

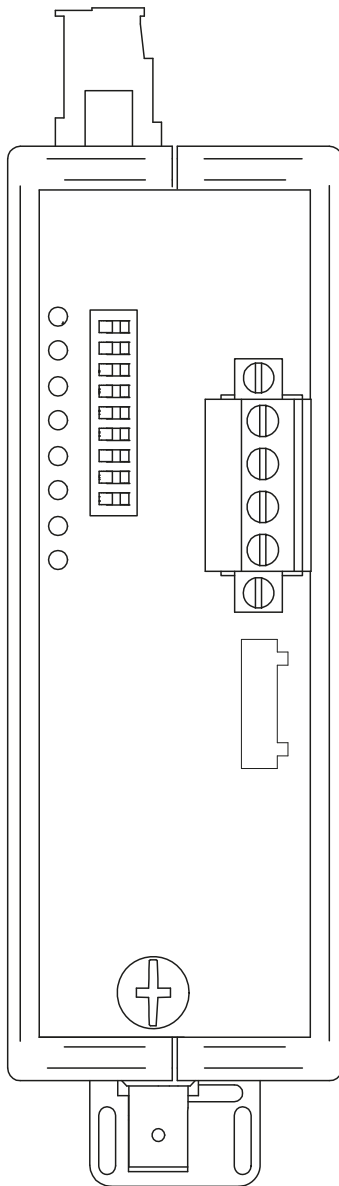


HIRSCHMANN

A **BELDEN** BRAND

User Manual

Installation Fiberoptic Repeater OZD Genius...



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Safety instructions



WARNING

UNCONTROLLED MACHINE ACTIONS

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

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

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

■ General safety instructions

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

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

■ 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 33.](#)
- ☐ Connect to the product only components suitable for the requirements of the specific application case.

■ **Device casing**

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

■ **National and international safety regulations**

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

■ **Grounding the device**

Functional grounding the device is by means of a separate connection on the device.

- ☐ Ground the device before connecting any other cables.
- ☐ Disconnect the grounding only after disconnecting all other cables.
- ☐ Ground the device via the ground screw.

■ **Requirements for connecting electrical wires**

- ☐ Before connecting the electrical wires, **always** verify that the requirements listed are complied with.

All of the following requirements are complied with:

- ▶ The electrical wires are voltage-free.
- ▶ The cables used are permitted for the temperature range of the application case.

Table 1: General requirements for connecting electrical wires

All of the following requirements are complied with:

- ▶ The voltage connected complies with the requirements for a safety extra-low voltage (SELV) as per IEC/EN 60950-1.
- ▶ 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 33.](#)

Table 2: Requirements for connecting the signal contact

Requirements

All of the following requirements are complied with:

- ▶ The supply voltage corresponds to the voltage specified on the type plate of the device.
- ▶ The power supply conforms to overvoltage category I or II.
- ▶ The power supply has an easily accessible disconnecting device (e.g., a switch or a plug). This disconnecting device is clearly identified. So in the case of an emergency, it is clear which disconnecting device belongs to which power supply cable.
- ▶ The cross-section of the ground conductor is the same size as or bigger than the cross-section of the power supply cables.
- ▶ Relevant for North America:
The power supply cables are suitable for ambient air temperatures of at least 167 °F (75 °C). The power supply cable wires are made of copper.

The wire diameter of the power supply cable is at least 0.75 mm² (North America: AWG18) on the supply voltage input.

The following requirements are **alternatively** complied with:

Alternative 1	The power supply complies with the requirements for a limited power source (LPS) as per EN 60950-1.
Alternative 2	Relevant for North America: The power supply complies with the requirements according to NEC Class 2.
Alternative 3	All of the following requirements are complied with: <ul style="list-style-type: none">▶ The power supply complies with the requirements for a safety extra-low voltage (SELV) as per IEC/EN 60950-1.▶ A fuse suitable for DC voltage is located in the plus conductor of the power supply. The minus conductor is on ground potential. Otherwise, a fuse is also located in the minus conductor. Regarding the properties of this fuse: See 33 "General technical data".

Table 3: Requirements for connecting the supply voltage

■ Supply voltage

Only switch on the device when the housing is closed.

■ **CE marking**

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

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.

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:

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Germany

The product can be used in the industrial sector.

- ▶ Interference immunity: EN 61000-6-2
- ▶ Emitted interference: EN 55032
- ▶ Reliability: EN 60950-1

You find more information on technical standards here:

[“Technical data” on page 33](#)

Warning! This is a class A device. This device can cause interference in living areas, and in this case the operator may be required to take appropriate measures.

Note: The assembly guidelines provided in these instructions must be strictly adhered to in order to observe the EMC threshold values.

■ **LED or laser components**

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

CLASS 1 LASER PRODUCT

CLASS 1 LED PRODUCT

■ **FCC note:**

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference; (2) this device must accept any interference received, including interference that may cause undesired operation.

Appropriate testing has established that this device fulfills the requirements of a class A digital device in line with part 15 of the FCC regulations.

These requirements are designed to provide sufficient protection against interference when the device is being used in a business environment.

The device creates and uses high frequencies and can also radiate these frequencies. If it is not installed and used in accordance with this operating manual, it can cause radio transmission interference. The use of this device in a residential area can also cause interference, and in this case the user is obliged to cover the costs of removing the interference.

■ **Recycling note**

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

About this manual

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

Key

The symbols used in this manual have the following meanings:

▶	Listing
□	Work step
■	Subheading

1 Description

1.1 General description

The Fiberoptic Repeater OZD Genius... is designed for use in optical Genius bus field bus networks. It allows conversions of electrical Genius bus interfaces into optical Genius bus interfaces and vice versa.

The repeaters can be integrated in existing Genius bus field bus networks. OZD Genius... repeaters can also be used to configure a complete Genius bus field bus network with the line or ring topology.

Apart from setting the data rate, no other adjustments have to be made during set-up.

■ **Device casing**

The device is supplied in a metal housing. You have the option of mounting the device onto the DIN rail or to the mounting plate.

■ **Glass fiber technology**

The use of glass fiber transmission technology enables a very large transmission range and ensures optimal protection from EMC effects on the transmission path and – due to the potential separation – on the Repeater itself.

■ **Data rate**

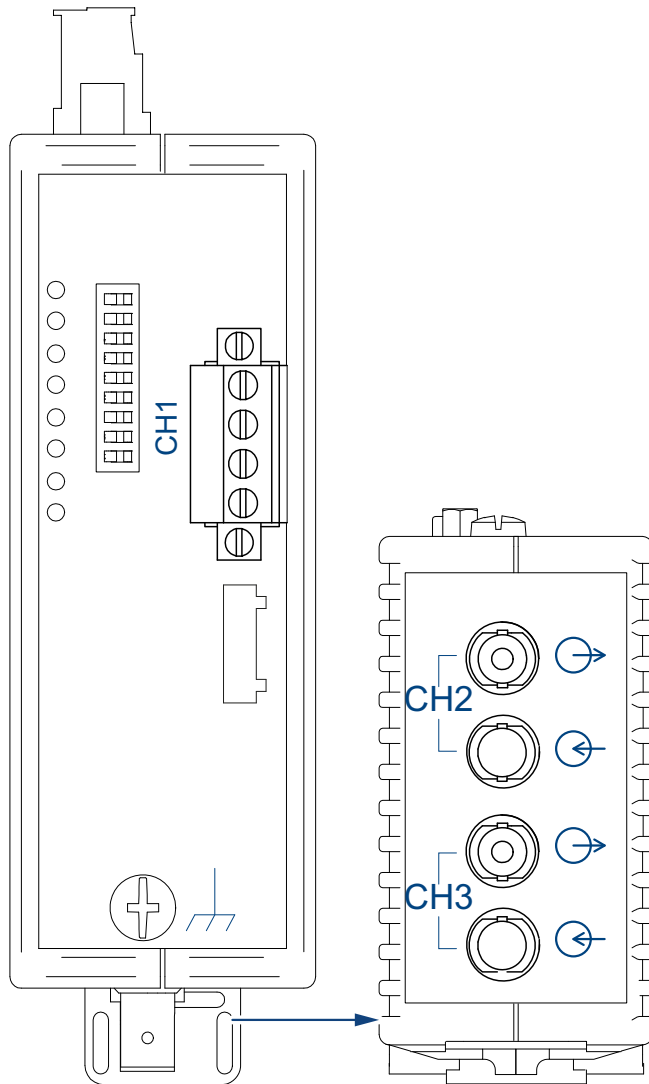
The fiber-optic repeater OZD Genius G12... supports the data rates 153.6 kBaud (standard and extended), 76.8 kBaud and 38.4 kBaud.

■ **Redundancy**

Redundant optical signal transmission ensures a very high level of transmission reliability. The redundant operating power supply can further improve the operating reliability.

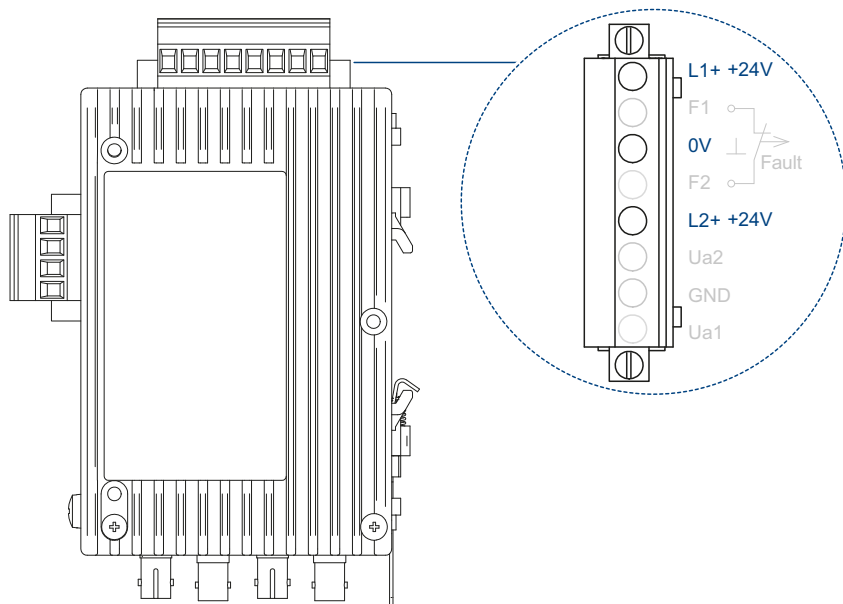
■ Port

The repeater has three mutually independent ports (channels), each of which consists of a transmitter and receiver. The electrical port is a 4-pin connector, the optical ports are BFOC/2.5 (ST[®]) sockets.



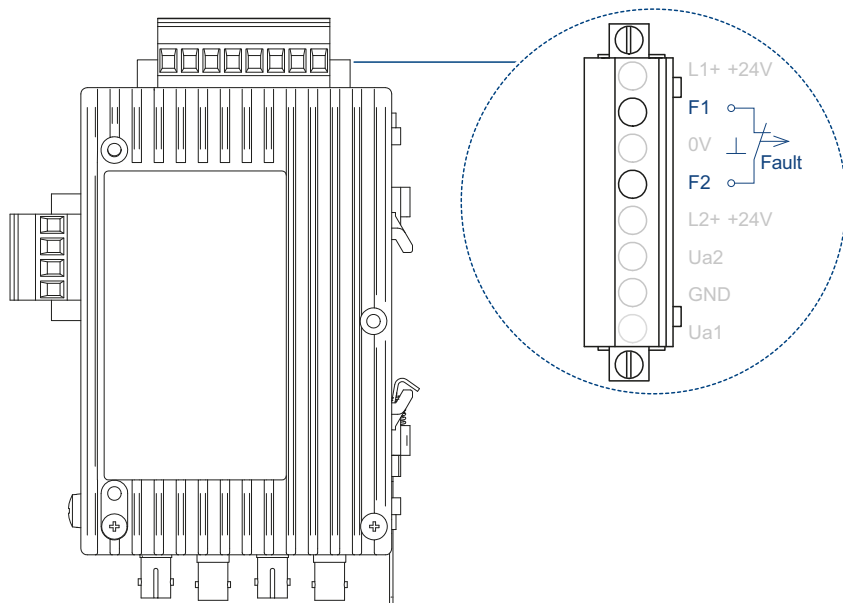
■ Power supply

The power supply is 24 V direct current. To improve the operating safety, a redundant operating power supply consisting of two separate sources can be used. For this purpose, you must connect the two supply voltages to two different terminals of the 8-pin screw-type terminal block. There is no load distribution between the sources. There is no load distribution between the sources. With redundant supply, the power supply unit with the higher output voltage must supply the repeater alone.



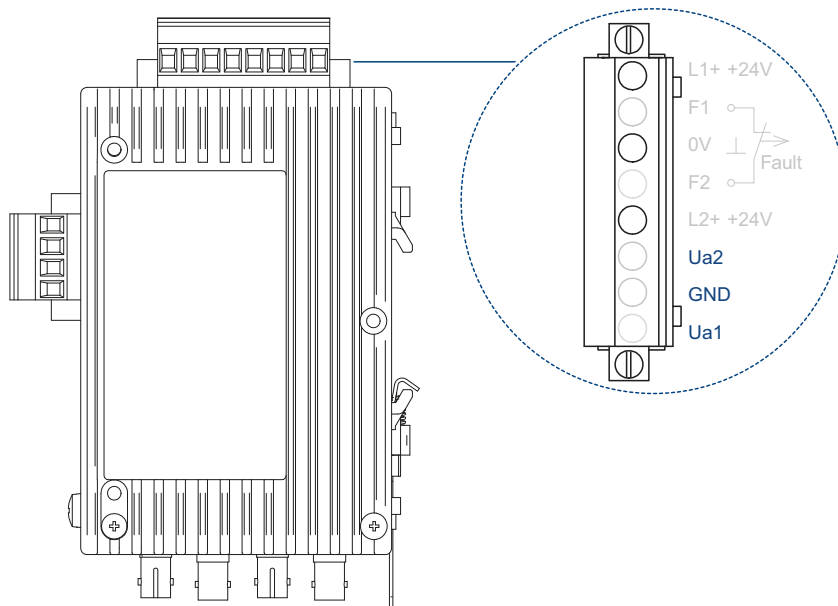
■ Signal contact

A signal contact (relay with unconnected contacts) is used to signal various disruptions in the repeaters. The signal contact is also connected to the 8-pin screw type terminal block.



■ Measuring output

One measuring output is available for each optical port. The measuring output is connected to the 8-pin screw type terminal block.



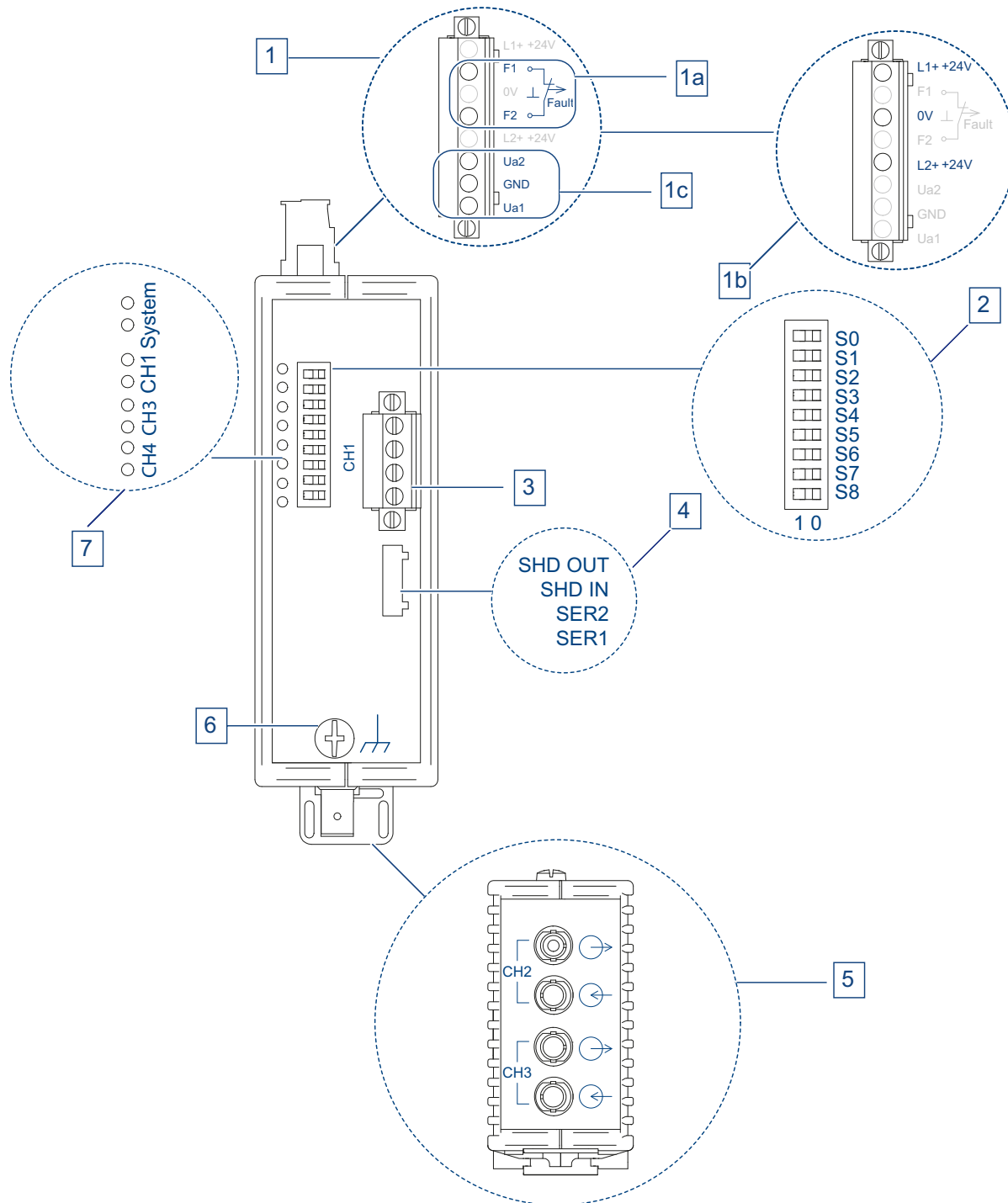
■ Signal regeneration

The OZD Genius... regenerates the signal form and amplitude of the received data. This function allows unlimited cascading of optical links.

■ Network range

The maximum permissible network range for line and ring topologies depends on both the number of OZD Genius... devices used and the data rate.

1.2 Device view



Front view using example of device variants **OZD Genius...** / **OZD Genius G12-1300**

1 8-pin terminal block for power supply, signal contact, measuring output

1a Pin assignment of the signal contact

1b Pin assignment of the power supply

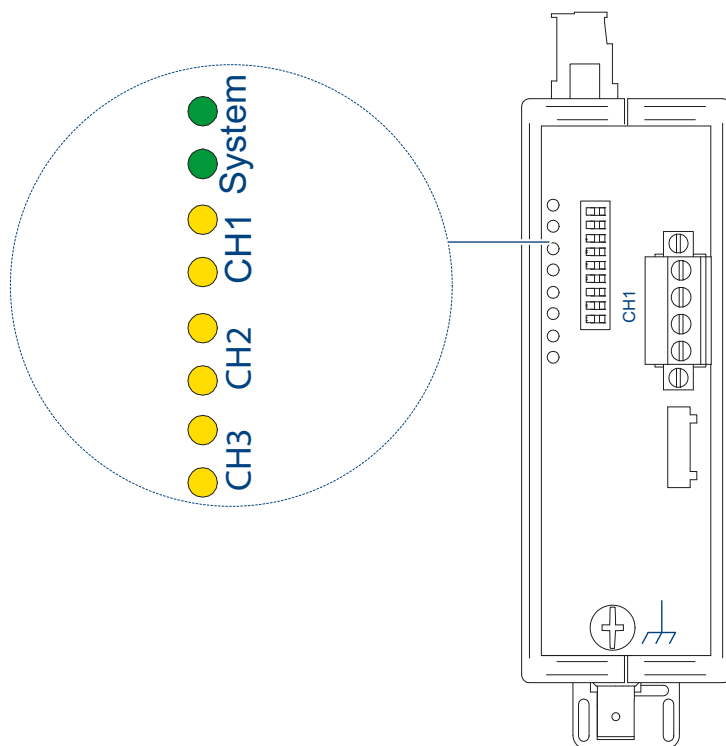
1c Pin assignment of the measuring output

Ua1 for the optical port CH2

Ua2 for the optical port CH3

2	8-pin DIP switch
	Meaning of the DIP switches:
	– S0 and S1 with function (Setting the data rate)
	– S0 and S1 with function (Setting the optical transmit power)
	– S2, S3, S4, S5, S8 without function
3	CH1 - electrical port
4	The information field for the electrical port 1 (CH1)
	SHD OUT - Shield line, output (connected to casing)
	SHD IN - Shield line, input (connected to casing via a capacitor)
	SER2 = Data line S1
	SER1 = Data line S2
5	CH2, CH3 - optical ports
6	Grounding screw
7	LED display element for system status and port status

1.3 Display elements



Display	Color	Meaning
System	None	Supply voltage is too low
	Green	Data reception at all ports
	Red	No data reception for 500 ms at minimum one port
Ports	None	No data reception for 500 ms
	Green	Data reception; no error detected
	orange/yellow	Data reception, error detected: <ul style="list-style-type: none"> – echo error (fiber in sending direction interrupted) – malformed data packets (Jabber or Fragment)

Display	Color	Meaning
Signal contact	Open	<ul style="list-style-type: none"> – Supply voltage is too low – No data reception for 500 ms at minimum one port
	Closed	Data reception at all ports

2 Network Topologies

2.1 Line topology without redundancy

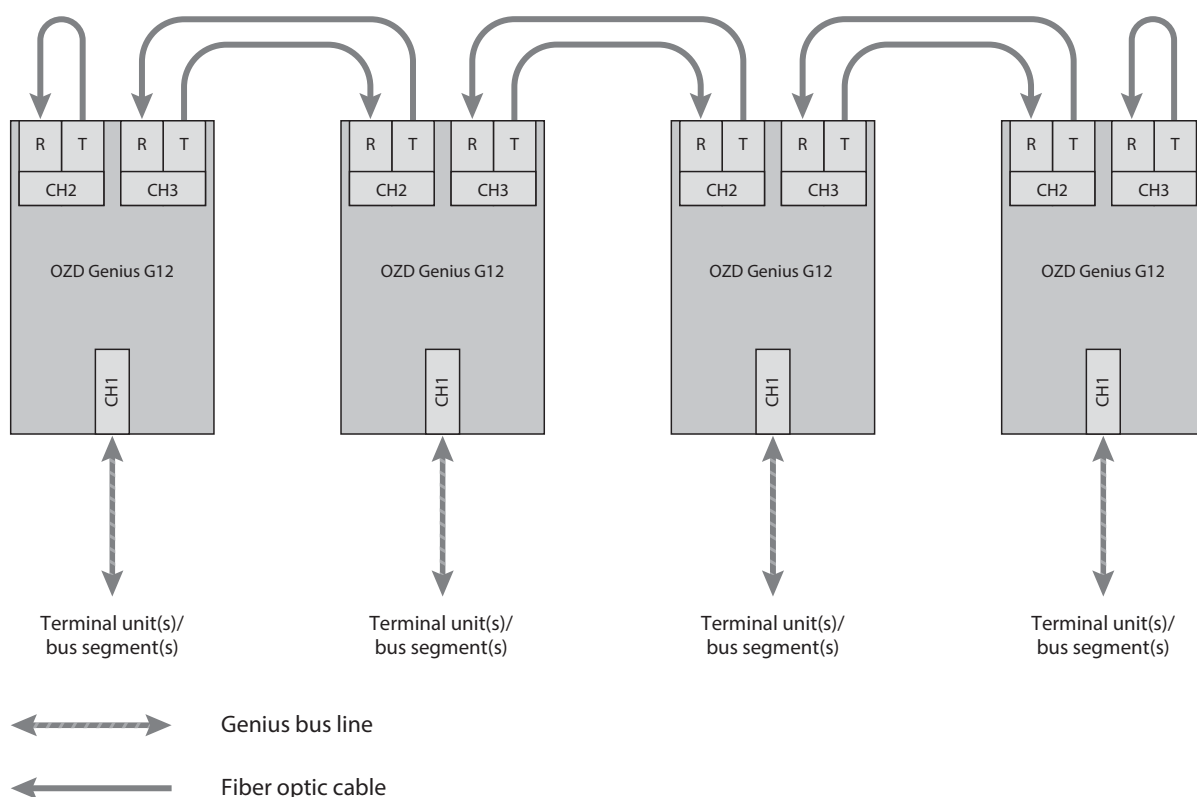


Figure 1: Line topology without redundancy

This network topology is used in the case of an optical link between end devices or bus segments.

It is advisable (but not essential) to terminate the first and last repeater in the line with an "optical short-circuit". To do this, each input and output of the free ports is connected via a short length of optical cable with BFOC connectors.

If the "optical short-circuit" is not provided, the vacant BFOC sockets must be closed using the supplied protection caps. The associated port LEDs do not light up, the system LEDs light up red, and the signaling contact closes (fault).

2.2 Redundant optical ring

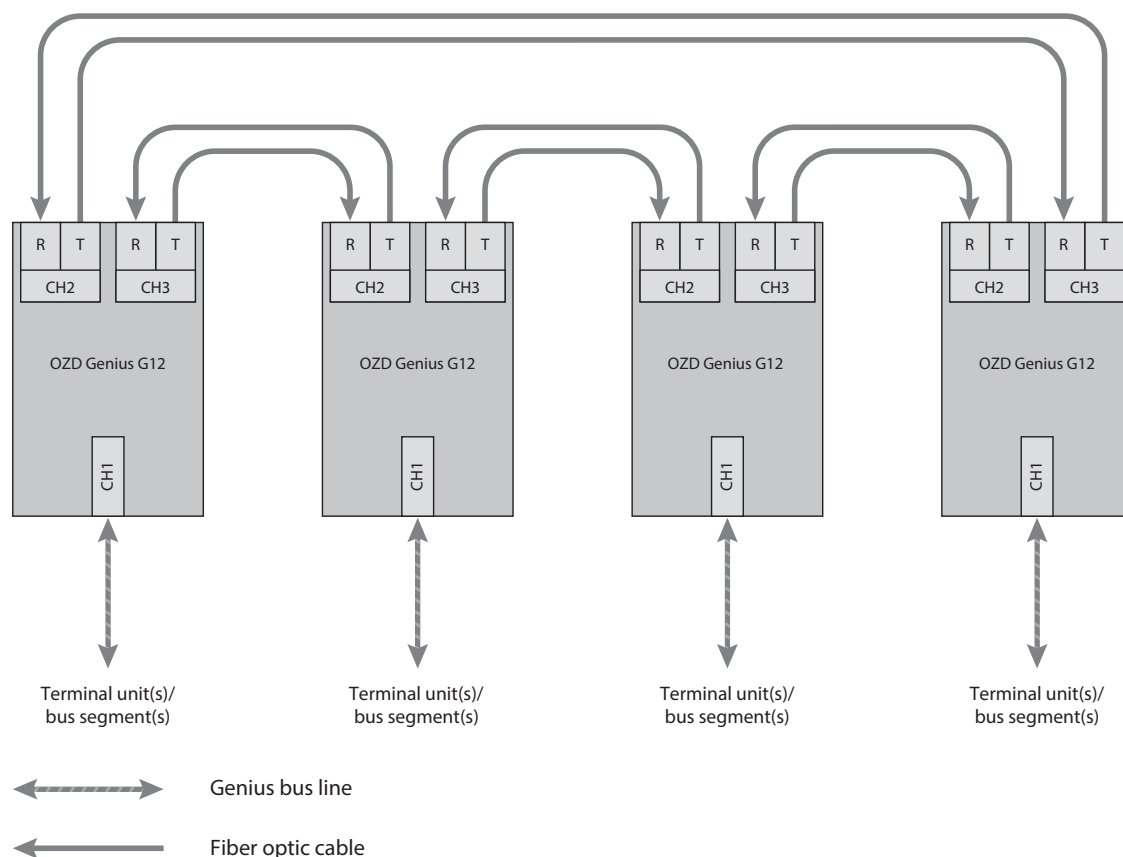


Figure 2: Network structure in a redundant optical ring topology

This network topology is used in the case of an optical link between end devices or bus segments. The implementation of a redundant link with OZD Genius... repeaters ensures a high degree of reliability.

The failure of an optical cable between any two OZD Genius... repeaters does not affect the availability of the network.

The repeaters detect the failure of an optical link. The port LED of the faulty link is deactivated and the failure is indicated by illumination of the red system LED and operation of the signal contact.

It is advisable to install the duplex optical cables of the two optical ports along different routes.

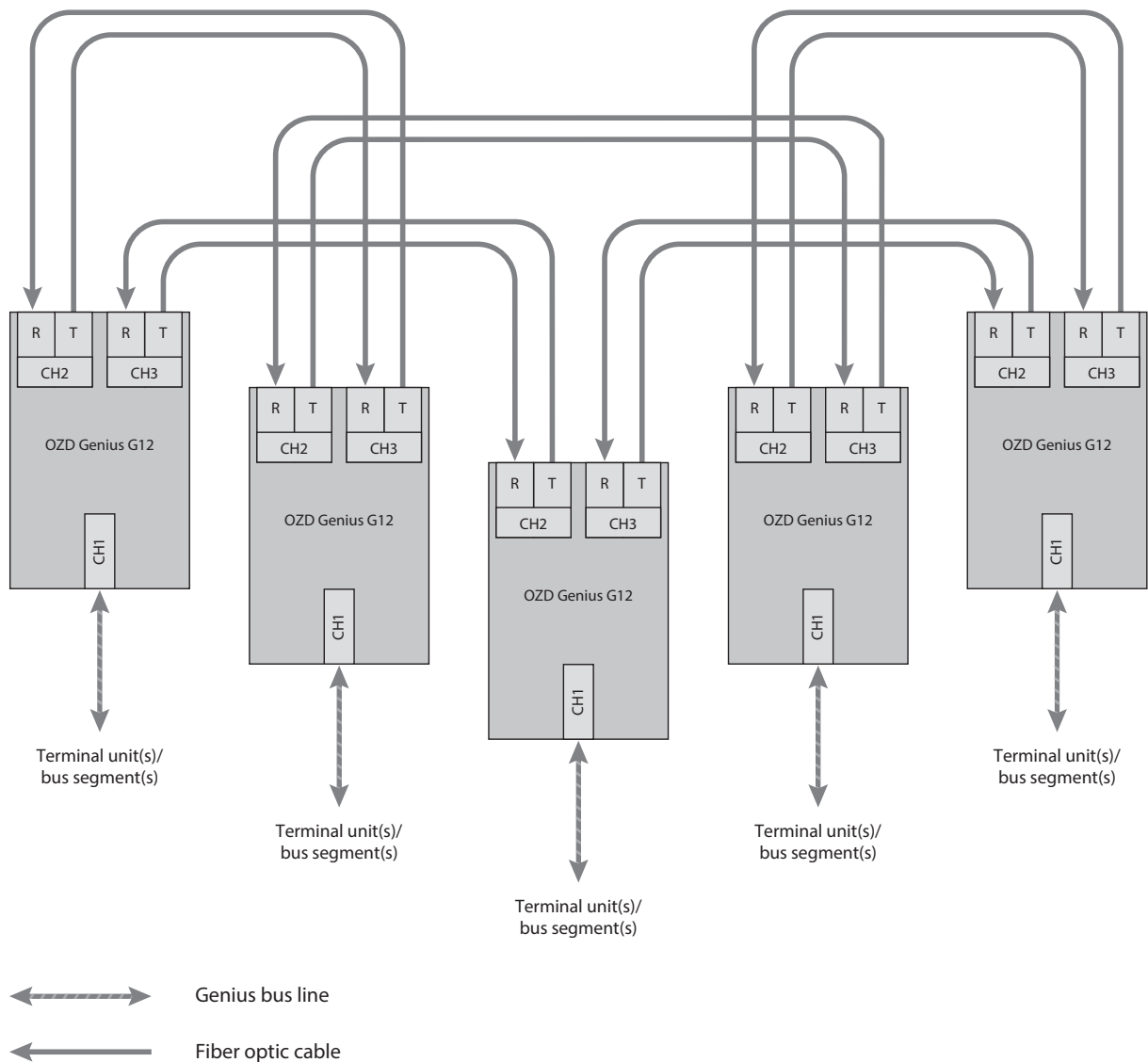


Figure 3: *Alternative wiring system for network structure in redundant optical ring topology*

If problems are encountered with the configuration of a redundant optical ring on account of excessively long fiber-optic line sections, connections can also be implemented.

[See figure 3 on page 21.](#)

In this case, each repeater is linked (in spatial terms) with the next repeater but one. Two adjacent repeaters must be interconnected at the start and end of every such line. This prevents the individual fiber-optic line sections from being“ excessively long“.

It is advisable to install the duplex optical cables of the two optical channels along different routes.

The maximum permissible network range for the ring topology depends on both the number of OZD Genius G12... devices used and the data rate.

3 Installation

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

Hirschmann supplies the device ready for operation.

To configure a subdomain, follow these steps:

- ▶ [Checking the package contents](#)
- ▶ [Installing and grounding the device](#)
- ▶ [Connecting the optic bus cables](#)
- ▶ [Connecting the electric bus cables](#)
- ▶ [Connecting the power supply](#)
- ▶ [Connecting the signal contact](#)
- ▶ [Setting the data rate](#)
- ▶ [Setting the optical transmitting power](#)

3.1 Checking the package contents

Proceed as follows:

- ☐ Check whether the package includes all items named in the section [“Scope of delivery” on page 36](#).
- ☐ Check the individual parts for transport damage.

3.2 Installing and grounding the device

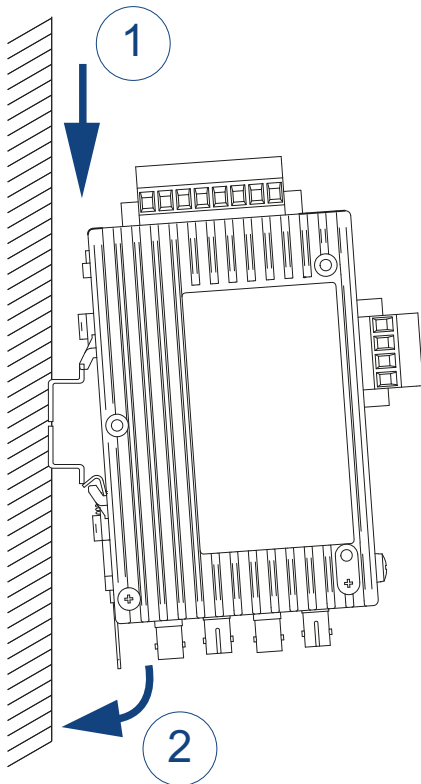
You have the following options for mounting your device:

- ▶ [Installing the device onto the DIN rail](#)
- ▶ [Mounting the device on a mounting plate](#)

Prerequisites:

- ▶ Install the device in a location where the climatic threshold values specified in the technical data are adhered to.
- ▶ Ensure that there is sufficient room to connect the bus and power supply cabling.
- ▶ Connect the optical fiber line before mounting the repeater as this simplifies the procedure.
- ▶ If possible, the repeaters should only be installed on a mounting plate or DIN rail with low-impedance and low-inductance grounding.

3.2.1 Installing the device onto the DIN rail

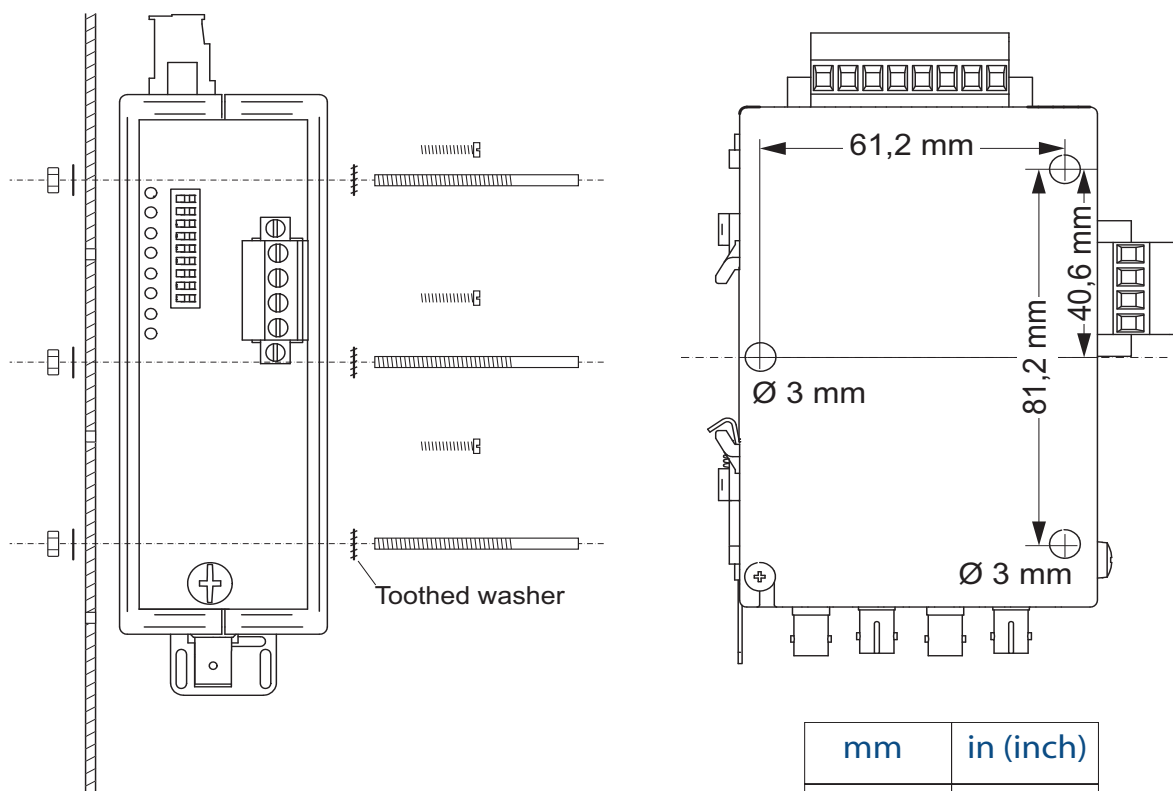


Note: The device is for mounting on a 35 mm DIN rail in accordance with DIN EN 60715.

Proceed as follows:

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

3.2.2 Mounting the device on a mounting plate



mm	in (inch)
81,2	3.2
61,2	2.45
40,6	1.6
3	0.12

Note: The repeater has 3 through-holes. The through-holes allow to mount the repeater to any flat surface, e.g. to the mounting plate of a switch cabinet.

Proceed as follows:

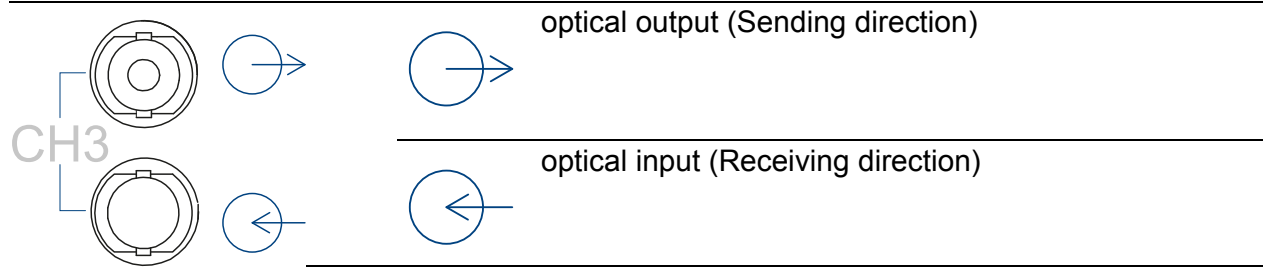
- ☐ Make 3 holes in the mounting plate corresponding the drilling template.
- ☐ Use the machine bolts (e.g. M3 x 40) to secure the repeater.
- ☐ Ensure reliable electrical connection between the repeater casing and the mounting plate.
- ☐ Place toothed washers under the bolt heads to pierce the varnish.

3.2.3 Grounding the device

Functional grounding the device is by means of a separate connection on the device.

- ☐ Ground the device before connecting any other cables.
- ☐ Disconnect the grounding only after disconnecting all other cables.
- ☐ Ground the device via the ground screw.

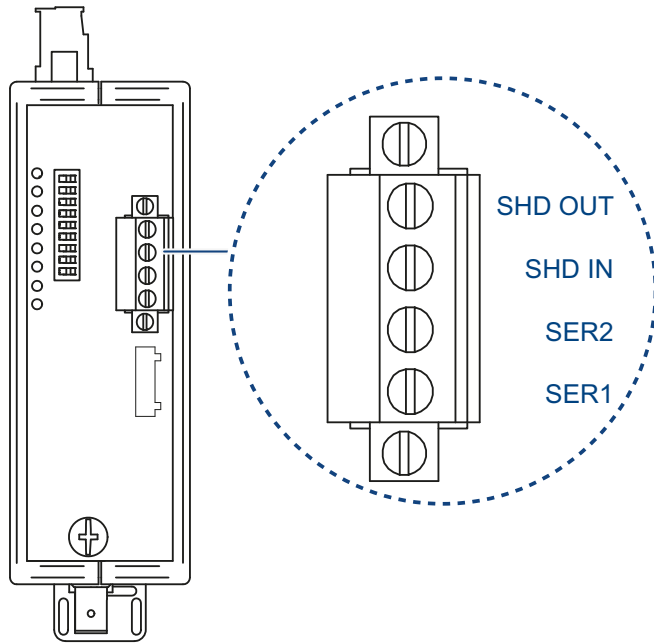
3.3 Connecting the optic bus cables



Proceed as follows:

- ☐ Use a duplex fiber-optic cable with BFOC/2.5 (ST ®) connectors to connect the individual repeaters.
- ☐ Pay attention to the maximum cable length of the fiber-optic cable as well as the possible types of fibers specified in the Technical Data.
- ☐ Make sure that each optical input is connected to an optical output at the opposite end (“cross-overlink“). The corresponding BFOC sockets of the two ports are marked on the lower front panel.
- ☐ Ensure sufficient strain relief for the fiber-optic cables and pay attention to their minimum bend radiuses.
- ☐ Unused BFOC sockets are to be covered with the protective caps supplied. Incident ambient light and, in particular, great ambient brightness, can affect the network. The penetration of dust may impair operation of the optical components.

3.4 Connecting the electric bus cables



WARNING

Genius bus lines which are completely or partially installed outdoors should not be connected. Any lightning strikes in the immediate vicinity could otherwise destroy the repeaters. Use F/O cables for bus connections outside buildings.

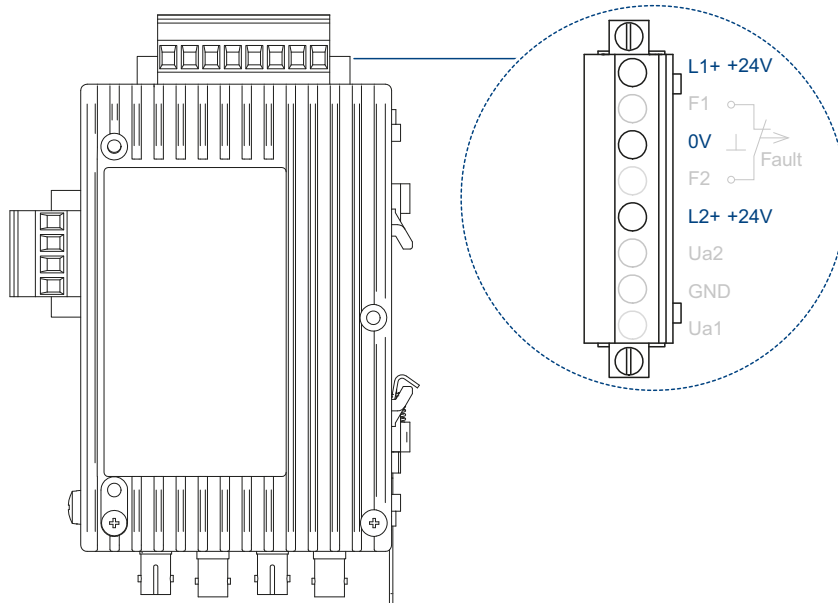
Proceed as follows:

- ☐ Only cables approved for the Genius bus should be used.
- ☐ The Serial 1 port of a device is connected to the Serial 1 port of the adjacent devices. This also applies for the Serial 2 port (no cross-over connection).
- ☐ The Shield In connection of a device is connected to the Shield Out connection of the upstream device. As a result, the Shield In connection of the first device as well as the Shield Out connection of the last device remain free.
- ☐ The beginning and end of the bus must be terminated with a resistor rated according to the specifications for Genius bus cables. A resistor with a rating of between 75 Ω and 150 Ω (0.5 W) must be used depending on the cable used.

The signal processing time for the OZD Genius... repeater and the physical delay caused by the fiber optic cable must be taken into consideration when the system is configured. Detailed information regarding installation and configuration can be found in the Genius bus specifications and the configuration directives from the control unit manufacturer.

This interface is a 4-pin with a self-locking mechanism. The plug must be engaged on the socket.

3.5 Connecting the power supply



Proceed as follows:

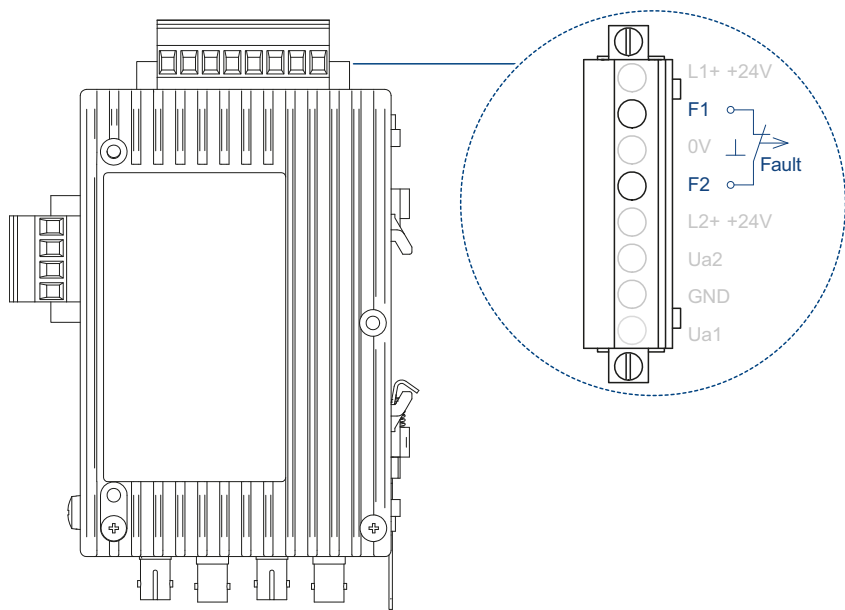
- ☐ The OZD Genius... should only be supplied with a regulated safety extra-low voltage of between 18 V and 32 V as defined in IEC 60950/EN 60950 /VDE 0805.
- ☐ To improve the operating safety, a redundant power supply consisting of separate sources can be used. The supply voltages can be supplied in two ways:
 - via terminal 18 V ... 32 V of the terminal block
 - via terminal 18 V ... 32 V of the terminal blockThe common negative connection in the middle of the terminal block is indicated by (0 V).
- ☐ The two voltages can have any values, even different ones, within the specified limits.

3.6 Connecting the signal contact

Note:

- ☐ To connect the signal contact lines, remove the 8-pin screw terminal block on top of the repeater from the device.
- ☐ Use the correct pin assignment for the 8-pin terminal block.
- ☐ Make sure that the electrical insulation of the connection cables of the signal contacts is sufficient. Incorrect connections can destroy the repeater.

On the 8-pin terminal block on the top of the repeater, the unconnected pins of a relay can be used as signal contacts. When the OZD Genius... is working correctly, the contact is closed. If there is an error or a power failure, the contact is opened.



The following problems with the network and the repeater can be signaled by means of the signal contact:

Supply voltage	No supply voltage (with redundant supply voltage: loss of all supply voltages)
Internal device errors	
Received data	Loss of received data at port 2 and/or port 3 (e.g.cable breakage)
	No data received at all ports

3.7 Setting the data rate

Note: Use the dip switches S0 and S1 on the front panel of the OZD Genius... to set the desired data rate.

- ☐ The fiber-optic repeater OZD Genius G12... supports the data rates 153.6 kBaud (standard and extended), 76.8 kBaud and 38.4 kBaud.
- ☐ The switch settings for the data rates 153.6 kBaud Standard and 153.6 Extended are identical.
- ☐ The positions of the switches S1 and S2 are only read in when the supply voltage is applied. This ensures that no bus fault occurs if the two switches are inadvertently set to the wrong positions.
- ☐ If the device is already in operation, the supply voltage must be disconnected before the data rate is changed. The new data rate is then set using S1 and S2 and the supply voltage reconnected. When the device is switched on, the new data rate is read in.

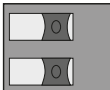
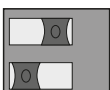
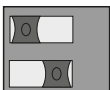
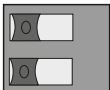
Data rate	Switch position
153.6 dBm Standard or Extended.	1 0  S0 S1
76.8 dBm	1 0  S0 S1
38.4 dBm	1 0  S0 S1
Not used	1 0  S0 S1

Table 4: Data rate and associated switch position

3.8 Setting the optical transmitting power

Note:

- ☐ S2, S3, S4, S5 and S8 do not have function on OZD Genius...
- ☒ The DIP switch **S6** is used to set the transmit power of **CH3**.
- ☒ The DIP switch **S7** is used to set the transmit power of **CH4**.

1 0

S0

S1

S2

S3

S4

S5

S6

S7

S8

CH 1

n.c.

n.c.

n.c.

n.c.

CH 3

CH 4

n.c.

☐ Verify that the dip switch **S6** and **S7** is set to position 1.

3.9 Network range for line and ring topologies

It is possible to check whether a configuration is within the respective network range limits by means of the following formula.

Checking the network range using the following formula

The following must apply:

$$[(l_O \times 5\mu s) + (l_E \times 5\mu s) + (n_{OZD} \times t_{RD})] \times 1.07 \leq 0.5 \times [t_D + (d_A - 1) \times t_S]$$

l_O	Length of optical fiber in ring (one ring loop) or in line [km]
l_E	Sum of the two longest electrical Genius bus segments which are connected to OZD Genius... in ring or in line [km]
n_{OZD}	Number of OZD Genius... used
t_{RD}	Repeater delay - data transfer time through an OZD Genius... (see table 5)
t_D	Delay time - minimum interval between two telegrams (see table 5)
d_A	Minimum address distance between two Genius bus devices
t_S	Skip time - depends on data transmission rate (see table 5)

Data rate	[kBaud]	153.6	153.6	76.8	38.4
Mode		Standard.	Extended.	Extended.	Extended.
t_{RD}		0.8	0.8	1.2	2.3
t_D		70	140	140	280
t		26	52	104	208

Table 5: Timing

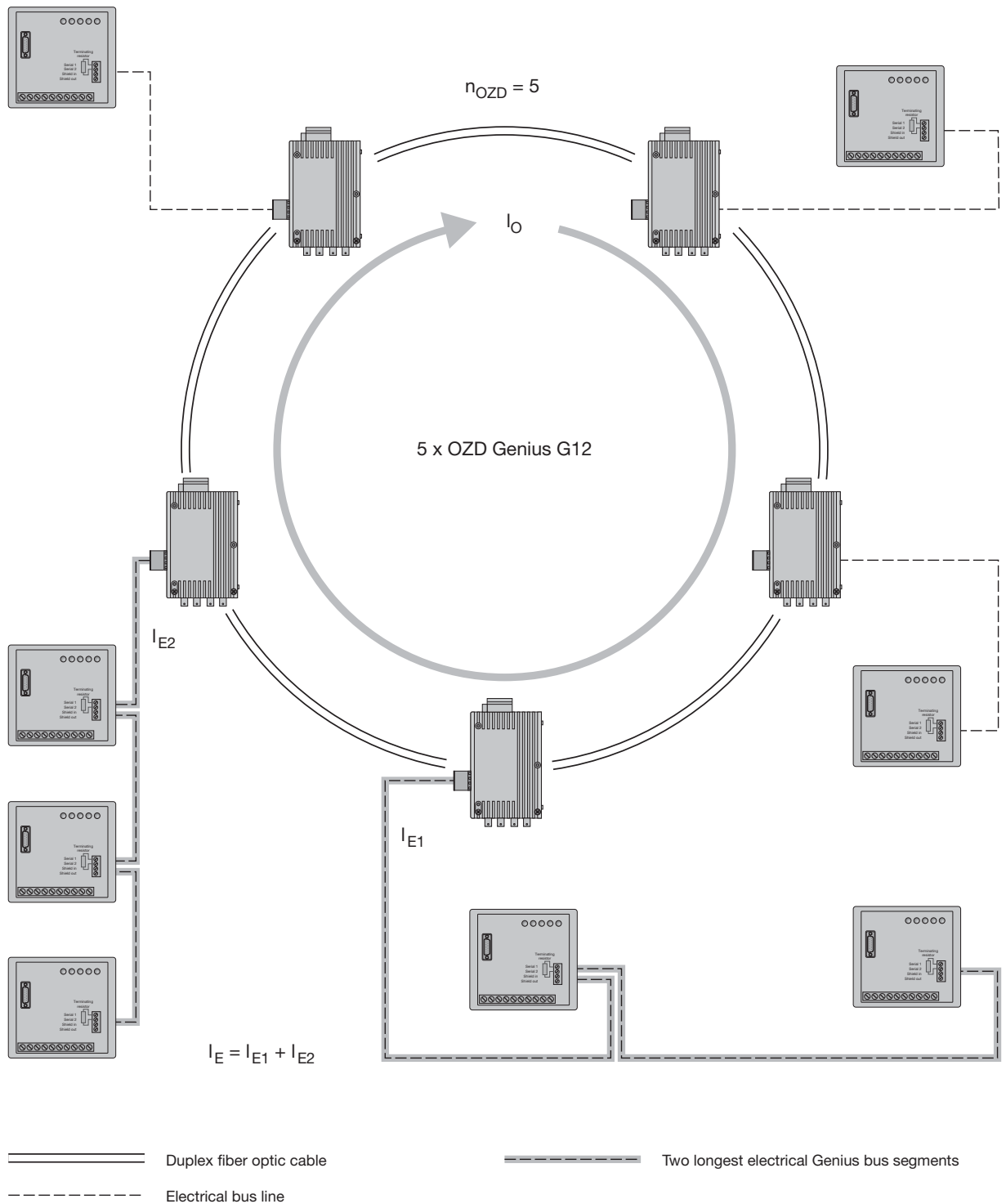
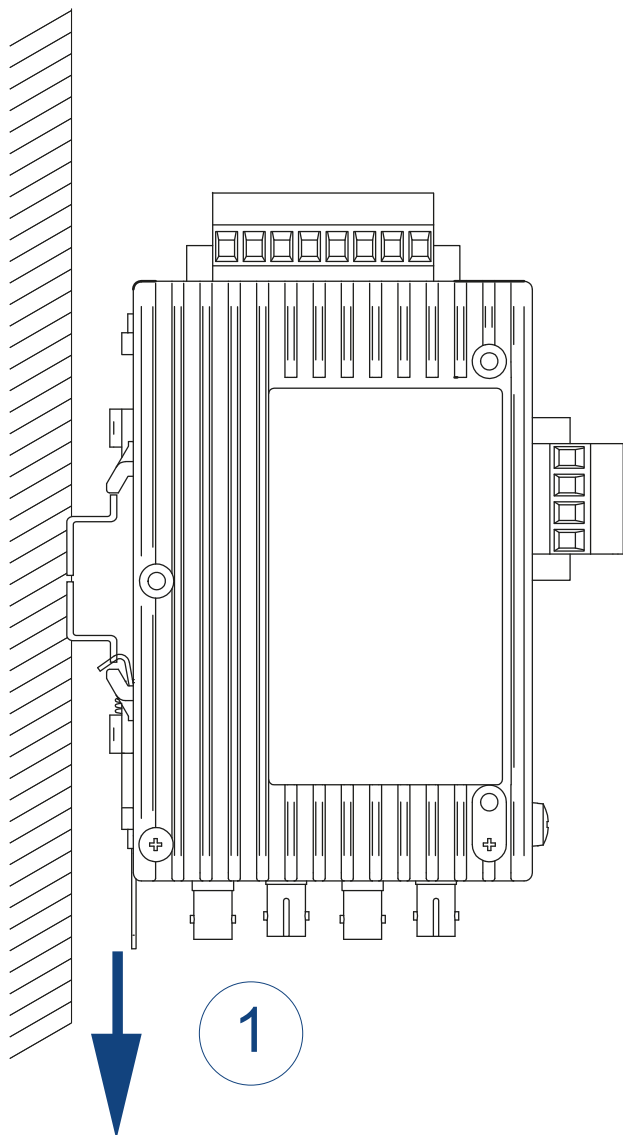


Figure 4: Example of network configuration with 5 OZD Genius... devices (two longest Genius bus segments are identified)

4 Disassembly

To remove the device, pull down on the locking slide.



5 Technical data

■ General technical data

Device variant	OZD Genius...	OZD Genius G12-1300
Dimensions W × H × D	See “Dimension drawings” on page 35.	
Weight	approx. 19.75 oz (560 g)	
Supply voltage		
See “Requirements for connecting electrical wires” on page 6.		
Nominal voltage DC	24 V	
Voltage range DC incl. maximum tolerances	18 V ... 32 V	
Connection type	4-pin terminal block	
Power loss buffer	> 10 ms at 20.4 V DC	
Overload current protection at input	Non-replaceable fuse	
Back-up fuse for each voltage input		
Nominal rating:	2 A	
Characteristic:	slow blow	
Peak inrush current	< 4 A	
Signal transmission		
Data rate	153.6 kBit/s, 76.8 kBit/s, 38.4 kBit/s	
Cascadability	not limited	
Signal processing time (any input/output)	0.9 µ at 153.6 kBit/s 1.6 µ at 76.8 kBit/s 3.1 µ at 38.4 kBit/s	
Electrical port		
Input/output signal	Genius bus	
OZD Genius... cable		
– Length	< 250 m	
– Attenuation at 1 MHz	< 8 dB for 150 Ω cable < 5 dB for 100 Ω cable	
Connection options	max. 32 end devices	
Electrical isolation		
– Shielding in/Shielding out	Yes	
– Data cable/casing	Yes	
terminating resistor	Must be attached outside to connector	
Signal contact		
See “Requirements for connecting electrical wires” on page 6.		
Switching current	max. 1 A	
Switching voltage	under UL conditions: max. 30 V DC, resistive load	
Climatic conditions during operation		
Ambient temperature	+32 °F ... +140 °F (0 °C ... +60 °C)	
Humidity	5 % ... 95 % (non-condensing)	
Air pressure	minimum 700 hPa (+9842 ft; +3000 m)	

Climatic conditions during storage	
Ambient temperature	–40 °F ... +176 °F (–40 °C ... +80 °C)
Humidity	5 % ... 95 % (non-condensing)
Air pressure	minimum 700 hPa (+9842 ft; +3000 m)
Pollution degree	2
Protection classes	
Laser protection	Class 1 in compliance with IEC 60825-1
Degree of protection	IP40

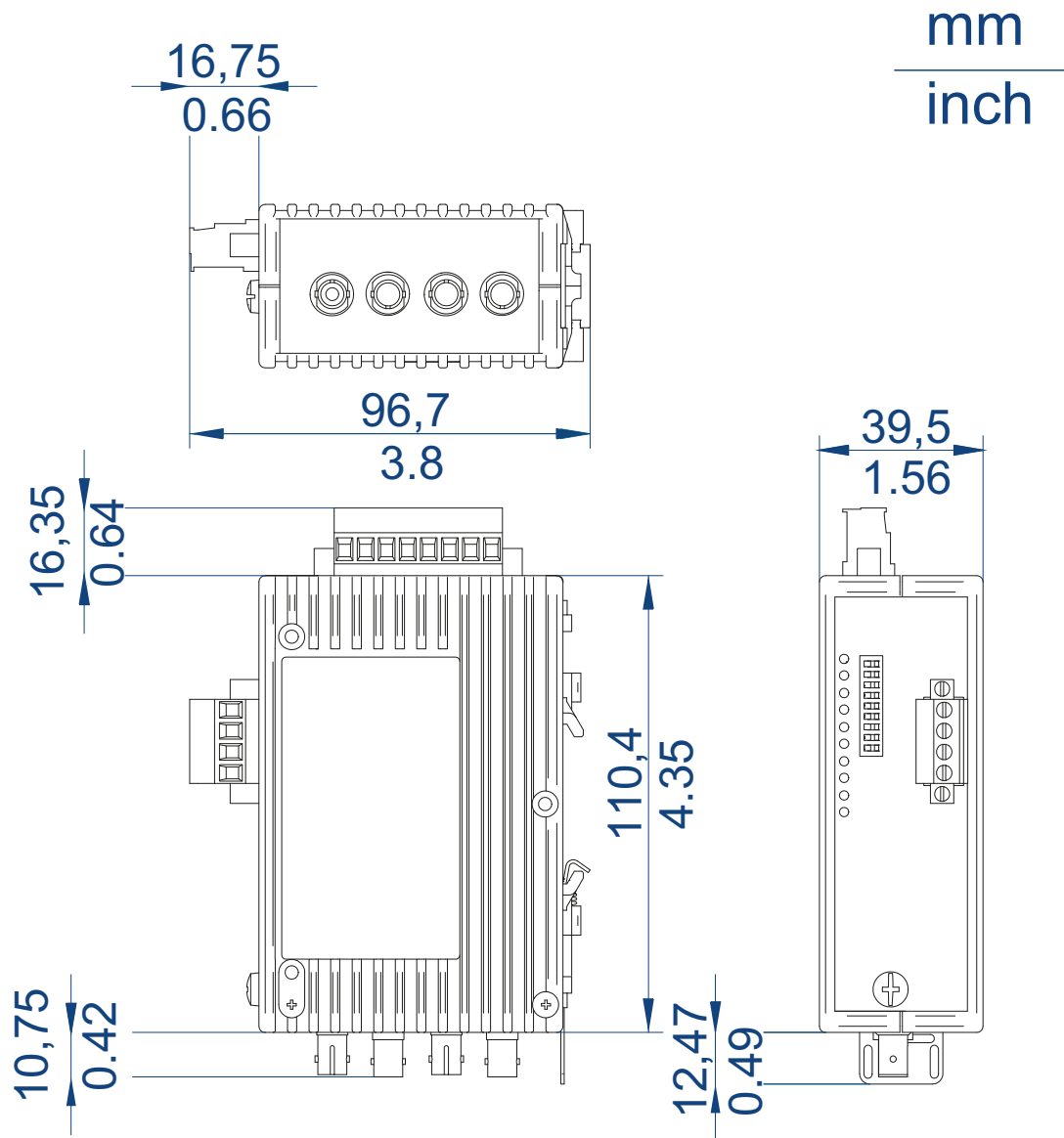
Optical port	P	G	G-1300
Wavelength	650 nm	860 nm	1300 nm
Launchable optical power	–	–	–
in fiber 10/125 (default)	–	–	–19 dBm
into fiber 50/125 (default)		–17 dBm	–17 dBm
into fiber 62.5/125 (default)	–	–13 dBm	–17 dBm
Receiver sensitivity	–25 dBm	–28 dBm	–29 dBm
Receiver overload limit	0 dBm	–1 dBm	–3 dBm

Damping values of the fiber optic	P	G	G-1300
Wavelength	650 nm	860 nm	1300 nm
Damping values:			
Fiber 10/125	–	–	0.5 dB/km
Fiber 50/125	–	3 dB/km	1 dB/km
Fiber 62.5/125	–	3.5 dB/km	1 dB/km
Fiber 200/230	10 dB/km	8 dB/km	–
Fiber 980/1000	0.225 dB/m	–	–

Transmission distance^a	G	G-1300
Wavelength	860 nm	1300 nm
System reserve	3 dB	2 dB
Transmission distance:		
Fiber 10/125	–	10000 m
Fiber 50/125 (default)	2700 m	10000 m
Fiber 62.5/125 (default)	3100 m	10000 m

- a. The specified distance allowed between two OZD Genius G12-1300 must not be exceeded regardless of the optical power budget.

■ Dimension drawings



■ Power consumption/power output

Device name	Maximum power consumption	Maximum power output
OZD Genius...	4.8 W	16.3 Btu (IT)/h

6 Scope of delivery, order numbers and accessories

■ Scope of delivery

Number	Article
1 ×	Device
1 ×	General safety instructions

■ Order numbers/product description

Device name	Order number
OZD Genius G12	942 148-012
OZD Genius G12-1300	942 148-013

7 Underlying technical standards

Name	
C-Tick Declaration	Australian Radiocommunication Act 1998 Australian Radiocommunication Standard 2008
CSA C22.2 No. 142	Canadian National Standard(s) – Process Control Equipment – Industrial Products
FCC 47 CFR Part 15	Code of Federal Regulations
DNVGL-CG-0339	Environmental test specification for electrical, electronic and programmable equipment and systems.
UL/IEC 61010-1, UL/IEC 61010-2-201	Safety for Control Equipment
EN 55032	Electromagnetic compatibility of multimedia equipment – Emission Requirements
EN 61000-3-2	Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions
EN 61000-3-3	Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker.
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

Table 6: List of the technical standards

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

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

8 Troubleshooting

This chapter helps you to localize faults after they have been indicated (by LEDs or signal contacts).

■ **Fault indicated on the system LED**

- ☐ Check that the supply voltage is being supplied.
- ☐ Check that the supply voltage is connected correctly.

■ **Fault displayed at CH1**

- ☐ Check that the correct data rate has been set.
- ☐ Check that the serial data line has been connected correctly.
- ☐ Check that the terminating resistor has been connected correctly.

■ **Fault displayed at CH2, CH3**

- ☐ Check that the optical fiber from the transmitting OZD Genius... is not broken.
- ☐ Check that the optical fibers are not too long.
- ☐ Check that the optical fibers are not crossed.
- ☐ Check that the ports are not connected incorrectly.

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.eu.com>.

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

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