The Drive & Control Company

Rexroth
Bosch Group

Rexroth IndraControl S67

Power Divider (6×M12)

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Edition 01	2010-07	First edition
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Table of Contents

Table of Contents

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 power divider module S67-PWR-IN-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	R911329571
Application Description	Rexroth IndraControl S67 DTM Input and Output Modules	R911340953
Field Bus Coupler		
Application Description	Rexroth IndraControl S67 Ethernet/IP Coupler 8 Digital Inputs (M8)	R911329563
Application Description	Rexroth IndraControl S67 Profibus Coupler 8 Digital Inputs (M8)	R911329565
Application Description	Rexroth IndraControl S67 Profinet Coupler 8 Digital Inputs (M8)	R911329567
Application Description	Rexroth IndraControl S67 sercos Coupler 8 Digital Inputs (M8)	R911338400
Modules		
Application Description	Rexroth IndraControl S67 Digital Module 8 Outputs – 0.5 A (8×M8)	R911329559
Application Description	Rexroth IndraControl S67 Digital Module 8 Outputs – 2.0 A (8×M8)	R911329561
Application Description	Rexroth IndraControl S67 Digital Module 8 Outputs – 0,5 A (4×M12)	R911329555
Application Description	Rexroth IndraControl S67 Digital Module 8 Outputs – 2.0 A (4×M12)	R911329557
Application Description	Rexroth IndraControl S67 Digital Module High Speed 8 Outputs – 0.1 A (4×M12)	R911342199
Application Description	Rexroth IndraControl S67 Digital Module 8 Outputs – 0.5 A (8×M12)	R911342195
Application Description	Rexroth IndraControl S67 Digital Module 8 Inputs (8×M8)	R911329551
Application Description	Rexroth IndraControl S67 Digital Module 8 Inputs (4×M12)	R911329549

Document	Title	Parts number
Application Description	Rexroth IndraControl S67 Digital Module High Speed 8 Inputs (4×M12)	R911342197
Application Description	Rexroth IndraControl S67 Digital Module 8 Inputs (8×M12)	R911342193
Application Description	Rexroth IndraControl S67 Digital Module 8 Inputs/ Outputs – 0.5 A (8×M8)	R911338694
Application Description	Rexroth IndraControl S67 Digital Module 8 Inputs/ Outputs – 0.5 A (8×M12)	R911338696
Application Description	Rexroth IndraControl S67 Digital Module High Speed 4 Inputs/Outputs – 0.2 A (4×M12)	R911342201
Application Description	Rexroth IndraControl S67 Analog Module – 4 Inputs Voltage/Current (4×M12)	R911329543
Application Description	Rexroth IndraControl S67 Analog Module – 4 Inputs for the RTD (4×M12)	R911329541
Application Description	Rexroth IndraControl S67 Analog Module – 4 Inputs TC Temperature Sensors (4×M12)	R911338698
Application Description	Rexroth IndraControl S67 Analog Module – 4 Outputs Voltage/Current (4xM12)	R911329545
Application Description	Rexroth IndraControl S67 Universal Interface Module - 4 Inputs/Outputs – 0.5 A (M12)	R911339360
Application Description	Rexroth IndraControl S67 HTL Encoder, Counter Module 4 Digital Inputs/Outputs (4×M12)	R911342203
Application Description	Rexroth IndraControl S67 TTL, SSI Encoder Module 4 Digital Inputs/Outputs (4×M12)	R911342205

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.

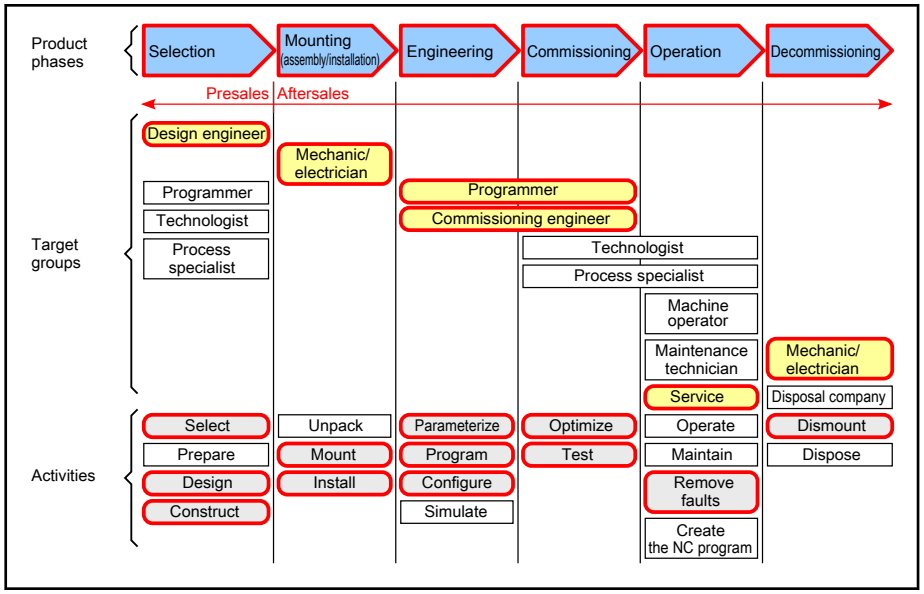


Fig. 1-1: Assigning this documentation to the target groups, product phases and target group activities

Purpose

This documentation is intended for users commissioning a power divider module of type S67-PWR-IN-M12. This documentation contains general information on the power divider module. Mounting and cabling of the power divider are also described. A description of the basic commissioning steps is given.

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 7 and chapter 3 "Using the Safety Instructions" on page 9).

For a short overview on the structure and the function of the power divider module, refer to chapter 4 "Device Description" on page 11.

For the mounting description of the power divider module, refer to chapter 5 "Mounting Module" on page 19.

For information on data and supply cables, refer to chapter 6 "Connecting Supply Cables" on page 27.

For the commissioning of the power divider module, refer to chapter 7 "Commissioning" on page 31.

For the diagnostic options regarding the power divider module, refer to chapter 8 "Status of U_A and U_{LS} by LED Signals" on page 33.

For information on the module exchange, refer to chapter 9 "Maintenance and Service" on page 35.

For information on the accessories for the power divider module, refer to chapter 10 "Accessories" on page 37.

For information on the customer service help desk of Bosch Rexroth, refer to chapter 11 "Service and support" on page 41.

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
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 as intended. 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, they must remain in the original state, in other words, no structural changes 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 as described in the relevant documentation

2.1.2 Use and Application Cases

The S67-PWR-IN-M12 module supplies the IndraControl S67 components with voltage.

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

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

☞ The S67-PWR-IN-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 applies to 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.

The S67-PWR-IN-M12 module may only be operated under the mounting and installation conditions, the position, and the ambient conditions (tempera-

ture, degree of protection, humidity, EMC, etc.) specified in the related documentation.

2.2 Unintended Use

Using the S67-PWR-IN-M12 module in areas of applications other than the modules specified or described in the documentation and the technical specifications is considered as "unintended".

The S67-PWR-IN-M12 module must not be used in case of

- operating conditions which do not meet the specified ambient conditions. Operation under water, extreme temperature fluctuations or extreme maximum temperatures is prohibited
- Use in household devices or devices belonging to the 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:

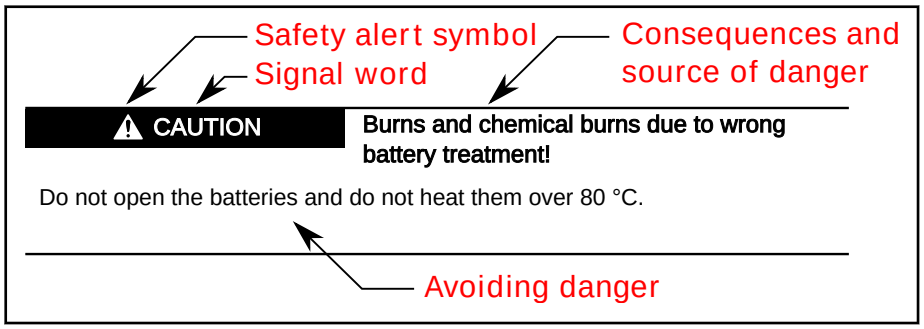


Fig. 3-1: Structure of the safety instructions

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.

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 passive module S67-PWR-IN-M12 (without S-BUS or field bus connection) is used exclusively to supply the IndraControl S67 components. As it is possible to supply power separately or form supply groups, the infeed of I/O nodes with a large expansion is also possible (also refer to the Application Manual "Rexroth IndraControl S67").

Using an M23 male connector with a cable cross section of up to 2.5 mm^2 allows to feed in higher total currents (U_{LS} and U_A) which the module distributes across the six supply outputs (M12).

4.2 Connections

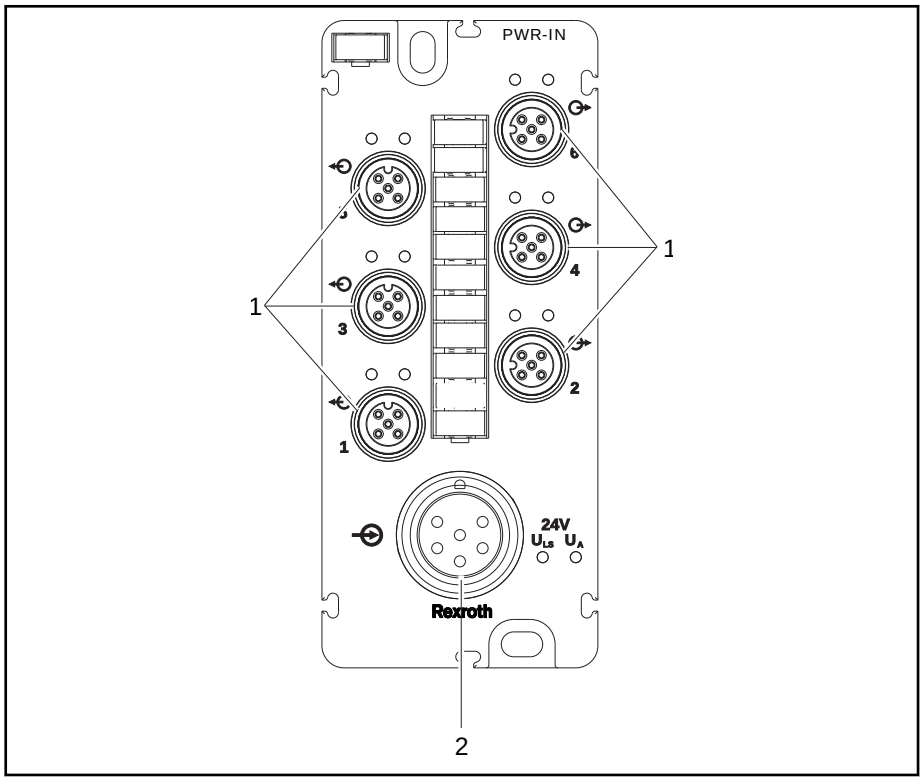


Fig. 4-1: ID of the module connections

Position	Description	Function
1	Supply outputs M12 socket, A-coded	To supply S67 components (individual and supply group)
2	Supply input M23 socket	To feed in U_{LS} and V_A supply voltages

Tab. 4-1: ID of the module connections

Device Description

4.3 Labeling Options and Mounting

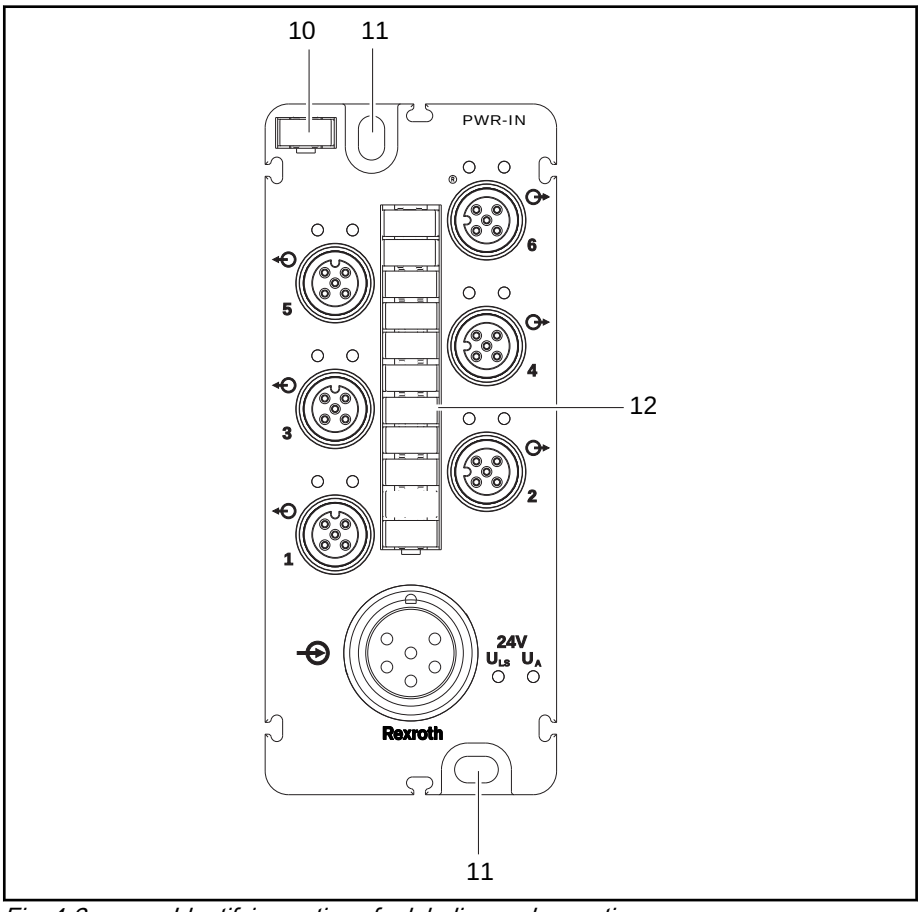


Fig. 4-2: Identifying options for labeling and mounting

Position	Description	Function
10	Module labeling plate	To identify the module in a field bus node
11	Mounting holes	Mounting the module using M4 screws
12	Labeling strips	To identify connections

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

4.4 Display Elements

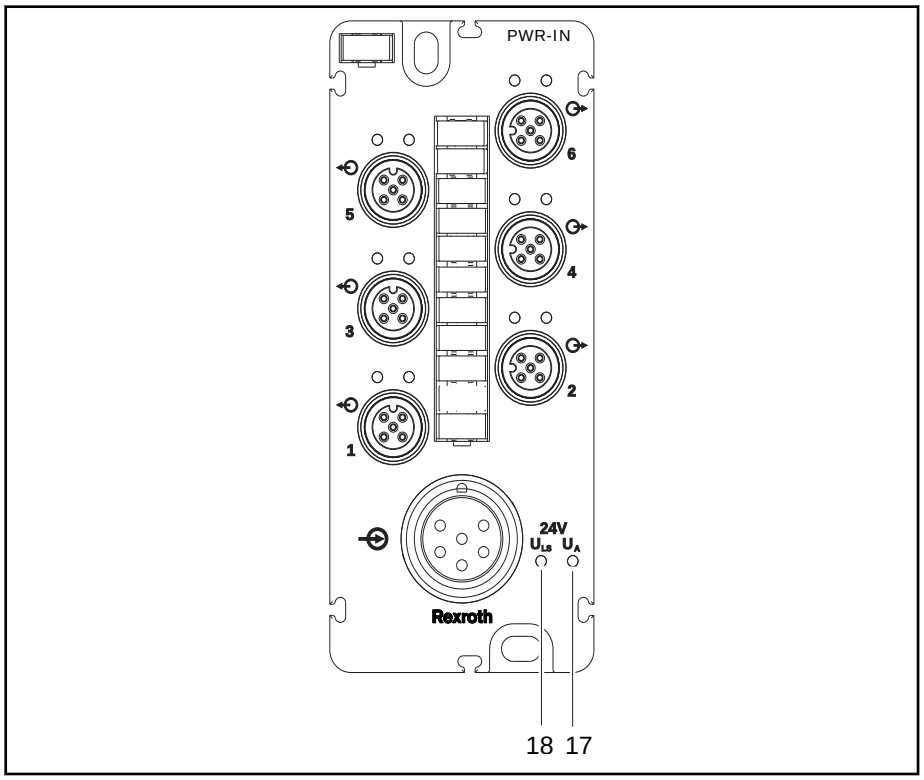


Fig. 4-3: Identifying module LEDs

Position	LED	Color	Meaning
17	U_A	Green	Actuator supply present
18	U_{LS}	Green	Logic supply present

Tab. 4-3: Identifying module LEDs

Device Description

4.5 Labeling and Symbols at Rear Side

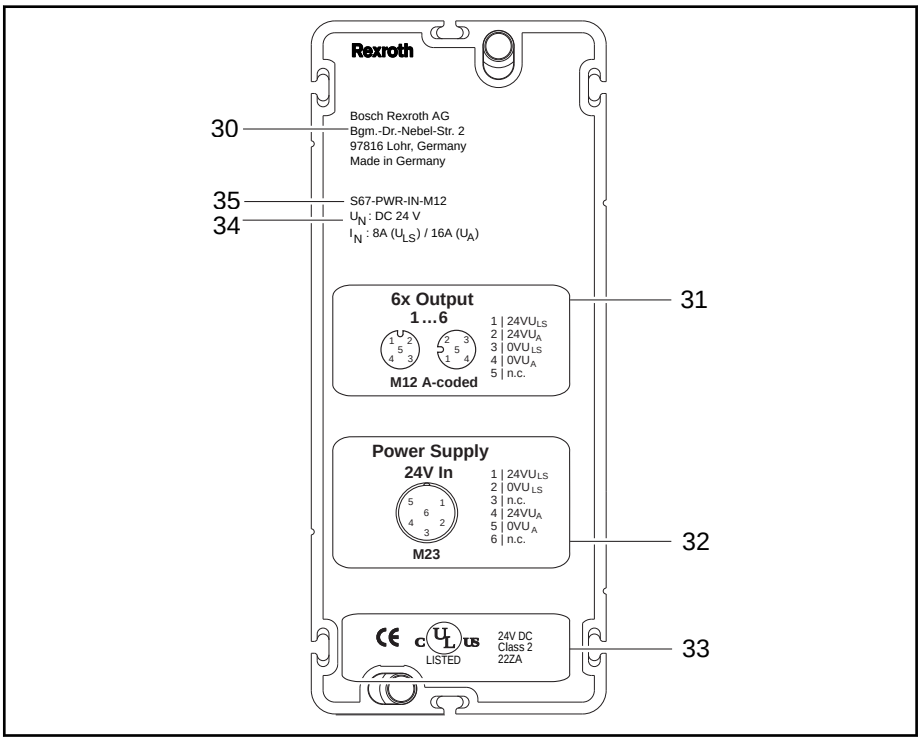


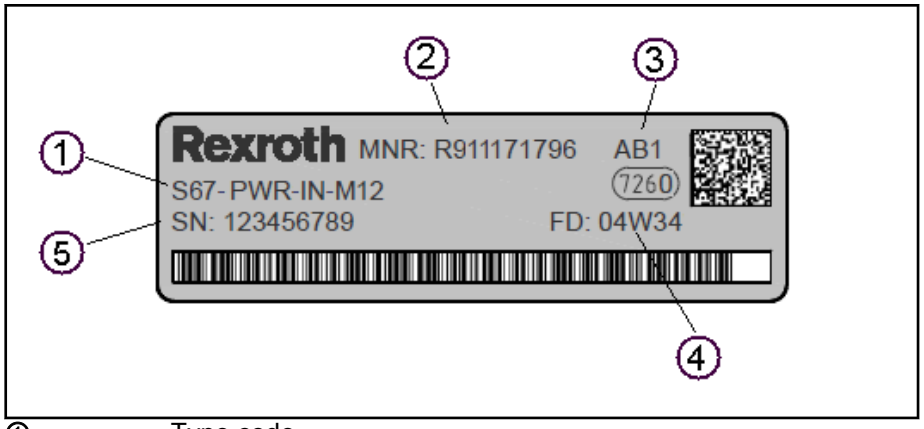
Fig. 4-4: Labeling and symbols

Position	Description
30	Manufacturer address
31	Pin assignment and coding type for supply outputs
32	Pin assignment and coding type for supply input
33	Information on approval and CE mark
34	Power consumption and voltage specifications
35	Module name

Tab. 4-4: Labeling and symbols

4.6 Type Plate

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



① Type code
② Parts number
③ Technical index
④ Date of manufacture
⑤ Serial number

Fig. 4-5: Type plate

4.7 Schematic Diagram

The following schematic diagram provides an overview on the mode of operation of the module (also refer to chapter 6.3 "Connecting M23 Supply Cable" on page 28 and chapter 6.4 "Connecting M12 Supply Cable" on page 29).

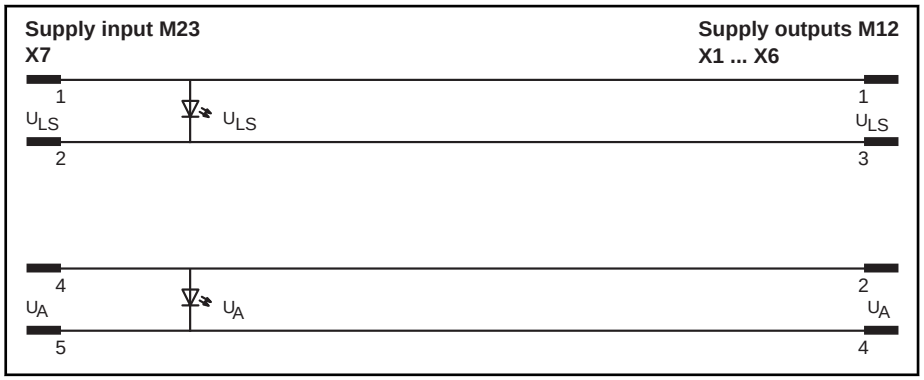


Fig. 4-6: Schematic diagram

Device Description

4.8 Dimensions

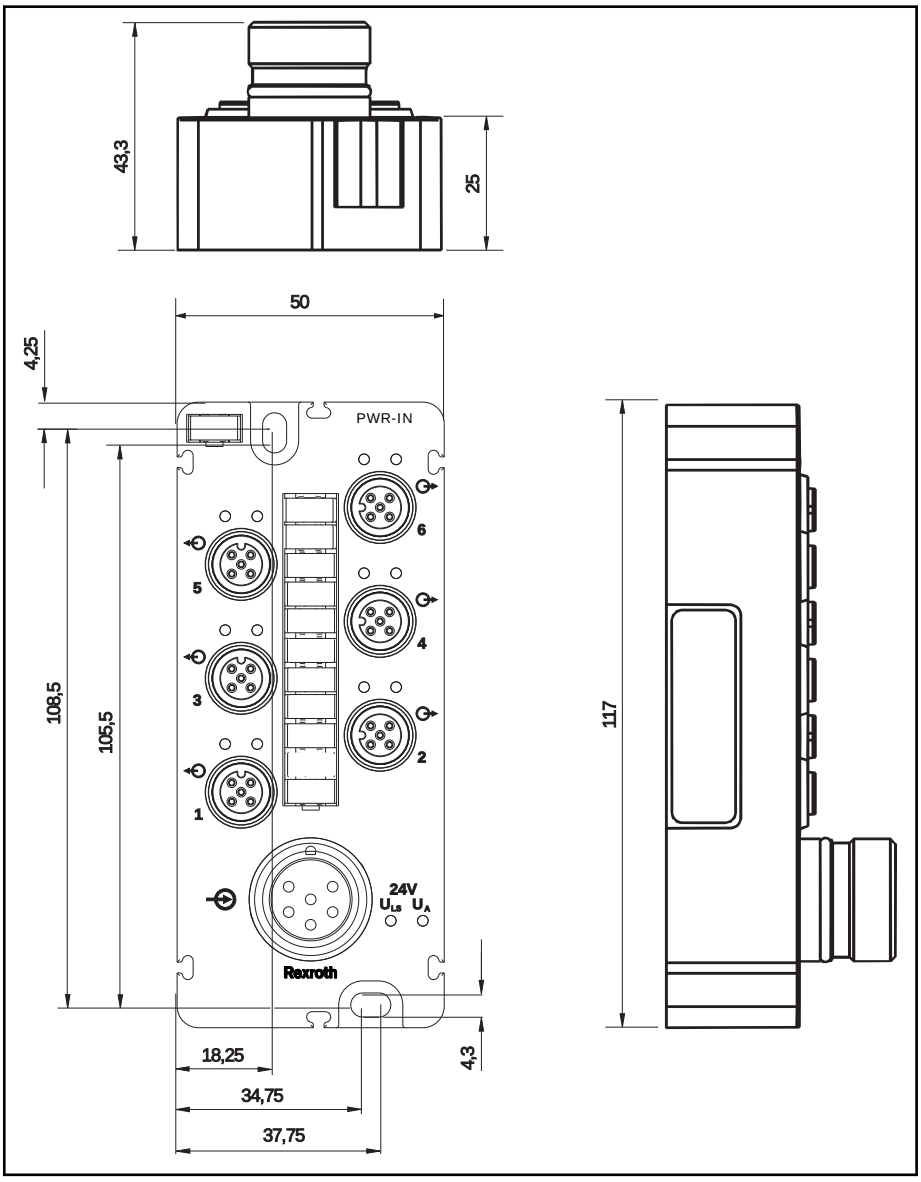


Fig. 4-7: Module dimensions in millimeters

4.9 Technical Data

4.9.1 Device Data

Dimensions (mm) W × H × D	50 × 117 × 43.3
Weight	Ca. 276 g

Tab. 4-5: Device data

4.9.2 Module Supply

Connection type	M23 male connectors, 6-pin① (cable cross section up to max. 2.5 mm^2)
Supply voltage Logic and sensor voltage U_{LS} Actuator voltage U_A	 24 V DC (-25 % … +30 %) 24 V DC (-25 % … +30 %)
Supply current Logic and sensor current I_{LS} Actuator current I_A	 Typically 4 mA Typically 4 mA
Supply outputs Number of outputs Connection type Current carrying capacity/connection Current carrying capacity/module Short-circuit protection	 6 M12 male connector, A-coded, 4-pin① Maximum: 8 A (U_{LS}: 4, U_A: 4 A) ① Max. 24 A (U_{LS} max. 8 A)①, (U_A max. 16 A)① No

① Derating has to be complied with

Tab. 4-6: Module supply

4.9.3 Electrical Isolation

U_{LS} - U_A	500 V DC

Tab. 4-7: Electrical isolation

4.9.4 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. 4-8: Standards and approvals

5 Mounting Module

5.1 General Information

The S67-PWR-IN-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.

To mount on a flat surface, Bosch Rexroth provides spacers as mounting aid. The spacers can be inserted between the IndraControl S67 components. This provides sufficient mounting distance for compact direct mounting and prevents gaps where dirt can accumulate. A cable tie can be fastened through each of two eyes in the spacer, which together serve as strain relieve of the actuator cables.

5.2 Mounting Notes

Always follow the subsequent instructions:

- Disconnect the power supply from the system before mounting.
- The maximum drilling hole diameter for the fastening holes of S67-PWR-IN-M12 module must not exceed 4 mm
- To protect the S67-PWR-IN-M12 module from tensile forces, do not bridge spaces with that module
- Screw the S67-PWR-IN-M12 module only on flat contact surfaces to protect it from warping
- Ensure that the connectors are not soiled during mounting. Dirt damages the contacts. Corrosion can be caused
- In order not to damage the S67-PWR-IN-M12 module, do not mount it in shear areas of moving system components
- Provide sufficient potential equalization in the system
- Use all fastening holes to mount the S67-PWR-IN-M12 module to the system

5.3 Required Tools and Accessories for Mounting

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

- Screwdriver for M4 fastening screws
- Drilling machine to pre-drill the fastening holes to mount on the system for the module and, if applicable, for the imperforated mounting rails
- M4 thread cutter (tap or tap set)

The Bosch Rexroth accessory components listed below are required for mounting. The corresponding ordering numbers are listed in chapter 10 "Accessories" on page 37.

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

  or

- Profile adapters including fastening screws
- Spacer (optional)

Two M4x12 screws are required for direct mounting of the module. Select the length of the screw shaft with regard to the fastening type

Drilling dimensions

Mounting Module

When fastening the S67 component without a threaded hole, the clearance hole must not be wider than 4 mm.

5.4 Direct Mounting to System

Mount the S67-PWR-IN-M12 module directly on a flat system surface without using Bosch Rexroth accessories. To directly mount the module, proceed as follows:

1. Disconnect the power supply from those devices on which the S67-PWR-IN-M12 module is to be mounted.
2. Mark the drilling holes. Use the drilling template printed on the packaging. Alternatively, position the S67-PWR-IN-M12 module as desired and mark the drill holes. Ensure that there is sufficient space around the IndraControl S67 series component to connect all cables 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 onwards is to be observed (see chapter 5.8 "Mounting Spacer in Case of Compact Arrangement" on page 24).

3. Fasten the S67-PWR-IN-M12 module with the M4x12 screws via the two fastening holes.

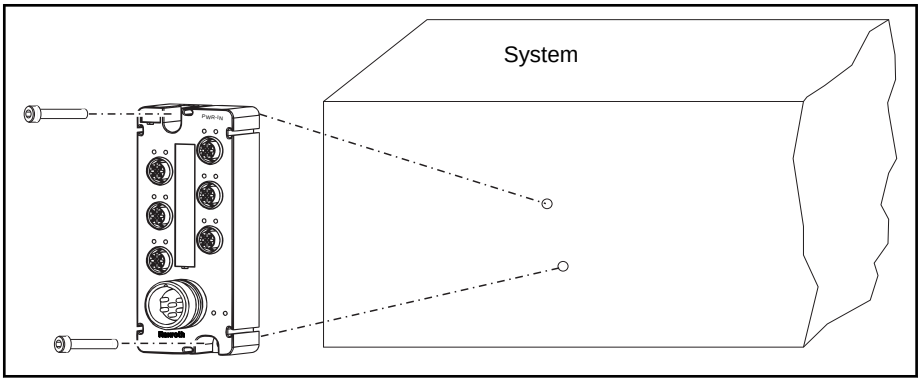


Fig. 5-1: Mount the module at a grounded frame of the system or another earth connection point

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

5.5.1 Fastening Mounting Rail Adapter at Module

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

Screw the S67-PWR-IN-M12 module with the mounting rail adapter using the M4 threaded screws provided as shown in the figure below.

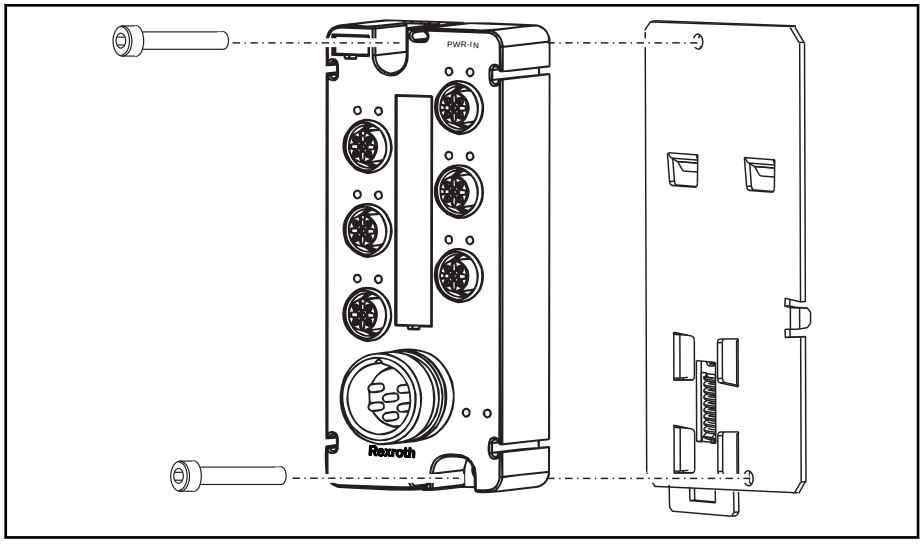


Fig. 5-2: Mounting on the mounting rail adapter

5.5.2 Fastening Module with Mounting Rail Adapter to Mounting Rail

For a clear figure, the mounting rail adapter in the figure below is shown without the S67-PWR-IN-M12 module.

When mounting the S67-PWR-IN-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 the S67-PWR-IN-M12 module is to be mounted.
2. Position the S67-PWR-IN-M12 module to the edge of the mounting rail (51) with the two notches (50).
3. Press the lower side against the lower mounting rail edge until the latch (52) is engaged.

For vertical mounting of the mounting rail or when vibrations or shock occur, use the end clamps "SUP-M01" or "SUP-M01 AL" for stabilization (see chapter 10.5 "End Clamp" on page 38).

Mounting Module

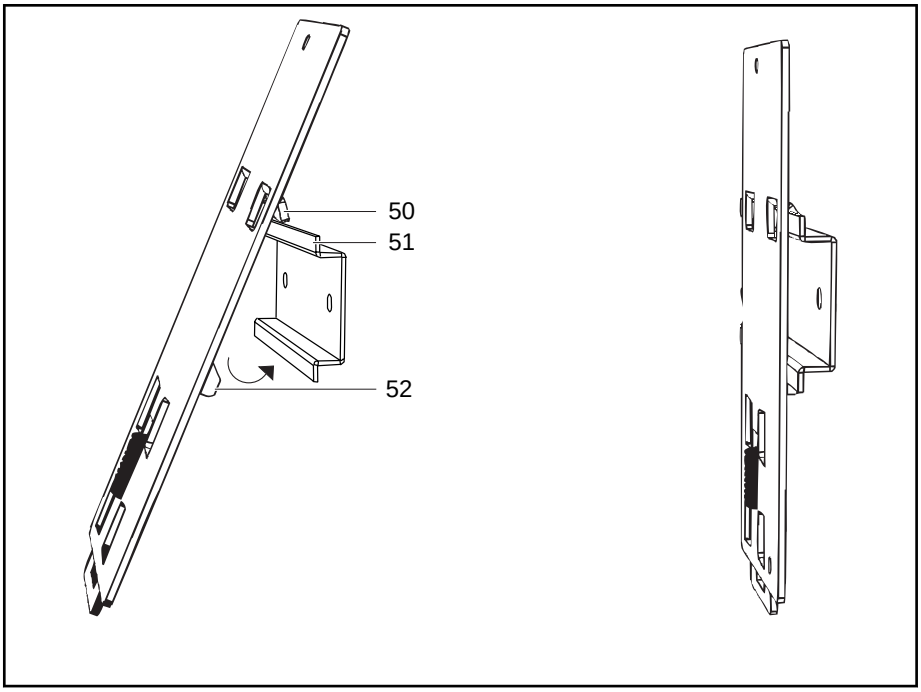


Fig. 5-3: Mounting the mounting rail adapter

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

5.6.1 Fastening Profile Adapter on Module

In addition to the fastening using a mounting rail adapter, the S67-PWR-IN-M12 module can be fastened to a profile rail using a profile adapter and slot nuts. The system has to support this fastening type. The slot nuts are not included in the scope of delivery.

Screw the S67-PWR-IN-M12 module with the profile adapter using the M4 threaded screws provided as shown in the figure below.

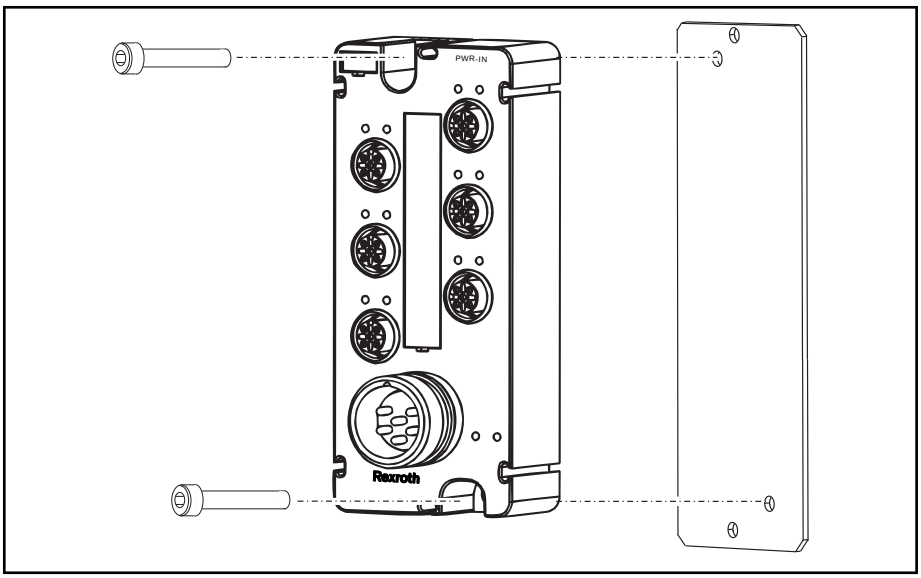


Fig. 5-4: Fastening a profile adapter

5.6.2 Fastening Module with Profile Adapter to Profile Rail

To fasten the S67-PWR-IN-M12 module to a profile rail of the system, two slot nuts are required with one screw each (thread length has to match the profile).

1. Disconnect the power supply from those devices on which the S67-PWR-IN-M12 module is to be mounted.
2. Insert the two screws into the holes above and beneath the fastened S67-PWR-IN-M12 module on the profile adapter.
3. Fasten an appropriate slot nut on each of these screws.
4. Insert the profile adapter with the attached S67-PWR-IN-M12 module into the profile rail of the system. Position the profile adapter and tighten the screws.

5.7 Replacing Labeling Fields

The module labeling plate and the labeling strip are provided upon delivery. Remove the protective cover 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 it up.
2. Remove the labeling strip cover.
3. Label the labeling strip with a waterproof pen.
4. Insert the labeling strip cover again and press it firmly in place.

If the module labeling card (10) is to be replaced, proceed the steps previously described. New module labeling cards are available from Bosch Rexroth as accessories, see chapter 10.7 "Module Labeling Strips" on page 39.

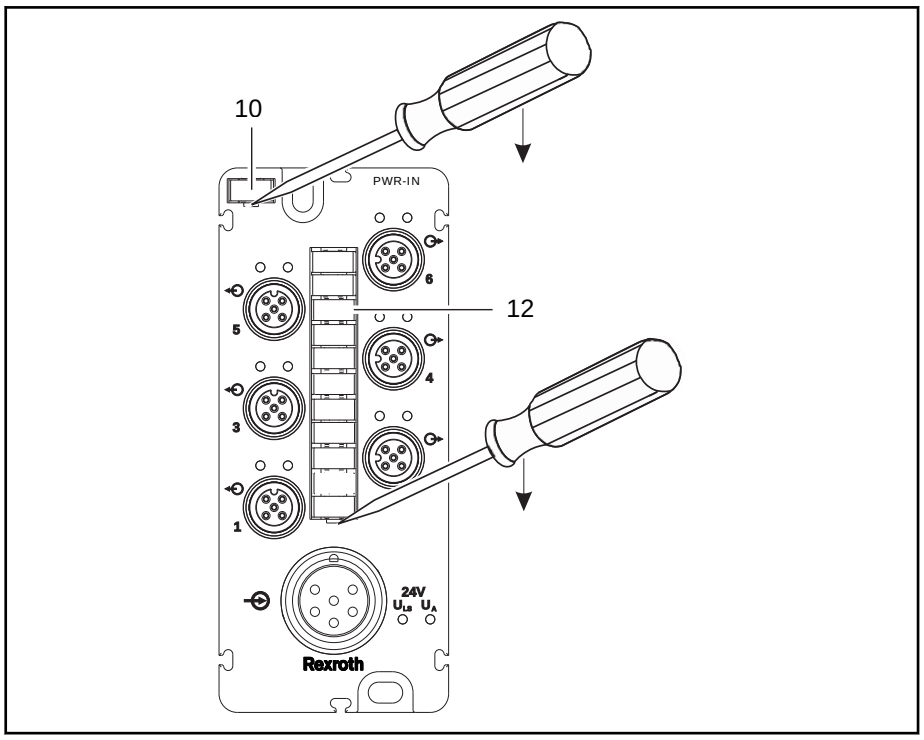


Fig. 5-5: Replacing labeling fields

Mounting Module

5.8 Mounting Spacer in Case of Compact Arrangement

Using the spacer, a sufficient mounting distance can be achieved when directly mounting the S67 components. Gaps where dirt can accumulate are thus prevented. In addition, it is possible to optimize the cable routing of the supply cable. Thus, two fastening lugs each for cable ties are located on the spacer.

1. Disconnect the power supply from those devices on which the S67-PWR-IN-M12 module is to be mounted.
2. To prevent the IndraControl S67 components from falling out when mounted overhead, the spacer can only be moved to the intended openings of the S67-PWR-IN-M12 module from below. To connect both components, place the S67-PWR-IN-M12 module on the spacer or push the spacer from the bottom into the S67-PWR-IN-M12 module.
3. Fasten the connected components on a flat surface with two M4 screws screwed into the mounting holes.

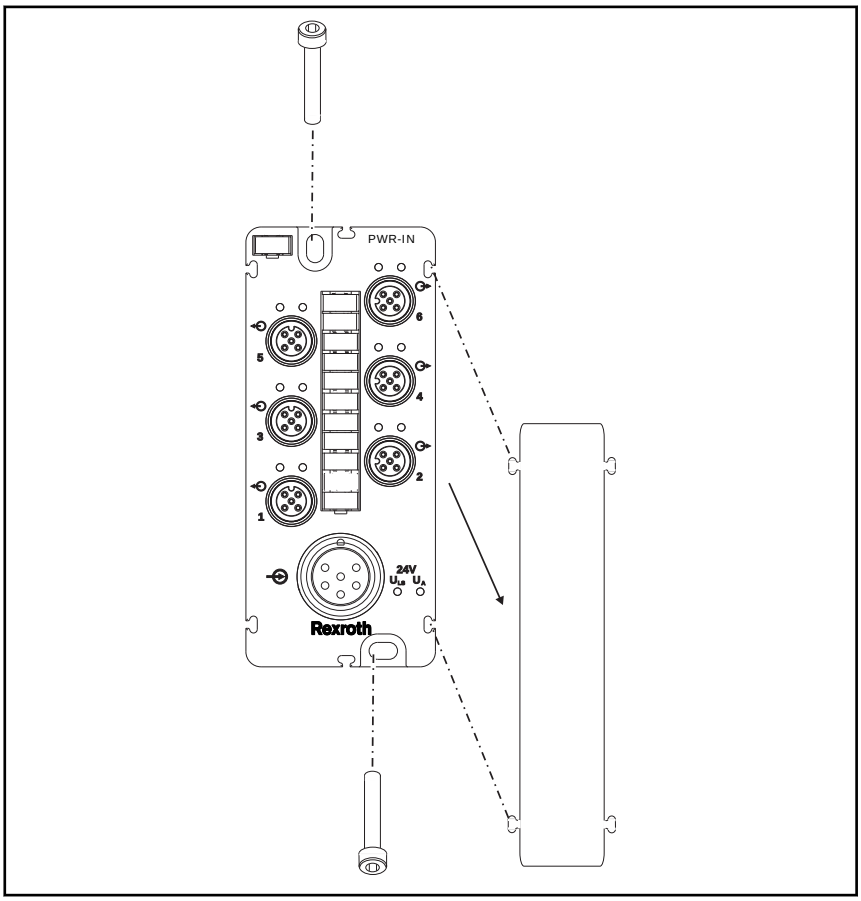


Fig. 5-6: Attaching spacer at module

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.

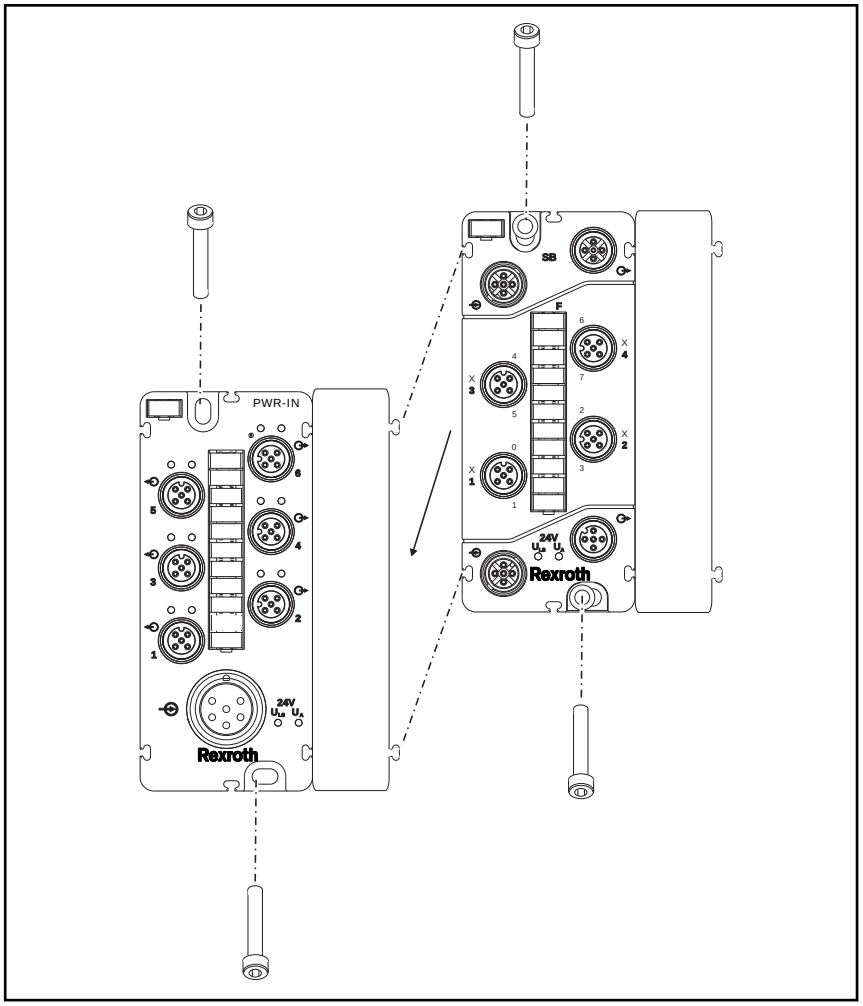


Fig. 5-7: Mounting another S67 component with a spacer

6 Connecting Supply Cables

6.1 Notes

⚠ WARNING **Voltage!**

Operate S67 components exclusively with DC 24 V PELV (protective extra-low voltage) or SELV (safety extra-low voltage) voltage sources. Non-compliance can result in electric shock.

NOTICE **Highest current carrying capacity of M23 supply contacts is 24 A!**

The supply lines of the M23 supply input may only be loaded with up to 8 A for U_{LS} and 16 A for U_A. If the maximum current carrying capacity is exceeded, the connectors and the components are damaged. The module supply input is not automatically monitored for overload.

NOTICE **Highest current carrying capacity of M12 supply contacts is 4 A!**

The supply lines U_{LS} and U_A of the M12 supply outputs may be loaded with up to 4 A each. If the maximum current carrying capacity is exceeded, the connectors and the components are damaged. The module supply output is not automatically monitored for overload.

NOTICE **Open connections!**

If connections are not closed with protective caps, liquid or dirt can enter and thus destroy the S67-PWR-IN-M12 module. Protect all connections that are not required with protective caps to comply with the degree of protection IP 67.

- The male connectors must be disconnected from the power supply before screws are tightened.
- Tighten the male connectors only by hand. Using mechanical tools can cause the threads to strip. In this case, the S67-PWR-IN-M12 module has to be replaced

  Tightening torques for male connectors are:

  Supply outputs, M12: 0.4 – 0.5 Nm
- Check the exact positioning (coding) between plug and socket
- Use only ready-made Bosch Rexroth system cables to transmit the supply voltage and for the S-BUS. This achieves the specified characteristic values of technical data.
- Note the minimum bending radius of Bosch Rexroth system cables (see chapter 10 "Accessories" on page 37)
- When laying the cables, ensure not to lay cables in shear areas of moving machine parts
- Ensure the correct layout of the potential equalization

Connecting Supply Cables

6.2 Accessories

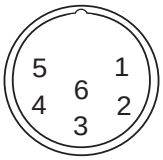
The Bosch Rexroth accessory components listed below are required to connect data and supply cables. The corresponding ordering numbers are listed in chapter 10 "Accessories" on page 37.

- Supply cables with M12 male connectors, IP 67, ready-made at both ends
- M23 male connector, IP 67

6.3 Connecting M23 Supply Cable

The M23 supply cable with a maximum cross section of 2.5 mm^2 feeds in the supply voltages U_{LS} and U_A.

The power supply cable has to be self-assembled. Thus, an M23 male connector (IP 67 degree of protection) is required. The assignment of the supply input is listed in the following table:

Connection	Contact	Description
IN 	1	24 V (U_{LS})
	2	0 V (U_{LS})
	3	Not assigned
	4	24 V (U_A)
	5	0 V (U_A)
	6	Not assigned

Tab. 6-1: Supply input: Pin assignment

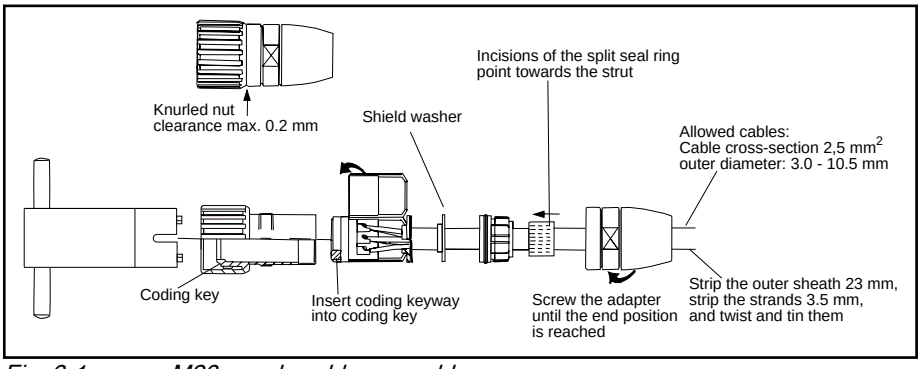


Fig. 6-1: M23 supply cable assembly

NOTICE **Highest current carrying capacity of M23 supply contacts is 24 A!**

The supply lines of the M23 supply input may only be loaded with up to 8 A for U_{LS} and 16 A for U_A. If the maximum current carrying capacity is exceeded, the connectors and the components are damaged. The module supply input is not automatically monitored for overload.

To connect the M23 supply cable to the S67-PWR-IN-M12 module, proceed as follows:

1. Disconnect the system component supplying the S67-PWR-IN-M12 module via the M23 supply cable from voltage.

2. Connect the M23 supply cable with the S67-PWR-IN-M12 module by attaching the supply cable socket to the input IN ⊖ (6).
3. Tighten the socket using the knurled-head screw.
4. Screw a protective cap on all unused connections to comply with the degree of protection IP 67.

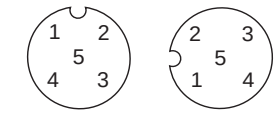
6.4 Connecting M12 Supply Cable

The M12 supply cable with a cable cross section of up to 0.75 mm^2 is used for the individual voltage supply of the S67 components (individual and/or group supplies).

Prerequisite:

A Bosch Rexroth supply cable ready-made at both ends is available (K1 and K2 in fig. 6-2 "Connect supply cable to S67 components" on page 30).

The following table outlines the assignment of the supply connections:

Connection	Contact	Description
⊕ OUT ⊕ OUT 	1	24 V U_{LS}
	2	24 V U_A
	3	0 V U_{LS}
	4	0 V U_A
	5	Not assigned

Tab. 6-2: Supply outputs: Pin assignment

NOTICE **Highest current carrying capacity of M12 supply contacts is 4 A!**

Observe the maximum current carrying capacity at the supply line contacts (U_{LS}, U_A) for each S67 component as well as the total current consumption for all S67 components. The contact load may not exceed 4 A on any of the M12 male connectors. Otherwise, an increase in current causes the contacts to overheat and damages the S67 components.

To connect the M23 supply cable to the S67 components, proceed as follows:

1. Disconnect the system component supplying the S67-PWR-IN-M12 module via the M23 supply cable from voltage.
2. To transmit the voltage supply, connect the M12 supply cable (K1) to one of the supply outputs ⊕ (1) of the S67-PWR-IN-M12 module and to the input IN ⊖ (5) of an S67 component. When feeding in supply voltage for a new supply group consisting of two I/O modules for example, connect the M12 supply cables (K1, K2) as shown in the following figure.
3. Attach the cable sockets and plugs and tighten the sockets and plugs using a knurled-head screw.
4. Screw a protective cap on all unused connections to comply with the degree of protection IP 67.

Connecting Supply Cables

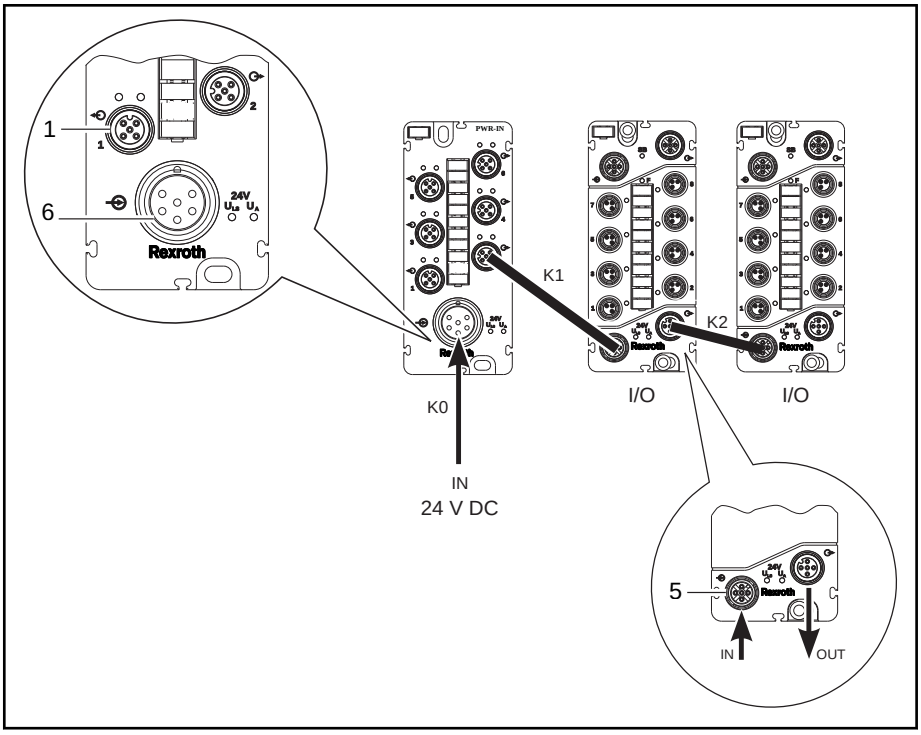


Fig. 6-2: Connect supply cable to S67 components

7 Commissioning

NOTICE **Open connections!**

If connections are not closed with protective caps, liquid or dirt can enter and thus destroy the S67 S67-PWR-IN-M12 module. Protect all connections that are not required with protective caps to comply with the degree of protection IP 67.

For commissioning, connect the self-ready-made cable for the supply line to the M23 connector. For information on the commissioning of the S67 node, refer to the application descriptions of the field bus couplers of the IndraControl S67 series.

Before commissioning the IndraControl 767 station, check the following:

- the S67-PWR-IN-M12 module is properly mounted
- all required supply lines are tightly connected (see chapter 6 "Connecting Supply Cables" on page 27)
- an appropriate potential equalization was executed at the system
- the shielding was executed correctly

8 Status of U_A and U_{LS} by LED Signals

8.1 General Information

The module is provided with different LEDs for status signalizing. The LEDs are assigned to the U_A and U_{LS} supply voltages.

8.2 Signaling Status U_A and U_{LS}

The following table lists the states indicated via LEDs. Information on remedies of certain causes is also provided.

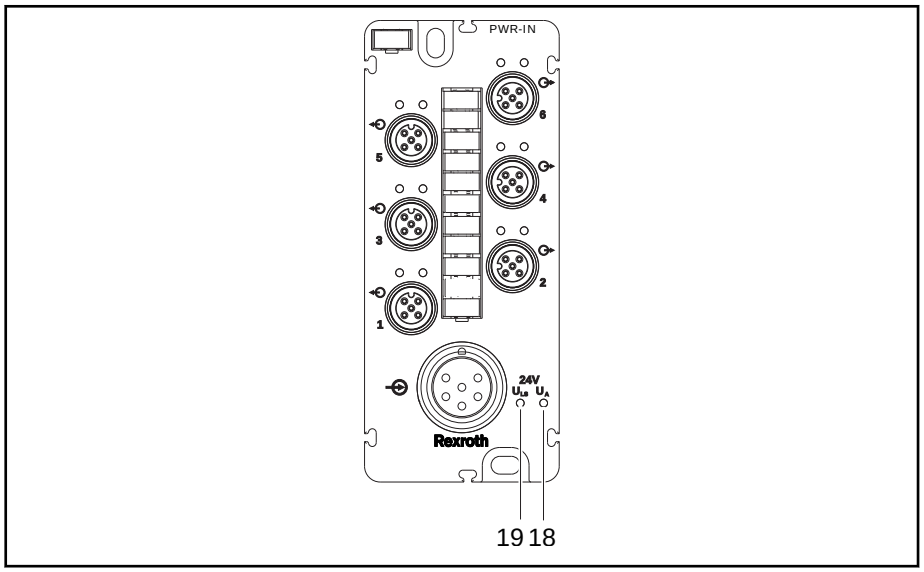


Fig. 8-1: LEDs indicating operating messages

Position	LED	Color/status	Cause	Remedy/information
18	U_A	Green	Actuator supply present	–
		Off	Actuator supply U_A not present	Connect supply voltage (U_A) and check voltage level if required. The input module checks the supply voltage level
19	U_{LS}	Green	Logic and sensor supply U_{LS} present	–
		Off	Logic and sensor supply U_{LS} not present	Connect supply voltage (U_{LS}) and check voltage level if required

Tab. 8-1: Signaling status U_A and U_{LS}

9 Maintenance and Service

9.1 General Information

This chapter provides information on maintenance and service.

9.2 Replacing Module

9.2.1 General Information

To replace the S67-PWR-IN-M12 module, proceed as described in the following chapters.

9.2.2 Disconnecting Wiring

Before removing the male connectors, clean the S67-PWR-IN-M12 module to ensure that no dirt comes in contact with the connections. Otherwise, the contacts can be damaged.

To unplug the cables, proceed as follows:

1. Disconnect the power supply from those devices the S67-PWR-IN-M12 module is mounted to.

⚠ CAUTION **Hot connector sockets!**

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

2. Unscrew all connections and remove the cables.

9.2.3 Removing Module from System

To remove the S67-PWR-IN-M12 module from the system, proceed as follows:

1. Disconnect the power supply from those devices the S67-PWR-IN-M12 module is mounted to.
2. Release the S67-PWR-IN-M12 module from the system by unscrewing the M4 screws.

9.3 Removing Module from Mounting Rail

9.3.1 General Information

For a clear figure, the mounting rail adapter in the figure below (B, C) is shown without the S67-PWR-IN-M12 module.

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

1. Disconnect the power supply from those devices the S67-PWR-IN-M12 module is mounted to.
2. To remove the S67-PWR-IN-M12 module, press down the release lug of the mounting rail adapter using a slotted screwdriver (B) and remove the mounting rail adapter from the rail (C).

Maintenance and Service

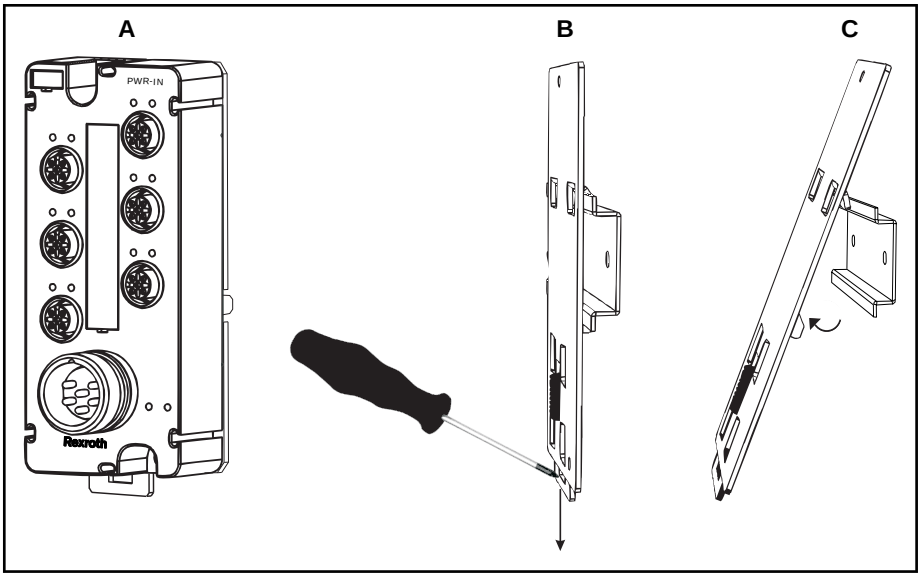


Fig. 9-1: Removing module with mounting rail adapter from mounting rail

9.3.2 Removing Module from Profile Adapter

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

1. Disconnect the power supply from the device the S67-PWR-IN-M12 module is mounted to before removal.
2. Unscrew the screws the nuts are fastened on and remove the S67-PWR-IN-M12 module from the profile rail of the system.
3. Unscrew the screws that connect the S67-PWR-IN-M12 module with the profile adapter.

9.3.3 Connecting Module

To connect the new S67-PWR-IN-M12 module, proceed as described in the following chapters:

- chapter 5 "Mounting Module" on page 19
- chapter 6 "Connecting Supply Cables" on page 27
- chapter 7 "Commissioning" on page 31

9.4 Disposal

Do not dispose the IndraControl S67 components with the household waste. Comply with the regulations. You can also contact a certified waste disposal company.

10 Accessories

10.1 General Information

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

10.2 Required Tools for Mounting

"CONINVERS GmbH" provides the wrench for the power divider.

Ordering code CONINVERS GmbH	Parts number CONINVERS GmbH	Brief description
RC-Z2099	1604255	Pipe wrench for cable connectors - series RC, UC, TU
RC-Z2096	1604249	Pipe wrench for connecting receptacles - series RC, UC, TU

Tab. 10-1: Module labeling strips

10.3 Ready-Made Supply Cables

Cable carrier-compatible:

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

Bending radius:

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

Tensile load:

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

☞ For the pin assignment of the supply connection, refer to the chapter "Connecting 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. 10-2: Supply cable, A-coded - Male and female connector

Accessories

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. 10-3: Supply cable, A-coded - Female connector, open end

Female connector for voltage supply M23, user-configurable

Ordering code	Parts number
RBS0021/L06	R911172110

Tab. 10-4: Female connector for voltage supply M23

10.4 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
SUP-M01-S67-0004	R911172122	Profile adapter for I/O modules and power distributor
SUP-M01-S67-0005	R911172123	Spacer

Tab. 10-5: Carrier rail adapter, profile adapter and spacer

10.5 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. 10-6: End clamp

10.6 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. 10-7: Protective caps

10.7 Module Labeling Strips

Ordering code	Parts number	Brief description
SUP-M01-S67-0008	R911172126	Labeling strips for power divider VPE=10

Tab. 10-8: Module labeling strips

11 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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DOK-CONTRL-S67PWRINM12-AP03-EN-P