EUCHNER

Operating Instructions

Contents

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1. About this document

1.1. Scope

These operating instructions are valid for all MGB-L..B-EI-… (Ethernet/IP) With Data Structure Type A. These operating instructions, the document *Safety information* and any associated data sheet form the complete user information for your device.

Series	Guard locking types	System families	Product versions
MGB	L0 (without guard locking)	…-EI…	up to V1.5.X
	L1 (guard locking by spring force)		
	L2 (guard locking by solenoid force)		

1.1.1. Notes on other product versions

Make sure to use the operating instructions valid for your product version. Please contact our Service department if you have any questions.

1.2. Target group

Design engineers and installation planners for safety devices on machines, as well as setup and servicing staff possessing special expertise in handling safety components.

1.3. Key to symbols

Symbol/depiction	Meaning
📖	Printed document
(www)	Document is available for download at www.euchner.com
⚠️ **DANGER WARNING CAUTION**	Safety precautions **Danger** of death or severe injuries **Warning** about possible injuries **Caution** Slight injuries possible
ⓘ **NOTICE Important!**	**Notice** about possible device damage **Important** information
Tip	Useful information

1.4. Supplementary documents

The overall documentation for this device consists of the following documents:

Document title (document number)	Contents	
Safety information (2525460)	Basic safety information	📖
Operating instructions (2126330)	(this document)	(www)
Declaration of conformity	Declaration of conformity	(www)
Any associated data sheet	Item-specific information about deviations or additions	(www)

ⓘ **Important!**

Always read all documents to gain a complete overview of safe installation, setup and use of the device. The documents can be downloaded from www.euchner.com. For this purpose, enter the doc. no. or the order number for the device in the search box.

2. Correct use

The following applies to MGB-L0:

The system comprises at least one interlocking module MGB-L0-… and one handle module MGB-H…

The safety system MGB is an interlocking device without guard locking (type 4). Devices with unicode evaluation possess a high coding level, devices with multicode evaluation possess a low coding level.

In combination with a movable guard and the machine control, this safety component prevents dangerous machine functions from occurring while the guard is open. A stop command is triggered if the guard is opened during the dangerous machine function.

This means:

‣ Starting commands that cause a dangerous machine function must become active only when the guard is closed.
‣ Opening the guard triggers a stop command.
‣ Closing a guard must not cause automatic starting of a dangerous machine function. A separate start command must be issued. For exceptions, refer to EN ISO 12100 or relevant C-standards.

The following applies to MGB-L1/MBG-L2:

The system comprises at least one locking module MGB-L1-…/MGB-L2-… and one handle module MGB-H…

The safety system MGB is an interlocking device with guard locking (type 4). Devices with unicode evaluation possess a high coding level, devices with multicode evaluation possess a low coding level.

In combination with a movable guard and the machine control, this safety component prevents the guard from being opened while a dangerous machine function is being performed.

This means:

‣ Starting commands that cause a dangerous machine function must become active only when the guard is closed and locked.
‣ The guard locking must not be released until the dangerous machine function has ended.
‣ Closing and locking a guard must not cause automatic starting of a dangerous machine function. A separate start command must be issued. For exceptions, refer to EN ISO 12100 or relevant C-standards.

The following applies to MGB-L0/MGB-L1/MGB-L2:

The interlocking module MGB-L0B-EI.-… and the locking module MGB-L1B-EI.-…/MGB-L2B-EI.-… are operated as IO devices under Ethernet/IP.

Before the device is used, a risk assessment must be performed on the machine, e.g. in accordance with the following standards:

‣ EN ISO 13849-1
‣ EN ISO 12100
‣ IEC 62061

Correct use includes observing the relevant requirements for installation and operation, particularly based on the following standards:

‣ EN ISO 13849 1
‣ EN ISO 14119
‣ EN 60204-1

The safety system MGB can be combined only with the intended modules in the MGB system family.

On the modification of system components, EUCHNER provides no warranty for function.

The customer is responsible for the safe overall function, especially for the safe integration into the CIP Safety® environment.

> ⓘ **Important!**
>
> ‣ The user is responsible for the proper integration of the device into a safe overall system. For this purpose, the overall system must be validated, e.g. in accordance with EN ISO 13849-2.

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	Important!
(i)	‣ Correct use requires observing the permissible operating parameters (see chapter *18. Technical data on page 31*). ‣ If a data sheet is included with the product, the information on the data sheet applies.

Table 1: Possible combinations for MGB components

Evaluation unit	Handle module		
	MGB-H-… **from V2.0.0**		
MGB…EI	●		

Key to symbols	●	Combination possible

3. Description of the safety function

Devices from this series feature the following safety functions:

The following applies to MGB-L1 and MGB-L2:

Monitoring of guard locking and the position of the guard
(interlocking device with guard locking according to EN ISO 14119)

‣ Safety function (see chapter *6. Function on page 10*):
- When guard locking is unlocked, safety bit `FI.UK` (ÜK) = 0 (monitoring of the locking element).
- When the guard is open, safety bit `FI.SK` (SK) = 0.
- Guard locking can be activated only when the bolt tongue is located in the locking module (prevention of inadvertent locking position (faulty closure protection)).

‣ Safety characteristics: category, Performance Level, PFH_D (see chapter *18. Technical data on page 31*).

Control of guard locking (safety bit `FO.L`; applies only to guard locking devices according to the closed-circuit current principle)

‣ Safety function: if the device is used as guard locking for personnel protection, control of guard locking must be regarded as a safety function. Guard locking is controlled via safety bit `FO.L` (see chapter *6.3. Guard locking for version MGB-L1 on page 11*).

The safety level of guard locking control is determined by the device $PFH_{D\,int.}$ and by the external control (e.g. $PFH_{D\,ext.}$ of the standstill monitor).
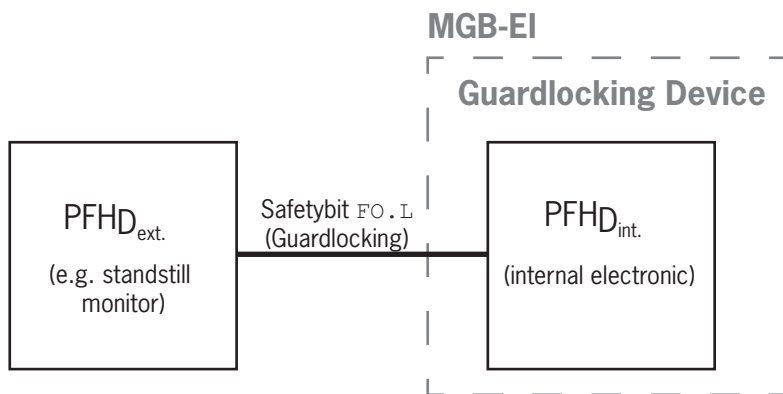
‣ Safety characteristics: category, Performance Level, PFH_D (see chapter *18. Technical data on page 31*).

The following applies to MGB-L0:

Monitoring of the guard position
(interlocking device according to EN ISO 14119)

‣ Safety function: When the guard is open, safety bit `FI.SK` (SK) = 0. (See chapter *6. Function on page 10*.)
‣ Safety characteristics: category, Performance Level, PFH_D (see chapter *18. Technical data on page 31*).

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The following applies to devices with emergency stop:

Emergency stop
(emergency stop device according to EN ISO 13850)

‣ Safety function: evaluation of emergency stop
‣ Safety characteristics: B_{10D} value for the emergency stop and PFH_D for the evaluation electronics (see chapter *18. Technical data on page 31)*

MGB-EI

| B10D (Emergency Stop) | PFHD_int. (internal electronic, evaluation of the emergency stop) | Safetybit `FI.ES` (Emergency Stop) | PFHD_ext. (Failsafe PLC) |
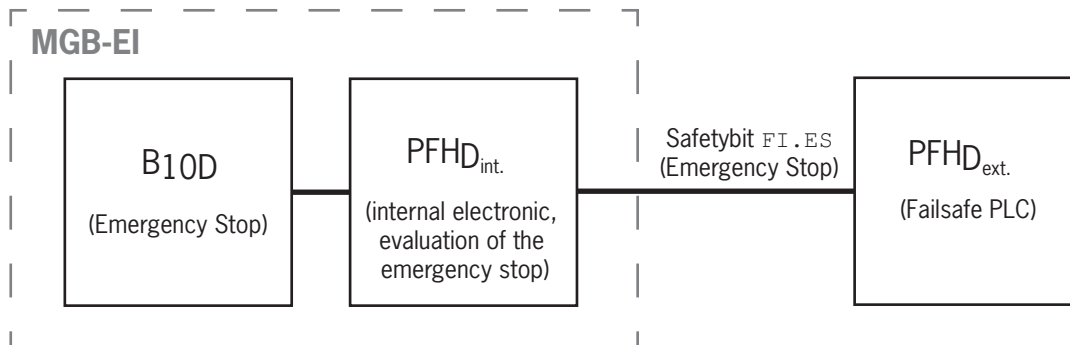
The following applies to devices with connection for enabling switch:

Enabling function

‣ Safety function: evaluation of a connected enabling switch
‣ Safety characteristics: B_{10D} value for the enabling switch (see manufacturer's information) and PFH_D for the evaluation electronics (see chapter *18. Technical data on page 31)*

MGB-EI

| B10D (Enabling Switch) | PFHD_int. (internal electronic, evaluation of the enabling switch) | Safetybit `FI.EN` (Enabling Switch) | PFHD_ext. (Failsafe PLC) |
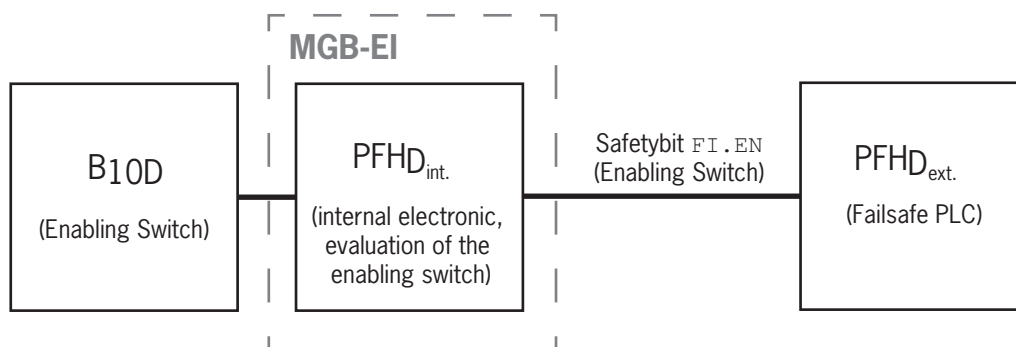
For devices with multi-position switch:

Detection of the switch position

‣ Safety function: Evaluation of the switch position. E.g. for safe switchover between individual operating modes
‣ Safety characteristics: PFH_D for the evaluation electronics (see chapter *18. Technical data on page 31)*. The switch position is scanned electronically. There is therefore no B_{10D} value for the switch.

MGB-EI

| PFHD_int. (internal electronic, evaluation of the selector switch) | Safetybits `FI.MS0, FI.MS1, FI.MS1` (Selector Switch) | PFHD_ext. (Failsafe PLC) |
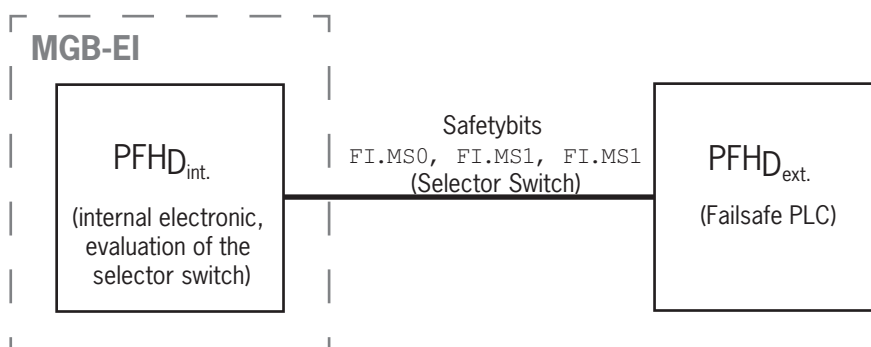
4. Exclusion of liability and warranty

In case of failure to comply with the conditions for correct use stated above, or if the safety regulations are not followed, or if any servicing is not performed as required, liability will be excluded and the warranty void.

5. General safety precautions

Safety switches fulfill personnel protection functions. Incorrect installation or tampering can lead to fatal injuries to personnel.

Check the safe function of the safeguard particularly

‣ after any setup work

‣ after the replacement of an MGB component

‣ after an extended period without use

‣ after every fault

Independent of these checks, the safe function of the safeguard should be checked at suitable intervals as part of the maintenance schedule.

⚠	**WARNING** Danger to life due to improper installation or due to bypassing (tampering). Safety components fulfill a personnel protection function. ‣ Safety components must not be bypassed, turned away, removed or otherwise rendered ineffective. On this topic pay attention in particular to the measures for reducing the possibility of bypassing according to EN ISO 14119:2013, section 7. ‣ The switching operation is allowed to be triggered only by the intended handle module MGB-H… that is positively fastened to the guard. ‣ Prevent bypassing by means of replacement actuators (only for multicode evaluation). For this purpose, restrict access to actuators and to keys for releases, for example. ‣ Mounting, electrical connection and setup only by authorized personnel possessing the following knowledge: - specialist knowledge in handling safety components - knowledge about the applicable EMC regulations - knowledge about the applicable regulations on operational safety and accident prevention.
ⓘ	**Important!** Prior to use, read the operating instructions and keep these in a safe place. Ensure the operating instructions are always available during mounting, setup and servicing. For this reason you should archive a printed copy of the operating instructions. You can download the operating instructions from www.euchner.com.

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6. Function

6.1. Interlocking module MGB-L0.B-EI.

Together with a handle module, the interlocking module makes it possible to interlock movable guards. The combination also serves as a mechanical door stop at the same time.

	Important!
(i)	To operate the device as an interlocking device according to EN ISO 14119, the signals for door position (safe bit `FI.D`) and bolt position (safe bit `FI.B`) must be polled in a logical AND operator. This operator is already implemented in safety bit `FI.SK`.
	As an alternative, you can also link the bits `FI.D` and `FI.B` individually in your control system.

The following switch-on condition applies to safety bit `FI.SK` (SK):

‣ Guard closed `FI.D`
‣ Bolt tongue inserted into interlocking module `FI.B`

See also chapter *16. System status table on page 29*.

The interlocking module detects the position of the guard and the position of the bolt tongue.

The bolt tongue in the handle module is moved into and out of the interlocking module by actuating the door handle.

6.2. Locking module MGB-L1.B-EI. and MGB-L2.B-EI.

Together with a handle module, the locking module makes it possible to lock movable guards. The combination also serves as a mechanical door stop at the same time.

	Important!
(i)	‣ Guard locking devices according to the open-circuit current principle are not intended for protecting personnel.
	‣ To operate the device as a guard locking device for personnel protection according to EN ISO 14119, the signals for door position (safe bit `FI.D`), bolt position (safe bit `FI.B`) and guard lock monitoring (safe bit `FI.L`) must be polled in a logical AND operator. This operator is already implemented in safety bit `FI.UK`.
	‣ As an alternative, you can also link the bits `FI.D`, `FI.B` and `FI.L` individually in your control system.

The following switch-on condition applies to safety bit `FI.UK`:

‣ Guard closed `FI.D`
‣ Bolt tongue inserted into locking module `FI.B`
‣ Locking arm in locking position (guard lock monitoring) `FI.L`

See also chapter *16. System status table on page 29*.

The locking module detects the position of the guard and the position of the bolt tongue. The position of the locking arm is also monitored.

The bolt tongue in the handle module is moved into and out of the locking module by actuating the door handle.

The locking arm locks the bolt tongue when the bolt tongue is fully inserted into the locking module. Depending on version, this locking is by spring force or solenoid force.

Guard locking is controlled via safety bit `FO.L`. See chapter *6.3. Guard locking for version MGB-L1 on page 11*.

6.3.   Guard locking for version MGB-L1

(guard locking actuated by spring force and released by power-ON)

Activating guard locking: close guard, no voltage at the solenoid (safety bit $FO.L = 0$).

Releasing guard locking: apply voltage to the solenoid (safety bit $FO.L = 1$).

The spring-operated guard locking functions in accordance with the closed-circuit current principle. If the voltage is interrupted at the solenoid, the guard locking remains active and the guard cannot be opened directly.

(i)	**Important!**
	If the guard is open when the power supply is interrupted and is then closed, guard locking is activated. This can lead to persons being locked in unintentionally.

As long as the locking arm is closed, the bolt tongue cannot be pulled out of the locking module and the guard is locked.

When voltage is applied to the guard locking solenoid, the locking arm is opened and bolt tongue is released. The guard can be opened.

6.4.   Guard locking for version MGB-L2

(guard locking actuated by power-ON and released by spring force)

(i)	**Important!**
	Use as guard locking for personnel protection is possible only in special cases, after strict assessment of the accident risk (see EN ISO 14119:2013, section 5.7.1)!

Activating guard locking: apply voltage to the solenoid (safety bit $FO.L = 0$).

Releasing guard locking: disconnect voltage from the solenoid (safety bit $FO.L = 1$).

The magnetically actuated guard locking operates in accordance with the open-circuit current principle. If the voltage is interrupted at the solenoid, the guard locking is released and the guard can be opened directly!

The guard can be opened as long as no voltage is applied to the guard locking solenoid.

When voltage is applied to the guard locking solenoid, the locking arm is held in the locked position and the guard is locked.

7. System overview

Mounting plate

Escape release (optional)
(MGB-E…)

Locking/release module
(MGB-L…)

Bus module
(Ethernet/IP)
(MGB-B…)

Handle module
(MGB-H…)
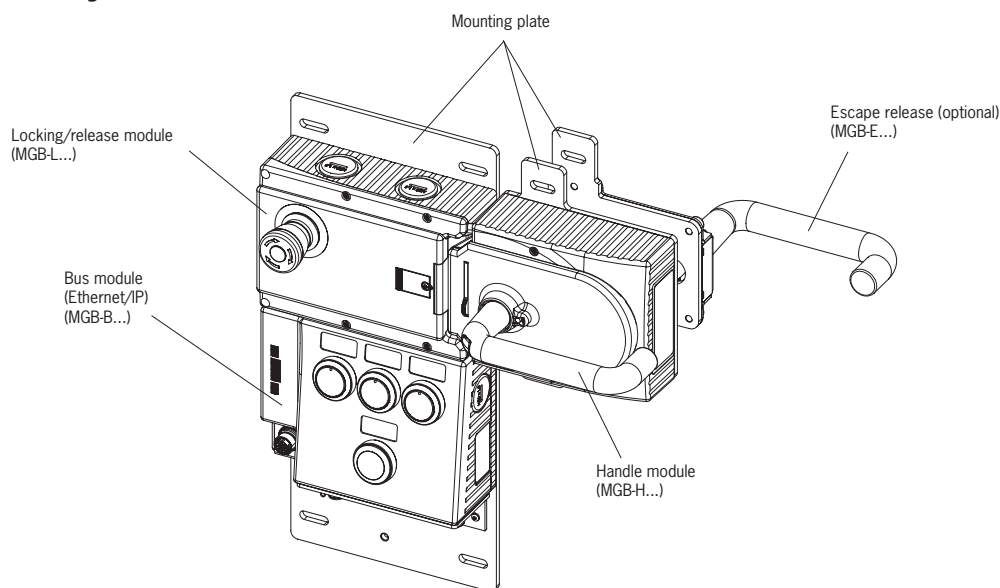
Fig. 1:   Components at a glance

	NOTICE
(i)	MGB-EI systems are completely factory configured. The configuration must not be changed subsequently. The illustrations in this chapter can deviate from your system and serve only as examples. Refer to the associated data sheet for the configuration of your MGB system.

7.1.   Bus module MGB-B-…-EI

① ② ③
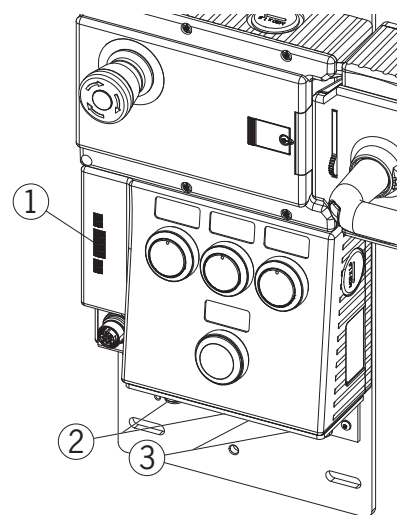
Key:
① LED indicator
② Power supply
③ Ethernet/IP connection

Notice:
Depending on version, additional controls and indicators may be integrated into the cover. See associated data sheet.

Fig. 2:   Bus module MGB-B-…-EI (configuration example)

7.2. Locking/release module MGB-L.-
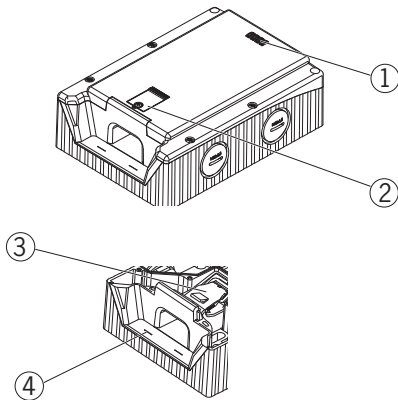
Key:
① LED indicator
② Cover for auxiliary release
③ Locking arm (only version with guard locking)
④ Auxiliary marking for max. permissible mounting distance

Notice:
Depending on version, additional controls and indicators may be integrated into the cover. See associated data sheet.

Fig. 3:   Locking/release module MGB-L.-

7.3. Handle module MGB-H-…
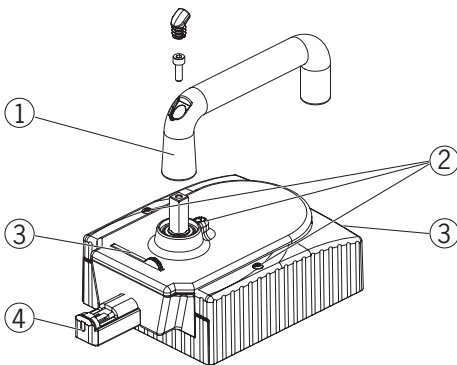
Key:
① Door handle
② Locking screws T10 for housing cover and handle adjustment
③ Fold-out lockout mechanism
   (optional: second, automatically extending lockout mechanism)
④ Bolt tongue

Notice:
Depending on version, a mounting plate can be included.
See associated data sheet.

Fig. 4:   Handle module MGB-H-…

7.4. Escape release MGB-E-… (optional)
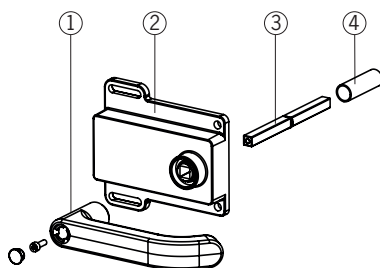
Key:
① Door handle
② Housing
③ Actuation axis 8 x 8 mm
   (different lengths available)
④ Protective sleeve

Notice:
Depending on version, a mounting plate can be included.
See associated data sheet.

Fig. 5:   Escape release MGB-E-...

7.5. Dimension drawing

See associated data sheet.

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8. Manual release

Some situations require the guard locking to be released manually (e.g. malfunctions or an emergency). A function test should be performed after release.

More information on this topic can be found in the standard EN ISO 14119:2013, section 5.7.5.1. The device can feature the following release functions:

8.1. Auxiliary release

In the event of servicing, the guard locking can be released with the auxiliary release irrespective of the state of the solenoid (see *Fig. 6*).

ⓘ	**Important!**
	‣ The system enters into a latching fault when the auxiliary release is actuated. See *System status table*, *signal sequence incorrect* status (DIA red, Lock flashes 1 time).
	‣ The system might not enter into a latching fault if the auxiliary release is actuated very slowly.
	‣ The auxiliary release is not a safety function.
	‣ The machine manufacturer must select and use a suitable release (escape release, emergency release, etc.) for a specific application. A hazard assessment is required for this purpose. It may be necessary to take specifications from a product standard into account.
	‣ The correct function must be checked at regular intervals.
	‣ Loss of the release function due to mounting errors or damage during mounting. Check the release function every time after mounting.
	‣ Observe the notes on any associated data sheets.

The locking screw must be screwed back in and sealed (with sealing lacquer, for example) after mounting and after every use of the auxiliary release. Tightening torque 0.5 Nm.

1. Undo locking screw.

2. Lift locking arm using a screwdriver and actuate door handle.
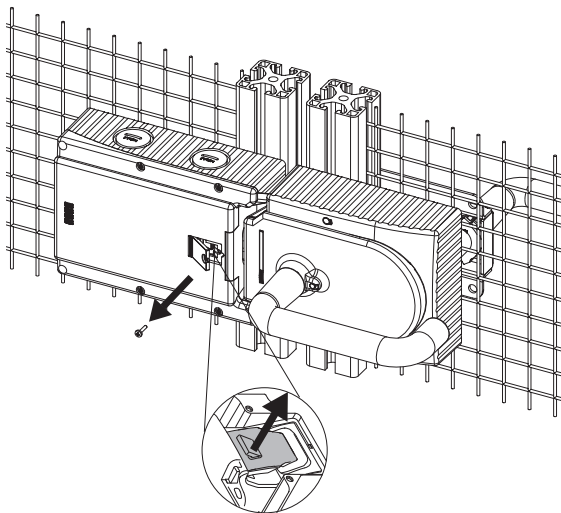
Fig. 6:   Auxiliary release

8.2. Lockout mechanism

If the lockout mechanism is pivoted out/extended, the bolt tongue cannot be extended. The lockout mechanism can be secured with padlocks (see *Fig. 7*). This is intended to prevent people from being locked in unintentionally. The lockout mechanism does not fulfill any safety function.

➡ To pivot out, press the grooved part (possible only with bolt tongue retracted).

Key:
① Padlock ⌀ min. 2 mm,
⌀ max. 10 mm
② Automatically extending, second lockout mechanism
Padlock ⌀ min. 6 mm, ⌀ max. 10 mm
Notice:
You can fit a maximum of 3 locks Ø 8 mm.
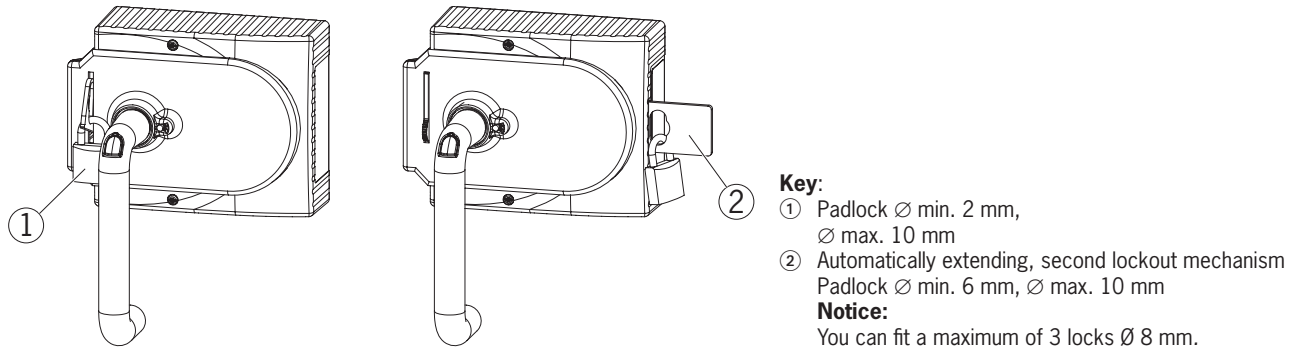
Fig. 7:   Lockout mechanism secured with padlock

8.3. Escape release (optional)

The escape release is used to open a locked guard from the inside without tools.

	Important!
ⓘ	‣ The system enters into a latching fault when the escape release is actuated. See *System status table, signal sequence incorrect* status (DIA red, Lock flashes 1 time).
	‣ The system might not enter into a latching fault if the escape release is actuated very slowly.
	‣ It must be possible to actuate the escape release manually from inside the protected area without tools.
	‣ It must not be possible to reach the escape release from the outside.
	‣ The actuator must not be under tensile stress during manual release.
	‣ The escape release meets the requirements of Category B according to EN ISO 13849-1:2015.
	‣ The correct function must be checked at regular intervals.
	‣ Observe the notes on any associated data sheets.

‣ Fit escape release such that operation, inspection and service are possible.

‣ The actuation axis for the escape release must be inserted min. 10 mm into the handle module. Note the information on the different profile widths in chapter *8.3.1. Preparing escape release on page 16*.

‣ Adjust escape release axis at right angles to the handle module. See *Fig. 8*.

8.3.1. Preparing escape release

Profile width	Length required for actuation axis		Which EUCHNER parts are required?	Necessary work steps
	Without mounting plates	With mounting plates (4 mm each)		
D	**D+9**	**D+17**		
30 mm	39 mm	47 mm	Standard escape release with 107 mm axis (order no. 100465)	Shorten to required length
40 mm	49 mm	57 mm	Standard escape release with 107 mm axis (order no. 100465) If necessary, extended actuation axis (order no. 106761)	*Without mounting plates:* None *With mounting plates:* Use extended actuation axis and protective sleeve and shorten to required length
45 mm	54 mm	62 mm	Standard escape release with 107 mm axis (order no. 100465) **and** extended actuation axis (order no. 106761)	Use extended actuation axis and protective sleeve and shorten to required length
50 mm	59 mm	67 mm	Standard escape release with 107 mm axis (order no. 100465) **and** extended actuation axis (order no. 106761)	Use extended actuation axis and protective sleeve and shorten to required length
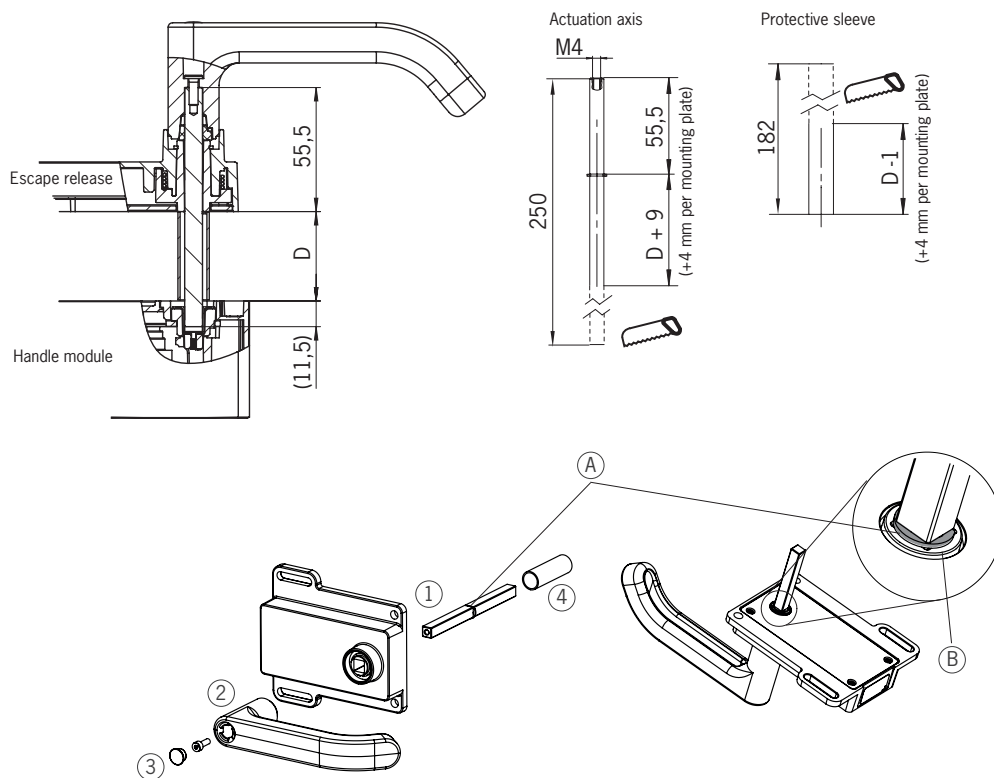
① Insert actuation axis. The snap ring **A** must be in contact with the escape release **B**.
② Fit door handle.
③ Tighten fixing screw with 2 Nm and push in cap.
④ Fit protective sleeve.

Fig. 8: Preparing escape release

9. Mounting

⚠	**WARNING**
	Mounting must be performed only by authorized personnel.

ⓘ	**NOTICE**
	Risk of damage to equipment and malfunctions as a result of incorrect installation.
	‣ Observe EN ISO 14119:2013, sections 5.2 and 5.3, for information about mounting the safety switch and the actuator.

With two-leaf hinged doors, one of the two door leaves must also be latched mechanically.

Use a rod latch (Item) or a double-door lock (Bosch Rexroth) for this purpose, for example.

ⓘ	**Important!**
	‣ In case of flush installation, the operating distances change as a function of the installation depth and the guard material.

Actuating range

Locking module **Handle module**

Flush installation

Actuating range

Locking module **Handle module**

Surface mounting
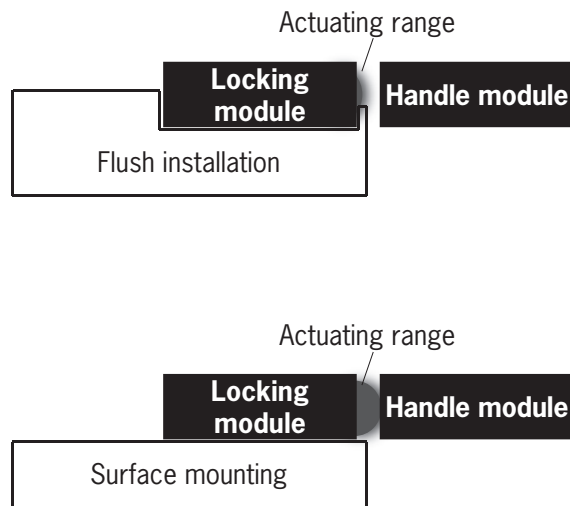
ⓘ	**Tip!**
	‣ You can find various animations about the assembly process in the media library at www.euchner.com.
	‣ The color and labeling of pushbuttons and indicators can be modified.

For mounting steps, see *Fig. 9* and *Fig. 10* to *Fig. 15*.

Attach system such that operation of the auxiliary release as well as inspection and service are possible.

The locking screw must be screwed back in and sealed (with sealing lacquer, for example) after mounting and after every use of the auxiliary release. Tightening torque 0.5 Nm.

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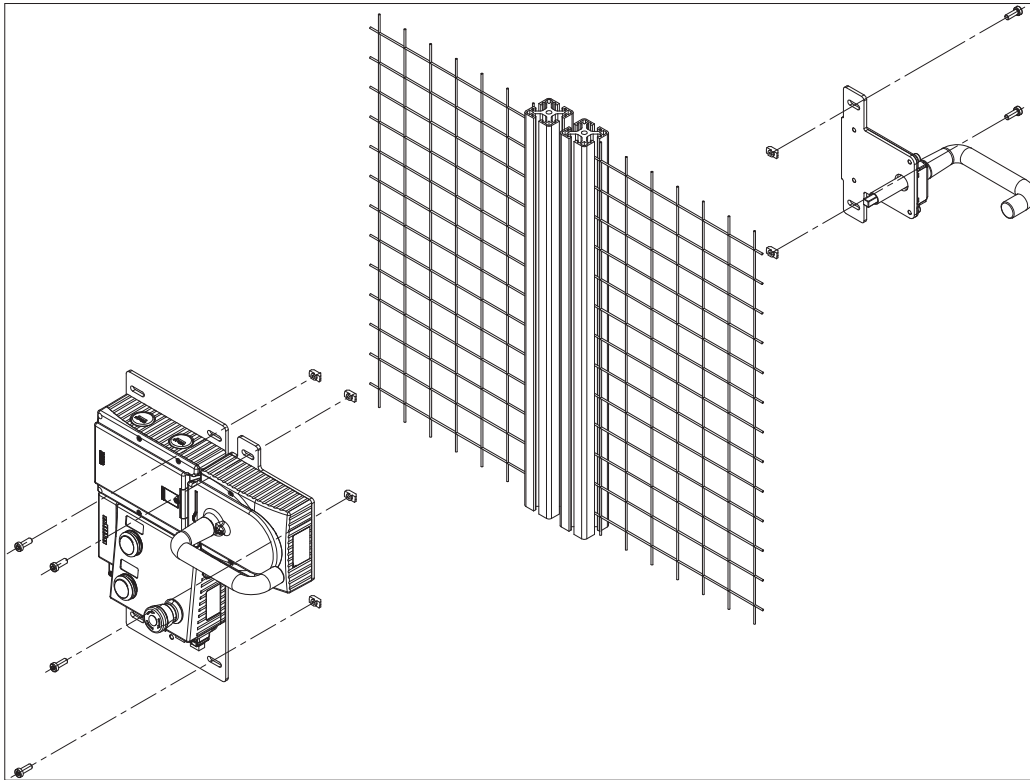
Fig. 9:   Installation example for door hinged on the right (general view)

9.1.   Mounting lens

Mounting
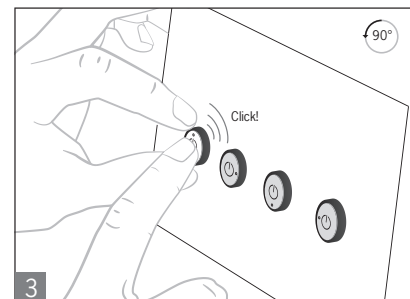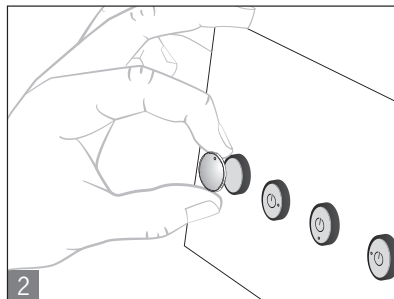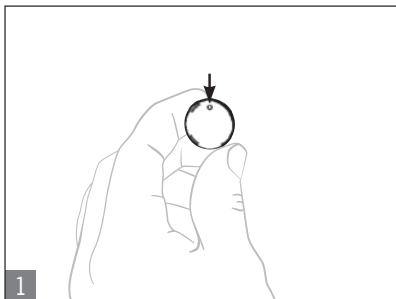
Removal
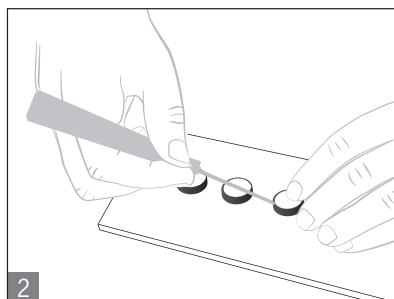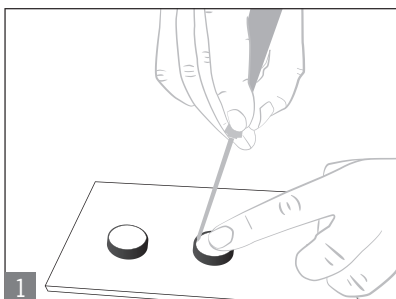
10. Changing actuating direction

(here: from right to left)

ⓘ	**Important!**
	It is possible to make this change only when the bolt tongue is not extended and an escape release is not yet mounted.

In the delivery state, the handle module is set either for doors hinged on the right or for doors hinged on the left.

Based on the example of a handle module for doors hinged on the right this means:

‣ The guard opens by pressing down the door handle.

‣ The system is mounted the other way around for doors hinged on the left. In other words, the guard opens by pressing up the door handle (see *Fig. 10*). For this reason the actuating direction of the door handle must be changed (see *Fig. 10* to *Fig. 15*).

(Similarly on handle modules for doors hinged on the left)

① Push door handle up.

Fig. 10:   Changing actuating direction, step ①

② Unscrew locking screws
③ Push cover aside.
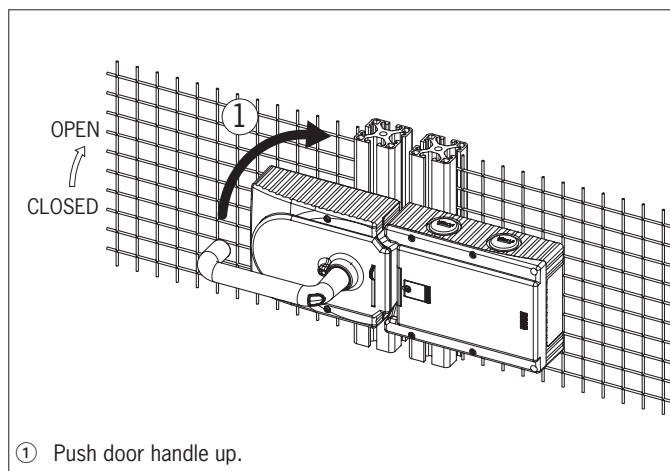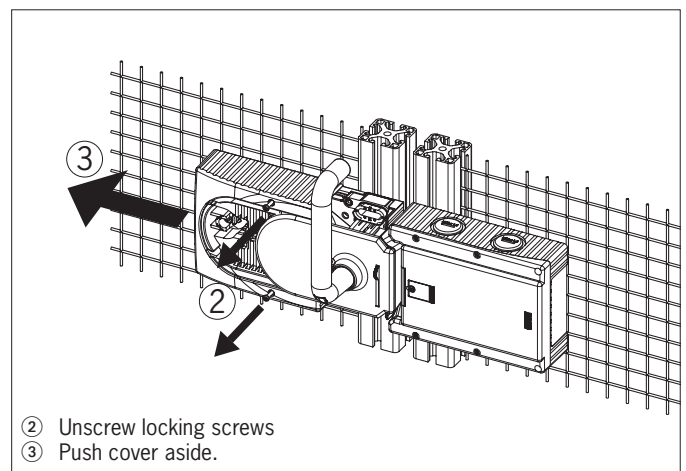
Fig. 11:   Changing actuating direction, steps ② and ③

④ Lift the locking pin on the door handle using a screwdriver and hold it in this position.
⑤ Turn door handle to the right.
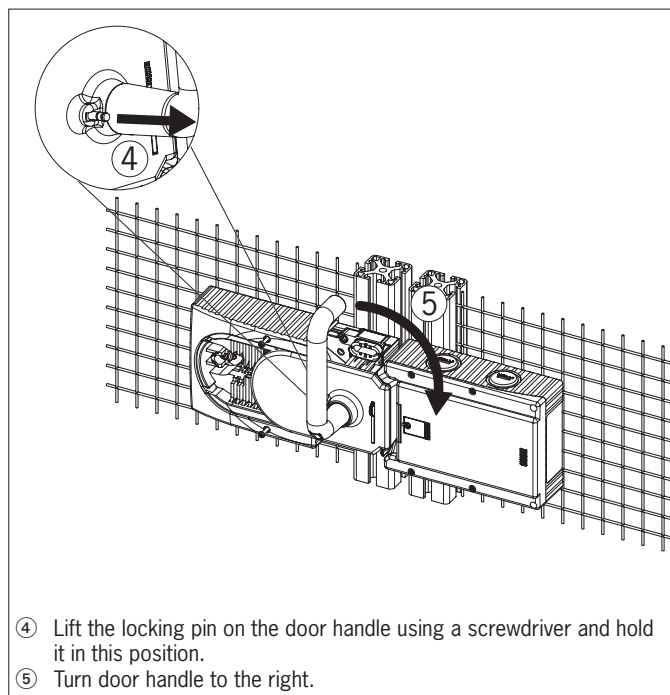
Fig. 12:   Changing actuating direction, steps ④ and ⑤

⑥ Only on the use of an escape release: using the T10 screw, turn the joint counterclockwise from position (a) to position (b).
⑦ Close cover.
⑧ Screw in locking screws and tighten to 0.8 Nm.
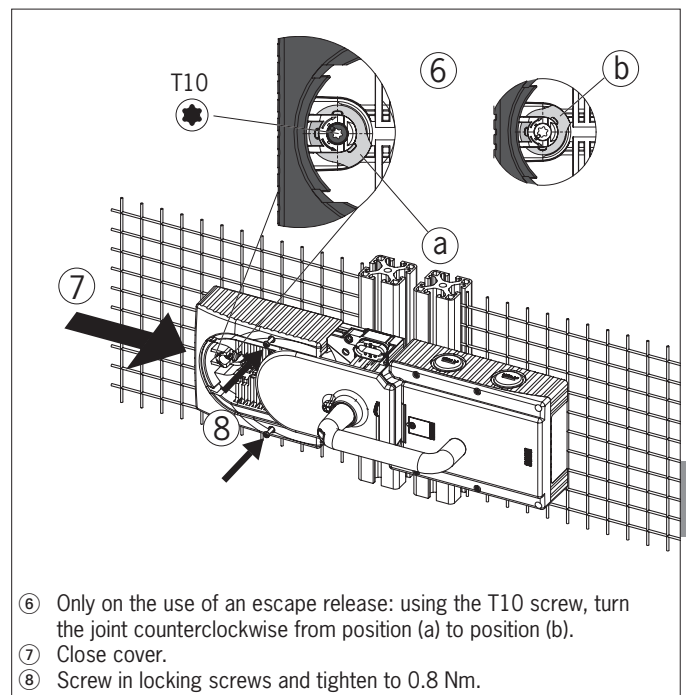
Fig. 13:   Changing actuating direction, steps ⑥ to ⑧

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⑨ Remove cover and undo hexagon socket screw.
⑩ Move door handle 90° clockwise and fasten again.
⑪ Tighten hexagon socket screw to 3 Nm.
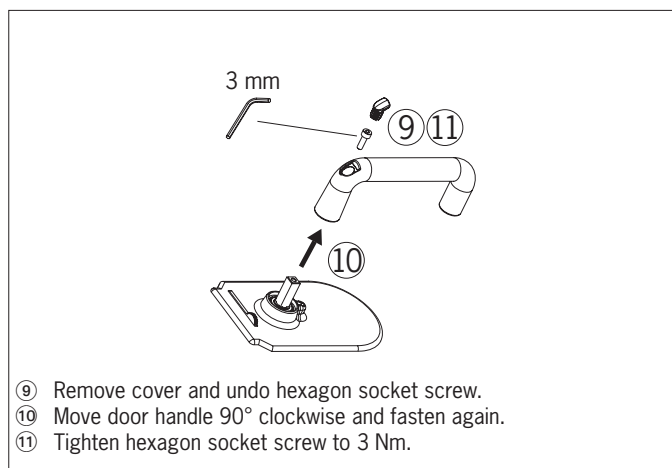
Fig. 14:   Changing actuating direction, steps ⑨ to ⑪

⑫ State after repositioning
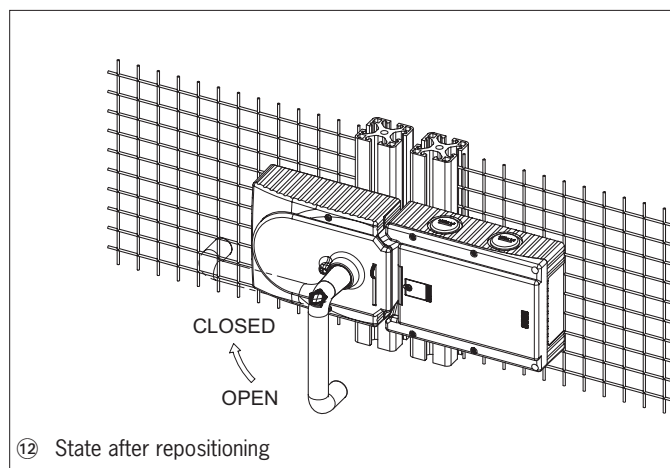
Fig. 15:   Changing actuating direction, final state

11. Protection against environmental effects

Lasting and correct safety function requires that the system must be protected against foreign bodies such as swarf, sand, blasting shot, etc., which can become lodged in the locking and handle modules. For this purpose a suitable installation position should be selected.

Cover device during painting work!

12. Controls and indicators

LEDs on locking/release module

see System status table
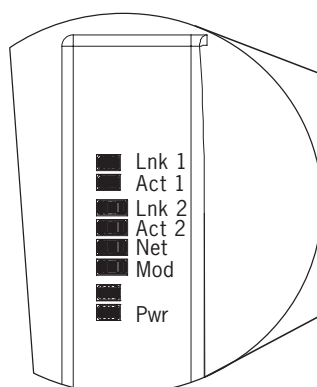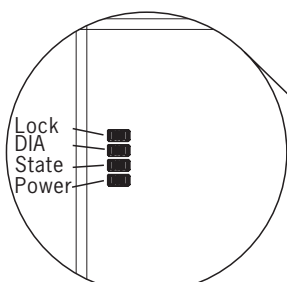
LEDs on the bus module

LED	Color	Meaning
ACT1 ACT2	OFF	No activity
	Green flashing	Port activity
	Yellow flashing	Collision
LNK1 LNK2	OFF	No connection
	Green	Connection
	Yellow	Port disabled
	Red	Major NIC fault
NET	Green flashing	No network connection
	Green	Network connection
	Red flashing	Timeout
	Red	Communication failed
	Red/green flashing	Network error

LED	Color	Safety Supervisor Status	Meaning
MOD	OFF	No voltage	No voltage
	Green	Version	Normal operation
	Green flashing	Idle	Idle or ready Check the Identity and the Safety Supervisor Object.
	Red flashing	Cancel	Resettable fault
	Red	Critical fault	Non-resettable fault
	Red/green flashing	Self-test, waiting for TUNID or configuration	Self-test/Power On Device must be configured or TUNID is missing, incomplete or incorrect. Check the Identity Object and the Safety Supervisor Object.

A detailed overview of the error messages can be found in chapter *15. MGB system diagnostic messages on page 28*.
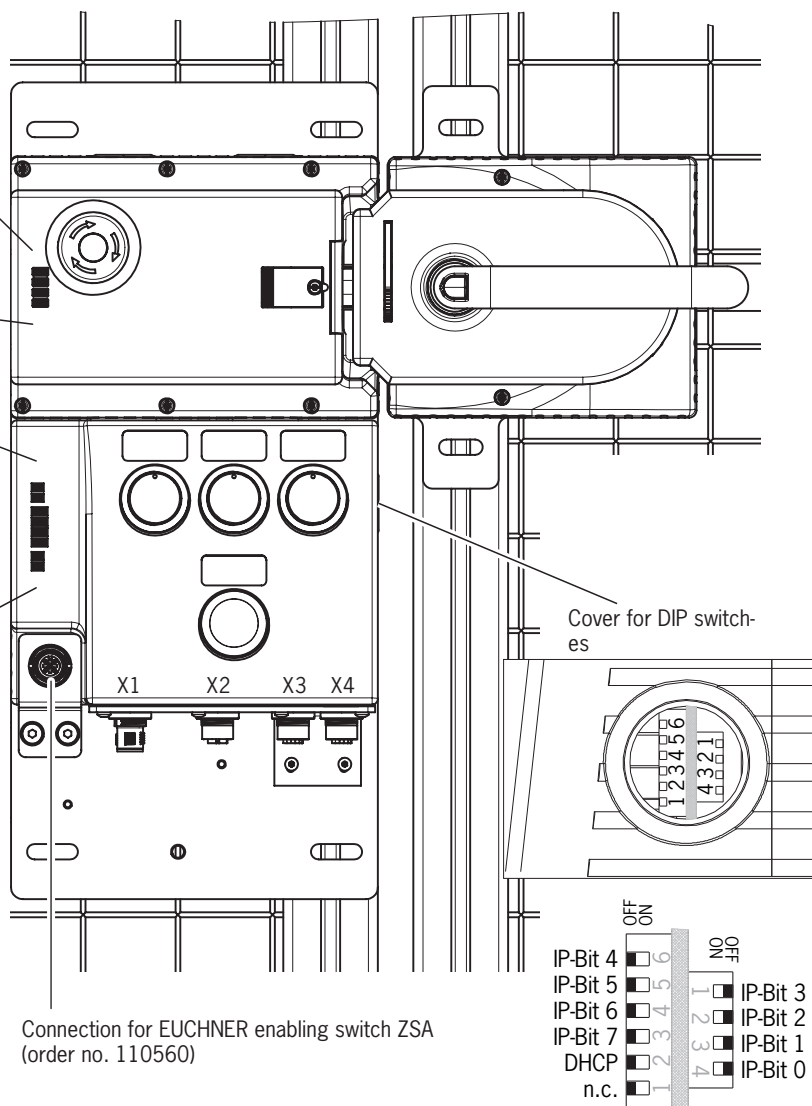
Connection for EUCHNER enabling switch ZSA (order no. 110560)

Cover for DIP switches

IP-Bit 4
IP-Bit 5
IP-Bit 6
IP-Bit 7
DHCP
n.c.

IP-Bit 3
IP-Bit 2
IP-Bit 1
IP-Bit 0

DIP switch assignment

	Switch	Designation	Value	Function
	1	n.c.		Reserved
Block 2	2	DHCP		OFF position = IP address via DIP switch ON position = IP address via DHCP (attention: all other DIP switches in position = OFF) **Tip:** Set the DIP switch to ON to identify your MGB in the control system. This will ensure that the device is recognized by the DHCP server. This can be helpful if you do not know the IP address.
	3	IP bit 7	128	Enter the last byte of the IP address bit by bit here.
	4	IP bit 6	64	**Example:** 192.168.1.[DIP switch code, binary] |————| Fixed part
	5	IP bit 5	32	
	6	IP bit 4	16	
Block 1	1	IP bit 3	8	
	2	IP bit 2	4	The following applies:
	3	IP bit 1	2	OFF position = 0
	4	IP bit 0	1	ON position = 1

Notice: Different IP addresses according to data sheet are possible.

(Factory setting: all switches in OFF position)

Fig. 16: Indicators and control elements

EN

13. Electrical connection

⚠	**WARNING**
	In the event of a fault, loss of the safety function due to incorrect connection.
	‣ Mounting must be performed only by authorized personnel.
	‣ Lay the connecting cables with protection to prevent the risk of short circuits.

⚠	**CAUTION**
	Risk of damage to equipment or malfunctions as a result of incorrect connection.
	‣ All the electrical connections must either be isolated from the mains supply by a safety transformer according to EN IEC 61558-2-6 with limited output voltage in the event of a fault, or by other equivalent insulation measures.
	‣ Power devices which are a powerful source of interference must be installed in a separate location away from the input and output circuits for signal processing. The cable routing for safety circuits should be as far away as possible from the cables of the power circuits.
	‣ In order to avoid EMC interference, follow the EMC notes on devices in the immediate vicinity of the MGB system and its cables.
	‣ In order to avoid EMC interference, the physical environmental and operating conditions at the installation site of the device must comply with the requirements according to the standard DIN EN 60204-1:2006, section 4.4.2/EMC).
	‣ The functional earth ⏚ must be connected. An M6 thread hole is available on the mounting plate for this purpose.

ⓘ	**Important!**
	‣ The supply for further devices on the bus may be forwarded via the Euchner MGB system. The entire supply current through the MGB must not be higher than specified in chapter *18. Technical data on page 31*.
	‣ If the device does not appear to function when operating voltage is applied (e.g. Pwr LED does not illuminate), the safety switch must be returned unopened to the manufacturer.
	‣ To ensure the stated degree of protection is achieved, the cover screws must be tightened to a tightening torque of 1 Nm.
	‣ Tighten screw for the cover for the auxiliary release to 0.5 Nm.

13.1. Notes about c(UL)us

ⓘ	**Important!**
	‣ This device is intended to be used with a Class 2 power source in accordance with UL1310 [1]. As an alternative an LV/C (Limited Voltage/Current) power source with the following properties can be used:
	- This device shall be used with a suitable isolating source in conjunction with a fuse in accordance with UL248. The fuse shall be rated max. 3.3 A and be installed in the max. 30 V DC power supply to the device in order to limit the available current to comply with the UL requirements. Please note possibly lower connection ratings for your device (refer to the technical data).
	‣ The mounting of conduits directly on the MGB is not allowed. Cables are allowed to be connected only via suitable cable glands. For this purpose use EUCHNER cable gland of type EKPM20/06U. Equivalent cable glands can be used if they are UL-listed (QCRV) and are suitable for the related cable diameter (22 AWG – 17 AWG).
	[1] Note on the scope of the UL approval: only for applications as per NFPA 79 (Industrial Machinery). The devices have been tested as per the requirements of UL508 (protection against electric shock and fire).

13.2. Connections, variant M12

The bus module includes the Ethernet/IP connections (X3 and X4) and the power supply connections (X1 and X2). Connection is via M12 plugs (Ethernet/IP ➡ M12 D-coded, power supply ➡ M12 A-coded).

The bus module includes an Ethernet/IP switch for Ethernet connection.

Pin		Description
X1.1	X2.1	PWR 1	24 V DC MGB
X1.2	X2.2	PWR 2	(looped through)
X1.3	X2.3	PWR 1	0 V DC MGB
X1.4	X2.4	PWR 2	(looped through)

Power supply connector assignment
Plug connectors X1 and X2

Pin		Description
X3.1	X4.1	TxD+
X3.2	X4.2	RxD+
X3.3	X4.3	TxD–
X3.4	X4.4	RxD–
Shield		Cf. CIP specification Vol. 2 8-9.4.3

Ethernet/IP connector assignment
Plug connectors X3 and X4
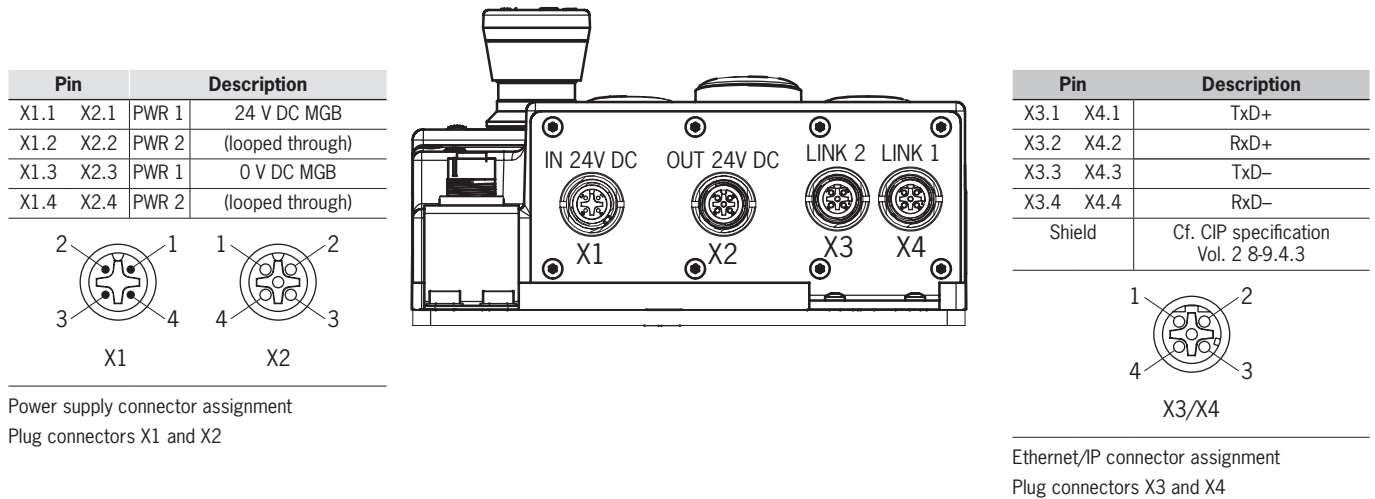
Fig. 17:   Connections, variant M12

13.3. Connections, variant 7/8"

The bus module includes the Ethernet/IP connections (X3 and X4) and the power supply connections (X1 and X2). Connection is via 7/8" plugs (Ethernet/IP ➡ M12 D-coded, power supply ➡ 7/8" plugs according to ANSI/B93.55M-1981).

The bus module includes an Ethernet/IP switch for Ethernet connection.

Pin		Description
X1.1	X2.1	(looped through)
X1.2	X2.2	24 V DC MGB
X1.3	X2.3	0 V DC MGB
X1.4	X2.4	(looped through)

Power supply connector assignment
Plug connectors X1 and X2

Pin		Description
X3.1	X4.1	TxD+
X3.2	X4.2	RxD+
X3.3	X4.3	TxD–
X3.4	X4.4	RxD–
Shield		Cf. CIP specification Vol. 2 8-9.4.3

Ethernet/IP connector assignment
Plug connectors X3 and X4

Fig. 18:   Connections, variant 7/8"

EN

14. Setup

14.1. Integrating into Ethernet/IP and CIP Safety®

ⓘ

NOTICE

‣ The parameters *Request Packet Interval* and *Connection Reaction Time Limit* have a decisive influence on the reaction time of the safety function. The safety function could be lost if the reaction times are too long.
‣ With the setting SCID = 0, the function of the safety program must be safeguarded in the PLC.
‣ It is recommended to assign to all safe networks and safe subnetworks an *SNN* that is unique across the entire system.
‣ Before the MGB can be integrated into a safe network, an IP address must be assigned.
‣ The device can be operated on control systems from firmware version 20.011.

Detailed information about setup can be downloaded from www.euchner.com.

For this purpose enter application number AP000223 in the search box. An AOI is also available on the Internet. For this purpose enter application number AP000224 in the search box.

When configuring, bear in mind that each MGB requires eight concurrent CIP connections.

14.2. Teach-in operation (only for MGB unicode)

The handle module must be assigned to the locking module using a teach-in function before the system comprising locking module and handle module forms a functional unit.

The system is in a safe state (bits FI.L, FI.B, FI.L, FI.SK and FI.UK are not set) during a teach-in operation.

ⓘ

Important!

‣ The locking module disables the code for the previous handle module if teach-in is carried out for a new handle module. Teach-in is not possible again immediately for th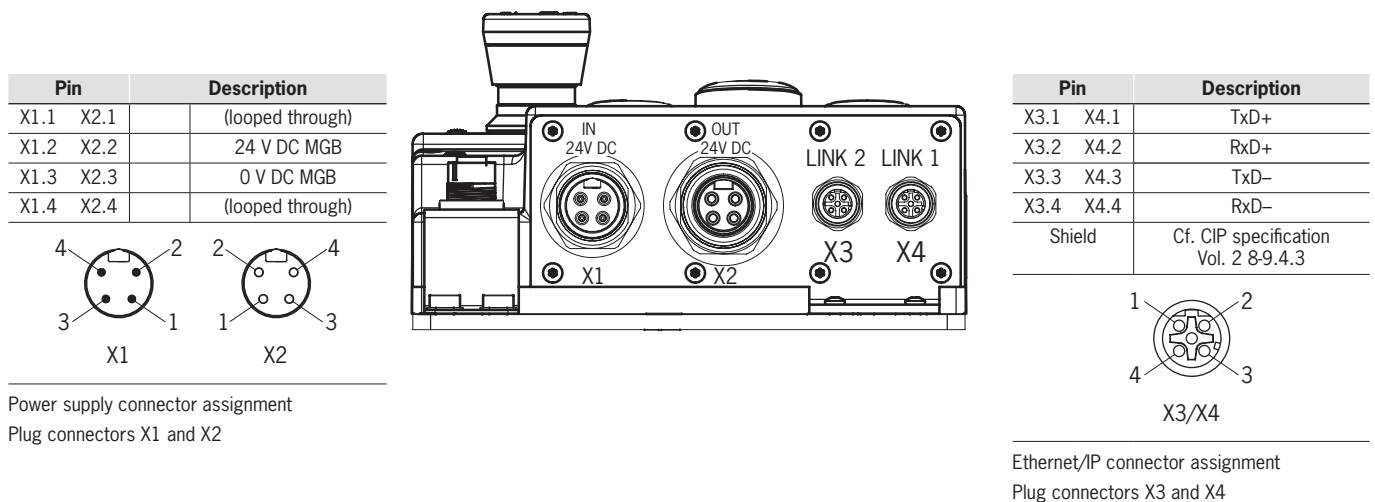is device if a new teach-in operation is carried out. The disabled code is deleted in the locking module only after a third code has been taught-in.
‣ The locking module can be operated only with the last handle module taught-in.
‣ If, in the teach-in standby state, the locking module detects the handle module taught-in or a disabled handle module, the teach-in standby state is ended immediately and the locking module changes to normal operation.
‣ If the bolt tongue is in the actuating range for less than 30 s, the handle module is not taught-in.

Teaching-in handle module

1. Fit handle module.

2. Close safety device. Check for correct alignment and distance using the marking on the locking module and re-adjust if necessary.

3. Insert bolt tongue into the locking module.

4. Apply operating voltage to the locking module.

➡ Teach-in operation starts, green LED (State) flashes slowly (approx. 1 Hz). The teach-in standby state is active for 3 minutes after switch on. During the teach-in operation, the locking module checks whether the handle module is a disabled handle module. Provided this is not the case, the teach-in operation is completed after approx. 30 seconds, and the green LED (State) goes out. The new code has now been stored, and the old code is disabled.

5. Reset via bit Q.PF in the data block of the diagnostic function to activate the taught-in code of the handle module in the locking module. Alternatively, the voltage to the device can be interrupted for a few seconds.

14.3. Mechanical function test

It must be possible to insert the bolt tongue easily into the locking module. To check, close guard several times and actuate door handle.

If available, check function of the escape release. With active guard locking it must be possible to operate the escape release from the inside without excessive effort (approx. 40 N).

14.4. Electrical function test

1. Switch the operating voltage on or perform a reset via output bit `Q.PF` in the data block of the diagnostic function.

2. Close all guards and insert the bolt tongue into the locking module.
   In case of guard locking by solenoid force ➡ activate guard locking.

‣ The machine must not start automatically.

‣ It must not be possible to open the guard.

‣ **The following applies to MGB-L0**: The green LED (State) is illuminated.

‣ **The following applies to MGB-L1/2**: The green LED (State) and the yellow LED (Lock) are illuminated.

3. Enable operation in the control system.

‣ It must not be possible to deactivate guard locking as long as operation is enabled.

4. Disable operation in the control system and deactivate guard locking.

‣ The guard must remain locked until there is no longer any risk of injury.

‣ It must not be possible to start the machine as long as guard locking is deactivated.

‣ It must be possible to open the guard.

Repeat steps 2-4 for each guard.

14.5. Ethernet/IP data bytes

The MGB system contains the following modules:

‣ Bus module, MGB-B-…EI (includes everything required for Ethernet/IP connection)

‣ Locking module, MGB-L. (forms the door locking mechanism together with the handle module)

Each MGB module occupies a certain number of data bytes in the input and output range of the control system.

The data bytes are combined into data blocks (see tables below).

A distinction is made between the following data types:

‣ data for safe functions

‣ data for non-safe functions

> ⓘ **Important!**
>
> Safety bits and non-safe control bits are transmitted together via CIP Safety®. Only safety bits (`FI.x` and `FO.x`) may be used for safety functions

Inputs	Bit							
	7	6	5	4	3	2	1	0
Byte 0 = Connection Header	–	–	–	–	–	Diagnostic Active	Connection Faulted	RunMode
Byte 1 = Connection Header	DiagnosticSequenceCount							
Byte 2 = Connection Header	–	–	–	–	–	–	–	–
Byte 3 = Connection Header	–	–	–	–	–	–	–	–
Byte 4 = Failsafe Inputs 0	FI.MS2	FI.MS1	FI.MS0	–	–	–	FI.EN	FI.ES
Byte 5 = Failsafe Inputs 1	FI.UK	FI.SK	–	–	–	FI.L	FI.B	FI.D
Byte 6 = Inputs 0	EN-S1	–	S92.2	S92.1	S91.2	S91.1	S90.2	S90.1
Byte 7 = Inputs 1	EN-S2	–	S95.2	S95.1	S94.2	S94.1	S93.2	S93.1
Byte 8 = Inputs 2	S4.2	S4.1	S3.2	S3.1	S2.2	S2.1	S1.2	S1.1
Byte 9 = Diagnostics	D.LT	–	D.OL	D.MS	D.EN	D.ES	D.PF	–
Bytes 10,11	FaultCode							

Outputs	Bit							
	7	6	5	4	3	2	1	0
Byte 0 = Failsafe Outputs 0	–	–	–	–	–	–	–	FO.L
Byte 1 = Outputs 0	EN-H1	–	H95	H94	H93	H92	H91	H90
Byte 2 = Outputs 1	EN-H2	–	–	–	H4	H3	H2	H1
Byte 3 = Acknowledge	Q.PF	Q.G	–	–	ST4	ST3	ST2	ST1

Legend, see *Page 26*

Abbr.	Name	Data Type	Safe signal	Tag Definition
RM	RunMode	BOOL	No	Run Mode - Indicates the operating mode of the multifunctional gate box 0 = while restarting 1 = Run Mode after successful restarting of bus module
CF	ConnectionFaulted	BOOL	No	Connection Faulted - Indicates the state of the communication connection between the multifunctional gate box and the controller. 0 = Connection of output data 1 = Connection of output data Faulted
DA	DiagnosticActive	BOOL	No	Diagnostic Active - Indicates whether the multifunctional gate box is faulted. 0 = No Fault 1 = Fault
DSC	DiagnosticSequenceCount	SINT	No	Diagnostic Sequence Count - Displays the total accumulated diagnostic counts. Values range from 0…255.
FI.ES	EstopStatus	BOOL	Yes	E-stop Button Status 1 = Contacts Closed (E-stop not pressed) 0 = Contacts Open (E-stop pressed)
FI.EN	EnablingSwitchStatus	BOOL	Yes	Enabling Switch Status 1 = Switch Enabled 0 = Released
FI.MS0	ModeSelectPos1	BOOL	Yes	Mode Selector Switch Position 1 1 = Selector Switch in position 1 0 = Selector switch is not in position 1
FI.MS1	ModeSelectPos2	BOOL	Yes	Mode Selector Switch Position 2 1 = Selector Switch in position 2 0 = Selector switch is not in position 2
FI.MS2	ModeSelectPos3	BOOL	Yes	Mode Selector Switch Position 3 1 = Selector Switch in position 3 0 = Selector switch is not in position 3
FI.D	DoorStatus	BOOL	Yes	Door Status - position of the guard door 0 = guard door is OPEN 1 = guard door is CLOSED
FI.B	BoltStatus	BOOL	Yes	Bolt Status - position of the bolt actuator 0 = bolt is retracted 1 = bolt is extended
FI.L	SolenoidStatus	BOOL	Yes	Solenoid Status - position of the solenoid locking arm 0 = locking arm is in unlocked position 1 = locking arm is in locked position
FI.SK	InterlockStatus	BOOL	Yes	Interlock Status 0 = bolt retracted and/or door OPEN 1 = door is CLOSED and bolt is extended
FI.UK	GuardLockStatus	BOOL	Yes	Guard Lock Status 0 = door is OPEN, or door is CLOSED with bolt retracted, or door is CLOSED with bolt extended and unlocked 1 = door is CLOSED, bolt is extended, and bolt is locked
Sxx.1	OpxPos1	BOOL	No	Operator Position 1 1 = Pressed (push button) or right position (selector switch) 0 = Released (push button) or 2-position selector switch in middle position or 3-position selector switch in midle or left position x = 1, 2, 3, 4, 90, 91, 92, 93, 94, 95
Sxx.2	OpxPos2	BOOL	No	Operator Position 2 1 = left position (3-position selector switch) 0 = released push button or 2 position selector switch in right or middle position or 3 position selector switch in middle position x = 1, 2, 3, 4, 90, 91, 92, 93, 94, 95
D.PF	PlausibilityFault	BOOL	No	Plausibility Fault - indicates a signal sequence error (lock module error), unlocking sequence
D.ES	EstopFault	BOOL	No	Estop Fault - indicates an E-stop specific fault
D.EN	EnablingSwitchFault	BOOL	No	Enabling Switch Fault - indicates an Enabling Switch specific fault
D.MS	ModeSelectFault	BOOL	No	Safe Mode Selector Switch Fault - indicates a Mode Selector Switch specific fault

D.OL	LockCommandFault	BOOL	No	Lock Command Fault - indicates a fault in the Lock Command
D.LT	CycleCount	BOOL	No	Cycle Count - indicates when the device has reached 1,000,000 switching cycles 0 = < 1,000,000 swtiching cycles of the solenoid 1 = > 1,000,000 switching cylcles of the solenoid
	FaultCode	SINT	No	Fault Code - indicates the specific diagnostic message of the multifunctional gate box
FO.L	LockCommand	BOOL	Yes	Lock Command - control for switching the guard locking on and off 0 = Guardlocking is locked 1 = Guardlocking is unlocked
Hxx	OpxIndicator	BOOL	No	Operator Indicator - controls illumination of the operator 1 = illumination is turned ON 0 = illumination is turned OFF x = 1, 2, 3, 4, 90, 91, 92, 93, 94, 95
STx	StacklightControl	BOOL	No	Stacklight Indicator - controls illumination of the stacklight 1 = illumination is turned ON 0 = illumination is turned OFF x = 1, 2, 3, 4
Q.G	GeneralFaultAck	BOOL	No	General Fault Acknowledgement - resets the bus module 1=Reset of bus module 0=normal operation of device
Q.PF	PlausibilityFaultAck	BOOL	No	Plausibility Fault Acknowledgement - resets the lock module 1=Reset of locking module 0=normal operation of device
EN-Sx	EnablingSwitchOpxPos	BOOL	No	Enabling Switch Operator Position 1 = pressed (push button) 0 = released (push button)
EN-Hx	EnablingSwitchOpxIndicator	BOOL	No	Enabling switch Operator Indicator - controls illumination of the operator 1 = illumination is turned ON 0 = illumination is turned OFF

EN

15. MGB system diagnostic messages

All diagnostic messages are listed below. The scope of the possible messages can differ depending on MGB system version.

Device-specific diagnostic information

Display via MOD LED (see *Fig. 16*)

Discrepancy error (two-channel monitoring detected an error)

Notice:

‣ The discrepancy time is the maximum time during which channel 1 and channel 2 may have different signal states.

‣ If acknowledgment was unsuccessful, send the device to the manufacturer.

No.	Description	Measures/rectifying errors
2721	Emergency stop discrepancy time exceeded	1. Press emergency stop 2. Acknowledge error (via output bit Q.G)
2722	Enabling switch detection discrepancy time exceeded	1. Remove enabling switch 2. Acknowledge error (via output bit Q.G)
2723	Door position discrepancy time exceeded	1. Open the door 2. Acknowledge error (via output bit Q.G)
2724	Bolt position discrepancy time exceeded	1. Open the door 2. Acknowledge error (via output bit Q.G)
2725	Guard locking discrepancy time exceeded	1. Open the door 2. Acknowledge error (via output bit Q.G)

Severe system errors

‣ System errors without error number

Severe system errors are indicated by the rapidly flashing red LEDs in the bus module. The system must be restarted for resetting.

‣ System errors with error number

Indication via MOD LED: flashes red

No.	Description	Measures/rectifying errors
2750	Severe system error	The error indicates an overload problem on the safe output of the guard locking solenoid.

Test-pulse error (short-circuit monitoring detected an error)

Notice:

‣ Emergency stop must **not** be pressed during acknowledgment.

‣ If acknowledgment was unsuccessful, send the device to the manufacturer.

No.	Description	Measures/rectifying errors
2731	Emergency stop test pulses erroneous	Safety function is switched off while no test pulses are being detected. 1. Check system 2. Acknowledgment via output bit Q.G required.
2732	Enabling switch detection test pulses erroneous	Safety function is switched off while no test pulses are being detected. 1. Check system 2. Acknowledgment via output bit Q.G required.
2733	Door position test pulses erroneous	Safety function is switched off while no test pulses are being detected. 1. Close door 2. Acknowledgment via output bit Q.G required.
2734	Bolt position test pulses erroneous	Safety function is switched off while no test pulses are being detected. 1. Close door 2. Acknowledgment via output bit Q.G required.
2735	Guard locking test pulses erroneous	Safety function is switched off while no test pulses are being detected. 1. Close and lock door 2. Acknowledgment via output bit Q.G required.
2736	Operating mode selector test pulses erroneous	Safety function is switched off while no test pulses are being detected. 1. Check system 2. Acknowledgment via output bit Q.G required.

General messages of the overall system

No.	Description	Measures/rectifying errors
2741	Information: 1 million operating cycles exceeded	–
2742	Internal device error	Restart the system. If the fault persists, please contact our support team.
2743	Signal sequence erroneous (e.g. broken bolt tongue detected)	1. Check mechanical functions 2. Error must be acknowledged twice (via output bit Q.PF). The safety door must be open.
2744	Plausibility check detected an error (e.g. escape release actuated)	Important: The resetting procedure is contained in the section "Latching fault when actuating the escape release" ‣ Acknowledge error (via output bit Q.PF)
2745	Locking module in error	Restart the system. If the fault persists, please contact our support team.

16. System status table

LEDs on interlocking/locking module

> **NOTICE**
>
> LEDs are not reliable indicators. It is therefore not possible to ensure the correct output of information.
> ‣ For this reason, use the LEDs only for general device diagnostics during setup or fault analysis.
> ‣ Do not use the LEDs for the indication of the operating mode during operation.

Operating mode	State	Door position	Position of the bolt tongue	Guard locking	Door position input bit FI.D	Bolt position input bit FI.B	Guard locking input bit FI.L	ÜK input bit FI.UK	Device diagnostics input bit D.PF	POWER (gn)	STATE (gn)	Lock (ye), only MGB-L1/-L2	DIA (rd)
Normal operation	Normal operation, door open	open	not inserted	off	off	off	off	off	off	☼	long OFF short ON ☼	○	○
Normal operation	Normal operation, door closed	closed	not inserted	off	on	off	off	off	off		long ON short OFF ☼	○	○
Normal operation	Normal operation, door closed, bolt tongue inserted	closed	inserted	off	on	on	off	off	off		☼	☼	○
Normal operation	Normal operation, door closed and locked	closed	inserted	on	on	on	on	on	off		3 x ☼	☼	○
Teach-in standby (only for MGB unicode)	Door open; device is ready for teach-in of another handle module (only short time after power-UP)	open	not inserted	off	off	off	off	off	off		☼	long ON short OFF	○
Setup (only for MGB unicode)	Teach-in operation	closed	inserted	on	off	on	on	off	off		1 Hz ☼	○	○
Fault display	Positive acknowledgment after completion of teach-in operation	X	X	X	off	off	off	off	off		○	○	○
Fault display	Handle module read error (e.g. error in code or code cannot be read)**	X	X	X	off	off	off	off	on		3 x ☼	○	
Fault display	Internal fault (e.g. component faulty, data error)*	X	X	X	off	off	off	off	on		○	○	
Fault display	Signal sequence incorrect e.g. broken bolt tongue detected*** or after actuation of the escape release, for example*	X	X	X	off	off	off	off	on		○	1 x ☼	☼

Key to symbols

State	Symbol
LED not illuminated	○
LED illuminated	☼
LED flashes for 8 seconds at 10 Hz	☼ 10 Hz (8 s)
LED flashes three times	☼ 3 x
Any state	X

* Latching fault; use corresponding output bit to reset (see chapter 15. *MGB system diagnostic messages on page 28*)
** Non-latching fault; open guard and close it again to reset
*** Latching fault; use corresponding output bit to reset; door must be open (see chapter 15. *MGB system diagnostic messages on page 28*)

Important: If you do not find the displayed device status in the system status table, this indicates an internal device fault. In this case, you should contact the manufacturer.

EN

17. Special functions

17.1. Factory reset

1. Switch off the MGB.

2. Set all DIP switches to ON.

3. Restart the MGB.

4. Wait for the LED flashing code.

5. Switch off the MGB.

6. Set DIP switches based on the required configuration (see the table *DIP switch assignment on page 21*).

7. Switch on the MGB.

ℹ	**NOTICE** The factory reset clears all set customer configurations such as IP address, network mask and gateway settings. This does not apply to the learned data of the locking module such as the learned handle module or number of operating cycles.

17.2. Software update

The MGB firmware can be updated using the *ControlFLASH™ software* [1] from *Rockwell Automation*. New firmware updates are available from the EUCHNER support team. Refer to *Rockwell Automation Manual 1756-UM105J* for more details about using *ControlFLASH*.

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[1] *ControlFLASH is a trademark of Rockwell Automation, Inc.*

18. Technical data

ⓘ | **NOTICE**
If a data sheet is included with the product, the information on the data sheet applies.

Parameter	Value
s_{ar} max. door position	65 mm
Housing material	Fiber glass reinforced plastic Die-cast zinc, nickel-plated, stainless steel, powder-coated sheet steel
Supported protocols	DLR acc. to CT17/CIP acc. to CT17
Dimensions	See dimension drawing
Weight of MGB-L.B (bus module, locking module and operating module with mounting plate)	4.05 kg
Weight of handle module with mounting plate	1.20 kg
Weight of escape release module with mounting plate	1.15 kg
Ambient temperature	-20 … +55 °C
Degree of protection	IP54
Safety class	III
Degree of contamination	3
Installation orientation	Any
Locking force F_{zh} acc. to GS-ET-19	2,000 N
Connection, power supply	2 x M12 (A-coded) or 2 x 7/8" possible
Connection, bus	2 x M12 (D-coded)
Connecting cable, bus	Ethernet/IP cable, at least cat. 5e
Operating voltage U_B	DC 24V +10% / -15% (PELV – see chapter *13. Electrical connection on page 22*)
Current consumption, max.	500 mA
Maximum feed-in current in the connection block	4,000 mA
Fuse protection for power supply, external	Min. 1 A slow-blow
Safety outputs	CIP Safety®
Rated insulation voltage U_i	75 V
Rated impulse withstand voltage U_{imp}	0.5 kV
Resilience to vibration and shock	Acc. to EN 60947-5-3
EMC protection requirements	Acc. to EN 61000-4 and DIN EN 61326-3-1
Storm Prevention: maximum number of multicast telegrams	1,500 packets /100 ms
Switching frequency, max.	1 Hz
Risk times, max. (turn-off times) [1] - Emergency stop - Enabling switch - Operating mode selector - Door position - Bolt position - Guard locking	 100 ms 100 ms 100 ms 250 ms 250 ms 250 ms
Characteristics acc. to EN ISO 13849-1 [2]	
Category	4
Performance Level	PL e
DC	99%
Mission time	20 years
$MTTF_D$ / PFH_D [3] - Monitoring of guard locking - Control of guard locking - Emergency-stop evaluation - Evaluation of operating mode selector - Enabling switch evaluation	 746 years / 3.37 x 10⁻⁹ 475 years / 4.91 x 10⁻⁹ 787 years / 3.05 x 10⁻⁹ 483 years / 4.91 x 10⁻⁹ 753 years / 3.05 x 10⁻⁹
B_{10D} [4] - Emergency stop - Enabling switch	 1.3 x 10⁵ Acc. to manufacturer's specifications

1) The risk time is the maximum time between the change in an input status and the clearing of the corresponding bit in the bus protocol.
2) Refer to the declaration of conformity for the issue date.
3) Fixed failure rate without consideration of faults in wearing parts.
4) Information regarding wearing parts without consideration of fixed failure rates in electronic components.

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19. Troubleshooting and assistance

19.1. Latching fault when actuating the escape release

In order to achieve monitoring of the locking element in category 4, PL e according to EN ISO 13849-1, an internal monitoring logic system is integrated into every locking module.

Result: The MGB system enters into a latching fault when the escape release is actuated (see *16. System status table on page 29*).

Door position	Position of the bolt tongue	Guard locking	Door position Input bit FI.D	Bolt position Input bit FI.B	Guard locking Input bit FI.L	ÜK Input bit FI.ÜK	Device diagnostics Input bit D.PF	LED indicator Power (gn)	LED indicator State (gn)	LED indicator Lock (ye)	LED indicator DIA (rd)	State
X	X	X	off	off	off	off	on	☀	○	☀ 1x	☀	Signal sequence incorrect (e.g. after actuation of the escape release)*
							○					LED not illuminated
							☀					LED illuminated
							☀ 10 Hz (8 s)					LED flashes for 8 seconds at 10 Hz
							☀ 3 x					LED flashes three times
							X					Any state

NOTICE

The system might not enter into a latching fault if the escape release is actuated very slowly.

19.2. Resetting errors

Proceed as follows:

1. Acknowledge fault via output bit `Q.PF` (in data block for diagnostics function).

2. Close guard if necessary and switch on guard locking.

➡ The system is in normal operation again.

19.3. Application examples

You will find application examples on connecting the device to various control systems at www.euchner.com.

20. Inspection and service

⚠	**WARNING**
	Loss of the safety function because of damage to the device.
	In case of damage, the affected module must be replaced completely. Only accessories or spare parts that can be ordered from EUCHNER may be replaced.

Regular inspection of the following is necessary to ensure trouble-free long-term operation:

‣ Check the switching function (see chapter *14.4. Electrical function test on page 25*)

‣ Check the secure mounting of the devices and the connections

‣ Check for contamination

No servicing is required. Repairs to the device are only allowed to be made by the manufacturer.

ⓘ	**NOTICE**
	The year of manufacture can be seen in the lower right corner of the type label.

21. Service

If servicing is required, please contact:

EUCHNER GmbH + Co. KG
Kohlhammerstraße 16
70771 Leinfelden-Echterdingen
Germany

Service telephone:
+49 711 7597-500

E-mail:
support@euchner.de

Internet:
www.euchner.com

22. Declaration of conformity

The EU declaration of conformity can be found at www.euchner.com. Enter the order number of your device in the search box. The document is available under *Downloads*.

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