The Drive & Control Company

Rexroth
Bosch Group

Rexroth IndraControl S67

High Speed Digital Module
8 Outputs – 0.1 A (4×M12)

Application Description
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Edition 01	2013-10	First edition
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1 About this Documentation

1.1 General Information

Read this chapter thoroughly before using the application description.

1.2 Scope

The present documentation applies to the digital output module S67-DO8-HS-M12 of the IndraControl S67 series.

For other components of the IndraControl S67 series, the following documentations are available:

Document	Title	Parts number
Module-comprehensive		
Application Description	Rexroth IndraControl S67	R911329572
Application Description	Rexroth IndraControl S67 DTM Input and Output Modules	R911340954
Field Bus Couplers		
Application Description	Rexroth IndraControl S67 Ethernet/IP Coupler 8 Digital Inputs (M8)	R911329564
Application Description	Rexroth IndraControl S67 Profibus Coupler 8 Digital Inputs (M8)	R911329566
Application Description	Rexroth IndraControl S67 Profinet Coupler 8 Digital Inputs (M8)	R911329568
Application Description	Rexroth IndraControl S67 sercos Coupler 8 Digital Inputs (M8)	R911338401
Modules		
Application Description	Rexroth IndraControl S67 Digital Module 8 Outputs – 0.5 A (8×M8)	R911329560
Application Description	Rexroth IndraControl S67 Digital Module 8 Outputs – 2.0 A (8×M8)	R911329562
Application Description	Rexroth IndraControl S67 Digital Module 8 Outputs – 0.5 A (4×M12)	R911329556
Application Description	Rexroth IndraControl S67 Digital Module 8 Outputs – 2.0 A (4×M12)	R911329558
Application Description	Rexroth IndraControl S67 Digital Module 8 Outputs – 0.5 A (8×M12)	R911342196
Application Description	Rexroth IndraControl S67 Digital Module 8 Inputs (8×M8)	R911329552
Application Description	Rexroth IndraControl S67 Digital Module 8 Inputs (4×M12)	R911329550
Application Description	Rexroth IndraControl S67 Digital Module High Speed 8 Inputs (4×M12)	R911342198

Document	Title	Parts number
Application Description	Rexroth IndraControl S67 Digital Module 8 Inputs (8×M12)	R911342194
Application Description	Rexroth IndraControl S67 Digital Module 8 Inputs/ Outputs – 0.5 A (8×M8)	R911338695
Application Description	Rexroth IndraControl S67 Digital Module 8 Inputs/ Outputs – 0.5 A (8×M12)	R911338697
Application Description	Rexroth IndraControl S67 Digital Module High Speed 4 Inputs/Outputs – 0.2 A (4×M12)	R911342202
Application Description	Rexroth IndraControl S67 Analog Module – 4 Inputs Voltage/Current (4×M12)	R911329544
Application Description	Rexroth IndraControl S67 Analog Module – 4 Inputs for the RTD (4×M12)	R911329542
Application Description	Rexroth IndraControl S67 Analog Module – 4 Inputs TC Temperature Sensors (4×M12)	R911338699
Application Description	Rexroth IndraControl S67 Analog Module – 4 Outputs Voltage/Current (4xM12)	R911329546
Application Description	Rexroth IndraControl S67 Universal Interface Module - 4 Inputs/Outputs – 0.5 A (M12)	R911339361
Application Description	Rexroth IndraControl S67 HTL Encoder, Counter Module 4 Digital Inputs/Outputs (4×M12)	R911342204
Application Description	Rexroth IndraControl S67 TTL, SSI Encoder Module 4 Digital Inputs/Outputs (4×M12)	R911342206
Application Description	Rexroth IndraControl S67 Power Divider (6×M12)	R911329570

Tab. 1-1: Overview on the IndraControl S67 manuals

1.3 Validity of the Documentation

Overview on target groups and product phases

In the following illustration, the framed activities, product phases and target groups refer to the present documentation.

Example: In the product phase "Mounting (assembly/installation)", the target group "Mechanic/electrician" can execute the activity "Unpack, Mount and Install" using this documentation.

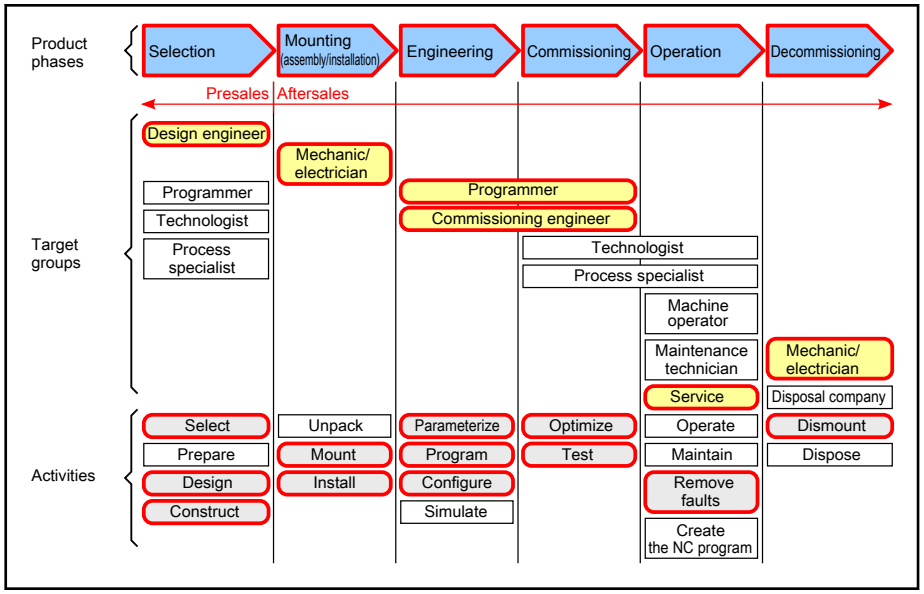


Fig. 1-1: Assigning this documentation to the target groups, product phases and target group activities

Purpose

This documentation is intended for users commissioning a digital output module of type S67-DO8-HS-M12. This documentation contains general information on the output module. Mounting and cabling of the output module are also described. The basic commissioning steps and the configuration of the IndraControl S67 station are then explained.

1.4 Structuring the Documentation

The first part of the documentation contains important information on the intended use as well as information on the safety instructions (chapter 2 "Important Instructions on Use" on page 9 and chapter 3 "Using the Safety Instructions" on page 11).

For a short overview on the structure and the functions of the digital output module, refer to chapter 4 "Device Description" on page 13.

For information on mounting, refer to chapter 5 "Mounting the Module" on page 23.

For information on data and supply cables, refer to chapter 6 "Connecting Data and Supply Cable" on page 31.

For information on the commissioning, refer to chapter 7 "Commissioning" on page 37.

For information on the process images of the digital output module, refer to chapter 8 "Process Images" on page 39.

For the parameterization, refer to chapter 9 "Parameterization" on page 41.

For the diagnostic options regarding the digital output module, refer to chapter 10 "Diagnostics via LED Signals" on page 45.

For information on the module exchange, refer to chapter 11 "Maintenance and Service" on page 49.

For information on the accessories for the digital output module, refer to chapter 12 "Accessories" on page 51.

For diagnostic information, refer to chapter 13 "Appendix" on page 55.

For information on the customer service help desk of Bosch Rexroth, refer to chapter 14 "Service and support" on page 57.

1.5 Terms and Abbreviations

Term	Explanation
CE	The CE marking (Conformité Européenne) is used by the manufacturer or EU importer according to the EU regulation 765/2008 and "indicates that the product complies with the applicable requirements specified in the Community harmonization legislation provided for its affixing"
UL	Underwriters Laboratories Inc., US organization for electrotechnical product certification
CSA	Canadian Standards Association. The CSA develops and maintains more than 3000 standards and regulations related to safety, design or performance
NEMA	National Electrical Manufacturers. The NEMA constitutes the representation of interests as well as the professional organization of the electrotechnical industry of North America
IndraWorks	Configuration and commissioning tool developed by Bosch Rexroth
GSD	Device master data (contains characteristic communication features of a Profibus device as electronic device data sheet)
SDDML	sercos Device Description Markup Language XML-based device description language for sercos III devices
VPE	Packaging unit

Tab. 1-2: Terms and abbreviations

1.6 Customer Feedback

Customer requests, comments or suggestions for improvement are of great importance to us. Please email your feedback on the documentations to Feedback.Documentation@boschrexroth.de. Directly insert comments in the electronic PDF document and send the PDF file to Bosch Rexroth.

2 Important Instructions on Use

2.1 Intended Use

2.1.1 Introduction

The Rexroth products represent state-of-the-art developments and manufacturing. The products are tested prior to delivery to ensure operating safety and reliability.

The products may only be used for the intended purpose. If the products are not used as intended, situations causing personal injury as well as material damage can occur.

☞ Rexroth shall not be liable for damages resulting from unintended use. In such cases, the guarantee and the right to payment of damages resulting from unintended use are forfeited. The user alone carries all responsibility of the risks.

Before using Bosch Rexroth products, the following requirements must be met to ensure intended use of the products:

- Personnel who in any way, shape, form or use one of our products must first read and understand the relevant safety instructions and be familiar with the intended use of the products
- If the product takes the form of hardware, then the products remain in the original state, in other words, no structural changes to the products are permitted. The decompilation of software products or the alteration of source codes is not permitted
- Do not install or operate damaged or faulty products
- Ensure that the products have been installed in the manner described in the relevant documentation

2.1.2 Use and Application Cases

The S67-DO8-HS-M12 module emits digital signals that are specified by a higher-level controller (e.g., a programmable coupler).

The S67-DO8-HS-M12 module cannot be used to control safety purpose function, i.e., the S67-DO8-HS-M12 module cannot be a functional component of a safety function.

The S67-DO8-HS-M12 module shall only be used in combination with a field bus coupler and I/O module of the IndraControl S67 series.

The S67-DO8-HS-M12 module was developed for applications requiring IP 67 (NEMA type 6, 6P) degree of protection.

☞ The S67-DO8-HS-M12 module may only be used with the accessories and mounting parts listed in this documentation. Components that are not expressly mentioned must neither be attached nor connected. The same is valid for cables and lines.

Operation may only be carried out with the hardware component configurations and combinations that are expressly specified and with the software and firmware indicated and specified in the respective documentation and functional descriptions.

In case of non-compliance, the guarantee and warranty claims shall automatically expire.

Important Instructions on Use

The S67-DO8-HS-M12 may only be operated under the mounting and installation conditions, the position, and the ambient conditions (temperature, degree of protection, humidity, EMC, etc.) specified in the related documentation.

2.2 Safety Devices

All IndraControl S67 series products are designed to meet the requirements of IP 67. This includes complete protection against accidental contact with electrical voltage and currents – even when wet.

2.3 Information about the Operation

To integrate the IndraControl S67 components in your machine or system, the following valid and applicable standards, guidelines and provisions have to be complied with: e.g., BGV A 3, "Electrical Systems and Equipment", DIN EN 418, EN 60204. The emergency stop equipment shall remain effective in all operating modes of the system and machine.

For protection from electromagnetic interferences:

- Connect your system to protective earth (PE), and
- ensure that the cable routing and the installation of the field bus cable, S-BUS cable, supply cable, and sensor cable are correct

The following elements for 24V supply have to be available:

- Outer lightning protection on buildings
- Inner lightning protection of supply lines and signal lines
- Safe electrical separation of undervoltage 24VDC through PELV (Protective Extra Low Voltage) or SELV (Safety Extra Low Voltage) voltage sources.

2.4 Unintended Use

The use of the S67-DO8-HS-M12 module in applications other than the modules specified or described in the documentation and the technical specifications is considered as "unintended".

The S67-DO8-HS-M12 module must not be used if

- operation conditions which do not correspond to the specified ambient conditions Operation under water, extreme temperature fluctuations or extreme maximum temperatures is prohibited
- they are used in household devices or devices belonging to categories 1 to 7 and 10 specified in Appendix IA of the Directive 2002/96/EC ("WEEE")

3 Using the Safety Instructions

3.1 Structure of the Safety Instructions

The safety instructions are structured as follows:

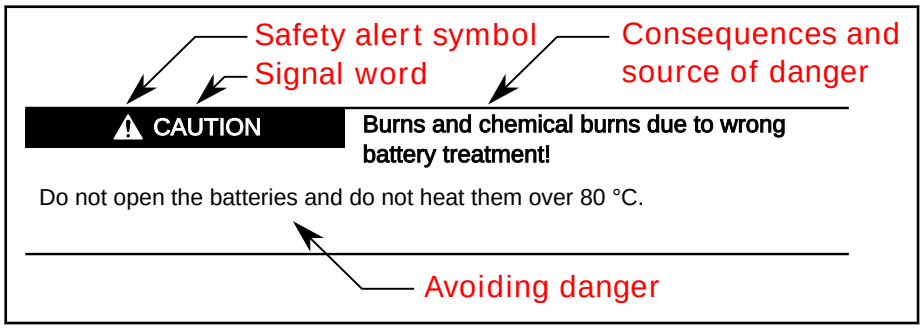


Fig. 3-1: Structure of the safety instructions

3.2 Explaining Signal Words and Safety Alert Symbol

The safety instructions in this documentation contain specific signal words (danger, warning, caution, notice) and, if necessary, a safety alert symbol (according to ANSI Z535.6-2006).

The signal word is meant to draw the reader's attention to the safety instruction and signifies the degree of danger.

The safety alert symbol (a triangle with an exclamation point), which precedes the signal words danger,warning and caution is used to alert the reader to personal injury hazards.

⚠ DANGER

In case of non-compliance with this safety instruction, death or serious injury **will** occur.

⚠ WARNING

In case of non-compliance with this safety instruction, death or serious injury **can** occur.

⚠ CAUTION

In case of non-compliance with this safety instruction, minor or moderate injury could occur.

NOTICE

In case of non-compliance with this safety instruction, property damage could occur.

Using the Safety Instructions

3.3 Symbols Used

Pointers are displayed as follows:

 This is a note.

Tips are displayed as follows:

 This is a tip.

4 Device Description

4.1 General Information

The digital output module S67-DO8-HS-M12 outputs the binary signals with short response times. The module is characterized by very fast high-speed outputs and is therefore particular well-suited for using with fast Ethernet-based field buses (e.g. sercos). The module features comprehensive parameterization options for the individual channels and the entire module. The module settings are set, depending on the field bus, using the device description file (e.g. GSD, SDDML, etc.) of a field bus or independent of the field bus via a FDT/DTM border application (e.g. IndraWorks).

Detailed information on setting the module parameters using the field bus is in the corresponding manual (e.g. "Rexroth IndraControl S67 Profibus Coupler 8 Digital Inputs (M8))".

Detailed information about the properties of the S67-DO8-HS-M12 module is in chapter 4.9 "Technical Data" on page 18.

4.2 Connections

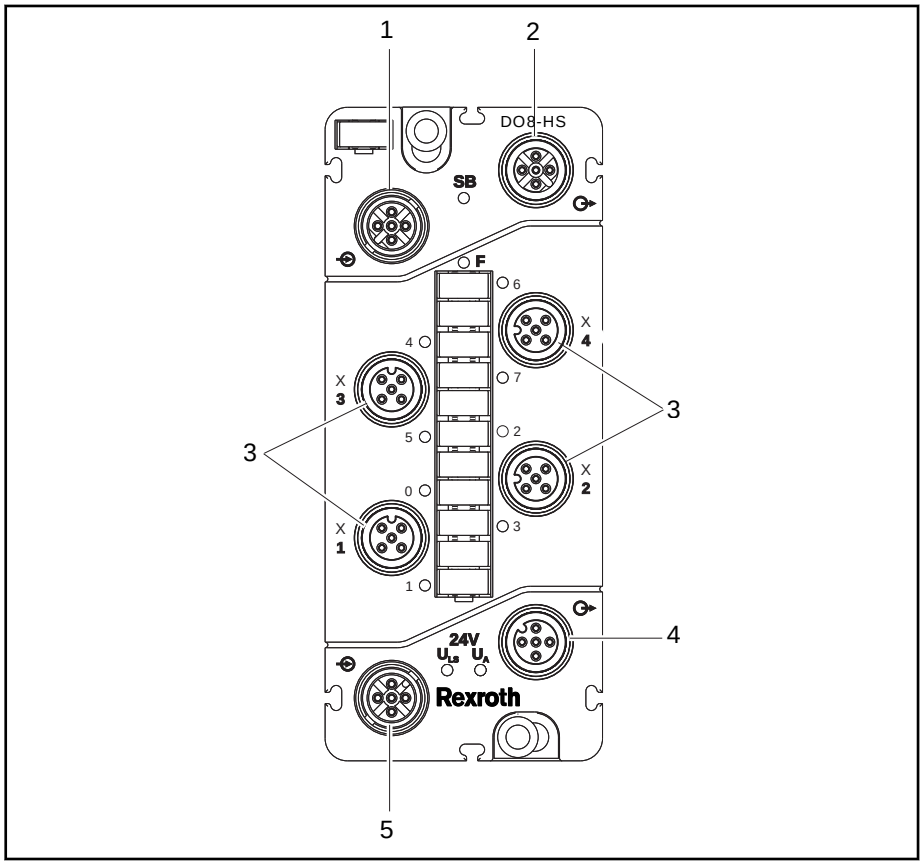


Fig. 4-1: Identification of the module connections

Device Description

Position	Description	Function
1	S-BUS input M12 connector, B-coded	For transmitting data of the previous IndraControl S67 component
2	S-BUS output M12 socket, B-coded	For transmitting S-BUS data to the next IndraControl S67 component or to the S-BUS terminator.
3	Digital outputs X1 – X4 (assigned twice) M12 socket, A-coded	To connect digital actuators
4	Power supply output M12 socket, A-coded	To provide logic and/or sensor power supply and/or actuator supply for the next I/O module
5	Power supply input M12 socket, A-coded	Feeding of U_{LS} (logic and sensor voltage) and U_A (actuator voltage)

Tab. 4-1: Identification of the module connections

4.3 Labeling Options and Mounting

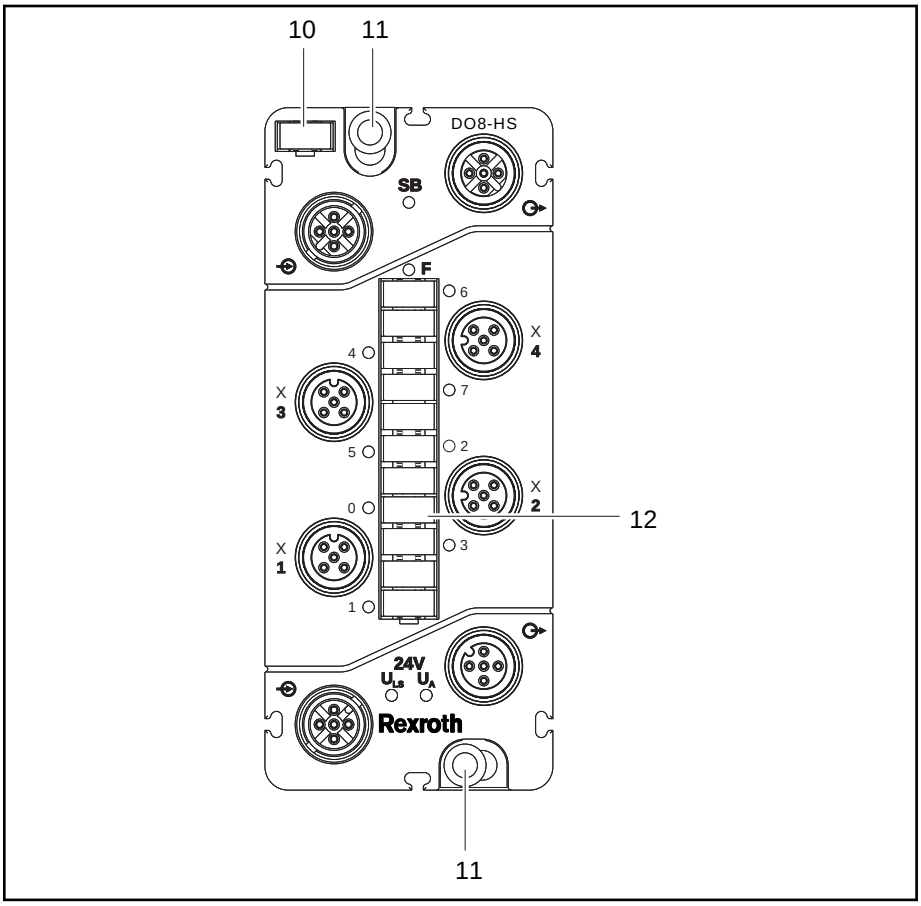


Fig. 4-2: Identifying the options for labeling and mounting

Position	Description	Function
10	Module legend plate	Identifying the module in a field bus node
11	Mounting holes	Mounting and grounding of the module using M4 screws
12	Labeling strips	Labeling connections

Tab. 4-2: Identifying the options for labeling and mounting

4.4 Display Elements

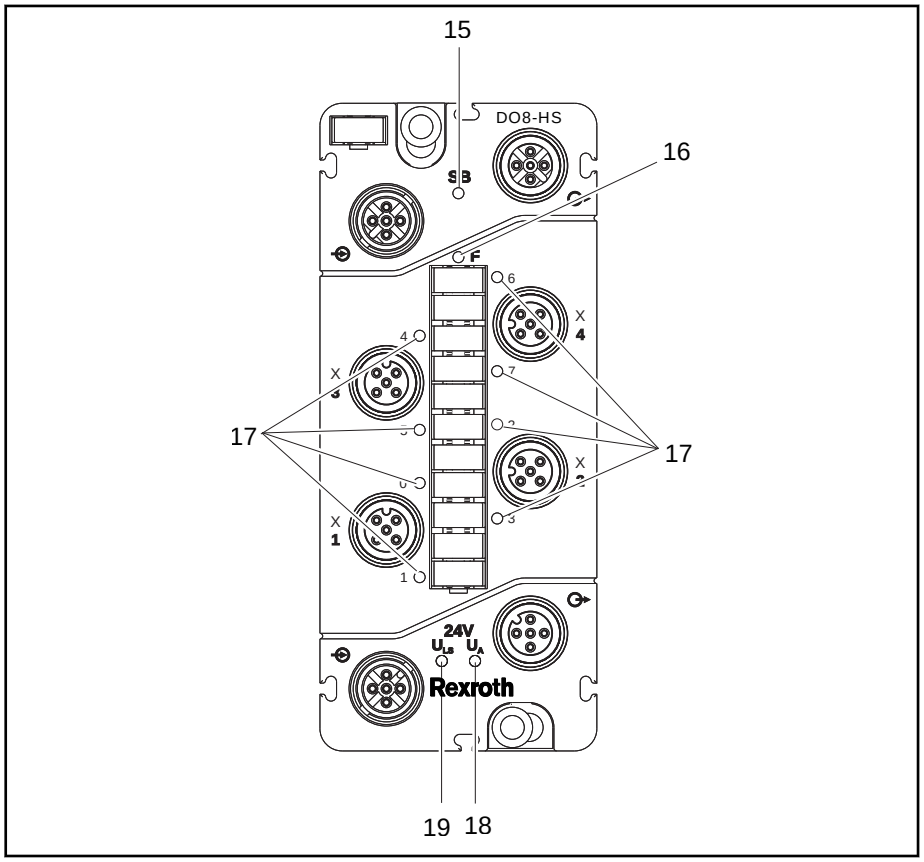


Fig. 4-3: Labeling the module LEDs

Position	LED	Color	Meaning
15	SB	Green/red/ orange	S-BUS status
16	F	Red	Diagnostic information
17	0 to 7	Yellow/red	Signal status of the outputs
18	U_A	Green	Actuator supply available
19	U_{LS}	Green	Logic and sensor supply available

Tab. 4-3: Labeling the module LEDs

Detailed information can be found in chapter 10 "Diagnostics via LED Signals" on page 45.

Device Description

4.5 Labeling and Bar Code Type at the Back of the Device

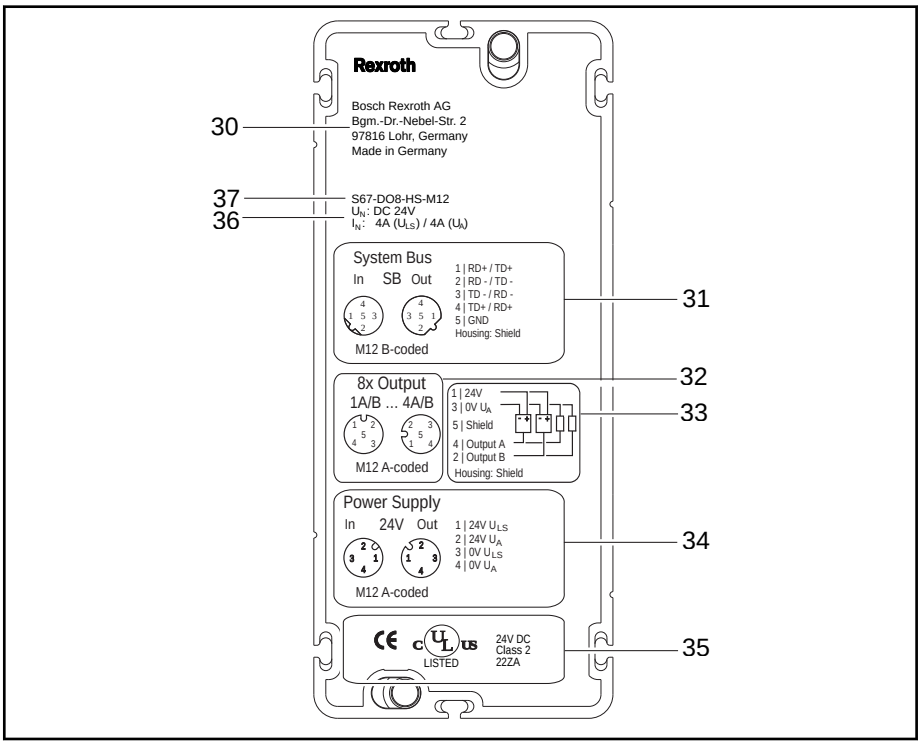


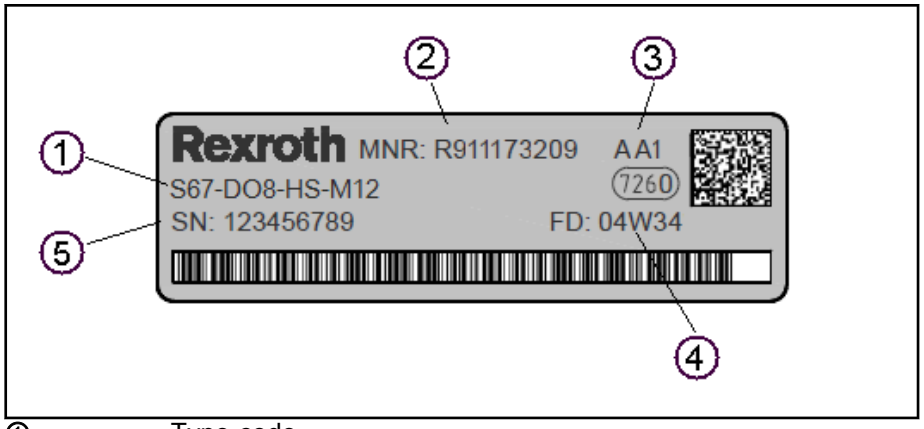
Fig. 4-4: Labeling and bar code type

Position	Description
30	Manufacturer's address
31	S-BUS pin assignment
32	Connection assignment of digital outputs
33	Pin example
34	Pin assignment of supply input and output
35	Information about licenses and CE mark
36	Current consumption and voltage specifications
37	Module description

Tab. 4-4: Labeling and bar code type

4.6 Type Plate

A label is attached to the side of the module. This label contains important information for tracing in case of claims or complaints:



① Type-code
② Parts number
③ Technical index
④ Manufacturing date
⑤ Serial number

Fig. 4-5: Type plate

4.7 Schematic Circuit Diagram

The following schematic circuit diagram gives an overview about the power supply and the mode of operation of power supply connections as well as the digital module outputs (see also chapter 6.4 "Supply Cable Connection" on page 33 and chapter 6.5 "Connecting the Actuator cable" on page 35).

Please note that the mutual field supply of the actuators is distributed to all module connections (X1 – X4, each pin 1).

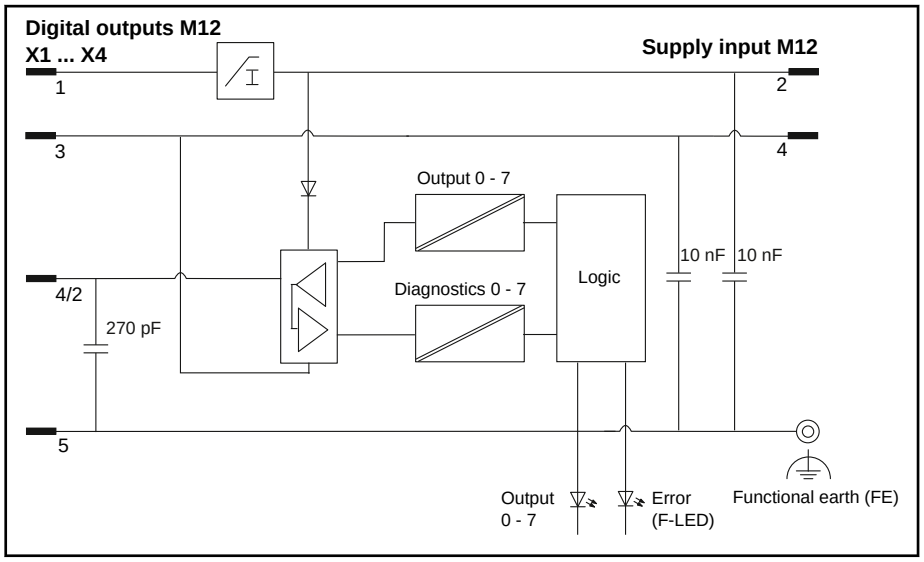


Fig. 4-6: Schematic circuit diagram

Device Description

4.8 Dimensions

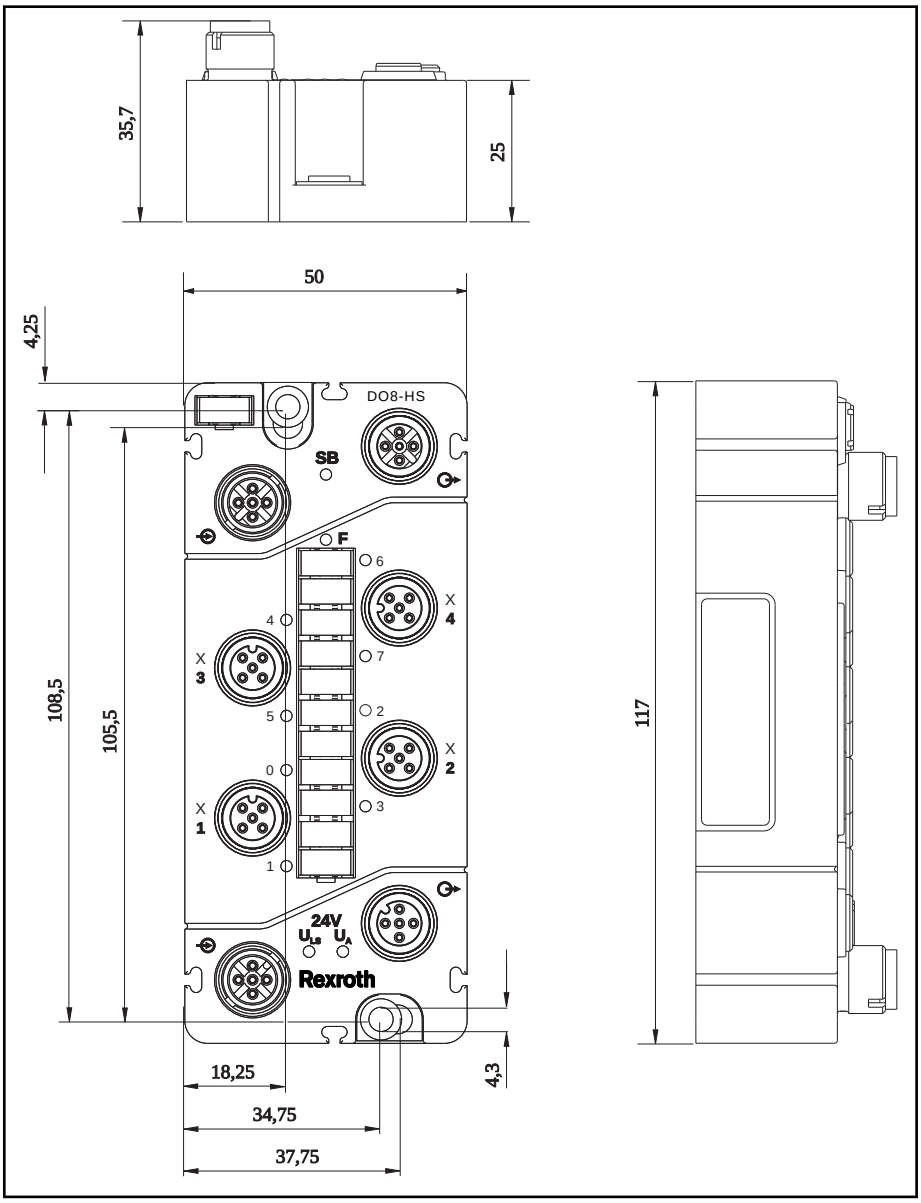


Fig. 4-7: Module dimensions in millimeters

4.9 Technical Data

4.9.1 Device Data

Dimensions (mm) B × H × T	50 × 117 × 35,7
Weight	Ca. 9.17 oz

Tab. 4-5: Device data

4.9.2 Module Supply

Type of connection	2 M12 connectors, A-coded, 4-pin①
Current-carrying capacity of the power supply connections	Maximum: 8 A (U_{LS}: 4 A, U_A: 4 A)

Supply voltage Logic and sensor voltage U_{LS} U_A actuator supply	 DC 24 V (-25 % … +30 %) DC 24 V (-25 % … +30 %)
Power supply input currents Logic and sensor voltage I_{LS} Actuator current I_A	 Typically 40 mA (logic component only) Typically 35 mA + actuator supply(≤ 1 A) + load
Protection function	Reverse polarity protection for U_{LS} + U_A Short circuit protection for actuator supply V_A

① Derating has to be complied with

Tab. 4-6: Module power supply

4.9.3 Communication

S-BUS connection	2 Shielded M12 connectors, B-coded, 5-pin

Tab. 4-7: Communication

4.9.4 Digital Outputs

Number of outputs	8 (0 ... 7)
Type of connection	4 Shielded M12 connectors, A-coded,5-pin, assigned twice
Wiring technique	2- to 3-wire
Output voltage	≤ U_A
Output current (per channel)	0.1 A short circuit and overload withstand capability (thermal deactivation)
Voltage drop against U_A at nominal load	Maximum 1.7 V DC
Output current (all channels)	Max. 0.8 A
Leakage current when switched off	Typically 50 µA
Output circuit	Push/Pull

Tab. 4-8: Digital outputs

4.9.5 Specification for Actuator Selection

Front-end throughput time 0 … 90 % (Hardware)	Max. 0.5 µs
Edge steepness $T_{ON/OFF}$	Typically < 0.2 µs
Front-end jitter/skew	< 0.2 µs
Cable length, shielded	≤ 30 m
Load type	Inductive, ohmic loads and lamps

Switching frequency	Inductive load: on request Ohmic load: on request Lamp load: on request
Type of protective circuit	External protection (e.g., recovery diodes)

Tab. 4-9: Information on selecting the actuator

4.9.6 Influence of Operating States to the Output

CPU stop of PLC	Acc. to substitute value strategy
Interruption of the field bus	Acc. to substitute value strategy
Interruption of the S-BUS	0 V status
Supply voltage under rated voltage tolerance	0 V status
Disconnection of the supply voltage	0 V status
Procedure of output	Non-storing
Behavior in case of overload	Automatic reboot

Tab. 4-10: Influence of operating states on output

4.9.7 Electrical Isolation

Channel - Channel	No
U_{LS}, U_A, S-BUS	DC 500 V each

Tab. 4-11: Electrical isolation

4.9.8 Parameterizable Functions

Substitute value strategy (per channel)	Switch substitute value/hold last value
Substitute value (per channel)	0/1
Diagnostics (per channel/per module)	Lock/unlock

Tab. 4-12: Parameterizable functions

4.9.9 Diagnostic I/O

Per channel	Actuator overtemperature (short circuit, overload or overtemperature of the output driver)
Per module	Undervoltage (U_{LS} + U_A)

Tab. 4-13: Diagnostic I/O

4.9.10 Process Image

Process data width	1 byte data + status

Tab. 4-14: Process image

4.9.11 Displays

0 … 7: Signal status of the outputs	LED (yellow= signal status/red= diagnostics)
F: Error status	LED (red)
U_{LS} + U_A: Supply status	LED (green)
SB: S-BUS status	LED (green/red/orange)
Display	Non-storing

Tab. 4-15: Display

4.9.12 Standards and Approvals

UL/CSA c UL US LISTED	UL 508 (Industrial Control Equipment)
	C22.2 No. 14-95 (CSA)
	UL file no. E210730
Conformity marking CE	CE

Tab. 4-16: Standards and approvals

5 Mounting the Module

5.1 General Information

The S67-DO8-HS-M12 module can be fastened directly to the system using screws. It can also be mounted on a mounting rail using an adapter or fastened to a profile rail using a mounting profile.

For mounting on a flat surface, Bosch Rexroth offers spacers as mounting aid; the spacers can be inserted between the IndraControl S67 components. This helps by providing sufficient mounting distance for compact direct mounting, as well as eliminating gaps where dirt could accumulate. A cable tie can be fastened through each of two eyebolts in the spacer, which together serve as strain relieve from the actuator cables.

5.2 Mounting Notes

The following information shall always be observed:

- Disconnect the power supply from the system before starting the installation.
- The maximum drilling hole diameter for the fastening holes of the field bus coupler must not exceed 4 mm. Otherwise, there may be no full contact with the PE socket of the S67-DO8-HS-M12 module and correct shielding is not possible.
- To protect the S67-DO8-HS-M12 module from tensile forces that may arise, do not bridge spaces with the module
- Screw the S67-DO8-HS-M12 module down only on flat contact surfaces to protect the module from warping
- Ensure that the connectors are not soiled during mounting. Dirt damages the contacts, which can cause corrosion in these areas
- To avoid damaging the S67-DO8-HS-M12 module, do not mount the module in shear areas of moving devices.
- Provide sufficient potential equalization in the system
- Use all fastening holes to mount the S67-DO8-HS-M12 module to the system so that all FE connections lie on a ground potential.

5.3 Required Tools and Accessories for Mounting

Depending on the mounting type, the following tools are required for installation:

- A screwdriver for M4 fastening screws
- Drilling machine to pre-drill the fastening holes for mounting on the system for the S67-DO8-HS-M12 module and, if required for the imperforated mounting rails
- M4 thread cutter (bottoming tap or hand tap set)

The Bosch Rexroth accessories listed below are required for mounting. The associated order numbers are listed in chapter 12 "Accessories" on page 51.

- Mounting rail adapter including fastening screws and perforated or non-perforated mounting rails (TS 35 x 7.5 rail) according to EN 60715

  or

- Profile adapter, including fastening screws

- Spacer (optional)

Two M4x12 screws are required for direct mounting of the S67-DO8-HS-M12 module. The length of the screw shaft is to be selected according to the fastening type.

Bore dimensions

When fastening the IndraControl S67 component without a threaded hole, the clearance hole must not be wider than 4 mm to ensure a safe contact of the FE (functional earth ground) connections.

5.4 Direct Mounting to the System

Mount the S67-DO8-HS-M12 module without using Bosch Rexroth accessories directly on a flat surface of the system. For direct mounting of the module proceed as follows:

1. Disconnect the power supply from those devices on which you wish to mount the S67-DO8-HS-M12 module.
2. Mark the drilling holes. For this, use the drilling template printed on the packaging. Alternatively, hold the S67-DO8-HS-M12 module in the desired position and mark the drill holes. Ensure that there is sufficient space around the IndraControl S67 series component so that all cables can be connected without problems.

☞ We recommend the use of Bosch Rexroth spacers for compact direct mounting. If these spacers are used, the additional distance from the second IndraControl S67 component must be observed (see chapter 5.8 "Mounting the Spacer in Case of Compact Arrangement" on page 28).

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3. Fasten the S67-DO8-HS-M12 module with the M4x12 screws via the two fastening holes.

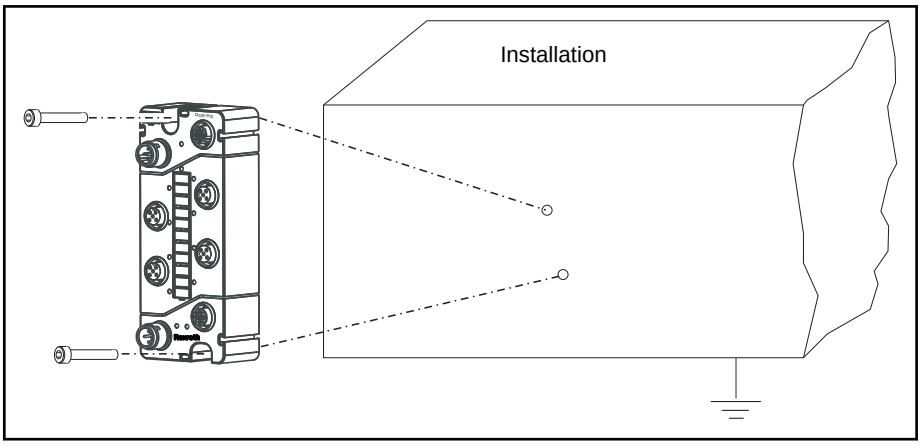


Fig. 5-1: Mounting the module at a grounded frame of the system or another earth connection point

5.5 Mounting on Carrier Rail (only with Bosch Rexroth Accessories)

5.5.1 Fastening Carrier Rail Adapter on the Module

A mounting rail adapter is required to mount the S67-DO8-HS-M12 module on mounting rails.

Screw together the S67-DO8-HS-M12 module and the mounting rail adapter using the M4 threaded screws provided, as shown in the figure below.

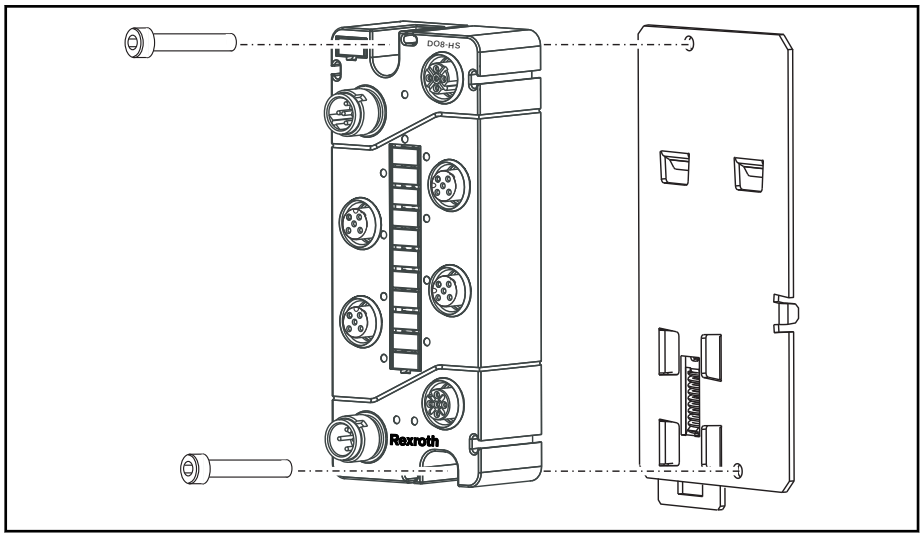


Fig. 5-2: Mounting on the mounting rail adapter

5.5.2 Fastening the Module with Mounting Rail Adapter to a Mounting Rail

In order to keep a clear representation, the mounting rail adapter in the figure below is shown without the S67-DO8-HS-M12 module.

When mounting the S67-DO8-HS-M12 module to a mounting rail (35 x 7.5 rail) using a mounting rail adapter, proceed as follows:

1. Disconnect the power supply from those devices on which you wish to mount the S67-DO8-HS-M12 module.
2. Set the S67-DO8-HS-M12 module onto the edge of the mounting rail (51) with the two notches (50).
3. Press the bottom side against the lower mounting rail edge until the latch (52) locks in place.

☞ For vertical mounting of the mounting rail or when vibrations or shock occur, the end clamp SUP-M01 or SUP-M01-AL are to be used for stabilization (see chapter 12.5 "End Clamp" on page 53).

Mounting the Module

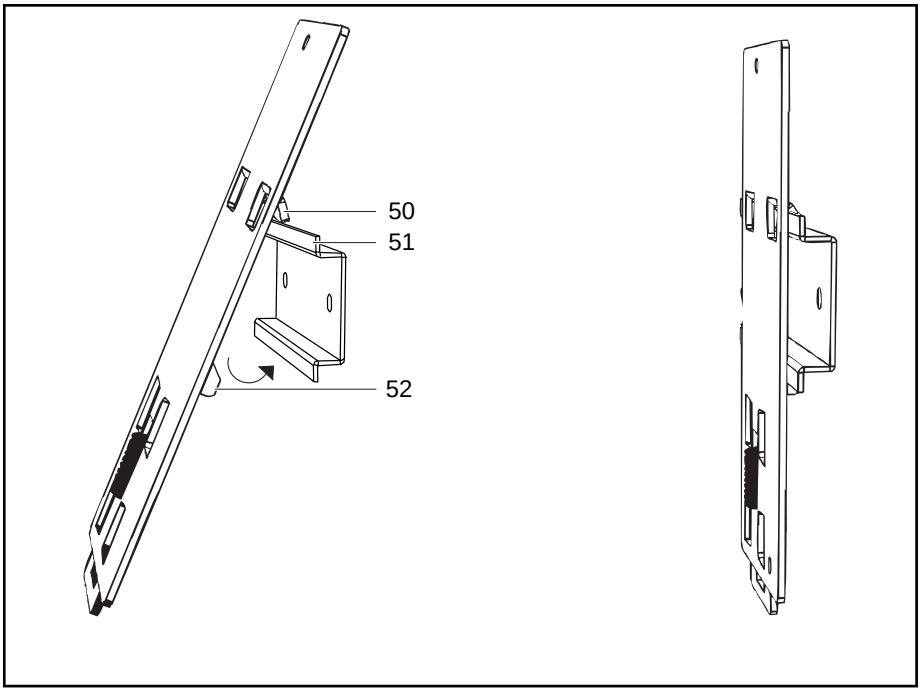


Fig. 5-3: Mounting the mounting rail adapter

5.6 Mounting on Profile Rail (only with Bosch Rexroth Accessories)

5.6.1 Fastening Profile Adapter on the Module

In addition to the attachment using a mounting rail adapter, the S67-DO8-HS-M12 module can be fastened to a profile rail using a profile adapter and nuts. It is required that the system supports this attachment type. The nuts are not included in the scope of delivery.

Screw together the S67-DO8-HS-M12 module and the profile adapter using the M4 threaded screws provided, as shown in the figure below.

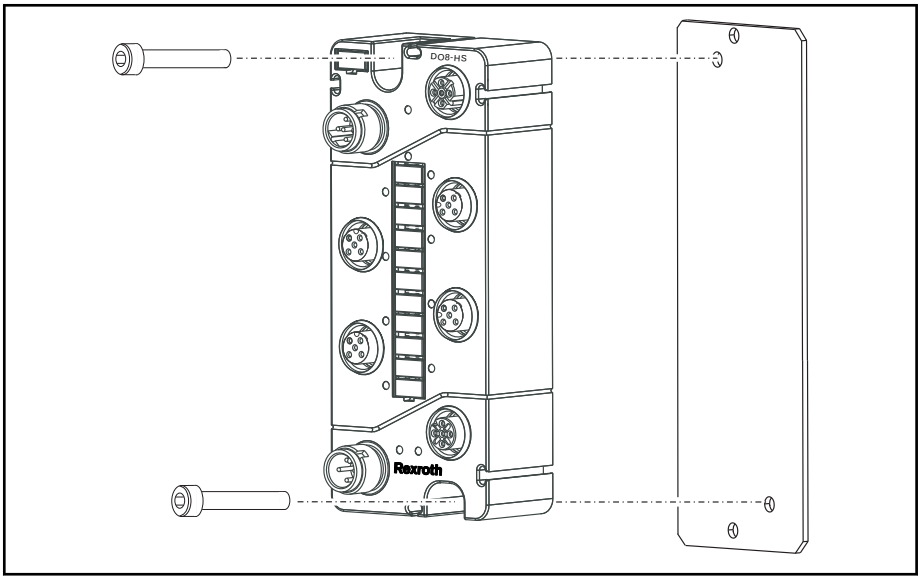


Fig. 5-4: Attaching to a profile adapter

5.6.2 Fastening the Module with Profile Adapter on Profile Rail

To fasten the S67-DO8-HS-M12 module to a profile rail of the system, two nuts are required with one screw each (length of screw threads must be compatible with the system).

1. Disconnect the power supply from those devices on which you wish to mount the S67-DO8-HS-M12 module.
2. Insert the two screws into the holes above and beneath the fastened S67-DO8-HS-M12 module on the profile adapter.
3. Fasten an appropriate nut on each of these screws.
4. Insert the profile adapter with the attached S67-DO8-HS-M12 module into the profile rail of the system. Position the profile adapter and tighten the screws.

5.7 Replacing the Labeling Fields

The module labeling card and labeling strip are attached ex works. The protective cover is to be removed when labeling the labeling strip. Proceed as follows:

1. Press the slot screwdriver (maximum slot width: 3 mm) into the small opening under the labeling strip cover (12) and lever the cover up.
2. Remove the labeling strip cover.
3. Label the labeling strip with a waterproof pen.
4. Reinsert the labeling strip cover and press the cover firmly in place.

If the module labeling card (10) is to be replaced, proceed in accordance with the step sequence described previously. New module labeling cards are available from Bosch Rexroth as accessories.

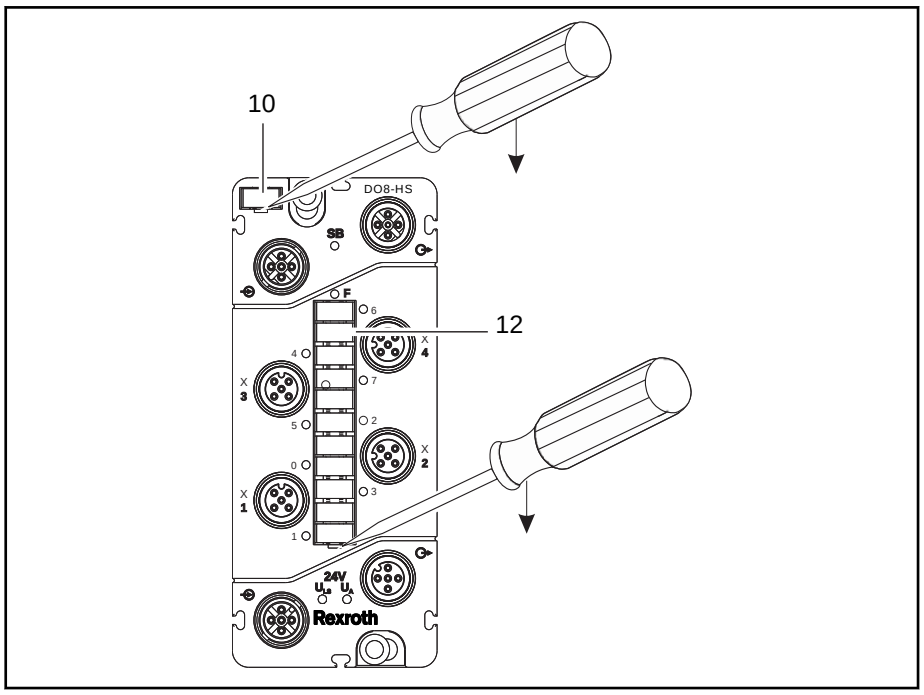


Fig. 5-5: Replacing the labeling fields

5.8 Mounting the Spacer in Case of Compact Arrangement

By using the spacer, a sufficient mounting distance can be achieved when directly mounting the IndraControl S67 components, and gaps can be eliminated where otherwise dirt and other substances could accumulate. In addition, it is possible to optimize the cable routing of the actuators. For this purpose, two fastening lugs each are included on the spacer for cable ties.

1. Disconnect the power supply from those devices on which you wish to mount the S67-DO8-HS-M12 module.
2. To prevent the IndraControl S67 components from falling out when it is mounted overhead, the spacer can only be moved in the designated openings of the S67-DO8-HS-M12 module from below. To bind both components, place the S67-DO8-HS-M12 module on the spacer for this reason or push the spacer from the bottom into the S67-DO8-HS-M12 module.
3. Fasten the attached components on a flat surface by fastening the S67-DO8-HS-M12 module to the grounded border of your system or to another grounding point with two M4 screws via the mounting holes.

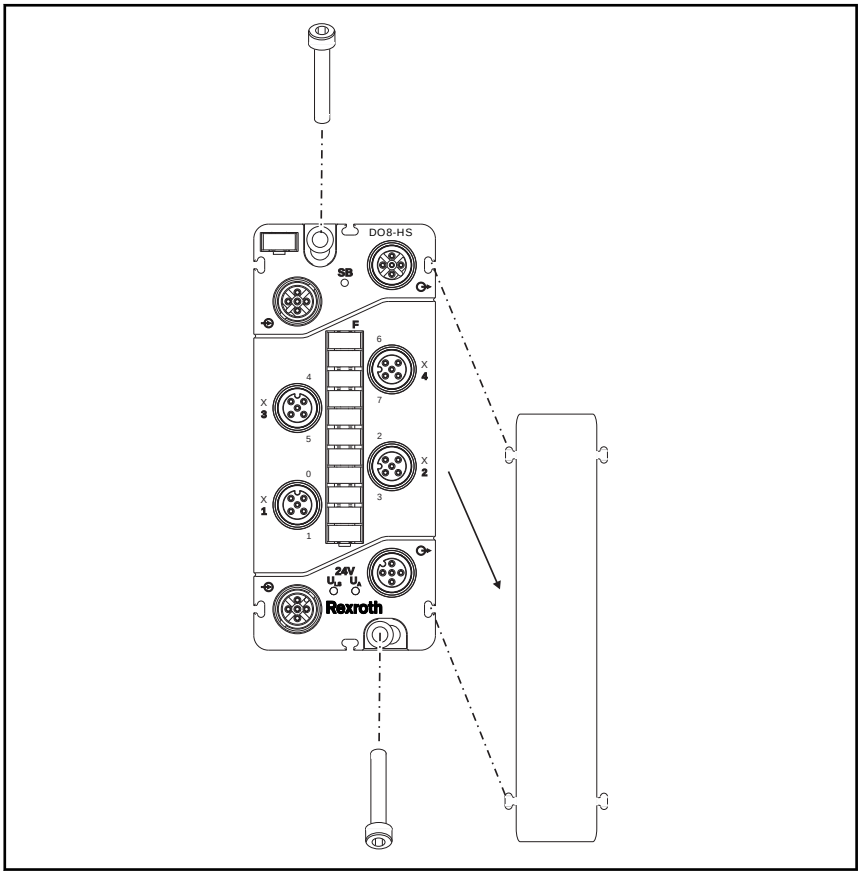


Fig. 5-6: Attaching a spacer on a module

4. When attaching further IndraControl S67 components, only one IndraControl S67 component connected with a spacer can be attached and screwed to the preceding component due to the mounting direction. The last IndraControl S67 component is fastened without a spacer.

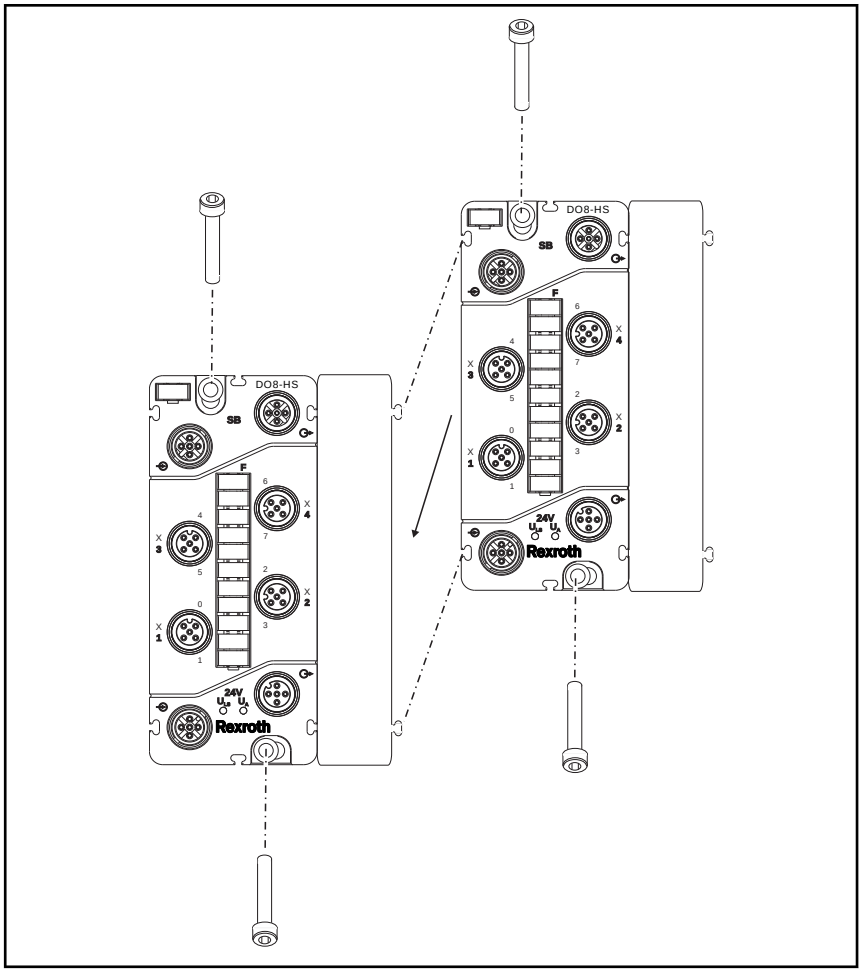


Fig. 5-7: Attaching a further module with spacer

6 Connecting Data and Supply Cable

6.1 Notes

⚠ WARNING **Voltage!**

Operate the IndraControl S67 components exclusively with DC 24 V PELV (Protective Extra Low Voltage) or SELV (Safety Extra Low Voltage) voltage sources. Failure to comply may result in electric shock.

NOTICE **The highest current carrying capacity of the supply contacts is 4 A!**

Always observe the maximum current carrying capacity per supply line (U_{LS}, U_A) as well as the total current consumption for all IndraControl S67 components. The value must not exceed 4 A since an increase in current causes the contacts to overheat and damages the IndraControl S67 components.

NOTICE **Exposed connections!**

If connections have not been closed with protective caps, liquid or dirt can penetrate the S67-DO8-HS-M12 and destroy the module. Protect all non-required connection with protective caps to comply with protection class IP 67.

- The connectors must be disconnected from the power supply when screws are tightened.
- Tighten the connectors only by hand. Using mechanical tools can cause the threads to strip. In this case, the S67-DO8-HS-M12 module has to be exchanged

  Tightening torques for connectors are:

  – Actuator connections, M12: 0.6 Nm
  – S-BUS and supply connections, M12: 0.6 Nm
- Check the exact positioning (coding) between plug and socket
- Use only ready-made Bosch Rexroth system cables for transmission of the power supply and for the S-BUS. This is the only way to achieve the specified values of technical data.
- Keep sufficient distance of the cables from electromagnetic sources of interference in order to maintain a high noise immunity of the IndraControl S67 system against electromagnetic emissions.
- Observe the minimum bending radius of Bosch Rexroth system cables, see chapter 12 "Accessories" on page 51.
- When laying the cables, ensure not to lay the cables in shear areas of moving machine parts.
- Ensure the correct layout of the potential equalization.
- Do not use drop lines under any circumstances as otherwise increased line reflections and signal distortions arise. This would significantly impair the transmission properties.

Connecting Data and Supply Cable

6.2 Required Accessories

The Bosch Rexroth accessory components listed below are required for connecting the data and supply cable. The corresponding order numbers are listed in chapter 12 "Accessories" on page 51.

- S-BUS M12 terminator, IP 67 degree of protection
- S-BUS and supply cables, ready-made on both ends, IP 67
- Protective caps

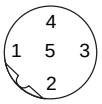
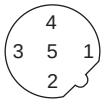
6.3 S-BUS Connection

The S-BUS is used for communication between a field bus coupler and the connected IndraControl S67 components.

Requirement

- A Bosch Rexroth S-BUS cable ready-made on both ends is available, which is necessary for optimal signal transmission.
- The S-BUS terminator is available, which is necessary for communication.

The following table outlines the assignment of the S-BUS connections:

Connection		Contact	Description	
			IN	OUT
IN 	OUT 	1	RD+	TD+
		2	RD-	TD-
		3	TD-	RD-
		4	TD+	RD+
		5	0 V DC	
		Connection thread	Shielded	

Tab. 6-1: S-BUS: Pin assignment

To connect the S-BUS cable to the field bus coupler and to the modules, proceed as follows:

1. Disconnect the power supply from those devices on which you have mounted the S67-DO8-HS-M12 module.
2. Connect the S-BUS cable (S1) to the OUT connection (3) of the field bus coupler and the IN connection (1) of the S67-DO8-HS-M12 module. For example, if two modules have been connected to the field bus coupler, connect the S-BUS cables (S1, S2) to the associated IN and OUT connections, as shown in the figure below.
3. Tighten the plugs and sockets using the knurled-head screw.
4. Attach the S-BUS terminator (T) to the last module as shown in the figure and tighten the S-BUS terminator.

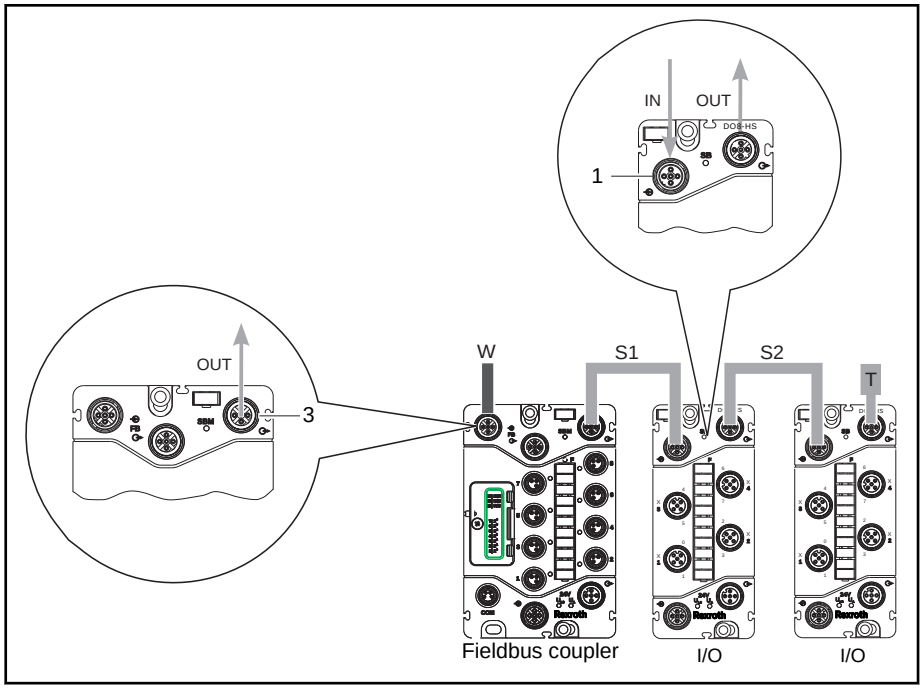


Fig. 6-1: S-BUS connected to field bus coupler and I/O modules

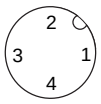
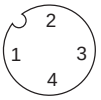
6.4 Supply Cable Connection

The supply cable is used to supply the S67-DO8-HS-M12 module.

Requirement

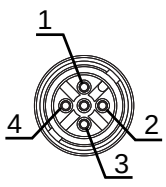
Bosch Rexroth supply cables, ready-made on both ends (K1 and K2 in fig. 6-3 "Supply cable connected to field bus coupler and I/O modules" on page 35).

The following table outlines the assignment of the supply connections:

Connection		Contact	Description
IN 	OUT 	1	24 V DC U_{LS}
		2	24 V DC U_A
		3	0 V U_{LS}
		4	0 V U_A

Tab. 6-2: Supply connection: Pin assignment

Contact assignment of the supply cable assembled on one end (view on socket):

Connection	Contact	Description	Cable strand color
	1	24 V DC U_{LS}	Brown
	2	24 V DC U_A	White
	3	0 V U_{LS}	Blue
	4	0 V U_A	Black

Tab. 6-3: Supply cable assembled on one end: Contact assignment

Connecting Data and Supply Cable

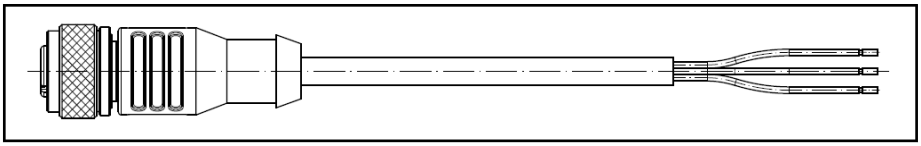


Fig. 6-2: Supply cable assembled on one end

NOTICE **The highest current carrying capacity of the supply contacts is 4 A!**

Always observe the maximum current carrying capacity per supply line (U_{LS}, U_A) as well as the total current consumption for all IndraControl S67 components. The value must not exceed 4 A since an increase in current causes the contacts to overheat and damages the IndraControl S67 components.

To connect the supply cable to the field bus coupler and to the modules, proceed as follows:

1. Disconnect the power supply from those devices on which you have mounted the S67-DO8-HS-M12 module.
2. Connect the power supply transmission cable (K1) to the OUT connections (9) of the field bus coupler and the IN connections (5) of the S67-DO8-HS-M12 module. For example, if two modules have been connected to the field bus coupler, connect the power supply transmission cable (K1, K2) to the associated inputs and outputs, as shown in the figure below.
3. Tighten the plugs and sockets using the knurled-head screw.
4. Screw a protective cap on all unused connections to comply with IP 67 degree of protection.

Information on connecting the power supply cable (K0) to the IN port (6) of a field bus coupler can be found in the appropriate application descriptions of the field bus coupler.

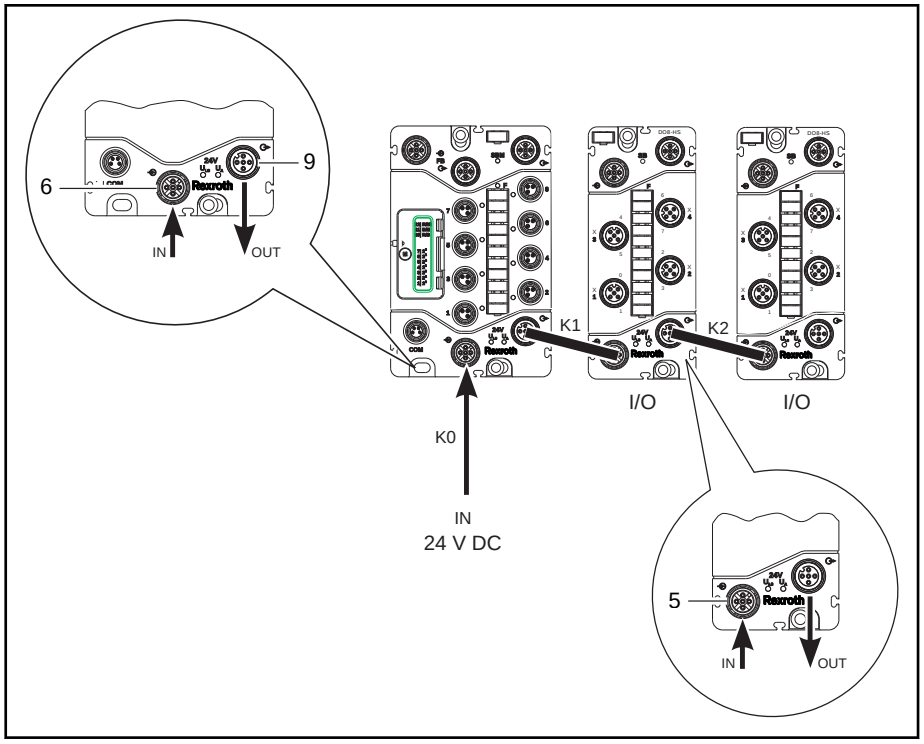


Fig. 6-3: Supply cable connected to field bus coupler and I/O modules

6.5 Connecting the Actuator cable

The actuator cable provides power to the connected actuators and transfers the actuator signals.

When using cables that have not been ready-made, make sure that the cables are connected to a M12 connector of IP 67 degree of protection. The following table outlines the assignment of the actuator connections:

Connection		Contact assignment
OUT 1 2 5 4 3 X1, X3	OUT 2 3 5 1 4 X2, X4	1: 24 V U_A 3: 0 V U_A 5: Shield 4: Output A 2: Output B Housing: Shield

Tab. 6-4: Digital outputs: Pin assignment

NOTICE **The highest current carrying capacity of the supply contacts is 4 A!**

Ensure that the actuators from the U_A supply line are supplied with power. The actuator's power consumption must be taken into consideration when determining the current power demand for the V_A supply line.

Connecting Data and Supply Cable

NOTICE **The actuator's power consumption must not exceed 1 A!**

Please note that the combined power consumption of all connected actuators must not exceed 1 A. The distribution of power among the existing connections is depending on the individual power requirements of the sensors.

To connect the actuators to the digital outputs (X1 – X4), proceed as follows:

1. Disconnect the power supply from those devices on which you have mounted the S67-DO8-HS-M12 module.
2. Insert the plug of the actuator cable into the socket of a digital output (3) of the S67-DO8-HS-M12 module, and tighten the plug using the knurled-head screw.
3. Screw a protective cap on all unused connections to comply with IP 67 degree of protection.

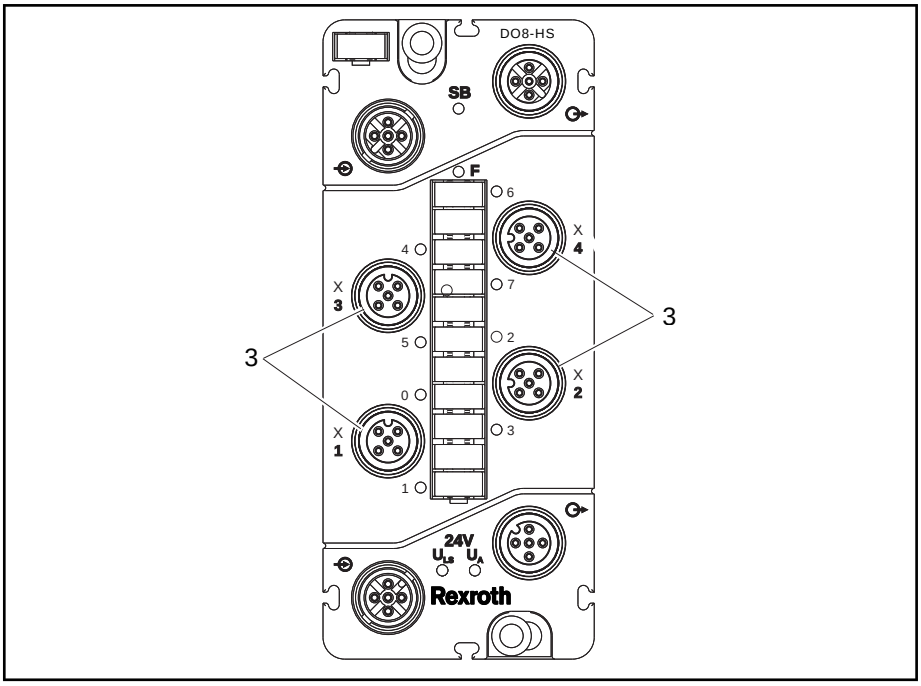


Fig. 6-4: Digital outputs

7 Commissioning

7.1 General Information

NOTICE	**Exposed connections!**

If connections have not been closed with protective caps, liquid or dirt can penetrate the S67-DO8-HS-M12 and destroy the module. Protect all non-required connection with protective caps to comply with protection class IP 67.

Before starting up the IndraControl 767 station, make sure that:

- a field bus coupler of the IndraControl S67 series[1)] and the S67-DO8-HS-M12 module are correctly mounted
- all required supply, sensor or actuator and S-BUS connections as well as the S-BUS connection are screwed tightly at the provided connections (see chapter 6 "Connecting Data and Supply Cable" on page 31)
- an appropriate potential equalization is executed at the system
- and the shielding is carried out correctly

1) *See field bus coupler application descriptions (IndraControl S67)*

8 Process Images

8.1 General Information

The process images of the module contained in the following chapters describe the data position on the S-BUS. The field bus coupler application manual describes the conversion of the S-BUS process images to the respective field bus process images.

The process image is divided into two areas: An area for output data and an area for input data. The process image can contain process data with or without diagnostic information, depending on whether the transmission of the synchronous[1)] diagnostic information has been activated. The diagnostic information can only be activated by means of a field bus coupler as the coupler supports the function of the synchronous diagnostic (e.g. S67-PB-BK-DI8-M8). Detailed information about activating the transmission of diagnostic information is contained in the application manual of the field bus coupler in the device description file chapter.

☞ Synchronous diagnostics is disabled in the module in its delivery status.

Detailed information can be found starting in chapter 9 "Parameterization" on page 41.

☞ **Diagnosis:"overtemperature"**

The "overtemperature" diagnosis of the outputs is only possible when the output is switched on.

8.2 Output Data

The process image for the process data that is sent from the field bus coupler to the S67-DO8-HS-M12 module has a size of 1 byte. If a synchronous diagnostic confirmation is parameterized for the module, the process image size is 3 byte.

The process data and the diagnostic confirmation are structured as follows:

1) *Synchronous diagnostic information specifies the cyclic diagnostic information transfer in the process image. By default, the cyclic diagnostic information transfer in the process image is disabled in the module.*

Process Images

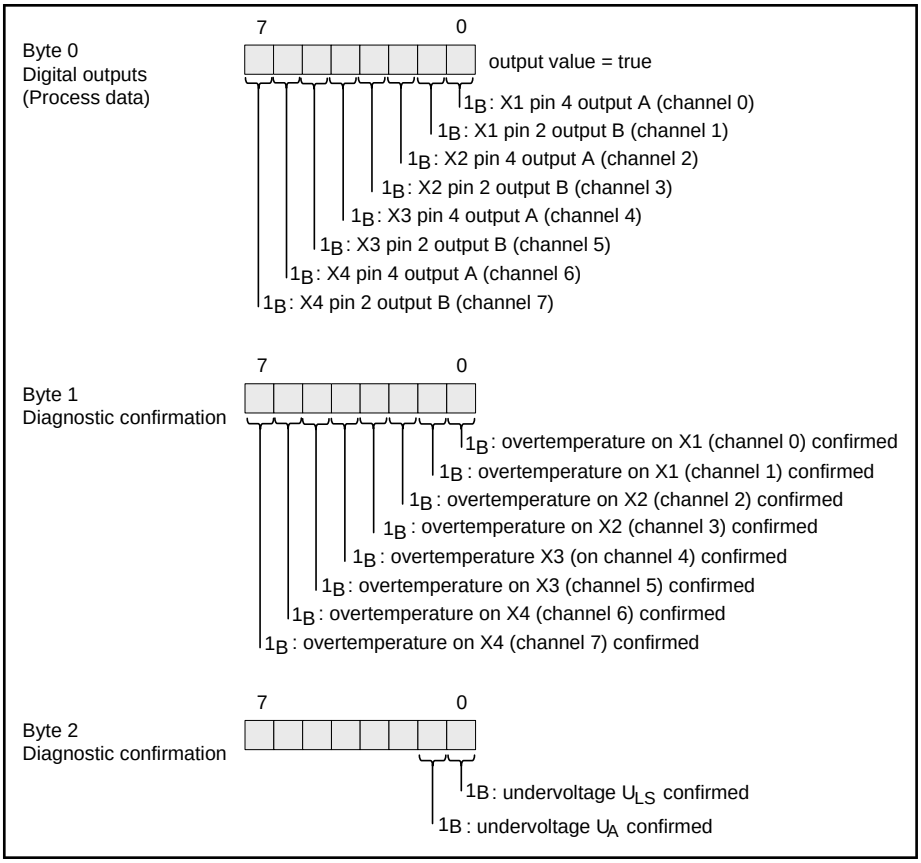


Fig. 8-1: Process image, output data

8.3 Input Data

The process image for the process data that is sent from the field bus coupler to the S67-DO8-HS-M12 module has a size of 0 byte. If synchronous diagnostic data is parameterized for the module, the process image size is 2 bytes.

The byte configuration is as follow:

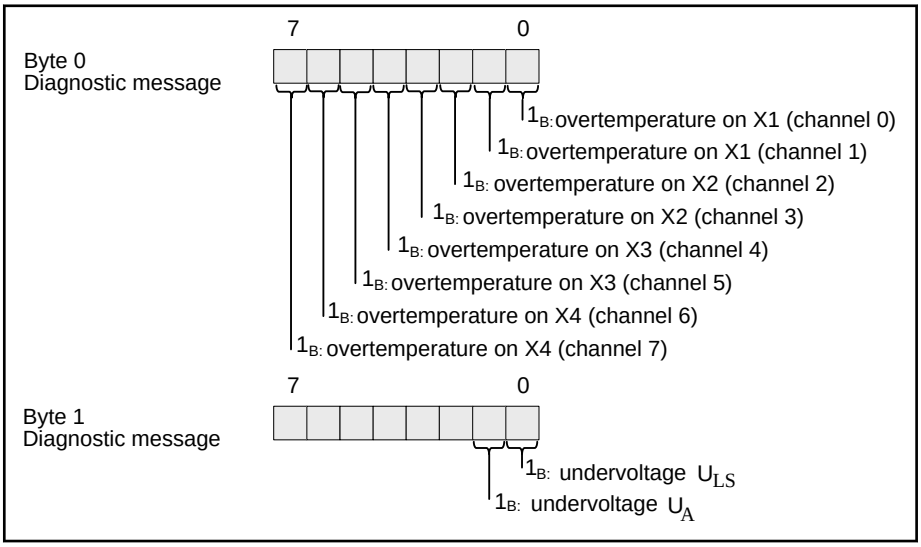


Fig. 8-2: Process image, input data

9 Parameterization

9.1 General Information

According to the field bus type only certain parameters are available for parameterization. Further information can be found in the respecting documentation of the field bus coupler.

⚠ WARNING **Changing parameters!**

When parameters are changed incorrectly, machine components can be placed in a dangerous state and endanger persons and machines. Before changing the parameters, ensure that the machine components are in a safe and defined state and switch off the higher-level controller. Ensure before start-up that no persons remain in the danger area of the machine components.

For parameterization with IndraWorks, set the operating settings of the S67-DO8-HS-M12 module, e.g. the behavior in the event of failures, the release of diagnostic messages etc.

The operating settings are transmitted via parameter telegram to the S67-DO8-HS-M12 module operated at the S-BUS.

The parameters of the S67-DO8-HS-M12 module are set in IndraWorks. By double-clicking the S67-DO8-HS-M12 module in the project explorer, the parameterization user interface is opened in the workspace. The S67-DO8-HS-M12 module is parameterized offline. The offline mode enables the parameterization of an S67-DO8-HS-M12 module that is not yet present. Firstly, the set parameters are saved in the project. The parameter data is transmitted during the download of the PLC program.

9.2 Diagnostic Overview

The S67-DO8-HS-M12 module supports module-comprehensive and channel-specific diagnostics. The transmission of diagnostics can be activated and deactivated. If diagnostics is deactivated, the display behavior of the LED(s), which signalize(s) the respective diagnostics, changes. For further information please refer to chapter 10 "Diagnostics via LED Signals" on page 45.

Diagnostic messages of the S67-DO8-HS-M12 module are specified according to the following tables:

Parameterization

Global diagnostics	Description
Undervoltage U_{LS}	**⚠ WARNING** Disabling the outputs. In case of an undervoltage of U_A and/or U_{LS}, the module outputs are disabled. Machine components can be set to a dangerous state and endanger personnel as well as the machine. If there is an undervoltage at the module of the logic and sensor supply (U_{LS} < 18 V), the outputs are disabled and a diagnostics is sent to the field bus coupler. The F-LED of the module lights up
Undervoltage U_A	**⚠ WARNING** Disabling the outputs. In case of an undervoltage of U_A and/or U_{LS}, the module outputs are disabled. Machine components can be set to a dangerous state and endanger personnel as well as the machine. If there is an undervoltage of the actuator supply at the module (U_A < 18 V), the outputs are disabled and a diagnostics is sent to the field bus coupler. The F-LED of the module lights up

Tab. 9-1: Global diagnostics of the module

Channel diagnostics	Description
Overheating	The module detected excess temperature at the corresponding channel (only active in case of an active actuator output) The causes may include: overtemperature load or short circuit or overload of the output level

Tab. 9-2: Channel diagnostics of the module

☞ When interrupting an S-BUS, the S67-DO8-HS-M12 module is automatically set to STOP. The module outputs are disabled.

9.3 Input Parameters

An overview of the parameters that can be set for the digital output is given in the following table.

Parameter	Description
Diagnostics	The channel-related diagnostics can be enabled/disabled here (for more information, see tab. 9-2 "Channel diagnostics of the module" on page 42): - **lock**① - unlock
Substitute value strategy	The substitute value strategy outputs the substitute value or the last valid output value, e.g in case a field bus is interrupted. The following options are available: - **Activate the substitute value**① - Retain last value②
Substitute value	Enter here the process value that is released in case of an error or if a field bus is missing. In the case of an error (e.g. field bus interruption), this value is used with the "Switch to Substitute Value" substitute value strategy. - **0**① - 1

① Delivery status

② The last value is a value that is reported at the contact before the interference occurs. For example, this value can be a process value

Tab. 9-3: Overview of adjustable parameters for the digital outputs

9.4 Global Settings for Field Supply

If a short circuit has occurred, the field supply is switched off 1000 ms. Then the field supply is switched on again. If the short circuit condition remains, the procedure is repeated.

9.5 Automatic Storage of System Parameters

Some field bus couplers provide the "System Parameter Handling" feature. This function is used to identify changes to the configuration of the IndraControl S67 node and to the automatic parameterization of the modules. If a module is to be replaced due to a defect, the new module is not to be reconfigured anymore. The stored parameters are automatically transferred to the replaced module.

9.6 Firmware Update

During a firmware update of the S67-DO8-HS-M12 module, the stored module parameters can be overwritten. Thus, check the parameterization after a firmware update.

☞ The firmware update can be carried out only by the Bosch Rexroth Service.

10 Diagnostics via LED Signals

10.1 General Information

For on-site diagnostics, the S67-DO8-HS-M12 module has different LEDs that display the operating state of the module and of the S-BUS.

10.2 Operating Messages of the Module

The following table lists the operating messages that are indicated via LEDs. Information regarding remedies of certain causes is also provided.

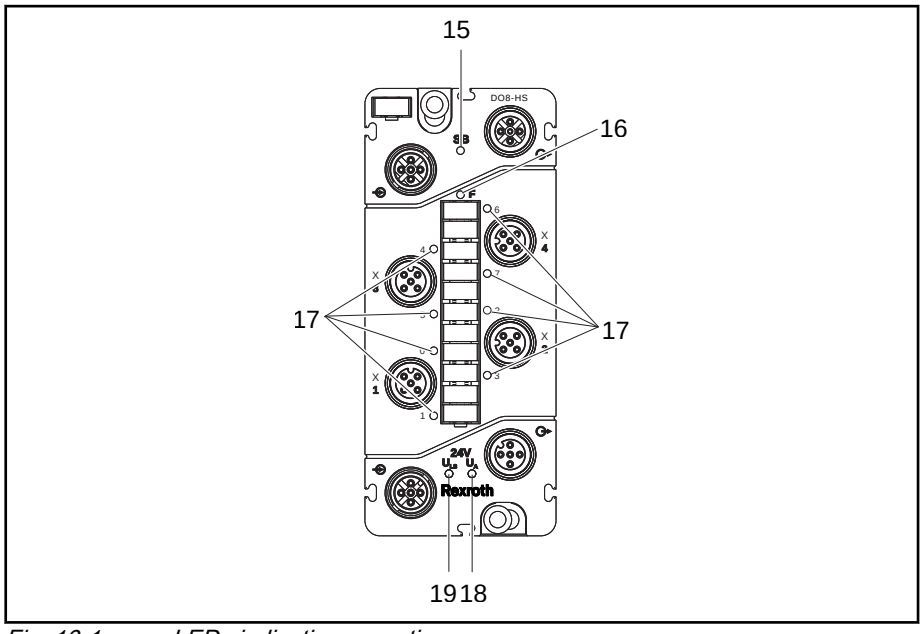


Fig. 10-1: LEDs indicating operating messages

Diagnostics via LED Signals

Position	LED	Color/status	Cause	Remedy/Information
15	SB	Off	Low voltage U_{LS} is not present	Check the supply voltage
		Red, flashing, 4 Hz	S-BUS error at the module	Check whether the S-BUS cable is connected. Check the S-BUS cable for damages. Check whether the firmware of the field bus coupler is compatible with the firmware of the module
		Red, flashing, 1 or 2 Hz	The module is being restarted via the field bus coupler	If the flashing frequency is 1 Hz, please contact the Bosch Rexroth service
		Green	Data exchange is executed; process data values are valid. The module is in RUN status	–
		Green and orange, flashing, 1 Hz	The set substitute value is applied to the module	Can be set by the field bus coupler if field bus is missing. Check the field bus connection as well as the status of the higher-level controller
		Orange, flashing, 2 Hz	The module has detected the S-BUS	–
		Orange and green, flashing, 4 Hz	Detection of the last module in IndraControl S67 node is executed	Check the S-BUS terminator and/or the S-BUS wiring
		Orange, flashing, 1 Hz	The field bus coupler addresses the module in the IndraControl S67 node	–
		Orange and green, flashing, 2 Hz	S-BUS parameters are taken over by the field bus coupler	–
		Orange	The firmware is being updated	All IndraControl S67 components are being updated by the field bus coupler within the node
		Orange, flashing, 4 Hz	The module tries to establish a communication with the field bus coupler	Check the supply voltage of the upstream IndraControl S67 component and/or check the S-BUS cable for damages
15	SB	Green, flashing, 1 Hz	The module is in HOLD state	Is initiated by the field bus coupler. The last values output at the modules are retained
		Green, flashing, 2 Hz	The module is in STOP state	Is initiated by the field bus coupler. "0" is returned as output value

Tab. 10-1: Operational message 1

Position	LED	Color/status	Cause	Remedy/Information
16	F	Red	At least one global diagnostic message was reported at the module	Check the supply voltages U_{LS} and U_A of the upstream IndraControl S67 components
17	I/O	Yellow	Output signal active	–
		Red	Error at output	Check the actuator connection for short circuits or overload

Tab. 10-2: Operational message 2

Position	LED	Color/status	Cause	Remedy/Information
18	U_A	Green	Actuator supply U_A available	–
		Off	Actuator supply U_A not available	Connect the supply voltage and check the voltage level, if applicable.
19	U_{LS}	Green	Logic supply and sensor supply U_{LS} available	–
		Off	Logic supply and sensor supply U_{LS} not available	Connect the supply voltage and check the voltage level, if applicable.

Tab. 10-3: Operational message 3

11 Maintenance and Service

11.1 General Information

This section contains information on maintenance and service.

11.2 Replacing the Module

11.2.1 General Information

To replace a S67-DO8-HS-M12 module in the event of version change, etc., proceed as described in the following chapters.

11.2.2 Disconnecting the Wiring

Before removing the connectors, clean the S67-DO8-HS-M12 module to ensure that no dirt or other material comes in contact with the connections. This could damage the contacts.

To unplug the cables, proceed as follows:

1. Disconnect the power supply from those devices on which you have mounted the S67-DO8-HS-M12 module.

   ⚠ CAUTION **Hot connection sockets!**

   Even when taking into account derating, high surface temperatures on the metallic connection sockets and on the enclosure can arise during operation. If the IndraControl S67 component has been in operation, allow the component to cool off before touching it.

2. Unscrew all screw connections and remove the cables.

11.2.3 Removing the Field Bus Coupler from the System

To remove the S67-DO8-HS-M12 module from the system, proceed as follows:

1. Disconnect the power supply from those devices on which you have mounted the S67-DO8-HS-M12 module.
2. Release the S67-DO8-HS-M12 module from the system by unscrewing the M4 screws.

11.2.4 Removing the Field Bus Coupler from the Carrier Plate

In order to keep a clear representation, the mounting rail adapter in the figure below (B, C) is shown without the S67-DO8-HS-M12 module.

If the S67-DO8-HS-M12 module is mounted on a mounting rail, proceed with the removal as follows:

1. Disconnect the power supply from those devices on which you have mounted the S67-DO8-HS-M12 module.
2. To remove the S67-DO8-HS-M12 module, press down the release eyebolt of the mounting rail adapter using a slot screwdriver (B) and remove it from the rail (C).

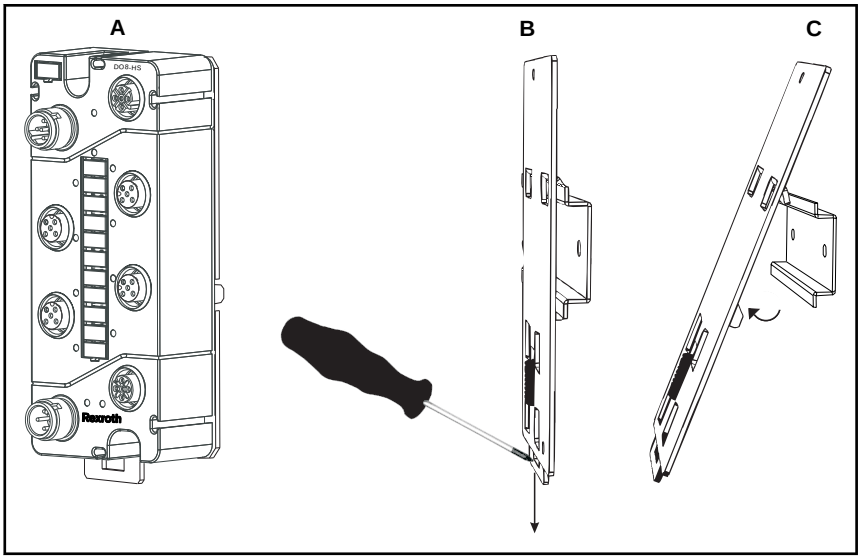


Fig. 11-1: Removing the module with mounting rail adapter from the mounting rail

11.2.5 Removing the Field Bus Coupler from the Profile Adapter

If the S67-DO8-HS-M12 module is mounted on a profile adapter, proceed with the removal as follows:

1. Disconnect the power supply from the device on which you have mounted the S67-DO8-HS-M12 module before beginning to remove the module.
2. Unscrew the screws on which the nuts are fastened and remove the S67-DO8-HS-M12 module from the profile rail of the system.
3. Unscrew the screws that connect the S67-DO8-HS-M12 module with the profile adapter.

11.2.6 Connecting the Module

To connect the new S67-DO8-HS-M12 module proceed as described in the following chapters:

- chapter 5 "Mounting the Module" on page 23
- chapter 6 "Connecting Data and Supply Cable" on page 31
- chapter 7 "Commissioning" on page 37

If necessary, the parameters of the previous S67-DO8-HS-M12 module are transferred to the new module, depending on the type of the field bus coupler being used (see also chapter 9.5 "Automatic Storage of System Parameters" on page 43).

11.3 Disposal

Do not dispose of the IndraControl S67 components in the household waste; observe the local applicable laws. You can also contact a certified disposal company.

12 Accessories

12.1 General Information

The most important IndraControl S67 accessory components to commission the IndraControl S67-DO8-HS-M12 module are listed.

12.2 Assembled S-BUS Cables

Cable carrier-compatible

- RKB0049: Cable carrier-compatible
- RKB0041: No cable carrier compatibility specified

Bending radius:

- Bending radius for one-time bending: At least 5 times the outer diameter

Tensile load:

- Cable, tensile load: 60 N
- Connector, tensile load: 60 N

For the connector assignment of the S-BUS connection as well as the notes on the S-BUS cable connection, refer to the chapter "Connecting Data and Supply Cables".

System bus cable, M12 female connector, M12 connector

Ordering code	Parts number	Length
RKB0046/000,0	R911172581	Variable length

Tab. 12-1: S-BUS cable, ready-made on both sides, B-coded

Ordering code	Parts number	Length
RKB0041/000,2	R911171990	0.2 m
RKB0041/000,3	R911171991	0.3 m
RKB0041/000,5	R911171992	0.5 m
RKB0041/001,0	R911171993	1.0 m
RKB0041/002,0	R911171994	2.0 m
RKB0041/005,0	R911171995	5.0 m
RKB0041/010,0	R911171996	10.0 m
RKB0041/000,0	R911172579	Variable length

Tab. 12-2: S-BUS cable, ready-made on both sides, B-coded

System bus terminator, connector B-coded, axial

Ordering code	Parts number
RBS0020/CNN	R911171998

Tab. 12-3: S-BUS terminator

12.3 Ready-Made Supply Cables

Cable carrier-compatible:

Accessories

- RKB0046: Cable carrier-compatible
- RKB0047: Cable carrier-compatible

Bending radius:

- Bending radius for one-time bending: At least 10 times the outer diameter

Tensile load:

- Cable, tensile load: 45 N
- Connector, tensile load: 45 N

☞ The pin assignment of the supply connection is described in the chapter "Connecting Data and Supply Cables".

Voltage cable, unshielded, 4-pin, 0.75 mm², PUR M12 connector, straight, A-coded - M12 female connector, straight, A-coded

Ordering code	Parts number	Length
RKB0046/000,2	R911172102	0.2 m
RKB0046/000,3	R911172103	0.3 m
RKB0046/000,5	R911172104	0.5 m
RKB0046/001,0	R911172105	1.0 m
RKB0046/002,0	R911172106	2.0 m
RKB0046/005,0	R911172107	5.0 m
RKB0046/010,0	R911172108	10.0 m
RKB0046/000,0	R911172580	Variable length

Tab. 12-4: Supply cable, A-coded - Male and female connector

Voltage cable, unshielded, 4-pin, 0.75 mm², PUR M12 female connector, straight, A-coded - Open end

Ordering code	Parts number	Length
RKB0047/005,0	R911172100	5.0 m
RKB0047/010,0	R911172101	10.0 m

Tab. 12-5: Supply cable, A-coded - Female connector, open end

12.4 Carrier Rail Adapter, Profile Adapter and Spacer

Ordering code	Parts number	Brief description
SUP-M01-S67-0001	R911172119	Carrier rail adapter for field bus coupler
SUP-M01-S67-0002	R911172120	Carrier rail adapter for I/O modules and power distributor
SUP-M01-S67-0003	R911172121	Profile adapter for field bus coupler

Ordering code	Parts number	Brief description
SUP-M01-S67-0004	R911172122	Profile adapter for I/O modules and power distributor
SUP-M01-S67-0005	R911172123	Spacer

Tab. 12-6: Carrier rail adapter, profile adapter and spacer

12.5 End Clamp

Ordering code	Parts number	Brief description
SUP-M01-ENDHALTER	R911170685	Rapid assembly end clamp for 35 mm NS 35/7,5 or NS 35/15 carrier rail, width: 9.5 mm
SUP-M01-ENDHALTER/AL	R911171035	End clamp for 35 mm NS 35/7,5 or NS 35/15 carrier rail, model: Aluminum, 2 screws used for fixing, width: 10 mm
SUP-M01-ENDHALTER/PA	R911172352	End clamp for 35 mm carrier rail, model: Polyamide, width: 9.5 mm

Tab. 12-7: End clamp

12.6 Protective Caps

Protective caps for female and male connectors that are not assigned (M8, M12)

Ordering code	Parts number	Brief description
RF-PROT-M8	R911170895	M8 protective cap (external thread)
RF-PROT-M12-M	R911171999	M12 protective cap (internal thread)
SUP-M01-SM*12.1	R911277260	M12 protective cap (external thread)

Tab. 12-8: Protective caps

12.7 Module Labeling Strips

Ordering code	Parts number	Brief description
SUP-M01-S67-0007	R911172125	Labeling strip 4xM12 (for I/O modules) VPE=10

Tab. 12-9: Module labeling strips

13 Appendix

13.1 Diagnostic Information

Some field bus couplers display the error code in the form of an attribute path (CIA), through which the diagnostics can be clearly assigned. Other field bus couplers (e.g. Profinet I/O or Profibus DP) convert the attribute path into the respecting field bus-specific message.

The following diagnostic codes can be generated by the S67-DO8-HS-M12 module:

Diagnostic message	Attribute path			Classification
	C	I	A	
Undervoltage U_{LS} (Sensor supply)	50	1	128	Diagnostic alarm
Undervoltage U_A (Actuator supply)	50	1	129	Diagnostic alarm

Tab. 13-1: Diagnostics of the module

Diagnostic message	Attribute path			Classification
	C	I	A	
Overheating This function is only active when the actuator output is switched on	9	Channel no.	130	Diagnostic alarm

Tab. 13-2: Diagnostics of the channels of the module

14 Service and support

Our worldwide service network provides an optimized and efficient support. Our experts offer you advice and assistance should you have any queries. You can contact us **24/7**.

Service Germany

Our technology-oriented Competence Center in Lohr, Germany, is responsible for all your service-related queries for electric drive and controls.

Contact the **Service Helpdesk & Hotline** under:

Phone:	**+49 9352 40 5060**
Fax:	**+49 9352 18 4941**
E-mail:	service.svc@boschrexroth.de
Internet:	http://www.boschrexroth.com

Additional information on service, repair (e.g. delivery addresses) and training can be found on our internet sites.

Service worldwide

Outside Germany, please contact your local service office first. For hotline numbers, refer to the sales office addresses on the internet.

Preparing information

To be able to help you more quickly and efficiently, please have the following information ready:

- Detailed description of malfunction and circumstances resulting in the malfunction
- Type plate name of the affected products, in particular type codes and serial numbers
- Your contact data (phone and fax number as well as your email address)

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Notes

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