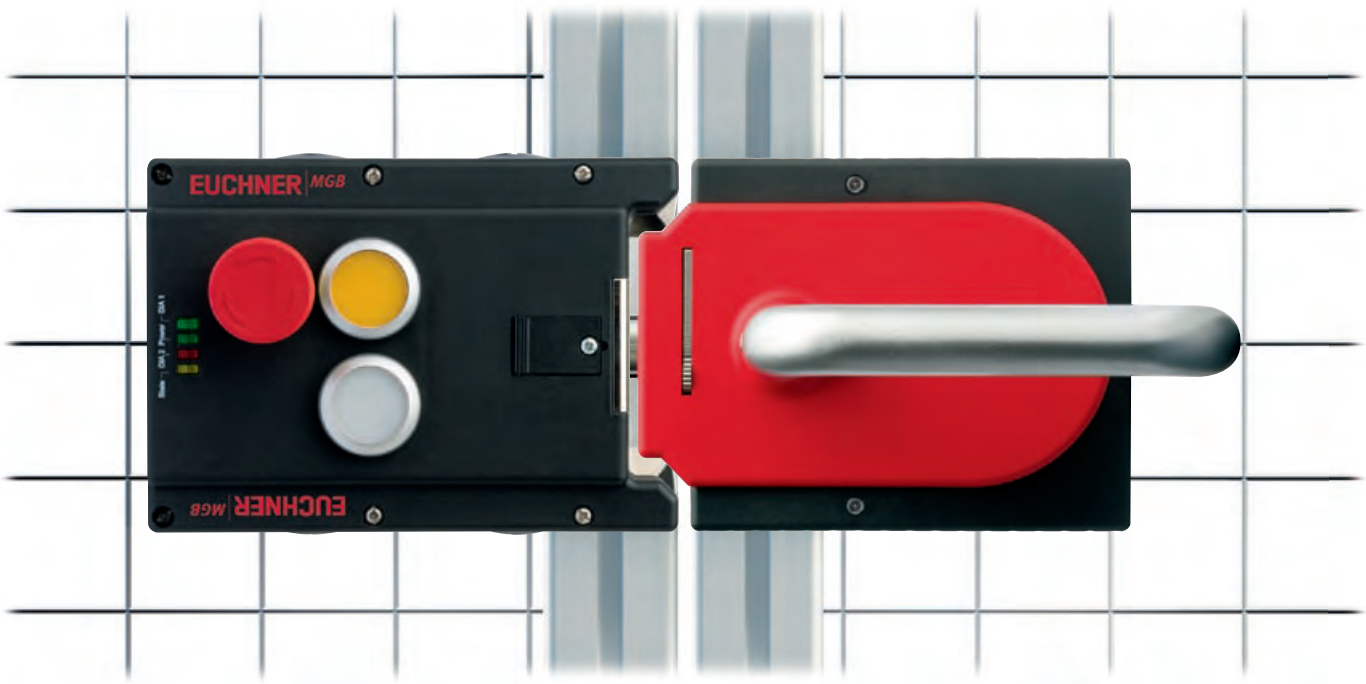
# Multifunctional Gate Box

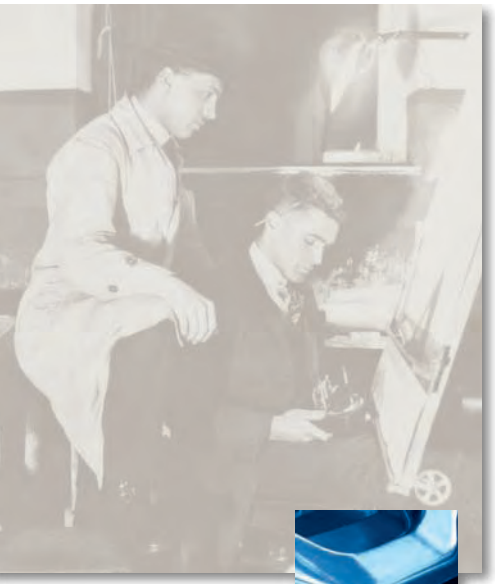
MGB




More than safety.

EUCHNER

# More than safety.



*Emil Euchner, the company's founder and inventor of the multiple limit switch, circa 1928.*

**Around the world – the Swabian specialists in motion sequence control for mechanical and systems engineering.**

EUCHNER's history began in 1940 with the establishment of an engineering office by Emil Euchner. Since that time, EUCHNER has been involved in the design and development of switchgear for controlling a wide variety of motion sequences in mechanical and systems engineering. In 1953, Emil Euchner founded EUCHNER + Co., a milestone in the company's history. In 1952, he developed the first multiple limit switch – to this day a symbol of the enterprising spirit of this family-owned company.

**Automation – Safety – ManMachine**

Today, our products range from electromechanical and electronic components to complex system solutions. With this wide range of products we can provide the necessary technologies to offer the right solution for special requirements – regardless of whether these relate to reliable and precise positioning or to components and systems for safety engineering in the automation sector.
EUCHNER products are sold through a world-wide sales network of competent partners. With our closeness to the customer and the guarantee of reliable solutions throughout the globe, we enjoy the confidence of customers all over the world.

**Quality, reliability, precision**

Quality, reliability and precision are the hallmarks of our corporate philosophy. They represent concepts and values to which we feel totally committed.
At EUCHNER, quality means that all our employees take personal responsibility for the company as a whole and, in particular, for their own field of work. This individual commitment to perfection results in products which are ideally tailored to the customers' needs and the requirements of the market. After all: our customers and their needs are the focus of all our efforts. Through efficient and effective use of resources, the promotion of personal initiative and courage in finding unusual solutions to the benefit of our customers, we ensure a high level of customer satisfaction. We familiarize ourselves with their needs, requirements and products and we learn from the experiences of our customers' own customers.

**EUCHNER – More than safety.**

Quality – made by EUCHNER

# Contents

## Multifunctional Gate Box MGB



MGB-AP

MGB-AR

MGB-PN

## A handle on the future

The MGB (**Multifunctional Gate Box**) is a unique interlocking or guard locking system for the protection of safety doors on machines and systems.

**The MGB offers that little bit more**: it is more than a safety switch, more than a bolt, and offers a lot more functionality!

**A system that can grow with your needs**
Even the basic system comprising handle module and evaluation module (as interlocking module or locking module) includes numerous functions.
Whether interlocking, guard locking, escape release or other functions such as buttons for start/stop, emergency stop, etc. – the MGB meets all your requirements for safety-related applications.

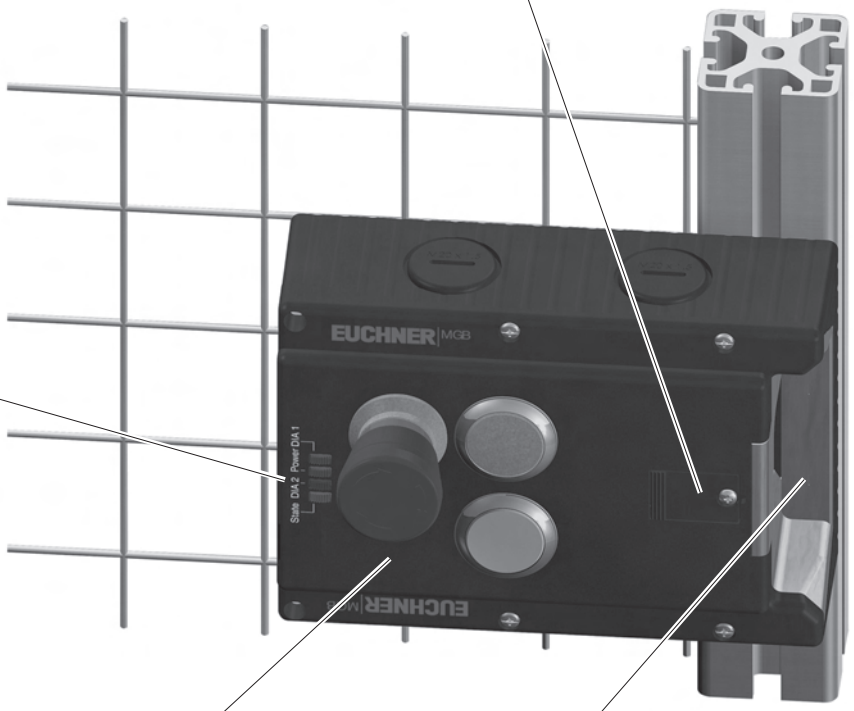
And if your needs grow, the MGB system grows with them. Due to the sophisticated modular design, the evaluation module can quickly become a small operator panel.

**Or with an additional control module straight away**
In the wide variety of different MGBs, you will definitely find the right one for your application. If not, using the control module you can add lamps, buttons or even completely different operating functions. The control module is permanently fastened to the evaluation module using the connection set.

**Be certain of compliance with standards**
Performance Level e in accordance with EN ISO 13849-1 or SIL3 in accordance with EN 62061 – even with the basic system you meet all these requirements. Also the requirements of EN 1088 for protection against tampering are met automatically, as each evaluation module is permanently assigned to a handle module in the unicode version.


**Mechanical release**
For releasing the guard locking e.g. in case of a power failure.

**Evaluation module**
**(as interlocking module or locking module)**




**Everything at a glance**
The LED indicator continuously provides you with all important system information.
Diagnostics and status check!


**Space for ideas...**
Control elements and indicators in one housing turn the MGB into an all-rounder. With start button, enable and emergency stop or other functions, the evaluation module becomes a small control terminal.

**Solid door stop**
A mechanical door stop is permanently integrated into the evaluation module. A marking on the stop makes adjustment easier.

**Safety remains the most important goal**
Are you locked in inside the danger area? The optional escape release is intuitive to operate! Whether in the event of a power failure or active guard locking – the red door handle is simply pressed down to leave the danger area quickly.
For protection when working in the danger area you can block the bolt tongue using up to 3 padlocks in the integrated lockout mechanism. Unintentional activation of the interlocking / guard locking is prevented.
Is the lockout mechanism to extend automatically when the door is open? No problem with the right handle module.

**Easy to mount and sophisticated design**
All MGB modules are optimized for use on fences made of aluminum profiles or steel frames. The MGB is equally suitable for doors hinged on the left or right. Both mounting and changing the actuating direction can be undertaken particularly quickly and easily. Usage on safety doors that are not constructed of profiles, works of course just as well.

The adjustment of safety doors in fences changes over time. With ± 4 mm tolerance in the x direction as well as ± 5 mm in the z direction, the MGB is right there where the problem starts. Nevertheless, if a safety door should be even more out of adjustment, the large funnel in the evaluation module "catches" the bolt tongue and guides it into the center position.

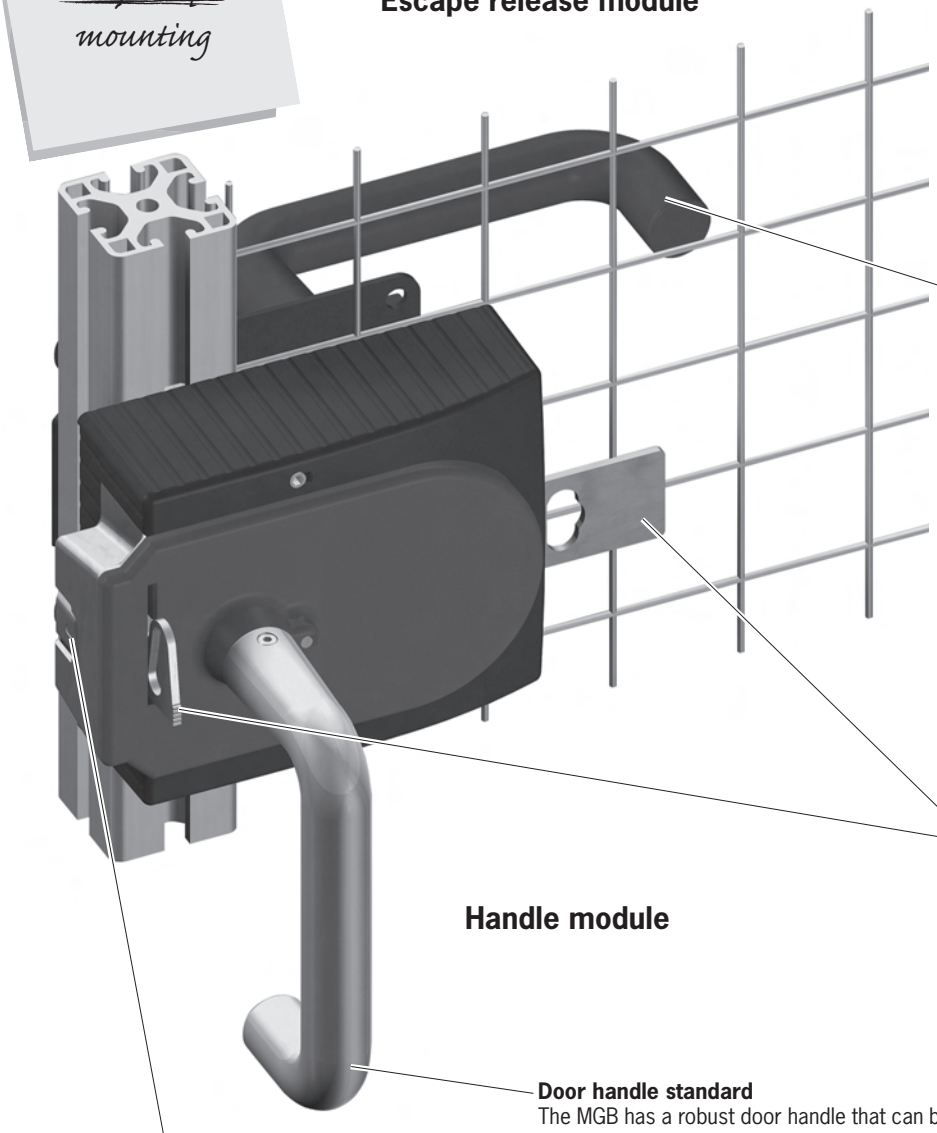
Bolt tongue, bolt guide and insertion funnel will also withstand occasional slamming of the door. Robust metal parts protect the MGB against this problem as well. To prevent injuries, the bolt tongue remains retracted with the door open. Do you use hinged doors or sliding doors? The MGB is suitable for both. This aspect eases spare parts stockholding.

**You always have an overview**
Four built-in LEDs continuously provide all the necessary system information: Power supply available, door closed, bolt tongue inserted, guard locking activated, diagnostics messages – everything can be seen clearly at a glance. This information is of course also available to the control system.

(Read on the next page what else there is in the MGB!)

*Very simple mounting*

**Escape release module**



**Handle module**

*Rapid escape*
*Open*

**Escape release (optional)**
The safety system MGB can be complemented by an escape release. The escape release enables persons who are accidentally locked in to open the locked door from inside the danger area.

*Flexible combinations (kit system)*

**Lockout mechanism**
The bolt tongue can be blocked for cleaning and service with up to 3 padlocks.
Optionally with automatically extending second lockout mechanism on the side.

*Safety provided in any situations*

**Door handle standard**
The MGB has a robust door handle that can be rotated in 90° steps – to suit the installation.

**Intelligent bolt tongue**
The bolt tongue is reliably detected by transponder as soon as it is inserted in the evaluation module.

**Sophisticated accessories**
Whether you need mounting plates for easier attachment, pre-assembled cables or a long escape release actuator axis (as the safety door need to be very thick), you will find all you need in the accessories section.

**Economical wiring according to standards**
All devices in the family AR can be wired directly in series in a so-called AR series connection without reducing safety or the PL. As a consequence evaluation units are saved. AR devices are also available in the EUCHNER series CES and CET.
The family MGB-AP is particularly suitable for the protection of individual safety doors. If series connection is not necessary, wiring can then be saved. This version has different timing to the AR version.

**Seamless integration by means of bus connection**
In the PROFINET version we now also make the wiring easier for you. You define which element is to be integrated and the related function. The MGB supplies the protocol frame with the necessary PROFINET input and output bytes required.
Comprehensive diagnostics information in the form of PROFINET messages makes troubleshooting quick and specific. Due the typical ease with which parameters can be set in PROFINET, even the replacement of the system in case of service is a simple matter and can be undertaken in a few minutes.

**Interlocking or guard locking?**
**Functions of the versions MGB-L0, MGB-L1 and MGB-L2 compared**

**Interlocking (MGB-L0, without guard locking)**
Together with a handle module, the interlocking module makes it possible to interlock the control of moveable safety guards. The combination also serves as a mechanical door stop at the same time.
The following switch-on condition applies to the safety outputs $O_A$ and $O_B$ (see also System status table):
- Safety guard closed (however can be opened at any time)
- Bolt tongue inserted in the interlocking module

The interlocking module detects the position of the safety 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.

**Guard locking (MGB-L1 and MGB-L2)**
Together with a handle module, the locking module makes it possible to lock moveable safety guards. The combination also serves as a mechanical door stop at the same time.
The following switch-on condition applies to the safety outputs $O_A$ and $O_B$ (see also System status table):
- Safety guard closed
- Bolt tongue inserted in the locking module
- Locking arm in locking position (the door cannot be opened)

The locking module detects the position of the safety guard and the position of the bolt tongue. The position of the guard locking is also monitored.
The bolt tongue in the handle module is moved into and out of the locking module by actuating the door handle.
When the bolt tongue is fully inserted in the locking module, the locking arm locks the bolt tongue in this position. Depending on the version, this locking is by spring force or solenoid force.

- **Version MGB-L1:** The locking arm is kept in locked position by spring force and is unlocked by solenoid force (closed-circuit current principle, mechanically locked).
- **Version MGB-L2:** The locking arm is kept in locked position by solenoid force and unlocked by spring force when the solenoid is switched off (open-circuit current principle, electrically locked).

  Warning!
  The safety guard can be opened immediately in the event of interruption of the solenoid power supply with the version MGB-L2-...!
  Usage only in special cases in accordance with strict evaluation of the accident risk (see EN 1088:1995+A2:2008, section 5.5)!
  Example: If the risk of accidental locking inside a safety guard during a power failure is higher than the risk of ineffective guard locking.

**Connection to evaluation units or safe control systems**
The safety system MGB can be connected to almost any safe evaluation unit or to any safe control system. For this purpose the short circuit monitoring on the control system is disabled – this function is performed by the MGB. Performance Level e is of course retained.

**The advantages of the Multifunctional Gate Box MGB**

- Suitable for all profiles (optimized for mounting on profiles from 30 - 50 mm)
- Tolerance ± 4 mm in x direction, ± 5 mm in z direction
- Locking force 2000 N
- The MGB withstands forces amounting up to 300 Joule
- Optional escape release with door handle
- Optional buttons and indicators can be integrated directly into the housing
- Stable metal stop prevents damage with bolt tongue extended
- Marking on the evaluation module as adjustment aid
- The actuating direction is easy to change without disassembly
- Hidden mounting holes with slots and metal mounting surfaces
- Housing material made of high quality, reinforced plastic
- Escape release can also be used on doors with double rebate

**There features are available in all devices in the families MGB-AP and MGB-AR**

- Emergency release
- Connection by cable entry, max. 1.5 mm² or plug connector
- Plug connector connection, either RC18 or M12 12-pin
- Series connection (only with system family AR, for description see above)
- Connection of buttons to common power supply DC 24 V
- Connection of lamps to common ground
- Operation of guard locking via $U_{CM}$ as control input on PLC (only 3 mA)
- Monitoring outputs
  - O1 = Door in closed position
  - O2 = Bolt tongue inserted in the evaluation module (in case of guard locking ready for operation of the solenoid. In case of interlocking corresponds to safety outputs)
  - O3 = Guard locking solenoid locked in position (in case of guard locking corresponds to safety outputs)
  - O4 = Diagnostics, there is a fault

# System families at a glance

The tables on this page provide you a quick overview of the features and strengths of the related product family as well as the possible expansions.

**What system families are available?**

| System family | Symbol | Use |
|---|---|---|
| **MGB-AP** | AP | **If series connection is not necessary, the number of terminals can be reduced using this system family.** |
| **MGB-AR** | 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.** |
| **MGB-PN** | PROFINET PN | **How to utilize the maximum functionality of the MGB in a Profinet environment. Ease of replacement and flexibility are in the foreground here.** |

# System families compared

The tables provide you a quick overview of the features and strengths of the related product family as well as the possible expansions.

| Feature / special aspect | System family | | |
|---|---|---|---|
| | MGB-AP | MGB-AR | MGB-PN |
| Separate operation | ● | ○ | – |
| Series connection | – | ● | – |
| Bus connection | – | – | ● |
| Simple diagnostics | ○ | ○ | ● |
| Little wiring | ● | ○ | ● |

Key:

● Particularly suitable ○ Suitable – Not applicable / not possible

| Function / expansion | System family | | |
|---|---|---|---|
| | MGB-AP | MGB-AR | MGB-PN |
| Evaluation module with additional functions | ● Selection from existing versions, customer-specific version possible * | ● Selection from existing versions, customer-specific version possible * | ● Selection from existing versions, customer-specific version possible * |
| Control module with additional functions | ○ Flexible configuration due to kit MGB-C (only devices with cable entry) | ○ Flexible configuration due to kit MGB-C (only devices with cable entry) | ○ Configuration from factory by EUCHNER |
| Mounting plates | ○ | ○ | ● |
| Connection for enabling switch | ○ Available in some versions | ○ | ○ Available in some versions |
| Escape release | Already contained in some sets, can be upgraded at any time. | | |

Key:

● Standard ○ Optional or on request – Not possible

*) Note minimum order quantity of 50 pieces!

## Approvals

To demonstrate conformity, the Machinery directive also includes the possibility of type examination. Although all relevant standards are taken into account during development, we have all our safety switches subjected to additional type examinations by a notified body.
Many of the devices listed in this catalog have been tested by the German Social Accident Insurance association (DGUV), formerly the employers' liability insurance association (BG), and are given in the lists from the DGUV.
With the aid of the approval symbols listed below you can quickly see which approvals are available for the related devices:

| | |
|---|---|
|  | Devices with this symbol are type examined by the German Social Accident Insurance association (DGUV) – formerly the employers' liability insurance association (BG) |
|  | All MGB devices comply with the stipulations of Underwriter Laboratories (UL) and carry the symbol |

## Explanation of symbols

### System families

| | |
|---|---|
|  | System family MGB-AP for separate operation |
|  | System family MGB-AR for separate operation or series connection with other AR devices |
|  | System family MGB-PN for operation in PROFINET environment |

### Safety category/guard locking

| | |
|---|---|
|  | Suitable up to category 4 or Performance Level e in accordance with EN ISO 13849-1 |
|  | Guard locking for personal protection |

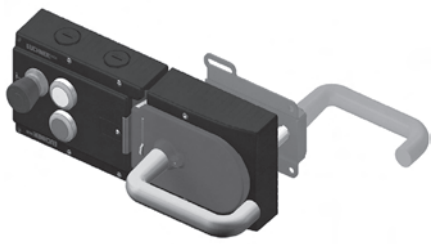
### Controls and indicators

| | |
|---|---|
|  | Emergency stop according to ISO 13850 |
|  | Illuminated emergency stop |
|  | Emergency stop with auxiliary contact |
|  | Machine stop |
|  | Illuminated pushbutton |
|  | Pushbutton not illuminated |
|  | LED |
|  | Selector switch form V |
|  | Key-operated selector switch form V |
|  | Key-operated selector switch form L |

**Complete sets system family MGB-AP**

- Interlocking or guard locking with handle module
- With escape release
- With buttons and emergency stop
- With plug connectors

## Interlocking sets MGB-L0-AP...
**with 3 controls or indicators**



- **Interlocking (without guard locking) in accordance with EN 1088**
- **With cable entry or plug connector**
- **Integrated controls and indicators**

### Details

**Connection for enabling switch**
The devices have an M12 plug connector for the direct connection of an enabling button (e. g. ZSA, order no. 110560).

**Label carrier**
Devices with label carrier have pre-formed recesses. The label carrier enclosed can be bonded in this recess (standard dimension 12.5 x 27 mm).

### Further information

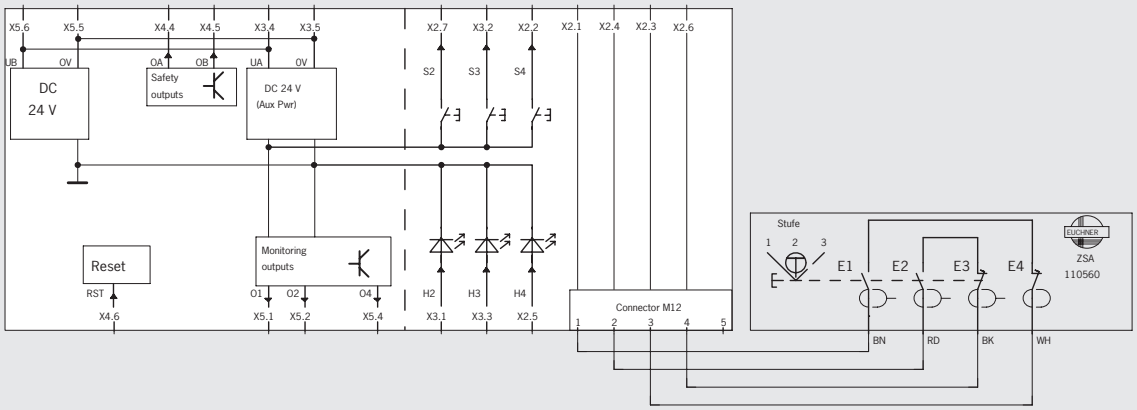
- **Dimension drawings see p. 19**
- **Technical data see p. 18**
- **Accessories and spare parts see p. 59**
- **www.mgb.EUCHNER.de**

**Ordering table**

| Modules in the set | | | | | | | | | Ordering data set |
|---|---|---|---|---|---|---|---|---|---|
| Interlocking module | | | | | | Handle module Order no. separate module | Escape release Order no. separate module | Door stop | Order no./item |
| Version/configuration scheme Order no. separate module | S1 H1 | S2 H2 | S3 H3 | S4 H4 | Connection | | | | |
| 110546<br>Plug connector M12 for enabling switch incl. label carrier | - | wh | ye | bu | Cable entry | 100464 | - | right | **110550**<br>MGB-L0H-APA-R-110550 |
| 110547<br>Plug connector M12 for enabling switch incl. label carrier | - | wh | ye | bu | Cable entry | 100464 | - | left | **110551**<br>MGB-L0H-APA-L-110551 |

**Block diagram and wiring diagram for controls and indicators**

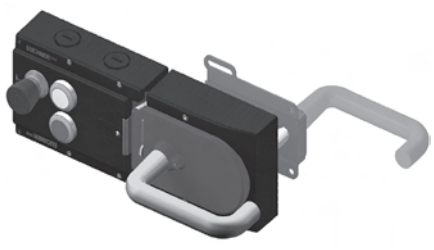
Cable entry




**Terminal assignment cable entry**

| Terminal | Designation | Description |
|---|---|---|
| X2.1 to X2.7 | - | See wiring diagram |
| X3.1 to X3.3 | - | See wiring diagram |
| X3.4 | $U_A$ | Power supply, DC 24 V (connected internally to X5.6) |
| X5.6 | $U_B$ | Power supply, DC 24 V (connected internally to X3.4) |
| X3.5 and X 3.6 | 0 V | Ground (connected internally to X5.5) |
| X3.7 | - | Not used |
| X4.1 to X4.3 | - | Not used |
| X4.4 | $O_A$ | Safety output channel A, ON when the door is closed and the bolt tongue is inserted in the interlocking module. |
| X4.5 | $O_B$ | Safety output channel B, ON when the door is closed and the bolt tongue is inserted in the interlocking module. |
| X4.6 | RST | Reset input, device is reset if DC 24 V are applied to RST for at least 3 s. |
| X5.1 | O1 | Door monitoring output, ON when the door is closed. |
| X5.2 | O2 | Bolt tongue monitoring output, ON when the door is closed and the bolt tongue is inserted in the interlocking module. |
| X5.3 | - | Not used |
| X5.4 | O4 | Monitoring output DIA2, ON when the device is in the fault state. |
| X5.5 | 0 V | Ground (connected internally to X3.5 and X3.6) |

## Locking sets MGB-L1-AP... (guard locking by spring force)
**with 3 controls or indicators**



- **Guard locking with guard lock monitoring in accordance with EN 1088**
- **With cable entry or plug connector**
- **Integrated controls and indicators**

### Details

**Connection for enabling switch**
The devices have an M12 plug connector for the direct connection of an enabling button (e. g. ZSA, order no. 110560).

**Label carrier**
Devices with label carrier have pre-formed recesses. The label carrier enclosed can be bonded in this recess (standard dimension 12.5 x 27 mm).

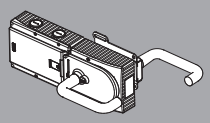
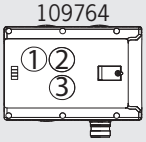
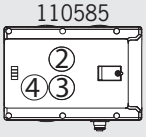
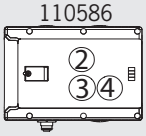
**Illuminated emergency stop**
Emergency stop with illumination that can be controlled as required.

### Further information


- **Dimension drawings see p. 19**
- **Technical data see p. 18**
- **Accessories and spare parts see p. 59**

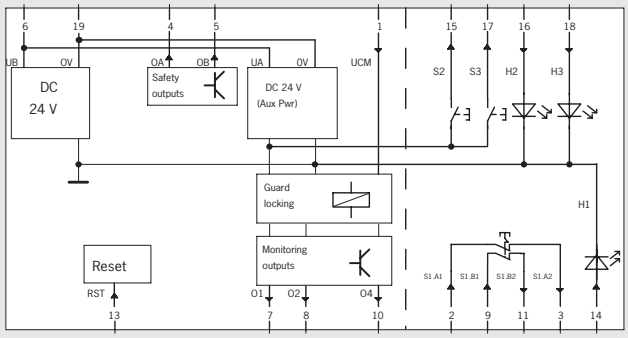
- **www.mgb.EUCHNER.de**

**Ordering table**

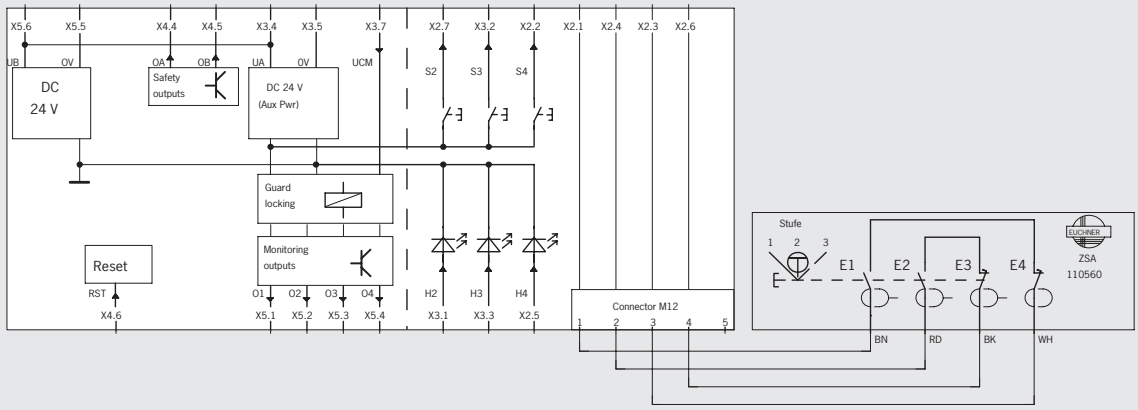
| Modules in the set | | | | | | | | | Ordering data set |
|---|---|---|---|---|---|---|---|---|---|
| | Locking module | | | | | Handle module Order no. separate module | Escape release Order no. separate module | Door stop |  |
| Version/configuration scheme Order no. separate module | S1 H1 | S2 H2 | S3 H3 | S4 H4 | Connection | | | | Order no./item |
|  109764 Illuminated emergency stop, incl. label carrier |  | wh | wh | - | Plug connector RC18 wiring diagram A | 100464 | - | right | **109772** MGB-L1H-APA-R-109772 |
|  110585 Plug connector M12 for enabling switch incl. label carrier | - | wh | ye | bu | Cable entry wiring diagram B | 100464 | - | right | **110587** MGB-L1H-APA-R-110587 |
|  110586 Plug connector M12 for enabling switch incl. label carrier | - | wh | ye | bu | Cable entry wiring diagram B | 100464 | - | left | **110588** MGB-L1H-APA-L-110588 |

**Block diagram and wiring diagram for controls and indicators**

A Plug connector RC 18




B Cable entry



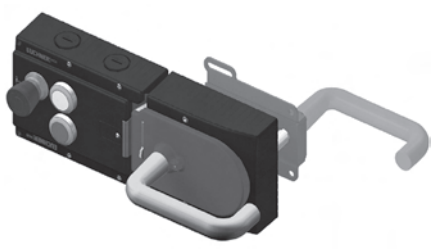

**Terminal assignment plug connector RC18**

| Pin | Designation | Description |
|---|---|---|
| 1 | $U_{CM}$ | Control voltage for switching on and off the guard locking. |
| 2 | S1.$A_1$ | Emergency stop (channel A) |
| 3 | S1.$A_2$ | Emergency stop (channel A) |
| 4 | $O_A$ | Safety output channel A, ON when the door is closed and locked. |
| 5 | $O_B$ | Safety output channel B, ON when the door is closed and locked. |
| 6 | $U_A$ $U_B$ | Power supply, DC 24 V |
| 7 | O1 | Door monitoring output, ON when door is closed. |
| 8 | O2 | Bolt tongue monitoring output, ON when the door is closed and the bolt tongue is inserted in the locking module. |
| 9 | S1.$B_1$ | Emergency stop (channel B) |
| 10 | O4 | Monitoring output DIA2, ON when the device is in the fault state. |
| 11 | S1.$B_2$ | Emergency stop (channel B) |
| 12 | - | Not used |
| 13 | RST | Reset input, device is reset if DC 24 V are applied to RST for at least 3 s. |
| 14 | | See wiring diagram |
| 15 | | |
| 16 | | |
| 17 | | |
| 18 | | |
| 19 | 0 V | Ground |

**Terminal assignment cable entry**

| Terminal | Designation | Description |
|---|---|---|
| X2.1 to X2.7 | - | See wiring diagram |
| X3.1 to X3.3 | - | See wiring diagram |
| X3.4 | $U_A$ | Power supply, DC 24 V (connected internally to X5.6) |
| X5.6 | $U_B$ | Power supply, DC 24 V (connected internally to X3.4) |
| X3.5 and X3.6 | 0 V | Ground (connected internally to X5.5) |
| X3.7 | $U_{CM}$ | Control voltage for switching on and off the guard locking. |
| X4.1 to X4.3 | - | Not used |
| X4.4 | $O_A$ | Safety output channel A, ON when the door is closed and locked. |
| X4.5 | $O_B$ | Safety output channel B, ON when the door is closed and locked. |
| X4.6 | RST | Reset input, device is reset if DC 24 V are applied to RST for at least 3 s. |
| X5.1 | O1 | Door monitoring output, ON when the door is closed. |
| X5.2 | O2 | Bolt tongue monitoring output, ON when the door is closed and the bolt tongue is inserted in the locking module. |
| X5.3 | O3 | Guard locking monitoring output, ON when the door is closed and locked. |
| X5.4 | O4 | Monitoring output DIA2, ON when the device is in the fault state. |
| X5.5 | 0 V | Ground (connected internally to X3.5 and X3.6) |

## Locking sets MGB-L2-AP... (guard locking by solenoid force)
**with 3 controls or indicators**



- **Guard locking with guard lock monitoring in accordance with EN 1088**
- **With cable entry or plug connector**
- **Integrated controls and indicators**

### Details

**Connection for enabling switch**
The devices have an M12 plug connector for the direct connection of an enabling button (e. g. ZSA, order no. 110560).

**Label carrier**
Devices with label carrier have pre-formed recesses. The label carrier enclosed can be bonded in this recess (standard dimension 12.5 x 27 mm).

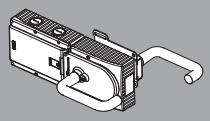
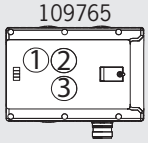
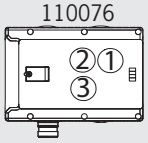
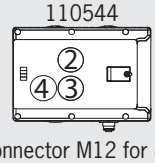
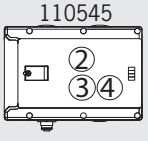
**Illuminated emergency stop**
Emergency stop with illumination that can be controlled as required.

### Further information


- **Dimension drawings see p. 19**
- **Technical data see p. 18**
- **Accessories and spare parts see p. 59**

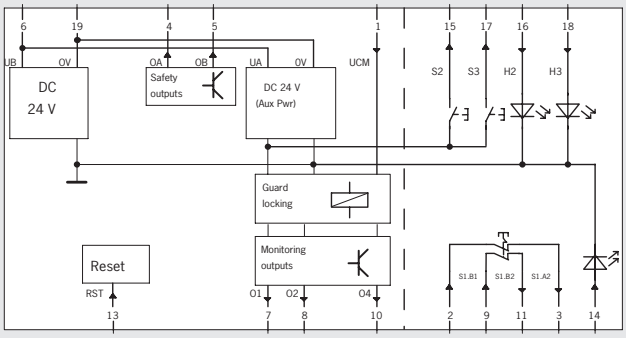
- **www.mgb.EUCHNER.de**

**Ordering table**

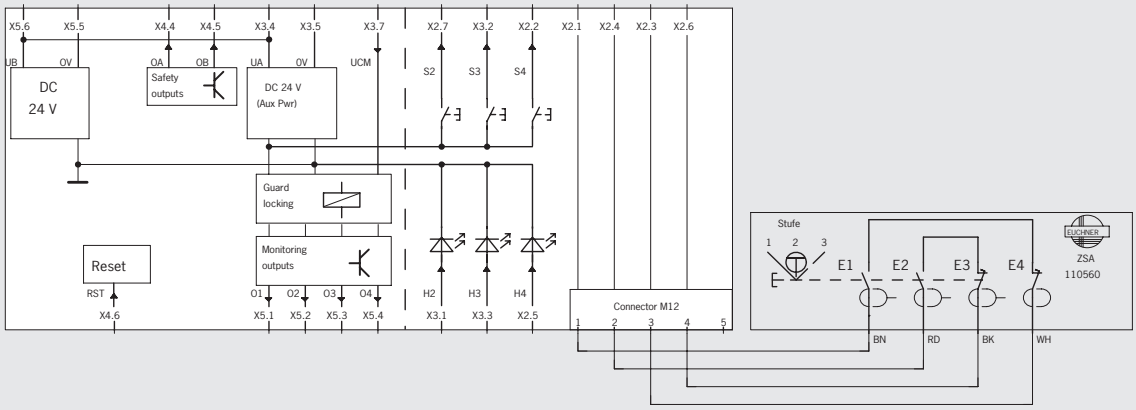
| Modules in the set | | | | | | | | | Ordering data set |
|---|---|---|---|---|---|---|---|---|---|
| | Locking module | | | | | Handle module Order no. separate module | Escape release Order no. separate module | Door stop |  |
| Version/configuration scheme Order no. separate module | S1 H1 | S2 H2 | S3 H3 | S4 H4 | Connection | | | | Order no./item |
| 109765  Illuminated emergency stop, incl. label carrier |  | wh | wh | - | Plug connector RC 18 wiring diagram A | 100464 | - | right | **109771** MGB-L2H-APA-R-109771 |
| 110076  Illuminated emergency stop, incl. label carrier |  | wh | wh | - | Plug connector RC 18 wiring diagram A | 100464 | - | left | **110075** MGB-L2H-APA-L-110075 |
| 110544  Plug connector M12 for enabling switch incl. label carrier | - | wh | ye | bu | Cable entry wiring diagram B | 100464 | - | right | **110548** MGB-L2H-APA-R-110548 |
| 110545  Plug connector M12 for enabling switch incl. label carrier | - | wh | ye | bu | Cable entry wiring diagram B | 100464 | - | left | **110549** MGB-L2H-APA-L-110549 |

**Block diagram and wiring diagram for controls and indicators**

A Plug connector RC 18




B Cable entry



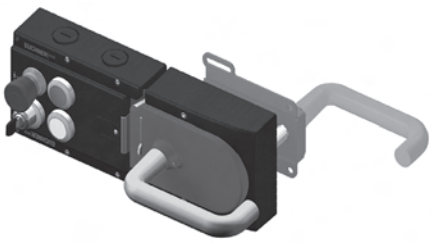

**Terminal assignment plug connector RC18**

| Pin | Designation | Description |
|---|---|---|
| 1 | $U_{CM}$ | Control voltage for switching on and off the guard locking. |
| 2 | S1.$A_1$ | Emergency stop (channel A) |
| 3 | S1.$A_2$ | Emergency stop (channel A) |
| 4 | $O_A$ | Safety output channel A, ON when the door is closed and locked. |
| 5 | $O_B$ | Safety output channel B, ON when the door is closed and locked. |
| 6 | $U_A$ $U_B$ | Power supply, DC 24 V |
| 7 | O1 | Door monitoring output, ON when door is closed. |
| 8 | O2 | Bolt tongue monitoring output, ON when the door is closed and the bolt tongue is inserted in the locking module. |
| 9 | S1.$B_1$ | Emergency stop (channel B) |
| 10 | O4 | Monitoring output DIA2, ON when the device is in the fault state. |
| 11 | S1.$B_2$ | Emergency stop (channel B) |
| 12 | - | Not used |
| 13 | RST | Reset input, device is reset if DC 24 V are applied to RST for at least 3 s. |
| 14 | | See wiring diagram |
| 15 | | |
| 16 | | |
| 17 | | |
| 18 | | |
| 19 | 0 V | Ground |

**Terminal assignment cable entry**

| Terminal | Designation | Description |
|---|---|---|
| X2.1 to X2.7 | - | See wiring diagram |
| X3.1 to X3.3 | - | See wiring diagram |
| X3.4 | $U_A$ | Power supply, DC 24 V (connected internally to X5.6) |
| X5.6 | $U_B$ | Power supply, DC 24 V (connected internally to X3.4) |
| X3.5 and X3.6 | 0 V | Ground (connected internally to X5.5) |
| X3.7 | $U_{CM}$ | Control voltage for switching on and off the guard locking. |
| X4.1 to X4.3 | - | Not used |
| X4.4 | $O_A$ | Safety output channel A, ON when the door is closed and locked. |
| X4.5 | $O_B$ | Safety output channel B, ON when the door is closed and locked. |
| X4.6 | RST | Reset input, device is reset if DC 24 V are applied to RST for at least 3 s. |
| X5.1 | O1 | Door monitoring output, ON when the door is closed. |
| X5.2 | O2 | Bolt tongue monitoring output, ON when the door is closed and the bolt tongue is inserted in the locking module. |
| X5.3 | O3 | Guard locking monitoring output, ON when the door is closed and locked. |
| X5.4 | O4 | Monitoring output DIA2, ON when the device is in the fault state. |
| X5.5 | 0 V | Ground (connected internally to X3.5 and X3.6) |

## Locking sets MGB-L2-AP... (guard locking by solenoid force)
**with 4 controls or indicators**



- **Guard locking with guard lock monitoring in accordance with EN 1088**
- **With plug connector**
- **Integrated controls and indicators**

### Details

**Label carrier**
Devices with label carrier have pre-formed recesses. The label carrier enclosed can be bonded in this recess (standard dimension 12.5 x 27 mm).

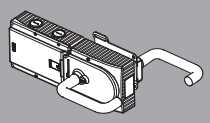
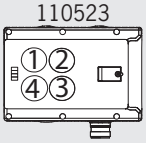
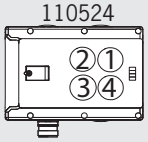
**Key-operated switch form L**
- ▶ Form L, 90° angle of rotation with 2 positions. The key latches in both positions, however it can only be removed in position 0.

Devices with key-operated switch have degree of protection IP42.

### Further information

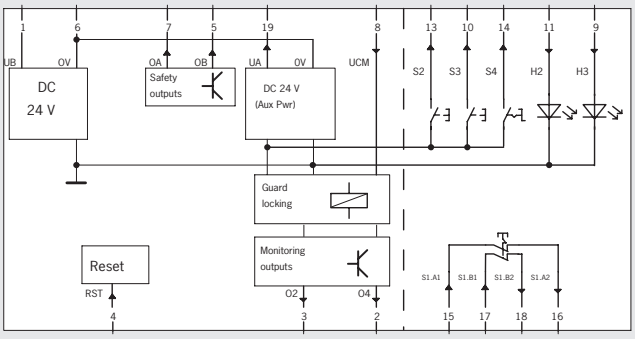

- **Dimension drawings see p. 19**
- **Technical data see p. 18**
- **Accessories and spare parts see p. 59**
- **www.mgb.EUCHNER.de**


**Ordering table**

| Modules in the set | | | | | | | | | Ordering data set |
|---|---|---|---|---|---|---|---|---|---|
| Locking module | | | | | | Handle module Order no. separate module | Escape release Order no. separate module | Door stop |  |
| Version/configuration scheme Order no. separate module | S1 H1 | S2 H2 | S3 H3 | S4 H4 | Connection | | | | Order no./item |
| 110523  Incl. label carrier, IP42 | STOP | ye | wh | Form L 90° | Plug connector RC18 | 100464 | 100465 | right | **110521** MGB-L2HE-APA-R-110521 |
| 110524  Incl. label carrier, IP42 | STOP | ye | wh | Form L 90° | Plug connector RC18 | 100464 | 100465 | left | **110522** MGB-L2HE-APA-L-110522 |

**Block diagram and wiring diagram for controls and indicators**

Plug connector RC 18




**Terminal assignment plug connector RC18**

| Pin | Designation | Description |
|---|---|---|
| 1 | $U_B$ | Power supply, DC 24 V |
| 2 | O4 | Monitoring output DIA2,<br>ON when the device is in the fault state. |
| 3 | O2 | Bolt tongue monitoring output,<br>ON when the door is closed and the bolt tongue is inserted in the locking module. |
| 4 | RST | Reset input, device is reset if DC 24 V are applied to RST for at least 3 s. |
| 5 | $O_B$ | Safety output channel B,<br>ON when the door is closed and locked. |
| 6 | 0 V | Ground |
| 7 | $O_A$ | Safety output channel A,<br>ON when the door is closed and locked. |
| 8 | $U_{CM}$ | Control voltage for switching on and off the guard locking. |
| 9 | | See wiring diagram |
| 10 | | |
| 11 | | |
| 12 | | Plug connector housing |
| 13 | | See wiring diagram |
| 14 | | |
| 15 | | |
| 16 | | |
| 17 | | |
| 18 | | |
| 19 | $U_A$ | Power supply, DC 24 V |

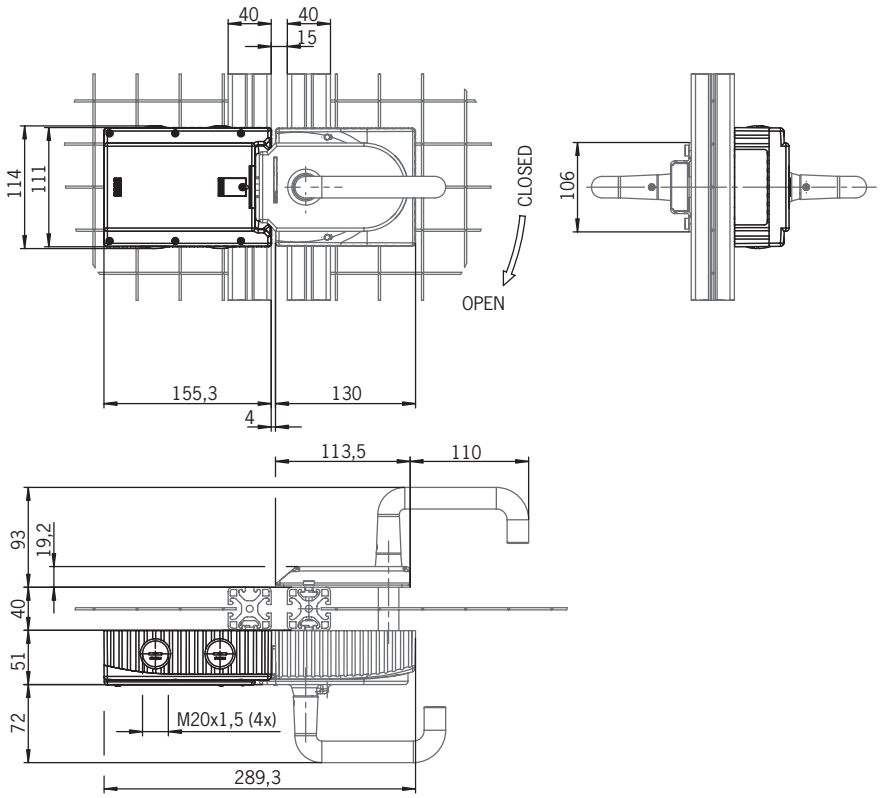
## Technical data

| Parameter | Value | Unit |
|---|---|---|
| Housing material | Glass fiber reinforced plastic die-cast zinc, nickel-plated<br>stainless steel | |
| Dimensions | See dimension drawing | |
| Weight<br>Locking module<br>Handle module<br>Escape release | <br>0.75<br>1.00<br>0.50 | kg |
| Ambient temperature at $U_B$ = DC 24 V | -20 .... +55 | °C |
| Degree of protection<br>Cover not populated<br>Cover populated<br>Cover populated with key-operated switch | <br>IP 54<br>IP 54<br>IP 42 | |
| Safety class | III | |
| Degree of contamination | 3 | |
| Installation position | Any | |
| Locking force $F_{zh}$ in accordance with GS-ET19 | 2000 | N |
| Connection type | 4 cable entries M20x1.5 or<br>plug connector RC18 | |
| Conductor cross-section (rigid/flexible) | 0.13 ... 1.5 | $mm^2$ |
| Operating voltage $U_B$(reverse polarity protected, regulated, residual ripple < 5 %) | 24 +10% / -15% (PELV) | V DC |
| Auxiliary power $U_A$(reverse polarity protected, regulated, residual ripple < 5 %) | 24 +10% / -15% (PELV) | V DC |
| Current consumption $I_{UB}$ (no load on any outputs) | 80 | mA |
| Current consumption with guard locking solenoid $I_{UA}$ (with energized guard locking solenoid 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 system manual | |
| Safety outputs OA/OB | Semiconductor outputs, p-switching, short circuit-proof, pulsing (pulse duration < 300 µs) | |
| Output voltage $U_{OA}$ / $U_{OB}$ [1] | | |
| HIGH $U_{OA}$ / $U_{OB}$ | $U_B$-2V ... $U_B$ | |
| LOW $U_{OA}$ / $U_{OB}$ | 0 ... 1 | V DC |
| Switching current per safety output | 1 ... 200 | mA |
| Utilization category according to EN IEC 60947- 5-2 | DC-13 24 V 200 mA Caution: outputs must be protected with a freewheeling diode in case of inductive loads. | |
| Classification acc. to EN IEC 60947-5-3 | PDF-M | |
| Monitoring outputs<br>- Output voltage [1]<br>- Max. load | p-switching, short circuit-proof<br>$U_A$ - 2V ... $U_A$<br>max. 200 | <br><br>mA |
| Rated insulation voltage $U_i$ | 30 | V |
| Rated impulse withstand voltage $U_{imp}$ | 1.5 | kV |
| Resilience to vibration | As per EN IEC 60947-5-3 | |
| EMC protection requirements | As per EN IEC 60947-5-3 | |
| **Reliability figures according to EN ISO 13849-1** [2] | | |
| Category | 4 | |
| Performance Level | PL e | |
| $PFH_d$ | 2.4 x $10^{-9}$ / h [3] | |
| Mission time | 20 | years |
| $B_{10d}$ [4] emergency stop | 1 x $10^5$ | cycles |

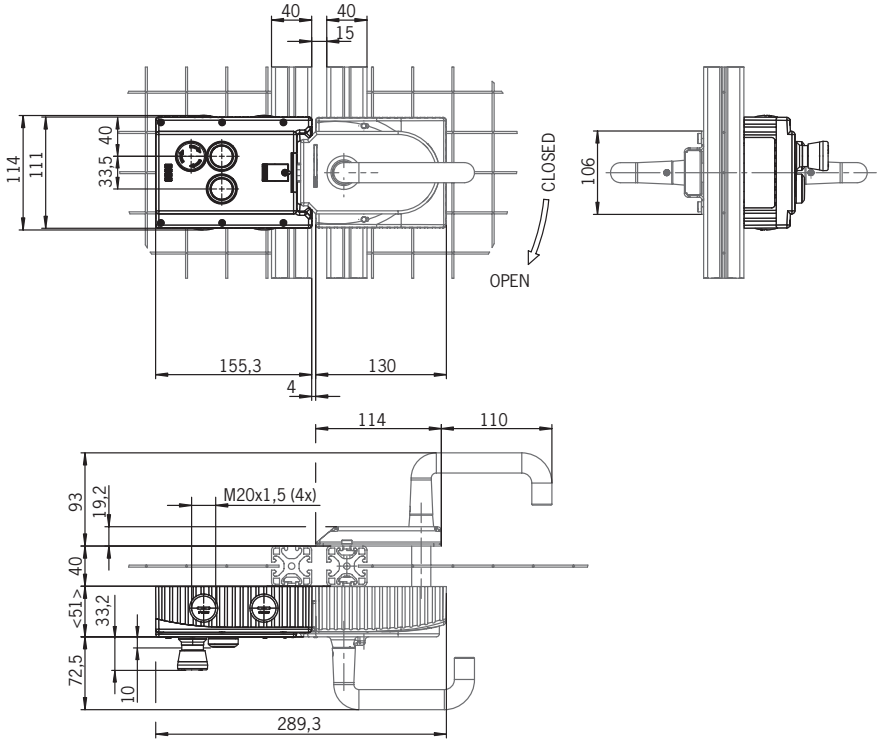
1) Values at a switching current of 50 mA without taking into account the cable lengths.
2) The reliability figures apply to the interlocking or the guard locking depending on the version.
3) Applying the limit value from EN ISO 13849-1:2008, section 4.5.2 ($MTTF_d$ = max. 100 years) BG certifies a $PFH_d$ of max. 2.47 x $10^{-8}$.
4) Information regarding wearing parts without consideration of fixed failure rates in electronic components.

## Dimension drawings

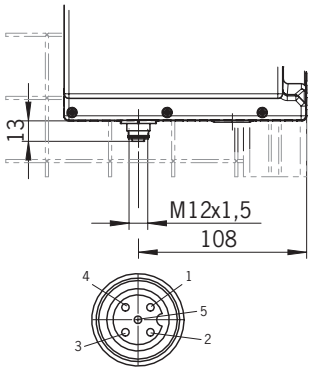
- **MGB-...-AP without additional controls and indicators**




- **MGB-...-AP with additional controls and indicators**

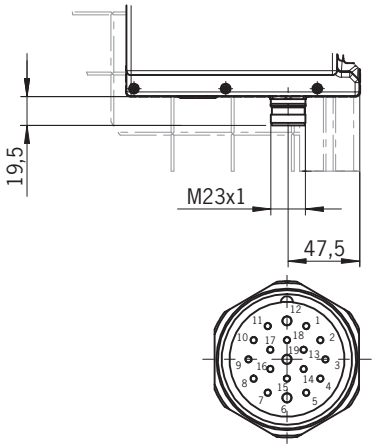



- **Plug connector M12**




View of connection side

- **Plug connector RC18**

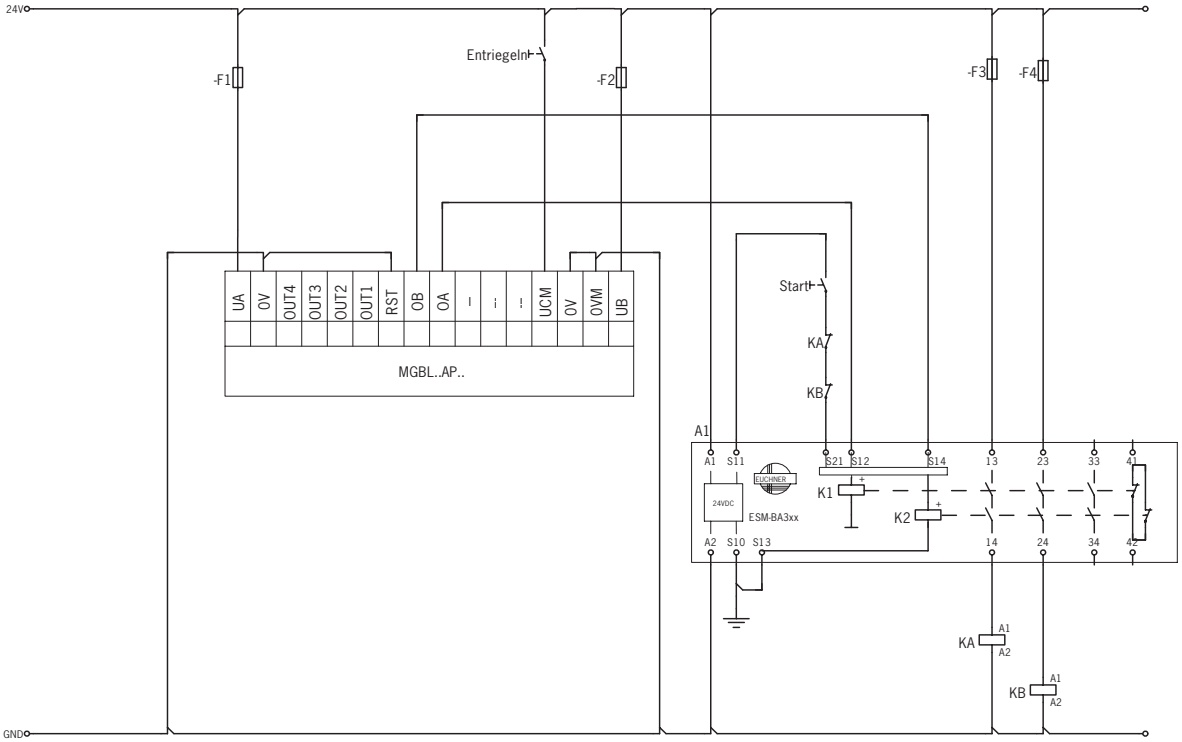



View of connection side

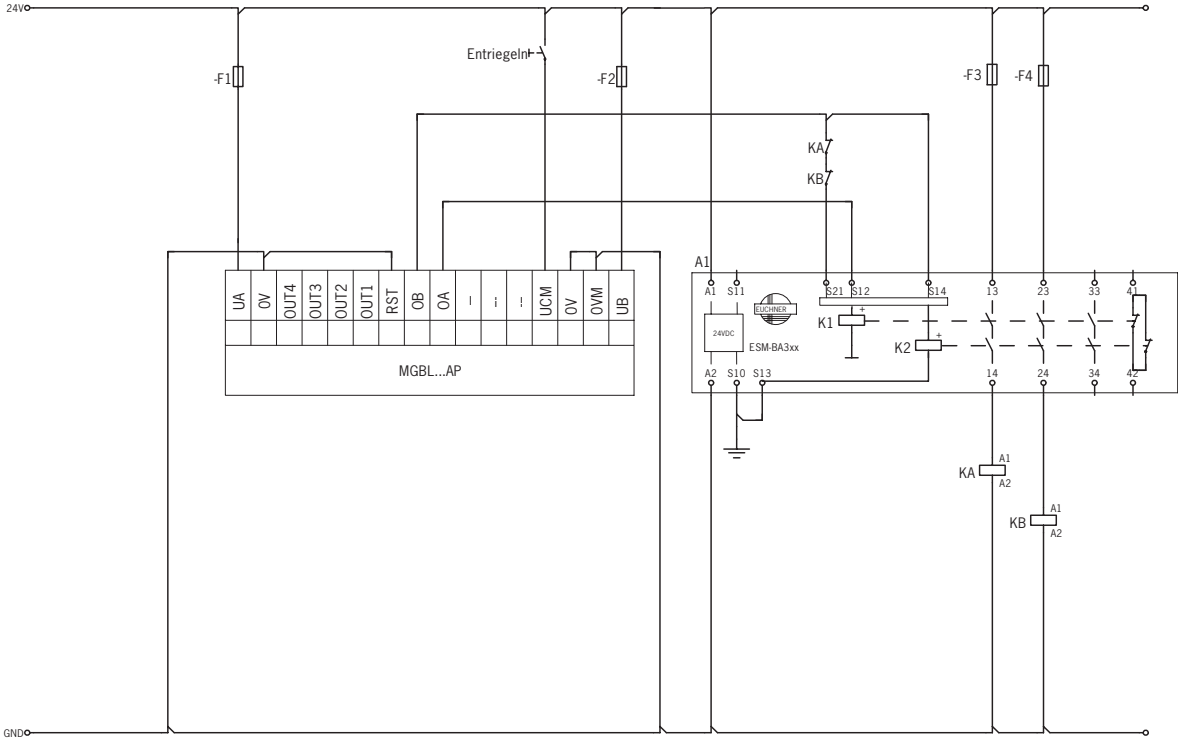
## Connection examples

**Important**: The following example is only a simplified representation. Detailed information on the safety system MGB is available in the system manual for the related evaluation module. The system manual is available at www.euchner.de.

**Operation on a EUCHNER safety relay ESM with feedback loop and monitored start button**



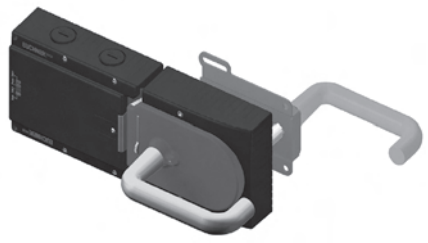

**Operation on a EUCHNER safety relay ESM with feedback loop and automatic start**



**Complete sets system family MGB-AR**

- Interlocking or guard locking with handle module
- With escape release
- With buttons and emergency stop
- With plug connectors

## Interlocking sets MGB-L0-AR...
**without controls or indicators**



- **Interlocking (without guard locking) in accordance with EN 1088**
- **Can be connected in series with other AR devices (e. g. CES-AR and CET-AR)**
- **With cable entry or plug connector**

**Further information**

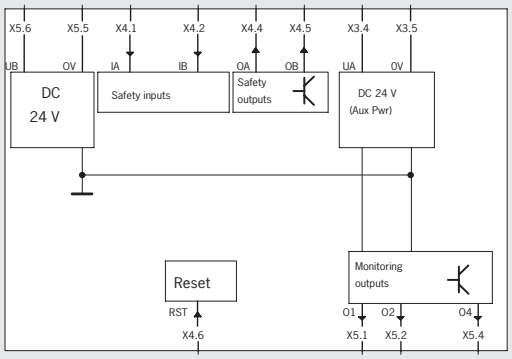

- **Dimension drawings see p. 55**
- **Technical data see p. 54**
- **Accessories and spare parts see p. 59**
- **www.mgb.EUCHNER.de**


**Ordering table**

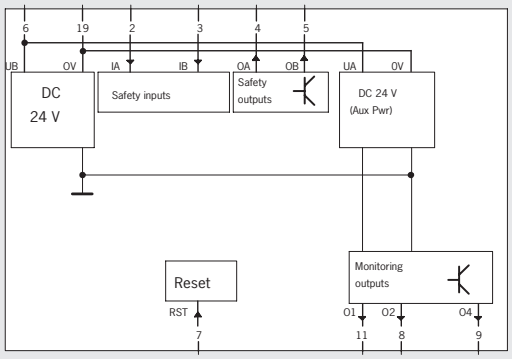
| Modules in the set | | | | | | | | | Ordering data set |
|---|---|---|---|---|---|---|---|---|---|
| Version/configuration scheme<br>Order no. separate module | Interlocking module<br>S1<br>H1 | S2<br>H2 | S3<br>H3 | S4<br>H4 | Connection | Handle module<br>Order no. separate module | Escape release<br>Order no. separate module | Door stop | Order no./item |
| 105331 | - | - | - | - | Cable entry wiring diagram A | 100464 | - | adjustable | **105778**<br>MGB-L0H-AR-R-105778 |
| 105331 | - | - | - | - | Cable entry wiring diagram A | 100464 | 100465 | adjustable | **105780**<br>MGB-L0HE-AR-R-105780 |
| 110950 | - | - | - | - | Plug connector RC18 wiring diagram B | 100464 | - | right | **110949**<br>MGB-L0H-ARA-R-110949 |
| 110953 | - | - | - | - | Plug connector RC18 wiring diagram B | 100464 | - | left | **110952**<br>MGB-L0H-ARA-L-110952 |

## Block diagram

A Cable entry




B Plug connector RC18



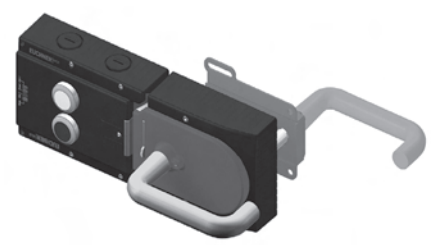

### Terminal assignment cable entry

| Terminal | Designation | Description |
|---|---|---|
| X2.1 to X2.7 | - | Not used |
| X3.1 to X3.3 | - | Not used |
| X3.4 | $U_A$ | Power supply for the monitoring outputs, DC 24 V |
| X3.5 and X3.6 | 0 V | Ground (connected internally to X5.5). |
| X3.7 | - | Not used |
| X4.1 | $I_A$ | Enable input for channel A, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_A$ from previous device. |
| X4.2 | $I_B$ | Enable input for channel B, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_B$ from previous device. |
| X4.3 | - | Not used |
| X4.4 | $O_A$ | Safety output channel A,<br>ON when the door is closed and the bolt tongue is inserted in the interlocking module. |
| X4.5 | $O_B$ | Safety output channel B,<br>ON when the door is closed and the bolt tongue is inserted in the interlocking module. |
| X4.6 | RST | Reset input, device is reset if DC 24 V are applied to RST for at least 3 s. |
| X5.1 | O1 | Door monitoring output,<br>ON when the door is closed. |
| X5.2 | O2 | Bolt tongue monitoring output,<br>ON when the door is closed and the bolt tongue is inserted in the locking module. |
| X5.3 | - | Not used |
| X5.4 | O4 | Monitoring output DIA2,<br>ON when the device is in the fault state. |
| X5.5 | 0 V | Ground (connected internally to X3.5). |
| X5.6 | $U_B$ | Power supply, DC 24 V |

### Terminal assignment plug connector RC18

| Pin | Designation | Description |
|---|---|---|
| 1 | - | Not used |
| 2 | $I_A$ | Enable input for channel A, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_A$ from previous device. |
| 3 | $I_B$ | Enable input for channel B, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_B$ from previous device. |
| 4 | $O_A$ | Safety output channel A,<br>ON when the door is closed and the bolt tongue is inserted in the interlocking module. |
| 5 | $O_B$ | Safety output channel B,<br>ON when the door is closed and the bolt tongue is inserted in the interlocking module. |
| 6 | $U_A$<br>$U_B$ | Power supply, DC 24 V |
| 7 | RST | Reset input, device is reset if DC 24 V are applied to RST for at least 3 s. |
| 8 | O2 | Bolt tongue monitoring output,<br>ON when the door is closed and the bolt tongue is inserted in the interlocking module. |
| 9 | O4 | Monitoring output DIA2,<br>ON when the device is in the fault state. |
| 10 | - | Not used |
| 11 | O1 | Door monitoring output,<br>ON when the door is closed. |
| 12 | - | Not used |
| 13 | - | |
| 14 | - | |
| 15 | - | |
| 16 | - | |
| 17 | - | |
| 18 | - | |
| 19 | 0 V | Ground |

## Interlocking sets MGB-L0-AR...
**with 2 controls or indicators**

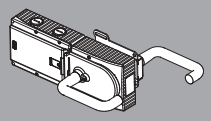
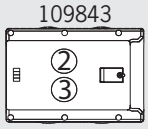


- **Interlocking (without guard locking) in accordance with EN 1088**
- **Can be connected in series with other AR devices (e. g. CES-AR and CET-AR)**
- **With cable entry**
- **Integrated controls and indicators**

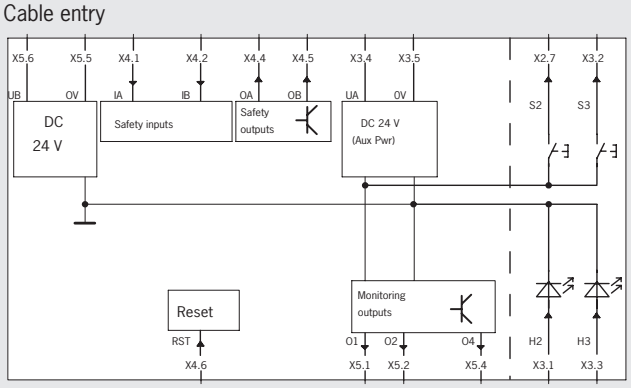
### Further information


- **Dimension drawings see p. 55**
- **Technical data see p. 54**
- **Accessories and spare parts see p. 59**
- **www.mgb.EUCHNER.de**


**Ordering table for complete sets**

| Modules in the set | | | | | | | | | Ordering data set |
|---|---|---|---|---|---|---|---|---|---|
| Interlocking module | | | | | | Handle module Order no. separate module | Escape release Order no. separate module | Door stop |  |
| Version/configuration scheme Order no. separate module | S1 H1 | S2 H2 | S3 H3 | S4 H4 | Connection | | | | Order no./item |
|  109843 | - | wh | bu | - | Cable entry | 100464 | - | adjustable | **109839** MGB-L0H-AR-R-109839 |

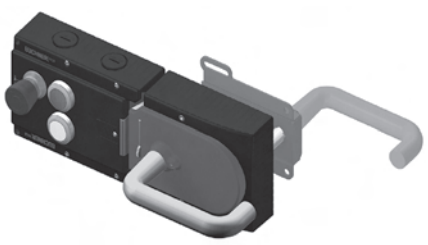
**Block diagram and wiring diagram for controls and indicators**




**Terminal assignment cable entry**

| Terminal | Designation | Description |
|---|---|---|
| X2.1 to X2.7 | - | See wiring diagram for controls and indicators. |
| X3.1 to X3.3 | - | |
| X3.4 | $U_A$ | Power supply for the monitoring outputs, DC 24 V |
| X3.5 and X3.6 | 0 V | Ground (connected internally to X5.5) |
| X3.7 | - | Not used |
| X4.1 | $I_A$ | Enable input for channel A, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_A$ from previous device. |
| X4.2 | $I_B$ | Enable input for channel B, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_B$ from previous device. |
| X4.3 | - | Not used |
| X4.4 | $O_A$ | Safety output channel A, ON when the door is closed and the bolt tongue is inserted in the interlocking module. |
| X4.5 | $O_B$ | Safety output channel B, ON when the door is closed and the bolt tongue is inserted in the interlocking module. |
| X4.6 | RST | Reset input, device is reset if DC 24 V are applied to RST for at least 3 s. |
| X5.1 | O1 | Door monitoring output, ON when the door is closed. |
| X5.2 | O2 | Bolt tongue monitoring output, ON when the door is closed and the bolt tongue is inserted in the interlocking module. |
| X5.3 | - | Not used |
| X5.4 | O4 | Monitoring output DIA2, ON when the device is in the fault state. |
| X5.5 | 0 V | Ground (connected internally to X3.5) |
| X5.6 | $U_B$ | Power supply, DC 24 V |

## Interlocking sets MGB-L0-AR...
**with 3 controls or indicators**



- **Interlocking (without guard locking) in accordance with EN 1088**
- **Can be connected in series with other AR devices (e. g. CES-AR and CET-AR)**
- **With cable entry or plug connector**
- **Integrated controls and indicators**

### Details

**Label carrier**
Devices with label carrier have pre-formed recesses. The label carrier enclosed can be bonded in this recess (standard dimension 12.5 x 27 mm).

### Further information


- **Dimension drawings see p. 55**
- **Technical data see p. 54**
- **Accessories and spare parts see p. 59**
- **www.mgb.EUCHNER.de**


**Ordering table**

| Modules in the set | | | | | | | | | Ordering data set |
|---|---|---|---|---|---|---|---|---|---|
| Version/configuration scheme<br>Order no. separate module | Interlocking module<br>S1<br>H1 | S2<br>H2 | S3<br>H3 | S4<br>H4 | Connection | Handle module<br>Order no. separate module | Escape release<br>Order no. separate module | Door stop | Order no./item |
| 106106 | STOP | ye | wh | - | Cable entry wiring diagram A | 100464 | - | adjustable | **105779**<br>MGB-L0H-AR-R-105779 |
| 106106 | STOP | ye | wh | - | Cable entry wiring diagram A | 100464 | 100465 | adjustable | **105781**<br>MGB-L0HE-AR-R-105781 |
| 109001 | STOP | ye | bu | - | Cable entry wiring diagram A | 100464 | 100465 | adjustable | **109002**<br>MGB-L0HE-AR-R-109002 |

(Continued on next page)

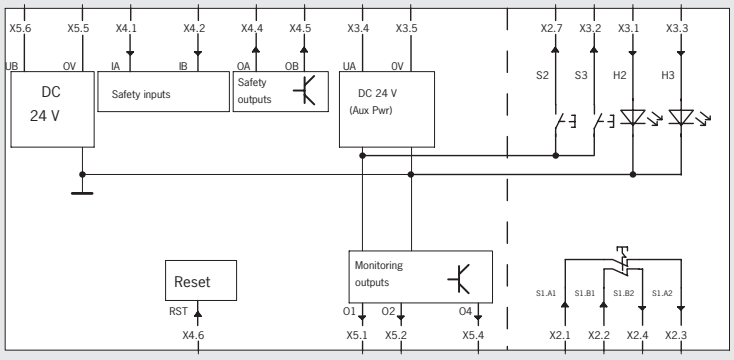
**Ordering table** (continued)

| Modules in the set | | | | | | | | | Ordering data set |
|---|---|---|---|---|---|---|---|---|---|
| Interlocking module | | | | | | Handle module Order no. separate module | Escape release Order no. separate module | Door stop | Order no./item |
| Version/configuration scheme | S1 H1 | S2 H2 | S3 H3 | S4 H4 | Connection | | | | |
| 110687<br>Incl. label carrier | STOP | ye | wh | - | Plug connector RC18 wiring diagram B | 100464 | 100465 | right | **110691**<br>MGB-L0HE-ARA-R-110691 |
| 110688<br>Incl. label carrier | STOP | ye | wh | - | Plug connector RC18 wiring diagram B | 100464 | 100465 | left | **110692**<br>MGB-L0HE-ARA-L-110692 |
| 110687<br>Incl. label carrier | STOP | ye | wh | - | Plug connector RC18 wiring diagram B | 100464 | - | right | **110955**<br>MGB-L0H-ARA-R-110955 |
| 110688<br>Incl. label carrier | STOP | ye | wh | - | Plug connector RC18 wiring diagram B | 100464 | - | left | **110958**<br>MGB-L0H-ARA-L-110958 |

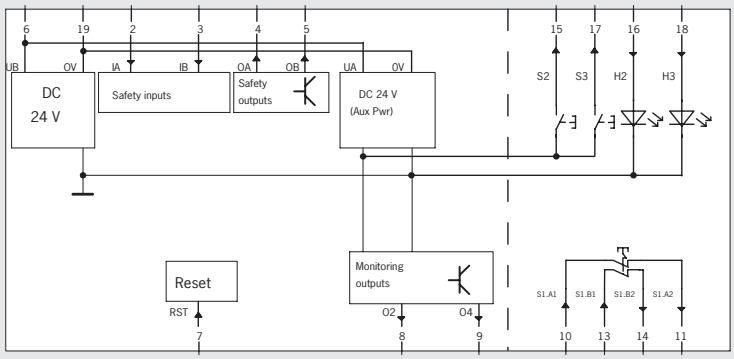
## Interlocking sets MGB-L0-AR...
**with 3 controls or indicators**

**Block diagram and wiring diagrams for controls and indicators**

**A** Cable entry




**B** Plug connector RC 18



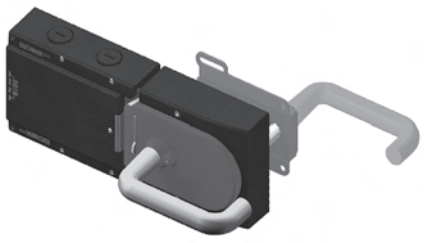
### Terminal assignment cable entry

| Terminal | Designation | Description |
|---|---|---|
| X2.1 to X2.7 | - | See wiring diagram A for controls and indicators. |
| X3.1 to X3.3 | - | |
| X3.4 | $U_A$ | Power supply for the monitoring outputs, DC 24 V |
| X3.5 | 0 V | Ground (connected internally to X5.5). |
| X3.6 | - | Not used |
| X3.7 | - | Not used |
| X4.1 | $I_A$ | Enable input for channel A, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_A$ from previous device. |
| X4.2 | $I_B$ | Enable input for channel B, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_B$ from previous device. |
| X4.3 | - | Not used |
| X4.4 | $O_A$ | Safety output channel A,<br>ON when the door is closed and the bolt tongue is inserted in the interlocking module. |
| X4.5 | $O_B$ | Safety output channel B,<br>ON when the door is closed and the bolt tongue is inserted in the interlocking module. |
| X4.6 | RST | Reset input, device is reset if DC 24 V are applied to RST for at least 3 s. |
| X5.1 | O1 | Door monitoring output,<br>ON when the door is closed. |
| X5.2 | O2 | Bolt tongue monitoring output,<br>ON when the door is closed and the bolt tongue is inserted in the interlocking module. |
| X5.3 | - | Not used |
| X5.4 | O4 | Monitoring output DIA2,<br>ON when the device is in the fault state. |
| X5.5 | 0 V | Ground (connected internally to X3.5) |
| X5.6 | $U_B$ | Power supply, DC 24 V |

### Terminal assignment plug connector RC18

| Pin | Designation | Description |
|---|---|---|
| 1 | - | Not used |
| 2 | $I_A$ | Enable input for channel A, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_A$ from previous device. |
| 3 | $I_B$ | Enable input for channel B, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_B$ from previous device. |
| 4 | $O_A$ | Safety output channel A,<br>ON when the door is closed and the bolt tongue is inserted in the interlocking module. |
| 5 | $O_B$ | Safety output channel B,<br>ON when the door is closed and the bolt tongue is inserted in the interlocking module. |
| 6 | $U_A$<br>$U_B$ | Power supply, DC 24 V |
| 7 | RST | Reset input, device is reset if DC 24 V are applied to RST for at least 3 s. |
| 8 | O2 | Bolt tongue monitoring output,<br>ON when the door is closed and the bolt tongue is inserted in the interlocking module. |
| 9 | O4 | Monitoring output DIA2,<br>ON when the device is in the fault state. |
| 10 | - | See wiring diagram B |
| 11 | | |
| 12 | - | Not used |
| 13 | | See wiring diagram B for controls and indicators. |
| 14 | | |
| 15 | | |
| 16 | | |
| 17 | | |
| 18 | | |
| 19 | 0 V | Ground |

## Locking sets MGB-L1-AR... (guard locking by spring force)
**without control or indicator**

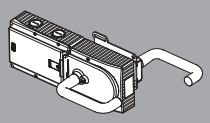
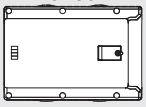
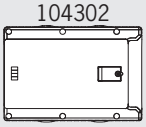
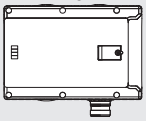
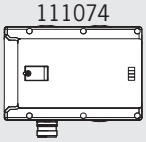


- **Guard locking with guard lock monitoring in accordance with EN 1088**
- **Can be connected in series with other AR devices (e. g. CES-AR and CET-AR)**
- **With cable entry or plug connector**

**Further information**

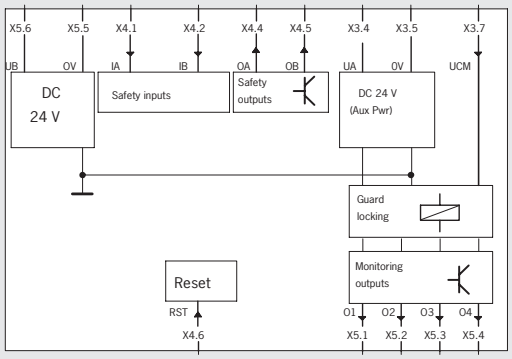

- **Dimension drawings see p. 55**
- **Technical data see p. 54**
- **Accessories and spare parts see p. 59**
- **www.mgb.EUCHNER.de**


**Ordering table**

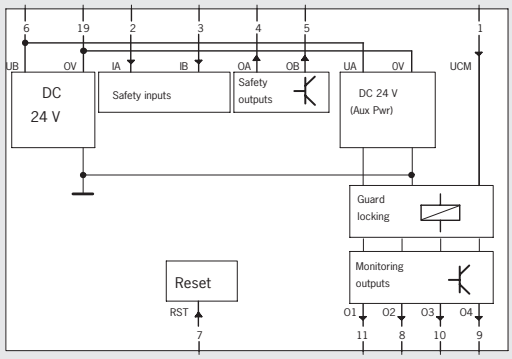
| Modules in the set | | | | | | | | | Ordering data set |
|---|---|---|---|---|---|---|---|---|---|
| Locking module | | | | | | Handle module Order no. separate module | Escape release Order no. separate module | Door stop |  |
| Version/configuration scheme Order no. separate module | S1 H1 | S2 H2 | S3 H3 | S4 H4 | Connection | | | | Order no./item |
|  104302 | - | - | - | - | Cable entry wiring diagram A | 100464 | - | adjustable | **105782** MGB-L1H-AR-R-105782 |
|  104302 | - | - | - | - | Cable entry wiring diagram A | 100464 | 100 465 | adjustable | **105784** MGB-L1HE-AR-R-105784 |
|  111071 | - | - | - | - | Plug connector RC18 wiring diagram B | 100464 | - | right | **111070** MGB-L1H-ARA-R-111070 |
|  111074 | - | - | - | - | Plug connector RC18 wiring diagram B | 100464 | - | left | **111073** MGB-L1H-ARA-L-111073 |

**Block diagram**

A Cable entry




B Plug connector RC18



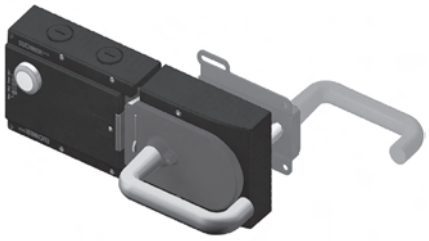

**Terminal assignment cable entry**

| Terminal | Designation | Description |
|---|---|---|
| X2.1 to X2.7 | - | Not used |
| X3.1 to X3.3 | - | Not used |
| X3.4 | $U_A$ | Power supply for the guard locking solenoid and the monitoring outputs, DC 24 V |
| X3.5 and X3.6 | 0 V | Ground (connected internally to X5.5) |
| X3.7 | $U_{CM}$ | Control voltage for switching on and off the guard locking. |
| X4.1 | $I_A$ | Enable input for channel A, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_A$ from previous device. |
| X4.2 | $I_B$ | Enable input for channel B, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_B$ from previous device. |
| X4.3 | - | Not used |
| X4.4 | $O_A$ | Safety output channel A, ON when the door is closed and locked. |
| X4.5 | $O_B$ | Safety output channel B, ON when the door is closed and locked. |
| X4.6 | RST | Reset input, device is reset if DC 24 V are applied to RST for at least 3 s. |
| X5.1 | O1 | Door monitoring output, ON when the door is closed. |
| X5.2 | O2 | Bolt tongue monitoring output, ON when the door is closed and the bolt tongue is inserted in the locking module. |
| X5.3 | O3 | Guard locking monitoring output, ON when the door is closed and locked. |
| X5.4 | O4 | Monitoring output DIA2, ON when the device is in the fault state. |
| X5.5 | 0 V | Ground (connected internally to X3.5) |
| X5.6 | $U_B$ | Power supply, DC 24 V |

**Terminal assignment plug connector RC18**

| Pin | Designation | Description |
|---|---|---|
| 1 | $U_{CM}$ | Control voltage for switching on and off the guard locking. |
| 2 | $I_A$ | Enable input for channel A, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_A$ from previous device. |
| 3 | $I_B$ | Enable input for channel B, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_B$ from previous device. |
| 4 | $O_A$ | Safety output channel A, ON when the door is closed and locked. |
| 5 | $O_B$ | Safety output channel B, ON when the door is closed and locked. |
| 6 | $U_A$ $U_B$ | Power supply, DC 24 V |
| 7 | RST | Reset input, device is reset if DC 24 V are applied to RST for at least 3 s. |
| 8 | O2 | Bolt tongue monitoring output, ON when the door is closed and the bolt tongue is inserted in the locking module. |
| 9 | O4 | Monitoring output DIA2, ON when the device is in the fault state. |
| 10 | O3 | Guard locking monitoring output, ON when the door is closed and locked. |
| 11 | O1 | Door monitoring output, ON when the door is closed. |
| 12 | - | Not used |
| 13 | | Not used |
| 14 | | |
| 15 | | |
| 16 | | |
| 17 | | |
| 18 | | |
| 19 | 0 V | Ground |

## Locking sets MGB-L1-AR... (guard locking by spring force)
**with one control or indicator**



- **Guard locking with guard lock monitoring in accordance with EN 1088**
- **Can be connected in series with other AR devices (e. g. CES-AR and CET-AR)**
- **With cable entry or plug connector**
- **Integrated controls and indicators**

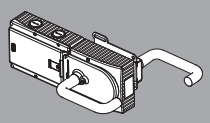
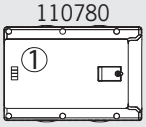
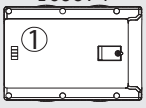
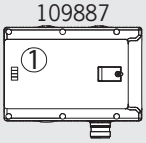
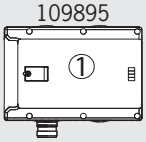
### Details

**Degree of protection IP 65**
By using special control and indicators, degree of protection IP 65 is achieved.

### Further information

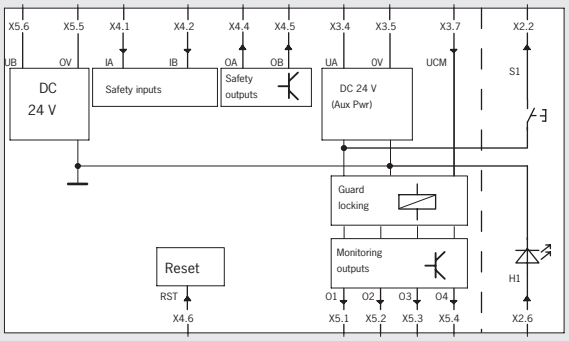
- **Dimension drawings see p. 55**
- **Technical data see p. 54**
- **Accessories and spare parts see p. 59**
- **www.mgb.EUCHNER.de**

**Ordering table**

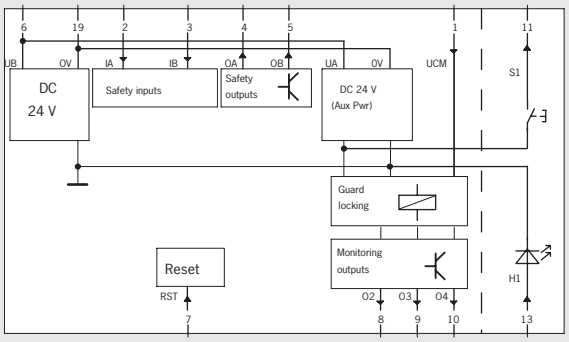
| Modules in the set | | | | | | | | | Ordering data set |
|---|---|---|---|---|---|---|---|---|---|
| | Locking module | | | | | Handle module Order no. separate module | Escape release Order no. separate module | Door stop |  |
| Version/configuration scheme Order no. separate module | S1 H1 | S2 H2 | S3 H3 | S4 H4 | Connection | | | | Order no./item |
| 110780  IP 65 |  gn | - | - | - | Cable entry wiring diagram A | 100464 | 100465 | adjustable | **110782** MGB-L1HE-ARA-R-110782 |
| 109974  IP 65 |  wh | - | - | - | Cable entry wiring diagram A | 100464 | 100465 | adjustable | **109973** MGB-L1HE-AR-R-109973 |
| 109887  |  wh | - | - | - | Plug connector RC18 wiring diagram B | 100464 | 100465 | right | **109885** MGB-L1HE-AR-R-109885 |
| 109895  |  wh | - | - | - | Plug connector RC18 wiring diagram B | 100464 | 100465 | left | **109893** MGB-L1HE-AR-L-109893 |

## Block diagram and wiring diagrams for controls and indicators

**A** Cable entry




**B** Plug connector RC 18



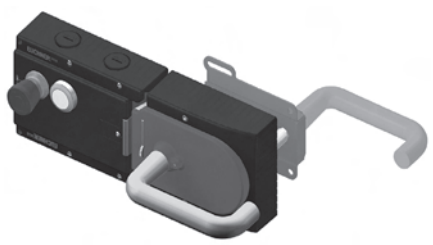

### Terminal assignment cable entry

| Terminal | Designation | Description |
|---|---|---|
| X2.1 to X2.7 | - | See wiring diagram A for controls and indicators. |
| X3.1 to X3.3 | - | See wiring diagram A for controls and indicators. |
| X3.4 | $U_A$ | Power supply for the guard locking solenoid and the monitoring outputs, DC 24 V |
| X3.5 and X3.6 | 0 V | Ground (connected internally to X5.5) |
| X3.7 | $U_{CM}$ | Control voltage for switching on and off the guard locking. |
| X4.1 | $I_A$ | Enable input for channel A, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_A$ from previous device. |
| X4.2 | $I_B$ | Enable input for channel B, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_B$ from previous device. |
| X4.3 | - | Not used |
| X4.4 | $O_A$ | Safety output channel A,<br>ON when the door is closed and locked. |
| X4.5 | $O_B$ | Safety output channel B,<br>ON when the door is closed and locked. |
| X4.6 | RST | Reset input, device is reset if DC 24 V are applied to RST for at least 3 s. |
| X5.1 | O1 | Door monitoring output,<br>ON when the door is closed. |
| X5.2 | O2 | Bolt tongue monitoring output,<br>ON when the door is closed and the bolt tongue is inserted in the locking module. |
| X5.3 | O3 | Guard locking monitoring output, ON when the door is closed and locked. |
| X5.4 | O4 | Monitoring output DIA2,<br>ON when the device is in the fault state. |
| X5.5 | 0 V | Ground (connected internally to X3.5) |
| X5.6 | $U_B$ | Power supply, DC 24 V |

### Terminal assignment plug connector RC18

| Pin | Designation | Description |
|---|---|---|
| 1 | $U_{CM}$ | Control voltage for switching on and off the guard locking. |
| 2 | $I_A$ | Enable input for channel A, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_A$ from previous device. |
| 3 | $I_B$ | Enable input for channel B, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_B$ from previous device. |
| 4 | $O_A$ | Safety output channel A,<br>ON when the door is closed and locked. |
| 5 | $O_B$ | Safety output channel B,<br>ON when the door is closed and locked. |
| 6 | $U_A$<br>$U_B$ | Power supply, DC 24 V |
| 7 | RST | Reset input, device is reset if DC 24 V are applied to RST for at least 3 s |
| 8 | O2 | Bolt tongue monitoring output,<br>ON when the door is closed and the bolt tongue is inserted in the locking module |
| 9 | O3 | Guard locking monitoring output, ON when the door is closed and locked |
| 10 | O4 | Monitoring output DIA2,<br>ON when the device is in the fault state |
| 11 | | See wiring diagram B for controls and indicators |
| 12 | - | Not used |
| 13 | | See wiring diagram B for controls and indicators |
| 14 | | |
| 15 | | |
| 16 | | |
| 17 | | |
| 18 | | |
| 19 | 0 V | Ground |

## Locking sets MGB-L1-AR... (guard locking by spring force)
**with 2 controls or indicators**



- **Guard locking with guard lock monitoring in accordance with EN 1088**
- **Can be connected in series with other AR devices (e. g. CES-AR and CET-AR)**
- **With cable entry or plug connector**
- **Integrated controls and indicators**

### Details

**Emergency stop with auxiliary contact**
Additional normally open contact in the emergency stop, e. g. as auxiliary contact for the control system.

**Label carrier**
Devices with label carrier have pre-formed recesses. The label carrier enclosed can be bonded in this recess (standard dimension 12.5 x 27 mm).

### Further information

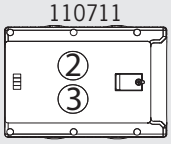
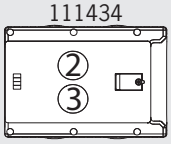
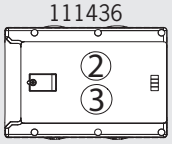
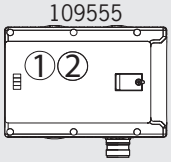
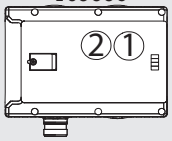
- **Dimension drawings see p. 55**
- **Technical data see p. 54**
- **Accessories and spare parts see p. 59**
- **www.mgb.EUCHNER.de**

**Ordering table**

| Modules in the set | | | | | | | | | Ordering data set |
|---|---|---|---|---|---|---|---|---|---|
| Locking module | | | | | | Handle module Order no. separate module | Escape release Order no. separate module | Door stop | Order no./item |
| Version/configuration scheme Order no. separate module | S1 H1 | S2 H2 | S3 H3 | S4 H4 | Connection | | | | |
| 109895 ①② | STOP | wh | - | - | Cable entry wiring diagram A | 100464 | 100465 | adjustable | **109863** MGB-L1HE-AR-R-109863 |
| 109291 ①② | wh | ye | - | - | Cable entry wiring diagram B | 100464 | 100465 | adjustable | **109355** MGB-L1HE-AR-R-109355 |
| 109934 ①② Incl. label carrier | gn | ye | - | - | Cable entry wiring diagram B | 100464 | - | adjustable | **109937** MGB-L1H-AR-R-109937 |
| 109752 ② ③ | - | wh | bu | - | Cable entry wiring diagram C | 100464 | - | adjustable | **109751** MGB-L1H-AR-R-109751 |

(Continued on next page)

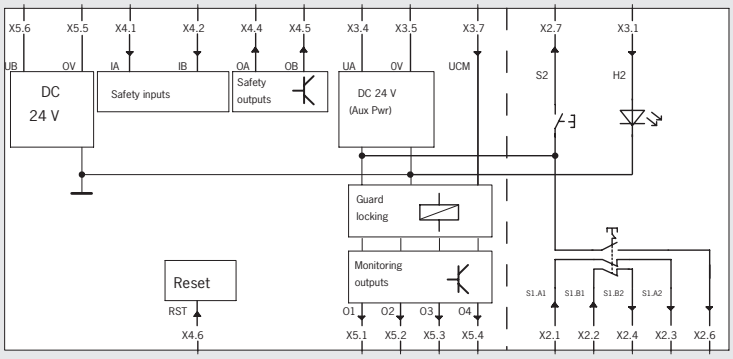
**Ordering table** (continued)

| Modules in the set | | | | | | | | | Ordering data set |
|---|---|---|---|---|---|---|---|---|---|
| Version/configuration scheme<br>Order no. separate module | Locking module<br>S1<br>H1 | S2<br>H2 | S3<br>H3 | S4<br>H4 | Connection | Handle module<br>Order no. separate module | Escape release<br>Order no. separate module | Door stop | Order no./item |
| 110711<br>  | - | ye | bu | - | Cable entry wiring diagram C | 100464 | 100465 | adjustable | **110710**<br>MGB-L1HE-ARA-R-110710 |
| 111434<br>  <br>Incl. label carrier | - | bu | wh | - | Cable entry wiring diagram C | 100464 | - | right | **111435**<br>MGB-L1H-ARA-R-111435 |
| 111436<br>  <br>Incl. label carrier | - | bu | wh | - | Cable entry wiring diagram C | 100464 | - | left | **111437**<br>MGB-L1H-ARA-L-1111437 |
| 109555<br>  <br>incl. label carrier, IP 65 | bu | gn | - | - | Plug connector RC18 wiring diagram D | 100464 | - | right | **109579**<br>MGB-L1H-AR-R-109579 |
| 109556<br>  <br>incl. label carrier, IP 65 | bu | gn | - | - | Plug connector RC18 wiring diagram D | 100464 | - | left | **109580**<br>MGB-L1H-AR-L-109580 |

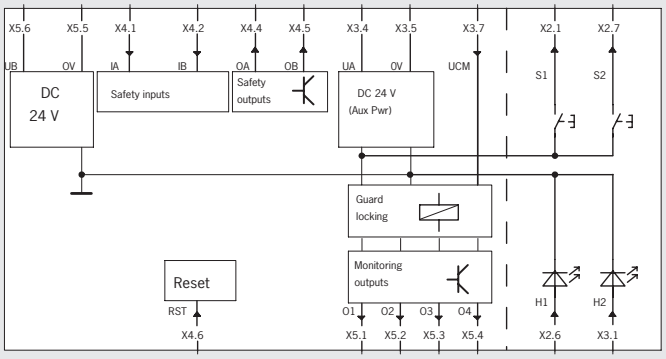
## Locking sets MGB-L1-AR... (guard locking by spring force)
**with 2 controls or indicators**

**Block diagram and wiring diagrams for controls and indicators**

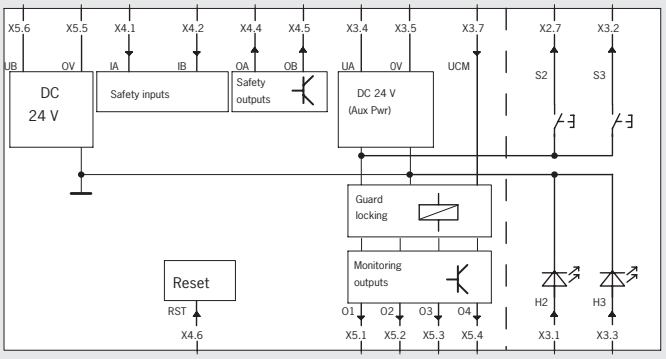
**A** Cable entry



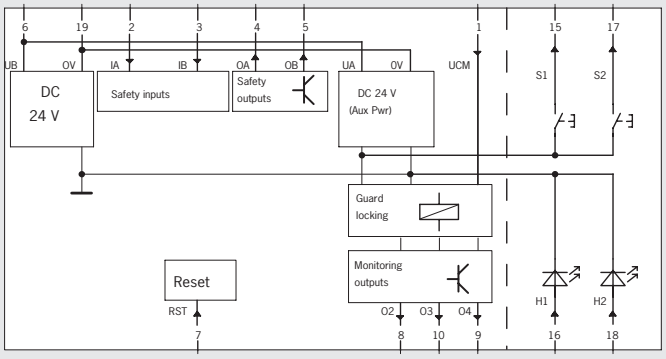

**B** Cable entry




**C** Cable entry




**D** Plug connector RC 18



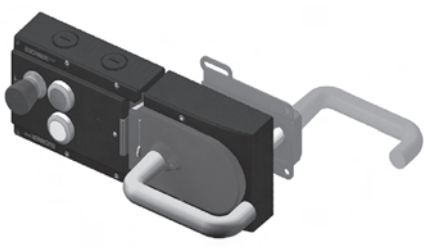
### Terminal assignment cable entry

| Terminal | Designation | Description |
|---|---|---|
| X2.1 to X2.7 | - | See wiring diagrams A to C for controls and indicators. |
| X3.1 to X3.3 | - | See wiring diagrams A to C for controls and indicators. |
| X3.4 | $U_A$ | Power supply for the guard locking solenoid and the monitoring outputs, DC 24 V |
| X3.5 and X3.6 | 0 V | Ground (connected internally to X5.5). |
| X3.7 | $U_{CM}$ | Control voltage for switching on and off the guard locking. |
| X4.1 | $I_A$ | Enable input for channel A, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_A$ from previous device. |
| X4.2 | $I_B$ | Enable input for channel B, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_B$ from previous device. |
| X4.3 | - | Not used |
| X4.4 | $O_A$ | Safety output channel A, ON when the door is closed and locked. |
| X4.5 | $O_B$ | Safety output channel B, ON when the door is closed and locked. |
| X4.6 | RST | Reset input, device is reset if DC 24 V are applied to RST for at least 3 s. |
| X5.1 | O1 | Door monitoring output, ON when the door is closed. |
| X5.2 | O2 | Bolt tongue monitoring output, ON when the door is closed and the bolt tongue is inserted in the locking module. |
| X5.3 | O3 | Guard locking monitoring output, ON when the door is closed and locked. |
| X5.4 | O4 | Monitoring output DIA2, ON when the device is in the fault state. |
| X5.5 | 0 V | Ground (connected internally to X3.5) |
| X5.6 | $U_B$ | Power supply, DC 24 V |

### Terminal assignment plug connector RC18

| Pin | Designation | Description |
|---|---|---|
| 1 | $U_{CM}$ | Control voltage for switching on and off the guard locking. |
| 2 | $I_A$ | Enable input for channel A, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_A$ from previous device. |
| 3 | $I_B$ | Enable input for channel B, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_B$ from previous device. |
| 4 | $O_A$ | Safety output channel A, ON when the door is closed and locked. |
| 5 | $O_B$ | Safety output channel B, ON when the door is closed and locked. |
| 6 | $U_A$ $U_B$ | Power supply, DC 24 V |
| 7 | RST | Reset input, device is reset if DC 24 V are applied to RST for at least 3 s. |
| 8 | O2 | Bolt tongue monitoring output, ON when the door is closed and the bolt tongue is inserted in the locking module. |
| 9 | O4 | Monitoring output DIA2, ON when the device is in the fault state. |
| 10 | O3 | Guard locking monitoring output, ON when the door is closed and locked. |
| 11 | - | Not used |
| 12 | - | Not used |
| 13 | | See wiring diagram D for controls and indicators. |
| 14 | | |
| 15 | | |
| 16 | | |
| 17 | | |
| 18 | | |
| 19 | 0 V | Ground |

## Locking sets MGB-L1-AR... (guard locking by spring force)
**with 3 controls or indicators**



- **Guard locking with guard lock monitoring in accordance with EN 1088**
- **Can be connected in series with other AR devices (e. g. CES-AR and CET-AR)**
- **With cable entry or plug connector**
- **Integrated controls and indicators**

### Details

**Emergency stop with auxiliary contact**
Additional normally open contact in the emergency stop, e. g. as auxiliary contact for the control system.

**Label carrier**
Devices with label carrier have pre-formed recesses. The label carrier enclosed can be bonded in this recess (standard dimension 12.5 x 27 mm).

**Key-operated switch form V or L**
- ▶ Form V, 40° angle of rotation with 2 positions. The key latches in position 0. The key can be removed in this position.
- ▶ Form L, 90° angle of rotation with 2 positions. The key latches in both positions, however it can only be removed in position 0.

Devices with key-operated switch have degree of protection IP42.

**Selector switch**
Selector switch with 2 positions (form V, 90°). The switch latches in both positions.

**Machine stop**
Version as emergency stop but in grey/yellow, e. g. as machine stop.
Important: Do not use as emergency stop!

### Further information

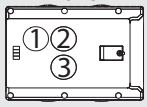
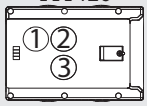
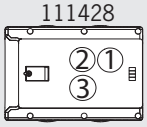
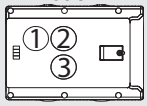
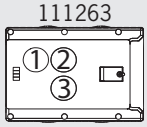
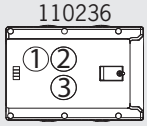
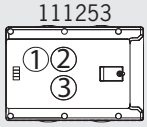
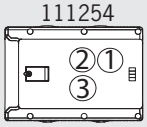
- **Dimension drawings see p. 55**
- **Technical data see p. 54**
- **Accessories and spare parts see p. 59**
- **www.mgb.EUCHNER.de**

**Ordering table**

| Modules in the set | | | | | | | | | Ordering data set |
|---|---|---|---|---|---|---|---|---|---|
| Locking module | | | | | | Handle module Order no. separate module | Escape release Order no. separate module | Door stop | Order no./item |
| Version/configuration scheme Order no. separate module | S1 H1 | S2 H2 | S3 H3 | S4 H4 | Connection | | | | |
| 105328 | STOP | ye | wh | - | Cable entry wiring diagram A | 100464 | - | adjustable | **105783** MGB-L1H-AR-R-105783 |
| 105328 | STOP | ye | wh | - | Cable entry wiring diagram A | 100464 | 100465 | adjustable | **105785** MGB-L1HE-AR-R-105785 |
| 110219 | STOP | ye | wh | - | Cable entry wiring diagram B | 100464 | 100465 | adjustable | **110220** MGB-L1HE-AR-R-110220 |
| 110772 | STOP | gn | bu | - | Cable entry wiring diagram A | 100464 | 100465 | adjustable | **110774** MGB-L1HE-ARA-R-110774 |

(Continued on next page)

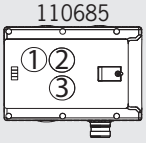
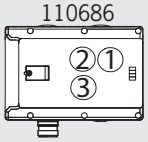
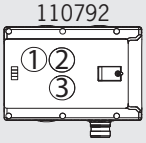
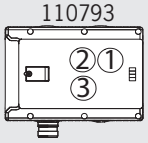
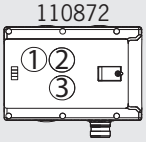
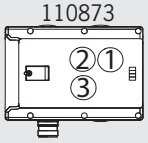
**Ordering table** (continued)

| Modules in the set | | | | | | | | | Ordering data set |
|---|---|---|---|---|---|---|---|---|---|
| Locking module | | | | | | Handle module Order no. separate module | Escape release Order no. separate module | Door stop | Order no./item |
| Version/configuration scheme Order no. separate module | S1 H1 | S2 H2 | S3 H3 | S4 H4 | Connection | | | | |
| 110702  |  | ye | bu | - | Cable entry wiring diagram B | 100464 | 100 465 | adjustable | **110703** MGB-L1HE-AR-R-110703 |
| 111426  Incl. label carrier |  | bu | wh | - | Cable entry wiring diagram B | 100464 | - | right | **111427** MGB-L1H-ARA-R-111427 |
| 111428  Incl. label carrier |  | bu | wh | - | Cable entry wiring diagram B | 100464 | - | left | **111429** MGB-L1H-ARA-L-111429 |
| 109314  |  | wh | Form V 90° | - | Cable entry wiring diagram C | 100464 | 100465 | adjustable | **109313** MGB-L1HE-AR-R-109313 |
| 111263  IP 42 |  | ye | Form V, 40° | - | Cable entry wiring diagram C | 100464 | 100465 | right | **111242** MGB-L1HE-ARA-R-111242 |
| 110236  IP 42 |  Form L, 90° | gn | rd | - | Cable entry wiring diagram D | 100464 | - | right | **110237** MGB-L1H-AR-R-110237 |
| 111253  Incl. label carrier |  | wh | gn | - | Cable entry wiring diagram B | 100464 | - | right | **111251** MGB-L1H-ARA-R-111251 |
| 111254  Incl. label carrier |  | wh | gn | - | Cable entry wiring diagram B | 100464 | - | left | **111252** MGB-L1H-ARA-L-111252 |

(Continued on next page)

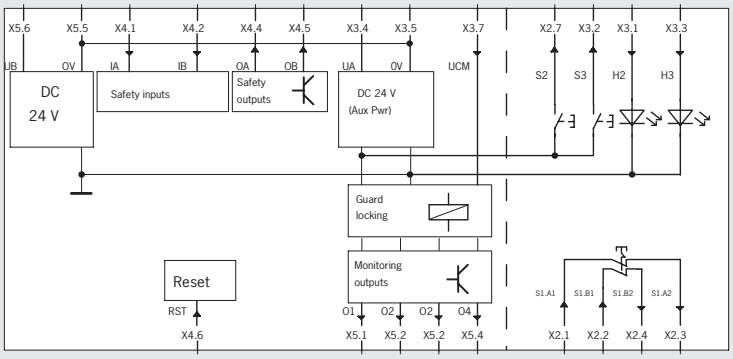
## Locking sets MGB-L1-AR... (guard locking by spring force)
**with 3 controls or indicators**

**Ordering table** (continued)

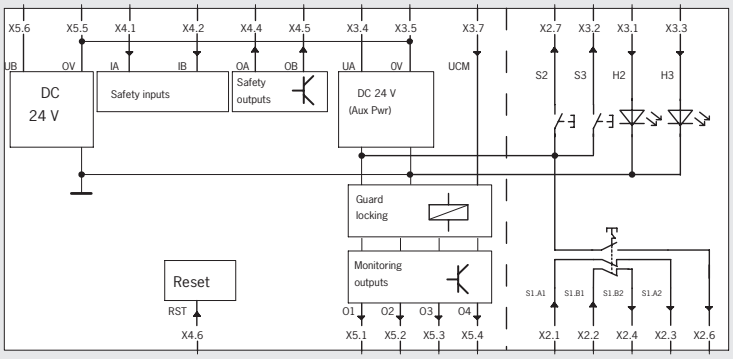
| Modules in the set | | | | | | | | | Ordering data set |
|---|---|---|---|---|---|---|---|---|---|
| Locking module | | | | | | Handle module Order no. separate module | Escape release Order no. separate module | Door stop | Order no./item |
| Version/configuration scheme Order no. separate module | S1 H1 | S2 H2 | S3 H3 | S4 H4 | Connection | | | | |
| 110685  | STOP | ye | wh | - | Plug connector RC18 wiring diagram E | 100464 | - | right | **110613** MGB-L1H-ARA-R-110613 |
| 110686  | STOP | ye | wh | - | Plug connector RC18 wiring diagram E | 100464 | - | left | **110614** MGB-L1H-ARA-L-110614 |
| 110792  Incl. label carrier | STOP | ye | wh | - | Plug connector RC18 wiring diagram E | 100464 | 100465 | right | **110689** MGB-L1HE-ARA-R-110689 |
| 110793  Incl. label carrier | STOP | ye | wh | - | Plug connector RC18 wiring diagram E | 100464 | 100465 | left | **110690** MGB-L1HE-ARA-L-110690 |
| 110872  Incl. label carrier | wh | wh | wh | - | Plug connector RC18 wiring diagram F | 100464 | - | right | **110870** MGB-L1H-ARA-R-110870 |
| 110873  Incl. label carrier | wh | wh | wh | - | Plug connector RC18 wiring diagram F | 100464 | - | left | **110871** MGB-L1H-ARA-L-110871 |

**Block diagram and wiring diagrams for controls and indicators**

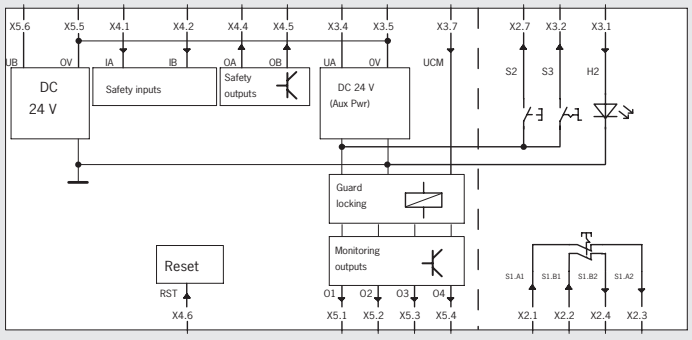
**A** Cable entry



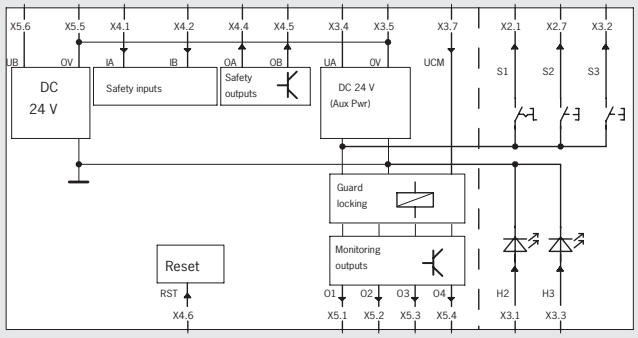

**B** Cable entry




**C** Cable entry




**D** Cable entry

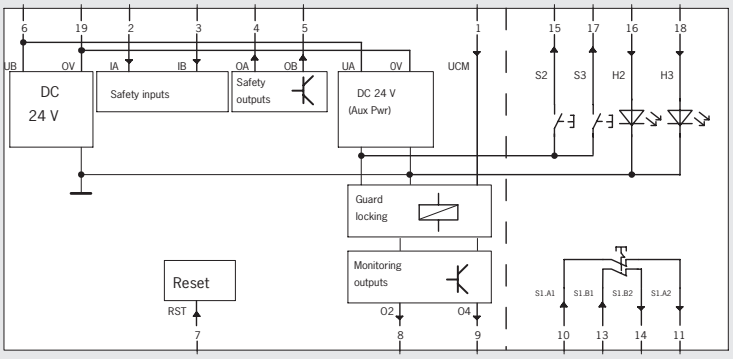



MGB-AR

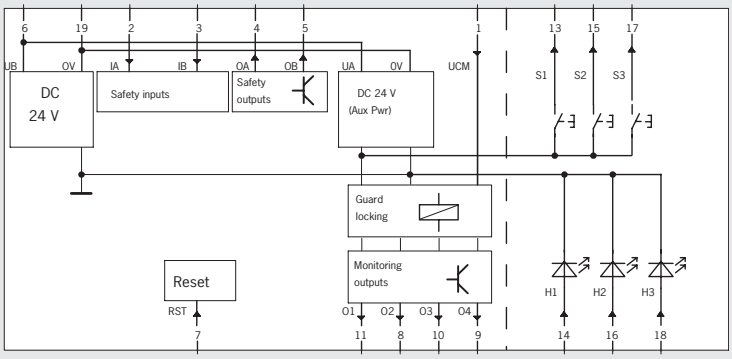
## Locking sets MGB-L1-AR... (guard locking by spring force)
**with 3 controls or indicators**

**Block diagram and wiring diagrams for controls and indicators**

**E** Plug connector RC 18




**F** Plug connector RC 18



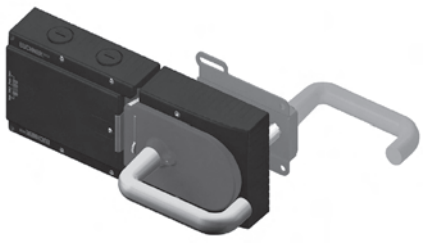
### Terminal assignment cable entry

| Terminal | Designation | Description |
|---|---|---|
| X2.1 to X2.7 | - | See wiring diagrams A to D for controls and indicators. |
| X3.1 to X3.3 | - | See wiring diagrams A to D for controls and indicators. |
| X3.4 | $U_A$ | Power supply for the guard locking solenoid and the monitoring outputs, DC 24 V. |
| X3.5 and X3.6 | 0 V | Ground (connected internally to X5.5). |
| X3.7 | $U_{CM}$ | Control voltage for switching on and off the guard locking. |
| X4.1 | $I_A$ | Enable input for channel A, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_A$ from previous device. |
| X4.2 | $I_B$ | Enable input for channel B, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_B$ from previous device. |
| X4.3 | - | Not used |
| X4.4 | $O_A$ | Safety output channel A, ON when the door is closed and locked. |
| X4.5 | $O_B$ | Safety output channel B, ON when the door is closed and locked. |
| X4.6 | RST | Reset input, device is reset if DC 24 V are applied to RST for at least 3 s. |
| X5.1 | O1 | Door monitoring output, ON when the door is closed. |
| X5.2 | O2 | Bolt tongue monitoring output, ON when the door is closed and the bolt tongue is inserted in the locking module. |
| X5.3 | O3 | Guard locking monitoring output, ON when the door is closed and locked. |
| X5.4 | O4 | Monitoring output DIA2, ON when the device is in the fault state. |
| X5.5 | 0 V | Ground (connected internally to X3.5) |
| X5.6 | $U_B$ | Power supply, DC 24 V |

### Terminal assignment plug connector RC18

| Pin | Designation | Description |
|---|---|---|
| 1 | $U_{CM}$ | Control voltage for switching on and off the guard locking. |
| 2 | $I_A$ | Enable input for channel A, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_A$ from previous device. |
| 3 | $I_B$ | Enable input for channel B, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_B$ from previous device. |
| 4 | $O_A$ | Safety output channel A, ON when the door is closed and locked. |
| 5 | $O_B$ | Safety output channel B, ON when the door is closed and locked. |
| 6 | $U_A$ $U_B$ | Power supply, DC 24 V |
| 7 | RST | Reset input, device is reset if DC 24 V are applied to RST for at least 3 s. |
| 8 | O2 | Bolt tongue monitoring output, ON when the door is closed and the bolt tongue is inserted in the locking module. |
| 9 | O4 | Monitoring output DIA2, ON when the device is in the fault state. |
| 10 | O3 | Guard locking monitoring output, ON when the door is closed and locked. |
| 11 | O1 | Door monitoring output, ON when the door is closed. |
| 12 | - | Not used |
| 13 | | See wiring diagrams E and F for controls and indicators. |
| 14 | | |
| 15 | | |
| 16 | | |
| 17 | | |
| 18 | | |
| 19 | 0 V | Ground |

## Locking sets MGB-L2-AR... (guard locking by solenoid force)
**without control or indicator**

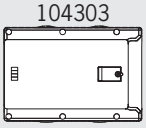
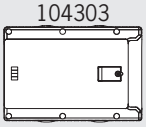
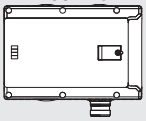
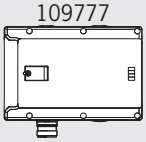


- **Guard locking with guard lock monitoring in accordance with EN 1088**
- **Can be connected in series with other AR devices (e. g. CES-AR and CET-AR)**
- **With cable entry or plug connector**

**Further information**

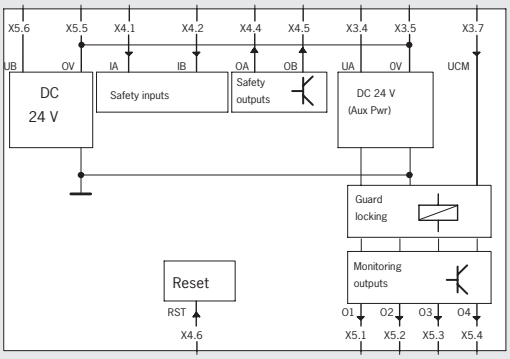

- **Dimension drawings see p. 55**
- **Technical data see p. 54**
- **Accessories and spare parts see p. 59**
- **www.mgb.EUCHNER.de**


**Ordering table**

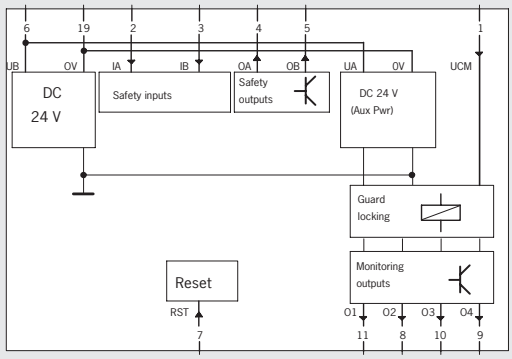
| Modules in the set | | | | | | | | | Ordering data set |
|---|---|---|---|---|---|---|---|---|---|
| Locking module | | | | | | Handle module Order no. separate module | Escape release Order no. separate module | Door stop | Order no./item |
| Version/configuration scheme Order no. separate module | S1 H1 | S2 H2 | S3 H3 | S4 H4 | Connection | | | | |
|  104303 | - | - | - | - | Cable entry wiring diagram A | 100464 | - | adjustable | **105786** MGB-L2H-AR-R-105786 |
|  104303 | - | - | - | - | Cable entry wiring diagram A | 100464 | 100465 | adjustable | **105788** MGB-L2HE-AR-R-105788 |
|  109776 | - | - | - | - | Plug connector RC18 wiring diagram B | 100464 | - | right | **109780** MGB-L2H-AR-R-109780 |
|  109777 | - | - | - | - | Plug connector RC18 wiring diagram B | 100464 | - | left | **109781** MGB-L2H-AR-L-109781 |

## Block diagram

A Cable entry




B Plug connector RC18



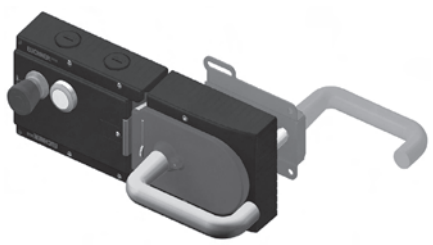

### Terminal assignment cable entry

| Terminal | Designation | Description |
|---|---|---|
| X2.1 to X2.7 | - | Not used |
| X3.1 to X3.3 | - | Not used |
| X3.4 | $U_A$ | Power supply for the guard locking solenoid and the monitoring outputs, DC 24 V |
| X3.5 and X3.6 | 0 V | Ground (connected internally to X5.5) |
| X3.7 | $U_{CM}$ | Control voltage for switching on and off the guard locking. |
| X4.1 | $I_A$ | Enable input for channel A, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_A$ from previous device. |
| X4.2 | $I_B$ | Enable input for channel B, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_B$ from previous device. |
| X4.3 | - | Not used |
| X4.4 | $O_A$ | Safety output channel A, ON when the door is closed and locked. |
| X4.5 | $O_B$ | Safety output channel B, ON when the door is closed and locked. |
| X4.6 | RST | Reset input, device is reset if DC 24 V are applied to RST for at least 3 s. |
| X5.1 | O1 | Door monitoring output, ON when the door is closed. |
| X5.2 | O2 | Bolt tongue monitoring output, ON when the door is closed and the bolt tongue is inserted in the locking module. |
| X5.3 | O3 | Guard locking monitoring output, ON when the door is closed and locked. |
| X5.4 | O4 | Monitoring output DIA2, ON when the device is in the fault state. |
| X5.5 | 0 V | Ground (connected internally to X3.5) |
| X5.6 | $U_B$ | Power supply, DC 24 V |

### Terminal assignment plug connector RC18

| Pin | Designation | Description |
|---|---|---|
| 1 | $U_{CM}$ | Control voltage for switching on and off the guard locking. |
| 2 | $I_A$ | Enable input for channel A, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_A$ from previous device. |
| 3 | $I_B$ | Enable input for channel B, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_B$ from previous device. |
| 4 | $O_A$ | Safety output channel A, ON when the door is closed and locked. |
| 5 | $O_B$ | Safety output channel B, ON when the door is closed and locked. |
| 6 | $U_A$ $U_B$ | Power supply, DC 24 V |
| 7 | RST | Reset input, device is reset if DC 24 V are applied to RST for at least 3 s. |
| 8 | O2 | Bolt tongue monitoring output, ON when the door is closed and the bolt tongue is inserted in the locking module. |
| 9 | O4 | Monitoring output DIA2, ON when the device is in the fault state. |
| 10 | O3 | Guard locking monitoring output, ON when the door is closed and locked. |
| 11 | O1 | Door monitoring output, ON when the door is closed. |
| 12 | - | Not used |
| 13 | | Not used |
| 14 | | |
| 15 | | |
| 16 | | |
| 17 | | |
| 18 | | |
| 19 | 0 V | Ground |

## Locking sets MGB-L2-AR... (guard locking by solenoid force)
**with 2 controls or indicators**



- **Guard locking with guard lock monitoring in accordance with EN 1088**
- **Can be connected in series with other AR devices (e. g. CES-AR and CET-AR)**
- **With cable entry or plug connector**
- **Integrated controls and indicators**

### Details

**Label carrier**
Devices with label carrier have pre-formed recesses. The label carrier enclosed can be bonded in this recess (standard dimension 12.5 x 27 mm).

### Further information

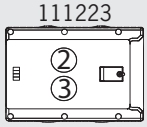
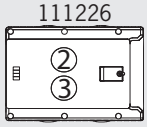
- **Dimension drawings see p. 55**
- **Technical data see p. 54**
- **Accessories and spare parts see p. 59**
- **www.mgb.EUCHNER.de**

**Ordering table**

| Modules in the set | | | | | | | | | Ordering data set |
|---|---|---|---|---|---|---|---|---|---|
| Version/configuration scheme<br>Order no. separate module | Locking module S1 H1 | Locking module S2 H2 | Locking module S3 H3 | Locking module S4 H4 | Connection | Handle module<br>Order no. separate module | Escape release<br>Order no. separate module | Door stop | Order no./item |
| 109322<br>①② | wh | ye | - | - | Cable entry wiring diagram A | 100464 | 100465 | adjustable | **109356**<br>MGB-L2HE-AR-R-109356 |
| 109027<br>②③ | | ye | wh | - | Cable entry wiring diagram B | 100464 | 100465 | adjustable | **109026**<br>MGB-L2HE-AR-R-109026 |
| 111438<br>②③<br>Incl. label carrier | - | bu | wh | - | Cable entry wiring diagram B | 100464 | - | right | **111439**<br>MGB-L2H-AR-R-111439 |
| 111440<br>②③<br>Incl. label carrier | - | bu | wh | - | Cable entry wiring diagram B | 100464 | - | left | **111441**<br>MGB-L2H-AR-L-111441 |

(Continued on next page)

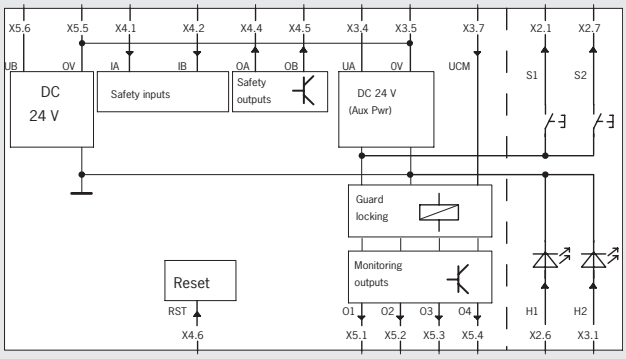
**Ordering table** (continued)

| Modules in the set | | | | | | | | | Ordering data set |
|---|---|---|---|---|---|---|---|---|---|
| Evaluation module | | | | | | Handle module Order no. separate module | Escape release Order no. separate module | Door stop | |
| Version/configuration scheme Order no. separate module | S1 H1 | S2 H2 | S3 H3 | S4 H4 | Connection | | | | Order no./item |
| 111223  | - | ⊗ rd | ⊗ gn | - | Cable entry wiring diagram B | 100464 | - | right | **111197** MGB-L2H-ARA-R-111197 |
| 111226  | - | ⊗ rd | ⊗ gn | - | Cable entry wiring diagram B | 100464 | - | left | **111198** MGB-L2H-ARA-L-111198 |

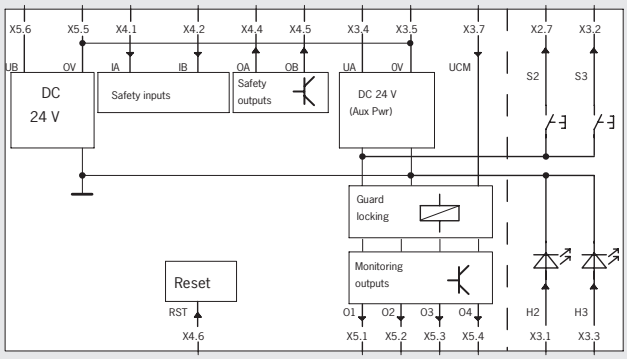
## Locking sets MGB-L2-AR... (guard locking by solenoid force)
**with 2 controls or indicators**

**Block diagram and wiring diagrams for controls and indicators**

**A** Cable entry



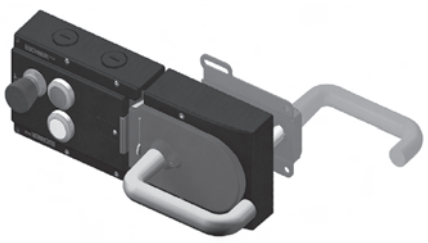

**B** Cable entry



**Terminal assignment cable entry**

| Terminal | Designation | Description |
|---|---|---|
| X2.1 to X2.7 | - | See wiring diagrams A and B for controls and indicators. |
| X3.1 to X3.3 | - | See wiring diagrams A and B for controls and indicators. |
| X3.4 | $U_A$ | Power supply for the guard locking solenoid and the monitoring outputs, DC 24 V |
| X3.5 and X3.6 | 0 V | Ground (connected internally to X5.5) |
| X3.7 | $U_{CM}$ | Control voltage for switching on and off the guard locking. |
| X4.1 | $I_A$ | Enable input for channel A, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_A$ from previous device. |
| X4.2 | $I_B$ | Enable input for channel B, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_B$ from previous device. |
| X4.3 | - | Not used |
| X4.4 | $O_A$ | Safety output channel A, ON when the door is closed and locked. |
| X4.5 | $O_B$ | Safety output channel B, ON when the door is closed and locked. |
| X4.6 | RST | Reset input, device is reset if DC 24 V are applied to RST for at least 3 s. |
| X5.1 | O1 | Door monitoring output, ON when the door is closed. |
| X5.2 | O2 | Bolt tongue monitoring output, ON when the door is closed and the bolt tongue is inserted in the locking module. |
| X5.3 | O3 | Guard locking monitoring output, ON when the door is closed and locked. |
| X5.4 | O4 | Monitoring output DIA2, ON when the device is in the fault state. |
| X5.5 | 0 V | Ground (connected internally to X3.5) |
| X5.6 | $U_B$ | Power supply, DC 24 V |

## Locking sets MGB-L2-AR... (guard locking by solenoid force)
**with 3 controls or indicators**



- **Guard locking with guard lock monitoring in accordance with EN 1088**
- **Can be connected in series with other AR devices (e. g. CES-AR and CET-AR)**
- **With cable entry or plug connector**
- **Integrated controls and indicators**

### Details

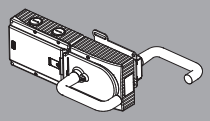
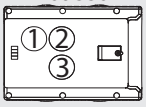
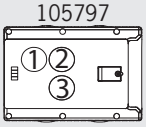
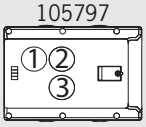
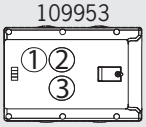
**Emergency stop with auxiliary contact**
Additional normally open contact in the emergency stop, e. g. as auxiliary contact for the control system.

**Label carrier**
Devices with label carrier have pre-formed recesses. The label carrier enclosed can be bonded in this recess (standard dimension 12.5 x 27 mm).

### Further information

- **Dimension drawings see p. 55**
- **Technical data see p. 54**
- **Accessories and spare parts see p. 59**
- **www.mgb.EUCHNER.de**

**Ordering table**

| Modules in the set | | | | | | | | | Ordering data set |
|---|---|---|---|---|---|---|---|---|---|
| Locking module | | | | | | Handle module Order no. separate module | Escape release Order no. separate module | Door stop |  |
| Version/configuration scheme Order no. separate module | S1 H1 | S2 H2 | S3 H3 | S4 H4 | Connection | | | | Order no./item |
| 109880  |  | ye | wh | - | Cable entry wiring diagram A | 100464 | 100465 | adjustable | **109883** MGB-L2HE-AR-R-109883 |
| 105797  |  | ye | wh | - | Cable entry wiring diagram B | 100464 | - | adjustable | **105787** MGB-L2H-AR-R-105787 |
| 105797  |  | ye | wh | - | Cable entry wiring diagram B | 100464 | 100465 | adjustable | **105789** MGB-L2HE-AR-R-105789 |
| 109953  |  | gn | wh | - | Cable entry wiring diagram B | 100464 | 100465 | adjustable | **109956** MGB-L2HE-AR-R-109956 |

(Continued on next page)

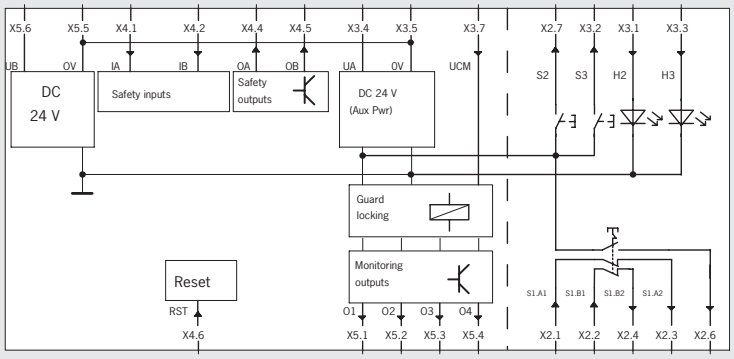
**Ordering table** (continued)

| Modules in the set | | | | | | | | | Ordering data set |
|---|---|---|---|---|---|---|---|---|---|
| Locking module | | | | | | Handle module Order no. separate module | Escape release Order no. separate module | Door stop | |
| Version/configuration scheme Order no. separate module | S1 H1 | S2 H2 | S3 H3 | S4 H4 | Connection | | | | Order no./item |
| 111430 ① ② ③ Incl. label carrier | STOP | bu | wh | - | Cable entry wiring diagram A | 100464 | - | right | **111431** MGB-L2H-ARA-R-1111431 |
| 111432 ② ① ③ Incl. label carrier | STOP | bu | wh | - | Cable entry wiring diagram A | 100464 | - | left | **111433** MGB-L2H-ARA-L-1111433 |
| 110167 ① ② ③ Incl. label carrier | STOP | ye | wh | - | Plug connector RC18 wiring diagram C | 100464 | 100465 | right | **110140** MGB-L2HE-AR-R-110140 |
| 110168 ② ① ③ Incl. label carrier | STOP | ye | wh | - | Plug connector RC18 wiring diagram C | 100464 | 100465 | left | **110141** MGB-L2HE-AR-L-110141 |
| 110708 ① ② ③ | STOP | ye | wh | - | Plug connector RC18 wiring diagram D | 100464 | - | right | **110615** MGB-L2H-ARA-R-110616 |
| 110709 ② ① ③ | STOP | ye | wh | - | Plug connector RC18 wiring diagram D | 100464 | - | left | **110616** MGB-L2H-ARA-L-110616 |

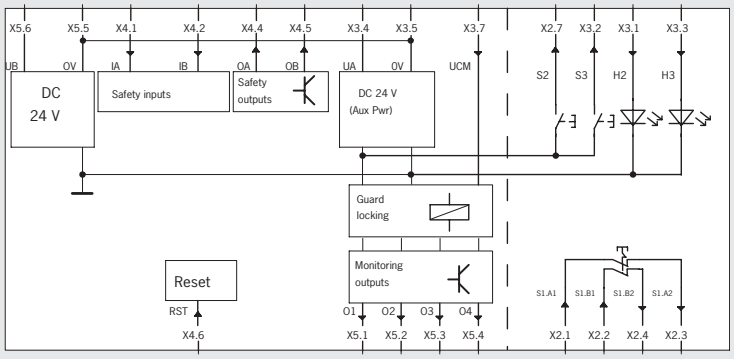
## Locking sets MGB-L2-AR... (guard locking by solenoid force)
**with 3 controls or indicators**

**Block diagram and wiring diagrams for controls and indicators**

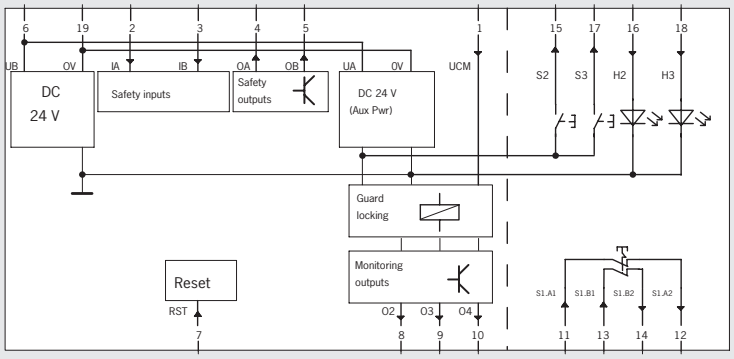
**A** Cable entry



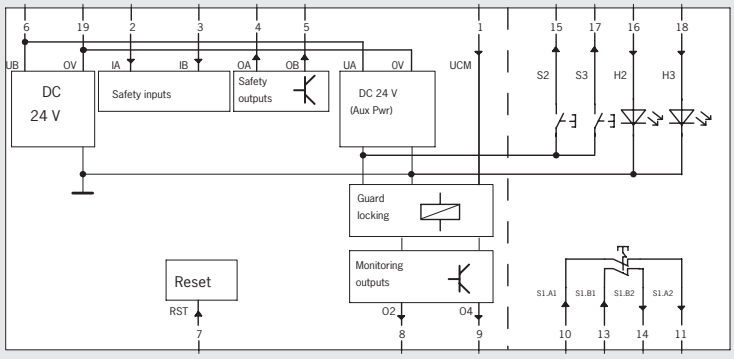

**B** Cable entry




**C** Plug connector RC 18




**D** Plug connector RC 18



### Terminal assignment cable entry

| Terminal | Designation | Description |
|---|---|---|
| X2.1 to X2.7 | - | See wiring diagrams A and B for controls and indicators. |
| X3.1 to X3.3 | - | See wiring diagrams A and B for controls and indicators. |
| X3.4 | $U_A$ | Power supply for the guard locking solenoid and the monitoring outputs, DC 24 V |
| X3.5 and X3.6 | 0 V | Ground (connected internally to X5.5) |
| X3.7 | $U_{CM}$ | Control voltage for switching on and off the guard locking. |
| X4.1 | $I_A$ | Enable input for channel A, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_A$ from previous device. |
| X4.2 | $I_B$ | Enable input for channel B, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_B$ from previous device. |
| X4.3 | - | Not used |
| X4.4 | $O_A$ | Safety output channel A, ON when the door is closed and locked. |
| X4.5 | $O_B$ | Safety output channel B, ON when the door is closed and locked. |
| X4.6 | RST | Reset input, device is reset if DC 24 V are applied to RST for at least 3 s. |
| X5.1 | O1 | Door monitoring output, ON when the door is closed. |
| X5.2 | O2 | Bolt tongue monitoring output, ON when the door is closed and the bolt tongue is inserted in the locking module. |
| X5.3 | O3 | Guard locking monitoring output, ON when the door is closed and locked. |
| X5.4 | O4 | Monitoring output DIA2, ON when the device is in the fault state. |
| X5.5 | 0 V | Ground (connected internally to X3.5) |
| X5.6 | $U_B$ | Power supply, DC 24 V |

### Terminal assignment plug connector RC18 according to wiring

| Pin | Designation | Description |
|---|---|---|
| 1 | $U_{CM}$ | Control voltage for switching on and off the guard locking. |
| 2 | $I_A$ | Enable input for channel A, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_A$ from previous device. |
| 3 | $I_B$ | Enable input for channel B, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_B$ from previous device. |
| 4 | $O_A$ | Safety output channel A, ON when the door is closed and locked. |
| 5 | $O_B$ | Safety output channel B, ON when the door is closed and locked. |
| 6 | $U_A$ $U_B$ | Power supply, DC 24 V |
| 7 | RST | Reset input, device is reset if DC 24 V are applied to RST for at least 3 s. |
| 8 | O2 | Bolt tongue monitoring output, ON when the door is closed and the bolt tongue is inserted in the locking module. |
| 9 | O3 | Guard locking monitoring output, ON when the door is closed and locked. |
| 10 | O4 | Monitoring output DIA2, ON when the device is in the fault state. |
| 11 to 18 | | See wiring diagram C for controls and indicators. |
| 19 | 0 V | Ground |

### Terminal assignment plug connector RC18 according to wiring diagram D

| Pin | Designation | Description |
|---|---|---|
| 1 | $U_{CM}$ | Control voltage for switching on and off the guard locking. |
| 2 | $I_A$ | Enable input for channel A, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_A$ from previous device. |
| 3 | $I_B$ | Enable input for channel B, connect to DC 24 V in separate operation. In case of switch chains, connect output signal $O_B$ from previous device. |
| 4 | $O_A$ | Safety output channel A, ON when the door is closed and locked. |
| 5 | $O_B$ | Safety output channel B, ON when the door is closed and locked. |
| 6 | $U_A$ $U_B$ | Power supply, DC 24 V |
| 7 | RST | Reset input, device is reset if DC 24 V are applied to RST for at least 3 s. |
| 8 | O2 | Bolt tongue monitoring output, ON when the door is closed and the bolt tongue is inserted in the locking module. |
| 9 | O4 | Monitoring output DIA2, ON when the device is in the fault state. |
| 10 to 11 | | See wiring diagram D for controls and indicators. |
| 12 | - | Not used |
| 13 to 18 | | See wiring diagram D for controls and indicators. |
| 19 | 0 V | Ground |

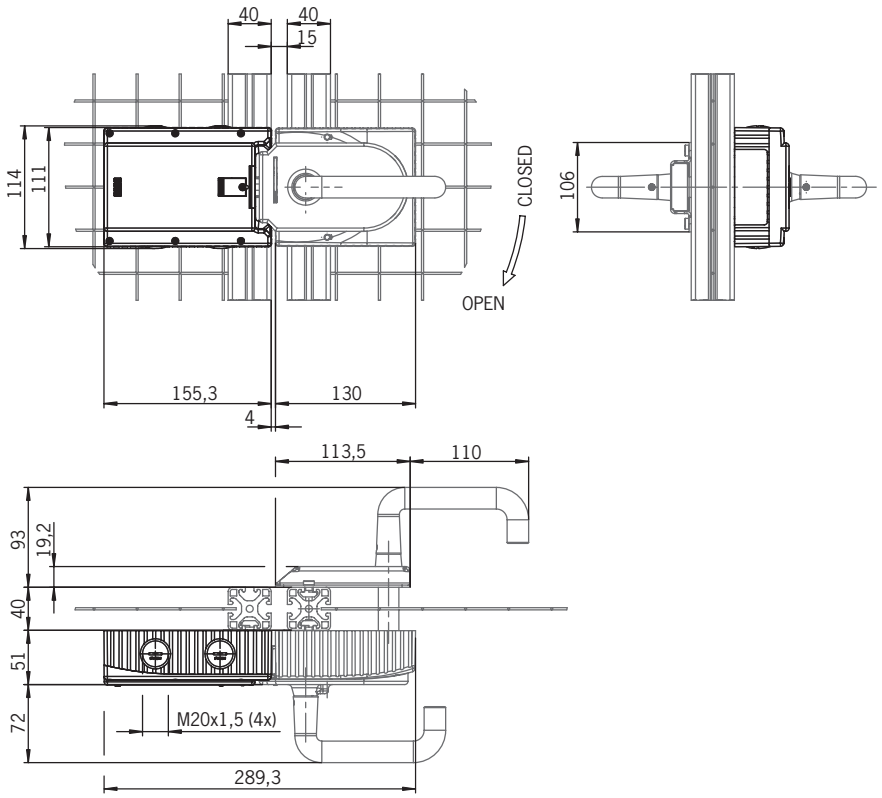
## Technical data

| Parameter | Value | Unit |
|---|---|---|
| Housing material | Glass fiber reinforced plastic die-cast zinc, nickel-plated<br>Stainless steel | |
| Dimensions | See dimension drawing | |
| Weight<br>Locking module<br>Handle module<br>Escape release | <br>0.75<br>1.00<br>0.50 | kg |
| Ambient temperature at $U_B$ = DC 24 V | -20 .... +55 | °C |
| Degree of protection<br>Cover not populated<br>Cover populated<br>Cover populated with IP 65 buttons/indicators<br>Cover populated with key-operated switch | <br>IP 54<br>IP 54<br>IP 65<br>IP 42 | |
| Safety class | III | |
| Degree of contamination | 3 | |
| Installation position | Any | |
| Locking force | 2000 | N |
| Connection type | 4 cable entries M20x1.5 or<br>plug connector RC18 | |
| Conductor cross-section (rigid/flexible) | 0.13 ... 1.5 | $mm^2$ |
| Operating voltage $U_B$(reverse polarity protected, regulated, residual ripple < 5 %) | 24 +10% / -15% (PELV) | V DC |
| Auxiliary power $U_A$(reverse polarity protected, regulated, residual ripple < 5 %) | 24 +10% / -15% (PELV) | V DC |
| Current consumption $I_{UB}$ (no load on any outputs) | 80 | mA |
| Current consumption with guard locking solenoid $I_{UA}$ (with energized guard locking solenoid 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 system manual | |
| Safety outputs OA/OB | Semiconductor outputs, p-switching, short circuit-proof, pulsing (pulse duration < 900 µs) | |
| Output voltage $U_{OA}$ / $U_{OB}$ [1]<br>HIGH $U_{OA}$ / $U_{OB}$<br>LOW $U_{OA}$ / $U_{OB}$ | <br>$U_B$-2V ... $U_B$<br>0 ... 1 | <br><br>V DC |
| Switching current per safety output | 1 ... 200 | mA |
| Utilization category according to EN IEC 60947- 5-2 | DC-13 24 V 200 mA Caution: outputs must be protected with a freewheeling diode in case of inductive loads. | |
| Classification acc. to EN IEC 60947-5-3 | PDF-M | |
| Monitoring outputs<br>- Output voltage [1]<br>- Max. load | p-switching, short circuit-proof<br>$U_A$ - 2V ... $U_A$<br>max. 200 | <br><br>mA |
| Rated insulation voltage $U_i$ | 30 | V |
| Rated impulse withstand voltage $U_{imp}$ | 1.5 | kV |
| Resilience to vibration | As per EN IEC 60947-5-3 | |
| EMC protection requirements | As per EN IEC 60947-5-3 | |
| **Reliability figures according to EN ISO 13849-1** [2] | | |
| Category | 4 | |
| Performance Level | PL e | |
| $PFH_d$ | 2.4 x $10^{-9}$ / h [3] | |
| Mission time | 20 | years |
| $B_{10d}$ [4] emergency stop | 1 x $10^5$ | cycles |

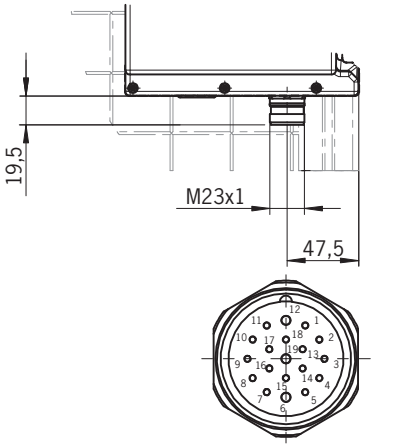
1) Values at a switching current of 50 mA without taking into account the cable lengths.
2) The reliability figures apply to the interlocking or the guard locking depending on the version.
3) Applying the limit value from EN ISO 13849-1:2008, section 4.5.2 ($MTTF_d$ = max. 100 years) BG certifies a $PFH_d$ of max. 2.47 x $10^{-8}$.
4) Information regarding wearing parts without consideration of fixed failure rates in electronic components.

## Dimension drawings

- **MGB-...-AR without additional controls and indicators**

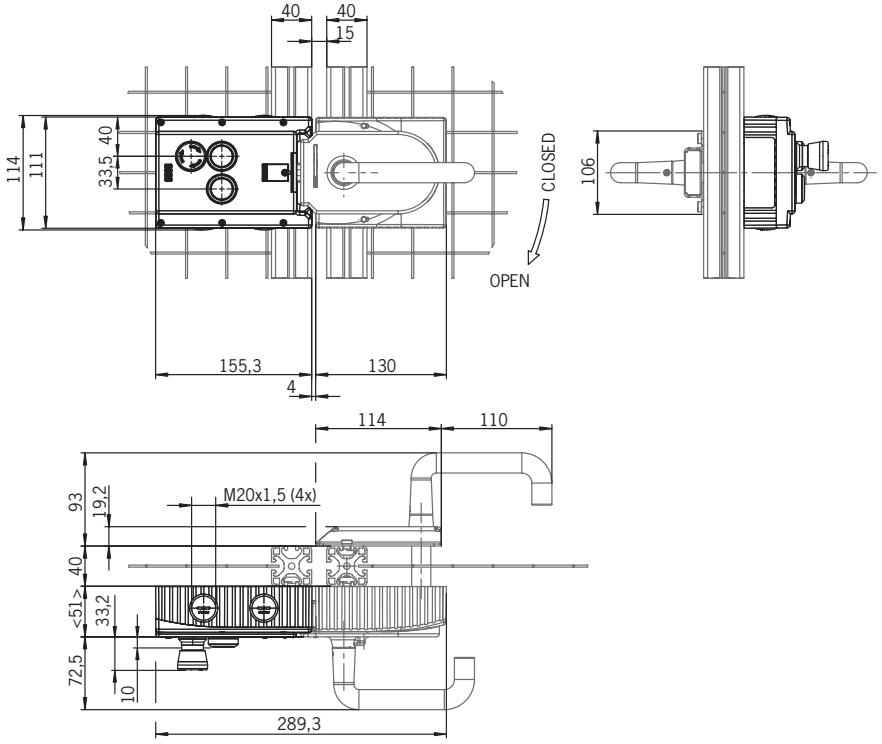



- **Plug connector RC18**




View of connection side

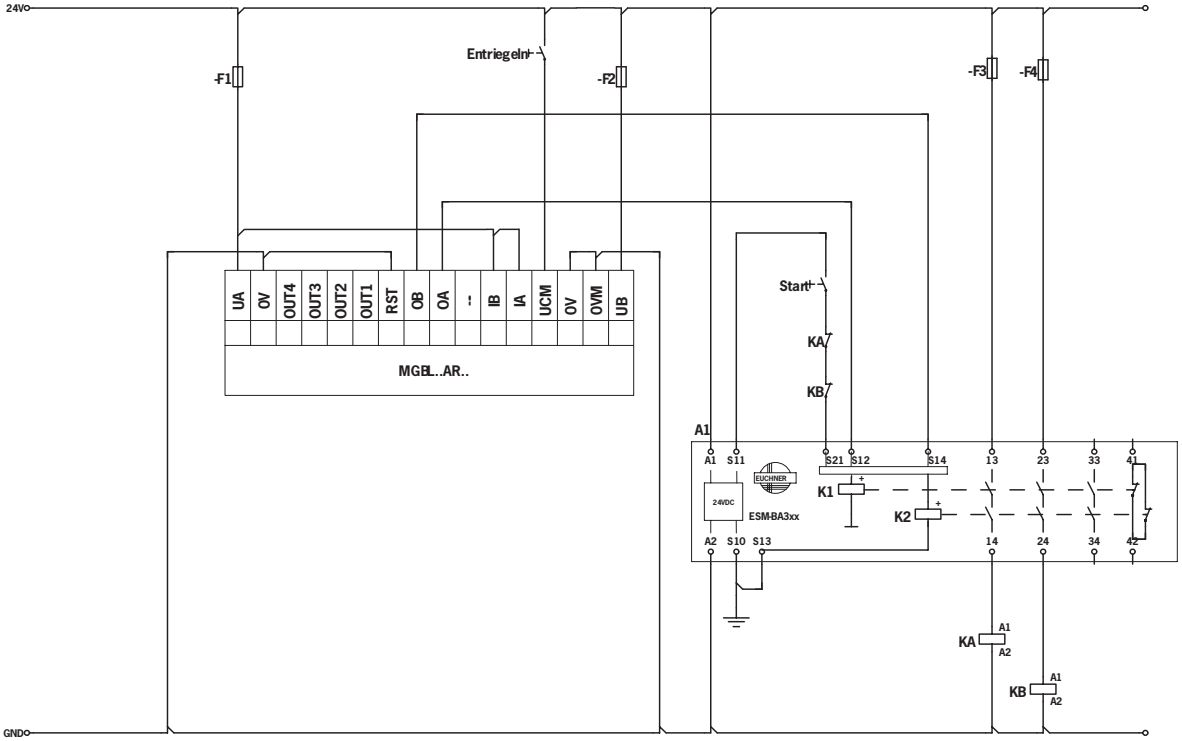
- **MGB-...-AR with additional controls and indicators**



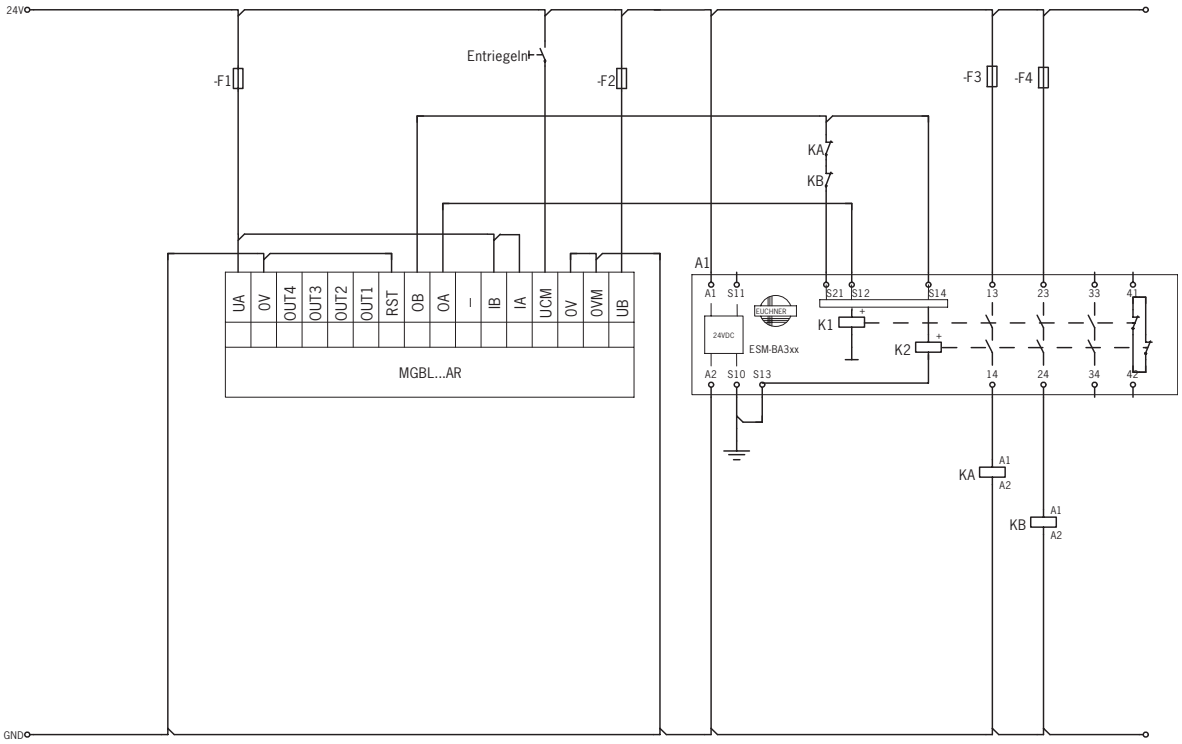
## Connection examples

**Important**: The following examples are only a simplified representation. Detailed information on the safety system MGB is available in the system manual for the related evaluation module. The system manual is available at www.euchner.de.

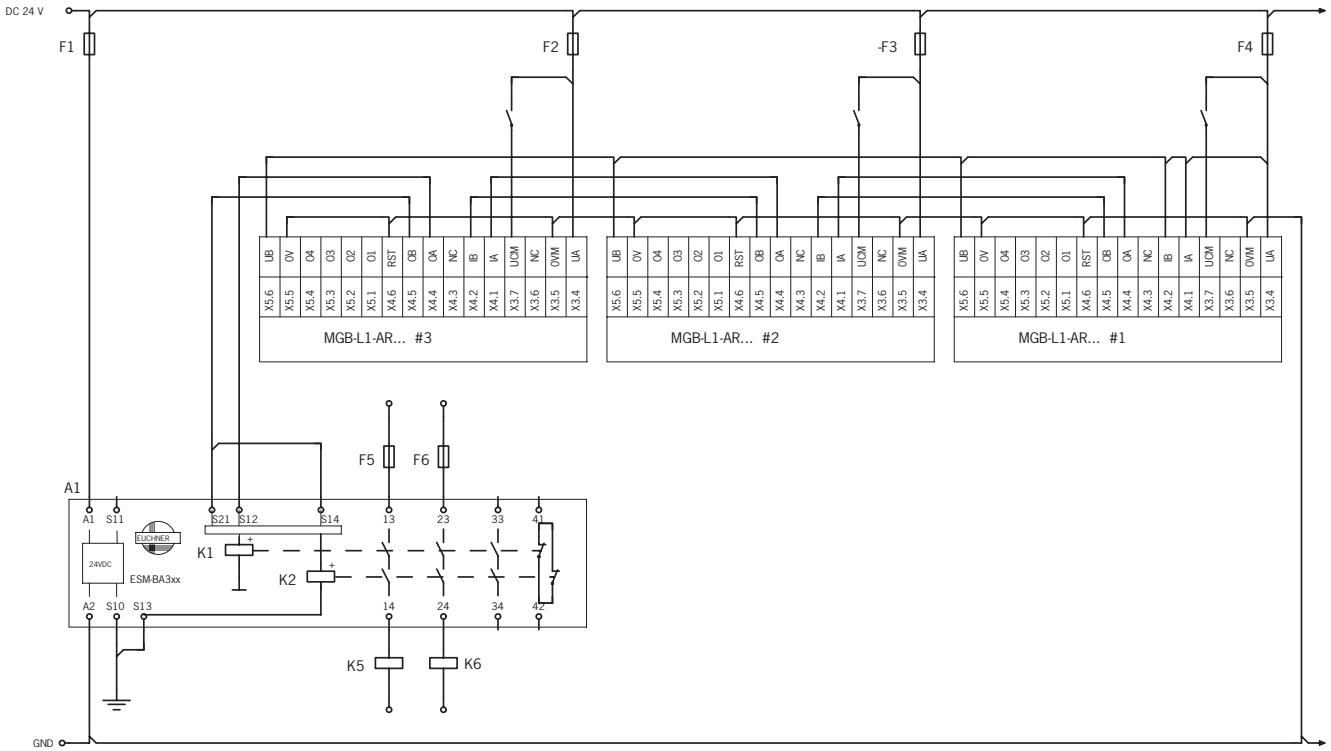
**Separate operation on a EUCHNER safety relay ESM with feedback loop and monitored start button**




**Separate operation on a EUCHNER safety relay ESM with feedback loop and automatic start**



**Operation of an AR switch chain on an EUCHNER safety relay ESM with automatic start, without feedback loop**




**Important**: In accordance with the risk analysis, the application must be evaluated using a feedback loop (not shown here).

**Accessories and spare parts for all MGB families**

- Plug connectors and cables
- Mounting plates
- Extended axes

## Handle module MGB-H-...

- **Intelligent bolt tongue with transponder**
- **Fold-out lockout mechanism**
- **Door handle**

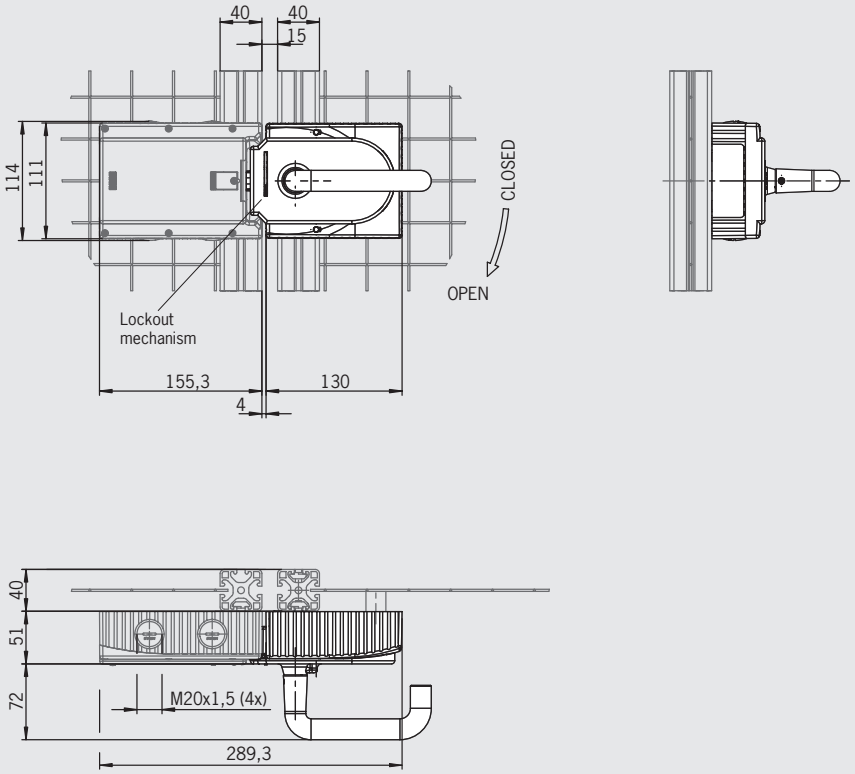
**Bolt tongue**
The bolt tongue is reliably detected by transponder as soon as it is inserted in the evaluation module.

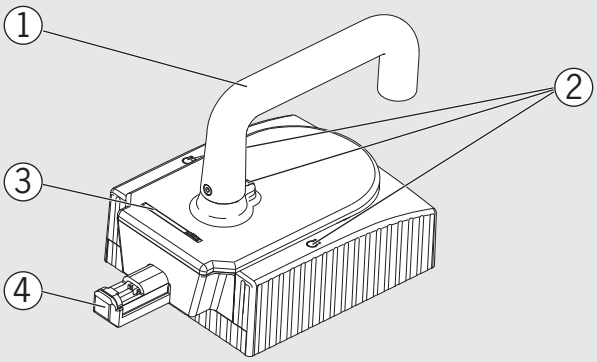
**Lockout mechanism (fold-out)**
For cleaning and service on the machine the bolt tongue can be locked with max. 3 padlocks. The lockout mechanism is simply folded out and prevents the operation of the handle.

**Door handle**
The MGB has a robust door handle that can be rotated in 90° steps to suit all installations. The actuating direction can be changed very easily for doors hinged on the left or right.

**Handle module MGB-H-...**
with fold-out lockout mechanism

**Dimension drawing** (diagram shows door hinged on the right)



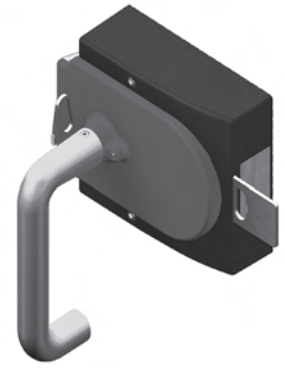

Scope of delivery:
① Door handle
② Locking pins for housing cover and handle adjustment
③ Lockout mechanism
④ Bolt tongue

**Ordering table**

| Series | Version | Order no./item |
|---|---|---|
| **MGB-H...**<br>Handle module | with **fold-out** lockout mechanism, black housing with red cover | **100464**<br>MGB-H-AA1A1-R-100464 |

## Handle module MGB-H-...

- **Intelligent bolt tongue with transponder**
- **Fold-out lockout mechanism (as on standard version)**
- **Second automatically extending lockout mechanism**
- **Door handle**



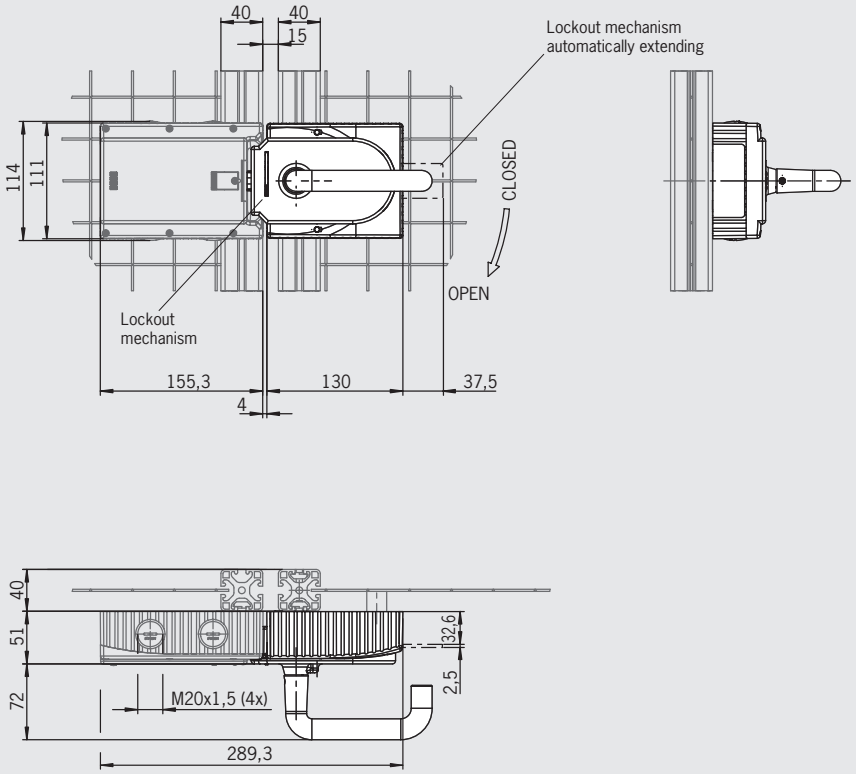
**Bolt tongue**
The bolt tongue is reliably detected by transponder as soon as it is inserted in the evaluation module.

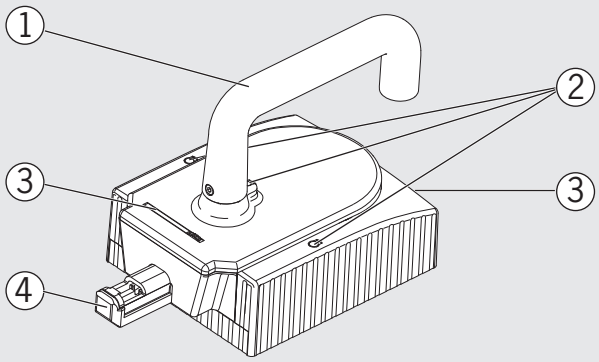
**Lockout mechanism (automatically extending and fold-out)**
For cleaning and service on the machine the bolt tongue can be locked with max. 3 padlocks.
The lockout mechanism extends automatically on the actuation of the handle and prevents the operation of the handle in the safe state. In addition, the fold-out lockout mechanism can be used.

**Door handle**
The MGB has a robust door handle that can be rotated in 90° steps to suit all installations.
The actuating direction can be changed very easily for doors hinged on the left or right.

**Handle module MGB-H-...**
with automatically extending lockout mechanism

**Dimension drawing** (diagram shows door hinged on the right)




Scope of delivery:
① Door handle
② Locking pins for housing cover and handle adjustment
③ Lockout mechanism
④ Bolt tongue

**Ordering table**

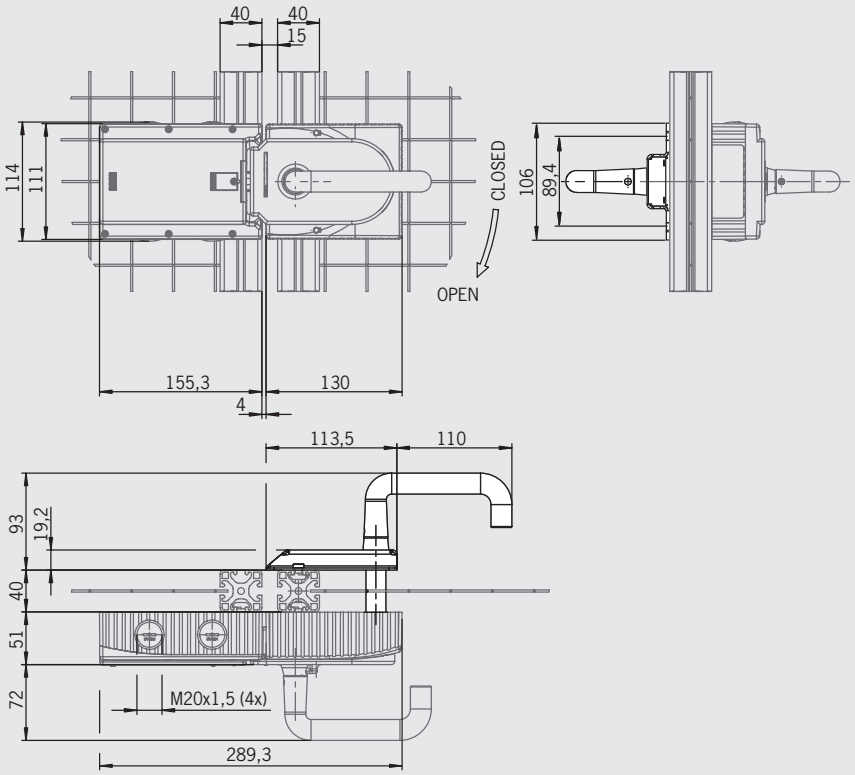
| Series | Version | Order no./item |
|---|---|---|
| **MGB-H...**<br>Handle module | with **fold-out** and also second **automatically extending** lockout mechanism, black housing with red cover | **111157**<br>MGB-H-AA1A3-R-111157 |

## Escape release module MGB-E...

► **Door handle red**

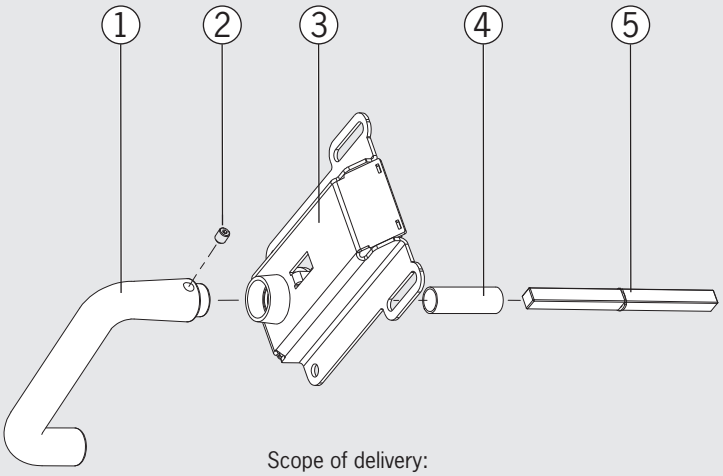
**Escape release module MGB-E...**

**Dimension drawing** (diagram shows door hinged on the right)




**Escape release**
The safety system MGB can be complemented by an escape release module. The escape release enables people locked in to open the locked safety guard from inside the danger area. It is only necessary to actuate the door handle.
The actuating direction automatically adapts to the actuating direction of the handle module and does not need to be changed.

**Extended actuation axis**
Optionally a 250 mm long actuation axis (instead of 110 mm) can be ordered for thicker doors. The axis can be shortened to the required dimension.




Scope of delivery:
① Door handle
② Setscrew
③ Cover
④ Protective sleeve
⑤ Actuation axis, 110 mm long, square drive 8x8 mm

**Ordering table**

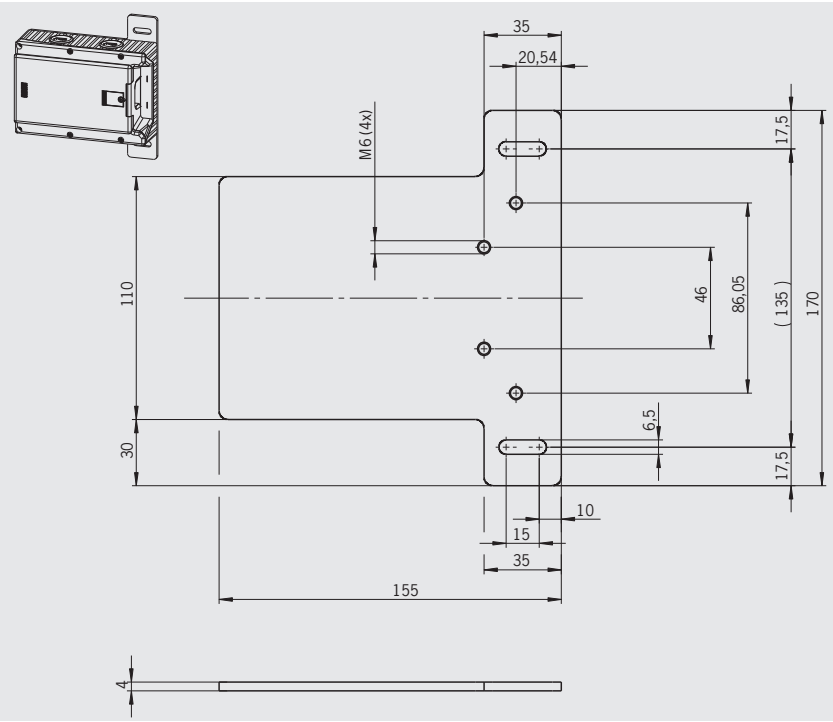
| Series / designation | Version | Order no./item |
|---|---|---|
| **MGB-E...**<br>Escape release | With red handle | **100465**<br>MGB-E-A-100465 |
| **Extended actuation axis** | 250 mm long, square drive 8 x 8 mm | **106761** |

## Mounting plates for modules MGB-...-AR... and MGB-...-AP...

- **Easy and quick mounting (only two screws required)**
- **Quicker module replacement**
- **Robust stainless steel plate**
- **Suitable for doors hinged on the right or left**

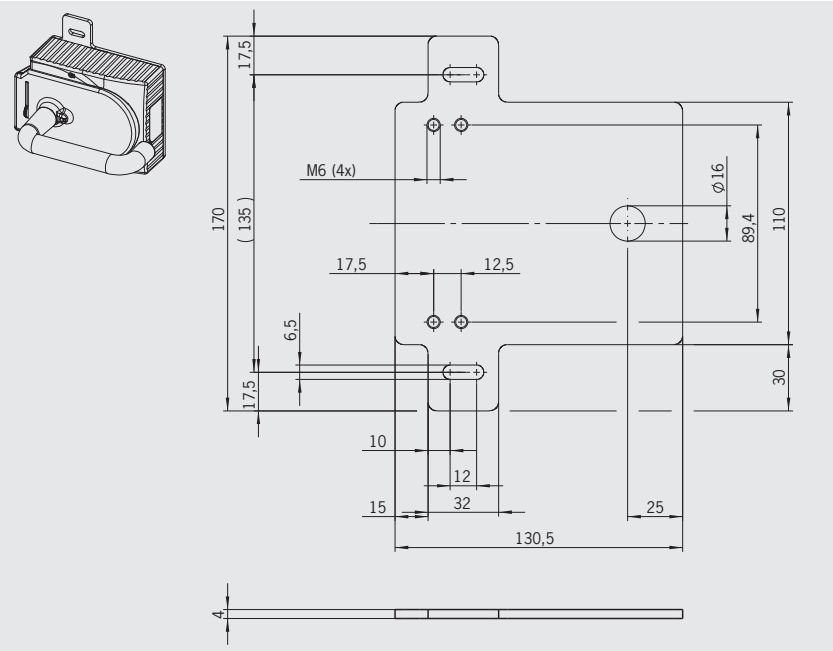
**Mounting plate for evaluation module**
Suitable for all interlocking or locking modules in the system families AR and AP. 2 screws are sufficient for fastening the mounting plates.
**Important**: Only use if the handle module is also fastened to a mounting plate.

**Mounting plate for evaluation module**




**Mounting plate for handle module**
Suitable for all MGB handle modules. 2 screws are sufficient for fastening the mounting plates.
**Important**: Only use if the evaluation module is also fastened to a mounting plate.

**Mounting plate for handle modules**

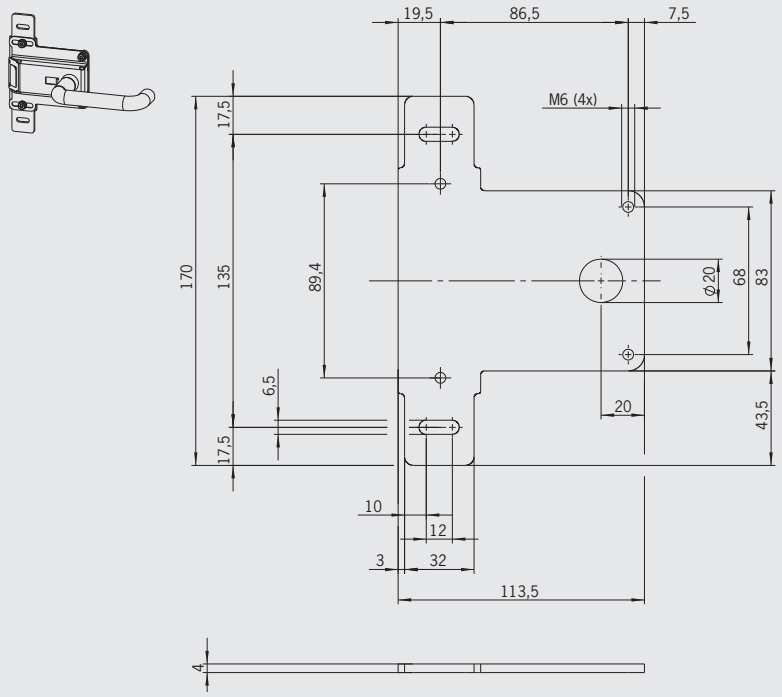



**Ordering table**

| Series / designation | Version | Order no./item |
|---|---|---|
| **Mounting plate for evaluation module** | Suitable for all MGB-L.-AR.-... and MGB-L.-AP.-... | **109490** MGB-A MOUNTING PLATE L-109490 |
| **Mounting plate for handle module** | Suitable for all MGB handle modules | **109491** MGB-A MOUNTING PLATE H-109491 |
| **Mounting plate for escape release** | Suitable for all MGB escape releases | **109492** MGB-A MOUNTING PLATE E-109492 |
| **Mounting plate for evaluation module-control module combination** | Suitable for all MGB-L.-AR.-... and MGB-L.-AP.-... in combination with a control module MGB-C... | **110072** MGB-A MOUNTING PLATE LC-110072 |

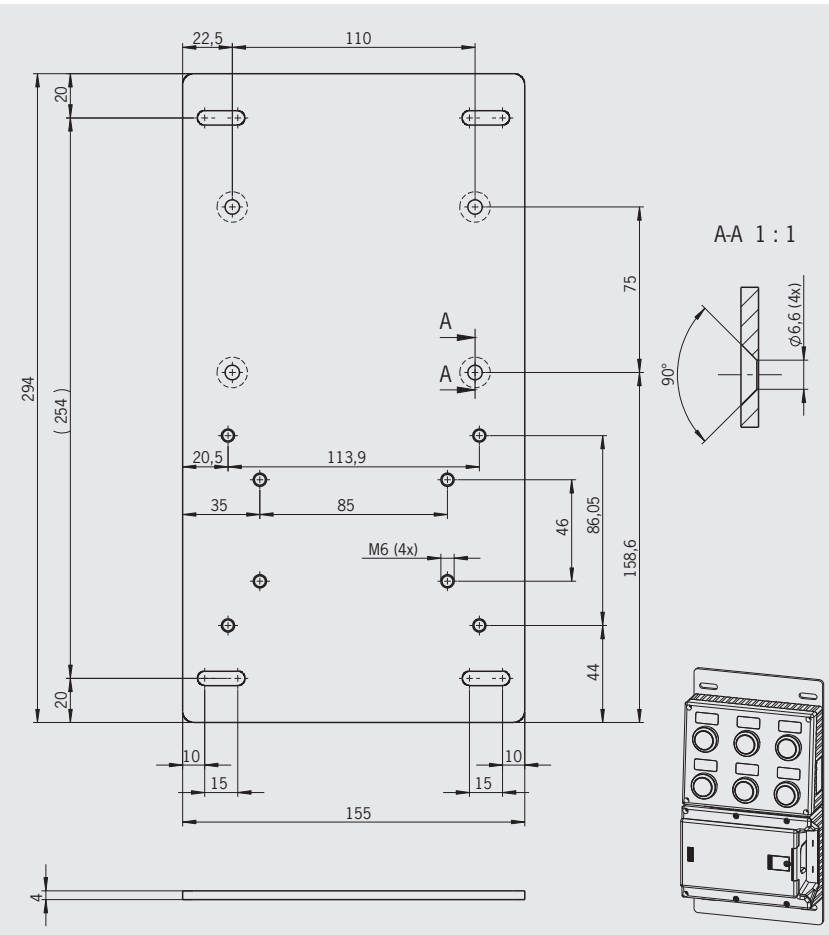
## Mounting plate for escape release

**Mounting plate for escape release**
Suitable for all MGB escape releases. 2 screws are sufficient for fastening the mounting plates.
**Important**: Pay attention to length of the escape release axis! You may need a longer axis (order no. 106761, see page 62).




## Mounting plate for evaluation module-control module combination

**Mounting plate for evaluation module-control module combination**
Suitable for all MGB combinations, comprising an evaluation module and a control module.
**Important**: Only use if the handle module is also fastened to a mounting plate.



## Plug connector RC18

- **Cable optional**
- **Halogen-free cable optional**

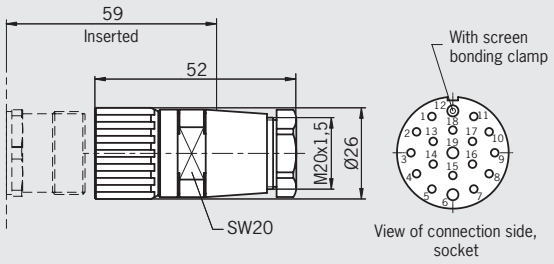
**Crimp contacts**
With 16 crimp pins for wire cross-section 0.38 - 0.5 mm² and 3 pins for wire cross-section 0.75 - 1.0 mm² for control of the guard locking solenoid.

**Cable (optional)**
Cable sleeve PUR, color black, wire cross-section 0.5 mm² or 1.0 mm².
Depending on the cable version, either color-coded or with separately numbered, black cores.

**Cable halogen-free (optional)**
Cable sleeve PUR, color black, halogen-free, silicone-free. Reduction of toxic gases and smoke in case of fire.
Wire cross-section 0.5 mm² or 1.0 mm².
Cores color-coded.

**Female plug RC18 with cable**
18-pin + PE

**Dimension drawing**



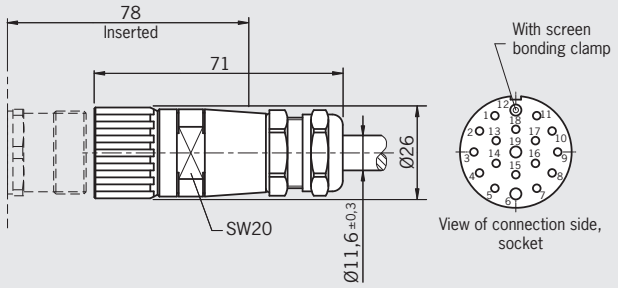

**Ordering table**

| Designation | Version | Order no./item |
|---|---|---|
| **Plug connector RC18**<br>18-pin + PE | **EF-C1825**<br>Female plug<br>(Crimp contacts included) | **077025**<br>RC18EF-C1825 |
| | **Replacement pin crimp contacts**<br>Wire cross-section<br>16 x 0.38 - 0.5 mm²<br>3 x 0.75 - 1 mm² | **094310**<br>Pin crimp contact RCM-C1825 |

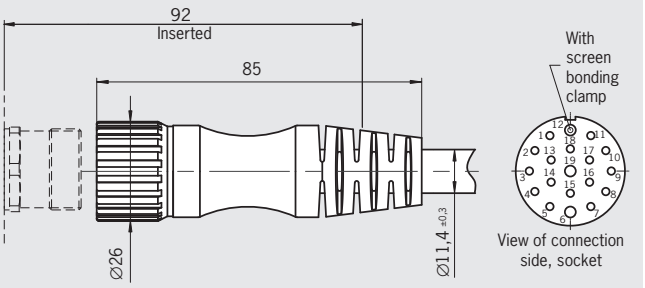
## Connection cables RC18

**Female plug RC18 with cable**
18-pin + PE

**Dimension drawing**




**Female plug RC18 with cable halogen-free**
18-pin + PE




**Assignment connection cable RC18**

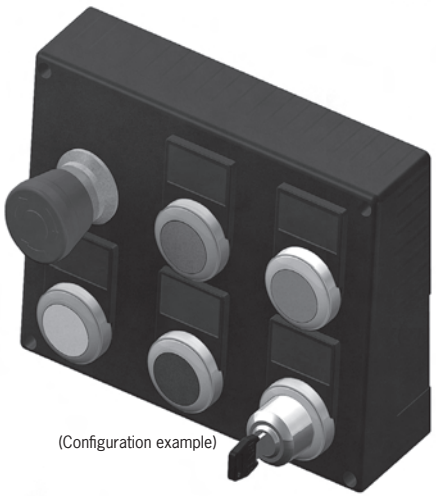
| Pin | Core color | Wire cross-section [mm] | Pin | Core color | Wire cross-section [mm] |
|---|---|---|---|---|---|
| 1 | VT | 0.5 | 11 | BK | 0.5 |
| 2 | RD | 0.5 | 12 | GN/YE | 1.0 |
| 3 | GY | 0.5 | 13 | PK | 0.5 |
| 4 | RD/BU | 0.5 | 14 | BN/GY | 0.5 |
| 5 | GN | 0.5 | 15 | BN/YE | 0.5 |
| 6 | BU | 1.0 | 16 | BN/GN | 0.5 |
| 7 | GY/PK | 0.5 | 17 | WH | 0.5 |
| 8 | GN/WH | 0.5 | 18 | YE | 0.5 |
| 9 | YE/WH | 0.5 | 19 | BN | 1.0 |
| 10 | GY/WH | 0.5 | | | |

**Ordering table**

| Designation | Cable length [m] | Order no./item |
|---|---|---|
| **Female plug RC18 with cable PUR** 18-pin + PE, Cores color-coded | 1.5 | **092761** RC18EF1,5M-C1825 |
| | 3 | **092816** RC18EF3M-C1825 |
| | 6 | **077014** RC18EF6M-C1825 |
| | 8 | **077015** RC18EF8M-C1825 |
| | 10 | **092898** RC18EF10M-C1825 |
| | 15 | **077016** RC18EF15M-C1825 |
| | 20 | **092726** RC18EF20M-C1825 |
| | 25 | **092727** RC18EF25M-C1825 |
| | 30 | **095993** RC18EF30M-C1825 |
| **Female plug RC18 with cable PUR** 19-pole, Cores numbered, black, Numbering as per the pin number Core cross-section as for connection cable above | 1.5 | **110301** C-M23F19-PU01,5-MA-110301 |
| | 3 | **110302** C-M23F19-PU03,0-MA-110302 |
| | 6 | **110303** C-M23F19-PU06,0-MA-110303 |
| | 10 | **110304** C-M23F19-PU10,0-MA-110304 |
| | 15 | **110305** C-M23F19-PU15,0-MA-110305 |
| | 20 | **110306** C-M23F19-PU20,0-MA-110306 |
| | 25 | **110307** C-M23F19-PU25,0-MA-110307 |
| **Plug connector RC18 with cable halogen-free** 18-pin + PE, Cores color-coded | 1.5 | **092883** RC18EF1,5MF-C1825 |
| | 3 | **092884** RC18EF3MF-C1825 |
| | 6 | **092885** RC18EF6MF-C1825 |
| | 8 | **092886** RC18EF8MF-C1825 |
| | 10 | **092887** RC18EF10MF-C1825 |
| | 15 | **092888** RC18EF15MF-C1825 |
| | 20 | **092889** RC18EF20MF-C1825 |
| | 25 | **092890** RC18EF25MF-C1825 |

## Expand your options - the control module for the MGB

- **Space for up to 6 controls and indicators**
- **Ideal expansion solution for the MGB system**
- **A large amount of design flexibility**


(Configuration example)

In the control module it is possible to integrate controls such as buttons, emergency stop, key-operated switches or even indicators as required. In this way a complete functional control panel can be built up.

Even the MGB basic system comprising handle module and interlocking/locking module includes numerous functions. And if requirements grow, the MGB system simply grows with them with the aid of the control module.

Furthermore, the control module forms an attractive unit together with the MGB.
An elegant alternative to the grey switch boxes that were common in the past.

### Your advantages

- Simple expansion of the MGB system
- Flexible configuration with standard components
- Attractive solution from one mold
- Functional unit, all control functions in one place
- Alternative to previous control terminals

### Scope of delivery, spare parts and accessories

**Scope of delivery**

| Designation | Description | Order no. | Item |
|---|---|---|---|
| Control module MGB-C... | Empty housing incl. cover and dummy plugs | 109219 | MGB-C-000000-A1-109219 |
| Connection set | - Printed circuit board with plug-in spring terminals<br>- Pre-assembled wires and cable ties | 109858 | MGB-A-LPSET-109858 |

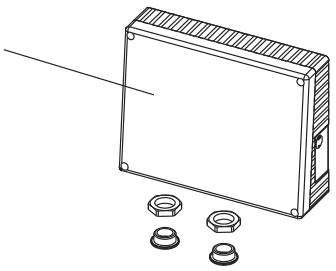
**Spare parts and accessories**

| Designation | Description | Order no. | Item |
|---|---|---|---|
| Blind plug | | 109468 | MP-A-B-00-00-00-109468 |
| Cover for indicators<br>(without LED holder) | Transparent<br>- (rd) red<br>- (wh) white<br>- (ye) yellow | <br>105430<br>109451<br>105432 | <br>MP-A-L-R0-RD-00-105430<br>MP-A-L-R0-WH-00-109451<br>MP-A-L-R0-YE-00-105432 |
| Pushbutton<br>(without switching element) | Transparent<br>- (bu) blue<br>- (wh) white<br>- (ye) yellow<br>- (gn) green<br>- (rd) red | <br>105427<br>105429<br>105428<br>110322<br>110321 | <br>MP-A-P-RT-BU-A1-105427<br>MP-A-P-RT-WH-A1-105429<br>MP-A-P-RT-YE-A1-105428<br>MP-A-P-RT-GN-A1-110322<br>MP-A-P-RT-RD-A1-110321 |
| Emergency stop<br>(without switching element) | Latching, turn-to-reset | 109454 | MP-A-E-RD-00-A4-109454 |
| Selector switch<br>(without switching element) | 2 positions, latching in 2 positions | 109452 | MP-A-S-RR-00-A2-109452 |
| Key-operated switch<br>(without switching element) | Incl. 2 keys<br>2 positions; key removable in each position | 109453 | MP-A-K-RR-00-A3-109453 |
| Tag holder | Incl. labeling plate | 109459 | MP-A-H-00-00-00-109459 |
| Connection set | 2 housing sleeves for M20x1.5 gland | 109524 | MGB-A HOUSING SLEEVE 109524 |
| Switching element with LED holder | Expandable with LED<br>- 2 positively driven NC contacts, 1 NO contact<br>- 1 NO contact | <br>109456<br>109455 | <br>MP-A-C-GM-21-00-109456<br>MP-A-C-GU-01-00-109455 |
| LED holder | | 109458 | MP-A-C-CH-00-00-109458 |
| LED | LED, white | 109457 | MP-A-C-LC-WH-00-109457 |

## Dimension drawing and configuration example

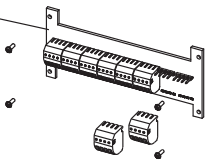
Bedienmodul Gehäuse (MGB-C...)
Best-Nr. 109219
Inklusive:
1 Stück Leergehäuse
1 Stück Deckel
2 Stück Blindverschraubung

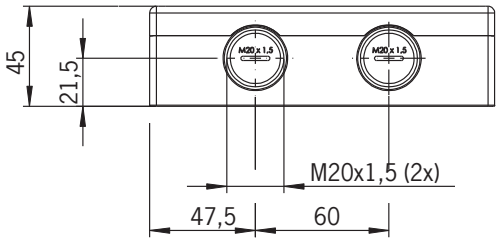
*Control Module Housing (MGB-C...)*
*Order-No. 109219*
*Including:*
*1 pcs. empty housing*
*1 pcs. top cover*
*2 pcs. dummy plug*

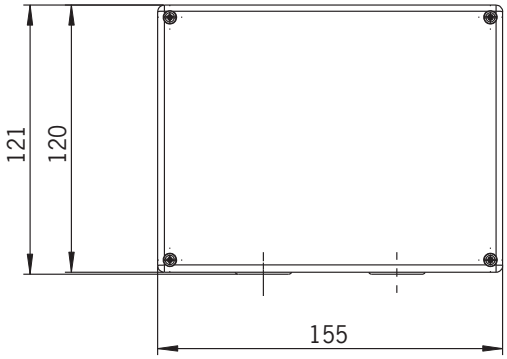


Anschluss-Set
Best-Nr. 109858
Inklusive:
1 Stück Leiterplatte mit steckbaren Federzugklemmen
4 Stück Befestigungsschrauben für Leiterplatte
7 Stück Litzen kpl. 0,34 mm²- rot
7 Stück Litzen kpl. 0,34 mm²- blau
16 Stück Litzen kpl. 0,34 mm² - schwarz
6 Stück Kabelbinder

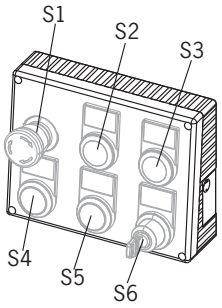
*Connection Kit*
*Order-No. 109858*
*Including:*
*1 pcs. circuit board with plug-in spring terminals*
*4 pcs. screws for circuit board*
*7 pcs. strands complete, 0.34 mm² - red*
*7 pcs. strands complete, 0.34 mm² - blue*
*16 pcs. strands complete, 0.34 mm² - black*
*6 pcs. cable straps*



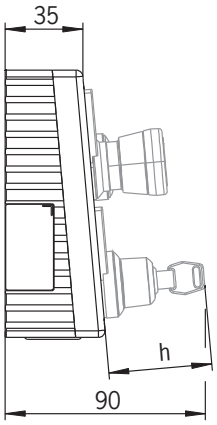


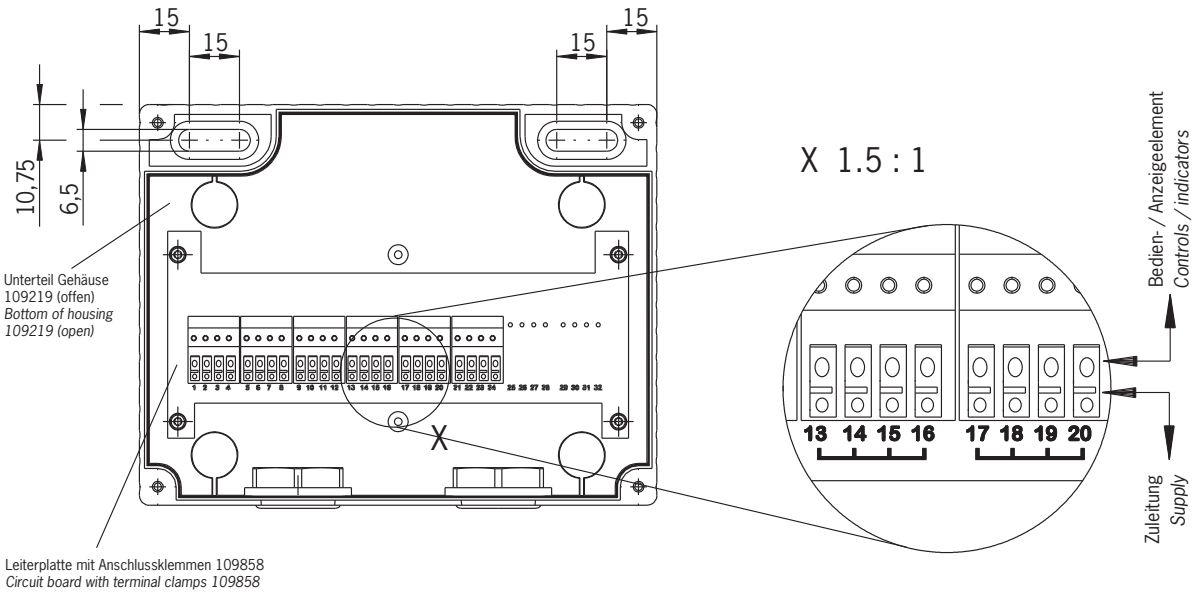




Beispielbestückung
*Configuration Example*
(z.B. Best.Nr. / *e.g. Order no.* 106795 MGB-C-1ELLPPK-106795)




| Position | Ausführung/*Version* | h |
|---|---|---|
| S1 | Not-HaltTaster *Emergencystop* | 33,2 mm |
| S2 | Leuchtvorsatz-rot *LED-red* | 10 mm |
| S3 | Leuchtvorsatz-grün *LED-green* | |
| S4 | Taster beleuchtet-weiss *Pushbutton illuminated-white* | |
| S5 | Taster beleuchtet-weiss *Pushbutton illuminated-white* | |
| S6 | Schlüsselschalter *Key-operated switch* | 44,1 mm |

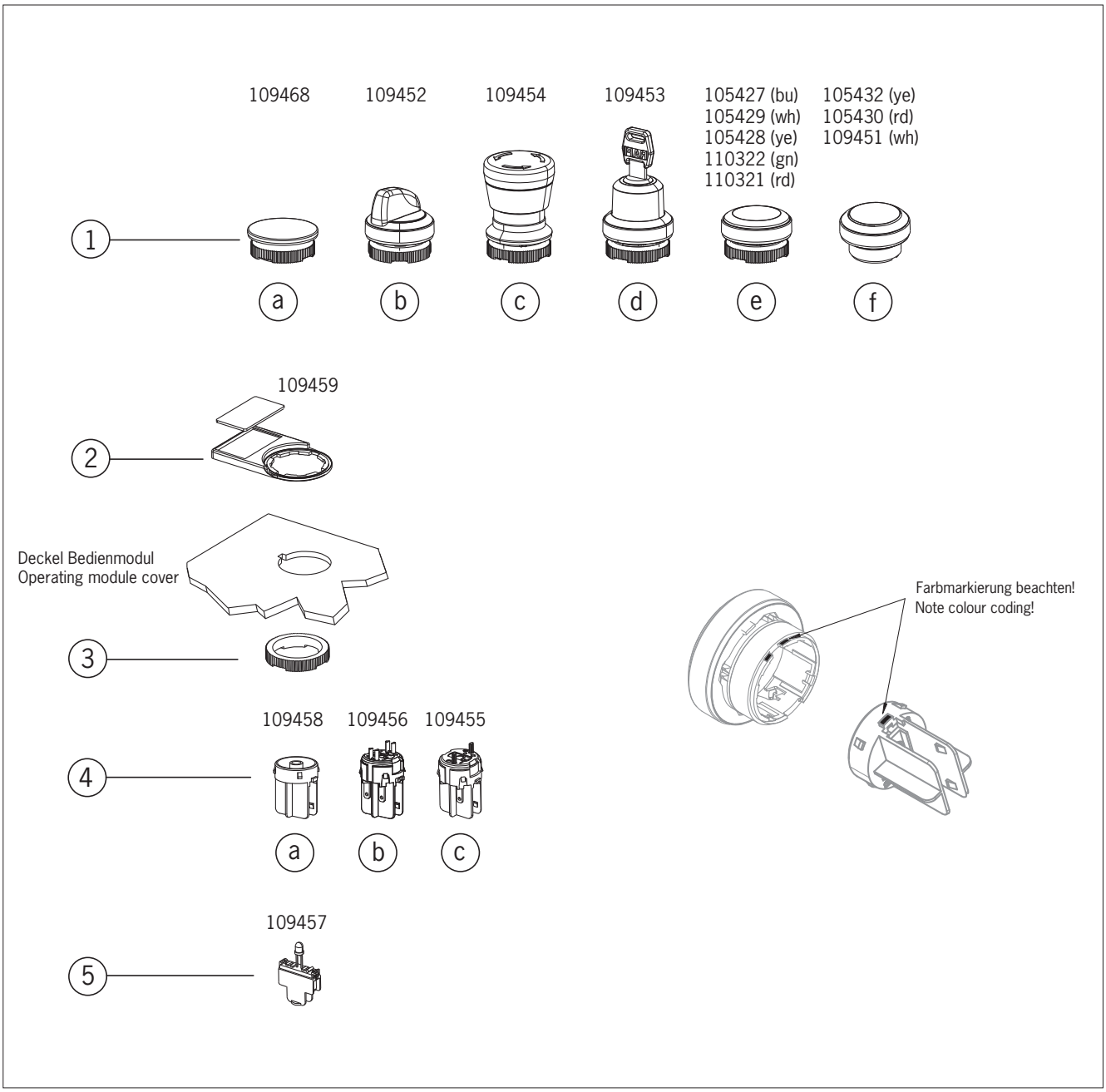



Unterteil Gehäuse
109219 (offen)
*Bottom of housing*
*109219 (open)*

Leiterplatte mit Anschlussklemmen 109858
*Circuit board with terminal clamps 109858*

## Overview controls and indicators




① **Controls/indicators**
- a Blind plug
- b Selector switch, 2 positions, latching
- c Emergency stop, turn-to-reset button
- d Key-operated switch, 2 positions, latching (key removable in both positions)
- e Pushbutton, different colors, illumination with 109457
- f Cover for indicators, different colors, illumination with 109457

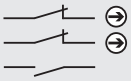
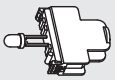
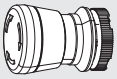
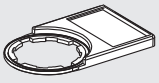
② **Tag holder including labeling plate**

③ **Knurled nut (included with item 1)**

④ **Switching element/LED holder**
- a LED holder
- b Switching element, 2 positively driven NC contacts, 1 NO contact
- c Switching element, 1 NO contact

⑤ **LED, white**

## Combination options

| |  Switching element Order no. 109455 |  Switching element Order no. 109456 |  LED holder Order no. 109458 |
|---|---|---|---|
| |  |  | |
|  LED Order no. 109457 | X | - | ● |
| | | | |
|  Emergency stop Order no.. 109454 Latching with turn-to-reset | - | ● | - |
|  0 1 Key-operated switch (2 positions) Order No. 109453 Incl. 2 keys Key removable in both positions | ● 1) | - | - |
|  0 1 Selector switch (2 positions) Order no. 109452 | ● | - | - |
|  Pushbutton (illuminated) Order no. 105429 (wh) Order no. 105428 (ye) Order no. 105427 (bu) Order no. 110322 (gn) Order no. 110321 (rd) | ● | - | - |
|  Cover for indicators Order no. 105451 (wh) Order no. 105432 (ye) Order no. 105430 (rd) | - | - | ● |
|  Tag holder Order No. 109459 | | ● | |
|  Blind plug Order no. 109468 | | - | |

x = Optional

- = Not combinable

● = Combinable

1) Not in combination with 109457 (LED)

## Technical data

**Empty housing**

| Parameter | Value |
|---|---|
| Housing material | Reinforced thermoplastic |
| Ambient temperature | -20 ... 55 °C |
| Type of protection according to EN 60529 | IP 54 |
| Degree of contamination / material group | 3 (industrial) |
| External connection | 2 x cable entry M20x1.5 |
| Internal connection<br>(plug-in spring terminals) | 0.2 ... 1.5 $mm^2$ |

**Controls**

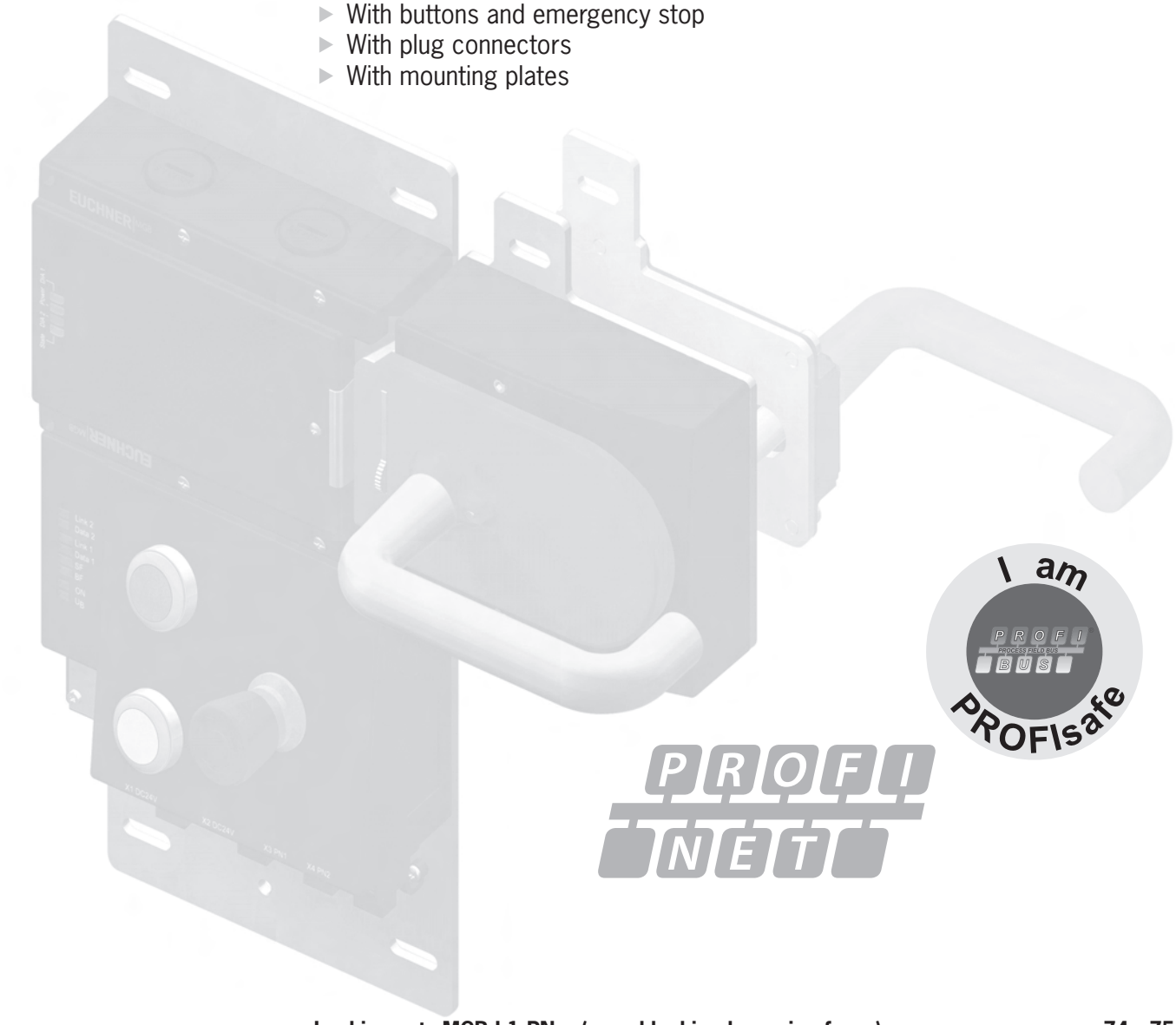
| Parameter | Value |
|---|---|
| Mech. life<br>- Pushbutton<br>- Emergency stop<br>- Selector switch<br>- Key-operated switch | <br>$1x10^6$<br>$5x10^4$<br>$3x10^5$<br>$3x10^4$ |
| Ambient temperature | -20 ... 55 °C |
| Type of protection according to EN 60529 | IP 54 (installed) |

**Switching elements, LED**

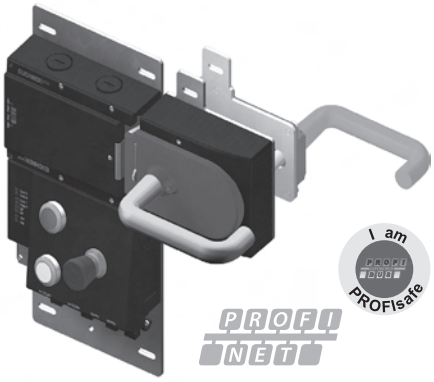
| Parameter | Value |
|---|---|
| Life at 10 mA/24 V DC<br>...-GU-...<br>...-GM-... | <br>$1x10^6$<br>$5x10^4$ |
| Ambient temperature | -20 ... 55 °C |
| Operating voltage<br>- Switching elements<br>- LED | <br>5 ... 35 V<br>24 V |
| Operating current<br>- Switching elements<br>- LED | <br>1 ... 100 mA<br>max. 30 mA permissible |
| Breaking capacity max. | 250 mW |
| Connection type | Connector 2.8 x 0.8 mm |
| Contact material | Au |
| Shock resistance according to IEC 60068-2-27 | 15 g |
| Vibration resistance IEC 60068-2-6 | 5 g (10 ... 500 Hz) |
| Positively driven...GM... | according to IEC 60947-5-1<br>(positively driven NC contact) |

**Complete sets system family MGB-PN**

- Profinet and Profisafe
- With buttons and emergency stop
- With plug connectors
- With mounting plates



## Locking sets MGB-L1...-PN... (guard locking by spring force)
**with 3 controls or indicators**




- **Guard locking with guard lock monitoring in accordance with EN 1088**
- **Integrated controls and indicators**
- **Pre-assembled on mounting plates**
- **Integrated Profinet RT switch**

### Details

**Profinet connection**
Connection via plug connector according to IEC 61076-3-117, variant 14 (AIDA standard)

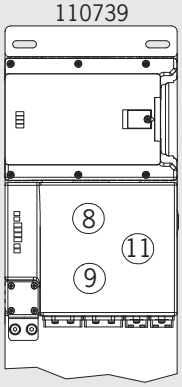
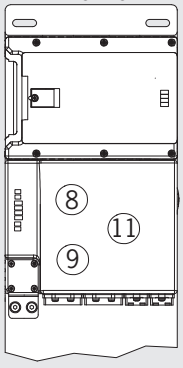
**Profinet RT switch**
Point-to-point topology network structure due to integrated RT switch.

**Flexible usage as interlocking or guard locking**
By means of the corresponding evaluation of the safe device data by the control system, usage can be either as interlocking or guard locking (with or without monitoring).

### Further information

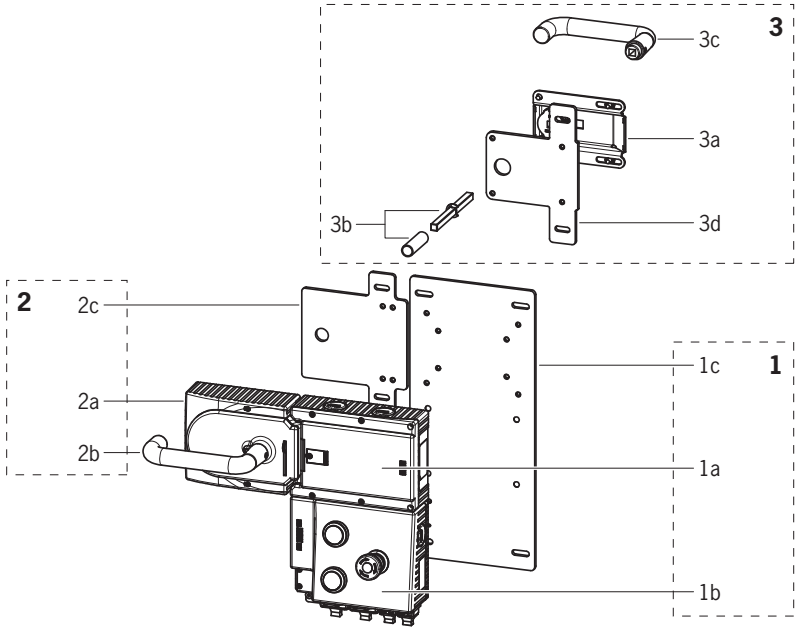

- **Dimension drawings see p. 81**
- **Technical data see p. 80**
- **Accessories and spare parts see p. 75**
- **www.mgb.EUCHNER.de**


**Ordering table**

| Modules in the set | | | | | | | | Ordering data set |
|---|---|---|---|---|---|---|---|---|
| Evaluation module and bus module | | | | | Handle module Order no. separate module | Escape release Order no. separate module | Door stop | Order no./item |
| Version/configuration scheme Order no. module combination | Controls and indicators | | | | | | | |
| 110739  Pre-assembled on mounting plate, incl. label carrier | S1 | S2 | S3 | S4 | 106049 Pre-assembled on mounting plate | - | right | **110649** MGB-L1HB-PNA-R-110649 |
| | - | - | - | - | | | | |
| | S11 | S8 | S9 | - | | | | |
| | STOP | ye | wh | - | | | | |
| 110740  Pre-assembled on mounting plate, incl. label carrier | S1 | S2 | S3 | S4 | 106221 Pre-assembled on mounting plate | - | left | **110648** MGB-L1HB-PNA-L-110648 |
| | - | - | - | - | | | | |
| | S11 | S8 | S9 | - | | | | |
| | STOP | ye | wh | - | | | | |

* UL approval pending

**System components and spare parts**

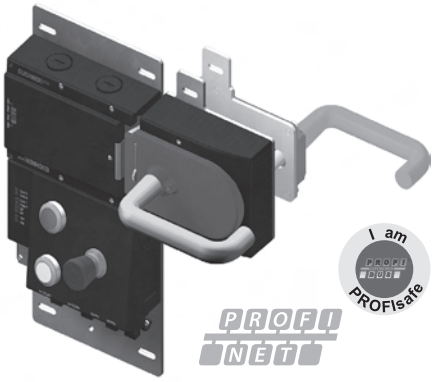



**Ordering table for system components and spare parts**

Note: It is only possible to order spare parts that are given in the following ordering table with an order number.

| Item | | Designation | Use/description | Order no. / item |
|---|---|---|---|---|
| 1 | | **System unit MGB-L1B-...** (guard locking by spring force) | For doors hinged on the left | **110740** MGB-L1B-PNA-L-110740 |
| | | | For doors hinged on the right | **110739** MGB-L1B-PNA-R-110739 |
| | | comprising: | | |
| | **1a** | - Evaluation module | | - |
| | **1b** | - Bus module | | - |
| | **1c** | - Mounting plate | For system unit MGB-L-... | **110072** MGB-A MOUNTING PLATE LC-110072 |
| 2 | | **Handle module MGB-H-...** comprising: | For doors hinged on the left | **106221** MGB-H-AA1A2-L-106221 |
| | | | For doors hinged on the right | **106049** MGB-H-AA1A2-R-106049 |
| | **2a** | - Handle module | | - |
| | **2b** | - Door handle | Color silver | - |
| | **2c** | - Mounting plate | For handle module MGB-H-... | **109491** MGB-A MOUNTING PLATE H-109491 |
| 3 | | **Escape release MGB-E-...** comprising: | | **106051** MGB-E-A2-106051 |
| | **3a** | - Escape release | | - |
| | **3b** | - Escape-release shaft | Standard length 118 mm (square 8x8 mm + sleeve) | - |
| | | - Replacement shaft for item 3b | Length 250 mm (square 8x8 mm + sleeve) | **106758** |
| | **3c** | - Door handle | Color red | - |
| | **3d** | - Mounting plate | For escape release MGB-E-... | **109492** MGB-A MOUNTING PLATE E-109492 |

## Locking sets MGB-L2...-PN... (guard locking by solenoid force)
**with 3 controls or indicators**




- **Guard locking with guard lock monitoring in accordance with EN 1088**
- **Integrated controls and indicators**
- **Pre-assembled on mounting plates**
- **Integrated Profinet RT switch**

### Details

**Profinet connection**
Connection via plug connector according to IEC 61076-3-117, variant 14 (AIDA standard)

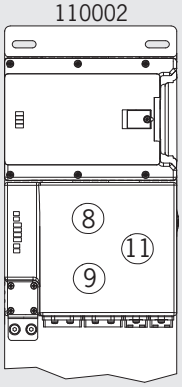
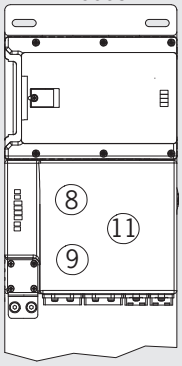
**Profinet RT switch**
Point-to-point topology network structure due to integrated RT switch.

**Flexible usage as interlocking or guard locking**
By means of the corresponding evaluation of the safe device data by the control system, usage can be either as interlocking or guard locking (with or without monitoring).

### Further information

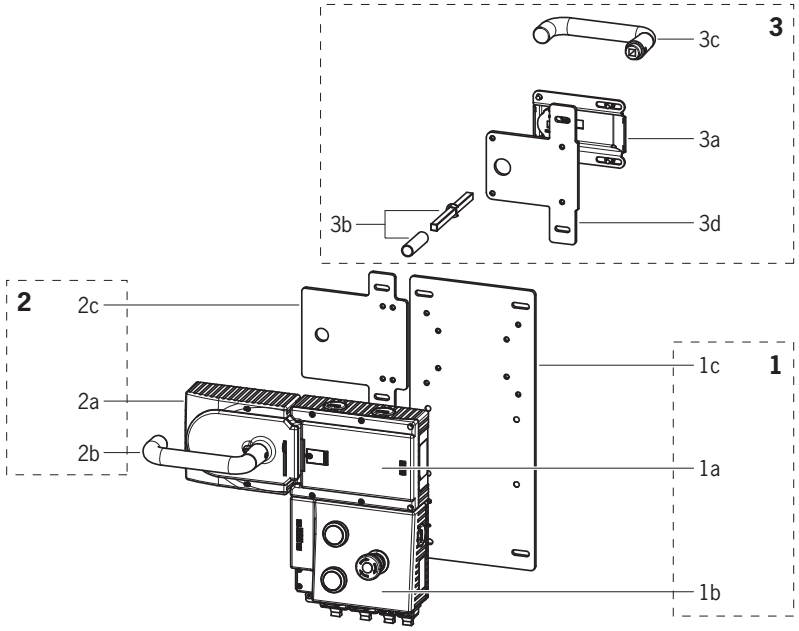

- **Dimension drawings see p. 81**
- **Technical data see p. 80**
- **Accessories and spare parts see p. 77**
- **www.mgb.EUCHNER.de**


**Ordering table**

| Modules in the set | | | | | | | | Ordering data set |
|---|---|---|---|---|---|---|---|---|
| Evaluation module and bus module | | | | | Handle module Order no. separate module | Escape release Order no. separate module | Door stop | Order no./item |
| Version/configuration scheme Order no. module combination | Controls and indicators | | | | | | | |
| 110002  Pre-assembled on mounting plate, incl. label carrier | S1 | S2 | S3 | S4 | 106049 | - | right | **110001** MGB-L2HB-PNA-R-110649 |
| | - | - | - | - | | | | |
| | S11 | S8 | S9 | - | | | | |
| | STOP | ye | wh | - | | | | |
| 110003  Pre-assembled on mounting plate, incl. label carrier | S1 | S2 | S3 | S4 | 106221 | - | left | **110000** MGB-L2HB-PNA-L-110648 |
| | - | - | - | - | | | | |
| | S11 | S8 | S9 | - | | | | |
| | STOP | ye | wh | - | | | | |

* UL approval pending

**System components and spare parts**




**Ordering table for system components and spare parts**

Note: It is only possible to order spare parts that are given in the following ordering table with an order number.

| Item | | Designation | Use/description | Order no. / item |
|---|---|---|---|---|
| 1 | | **System unit MGB-L2B-...** (guard locking by solenoid force) | For doors hinged on the left | **110003** MGB-L2B-PNA-L-110003 |
| | | | For doors hinged on the right | **110002** MGB-L2B-PNA-R-110002 |
| | | comprising: | | |
| | **1a** | - Evaluation module | | - |
| | **1b** | - Bus module | | - |
| | **1c** | - Mounting plate | For system unit MGB-L-... | **110072** MGB-A MOUNTING PLATE LC-110072 |
| 2 | | **Handle module MGB-H-...** comprising: | For doors hinged on the left | **106221** MGB-H-AA1A2-L-106221 |
| | | | For doors hinged on the right | **106049** MGB-H-AA1A2-R-106049 |
| | **2a** | - Handle module | | - |
| | **2b** | - Door handle | Color silver | - |
| | **2c** | - Mounting plate | For handle module MGB-H-... | **109491** MGB-A MOUNTING PLATE H-109491 |
| 3 | | **Escape release MGB-E-...** comprising: | | **106051** MGB-E-A2-106051 |
| | **3a** | - Escape release | | - |
| | **3b** | - Escape-release shaft | Standard length 118 mm (square + sleeve) | - |
| | | - Replacement shaft for item 3b | Length 250 mm (square 8x8 mm + sleeve) | **106758** |
| | **3c** | - Door handle | Color red | - |
| | **3d** | - Mounting plate | For escape release MGB-E-... | **109492** MGB-A MOUNTING PLATE E-109492 |

## PROFINET data bytes

You will require the corresponding GSD file in GSDML format in order to integrate the MGB system:
GSDML-Vx.x-EUCHNER-MGB_110026-YYYYMMDD.xml
You can find the GSD file in the download area at www.EUCHNER.de.
Prior to commissioning, the GSD file must be imported into the configuration software of the control system (see manual for your control system).

## PROFINET data bytes
### (unsafe input/output area)

Profinet RT modules 3 bytes IO:

**Assignment in the input area of the bus master:**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Byte n+0 | I8 | I7 | I6 | I5 | I4 | I3 | I2 | I1 |
| Byte n+1 | I16 | I15 | I14 | I13 | I12 | I11 | I10 | I9 |

I1: n.c.
I2: n.c.
I3: n.c.
I4: n.c.
I5: n.c.
I6: n.c.
I7: n.c.
I8: Button S8

I9: Button S9
I10: n.c.
I11: n.c.
I12: n.c.
I13: n.c
I14: n.c.
I15: n.c.
I16: n.c

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Byte n+2 | I24 | I23 | I22 | I21 | I20 | I19 | I18 | I17 |

I17: Device diagnosis (PROFIsafe error #72): message present. Diagnostic code: see table of device-specific messages.
I18: Device diagnosis, device-specific message 274(4) "Plausibility check found an error (e.g. escape release actuated)"
I19: Device diagnosis, device-specific message 272(1) or 273(1) "Error in emergency stop"
I20: Device diagnosis, device-specific message 272(2) or 273(2) "Error in enabling switch"
I21: Device diagnosis, device-specific message 272(6) or 273(6) "Error in operating mode selector switch"
I22: n.c.
I23: n.c.
I24: Mechanical life > 1 million operating cycles

**Assignment in output area of the bus master:**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Byte n+0 | O8 | O7 | O6 | O5 | O4 | O3 | O2 | O1 |
| Byte n+1 | O16 | O15 | O14 | O13 | O12 | O11 | O10 | O9 |

O1: n.c.
O2: n.c.
O3: n.c.
O4: n.c.
O5: n.c.
O6: n.c.
O7: n.c.
O8: LED S8

O9: LED S9
O10: n.c.
O11: LED S11
O12: n.c.
O13: n.c
O14: n.c.
O15: n.c.
O16: Guard locking solenoid – control voltage on (function identical to bit SO1, but control not via PROFIsafe)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Byte n+2 | O24 | O23 | O22 | O21 | O20 | O19 | O18 | O17 |

O17: Device diagnosis: acknowledge message, acknowledgment of I19, I20 or I21 I17 is also acknowledged if only one message is present
O18: Trigger MGB locking module reset: acknowledge message, acknowledgement of I18. I17 is also acknowledged if only one message is present.
O19: n.c.
O20: n.c.
O21: n.c.
O22: n.c.
O23: n.c.
O24: n.c.

## PROFIsafe data bytes
**(safe input/output area)**

**Profisafe assignment in the output area of the bus master:**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Byte n+0 | SO8 | SO7 | SO6 | SO5 | SO4 | SO3 | SO2 | SO1 |
| Byte n+1 | SO16 | SO15 | SO14 | SO13 | SO12 | SO11 | SO10 | SO9 |
| Byte n+2 | Profisafe internal (control byte) | | | | | | | |
| Byte n+3 | Profisafe internal (serial no.) | | | | | | | |
| Byte n+4 | Profisafe internal (CRC2) | | | | | | | |
| Byte n+5 | Profisafe internal (CRC2) | | | | | | | |

SO1: Guard locking solenoid – control voltage on
(function identical to bit O16 => but with control via PROFIsafe)

SO2: n.c

SO3: n.c

SO4: n.c

SO5: n.c

SO6: n.c

SO7: n.c

SO8: n.c

SO9: n.c

SO10: n.c

SO11: n.c

SO12: n.c

SO13: n.c

SO14: n.c

SO16: n.c

**Profisafe assignment in the input area of the bus master:**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Byte n+0 | SI8 | SI7 | SI6 | SI5 | SI4 | SI3 | SI2 | SI1 |
| Byte n+1 | SI16 | SI15 | SI14 | SI13 | SI12 | SI11 | SI10 | SI9 |
| Byte n+2 | Profisafe internal (control byte) | | | | | | | |
| Byte n+3 | Profisafe internal (serial no.) | | | | | | | |
| Byte n+4 | Profisafe internal (CRC2) | | | | | | | |
| Byte n+5 | Profisafe internal (CRC2) | | | | | | | |

SI1: Emergency stop – -S7

SI2: n.c.

SI3: Door position (T)

SI4: Bolt position (R)

SI5: Guard locking (Z)

SI6: n.c.

SI7: n.c.

SI8: n.c.

SI9: SK (T **AND** R)
for compatibility with TZ

SI10: ÜK (T **AND** R **AND** Z)
for compatibility with TZ

SI11: n.c

SI12: n.c

SI13: n.c

SI14: n.c

SI16: n.c.

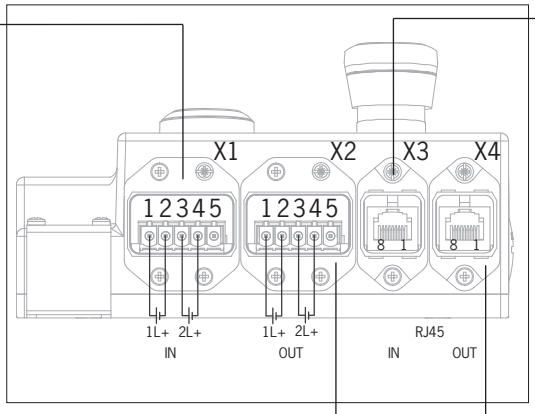
## Assignment of the terminal plugs

| Pin | Description |
|---|---|
| X1.1 | L1 operating voltage DC 24 V |
| X1.2 | N1 operating voltage 0 V |
| X1.3 | L2 auxiliary power* DC 24 V |
| X1.4 | N2 auxiliary power* 0 V |
| X1.5 | Function earth |

* The auxiliary power is not required for the MGB system

X2: For looping through for connected devices

| | |
|---|---|
| X2.1 | L1 operating voltage DC 24 V |
| X2.2 | N1 operating voltage 0 V |
| X2.3 | L2 auxiliary power* DC 24 V |
| X2.4 | N2 auxiliary power* 0 V |
| X2.5 | Function earth |




| Pin | Description |
|---|---|
| X3.1 | Receive Data +RD |
| X3.2 | Receive Data -RD_N |
| X3.3 | Transmit Data +TD |
| X3.4 | Ground GND (RJ45) |
| X3.5 | Ground GND (RJ45) |
| X3.6 | Transmit Data -TD_N |
| X3.7 | Ground GND (RJ45) |
| X3.8 | Ground GND (RJ45) |

X4: For looping through for connected devices (integrated RT switch)

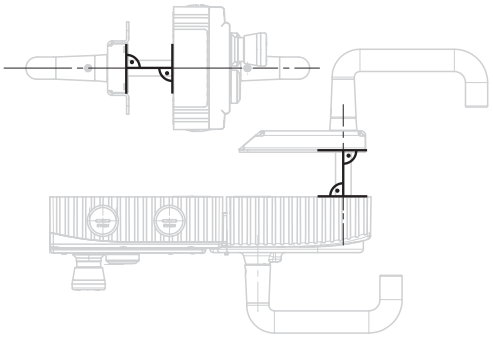
| | |
|---|---|
| X4.1 | Receive Data +RD |
| X4.2 | Receive Data -RD_N |
| X4.3 | Transmit Data +TD |
| X4.4 | Ground GND (RJ45) |
| X4.5 | Ground GND (RJ45) |
| X4.6 | Transmit Data -TD_N |
| X4.7 | Ground GND (RJ45) |
| X4.8 | Ground GND (RJ45) |

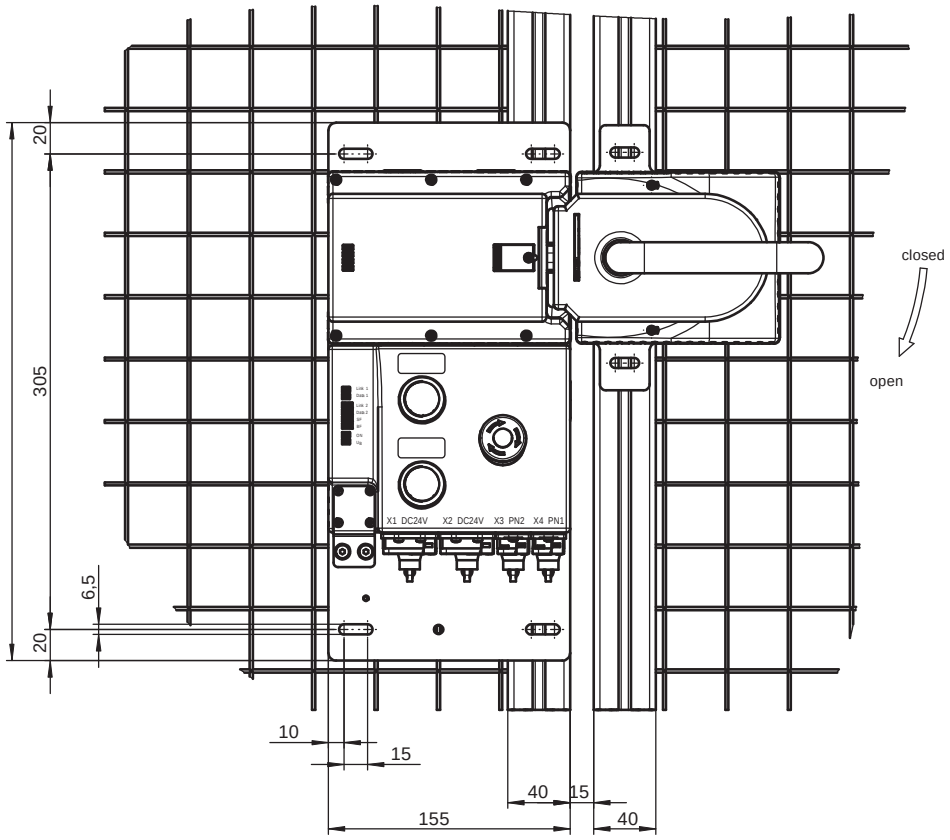
## Technical data

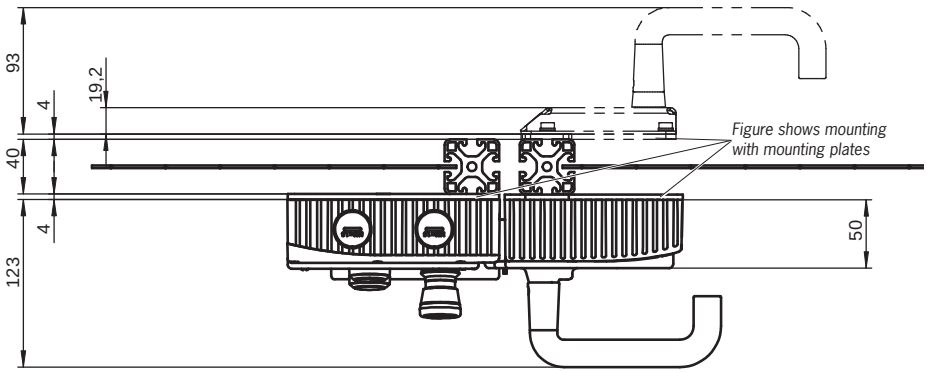
| Parameter | Value |
|---|---|
| $s_{ar}$ max. door position | 65 mm |
| Housing material | Reinforced plastic<br>die-cast zinc, nickel-plated,<br>stainless steel,<br>powder-coated sheet steel |
| Dimensions | See dimension drawing |
| Weight of MGB-L.B (bus module, locking module, and button module with mounting plate) | 4.05 kg |
| Weight of handle module with mounting plate | 1.5 kg |
| Weight of escape release module with mounting plate | 0.9 kg |
| Ambient temperature | -20 ... +55 °C |
| Degree of protection | IP 54 |
| Safety class | III |
| Degree of contamination | 3 |
| Installation position | Any |
| Locking force $F_{zh}$ | 2000 N |
| Connection options, power supply | 2 x push-pull power [1] |
| Connection type, bus | 2 x RJ 45, push-pull, according to IEC 61076-3-117 variant 14, screened [1] |
| Connection cable, bus | Profinet I/O cable, at least cat. 5e |
| Operating voltage $U_B$ | DC 24V +10%/-15%<br>(PELV – see electrical connection) |
| Current consumption, max. | 500 mA |
| Max. feed-in current in the connection block (push-pull plug connector) | 4000 mA |
| Fuse protection for power supply, external | Min. 1 A slow-blow |
| Safety outputs | Profisafe according to IEC 61784-3-3 |
| Rated insulation voltage $U_i$ | 75 V |
| Rated impulse withstand voltage $U_{imp}$ | 0.5 kV |
| Resilience to vibration and shock | In accordance with EN 60947-5-3 |
| EMC protection requirements | As per EN 61000-4 and DIN EN 61326-3-1 |
| Switching frequency max. | 1 Hz |
| Risk times max. (switch-off times) [2] | |
| - Emergency stop | 220 ms |
| - Enabling switch | 220 ms |
| - Operating mode selector switch | 220 ms |
| - Guard position | 550 ms |
| - Bolt position | 550 ms |
| - Guard locking | 550 ms |
| **Reliability values according to EN ISO 13849-1** | |
| Category | 4 (EN 13849-1:2008-12) |
| Performance Level | PL e (EN 13849-1:2008-12) |
| $MTTF_d$ [3] | 91 years |
| DC | 99% |
| Mission time | 20 years |
| $PFH_d$ [3] | $2.54 \times 10^{-8}$ / h |
| $B_{10d}$ [4] | |
| - Emergency stop | $1 \times 10^5$ |
| - Enabling switch | According to switch information from manufacturer |

1) The document *PROFINET Cabling and Interconnection Technology* from the PNO aids in the correct selection of wiring.
2) The risk time is the max. time between the change in the input status and the deletion of the corresponding bit in the bus protocol.
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.

## Dimension drawings






*(Figure shows version for doors hinged on the right, pre-assembled on mounting plates)*

## Index by item designation

## Index by order numbers

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More than safety.

# How to find "your" MGB:

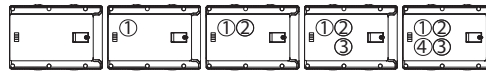
## Step 1
**Find the right system family**

| | |
|---|---|
| AP | **MGB-AP for separate operation** |
| AR | **MGB-AR for separate operation or series connection with other AR devices** |
| PROFINET PN | **MGB-PN for operation in PROFINET environment** |

## Step 2
**Interlocking or guard locking?**

| | |
|---|---|
| - | **MGB-L0...: Interlocking**<br>(only monitoring of the door position) |
| | **MGB-L1...: Guard locking by spring force**<br>(Closed-circuit current principle) |
| | **MGB-L2...: Guard locking by solenoid force**<br>(Open-circuit current principle) |

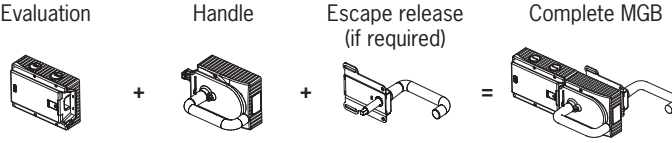
## Step 3
**Select number of controls/indicators required**

| | |
|---|---|
| **Configuration scheme/ counting direction** |  |

## Step 4
**Select type of controls and indicators**

| | |
|---|---|
| STOP | **Emergency stop according to ISO 13850** |
| STOP / STOP | **Illuminated emergency stop / emergency stop with auxiliary contact** |
| | **Machine stop** |
| / | **Pushbutton, illuminated / not illuminated**<br>(Different colors available) |
| | **Lamp**<br>(Different colors available) |
| 0 1 | **Selector switch form V, 2-stage**<br>(Different versions available. For details see ordering table and description of the details) |
| 0 1 -1 / 0 1 | **Key-operated selector switch form L or V, 2-stage**<br>(Different versions available. For details see ordering table and description of the details) |

## Step 5
**Select complete MGB set with the required configuration**




**Have you not been able to find the configuration you require?**

You will find further information at www.mgb.EUCHNER.de. Alternatively our product consultants are available to assist you from the factory or on site.

**For explanation of symbols see also page 8.**

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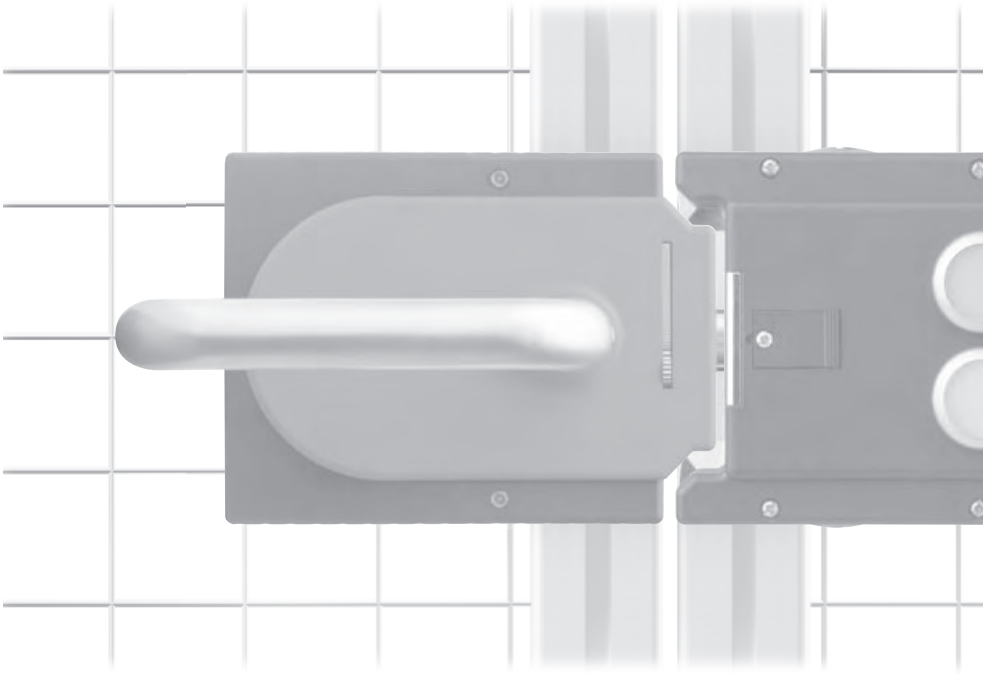

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