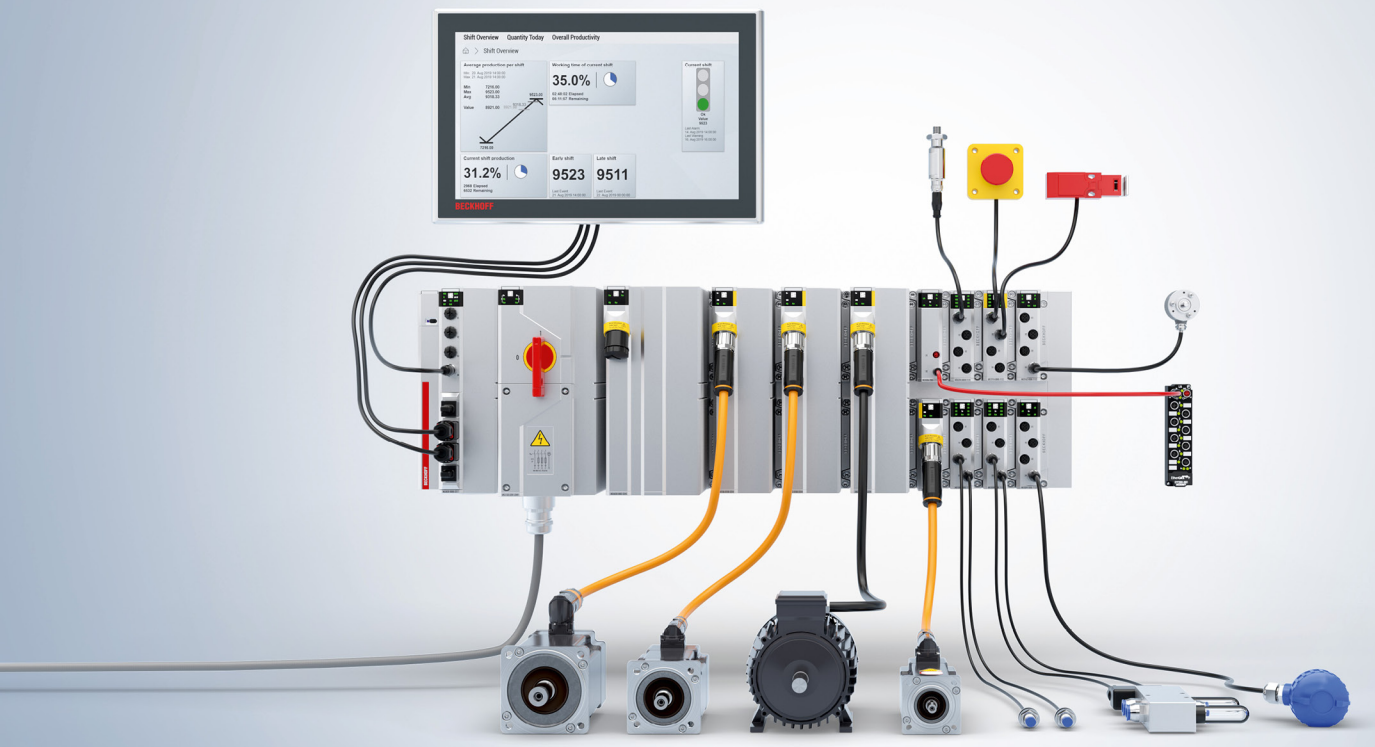
BECKHOFF New Automation Technology

Manual | EN

MS3010-1023-1114

Power output, 24 V DC/10 A, 48 V DC/10 A, switchable, B17



2025-12-16 | Version: 1.0.0

Table of contents

1 Foreword 5
1.1 Notes on the documentation 5
1.2 For your safety 6
1.3 Intended use 7
2 Product overview 8
2.1 Block diagram 11
2.2 Type key 12
2.3 Status display 13
2.4 Dimensions 14
3 Technical data 15
4 Software functions 16
5 Mechanical installation 17
5.1 Preparation 17
5.2 Placement of the module on the baseplate 18
5.3 Mounting the module 19
6 Connection 20
7 Commissioning and operation 21
7.1 Requirements 21
7.2 Commissioning 21
7.3 During operation 21
8 Decommissioning 23
8.1 Disassembly 23
8.2 Disposal 23
9 Appendix 24
9.1 Manual version history 24
9.2 Support and Service 25
9.3 Accessories 26

1 Foreword

1.1 Notes on the documentation

This description is intended exclusively for trained specialists in control and automation technology who are familiar with the applicable national standards.
The documentation and the following notes and explanations must be complied with when installing and commissioning the components.
The trained specialists must always use the current valid documentation.

The trained specialists must ensure that the application and use of the products described is in line with all safety requirements, including all relevant laws, regulations, guidelines, and standards.

Disclaimer

The documentation has been compiled with care. The products described are, however, constantly under development.
We reserve the right to revise and change the documentation at any time and without notice.
Claims to modify products that have already been supplied may not be made on the basis of the data, diagrams, and descriptions in this documentation.

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1.2 For your safety

Safety regulations

Read the following explanations for your safety.
Always observe and follow product-specific safety instructions, which you may find at the appropriate places in this document.

Exclusion of liability

All the components are supplied in particular hardware and software configurations which are appropriate for the application. Modifications to hardware or software configurations other than those described in the documentation are not permitted, and nullify the liability of Beckhoff Automation GmbH & Co. KG.

Personnel qualification

This description is only intended for trained specialists in control, automation, and drive technology who are familiar with the applicable national standards.

Signal words

The signal words used in the documentation are classified below. In order to prevent injury and damage to persons and property, read and follow the safety and warning notices.

Personal injury warnings

⚠ DANGER
Hazard with high risk of death or serious injury.

⚠ WARNING
Hazard with medium risk of death or serious injury.

⚠ CAUTION
There is a low-risk hazard that could result in medium or minor injury.

Warning of damage to property or environment

NOTICE
The environment, equipment, or data may be damaged.

Information on handling the product

This information includes, for example:
recommendations for action, assistance or further information on the product.

1.3 Intended use

Intended use of an MX-System

Application in machines and systems in industrial environments and exclusively inside buildings.

The electrical wiring must be permanent wiring.

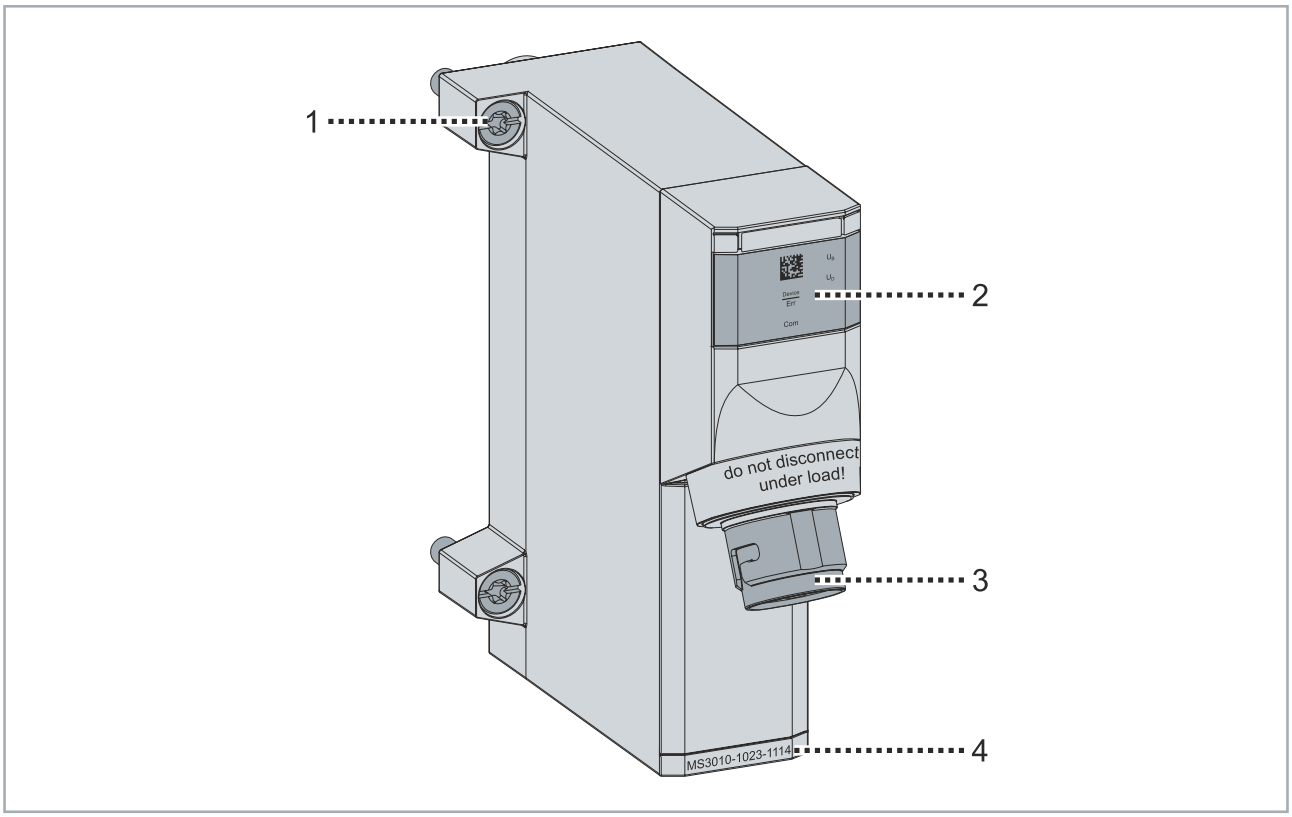
Improper use

Improper use is not permitted and will result in the exclusion of liability on the part of Beckhoff Automation GmbH & Co.

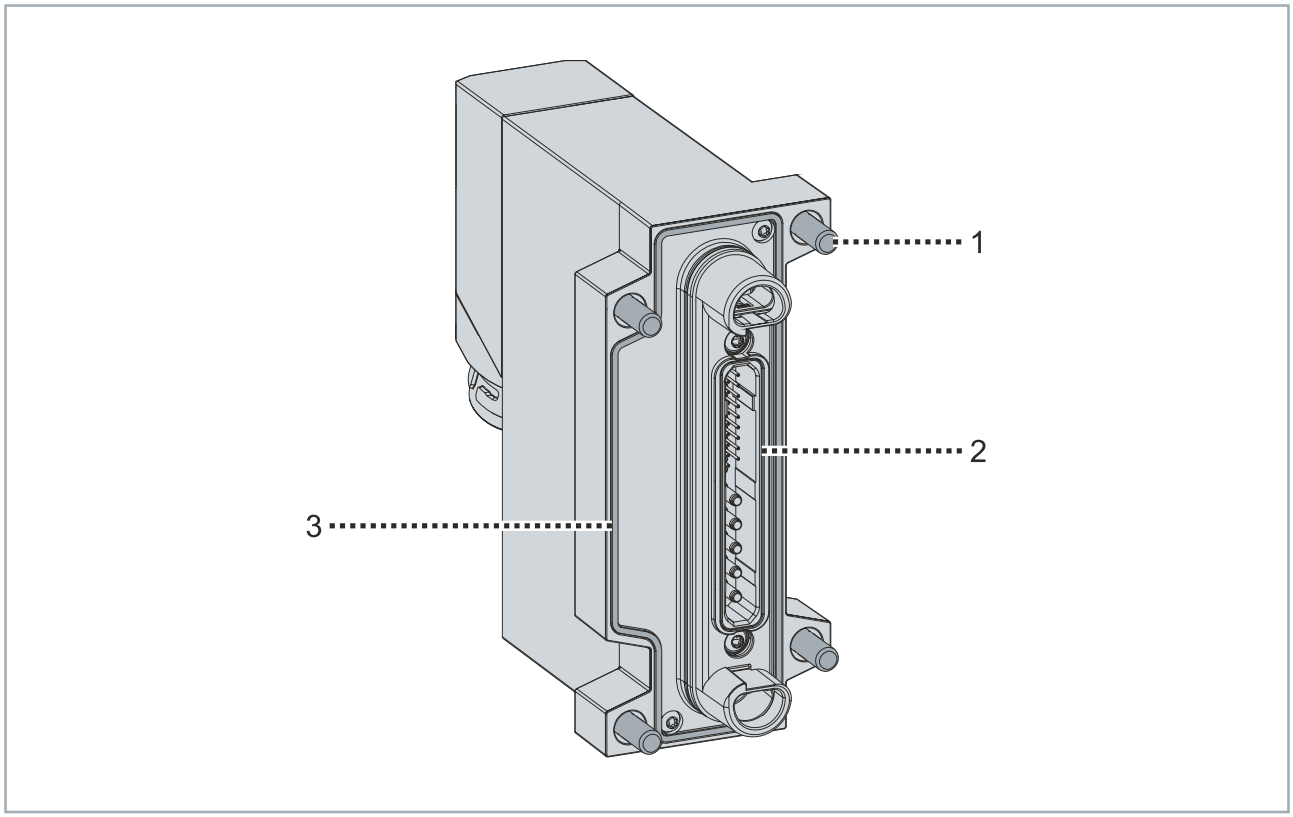
2 Product overview

The MS3010-1023-1114 power output module provides separately switchable 24 V DC and 48 V DC and up to 10 A for additional consumers.

The fuses for line protection are integrated and cannot be replaced; an upstream electronic fuse is provided.

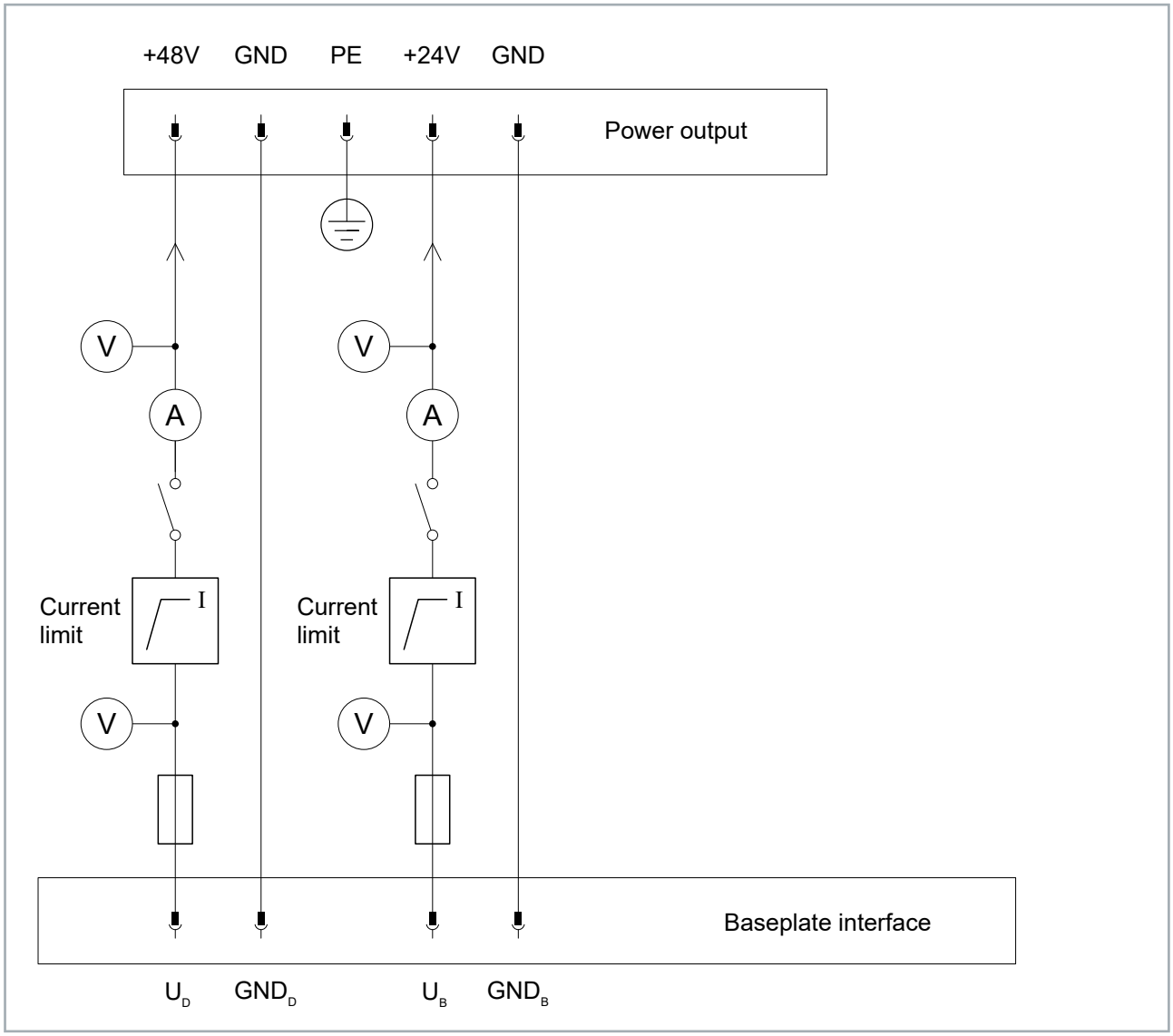


Position	Name
1	Fastening screw, captive, 4 x
2	Status display
3	Power output
4	Module name

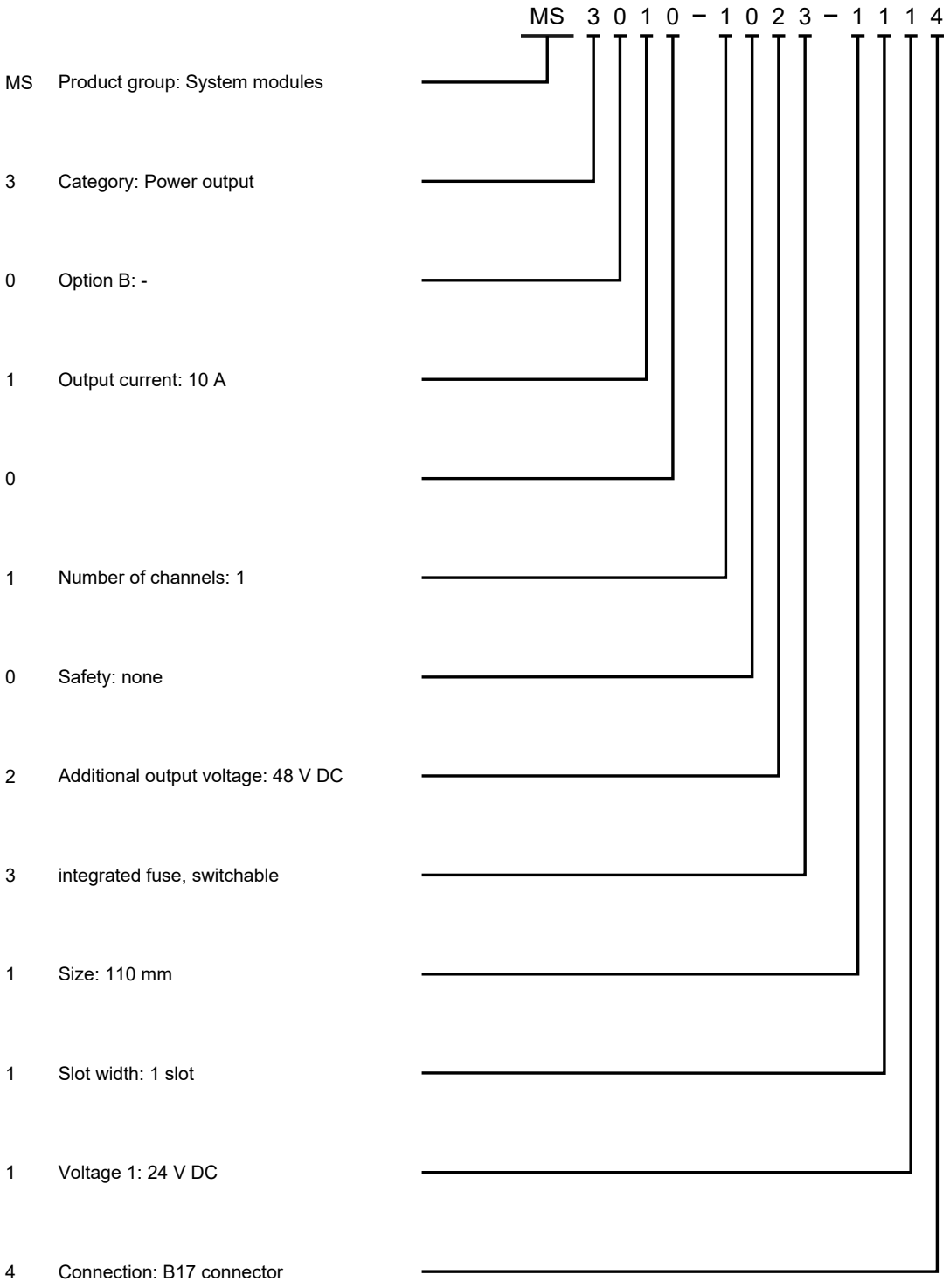


Position	Name
1	Fastening screw, captive, 4 x
2	Data connector
3	Seal

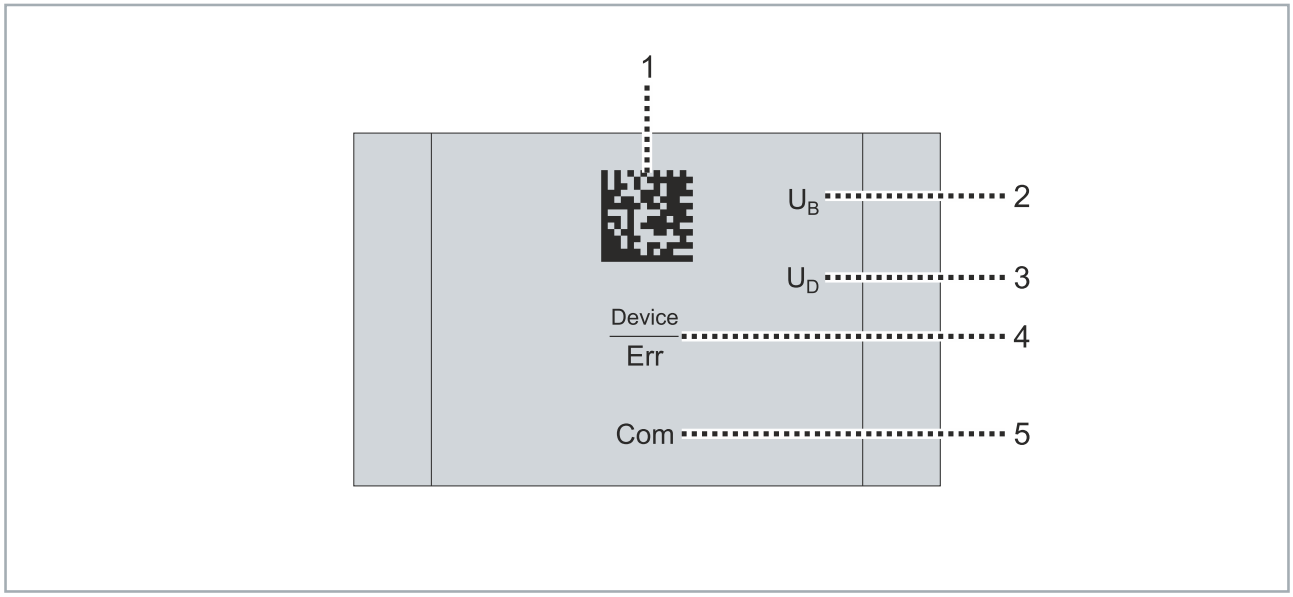
2.1 Block diagram



2.2 Type key


MS 3 0 1 0 – 1 0 2 3 – 1 1 1 4
MS Product group: System modules
3 Category: Power output
0 Option B: -
1 Output current: 10 A
0
1 Number of channels: 1
0 Safety: none
2 Additional output voltage: 48 V DC
3 integrated fuse, switchable
1 Size: 110 mm
1 Slot width: 1 slot
1 Voltage 1: 24 V DC
4 Connection: B17 connector

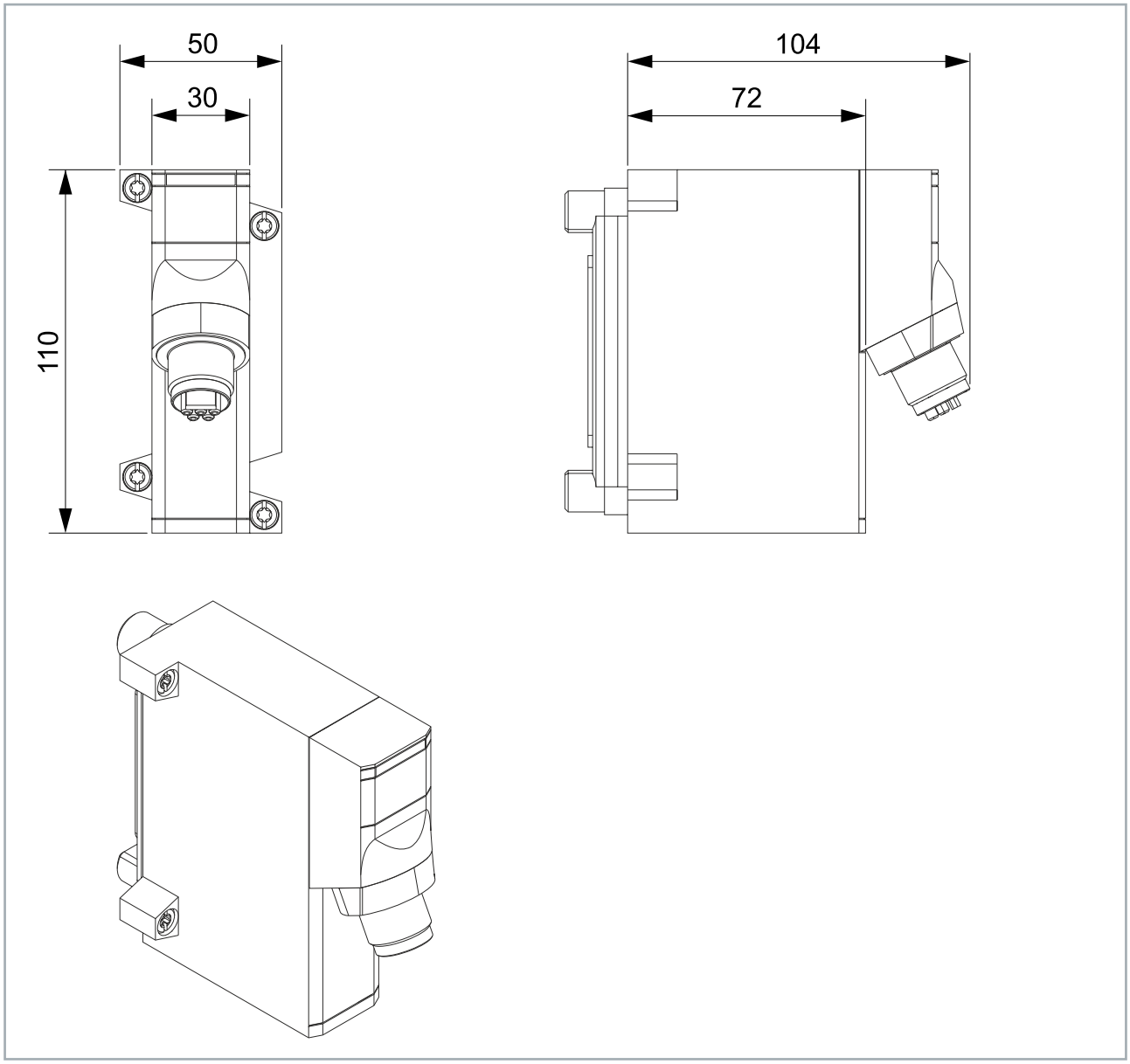
2.3 Status display



Position	Status display	Status	Explanation
1	-	-	Beckhoff Identification Code as DataMatrix code
2	U_B	off	No supply voltage present
		green illuminated	Supply voltage switched on
3	U_D	off	No supply voltage present
		green illuminated	Supply voltage switched on
4	Device | Err	off	No error exists
		white illuminated	Error collection LED
5	Com	off	The EtherCAT State Machine of the module is in the initialization state
		flashing green	The EtherCAT State Machine of the module is in the *Pre-Operational* state
		single flash green	The EtherCAT State Machine of the module is in the *Safe-Operational* state
		green illuminated	The EtherCAT State Machine of the module is in the *Operational* state
		flickers green	Firmware is being loaded

2.4 Dimensions

All dimensions in mm



3 Technical data

All values are typical values over the entire temperature range, unless stated otherwise.

Baseplate interface	
Connector	1 data connector
Hot Swap	No

Voltage output X1	
Connection	1 x B17 hybrid connector, 5-pin, coding 1
Nominal voltage	24 V DC (-15% … + 20%) 48 V DC (-15% … + 20%)
Nominal current	10 A each

Housing data	
Width (slots)	1
Height (rows)	1
Dimensions W × H × D	50 mm × 110 mm × 104 mm 50 mm × 110 mm × 72 mm (housing only)
Material	Zinc die-cast and aluminum die-cast
Cooling	Convection
Weight	-
Installation position	Vertical. See system manual, chapter "Installation conditions".

Environmental conditions	
Operating temperature	0 … 50 °C
Storage temperature	-25 … +60 °C
Air humidity	95%, no condensation
Protection rating	IP20 as a separate module
	IP65 / IP67 as part of a fully and correctly assembled MX-System
Pollution degree	2
Overvoltage category	III 300 V
Maximum installation altitude	2000 m

Standards, approvals	
Device safety	conforms to EN 61010-2-201
EMC immunity/emission	conforms to EN IEC 61000-6-2 / EN IEC 61000-6-4
Vibration/shock resistance	conforms to EN 60068-2-6 / EN 60068-2-27
Approvals	CE, UL in preparation

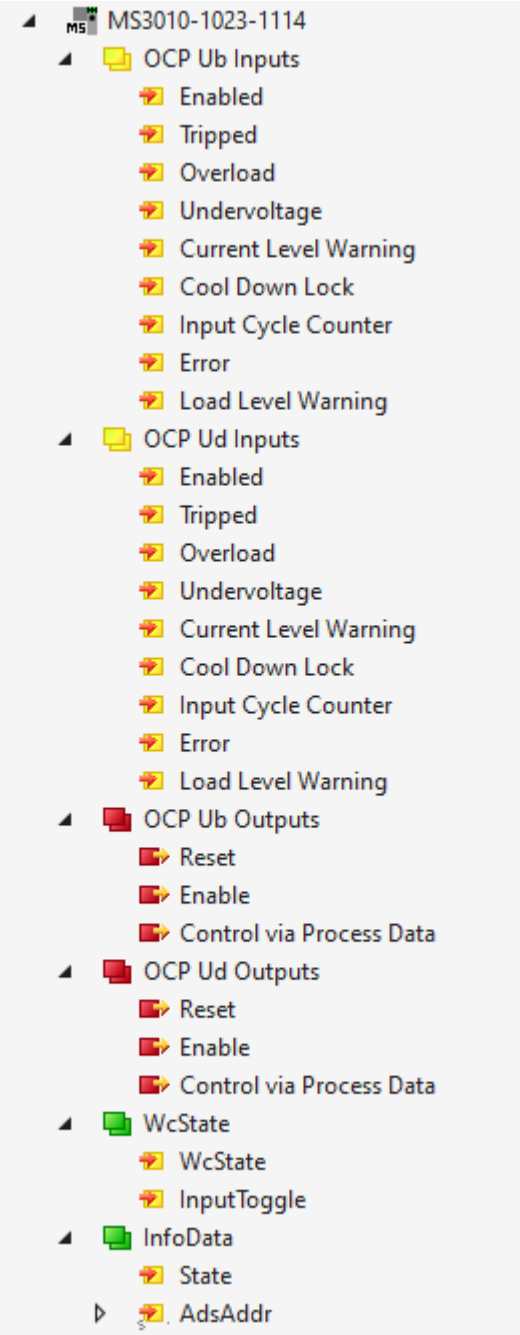
4 Software functions

Software functions are the functions of a module's firmware that a controller can access via EtherCAT.

Functionality

The following descriptions document the full range of software functions at the time of publication of this manual. The range of functions that can actually be used depends on the firmware version of a module.

The following process data objects are provided by the module:



5 Mechanical installation

Required tools

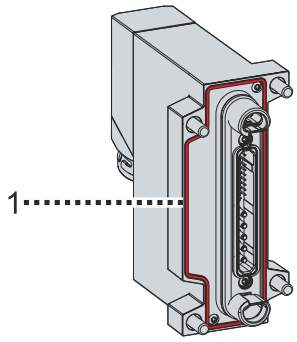
- Torx T25 screwdriver
- Torque wrench 5 Nm

5.1 Preparation

NOTICE

Check the module for damage

If the seal is worn or damaged, liquids and dirt can penetrate and damage the MX-System. The IP67 protection rating is not met if the seals are worn or damaged.

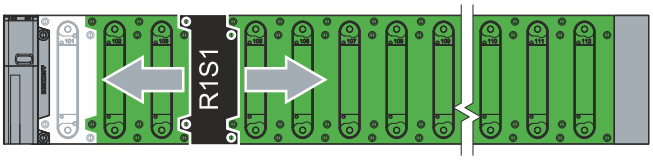


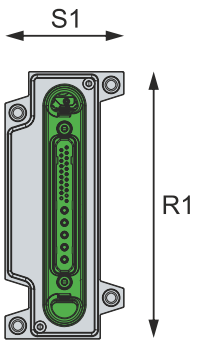
1. Check the seal [1] of the module for wear and damage
2. Replace worn and damaged seals

5.2 Placement of the module on the baseplate

The module can be plugged into the following areas marked in green:

MB11xx-0000-0000





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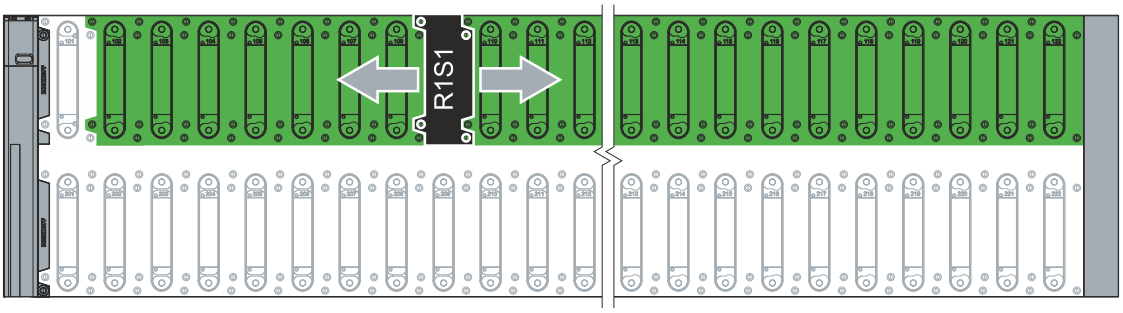
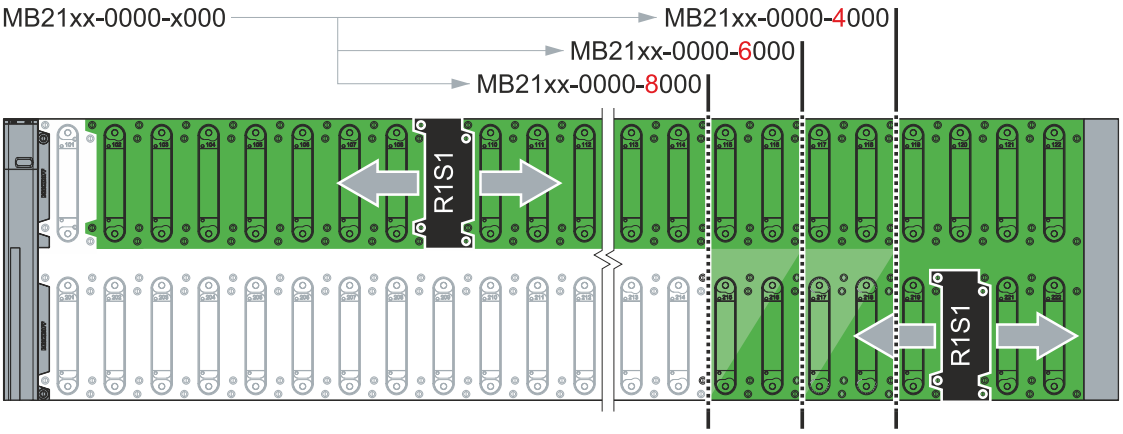


MB21xx-0000-x000



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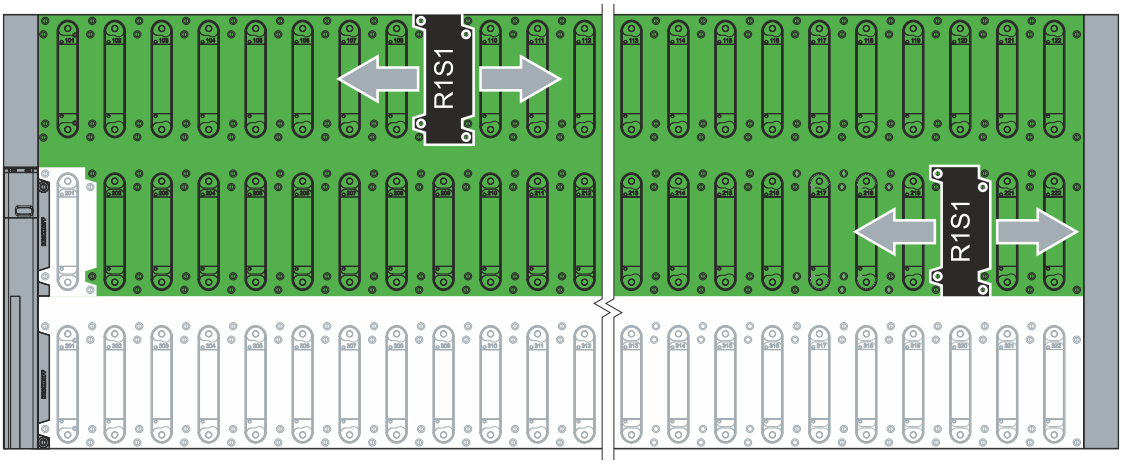


5.3 Mounting the module

⚠ CAUTION

Danger due to the high weight of an equipped baseplate

First mount the baseplate and then the modules to the baseplate. If you mount the modules on the baseplate first, the total weight of the MX-System will increase. Another person is required to transport and assemble an equipped baseplate.

- Wear personal protective equipment.
- The equipped baseplate must be transported and mounted by two people.

NOTICE

Ensure correct installation

If the module is not installed correctly, liquids and dirt may enter and damage the MX-System. The IP67 protection rating is not met if the installation is incorrect.

NOTICE

Limited number of mating cycles

The module may be plugged in a maximum of 25 times to attach it to the baseplate. If the module is plugged into the baseplate more than 25 times, a secure connection between the module and the baseplate cannot be guaranteed.

- Observe the permissible number of mating cycles.
- Replace the module if the number of mating cycles is exceeded.
- Replace the baseplate if the number of mating cycles is exceeded.

The module can be plugged into any position on a data slot on a baseplate. Slot *101* must not be used.

1. Plug the module on the baseplate
2. Tighten all screws
3. Observe tightening torques:

Components	Tightening torque [Nm]
Screws	5

Further information on installation can be found in the system manual in the "Mounting" chapter.

6 Connection

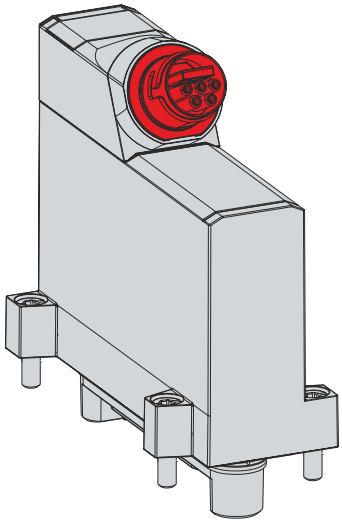
NOTICE

Defect caused by hot plug

If cables are connected or disconnected during operation, damage to property is possible.

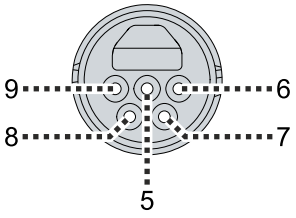
- Only connect or disconnect cables when all supply voltages have been shutdown.

Power output



The power output is a 5-pin B17 connector with coding 1 without data element.

Pin assignment

B17 connector	Pin	Signal	Function
	5	GND 48 V	$-U_D$
	6	PE	Protective earth
	7	+48 V	$+U_D$
	8	GND 24 V	$-U_B$
	9	+24 V	$+U_B$

7 Commissioning and operation

NOTICE

Danger if operated in an unsuitable environment

Material damage is possible.

- Before commissioning, ensure that the environmental conditions at the place of commissioning and operation are complied with at all times. See environmental conditions in the chapter Technical data [▶ 15].

7.1 Requirements

- Components show no signs of damage
- Screw connections of the components are correctly tightened
- Wiring and cables are installed correctly

7.2 Commissioning

NOTICE

The supply voltage activates the power supply

As soon as the external supply voltage is applied, the power supply is automatically active and outputs UB = 24 V DC to the baseplate. This behavior cannot be set.

- Switch on the external supply voltage
- Parameterize the functions of the module if required

7.3 During operation

- Observe information for environment and operation
- Observe maintenance intervals
- Switch off the system if
  - unusual noise occurs
  - smoke develops
  - an atypical temperature development occurs

8 Decommissioning

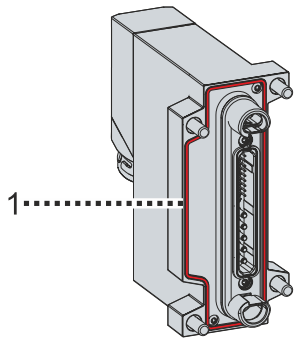
8.1 Disassembly

Disassembly may only be carried out by qualified and trained technical personnel.

Further information can be found in chapter Notes on the documentation [▶ 5].

1. Remove Power cable
2. Loosen all mounting screws of the module
3. Take the module off the baseplate
4. Transport the module to the workplace or storage place

Further information can be found in the chapter Technical data [▶ 15] and in the system manual in the chapter "Disassembly".



1. Check the seal [1] of the module for wear and damage
2. Replace worn or damaged seals

Further information can be found in chapter Accessories [▶ 26].

8.2 Disposal

Products marked with a crossed-out wheeled bin shall not be discarded with the normal waste stream. The device is considered as waste electrical and electronic equipment. The national regulations for the disposal of waste electrical and electronic equipment must be observed.

9 Appendix

9.1 Manual version history

The following table shows the version history of this manual.

Version	Comment
1.0.0	• First release

9.2 Support and Service

Beckhoff and their partners around the world offer comprehensive support and service, making available fast and competent assistance with all questions related to Beckhoff products and system solutions.

Download finder

Our download finder contains all the files that we offer you for downloading. You will find application reports, technical documentation, technical drawings, configuration files and much more.

The downloads are available in various formats.

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You will also find further documentation for Beckhoff components there.

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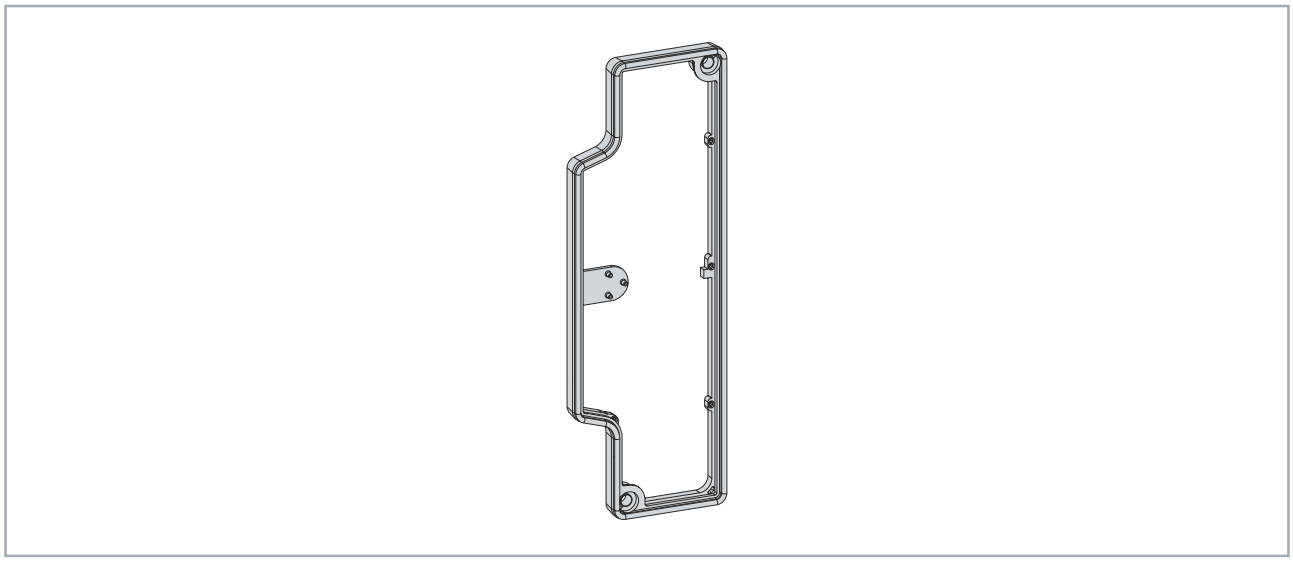
9.3 Accessories

Suitable accessories can be found on the product website:

www.beckhoff.com/ms3010-1023-1114

The following items are also available for replacing worn parts:

MX module base S1R1 with seal



The module base S1R1 with seal is available for replacing worn and damaged seals on a 1-row MX module with one slot.

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