

Scope

This safety information is part of the operating instructions for the safety system MGB. It applies to the following MGB systems:

Series	System family	Product version
MGB	...AP... ...AR...	from V2.0.0

Correct use

► Version MGB-L0-...

The safety system MGB is an electromagnetic interlocking device without guard locking.

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

The following applies for MGB-AR: The interlocking module MGB-L0-AR-... can be integrated into an AR switch chain or operated as a separate system.

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

For the control system, this means that

- starting commands which cause hazardous situations must become active only when the safety guard is in the protective position.

► Version MGB-L1-... / MGB-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 electromagnetic interlocking device with guard locking.

The locking module can be configured with the aid of DIP switches. Depending on the setting, the locking module behaves like an AP or AR device. In addition the guard lock monitoring can be switched on or off.

With active guard lock monitoring the following applies:

In combination with a movable safety guard and the machine control, this safety component can prevent opening of the safety guard while a dangerous machine movement is performed. The position of the guard locking is monitored during this process.

For the control system, this means that

starting commands which cause hazardous situations must become active only when the safety guard is in protective position and the guard locking is in locked position. The locked position of the guard locking must be released only when the hazardous situation is no longer present.

With inactive guard lock monitoring the following applies:

In combination with a movable separating safety guard, this safety device prevents dangerous machine movements from occurring while the safety guard is open. A stop command is triggered if the safety guard is opened during the dangerous machine function. The position of the guard locking is not taken into account during this process.

Before safety components are used, a risk assessment must be performed on the machine in accordance with

- EN ISO 13849-1, Safety of machinery. Safety related parts of control systems. General principles for design, Annex B
- EN ISO 12100, Safety of machinery – Basic concepts - General principles for design - Risk assessment and risk reduction.

Correct use includes compliance with the relevant requirements for installation and operation, in particular

- EN ISO 13849, Safety of machinery. Safety related parts of control systems. General principles for design
- EN 1088, Safety of machinery. Interlocking devices associated with guards. Principles for design and selection
- EN 60204-1, Safety of machinery. Electrical equipment of machines. General requirements.

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

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

Locking modules with the configuration MGB-AR can be integrated into an AR switch chain.

The connection of several devices in an AR switch chain is only permitted to be made using devices intended for series connection in an AR switch chain. Check the operating instructions for the related device. For detailed information on operation in an AR switch chain, please see the operating instructions for the related AR device.

Important:

- The user is responsible for the integration of the device in a safe overall system. For this purpose, the overall system must be validated, e.g. in accordance with EN ISO 13849-2.
- Correct use requires observing the permissible operating parameters.
- If a product data sheet is included with the product, the information on the data sheet applies in case of discrepancies with the operating instructions.
- In the estimation of the PL for the overall system, a maximum value of 100 years can be assumed for the MTTF_a according to the limit value in EN ISO 13849-1:2008, Section 4.5.2. This corresponds to a minimum value for the PFH_a of 2.47 x 10⁻⁸/h.
- When up to 10 devices are connected in series, these limit values can be assumed for the entire switch chain as a subsystem. As a subsystem, this switch chain achieves PL e.

Main differences between MGB-AP and MGB-AR

System family	Use
MGB-AP	If series connection is not necessary, the number of terminals can be reduced using this system family.
MGB-AR	Linking of several safety guards on one shutdown path. As a consequence several safety doors can be very simply polled using one evaluation unit or two control system inputs.

Exclusion of liability and warranty

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

General safety instructions

The safety function of the system while the machine is in operation can no longer be ensured if the device is connected incorrectly or used incorrectly.

Safety components perform a personal protection function. Incorrect installation or tampering can lead to severe injuries to personnel.

⚠ Safety components must **not** be bypassed (bridging of contacts), turned away, removed or otherwise rendered ineffective. On this topic pay attention in particular to the measures for reducing the possibility of bypassing from EN 1088:1995+A2:2008, Section 5.7.

⚠ The switching operation is only allowed to be triggered by the intended handle module MGB-H-... that is positively fastened to the safety guard.

The device is only allowed to be installed and placed in operation by authorized personnel

- who are familiar with the correct handling of safety components
- who are familiar with the applicable EMC regulations
- who are familiar with the applicable regulations on health and safety and accident prevention
- who have read and understood the operating instructions.

Prior to use, read the operating instructions on the CD/DVD supplied, and keep these in a safe place.

Ensure the operating instructions are always available during mounting, setup and servicing.

EUCHNER cannot provide any warranty in relation to the readability of the CD/DVD for the storage period required. For this reason you should archive a printed copy of the operating instructions. You can download the operating instructions at www.EUCHNER.de.

Operating instructions on CD/DVD

Each device is supplied with operating instructions on CD/DVD; these instructions contain detailed information on the overall system. The following system requirements must be met to be able to open or print the document:

- PC with PDF Reader installed
- CD/DVD drive

► Opening and printing the documents

Important: the autoplay function for the drive must be enabled (see operating system help) and you will need a PDF Reader that can open PDF files from version 4.

1. Insert CD
 ➔ Selection table is opened in the browser
2. Click the related document for your system
 ➔ The document is opened and can be printed.

Mounting, setup and troubleshooting

For detailed instructions on mounting, setup and troubleshooting, please refer to the operating instructions on the CD/DVD.

Electrical connection

For detailed information on the electrical connection, please refer to the operating instructions on the CD/DVD.

⚠ All the electrical connections must either be isolated from the mains supply by a safety transformer according to IEC EN 61558-2-6 with limited output voltage in the event of a fault, or by other equivalent isolation measures.

⚠ The operating voltage for the guard locking solenoid must match the information on the rating plate (only version with guard locking).

Inspection and service

Danger! Loss of the safety function because of damage to the system. In case of damage, the affected module must be replaced completely. Replacement of individual parts of a module (e. g. parts of the evaluation module) is not permitted.

Exception: Pre-assembled replacement lids (available as spare parts for some MGB versions).

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

- Check the switching function
- Check the secure fastening of the devices and the connections
- Check for soiling (e.g. the ventilation slots on the housing)

Check the safe function of the safety guard particularly

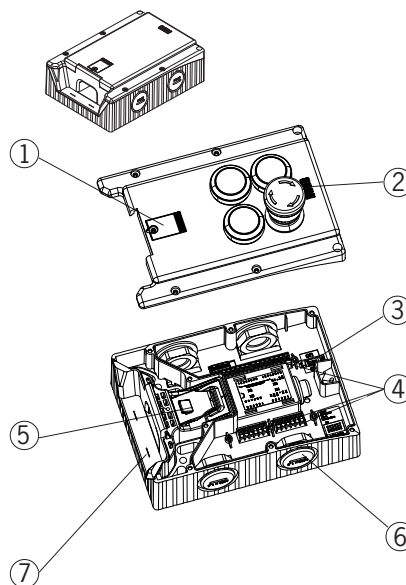
- after any setup work
- each time after the replacement of an MGB module
- after an extended period without use
- after every fault
- after any change to the DIP switch setting

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

Technical data (extract)

Parameter	Value
Operating voltage U_B (reverse polarity protected, regulated, residual ripple < 5 %)	24 V DC +10% / -15% (PELV)
Auxiliary voltage U_A (reverse polarity protected, regulated, residual ripple < 5 %)	24 V DC +10% / -15% (PELV)
Current consumption I_B (no load on any outputs)	80 mA
Current consumption with guard locking solenoid I_A (with active guard locking and unloaded outputs O1 ... O4)	350 mA
- Additional current consumption for version with controls and indicators in the cover	max. 20 mA
External fuse	see operating instructions on CD/DVD
Safety outputs OA/OB	Semiconductor outputs, p-switching, short circuit- proof
Output voltage U_{OA}/U_{OB} ¹⁾	
HIGH U_{OA}/U_{OB}	$U_B - 2V \dots U_B$
LOW U_{OA}/U_{OB}	0 ... 1 V DC
Switching current per safety output	1 ... 200 mA

1) Values at a switching current of 50 mA without taking into account the cable lengths.

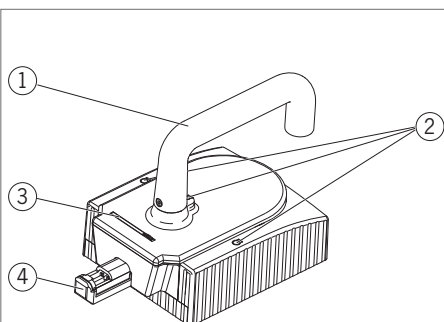


Key:

- ① Cover for mechanical release
- ② LED indicator
- ③ DIP switches
- ④ Terminals X2-X5
- ⑤ Locking bar
- ⑥ Depending on version: Cable entry 20x1.5 or plug connector
- ⑦ Auxiliary marking for maximum permitted mounting distance

Note: Depending on the version, additional controls and indicators may be integrated into the cover and a mounting plate can be included. See enclosed data sheet.

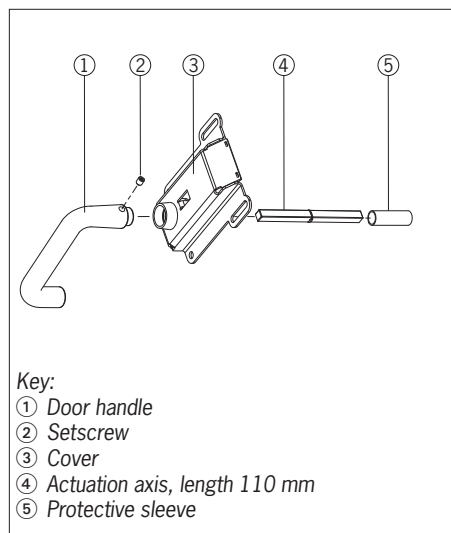
Figure 1: Interlocking/locking module MGB-L...



Key:

- ① Door handle
- ② Locking pins for housing cover and handle adjustment
- ③ Lockout bar
- ④ Bolt tongue

Figure 2: Handle module MGB-H...



Key:

- ① Door handle
- ② Setscrew
- ③ Cover
- ④ Actuation axis, length 110 mm
- ⑤ Protective sleeve

Figure 3: Escape release MGB-F... (optional)