow screwdrivers, wires, etc.) into the device or into the connection terminals for the supply voltage.
- Install the device in a fire protected enclosure according to EN 60950-1.
- Verify that the electrical installation meets locally or nationally applicable safety regulations.
- Keep the ventilation slits free to ensure good air circulation.
- 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 in the vertical position.
- At ambient temperatures > 140 °F (60 °C):
The surfaces of the device housing may become hot. Avoid touching the device while it is operating.

■ **Environment**

- Only operate the device at the specified ambient temperature (temperature of the surrounding air at a distance of up to 5 cm from the device) and at the specified relative humidity.
- When you are selecting the installation location, make sure you observe the climatic threshold values specified in the technical data.
- Use the device in an environment with a maximum pollution degree that complies with the specifications in the technical data.
- Solely connect components to the device which meet the IP degree of protection requirements for the application case.
- Solely connect components to the device which are suitable for the ambient air temperature of the application case.

■ **Qualification requirements for personnel**

Qualified personnel as understood in this manual and the warning signs, are persons who are familiar with the setup, assembly, startup, and operation of this product and are appropriately qualified for their job. This includes, for example, those persons who have been:

- ▶ trained or directed or authorized to switch on and off, to ground and to label power circuits and devices or systems in accordance with current safety engineering standards;
- ▶ trained or directed in the care and use of appropriate safety equipment in accordance with the current standards of safety engineering;
- ▶ trained in providing first aid.

■ **General safety instructions**

This device is operated by electricity. You must follow precisely the prescribed safety requirements for the voltage connections in this document.

See [“Supply voltage” on page 5.](#)

Non-observance of these safety instructions can cause material damage and/or injuries.

- ▶ Only appropriately qualified personnel should work on this device or in its vicinity. The personnel must be thoroughly familiar with all the warnings and maintenance procedures outlined in this operating manual.
- ▶ The proper and safe operation of this device depends on proper handling during transportation, proper storage and assembly, and conscientious operation and maintenance procedures.
- ▶ Never start operation with damaged components.
- ▶ Only use the devices in accordance with this manual. In particular, observe all warnings and safety-related information.
- ▶ Any work that may be required on the electrical installation may only be carried out by personnel trained for this purpose.

Note: LED or LASER components in compliance with IEC 60825-1 (2007):

CLASS 1 LASER PRODUCT
CLASS 1 LED PRODUCT

■ **National and international safety regulations**

- Make sure that the electrical installation meets local or nationally applicable safety regulations.

■ **Relevant for use in Ex Zone 2 according to ATEX 95 (European directive 94/9/EC):**

Solely the correspondingly labeled devices may be operated in Ex zone 2. When operating the device in Ex zone 2, the following applies:
THE USB PORT MAY NOT BE USED IF THE DEVICE IS OPERATED IN EXPLOSION HAZARDOUS AREAS.

■ **CE marking**

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

2004/108/EC (EMC)

Directive of the European Parliament and the council for standardizing the regulations of member states with regard to electromagnetic compatibility.

2011/65/EU (RoHS)

Directive of the European Parliament and of the Council on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

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
Deutschland
Tel.: +49 1805 141538

The device can be used in the industrial sector.

▶ Interference immunity: EN 61000-6-2

▶ Emitted interference: EN 55022

You will find more information on norms and standards here:

[“Technical data” on page 37](#)

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.

■ **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 high frequencies, and 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 living area can also cause interference, and in this case the user is obliged to cover the costs of removing the interference.

■ **Recycling note**

After usage, this device must be disposed of properly as electronic waste, in accordance with the current disposal regulations of your county, state, and country.

About this manual

The “Installation” user manual contains a device description, safety instructions, a description of the display, and the other information that you need to install the device.

The following manuals are available as PDF files on the CD/DVD supplied:

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

The Industrial HiVision Network Management Software provides you with additional options for smooth configuration and monitoring:

- ▶ ActiveX control for SCADA integration
- ▶ Auto-topology discovery
- ▶ Browser interface
- ▶ Client/server structure
- ▶ Event handling
- ▶ Event log
- ▶ Simultaneous configuration of multiple devices
- ▶ Graphical user interface with network layout
- ▶ SNMP/OPC gateway.

Key

The symbols used in this manual have the following meanings:

| | |
|---|------------|
| ▶ | Listing |
| □ | Work step |
| ■ | Subheading |

1 Description

1.1 General description

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 between 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 EAGLE One 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 and routed industrial Ethernet networks that conform to the IEEE 802.3 standard.

The following installation options are available:

- ▶ simply snapping them onto a DIN rail
- ▶ Mounting on a vertical flat surface

The devices work without a fan.

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

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

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

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 | EAGLE One | 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 INTERN | T1 | 1 × RJ45 socket for 10/100 Mbit/s twisted-pair port |
| | | M2 | 1 × DSC multimode socket for 100 Mbit/s F/O port |
| 16 ... 17 | Ethernet port 2 EXTERN | T1 | 1 × RJ45 socket for 10/100 Mbit/s twisted-pair port |
| | | M2 | 1 × DSC multimode socket for 100 Mbit/s F/O port |
| 18 | Temperature range | E | Extended with conformal coating –40 °F ... +158 °F (–40 °C ... +70 °C) |
| | | S | Standard +32 °F ... +140 °F (0 °C ... +60 °C) |
| | | T | Extended –40 °F ... +158 °F (–40 °C ... +70 °C) |
| 19 ... 20 | Operating voltage | DD | 2 voltage inputs for redundant voltage supply |
| | | | Rated voltage range DC 12 V ... 48 V |
| | | | Nominal voltage AC 24 V |
| 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 3 on page 16. | |
| 23 ... 26 | Software packages | 0000 | Basic Software-Packages |
| 27 ... 28 | Customization | HH | Hirschmann standard |
| 29 | Software configuration | E | Entry (Hirschmann standard configuration) |
| 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

| | Item | Product characteristic | Description |
|-----------|-----------|-----------------------------------|--|
| EAGLE One | 1 ... 8 | Device | 2 port Eagle router |
| - | 9 | - | |
| 02 | 10 ... 11 | Number: Fast ethernet ports | 2 × Fast ethernet ports |
| 00 | 12 ... 13 | Number: Gigabit ethernet ports | 0 × Gigabit ethernet ports |
| T1 | 14 ... 15 | Ethernet port 1 INTERN | 1 × RJ45 socket for 10/100 Mbit/s twisted-pair port |
| T1 | 16 ... 17 | Ethernet port 2 EXTERN | 1 × RJ45 socket for 10/100 Mbit/s twisted-pair port |
| E | 18 | Temperature range | Extended with conformal coating -40 °F ... +158 °F (-40 °C ... +70 °C) |
| DD | 19 ... 20 | Operating voltage | 2 voltage inputs for redundant voltage supply Rated voltage range DC 12 V ... 48 V Nominal voltage AC 24 V |
| Z9 | 21 ... 22 | Certificates and declarations | Standard applications ▶ CE ▶ EN 60950-1 ▶ EN 61131-2 ▶ FCC |
| 0000 | 23 ... 26 | Software packages | Basic Software-Packages |
| HH | 27 ... 28 | Customization | Hirschmann standard |
| E | 29 | Software configuration | Entry (Hirschmann standard configuration) |
| XX.X | 30 ... 34 | Software version | Current software version |
| XX | 35 ... 36 | Bug fix | current bugfix version |

Table 2: Sample product code (left column):

| Application case | Certificates and declarations | Characteristic value | | | | | | | | | | | | | | |
|-------------------------------------|-----------------------------------|----------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| | | T9 | TY | U9 | UT | UY | UX | 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 |
| | 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 |
| | 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 | GL | | | X | X | X | X | | | | X | | | | | |
| Railway applications (trackside) | EN 50121-4 | X | X | | X | | | | X | | | | | | | |

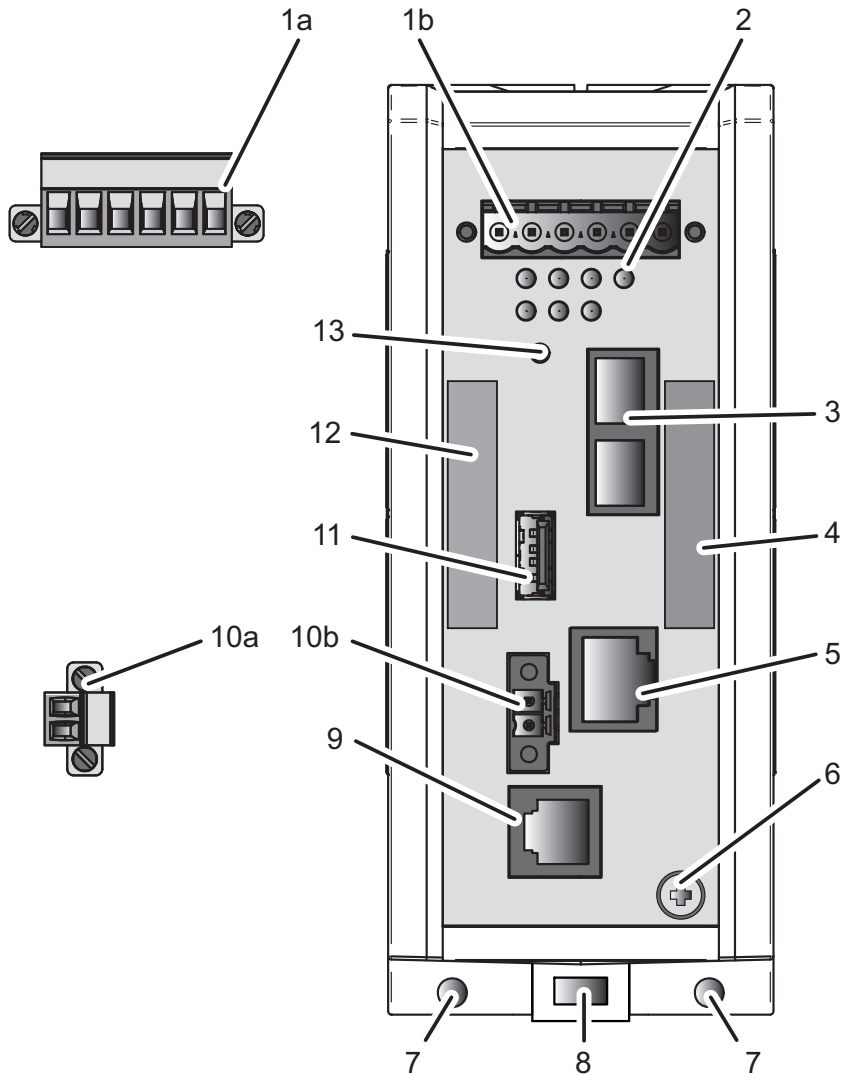
Table 3: Assignment: application cases, certificates and declarations, characteristic values

1.3 Combination options

| Item | 1 ... 8 | 9 | 10 ... 11 | 12 ... 13 | 14 ... 15 | 16 ... 17 | 18 | 19 ... 20 | 21 ... 22 | 23 ... 26 | 27 ... 28 | 29 | 30 ... 34 | 35 ... 36 |
|------------------------|-----------|---|-----------------------------|--------------------------------|-----------------|-----------------|-------------------|-------------------|--|-------------------|---------------|------------------------|------------------|-----------|
| Product characteristic | Device | | Number: Fast ethernet ports | Number: Gigabit ethernet ports | Ethernet port 1 | Ethernet port 2 | Temperature range | Operating voltage | Certificates and declarations | Software packages | Customization | Software configuration | Software version | Bug fix |
| Attribute values | EAGLE One | - | 02 | 00 | T1; M2 | T1; M2 | E; S; T | DD | T9; TY; U9; UY; UX; UT; V9; VY; VU; VT; W9; WX; X9; Y9; Z9 | 0000 | HH | E | 05.3; XX.X | 00; XX |

Table 4: Combination options of the EAGLE One device variants

1.4 Device view



| | |
|-----|---|
| 1a | 6 pin, screwable terminal block for redundant supply voltage and signal contact |
| 1b | Terminal block connection |
| 2 | LED display elements |
| 3 | Ethernet port 1 INTERN |
| | alternatively, depending on device variant |
| | RJ45 socket for 10/100 Mbit/s twisted-pair port |
| | DSC multimode socket for 100 Mbit/s F/O port |
| 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 port |
| | DSC multimode socket for 100 Mbit/s F/O port |
| 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 5: 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 5: Front view (using the example Eagle-One-0200M2T1.....)

1.5 Power supply

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

You will find further information under [“Supply voltage” on page 27](#).

1.6 Ethernet ports

1.6.1 10/100 Mbit/s twisted pair port

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

This port supports:

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

Delivery state: autonegotiation activated

The socket housing is electrically connected with the front panel.

The pin assignment corresponds to MDI-X.

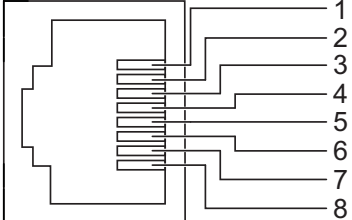
| | Pin | Function |
|---|---------|-----------------------|
|  | 1 | RD+ Receive path |
| | 2 | RD- Receive path |
| | 3 | TD+ Transmission path |
| | 6 | TD- Transmission path |
| | 4,5,7,8 | — |
| | | |
| | | |
| | | |

Table 6: Pin assignment of the 10/100 Mbit/s twisted pair port, RJ45 socket, MDI-X mode

1.6.2 100 Mbit/s F/O port

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

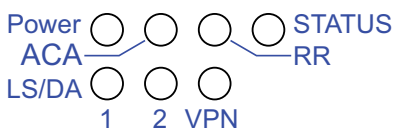
This port supports:

- Full or half duplex mode

Default setting: Full duplex

1.7 Display elements

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



1.7.1 Device state

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

| LED | Display | Color | Activity | Meaning |
|--------|-----------------------------|-----------|---|---|
| Power | Power supply | — | None | The supply voltage is too low. |
| | | Yellow | Lights up | The supply voltages 1 or 2 are on. |
| | | Green | Lights up | The supply voltages 1 and 2 are 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 | The device is in the Router Redundancy Backup mode. |
| ACA | Storage medium ACA21-USB | — | None | No ACA connected |
| | | Green | Lights up | The storage medium ACA is inserted. |
| | | | Flashes 1 time a period | The device writes to the storage medium. |
| | | | Flashing 2 times a period | The device reads from the storage medium. |
| | Yellow | Lights up | The storage medium ACA is out of order. | |

1.7.2 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. |

1.7.3 Port state

These LEDs display port-related information.

| LED | Display | Color | Activity | Meaning |
|--------|-------------|--|--------------------------|--|
| LS/DA | Link status | — | None | The device detects an invalid or missing connection. |
| | | Green | Lights up | The device detects a valid connection. |
| | | | Flashes 3 times a period | The port is disabled. |
| Yellow | Flashing | The device is sending and/or receiving data. | | |

1.8 Management interfaces

1.8.1 V.24 interface (external management)

The V.24 interface is a serial interface for the local connection of an external 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.

VT 100 terminal settings

| | |
|-----------|------------|
| Speed | 9,600 Baud |
| Data | 8 bit |
| Stopbit | 1 bit |
| Handshake | off |
| Parity | none |

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

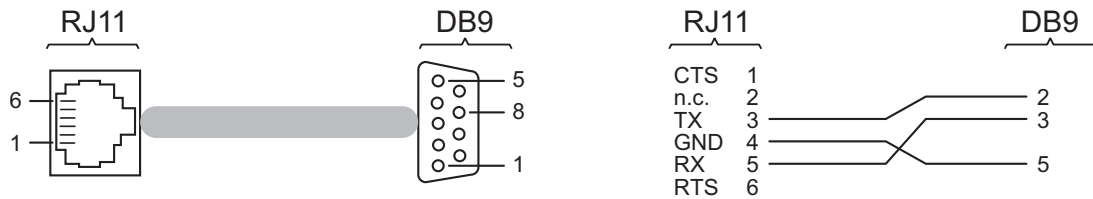


Figure 1: Pin assignment of the V.24 interface and the DB9 connector

Note: You will find the order number for the terminal cable, which is ordered separately, in the Technical Data section. [“Accessories” on page 44.](#)

1.8.2 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 | Operation |
|--------|-----|--------------|
| | 1 | VCC (VBus) |
| | 2 | - Data |
| | 3 | + Data |
| | 4 | Ground (GND) |

Table 7: Pin assignment of the USB interface

1.9 Input/output interfaces

1.9.1 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.

You will find further information under [“Signal contact \(optional\)” on page 28.](#)

1.9.2 Digital input

You will find further information under [“Wiring the digital input \(optional\)”](#) on [page 28](#).

2 Installation

Before installing and starting up the device, note the safety instructions. See [“Safety instructions” on page 5](#).

2.1 Overview

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

On delivery, the device is ready for operation.

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

- ▶ [Unpacking and checking the content of the package](#)
- ▶ [Installing and grounding the device](#)
- ▶ [Connecting the power supply and signal lines](#)
- ▶ [Wiring the digital input \(optional\)](#)
- ▶ [Operating the device](#)
- ▶ [Connecting network cables](#)

2.2 Unpacking and checking the content of the package

- Check whether the package includes all items named in section [“Scope of delivery” on page 44](#).
- Check the individual parts for transport damage.

2.3 Installing and grounding the device



WARNING

FIRE HAZARD

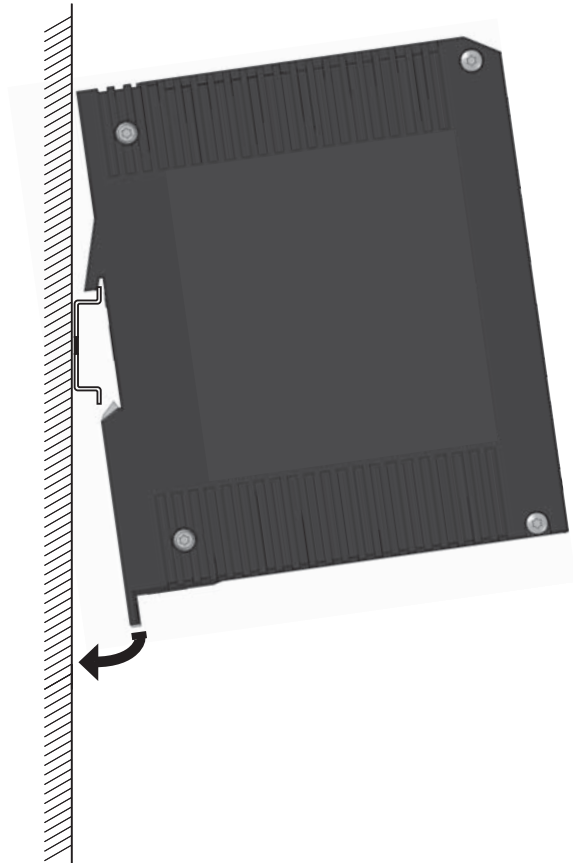
Install the device in a fire protected enclosure according to EN 60950-1.

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

2.3.1 Installing the device onto the DIN rail

To mount the device onto a horizontally mounted 35 mm DIN rail according to DIN EN 60715, proceed as follows:

- Slide the upper snap-in guide of the device into the DIN rail.
- Press the media module downwards onto the clip-in bar.
- Snap in the device.



Note: 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.

Note: The shield ground wire of the twisted pair lines is connected to the front panel as a conductor.

2.3.2 Mounting on a vertical flat surface

You have the option of attaching the device to a vertical flat surface using a wall mounting plate, which is available as an accessory.

See [“Accessories” on page 44](#).

The wall mounting plate comes without mounting hardware.

- Obtain mounting hardware which is suitable for your requirements.

Enclosed with every wall mounting plate is a mounting instruction that takes you through the mounting procedure.

- Follow the mounting instruction enclosed with the accessory.

2.3.3 Grounding the device

The device has a functional ground connection.

The device is grounded via the separate ground screw.

Note: Connect the grounding before you set up the other connections.

- Connect the grounding to the ground screw of the device.

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 the supply voltage.

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

2.4.1 Connecting the power supply and signal lines

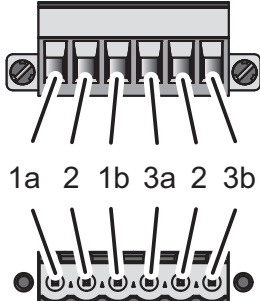
| | | |
|---|----|-----------------------------------|
|  | 1 | Power supply connection 1 |
| | 1a | 24V |
| | 1b | 0V |
| | 2 | Connection for the signal contact |
| | 3 | Power supply connection 2 |
| | 3a | 0V |
| | 3b | 24V |

Table 8: Pin assignment: 6 pin, screwable terminal block (on the top), connection to the device (at the bottom)

■ Supply voltage



WARNING

ELECTRIC SHOCK

Only start connecting the supply voltage if **all** the above requirements are fulfilled.

See “Supply voltage” on page 5.

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

Redundant power supplies can be used. Both inputs are uncoupled. There is no distributed load. With redundant supply, the power supply unit supplies the device only with the higher output voltage. The supply voltage is electrically isolated from the housing. With non-redundant supply of the mains voltage, the device reports a power failure. 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 | Size of the supply voltage | Pin assignment on the device |
|--|--|--|
| DC voltage | Rated voltage range DC 12 V ... 48 V | 24V Plus terminal of the supply voltage |
| | Voltage range DC incl. maximum tolerances 9.6 V ... 60 V | 0V Minus terminal of the supply voltage |
| AC voltage | Nominal voltage AC 24 V | 24V Outer conductor |
| | Voltage range AC incl. maximum tolerances 18 V ... 30 V | 0V Neutral conductor |

Table 9: type and specification of the supply voltage, pin assignment on the device

To connect supply voltage, perform the following steps:

- Remove the power connector from the device.
- Connect the conductors according to the pin assignment on the device with the clamps. Tighten the screws on the terminals.

■ Signal contact (optional)

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

- ▶ The lines to be connected 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 37.](#)
- Connect the conductors according to the pin assignment on the device with the clamps. Tighten the screws on the terminals.

2.4.2 Wiring the digital input (optional)

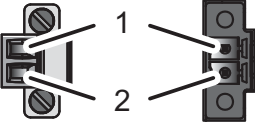
| | Pin | Signal, terminal | Function |
|---|-----|------------------|---------------------|
|  | 1 | DI (+) | Signal input |
| | 2 | DI (-) | Reference potential |

Table 10: Pin assignment: 2 pin, screwable terminal block (on the left), connection to the device (to the right)

For the digital contact to be connected, verify that the following requirements are met:

- ▶ The lines to be connected are voltage-free.
- ▶ The connected voltage is limited by a current limitation device or a fuse.
- Observe the electrical threshold values for the digital input.
[See “Digital input” on page 39.](#)
- Connect the conductors according to the pin assignment on the device with the clamps. Tighten the screws on the terminals.

2.5 Operating the device

WARNING

ELECTRIC SHOCK

Solely connect 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.

- Mount the terminal block for the supply voltage and the signal contact using screws.
- Switch on the supply voltage.

2.6 Connecting network cables

Note: In general, you should adhere to the following recommendations for data cable connections in environments with high electrical interference levels:

- Keep the length of the data cables as short as possible. Use optical cables for the data transmission between the buildings.
- When using copper cables, make sure there is a sufficient gap between the power supply cables and the data cables if they are laid over a long distance. Ideally, install the cables in separate cable channels.
- Use shielded cables.

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

You will find further information under [“10/100 Mbit/s twisted pair port”](#) on page 19.

You will find further information under [“100 Mbit/s F/O port”](#) on page 20.

- Connect the device via the INTERN port to the internal network or the local computer that you want to help protect.
- Connect the device via the EXTERNAL port to the external network, e.g. the Internet. This network is used to set up the connections to the external device or external network.

3 Configuration



WARNING

UNINTENTIONAL OPERATION IN DEVICE

Two 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.

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

3.1 Basic set-up

Enter the IP parameters when you install the device for the first time. The device provides multiple options for configuring IP addresses:

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

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

■ 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
- ▶ Management password:
user, password: public (read only)
admin, password: private (read and write)
- ▶ V.24 data rate: 9,600 Baud

3.2 Firewall and VPN functions

3.2.1 Firewall functions

The EAGLE One supports the following firewall functions:

- ▶ 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 supports the following Virtual Private Network (VPN) functions:

- ▶ Hirschmann 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. These influences can include unauthorized access attempts as well as interfering network events such as overloads.

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 works as a 2-port bridge, whereby only IP and ARP frames corresponding to the firewall rules are transmitted.

In the state on delivery, you can access 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 will find a detailed description of the IP configuration in the “Configuration” user manual of the EAGLE One.

Note: In the Router and Transparent modes, an additional network access option to the internal network is provided over the V.24 interface of the EAGLE One via PPP. In this case, communication is possible with the EAGLE One itself or 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 works like in the router mode, with the difference that the PPPoE protocol is used at the external port. This enables Internet connections via a DSL modem, for example.

3.4 Start configuration

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

- Install the required Java plugin on your computer.
You will find information about the plug-in and its installation in the Configuration user manual.
- Start an https-capable Web browser on the computer connected to the internal port in order to configure the EAGLE One.
- Enter the following address in the Web browser:
`https://192.168.1.1/`

Result: The HTTPS connection to the EAGLE One is set up. A security warning is displayed.

- Confirm the security warning with “Yes”.
- To login, enter:
 - Login: admin
 - Password: private
(case-sensitive!)

The Administrator website of the EAGLE One is displayed.

- Configure the device in accordance with the Configuration user manual.

Alternatively, you have the option to perform the IP configuration for the Transparent mode using the HiDiscovery protocol. You will find the HiDiscovery software in the CD/DVD included in the delivery.

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

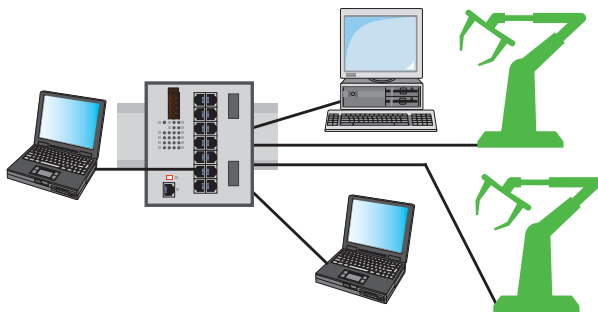


Figure 2: Configuration before the installation of the EAGLE One

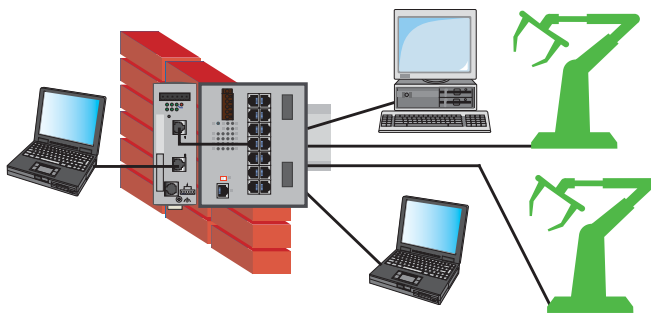


Figure 3: Configuration after the installation of the EAGLE One

4 Monitoring the ambient air temperature

Only operate the device up to the specified maximum ambient air temperature.

See [“General technical data” on page 37](#).

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

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

5 Maintenance and service

- ▶ When designing this device, Hirschmann largely avoided using 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 (see on page 37 “Technical data”).
- ▶ 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 to improve and develop our software. You should regularly check whether there is a new version of the software that provides you with additional benefits. You will find software information and downloads on the product pages of the Hirschmann website.
- ▶ 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 in the Internet under

<http://www.beldensolutions.com/en/Service/Repairs/index.phtml> .

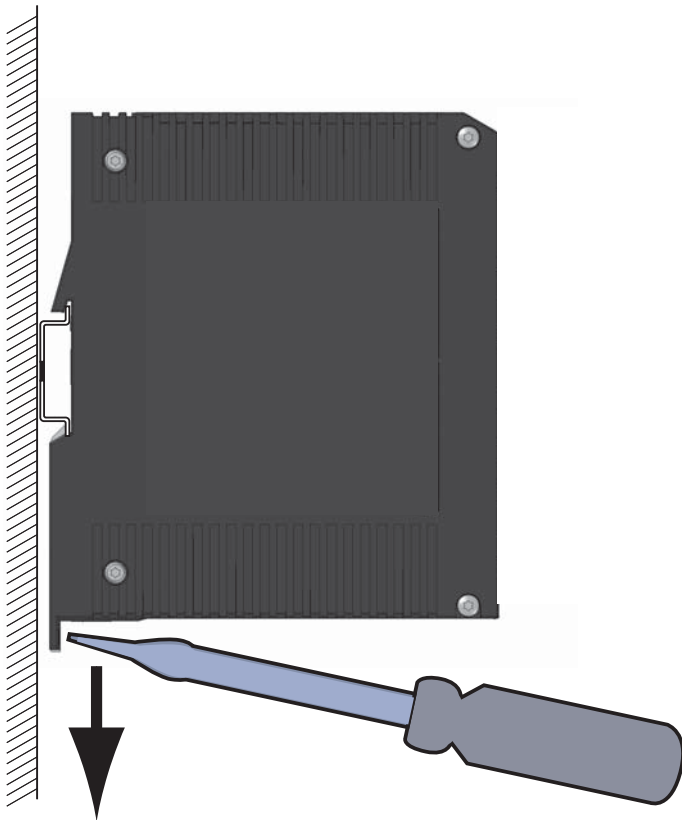
6 Disassembly

Note: For safety reasons, disconnect the grounding from all connections last.

- Disconnect the data lines.
- Switch off the supply voltage.
- Disconnect the terminal blocks.
- Disconnect the grounding.

To remove the device from the DIN rail, you proceed as follows:

- Insert a screwdriver horizontally below the housing into the locking gate.
- Pull the locking gate down without tilting the screwdriver.
- Fold the device up.



7 Technical data

■ General technical data

| | | |
|--------------------------------------|---|---|
| Dimensions W × H × D | See "Dimension drawings" on page 39. | |
| Weight | 660 g | |
| Power supply | <ul style="list-style-type: none"> ▶ 2 voltage inputs for redundant voltage supply ▶ Safety extra-low voltage (SELV), redundant inputs disconnected. ▶ Relevant for North America: Class 2 | |
| | Nominal voltage AC | 24 V |
| | Voltage range AC incl. maximum tolerances | 18 V ... 30 V |
| | Rated voltage range DC | 12 V ... 48 V |
| | Voltage range DC incl. maximum tolerances | 9.6 V ... 60 V |
| | Connection type | 6 pin, screwable terminal block for redundant supply voltage 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 at input | Non-replaceable 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 temperature | Devices with operating temperature characteristic value S (standard): +32 °F ... +140 °F (0 °C ... +60 °C) |
| | | Devices with operating temperature characteristic value E and T (extended): -40 °F ... +158 °F (-40 °C ... +70 °C) |
| | Maximum inner temperature of device (guideline) | Devices with operating temperature characteristic value S (standard): 176 °F (80 °C) |
| | | Devices with operating temperature characteristic value E and T (extended): 194 °F (90 °C) |
| | Humidity | 10% ... 95% (non-condensing) |
| | Air pressure | minimum 795 hPa (+2000 m) maximum 1060 hPa (≈ -1312 ft (-400 m)) |

| | | |
|------------------------------------|----------------------|--|
| Climatic conditions during storage | Ambient temperature | -40 °F ... +185 °F (-40 °C ... +85 °C) |
| | Humidity | 10% ... 95% (non-condensing) |
| | Air pressure | minimum 700 hPa (≈ +9842 ft (+3000 m)) maximum 1060 hPa (≈ -1312 ft (-400 m)) |
| Signal contact | Switching current | max. 1 A, SELV |
| | Switching voltage | max. 60 V DC or max. 30 V AC, SELV Relevant for North America: NEC Class 2 |
| Pollution degree | | 2 |
| Protection classes | Laser protection | Class 1 in compliance with IEC 60825-1 |
| | Degree of protection | IP 20 |

- a. As an alternative to the back-up fuse is possible:
Voltage supply according to Class 2 or EN 60950-1 Limited Power Source

■ 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 [“Wiring the digital input \(optional\)”](#) on page 28.

■ Dimension drawings

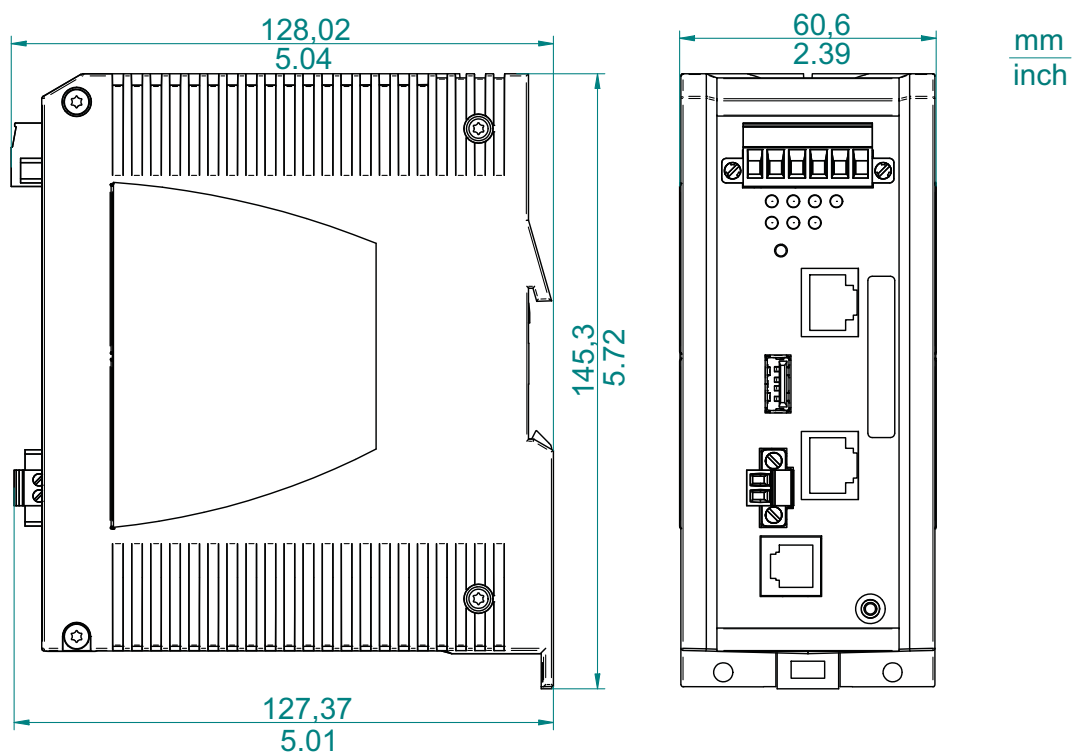


Figure 4: Dimensions

■ EMC and immunity

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

[See table 3 on page 16.](#)

| Stability | | Standard applications | Navy applications | Railway applications (trackside) | Substation applications |
|----------------------------------|-----------|--|--|--|--|
| IEC 60068-2-6, test Fc | Vibration | — | 2 Hz ... 13.2 Hz with 0.04 in. (1 mm) amplitude | — | — |
| | | — | — | — | 2 Hz ... 9 Hz with 0.04 in. (3 mm) amplitude |
| | | 5 Hz ... 8.4 Hz with 0.14 in. (3.5 mm) amplitude | 5 Hz ... 8.4 Hz with 0.14 in. (3.5 mm) amplitude | 5 Hz ... 8.4 Hz with 0.14 in. (3.5 mm) amplitude | 5 Hz ... 8.4 Hz with 0.14 in. (3.5 mm) amplitude |
| | | 8,4 Hz ... 150 Hz with 0.04 oz (1 g) | 8,4 Hz ... 150 Hz with 0.04 oz (1 g) | 8,4 Hz ... 150 Hz with 0.04 oz (1 g) | 9 Hz ... 200 Hz with 0.04 oz (1 g) |
| | | — | — | — | 200 Hz ... 500 Hz with 0.05 oz (1.5 g) |
| IEC 60068-2-27, Test Ea | Shock | 0.53 oz (15 g) at 11 ms | 0.53 oz (15 g) at 11 ms | 0.53 oz (15 g) at 11 ms | 0.53 oz (15 g) at 11 ms |
| EMC interference emission | | Standard applications | Navy applications | Railway applications (trackside) | Substation applications |
| Radiated emission | | | | | |
| EN 55022 | | Class A | Class A | Class A | Class A |
| GL Guidelines | | — | EMC 1 | — | — |

| EMC interference emission | | Standard applications | Navy applications | Railway applications (trackside) | Substation applications |
|----------------------------------|-------------------------------|------------------------------|--------------------------|---|--------------------------------|
| 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 | AC and DC supply connections | Class A | Class A | Class A | Class A |
| 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 55022 | 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 |

| EMC interference immunity | | Standard applications | Navy applications | Railway applications (trackside) | Substation applications |
|-----------------------------------|--------------------|------------------------------|--------------------------|---|--------------------------------|
| 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 |
| 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 fields | | | | | |
| EN 61000-4-9 | | — | — | 300 A/m | 300 A/m |

■ Network range

| Ports | Wave length | Fiber | System attenuation | Example for F/O line 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 11: F/O port 100BASE-FX

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

MM = Multimode

| TP port |
|-------------------------------------|
| Length of a twisted pair segment |
| max. 100 m/328 ft (for cat5e cable) |

Table 12: TP port 10BASE-T / 100BASE-TX / 1000BASE-T

■ Power consumption/power output

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

■ Scope of delivery

| Number | Article |
|--------|---|
| 1 × | 2 pin, screwable terminal block for digital input |
| 1 × | 6 pin, screwable terminal block for redundant supply voltage and signal contact |
| 1 × | CD/DVD with manual |
| 1 × | Device |
| 1 × | Installation user manual |

■ Accessories

Note: Please note that products recommended as accessories may have characteristics that do not fully correspond to those of the device. This may limit their possible usage in the overall system.

| Other accessories | Order number |
|---|--------------|
| AutoConfiguration Adapter ACA 21-USB | 943 271-002 |
| Terminal cable | 943 301-001 |
| 6-pin, screwable terminal block (50 pcs.) | 943 845-013 |

| Other accessories | Order number |
|--|---------------------|
| 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 |
| OPC server software HiOPC | 943 055-001 |

■ Underlying norms and standards

| Name | |
|--------------------|---|
| CSA C22.2 No. 213 | Canadian National Standard(s) for Nonincendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations |
| EN 50121-4 | Railway applications – EMC – Emission and immunity of the signalling and telecommunications apparatus (Rail Trackside) |
| EN 55022 | Information technology equipment – Radio disturbance characteristics – Limits and methods of measurement |
| EN 60079-0 | Explosive atmospheres – Part 0: Equipment – General requirements |
| EN 60079-11 | Explosive atmospheres – Part 11: Equipment protection by intrinsic safety „i“ |
| EN 60079-15 | Explosive atmospheres – Part 15: Equipment protection by type of protection „n“ |
| EN 60950-1 | Information technology equipment – Safety – Part 1: General requirements |
| EN 61000-6-2 | Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity for industrial environments |
| EN 61000-6-4 | Electromagnetic compatibility (EMC) – Part 6-4: Generic standards – Emission standard for industrial environments |
| EN 61131-2 | Programmable controllers – Part 2: Equipment requirements and tests |
| FCC 47 CFR Part 15 | Code of Federal Regulations |
| Germanischer Lloyd | Rules for Classification and Construction VI-7-2 – GL |
| IEC 60825-1 | Safety of Laser Products |
| IEC/EN 61850-3 | Communication networks and systems in substations – Part 3: General requirements |
| IEEE 1613 | IEEE Standard Environmental and Testing Requirements for Communication Networking Devices in Electric Power Substations |
| ISA 12.12.01 | United States Standard for Safety for Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations |
| UL 508 | Safety for Industrial Control Equipment |

Table 13: List of norms and standards

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

The device has a certification based on a specific standard or de facto standard solely if the certification indicator appears on the housing.

If your device has a shipping certification according to Germanischer Lloyd, the certification mark can be found printed on the device label. You will find out whether your device has other shipping certifications on the Hirschmann website under 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 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

in the EMEA region at

- ▶ Tel.: +49 (0)1805 14-1538
- ▶ E-mail: hac.support@belden.com

in the America region at

- ▶ Tel.: +1 (717) 217-2270
- ▶ E-mail: inet-support.us@belden.com

in the Asia-Pacific region at

- ▶ Tel.: +65 6854 9860
- ▶ E-mail: inet-ap@belden.com

■ Hirschmann Competence Center

The Hirschmann Competence Center is ahead of its competitors:

- ▶ Consulting incorporates comprehensive technical advice, from system evaluation through network planning to project planning.
- ▶ Training offers you an introduction to the basics, product briefing and user training with certification.

The current technology and product training courses can be found at <http://www.hicomcenter.com>

- ▶ Support ranges from the first installation through the standby service to maintenance concepts.

With the Hirschmann Competence Center, you have decided against making any compromises. Our client-customized package leaves you free to choose the service components you want to use.

Internet:

<http://www.hicomcenter.com>



HIRSCHMANN

A **BELDEN** BRAND