

Manual | EN

MA6060-0000-0000

Dongle for Diagnostics-App

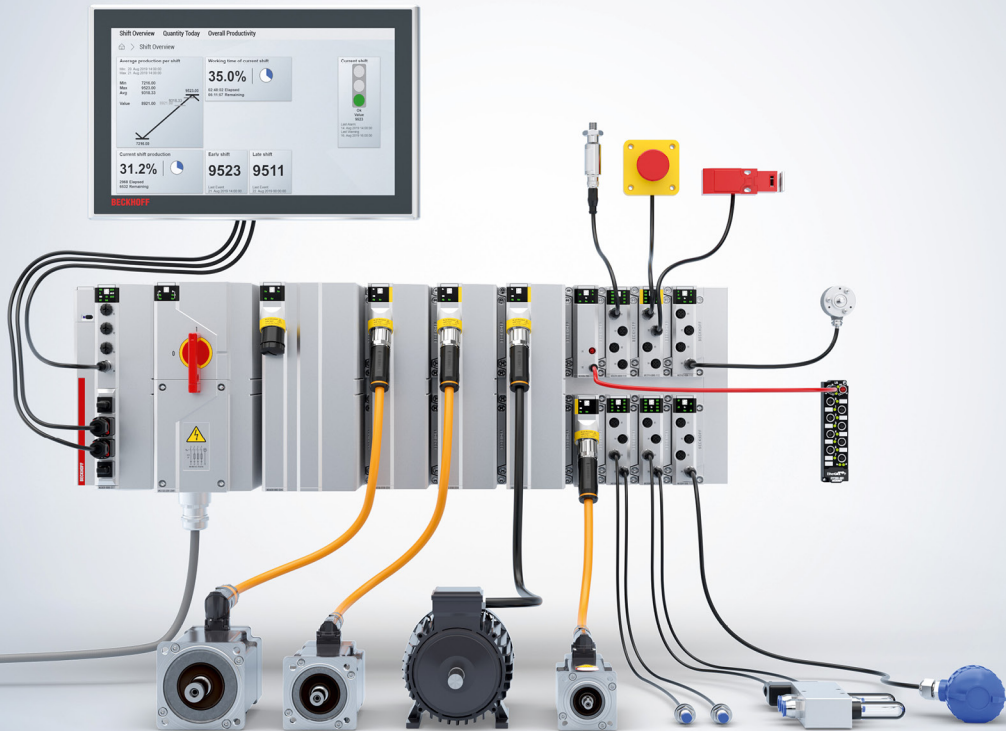


Table of contents

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 Product functions	9
2.2 Block diagram	10
2.3 Type key	11
2.4 Status display	12
2.5 Dimensions	13
3 Technical data	14
4 Software functions	15
5 Mechanical installation	16
5.1 Preparation	16
5.2 Placement of the module on the baseplate	17
5.3 Mounting the module	17
6 Commissioning and operation	19
7 Decommissioning	20
7.1 Disassembly	20
7.2 Disposal	21
8 Appendix	22
8.1 Manual version history	22
8.2 Accessories	22
8.3 Support and Service	23

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.

Trademarks

Beckhoff®, ATRO®, EtherCAT®, EtherCAT G®, EtherCAT G10®, EtherCAT P®, MX-System®, Safety over EtherCAT®, TC/BSD®, TwinCAT®, TwinCAT/BSD®, TwinSAFE®, XFC®, XPlanar® and XTS® are registered and licensed trademarks of Beckhoff Automation GmbH.

If third parties make use of the designations or trademarks contained in this publication for their own purposes, this could infringe upon the rights of the owners of the said designations.



EtherCAT® is a registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.

Copyright

© Beckhoff Automation GmbH & Co. KG, Germany.

The distribution and reproduction of this document, as well as the use and communication of its contents without express authorization, are prohibited.

Offenders will be held liable for the payment of damages. All rights reserved in the event that a patent, utility model, or design are registered.

Third-party trademarks

Trademarks of third parties may be used in this documentation. You can find the trademark notices here:

<https://www.beckhoff.com/trademarks>.

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

The MA6060-0000-0000 is designed to enable wireless communication between an MX-System baseplate and a mobile device, such as a smartphone, for diagnostic purposes. This feature has been tested on mobile devices running Android and iOS. Compatibility with other operating systems is not guaranteed. It may only be operated if it is mounted on a baseplate in accordance with the installation instructions in this manual.

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.

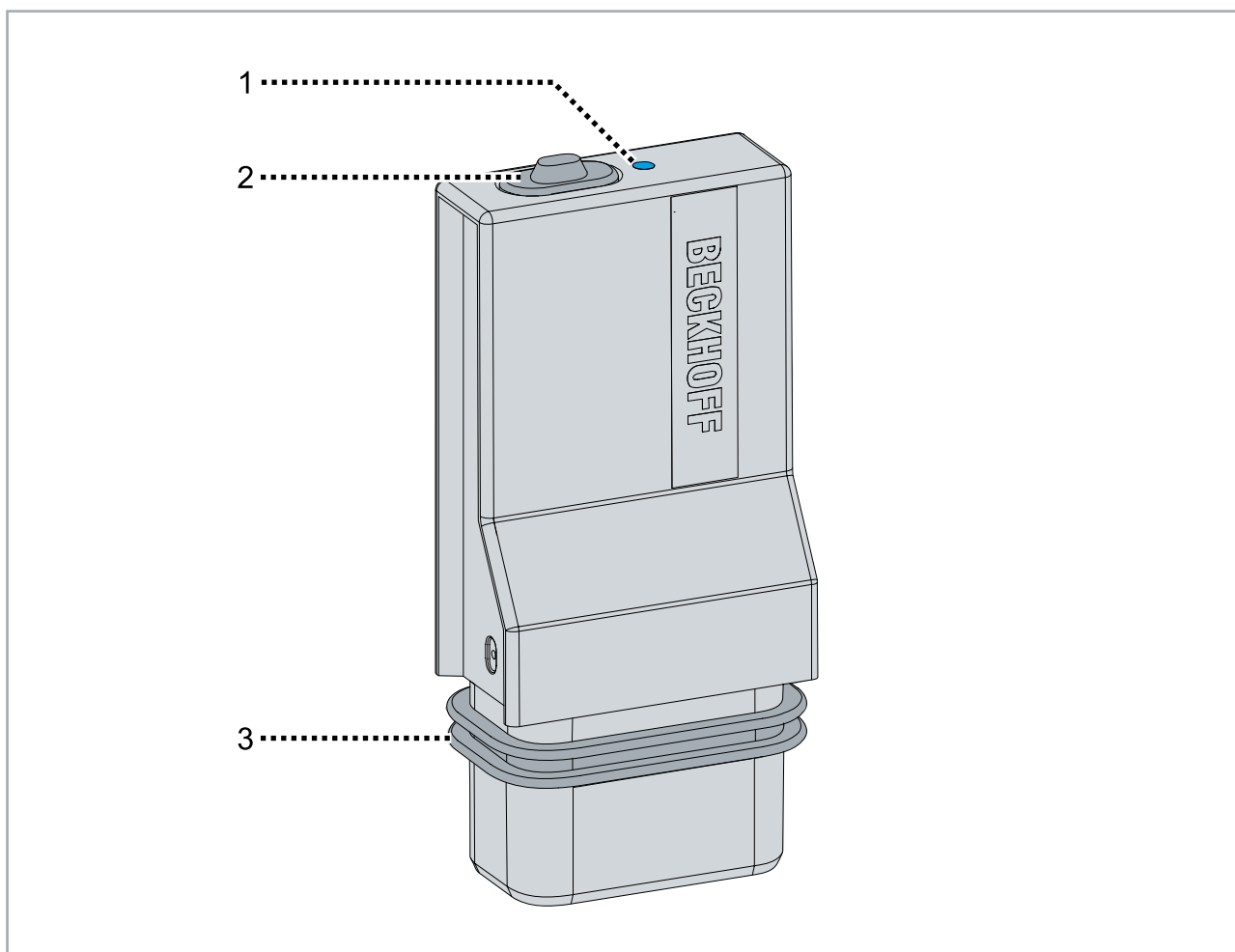
Improper use

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

2 Product overview

The MA6060-0000-0000 dongle serves as a diagnostic interface between a baseplate and compatible devices such as smartphones or tablets. Data transmission to the mobile device occurs via Bluetooth®. The dongle enables live transmission of selected diagnostic data from modules connected to the baseplate. Relevant diagnostic data such as the status of the LEDs is displayed, along with selected process data including analog values (4...20 mA) from a pressure sensor or the measured temperature from a Pt100.

The Beckhoff Diagnostics app for Apple® iOS and Android is available for visualization. The app clearly displays relevant information and helps operators identify and resolve faults quickly. This allows even users without in-depth knowledge of EtherCAT to access device diagnostics easily via a mobile device. MX-System modules also feature a scannable Data Matrix code (BTN: Beckhoff Traceability Number) on the front: when scanned via the app, this takes users directly to the specific diagnostic screen for that module. This allows faults to be identified immediately, minimizes downtime, and significantly simplifies maintenance thanks to clear status messages.

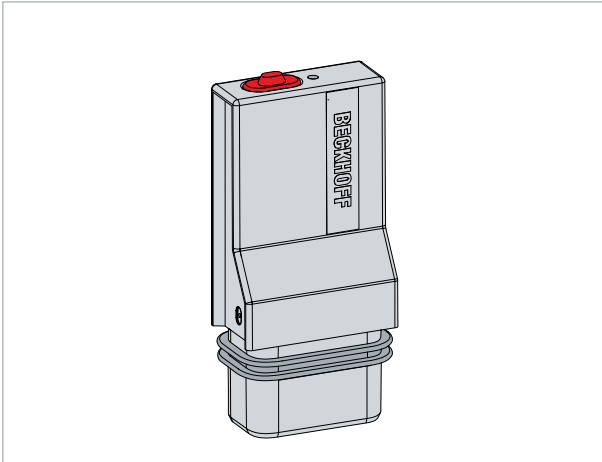


Position	Name
1	Status display
2	Button
3	Seal

2.1 Product functions

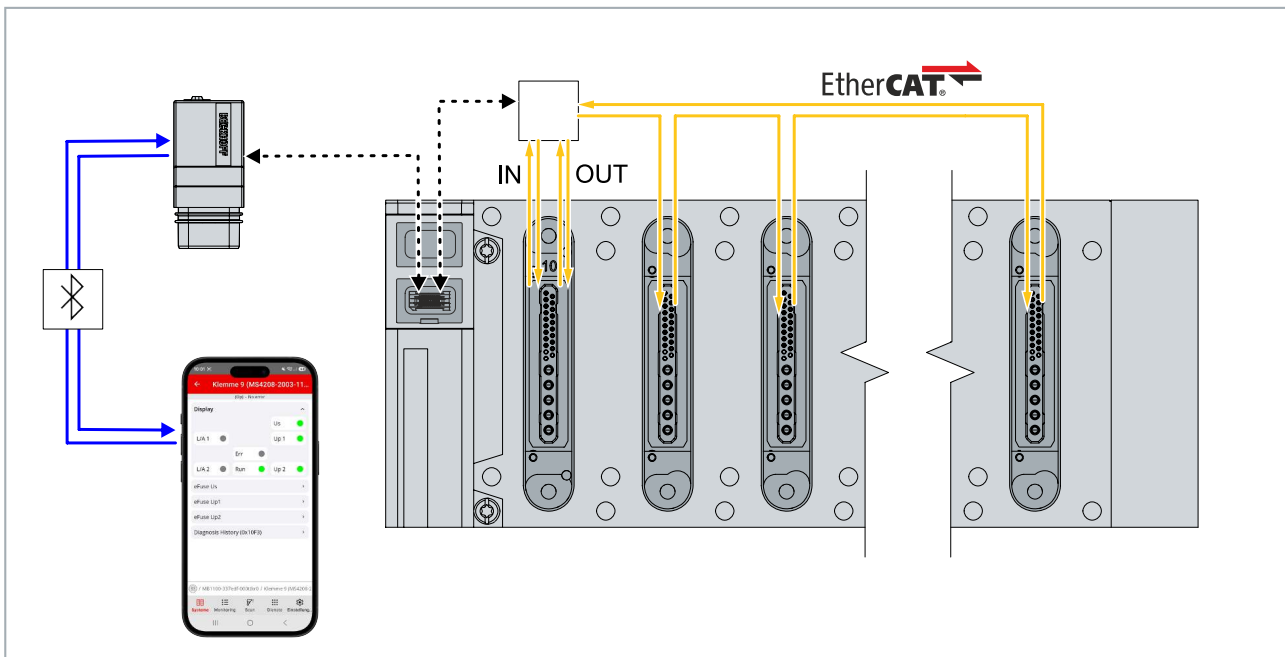
Button

The button is used to activate pairing mode. This is how you can put the dongle into connection mode.

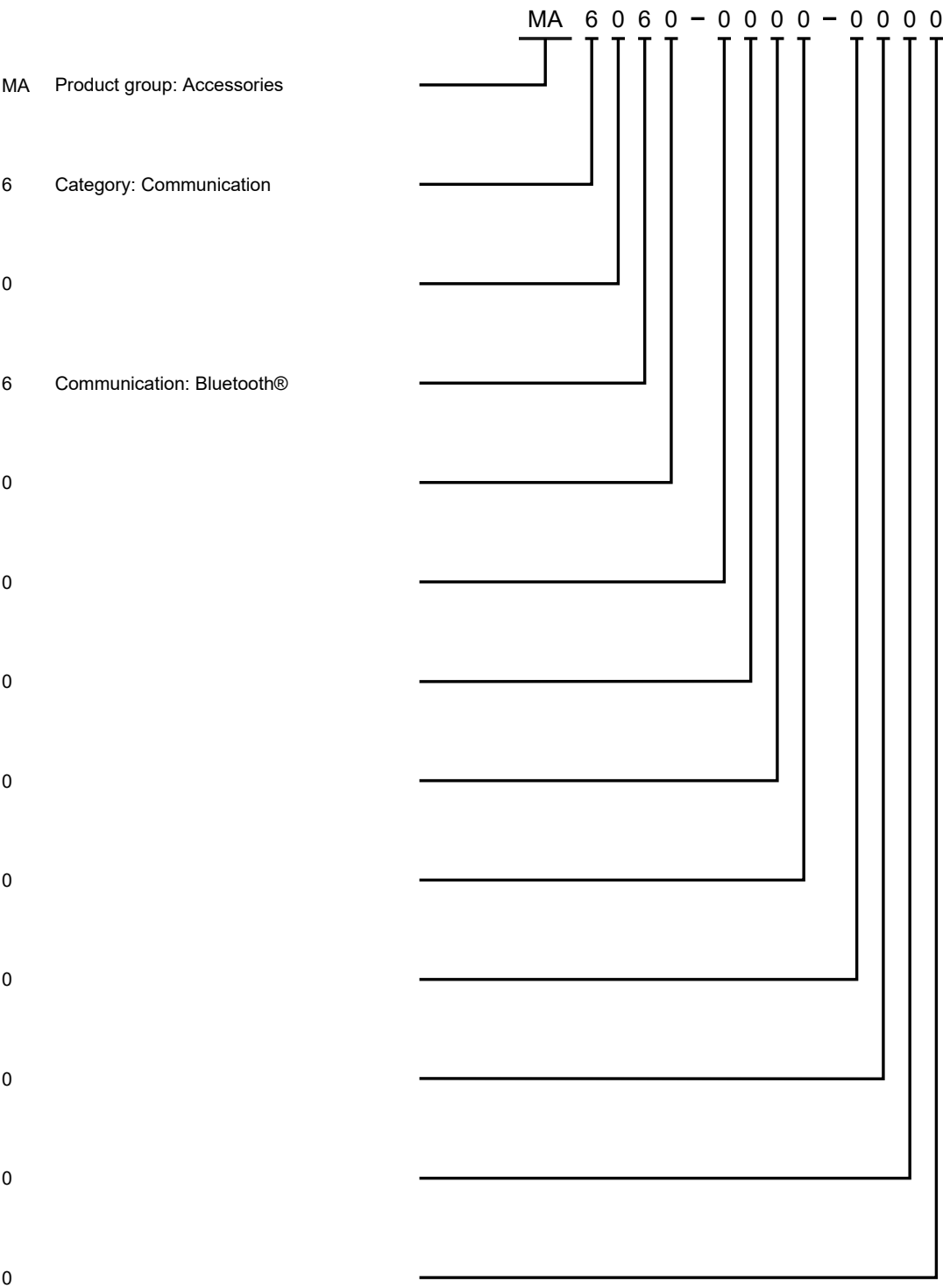


2.2 Block diagram

Logical block diagram illustrating the communication between the baseplate, the dongle, and the end device.



2.3 Type key

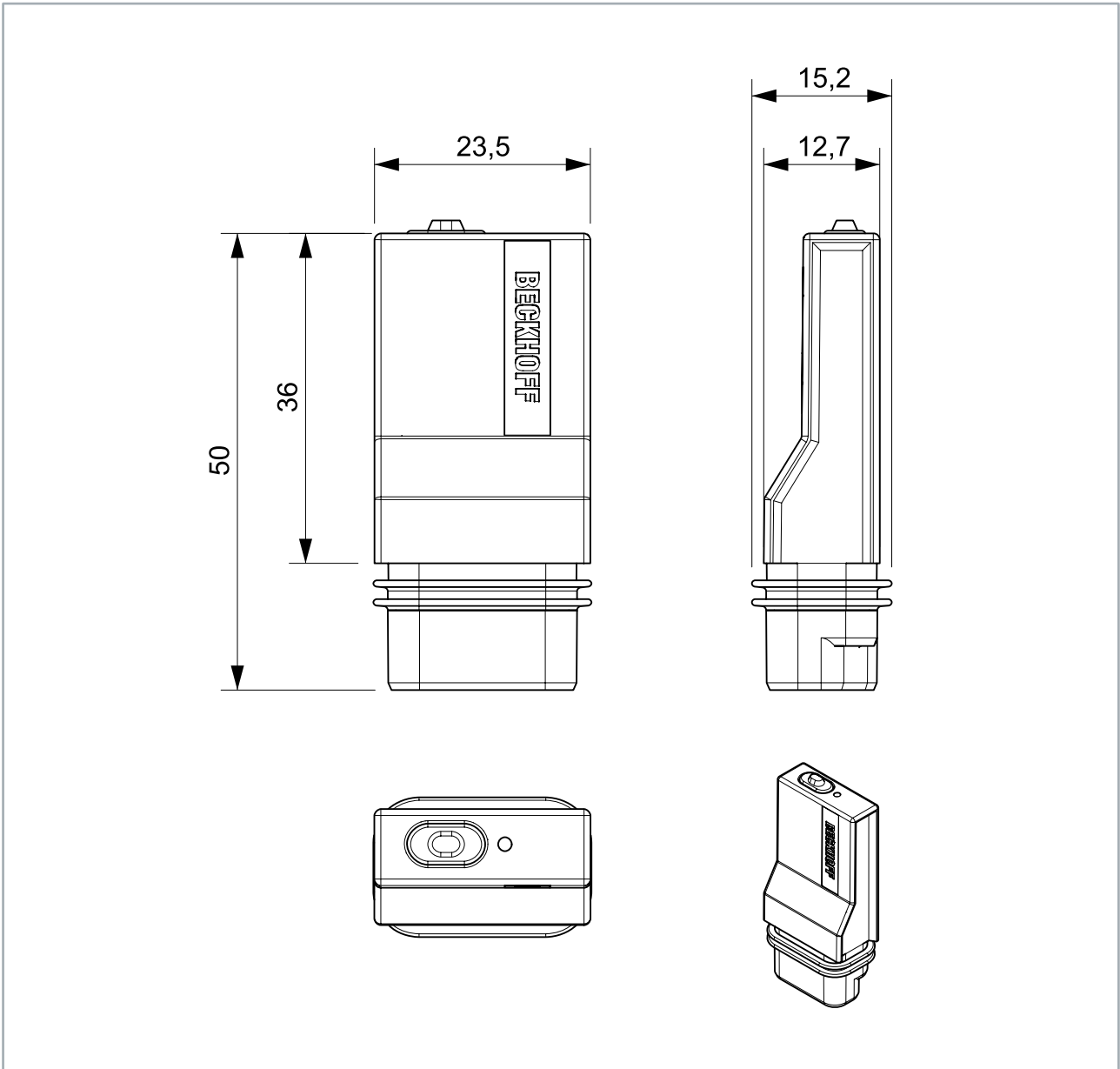


2.4 Status display

LED	State	Meaning
	off	There is no connection to the MB1100.
	flashes blue	Bluetooth® status: The dongle is in connection mode.
	lights up blue	Bluetooth® status: The dongle is connected to a device.

2.5 Dimensions

All dimensions in mm



3 Technical data

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

Bluetooth module	
Supply voltage	3.3 V DC (from the baseplate)
Bluetooth® standard	Bluetooth® Low Energy 5.1
Transmission power	50 ohms: 6 dBm
	Effective radiated power: 4 dBm
Frequency range	2402...2480 MHz

Housing data	
Dimensions W x H x D	23.5 mm x 50 mm x 12.7 mm
Material	Polycarbonate
Weight	Approx. 20 g

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

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
Maximum installation altitude	2000 m

4 Software functions

The dongle establishes a connection between MX-System modules and the Beckhoff Diagnostics app. The app complements TwinCAT, monitors the state of the EtherCAT modules, and transmits their diagnostic data in real time.

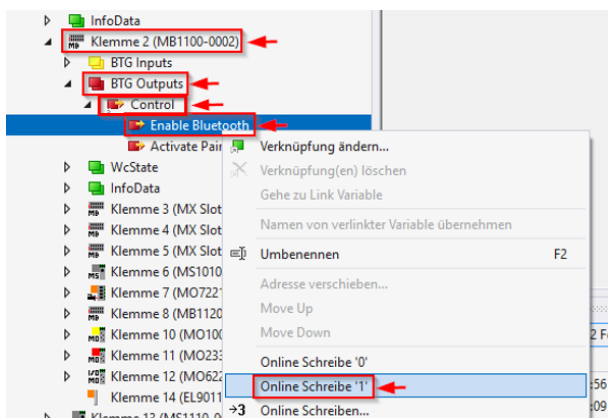
The dongle must be activated before it can be put into operation. Activation can be performed, for example, using the process data in the TwinCAT project tree.

Activating the dongle in TwinCAT

- ✓ The dongle is plugged into the baseplate (see the chapter [Mechanical installation](#) [► 16]).
 - ✓ The process image for the corresponding system has been added to TwinCAT.
1. Activate the dongle in TwinCAT.

In the project tree on the left, click:

I/O > Devices > Device 1 (EtherCAT)
 > Terminal 1 (MS2xxx or MB1200-0000) > Terminal 2 (MB1100-0002)
 > BTG Outputs > Control > Right-click on Enable Bluetooth® > Online write '1'



Now perform either step 2 or step 3.

2. Put the dongle into connection mode by pressing the button.
 3. Alternatively, activate the connection mode by ... > right-clicking on **Activate Pairing > Online write '1'**.
- ⇒ The dongle is ready to connect.



To disconnect the Bluetooth® connection, set **Enable Bluetooth** to **0**. Setting **Activate Pairing** to **0** does not disconnect the Bluetooth® connection.

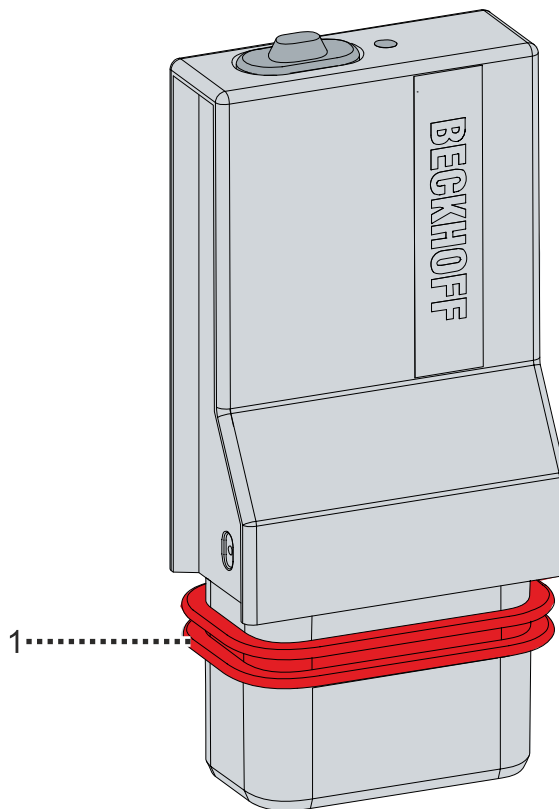
5 Mechanical installation

5.1 Preparation

NOTICE

Check the module for damage

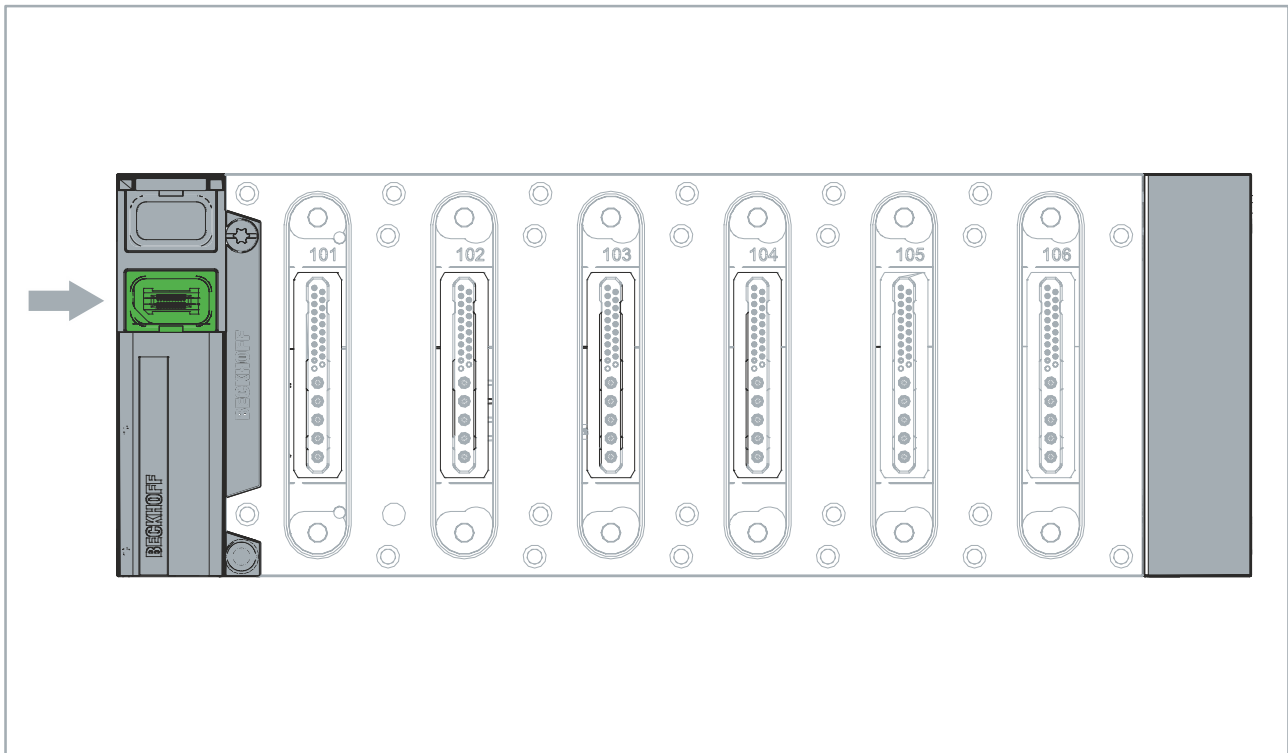
If the seal is worn or damaged, liquids and dirt can penetrate and damage the MX-System. The IP65/IP67 protection rating is not met if the seals are worn or damaged.



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:



The baseplate shown here is for illustrative purposes only; the placement of the MA6060-0000-0000 applies to all MBxxxx baseplates.

5.3 Mounting the module

NOTICE

Ensure correct installation

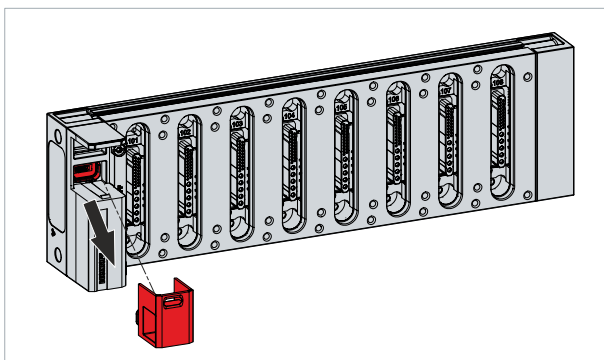
If the module is not installed correctly, liquids and dirt may enter and damage the MX-System. The IP65/ IP67 protection rating is not met if the installation is incorrect.

NOTICE

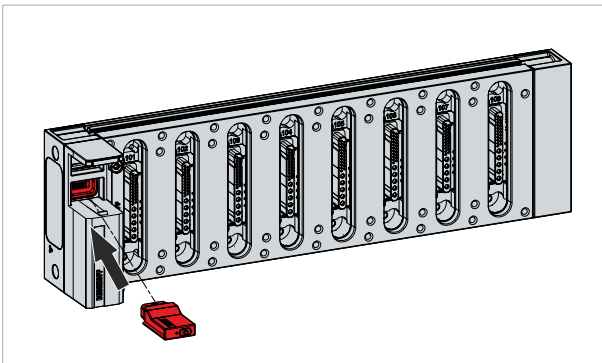
Improper insertion of the dongle

The dongle may be damaged if not handled properly. Proper functioning may be impaired if the device is not plugged in correctly.

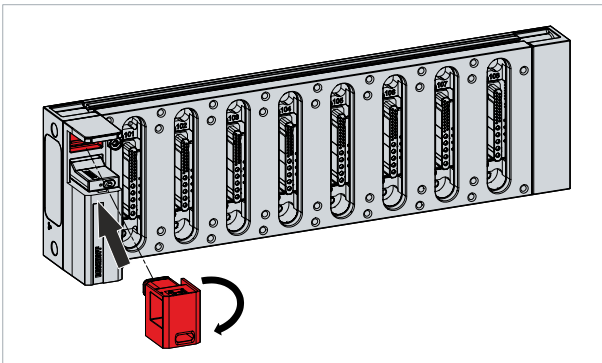
1. Remove the cover for the MA6060 interface | ZMX4001-0003 from the baseplate.



2. Insert the dongle | MA6060-0000-0000 all the way into the MA6060 slot. The button is on the right and the LED is on the left.



3. Place the cover for the MA6060 interface | ZMX4001-0003, rotated 180°, onto the cover slot.



6 Commissioning and operation

NOTICE

PELV voltage source

The module must be powered by a PELV voltage source.

NOTICE

Damage to property due to operation in an unsuitable environment

Before commissioning, ensure that the environmental conditions at the place of commissioning and operation are complied with at all times.

1. For mechanical commissioning, refer to the chapter [Mechanical installation](#) [► 16].
2. For software-related commissioning, refer to the chapter [Software functions](#) [► 15].

7 Decommissioning

7.1 Disassembly

NOTICE

Improper removal of the dongle

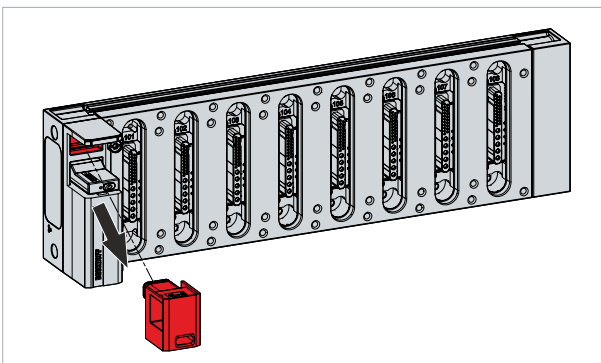
Removing the dongle improperly can cause damage to the dongle and impair its functionality.

NOTICE

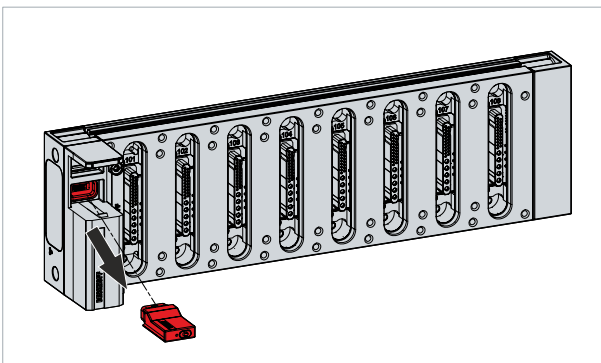
Lack of IP protection

If no dongle is inserted, the cover must be placed over the MA6060 slot as it was when the device was shipped. The IP65/IP67 protection rating is not met if the slot is left open.

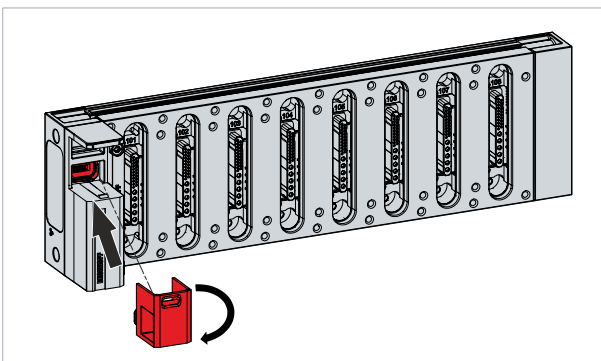
1. Remove the cover for the MA6060 interface | ZMX4001-0003 from the baseplate.



2. Remove the dongle | MA6060-0000-0000 from the baseplate.



3. Place the cover for the MA6060 interface | ZMX4001-0003, rotated 180°, onto the MA6060 slot.



7.2 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.

8 Appendix

8.1 Manual version history

The following table shows the version history of this manual.

Version	Comment
1.0	• First release

8.2 Accessories

Suitable accessories can be found on the product website:

<https://www.beckhoff.com/MA6060-0000-0000>

Product	Description
ZMX3003-0000	Replacement seal for MA6060
ZMX4001-0001	Replacement cover for potential equalization for 1-row baseplate with Beckhoff logo
ZMX4001-0002	Replacement cover for potential equalization for 2- and 3-row baseplate with Beckhoff logo
ZMX4001-0003	Replacement cover for MA6060 interface

8.3 Support and Service

Beckhoff Support and Service provides assistance with questions regarding Beckhoff products and system solutions, as well as with their planning, commissioning, and operation.

Beckhoff subsidiaries and representative offices

Please contact your Beckhoff subsidiary or your representative office for local support and service for Beckhoff products. You can find the addresses of Beckhoff subsidiaries and representative offices at: www.beckhoff.com/worldwide.

For Beckhoff products and technologies, we offer [Training programs](#), [tutorials](#), and [webinars](#).

Beckhoff Support

Beckhoff Support provides assistance with technical questions regarding the use, planning, programming, and commissioning of Beckhoff products.

☎ Hotline: +49 5246 963-157
✉ Email: support@beckhoff.com, [Support form](#)
Web page: www.beckhoff.com/support

Beckhoff Service

Our service specialists are here to assist you with any questions you may have regarding after-sales service processes, such as replacement parts, repairs, etc.

☎ Hotline: +49 5246 963-460
✉ Email: service@beckhoff.com, [Service form](#)
Web page: www.beckhoff.com/service

Download finder

The [Download finder](#) serves as a central source for downloadable documents and files related to Beckhoff products, such as application reports, technical documentation, drawings, and configuration files.

Beckhoff Information System

The [Beckhoff Information System](#) is the central online documentation resource for Beckhoff products and contains documentation on products and automation topics, as well as sample code.

Beckhoff Headquarters

Beckhoff Automation GmbH & Co. KG
Hülshorstweg 20
33415 Verl, Germany

☎ Phone: +49 5246 963-0
✉ Email: info@beckhoff.com
Web page: www.beckhoff.com

Trademark statements

Beckhoff®, ATRO®, EtherCAT®, EtherCAT G®, EtherCAT G10®, EtherCAT P®, MX-System®, Safety over EtherCAT®, TC/BSD®, TwinCAT®, TwinCAT/BSD®, TwinSAFE®, XFC®, XPlanar® and XTS® are registered and licensed trademarks of Beckhoff Automation GmbH.

Third-party trademark statements

Apple and Safari are trademarks of Apple Inc., registered in the U.S. and other countries and regions.

The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc and any use of such marks by Beckhoff is under license.

More Information:
www.beckhoff.com/MA6060-0000-0000

Beckhoff Automation GmbH & Co. KG
Hülshorstweg 20
33415 Verl
Germany
Phone: +49 5246 9630
info@beckhoff.com
www.beckhoff.com

