

Multifunctional Gate Box MGB



EUCHNER

More than safety.



Headquarters in Leinfelden-Echterdingen



Logistics center in Leinfelden-Echterdingen



Production location in Unterböhringen

Internationally successful – the EUCHNER company

EUCHNER GmbH + Co. KG is a world-leading company in the area of industrial safety technology. EUCHNER has been developing and producing high-quality switching systems for mechanical and systems engineering for more than 50 years.

The medium-sized family-operated company based in Leinfelden, Germany, employs more than 500 people around the world, 400 in Germany alone.

In addition to the production locations in Unterböhringen and Shanghai/China, 14 subsidiaries and other sales partners in Germany and abroad work for our international success on the market.

Quality and innovation – the EUCHNER products

A look into the past shows EUCHNER to be a company with a great inventive spirit. We take the technological and ecological challenges of the future as an incentive for extraordinary product developments.

EUCHNER safety switches monitor safety doors on machines and installations, help to minimize dangers and risks and thereby reliably protect people and processes. Today, our products range from electromechanical and electronic components to intelligent integrated safety solutions. Safety for people, machines and products is one of our dominant themes.

We define future safety technology with the highest quality standards and reliable technology. Extraordinary solutions ensure the great satisfaction of our customers. The product ranges are subdivided as follows:

- ▶ Transponder-coded Safety Switches (CES)
- ▶ Transponder-coded Safety Switches with guard locking (CET)
- ▶ Interlocking and guard locking systems (Multifunctional Gate Box MGB)
- ▶ Access management systems (Electronic-Key-System EKS)
- ▶ Electromechanical Safety Switches
- ▶ Magnetically coded Safety Switches (CMS)
- ▶ Enabling Switches
- ▶ Safety Relays
- ▶ Emergency Stop Devices
- ▶ Hand-Held Pendant Stations and Handwheels
- ▶ Safety Switches with AS-Interface
- ▶ Joystick Switches
- ▶ Position Switches



Multifunctional Gate Box MGB

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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.



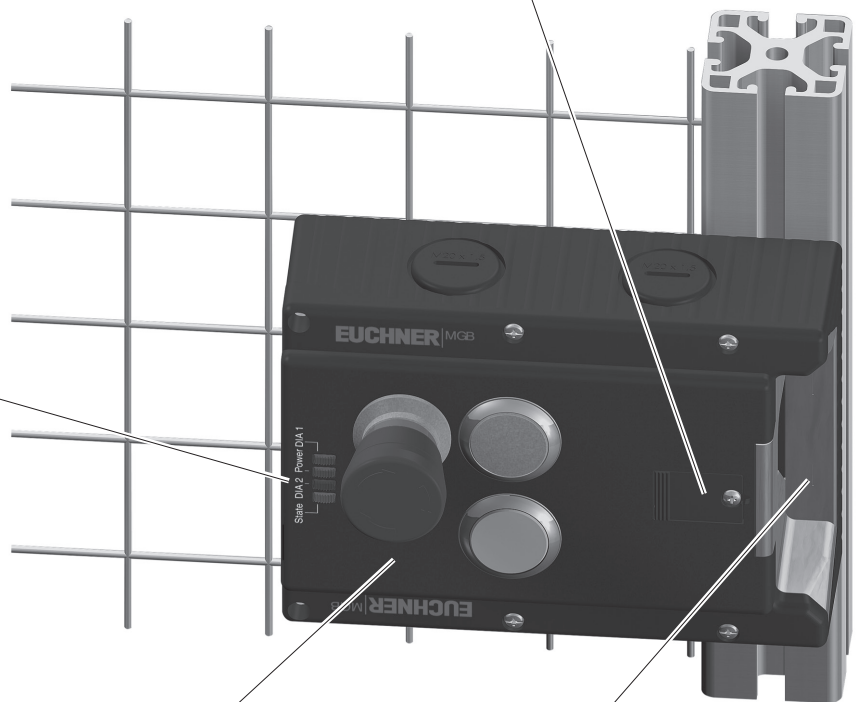
**Evaluation module
(as interlocking module or locking module)**

Mechanical release

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

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.

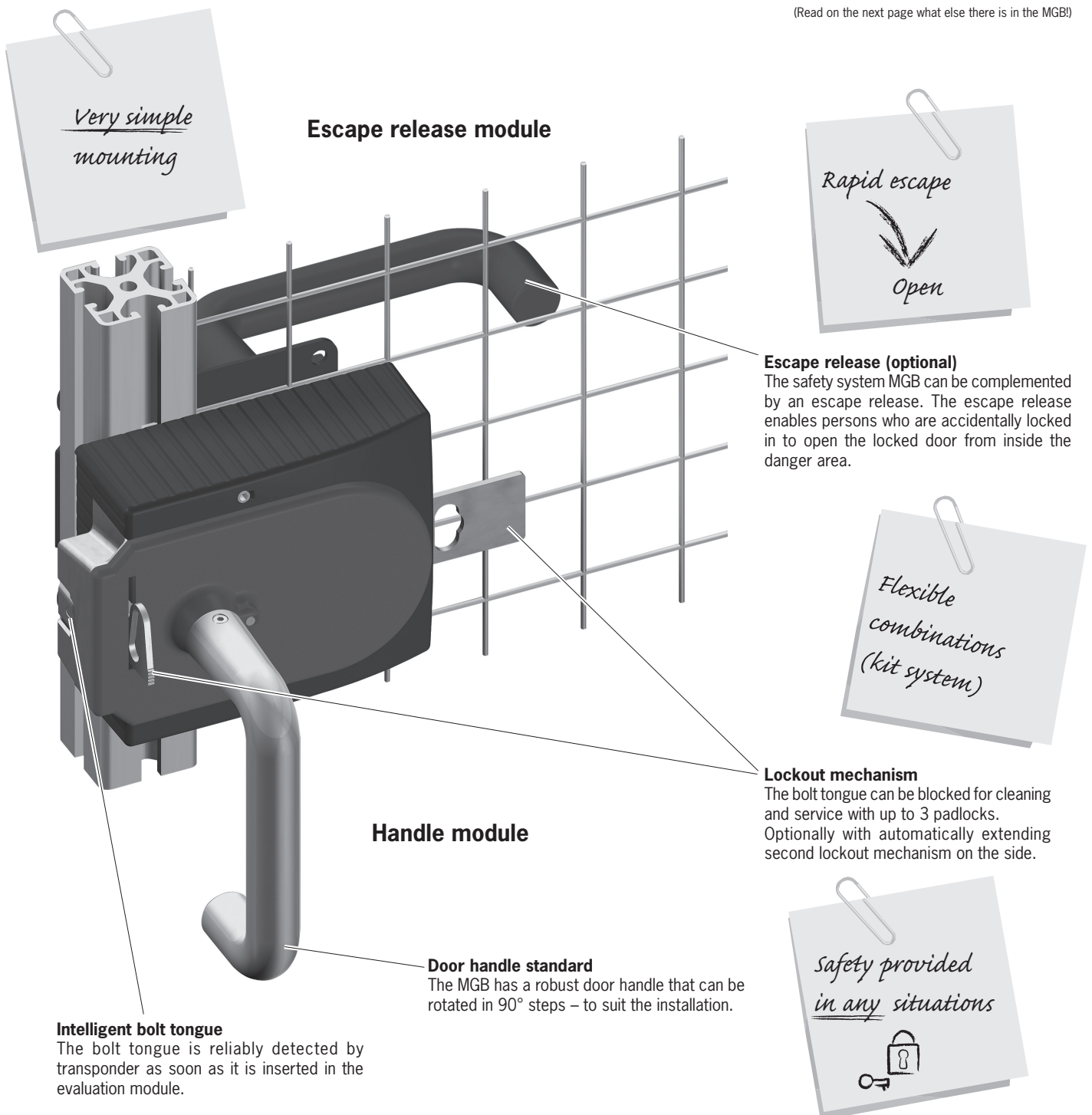
The adjustment of safety doors in fences changes over time. With ± 4 mm tolerance in the x direction as well as ± 5 mm in the z direction, the MGB is right there where the problem starts. Nevertheless, if a safety door should be even more out of adjustment, the large funnel in the evaluation module "catches"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



Intelligent bolt tongue

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

Door handle standard

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

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.

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.

The advantages of the Multifunctional Gate Box MGB

- ▶ Suitable for all profiles (optimized for mounting on profiles)
- ▶ 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

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.




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

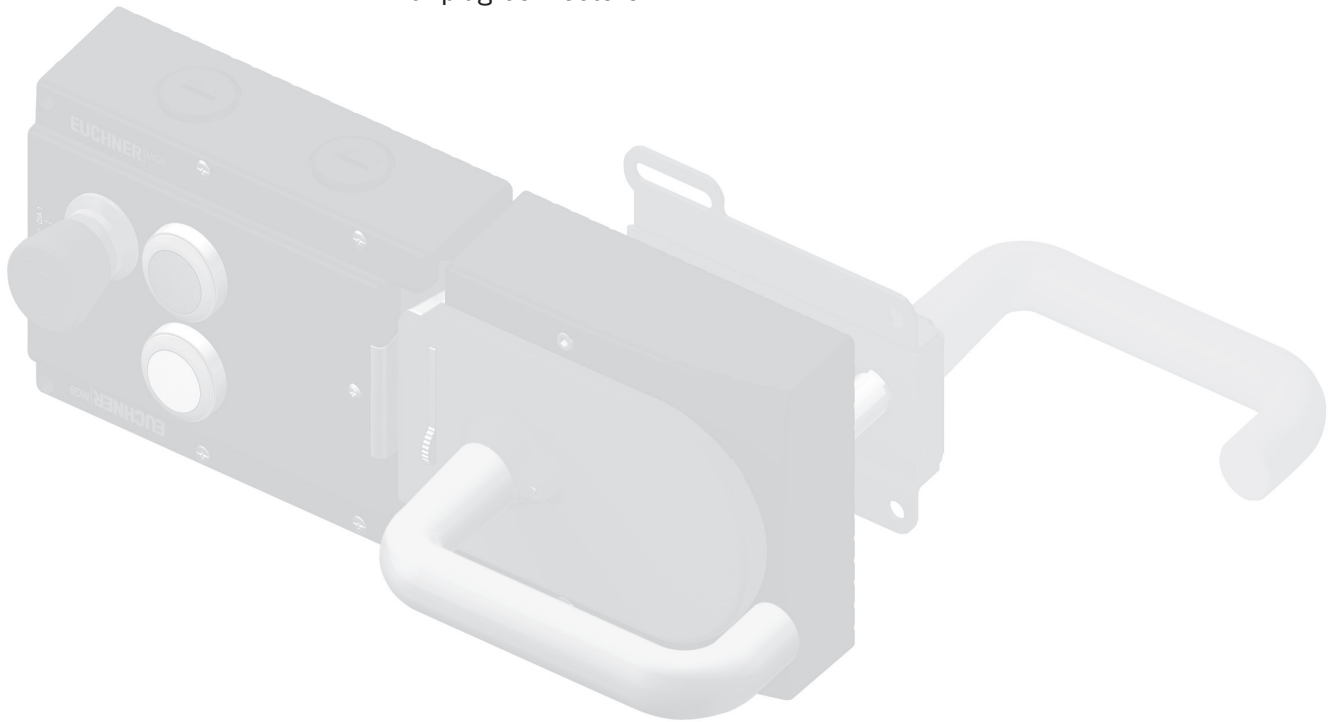
Controls and indicators

	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

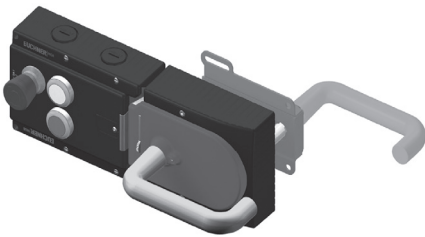
- ▶ Interlocking or guard locking with handle module
- ▶ With escape release
- ▶ With buttons and emergency stop
- ▶ With plug connectors



MGB-AP

Interlocking sets MGB-L0-AP... (without guard locking)	10 - 11
with 3 controls and indicators	10
Locking sets MGB-L1-AP... (guard locking by spring force)	12 - 15
with 3 controls and indicators	12
with 4 controls and indicators	14
Locking sets MGB-L2-AP... (guard locking by solenoid force)	16 - 19
with 3 controls and indicators	16
with 4 controls and indicators	18
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Interlocking sets MGB-LO-AP... with 3 controls or 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

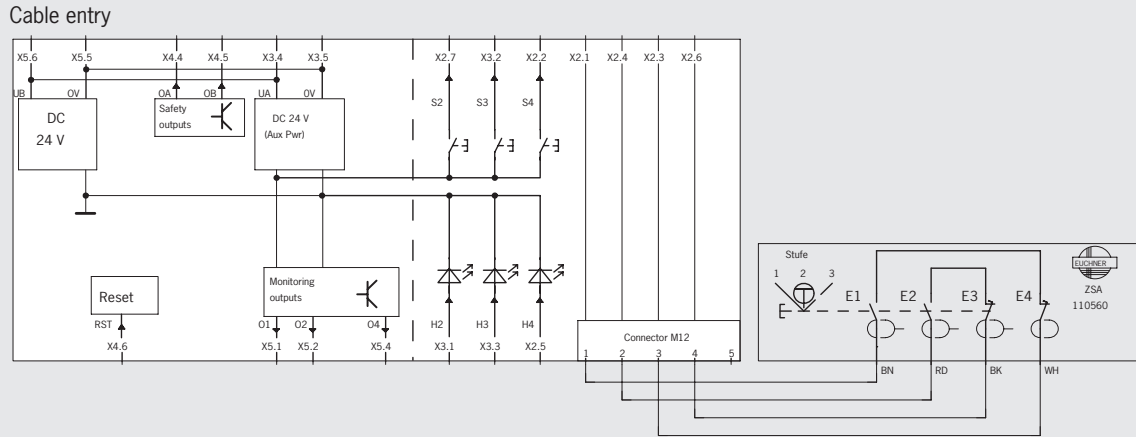
- ▶ Dimension drawings see p. 21
- ▶ Technical data see p. 20
- ▶ Accessories and spare parts see p. 77
- ▶ www.mgb.EUCHNER.de

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

Ordering table

Modules in the set								Ordering data set	
Version/configuration scheme <small>Order no. separate module</small>	Interlocking module				Conne- ction	Handle module <small>Order no. separate module</small>	Escape release <small>Order no. separate module</small>	Door stop <small>(Factory setting)</small>	Order no./item
	S1 H1	S2 H2	S3 H3	S4 H4					
110546 Plug connector M12 for enabling switch incl. label carrier	-				Cable entry	100464	not included	right	110550 MGB-LOH-APA-R-110550
110547 Plug connector M12 for enabling switch incl. label carrier	-				Cable entry	106619	not included	left	110551 MGB-LOH-APA-L-110551

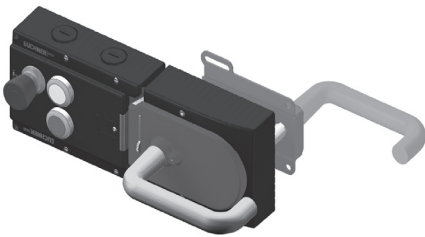
Block diagram and wiring diagram for controls and indicators



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.

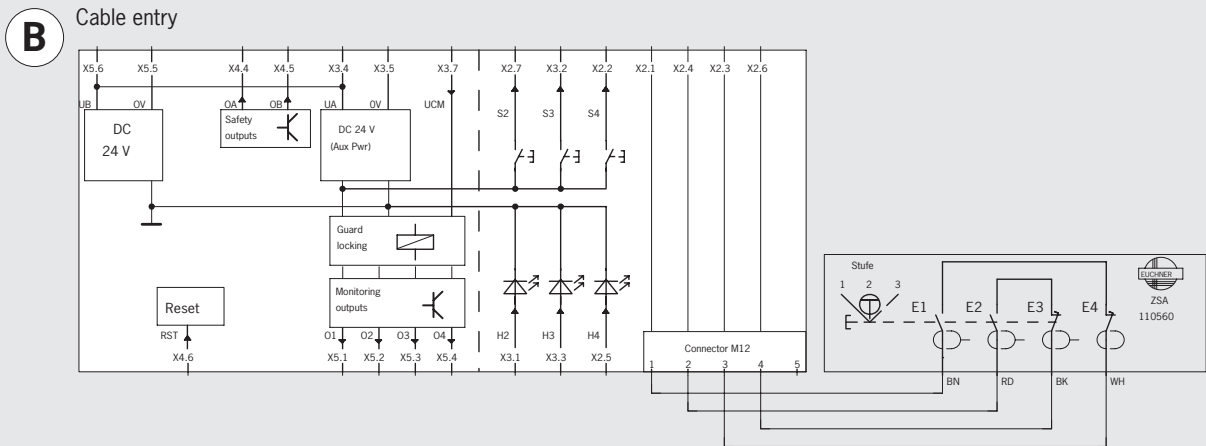
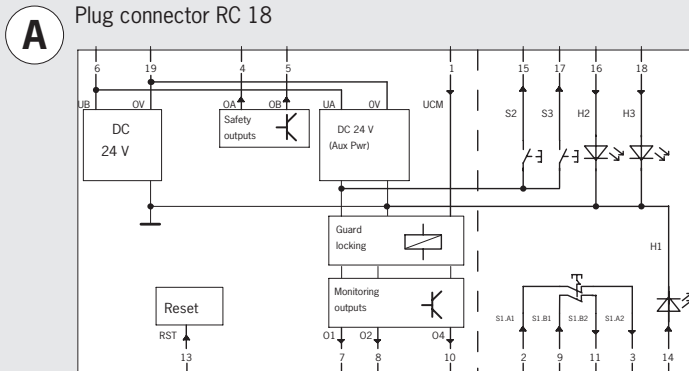
Further information

- ▶ Dimension drawings see p. 21
- ▶ Technical data see p. 20
- ▶ Accessories and spare parts see p. 77
- ▶ www.mgb.EUCHNER.de

Ordering table

Version/configuration scheme <small>Order no. separate module</small>	Modules in the set					Handle module <small>Order no. separate module</small>	Escape release <small>Order no. separate module</small>	Door stop <small>(Factory setting)</small>	Ordering data set Order no./item
	S1 H1	S2 H2	S3 H3	S4 H4	Connec- tion				
109764 Illuminated emergency stop, incl. label carrier				-	Plug connector RC18 wiring diagram A	100464	not included	right	109772 MGB-L1H-APAR-109772
110585 Plug connector M12 for enabling switch incl. label carrier	-				Cable entry wiring diagram B	100464	not included	right	110587 MGB-L1H-APAR-110587
110586 Plug connector M12 for enabling switch incl. label carrier	-				Cable entry wiring diagram B	106619	not included	left	110588 MGB-L1H-APAL-110588

Block diagram and wiring diagram for controls and indicators



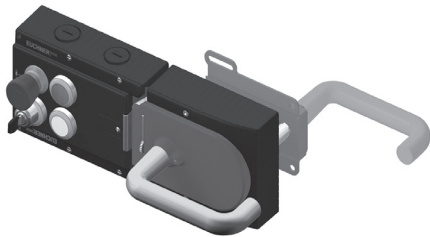
Terminal assignment plug connector RC18

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		
15		
16		See wiring diagram
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-L1-AP... (guard locking by spring force) with 4 controls or indicators



Further information

- ▶ Dimension drawings see p. 21
- ▶ Technical data see p. 20
- ▶ Accessories and spare parts see p. 77
- ▶ www.mgb.EUCHNER.de

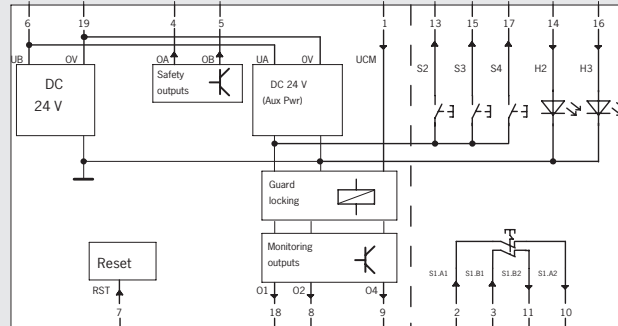
- ▶ Guard locking with guard lock monitoring in accordance with EN 1088
- ▶ With plug connector
- ▶ Integrated controls and indicators

Ordering table

Modules in the set							Ordering data set		
Version/configuration scheme <small>Order no. separate module</small>	Locking module				Connec- tion	Handle module <small>Order no. separate module</small>	Escape release <small>Order no. separate module</small>	Door stop <small>(Factory setting)</small>	Order no./item
	S1 H1	S2 H2	S3 H3	S4 H4					
111898 					Plug connec- tor RC18	100464	not included	right	111899 MGB-L1H-APAR-111899
111903 					Plug connec- tor RC18	106619	not included	left	111904 MGB-L1H-APAL-111904

Block diagram and wiring diagram for controls and indicators

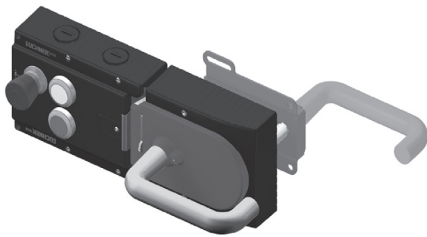
Plug connector RC 18



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	$S1.B_1$	Emergency stop (channel B)
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	$S1.A_2$	Emergency stop (channel A)
11	$S1.B_2$	Emergency stop (channel B)
12	-	Not used
13		
14		
15		See wiring diagram
16		
17		
18	O1	Door monitoring output, ON when door is closed.
19	0 V	Ground

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.

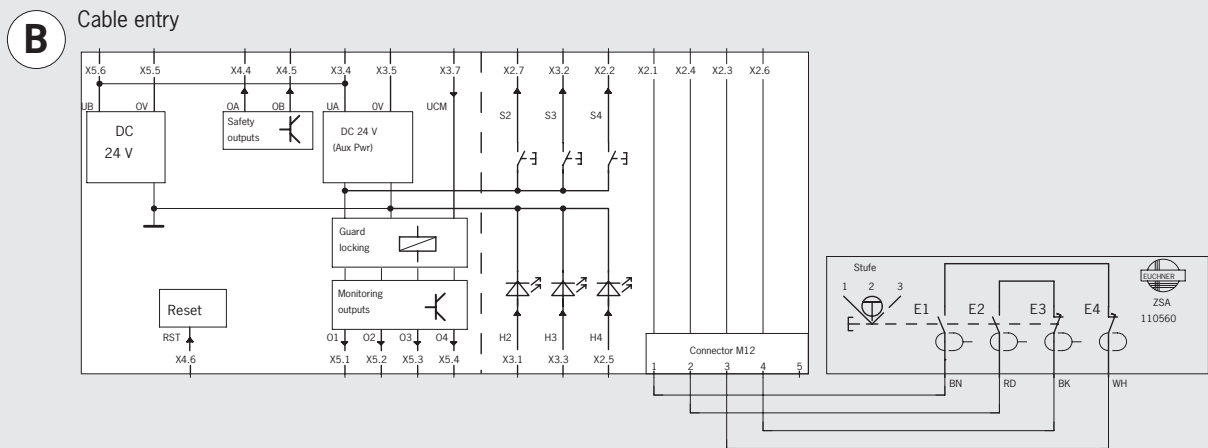
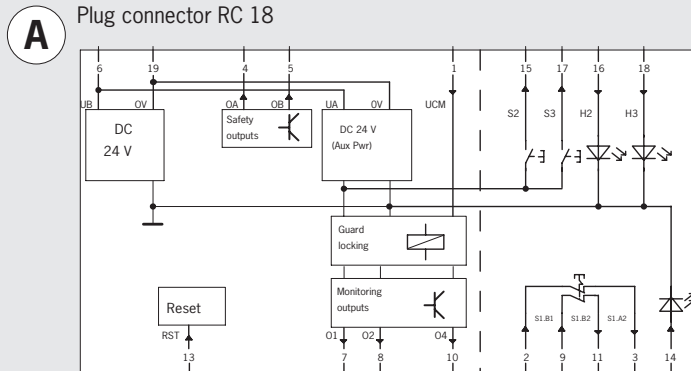
Further information

- ▶ Dimension drawings see p. 21
- ▶ Technical data see p. 20
- ▶ Accessories and spare parts see p. 77
- ▶ www.mgb.EUCHNER.de

Ordering table

Modules in the set						Ordering data set			
Version/configuration scheme <small>Order no. separate module</small>	Locking module				Connec- tion	Handle module <small>Order no. separate module</small>	Escape release <small>Order no. separate module</small>	Door stop <small>(Factory setting)</small>	Order no./item
	S1 H1	S2 H2	S3 H3	S4 H4					
109765 Illuminated emergency stop, incl. label carrier				-	Plug connector RC 18 wiring diagram A	100464	not included	right	109771 MGB-L2H-APA-R-109771
110076 Illuminated emergency stop, incl. label carrier				-	Plug connector RC 18 wiring diagram A	106619	not included	left	110075 MGB-L2H-APA-L-110075
110544 Plug connector M12 for enabling switch incl. label carrier	-				Cable entry wiring diagram B	100464	not included	right	110548 MGB-L2H-APA-R-110548
110545 Plug connector M12 for enabling switch incl. label carrier	-				Cable entry wiring diagram B	106619	not included	left	110549 MGB-L2H-APA-L-110549

Block diagram and wiring diagram for controls and indicators



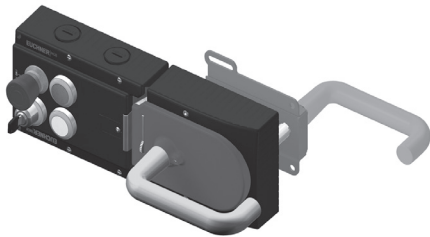
Terminal assignment plug connector RC18

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		
15		
16		See wiring diagram
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

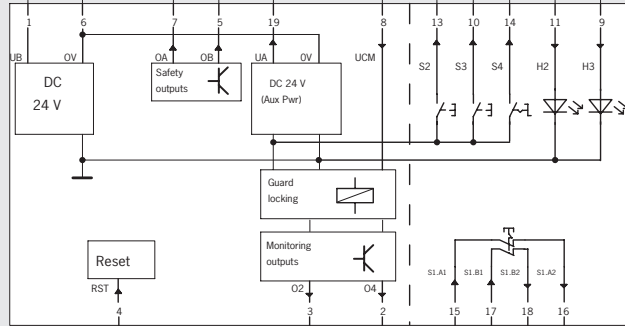
- ▶ Dimension drawings see p. 21
- ▶ Technical data see p. 20
- ▶ Accessories and spare parts see p. 77
- ▶ www.mgb.EUCHNER.de

Ordering table

Version/configuration scheme <small>Order no. separate module</small>	Modules in the set					Connec- tion	Handle module <small>Order no. separate module</small>	Escape release <small>Order no. separate module</small>	Door stop <small>(Factory setting)</small>	Ordering data set Order no./item
	S1 H1	S2 H2	S3 H3	S4 H4	Locking module					
110523 Incl. label carrier, IP42						Plug connec- tor RC18	100464	100465	right	110521 MGB-L2HE-APA-R-110521
110524 Incl. label carrier, IP42						Plug connec- tor RC18	106619	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, ON when the device is in the fault state.
3	O2	Bolt tongue monitoring output, 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, ON when the door is closed and locked.
6	0 V	Ground
7	O _A	Safety output channel A, ON when the door is closed and locked.
8	U _{CM}	Control voltage for switching on and off the guard locking.
9		
10		See wiring diagram
11		
12		Plug connector housing
13		
14		
15		
16		See wiring diagram
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 stainless steel	
Dimensions	See dimension drawing	
Weight		
Locking module	0.75	kg
Handle module	1.00	
Escape release	0.50	
Ambient temperature at $U_B = DC 24 V$	-20 ... +55	°C
Degree of protection		
Cover not populated	IP 65	
Cover populated	IP 54	
Cover populated with key-operated switch	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 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}	$U_B - 2V \dots U_B$	V DC
LOW U_{OA} / U_{OB}	0 ... 1	
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	p-switching, short circuit-proof	
- Output voltage ¹⁾	$U_A - 2V \dots U_A$	mA
- Max. load	max. 200	
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	$2.4 \times 10^9 / h^{3)}$	
Mission time	20	years
$B_{10d}^{4)}$ emergency stop	1×10^5	cycles

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

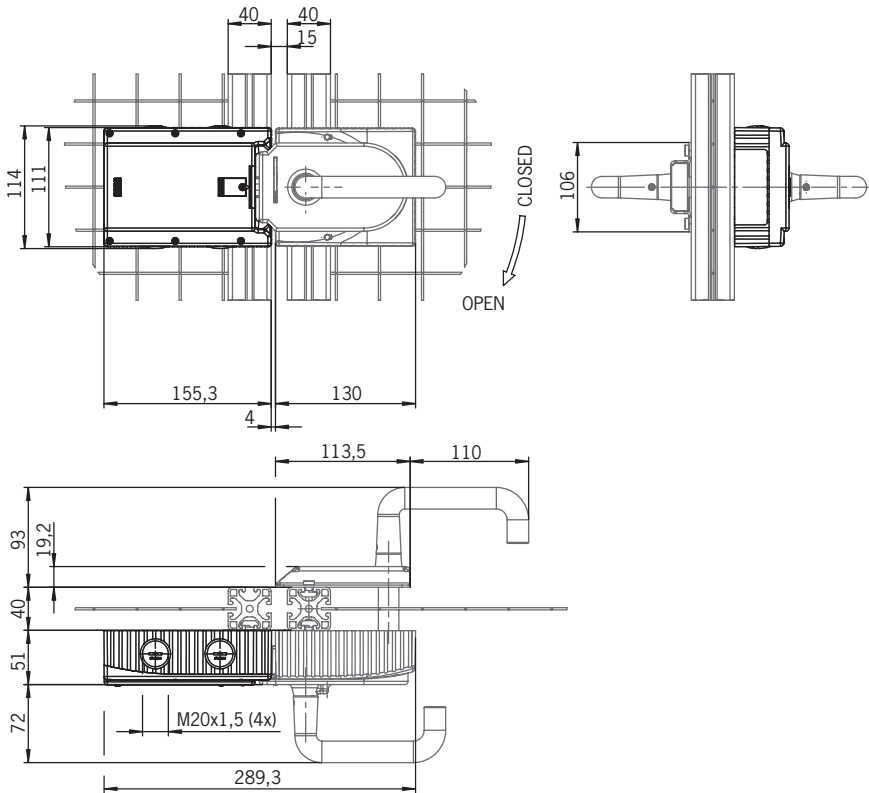
2) The reliability figures apply to the interlocking or the guard locking depending on the version.

3) Applying the limit value from EN ISO 13849-1:2008, section 4.5.2 ($MTTF_d = \max. 100 \text{ years}$) BG certifies a PFH_d of max. 2.47×10^8 .

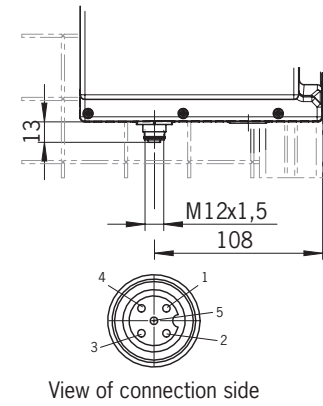
4) Information regarding wearing parts without consideration of fixed failure rates in electronic components.

Dimension drawings

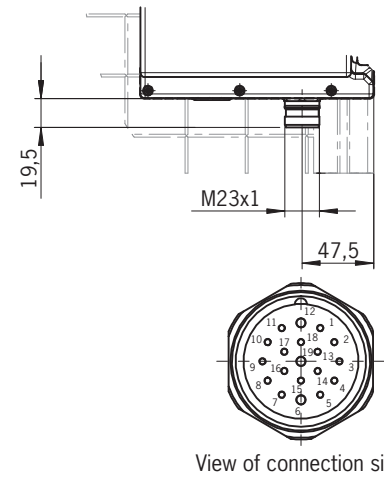
► MGB-...-AP without additional controls and indicators



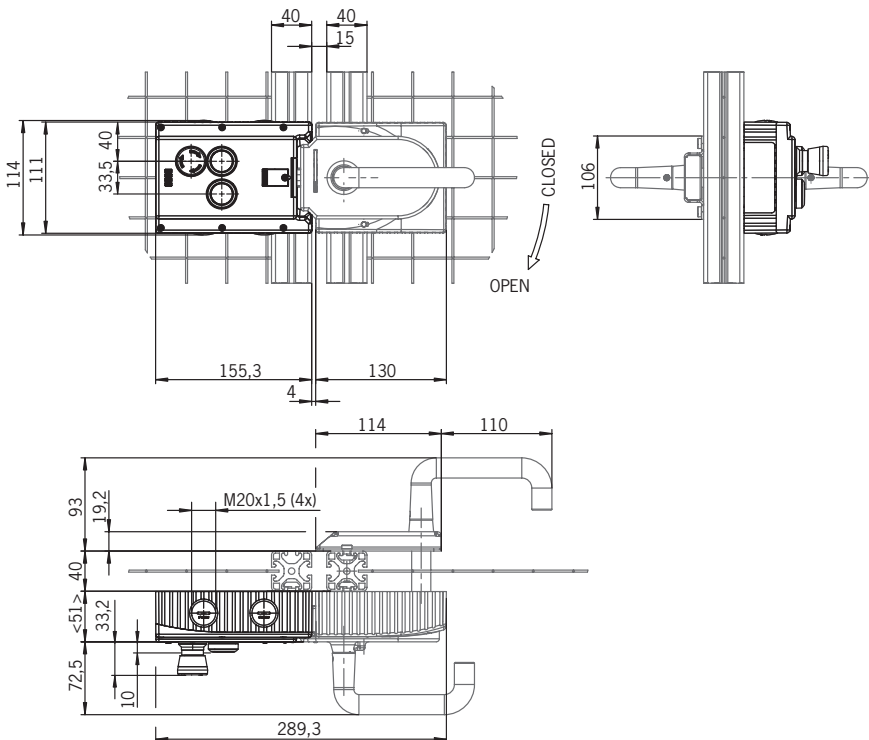
► Plug connector M12



► Plug connector RC18

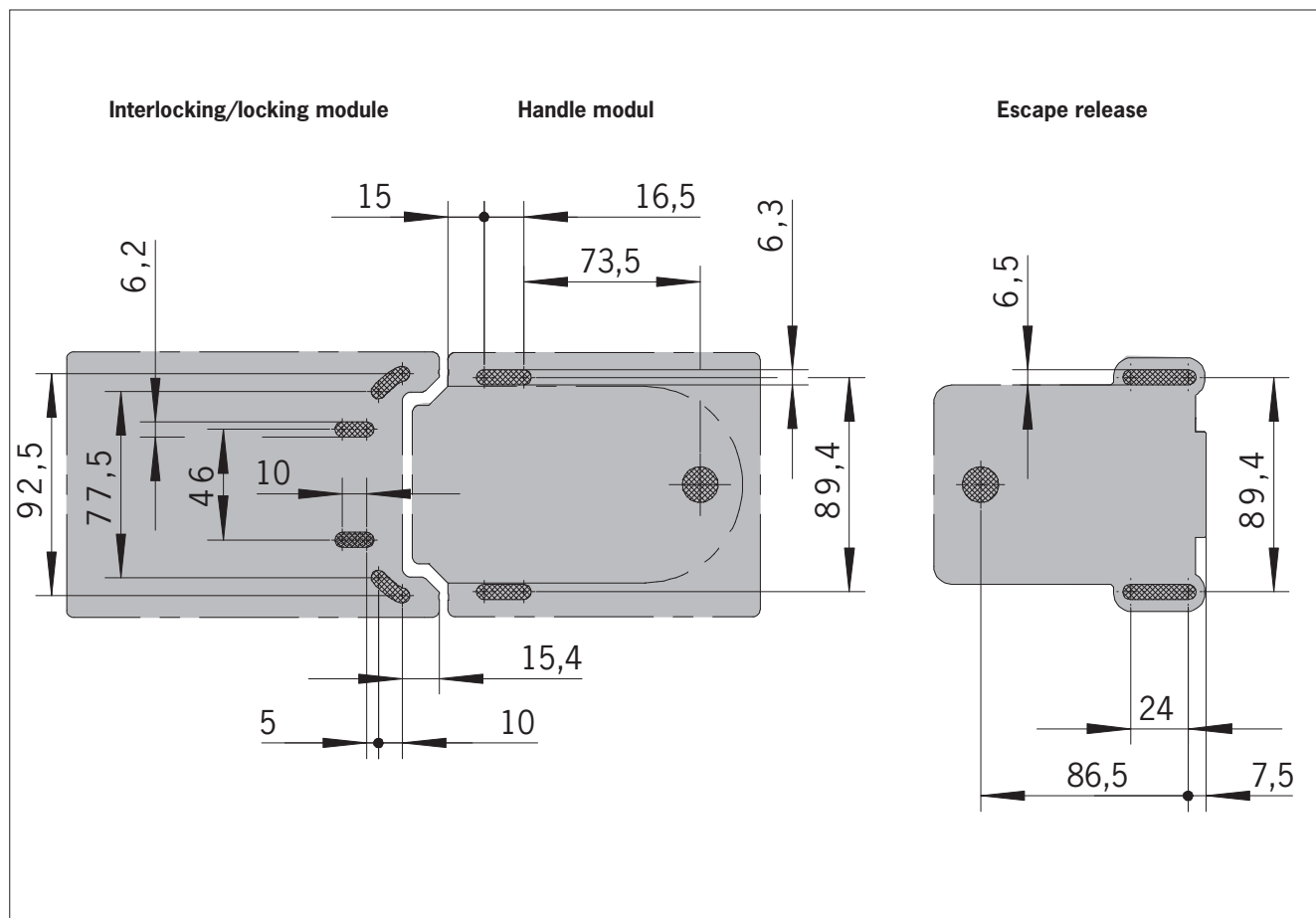


► MGB-...-AP with additional controls and indicators



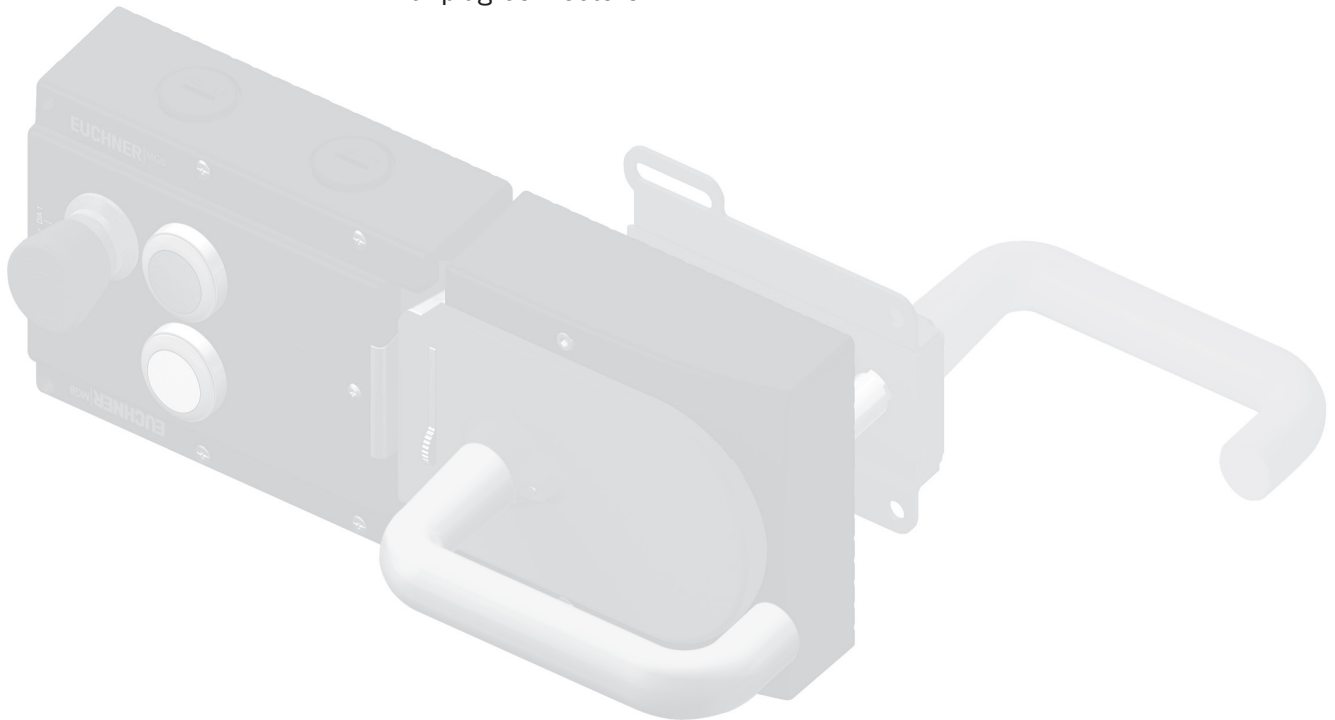
MGB-AP

Drilling pattern



Complete sets system family MGB-AR

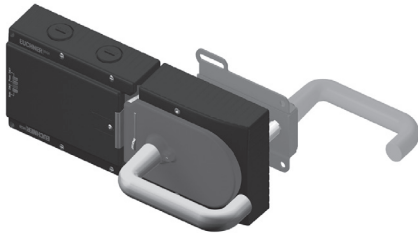
- ▶ Interlocking or guard locking with handle module
- ▶ With escape release
- ▶ With buttons and emergency stop
- ▶ With plug connectors



MGB-AR

Interlocking sets MGB-L0-AR... (without guard locking)	26 - 35
without controls and indicators	26
with 2 controls and indicators	30
with 3 controls and indicators	32
Locking sets MGB-L1-AR... (guard locking by spring force)	36 - 55
without controls and indicators	36
with 1 control and indicator	40
with 2 controls and indicators	42
with 3 controls and indicators	48
with 4 controls and indicators	54
Locking sets MGB-L2-AR... (guard locking by solenoid force)	56 - 70
without controls and indicators	56
with 2 controls and indicators	58
with 3 controls and indicators	62
with 4 controls and indicators	68
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Interlocking sets MGB-LO-AR... without controls or indicators

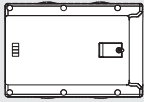
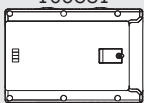
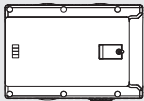
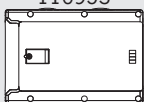


Further information

- ▶ Dimension drawings see p. 72
- ▶ Technical data see p. 71
- ▶ Accessories and spare parts see p. 77
- ▶ www.mgb.EUCHNER.de



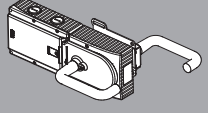
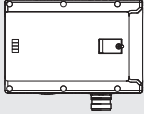
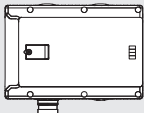
- ▶ Interlocking (without guard locking) in accordance with EN 1088
- ▶ Can be connected in series with other AR devices (e. g. CES-AR and CET-AR)
- ▶ With cable entry or plug connector

Ordering table

Modules in the set									Ordering data set
Version/configuration scheme <small>Order no. separate module</small>	Interlocking module				Connec- tion	Handle module <small>Order no. separate module</small>	Escape release <small>Order no. separate module</small>	Door stop <small>(Factory setting)</small>	Order no./item
	S1 H1	S2 H2	S3 H3	S4 H4					
105331 	-	-	-	-	Cable entry wiring diagram A	100464	not included	right	105778 MGB-LOH-AR-R-105778
105331 	-	-	-	-	Cable entry wiring diagram A	100464	100465	right	105780 MGB-LOHE-AR-R-105780
110950 	-	-	-	-	Plug connector RC18 wiring diagram B	100464	not included	right	110949 MGB-LOH-ARA-R-110949
110953 	-	-	-	-	Plug connector RC18 wiring diagram B	106619	not included	left	110952 MGB-LOH-ARA-L-110952

(Continued on next page)

Ordering table (continued)

Modules in the set						Ordering data set			
Version/configuration scheme <small>Order no. separate module</small>	Interlocking module				Connec- tion			Door stop <small>(Factory setting)</small>	
	S1 H1	S2 H2	S3 H3	S4 H4		Handle module <small>Order no. separate module</small>	Escape release <small>Order no. separate module</small>		
111937 	-	-	-	-	Plug connec- tor RC18 wiring diagram C	111157	100465	right	111938 MGB-LOHE-ARA-R-111938
111941 	-	-	-	-	Plug connec- tor RC18 wiring diagram C	111158	100465	left	111942 MGB-LOHE-ARA-L-111942

MGB-AR

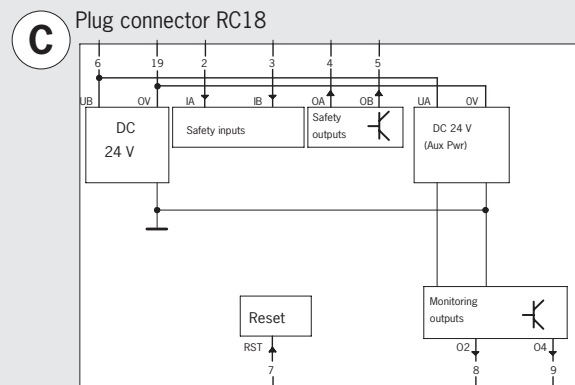
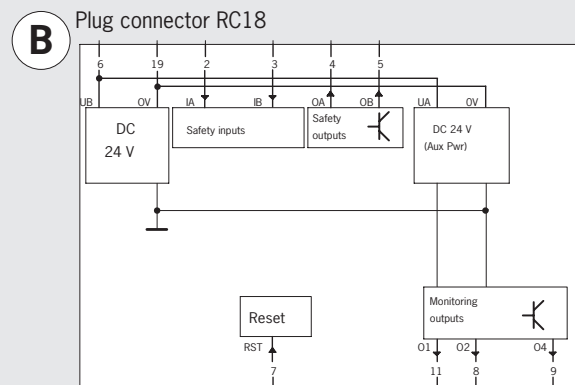
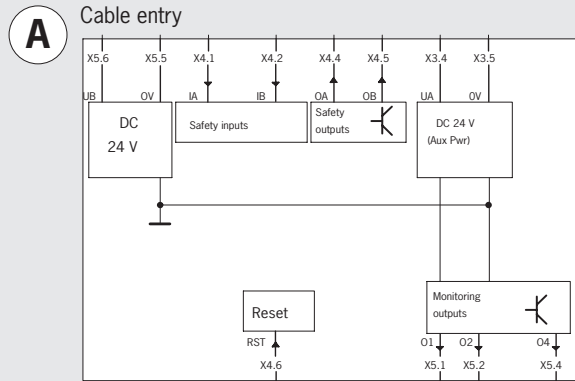
Interlocking sets MGB-L0-AR...
without controls or indicators



Cat. 4
PLe



Block diagram



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, 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 locking 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

Terminal assignment plug connector RC18 acc. wiring diagram B

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, ON when the door is closed and the bolt tongue is inserted in the interlocking module.
5	O _B	Safety output channel B, ON when the door is closed and the bolt tongue is inserted in the interlocking module.
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 interlocking module.
9	O4	Monitoring output DIA2, ON when the device is in the fault state.
10	-	Not used
11	O1	Door monitoring output, ON when the door is closed.
12	-	
13	-	
14	-	
15	-	Not used
16	-	
17	-	
18	-	
19	0 V	Ground

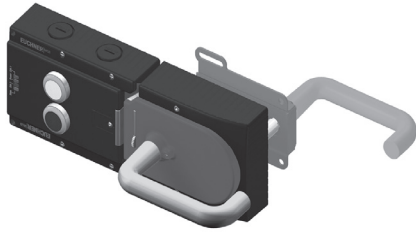
Terminal assignment plug connector RC18 acc. wiring diagram C

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, ON when the door is closed and the bolt tongue is inserted in the interlocking module.
5	O _B	Safety output channel B, ON when the door is closed and the bolt tongue is inserted in the interlocking module.
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 interlocking module.
9	O4	Monitoring output DIA2, ON when the device is in the fault state.
10	-	
11	-	
12	-	
13	-	
14	-	Not used
15	-	
16	-	
17	-	
18	-	
19	0 V	Ground

Interlocking sets MGB-LO-AR... with 2 controls or indicators



Cat.
4
PLe



Further information

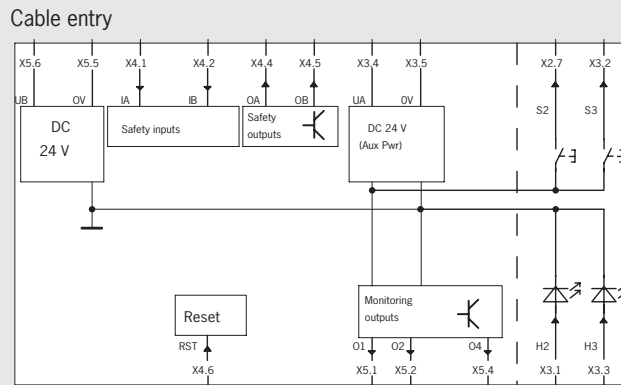
- ▶ Dimension drawings see p. 72
- ▶ Technical data see p. 71
- ▶ Accessories and spare parts see p. 77
- ▶ www.mgb.EUCHNER.de

- ▶ 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

Ordering table for complete sets

Modules in the set							Ordering data set		
Version/configuration scheme <small>Order no. separate module</small>	Interlocking module				Conne- tion	Handle module <small>Order no. separate module</small>	Escape release <small>Order no. separate module</small>	Door stop <small>(Factory setting)</small>	Order no./item
	S1 H1	S2 H2	S3 H3	S4 H4					
109843 	-	 wh	 bu	-	Cable entry	100464	not included	right	109839 MGB-LOH-AR-R-109839

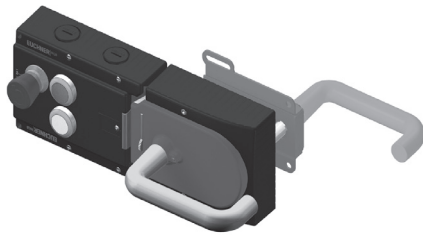
Block diagram and wiring diagram for controls and indicators



Terminal assignment cable entry

Terminal	Designation	Description
X2.1 to X2.7	-	See wiring diagram for controls and indicators.
X3.1 to X3.3	-	See wiring diagram for controls and indicators.
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-LO-AR... with 3 controls or 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. 72
- ▶ Technical data see p. 71
- ▶ Accessories and spare parts see p. 77
- ▶ www.mgb.EUCHNER.de



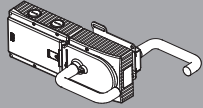
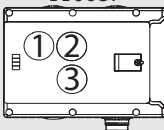



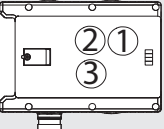



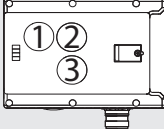



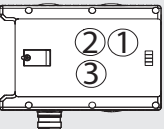



- ▶ Interlocking (without guard locking) in accordance with EN 1088
- ▶ Can be connected in series with other AR devices (e. g. CES-AR and CET-AR)
- ▶ With cable entry or plug connector
- ▶ Integrated controls and indicators

Ordering table

Modules in the set							Ordering data set		
Version/configuration scheme <small>Order no. separate module</small>	Interlocking module				Connec- tion	Handle module <small>Order no. separate module</small>	Escape release <small>Order no. separate module</small>	Door stop <small>(Factory setting)</small>	Order no./item
	S1 H1	S2 H2	S3 H3	S4 H4					
106106 				-	Cable entry wiring diagram A	100464	not included	right	105779 MGB-LOH-AR-R-105779
106106 				-	Cable entry wiring diagram A	100464	100465	right	105781 MGB-LOHE-AR-R-105781
109001 				-	Cable entry wiring diagram A	100464	100465	right	109002 MGB-LOHE-AR-R-109002

(Continued on next page)

Ordering table (continued)

Modules in the set						Ordering data set			
Version/configuration scheme	Interlocking module				Connec- tion			Door stop (Factory setting)	 Order no./item
	S1 H1	S2 H2	S3 H3	S4 H4		Handle module Order no. separate module	Escape release Order no. separate module		
110687  Incl. label carrier				-	Plug con- nector RC18 wiring diagram B	111157	100465	right	110691 MGB-LOHE-ARA-R-110691
110688  Incl. label carrier				-	Plug con- nector RC18 wiring diagram B	111158	100465	left	110692 MGB-LOHE-ARA-L-110692
110687  Incl. label carrier				-	Plug con- nector RC18 wiring diagram B	111157	not included	right	110955 MGB-LOH-ARA-R-110955
110688  Incl. label carrier				-	Plug con- nector RC18 wiring diagram B	111158	not included	left	110958 MGB-LOH-ARA-L-110958

MGB-AR

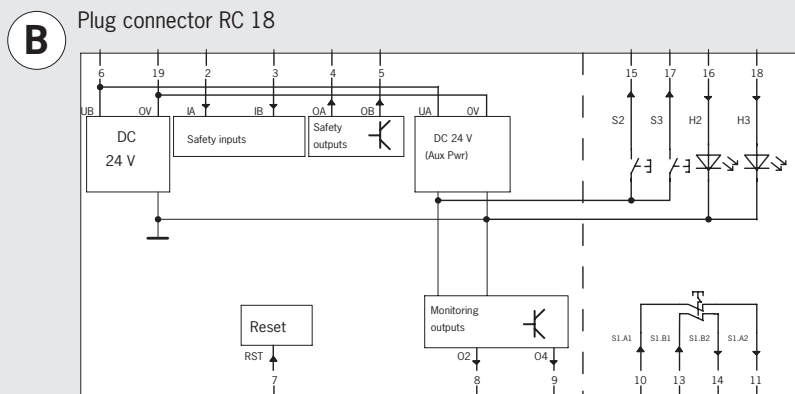
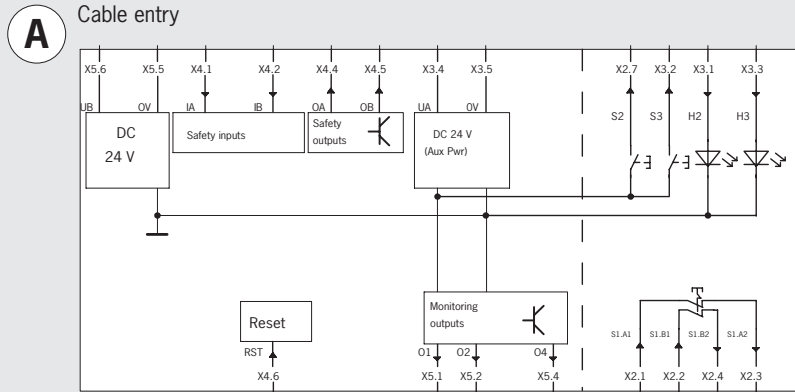
Interlocking sets MGB-LO-AR...
with 3 controls or indicators



Cat. 4
PLe



Block diagram and wiring diagrams for controls and indicators



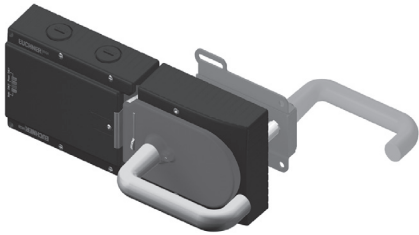
Terminal assignment cable entry

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, 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

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, ON when the door is closed and the bolt tongue is inserted in the interlocking module.
5	O _B	Safety output channel B, ON when the door is closed and the bolt tongue is inserted in the interlocking module.
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 interlocking module.
9	O4	Monitoring output DIA2, ON when the device is in the fault state.
10		
11	-	See wiring diagram B
12	-	Not used
13		
14		
15		
16		See wiring diagram B for controls and indicators.
17		
18		
19	0 V	Ground

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



Further information

- ▶ Dimension drawings see p. 72
- ▶ Technical data see p. 71
- ▶ Accessories and spare parts see p. 77
- ▶ www.mgb.EUCHNER.de



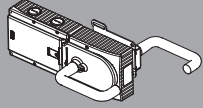
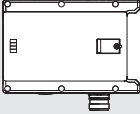
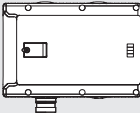
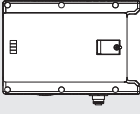
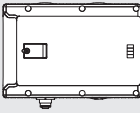
- ▶ Guard locking with guard lock monitoring in accordance with EN 1088
- ▶ Can be connected in series with other AR devices (e. g. CES-AR and CET-AR)
- ▶ With cable entry or plug connector

Ordering table

Modules in the set									Ordering data set
Version/configuration scheme <small>Order no. separate module</small>	Locking module				Connec- tion	Handle module	Escape release	Door stop <small>(Factory setting)</small>	Order no./item
	S1 H1	S2 H2	S3 H3	S4 H4		<small>Order no. separate module</small>	<small>Order no. separate module</small>		
104302 	-	-	-	-	Cable entry wiring diagram A	100464	not included	right	105782 MGB-L1H-AR-R-105782
104302 	-	-	-	-	Cable entry wiring diagram A	100464	100 465	right	105784 MGB-L1HE-AR-R-105784
111071 	-	-	-	-	Plug connector RC18 wiring diagram B	100464	not included	right	111070 MGB-L1H-ARA-R-111070
111074 	-	-	-	-	Plug connector RC18 wiring diagram B	106619	not included	left	111073 MGB-L1H-ARA-L-111073

(Continued on next page)

Ordering table (continued)

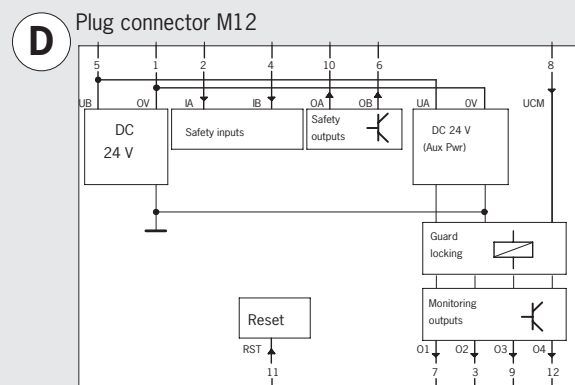
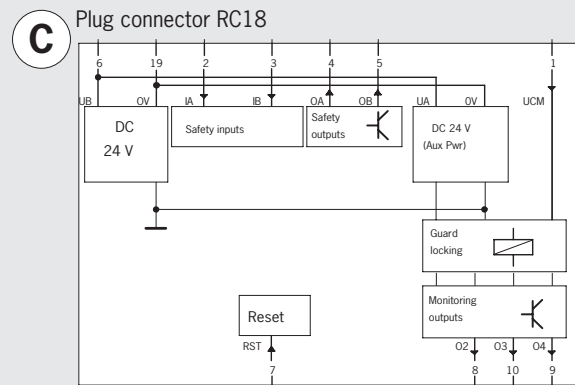
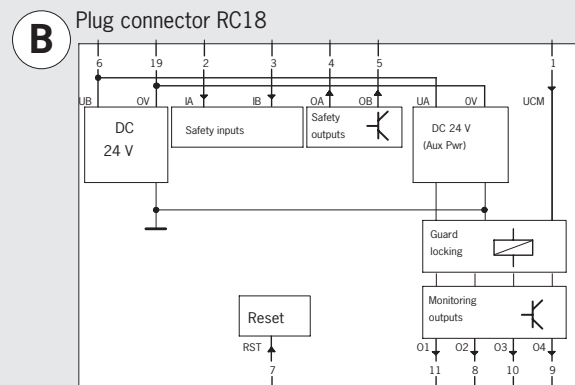
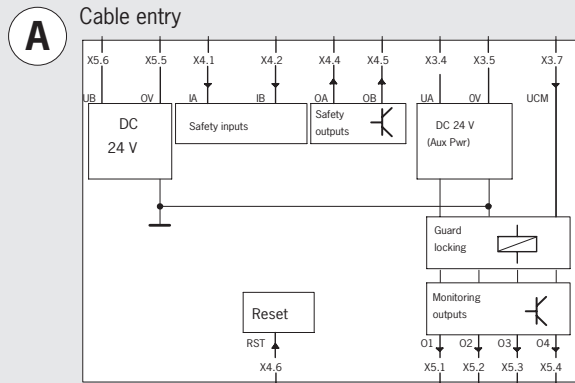
Modules in the set						Ordering data set			
Version/configuration scheme Order no. separate module	Locking module				Connec- tion	 Handle module Order no. separate module	 Escape release Order no. separate module	Door stop (Factory setting)	 Order no./item
	S1 H1	S2 H2	S3 H3	S4 H4					
111939 	-	-	-	-	Plug con- nector RC18 wiring diagram C	111157	100465	rechts	111940 MGB-L1HE-ARA-R-111940
111943 	-	-	-	-	Plug con- nector RC18 wiring diagram C	111158	100465	links	111944 MGB-L1HE-ARA-L-111944
111521 	-	-	-	-	Plug con- nector M12 wiring diagram D	100464	100465	rechts	111530 MGB-L1HE-ARA-R-111530
111533 	-	-	-	-	Plug con- nector M12 wiring diagram D	106619	100465	links	111534 MGB-L1HE-ARA-L-111534

MGB-AR

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



Block diagram



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 acc. wiring diagram C

Terminal	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	-	Door monitoring output, ON when the door is closed.
12	-	Not used
13		
14		
15		
16		Not used
17		
18		
19	0 V	Ground

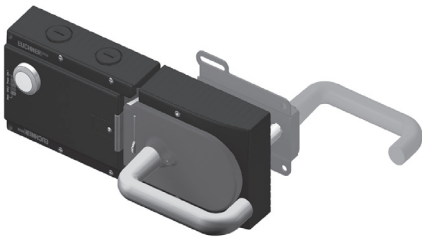
Terminal assignment plug connector RC18 acc. wiring diagram B

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		
14		
15		
16		Not used
17		
18		
19	0 V	Ground

Terminal assignment plug connector RC18 acc. wiring diagram D

Terminal	Designation	Description
1	0 V	Ground
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	O2	Bolt tongue monitoring output, ON when the door is closed and the bolt tongue is inserted in the locking module.
4	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.
5	U _A U _B	Power supply, DC 24 V
6	O _B	Safety output channel B, ON when the door is closed and locked.
7	O1	Door monitoring output, ON when the door is closed.
8	U _{CM}	Control voltage for switching on and off the guard locking.
9	O3	Guard locking monitoring output, ON when the door is closed and locked.
10	O _A	Safety output channel A, ON when the door is closed and locked.
11	RST	Reset input, device is reset if DC 24 V are applied to RST for at least 3 s.
12	O4	Monitoring output DIA2, ON when the device is in the fault state.

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



Details

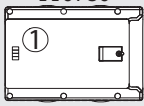

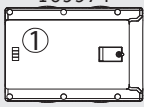

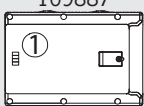

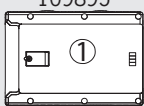

Degree of protection IP 65
By using special control and indicators, degree of protection IP 65 is achieved.

Further information

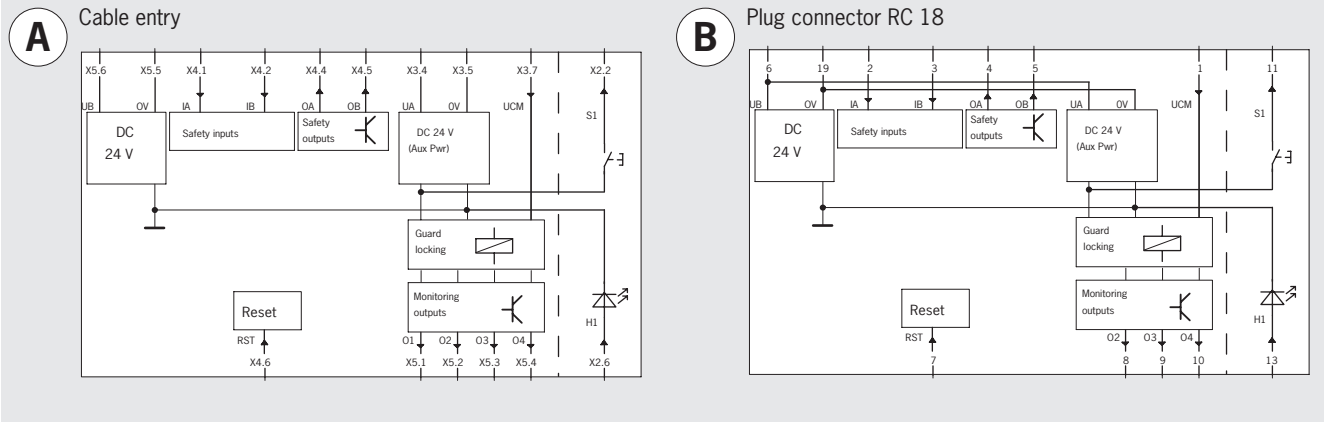
- ▶ Dimension drawings see p. 72
- ▶ Technical data see p. 71
- ▶ Accessories and spare parts see p. 77
- ▶ www.mgb.EUCHNER.de

- ▶ 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

Ordering table

Modules in the set							Ordering data set		
Version/configuration scheme <small>Order no. separate module</small>	Locking module				Connec- tion	Handle module <small>Order no. separate module</small>	Escape release <small>Order no. separate module</small>	Door stop <small>(Factory setting)</small>	Order no./item
	S1 H1	S2 H2	S3 H3	S4 H4					
110780  IP 65		-	-	-	Cable entry wiring diagram A	100464	100465	right	110782 MGB-L1HE-ARA-R-110782
109974  IP 65		-	-	-	Cable entry wiring diagram A	100464	100465	right	109973 MGB-L1HE-ARR-109973
109887  IP 65		-	-	-	Plug connector RC18 wiring diagram B	100464	100465	right	109885 MGB-L1HE-ARR-109885
109895  IP 65		-	-	-	Plug connector RC18 wiring diagram B	106619	100465	left	109893 MGB-L1HE-ARL-109893

Block diagram and wiring diagrams for controls and indicators



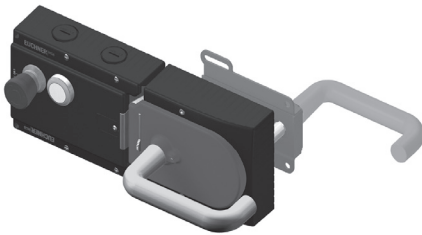
Terminal assignment cable entry

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, 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	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	-	See wiring diagram B for controls and indicators
12	-	Not used
13	-	Not used
14	-	Not used
15	-	See wiring diagram B for controls and indicators
16	-	Not used
17	-	Not used
18	-	Not used
19	0 V	Ground

Locking sets MGB-L1-AR... (guard locking by spring force) with 2 controls or 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. 72
- ▶ Technical data see p. 71
- ▶ Accessories and spare parts see p. 77
- ▶ www.mgb.EUCHNER.de

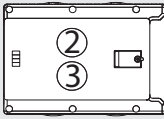


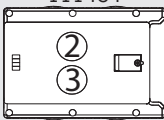


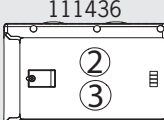


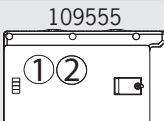


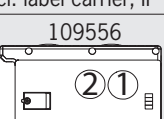


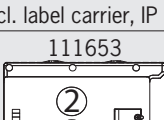


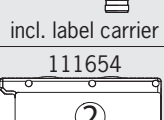


- ▶ Guard locking with guard lock monitoring in accordance with EN 1088
- ▶ Can be connected in series with other AR devices (e. g. CES-AR and CET-AR)
- ▶ With cable entry or plug connector
- ▶ Integrated controls and indicators

Ordering table

Modules in the set									Ordering data set
Version/configuration scheme <small>Order no. separate module</small>	Locking module				Connec- tion	Handle module <small>Order no. separate module</small>	Escape release <small>Order no. separate module</small>	Door stop <small>(Factory setting)</small>	Order no./item
	S1 H1	S2 H2	S3 H3	S4 H4					
109860 			-	-	Cable entry wiring diagram A	100464	100465	right	109863 MGB-L1HE-ARR-109863
109291 			-	-	Cable entry wiring diagram B	100464	100465	right	109355 MGB-L1HE-ARR-109355
109934 Incl. label carrier			-	-	Cable entry wiring diagram B	100464	not included	right	109937 MGB-L1H-ARR-109937
109752 	-			-	Cable entry wiring diagram C	100464	not included	right	109751 MGB-L1H-ARR-109751

(Continued on next page)

Ordering table (continued)

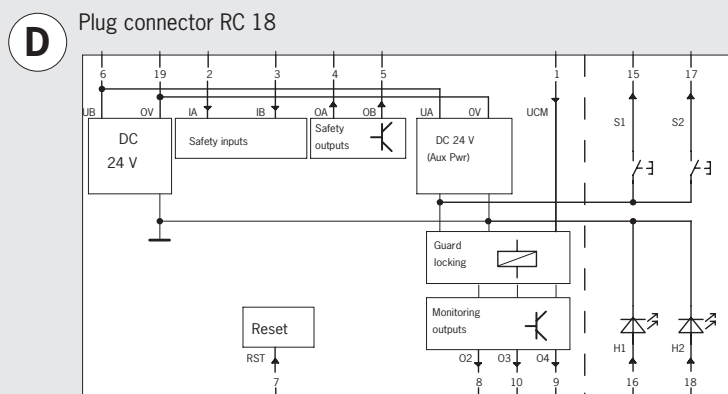
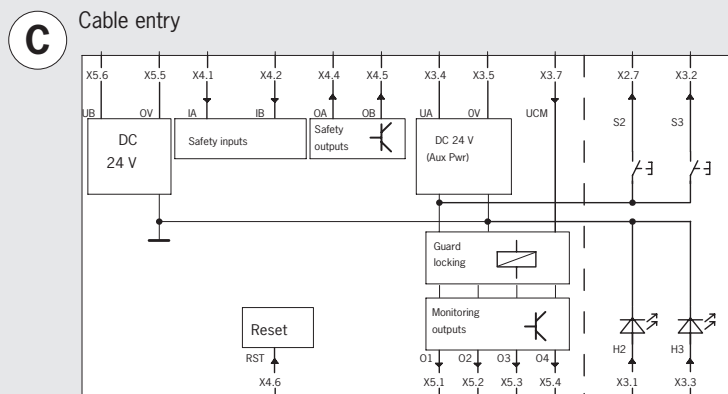
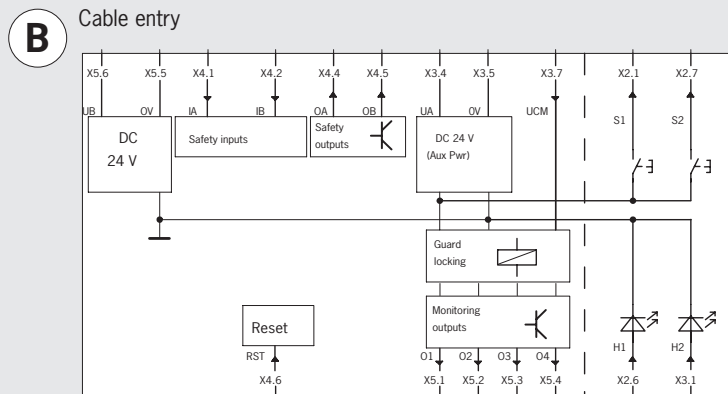
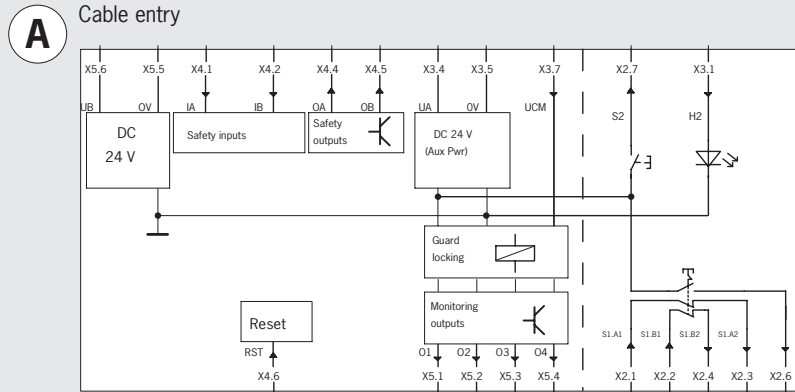
Modules in the set						Ordering data set			
Version/configuration scheme Order no. separate module	Locking module				Connec- tion	Handle module Order no. separate module	Escape release Order no. separate module	Door stop (Factory setting)	Order no./item
	S1 H1	S2 H2	S3 H3	S4 H4					
110711 	-	 ye	 bu	-	Cable entry wiring diagram C	100464	100465	right	110710 MGB-L1HE-ARA-R-110710
111434  Incl. label carrier	-	 bu	 wh	-	Cable entry wiring diagram C	100464	not included	right	111435 MGB-L1H-ARA-R-111435
111436  Incl. label carrier	-	 bu	 wh	-	Cable entry wiring diagram C	106619	not included	left	111437 MGB-L1H-ARA-L-111437
109555  incl. label carrier, IP 65	 gn	 gu	-	-	Plug connector RC18 wiring diagram D	100464	not included	right	109579 MGB-L1H-AR-R-109579
109556  incl. label carrier, IP 65	 gn	 gu	-	-	Plug connector RC18 wiring diagram D	106619	not included	left	109580 MGB-L1H-AR-L-109580
111653  incl. label carrier	-	 ye	 wh	-	Plug connector RC18 wiring diagram E	100464	not included	right	111655 MGB-L1H-ARA-R-111655
111654  incl. label carrier	-	 ye	 wh	-	Plug connector RC18 wiring diagram E	106619	not included	left	111656 MGB-L1H-ARA-L-111656

MGB-AR

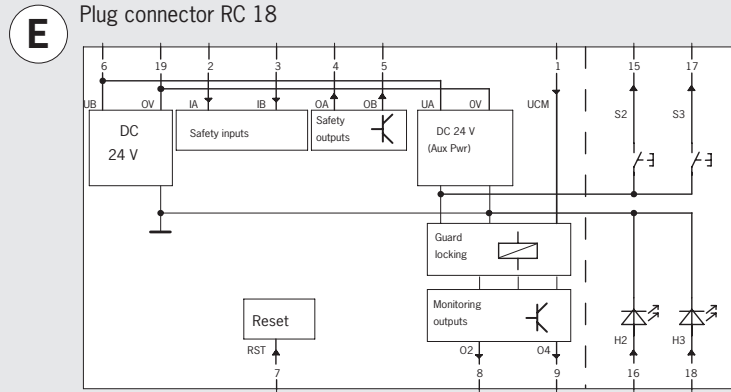
**Locking sets MGB-L1-AR... (guard locking by spring force)
with 2 controls or indicators**



Block diagram and wiring diagrams for controls and indicators



Block diagram and wiring diagrams for controls and indicators



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



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

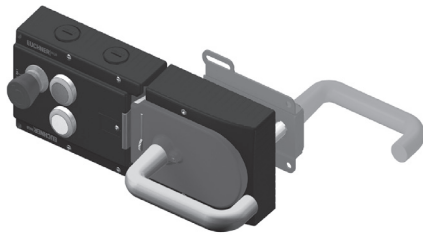
Terminal assignment plug connector RC18 acc. wiring diagram D

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	O3	Guard locking monitoring output, ON when the door is closed and locked.
11	-	Not used
12	-	Not used
13		
14		
15		See wiring diagram D for controls and indicators.
16		
17		
18		
19	0 V	Ground

Terminal assignment plug connector RC18 acc. wiring diagram E

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	-	Not used
11	-	Not used
12	-	Not used
13	-	Not used
14	-	Not used
15		
16		See wiring diagram E for controls and indicators.
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.

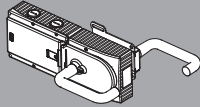
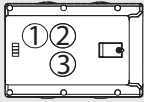



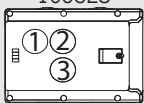



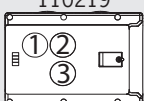



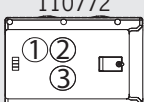



Machine stop

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. 72
- ▶ Technical data see p. 71
- ▶ Accessories and spare parts see p. 77
- ▶ www.mgb.EUCHNER.de

Ordering table

Version/configuration scheme <small>Order no. separate module</small>	Modules in the set					Handle module <small>Order no. separate module</small>	Escape release <small>Order no. separate module</small>	Door stop <small>(Factory setting)</small>	Ordering data set  Order no./item
	S1 H1	S2 H2	S3 H3	S4 H4	Conne- ction				
105328 		 ye	 wh	-	Cable entry wiring diagram A	100464	not included	right	105783 MGB-L1H-AR-R-105783
105328 		 ye	 wh	-	Cable entry wiring diagram A	100464	100465	right	105785 MGB-L1HE-AR-R-105785
110219 		 ye	 wh	-	Cable entry wiring diagram B	100464	100465	right	110220 MGB-L1HE-AR-R-110220
110772 		 gn	 bu	-	Cable entry wiring diagram A	100464	100465	right	110774 MGB-L1HE-ARA-R-110774

(Continued on next page)

Ordering table (continued)

Modules in the set						Ordering data set			
Version/configuration scheme Order no. separate module	Locking module				Connec- tion	Handle module Order no. separate module	Escape release Order no. separate module	Door stop (Factory setting)	Order no./item
	S1 H1	S2 H2	S3 H3	S4 H4					
110702 				-	Cable entry wiring diagram B	100464	100 465	right	110703 MGB-L1HE-AR-R-110703
111426 Incl. label carrier				-	Cable entry wiring diagram B	100464	not included	right	111427 MGB-L1H-ARA-R-111427
111428 Incl. label carrier				-	Cable entry wiring diagram B	106619	not included	left	111429 MGB-L1H-ARA-L-111429
109314 				-	Cable entry wiring diagram C	100464	100465	right	109313 MGB-L1HE-AR-R-109313
111263 IP 42				-	Cable entry wiring diagram C	100464	100465	right	111242 MGB-L1HE-ARA-R-111242
110236 IP 42				-	Cable entry wiring diagram D	100464	not included	right	110237 MGB-L1H-ARR-110237
111253 Incl. label carrier				-	Cable entry wiring diagram B	100464	not included	right	111251 MGB-L1H-ARA-R-111251
111254 Incl. label carrier				-	Cable entry wiring diagram B	106619	not included	left	111252 MGB-L1H-ARA-L-111252

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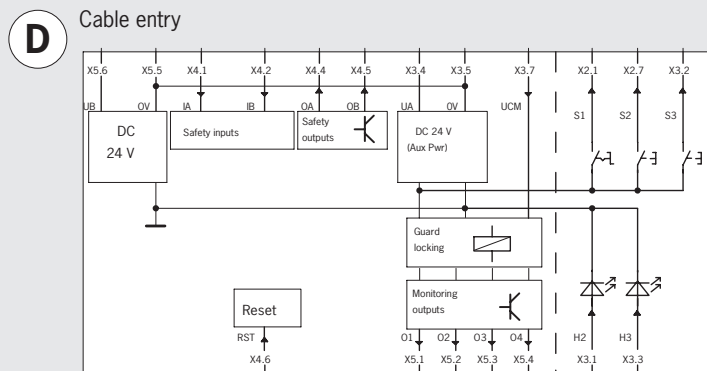
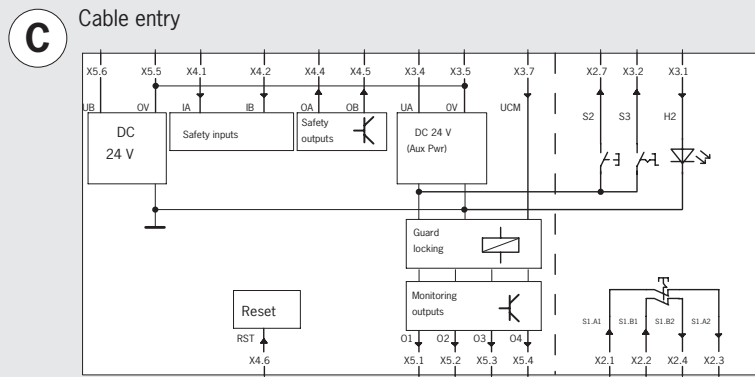
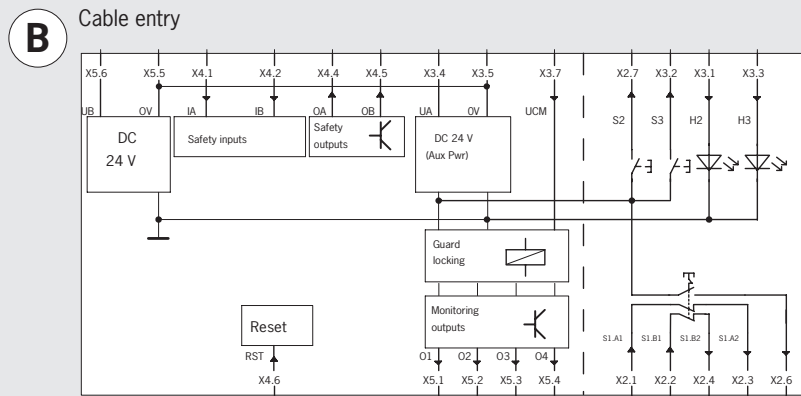
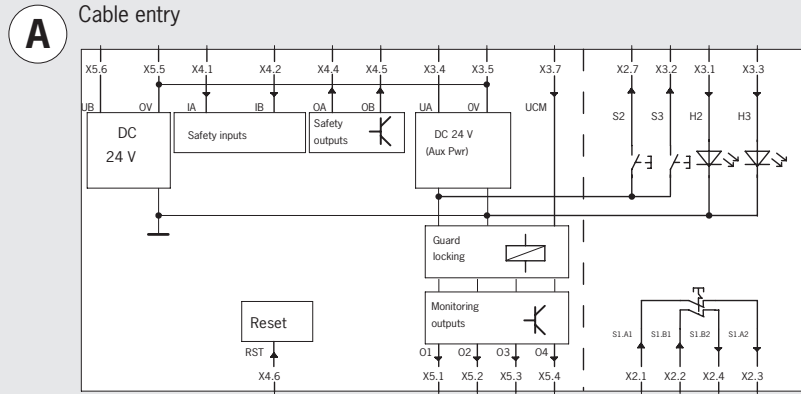
Locking sets MGB-L1-AR... (guard locking by spring force) with 3 controls or indicators



Ordering table (continued)

Modules in the set						Ordering data set			
Version/configuration scheme Order no. separate module	Locking module				Connec- tion	Handle module Order no. separate module	Escape release Order no. separate module	Door stop (Factory setting)	Order no./item
	S1 H1	S2 H2	S3 H3	S4 H4					
110685 Incl. label carrier				-	Plug con- nector RC18 wiring diagram E	100464	not included	right	110613 MGB-L1H-ARA-R-110613
110686 Incl. label carrier				-	Plug con- nector RC18 wiring diagram E	106619	not included	left	110614 MGB-L1H-ARA-L-110614
110792 Incl. label carrier				-	Plug con- nector RC18 wiring diagram E	111157	100465	right	110689 MGB-L1HE-ARA-R-110689
110793 Incl. label carrier				-	Plug con- nector RC18 wiring diagram E	111158	100465	left	110690 MGB-L1HE-ARA-L-110690
110872 Incl. label carrier				-	Plug con- nector RC18 wiring diagram F	100464	not included	right	110870 MGB-L1H-ARA-R-110870
110873 Incl. label carrier				-	Plug con- nector RC18 wiring diagram F	106619	not included	left	110871 MGB-L1H-ARA-L-110871

Block diagram and wiring diagrams for controls and indicators



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



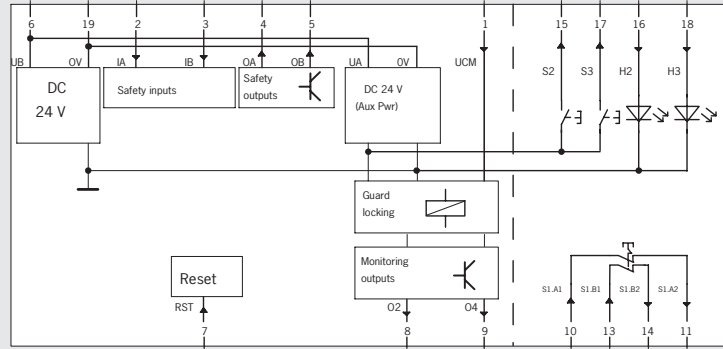
Cat. 4
PLe



Block diagram and wiring diagrams for controls and indicators

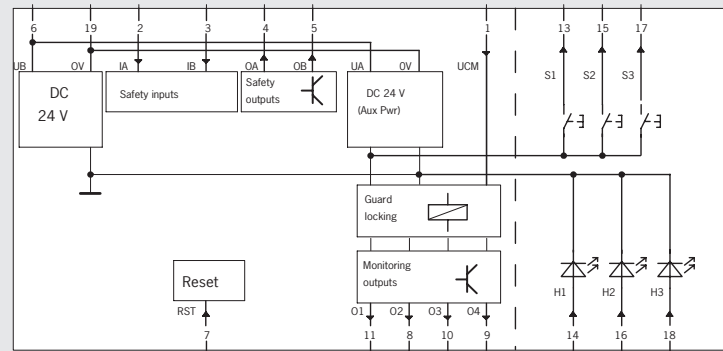
E

Plug connector RC 18



F

Plug connector RC 18



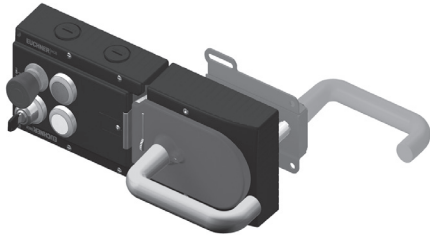
Terminal assignment cable entry

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		
14		
15		See wiring diagrams E and F for controls and indicators.
16		
17		
18		
19	0 V	Ground

Locking sets MGB-L1-AR... (guard locking by spring force) with 4 controls or indicators



Details

Selector switch

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

Further information

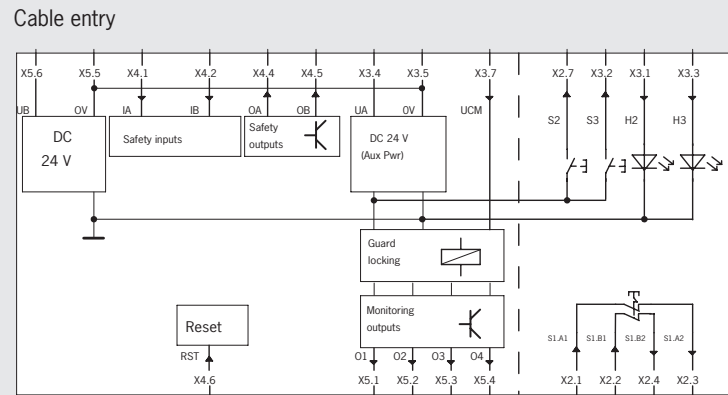
- ▶ Dimension drawings see p. 72
- ▶ Technical data see p. 71
- ▶ Accessories and spare parts see p. 77
- ▶ www.mgb.EUCHNER.de

- ▶ 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
- ▶ Integrated controls and indicators

Ordering table

Modules in the set								Ordering data set	
Version/configuration scheme <small>Order no. separate module</small>	Locking module				Connec- tion	Handle module <small>Order no. separate module</small>	Escape release <small>Order no. separate module</small>	Door stop <small>(Factory setting)</small>	Order no./item
	S1 H1	S2 H2	S3 H3	S4 H4					
112913 					Cable entry	100464	not included	right	112915 MGB-L1H-ARA-R-112915
112914 					Cable entry	106619	not included	left	112916 MGB-L1H-ARA-L-112916

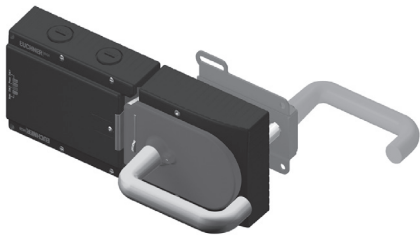
Block diagram and wiring diagrams for controls and indicators



Terminal assignment cable entry

Terminal	Designation	Description
X2.1 to X2.7	-	See wiring diagram for controls and indicators.
X3.1 to X3.3	-	See wiring diagram for controls and indicators.
X3.4	U_A	Power supply for the guard locking solenoid and the monitoring outputs, DC 24 V.
X3.5 und 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) without control or indicator

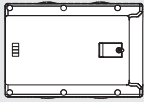
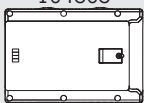
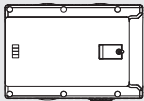
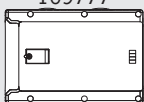


Further information

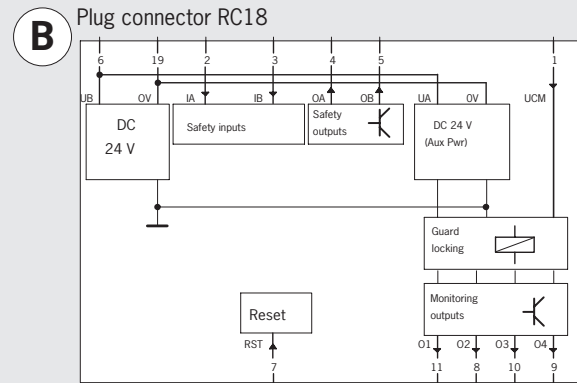
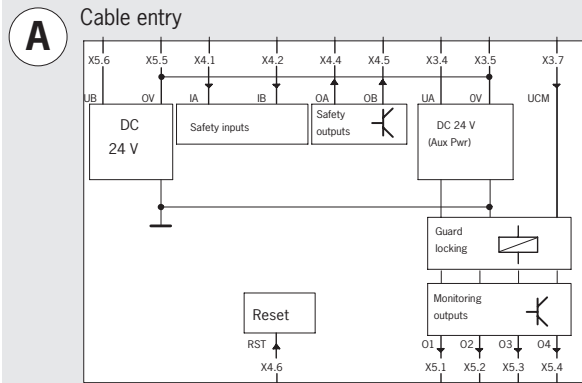
- ▶ Dimension drawings see p. 72
- ▶ Technical data see p. 71
- ▶ Accessories and spare parts see p. 77
- ▶ www.mgb.EUCHNER.de

- ▶ 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

Ordering table

Modules in the set									Ordering data set
Version/configuration scheme <small>Order no. separate module</small>	Locking module				Connec- tion	Handle module <small>Order no. separate module</small>	Escape release <small>Order no. separate module</small>	Door stop <small>(Factory setting)</small>	Order no./item
	S1 H1	S2 H2	S3 H3	S4 H4					
104303 	-	-	-	-	Cable entry wiring diagram A	100464	not included	right	105786 MGB-L2H-AR-R-105786
104303 	-	-	-	-	Cable entry wiring diagram A	100464	100465	right	105788 MGB-L2HE-AR-R-105788
109776 	-	-	-	-	Plug connector RC18 wiring diagram B	100464	not included	right	109780 MGB-L2H-AR-R-109780
109777 	-	-	-	-	Plug connector RC18 wiring diagram B	106619	not included	left	109781 MGB-L2H-AR-L-109781

Block diagram



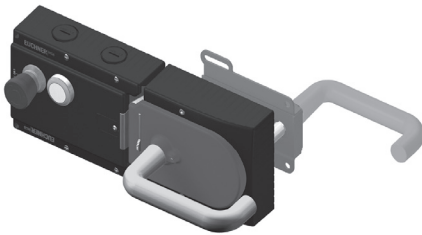
Terminal assignment cable entry

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		
14		
15		Not used
16		
17		
18		
19	0 V	Ground

Locking sets MGB-L2-AR... (guard locking by solenoid force) with 2 controls or 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. 72
- ▶ Technical data see p. 71
- ▶ Accessories and spare parts see p. 77
- ▶ www.mgb.EUCHNER.de

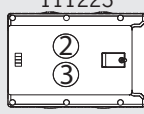


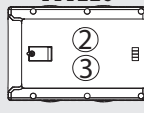


- ▶ Guard locking with guard lock monitoring in accordance with EN 1088
- ▶ Can be connected in series with other AR devices (e. g. CES-AR and CET-AR)
- ▶ With cable entry or plug connector
- ▶ Integrated controls and indicators

Ordering table

Modules in the set									Ordering data set
Version/configuration scheme <small>Order no. separate module</small>	Locking module				Connec- tion	Handle module <small>Order no. separate module</small>	Escape release <small>Order no. separate module</small>	Door stop <small>(Factory setting)</small>	Order no./item
	S1 H1	S2 H2	S3 H3	S4 H4					
109322 	wh	ye	-	-	Cable entry wiring diagram A	100464	100465	right	109356 MGB-L2HE-AR-R-109356
109027 		ye	wh	-	Cable entry wiring diagram B	100464	100465	right	109026 MGB-L2HE-AR-R-109026
111438 Incl. label carrier	-	bu	wh	-	Cable entry wiring diagram B	100464	not included	right	111439 MGB-L2H-AR-R-111439
111440 Incl. label carrier	-	bu	wh	-	Cable entry wiring diagram B	106619	not included	left	111441 MGB-L2H-AR-L-111441

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Ordering table (continued)

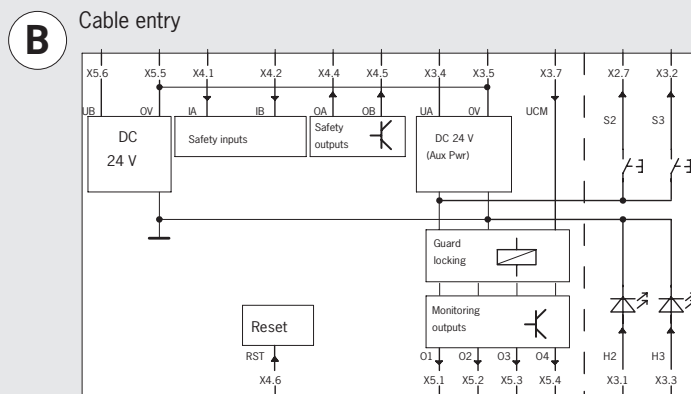
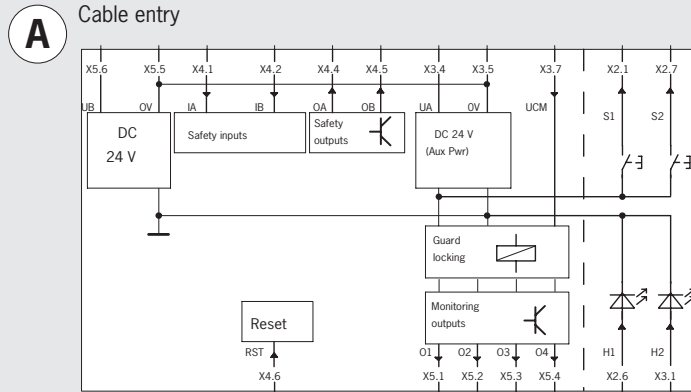
Modules in the set									Ordering data set
Version/configuration scheme Order no. separate module	Evaluation module				Connec- tion	Handle module Order no. separate module	Escape release Order no. separate module	Door stop (Factory setting)	Order no./item
	S1 H1	S2 H2	S3 H3	S4 H4					
111223 	-	 rd	 gn	-	Cable entry wiring diagram B	100464	not included	right	111197 MGB-L2H-ARA-R-111197
111226 	-	 rd	 gn	-	Cable entry wiring diagram B	106619	not included	left	111198 MGB-L2H-ARA-L-111198

MGB-AR

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



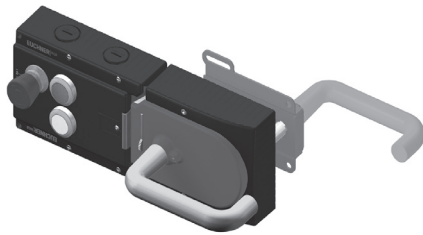
Block diagram and wiring diagrams for controls and indicators



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



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. 72
- ▶ Technical data see p. 71
- ▶ Accessories and spare parts see p. 77
- ▶ www.mgb.EUCHNER.de

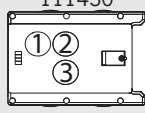



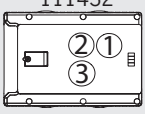



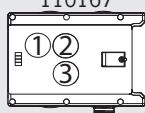



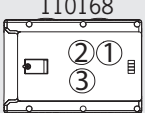



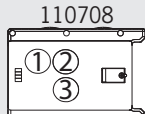



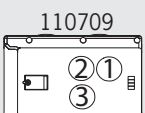



- ▶ Guard locking with guard lock monitoring in accordance with EN 1088
- ▶ Can be connected in series with other AR devices (e. g. CES-AR and CET-AR)
- ▶ With cable entry or plug connector
- ▶ Integrated controls and indicators

Ordering table

Modules in the set							Ordering data set		
Version/configuration scheme <small>Order no. separate module</small>	Locking module				Connec- tion	Handle module	Escape release	Door stop <small>(Factory setting)</small>	Order no./item
	S1 H1	S2 H2	S3 H3	S4 H4		<small>Order no. separate module</small>	<small>Order no. separate module</small>		
109880 				-	Cable entry wiring diagram A	100464	100465	right	109883 MGB-L2HE-ARR-109883
105797 				-	Cable entry wiring diagram B	100464	not included	right	105787 MGB-L2H-ARR-105787
105797 				-	Cable entry wiring diagram B	100464	100465	right	105789 MGB-L2HE-ARR-105789
109953 				-	Cable entry wiring diagram A	100464	100465	right	109956 MGB-L2HE-ARR-109956

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Ordering table (continued)

Version/configuration scheme Order no. separate module	Modules in the set					Handle module Order no. separate module	Escape release Order no. separate module	Door stop (Factory setting)	Ordering data set Order no./item
	S1 H1	S2 H2	S3 H3	S4 H4	Connec- tion				
111430  Incl. label carrier				-	Cable entry wiring diagram A	100464	not included	right	111431 MGB-L2H-ARA-R-111431
111432  Incl. label carrier				-	Cable entry wiring diagram A	106619	not included	left	111433 MGB-L2H-ARA-L-111433
110167  Incl. label carrier				-	Plug connector RC18 wiring diagram C	100464	100465	right	110140 MGB-L2HE-AR-R-110140
110168  Incl. label carrier				-	Plug connector RC18 wiring diagram C	106619	100465	left	110141 MGB-L2HE-AR-L-110141
110708  Incl. label carrier				-	Plug connector RC18 wiring diagram D	100464	not included	right	110615 MGB-L2H-ARA-R-110615
110709  Incl. label carrier				-	Plug connector RC18 wiring diagram D	106619	not included	left	110616 MGB-L2H-ARA-L-110616

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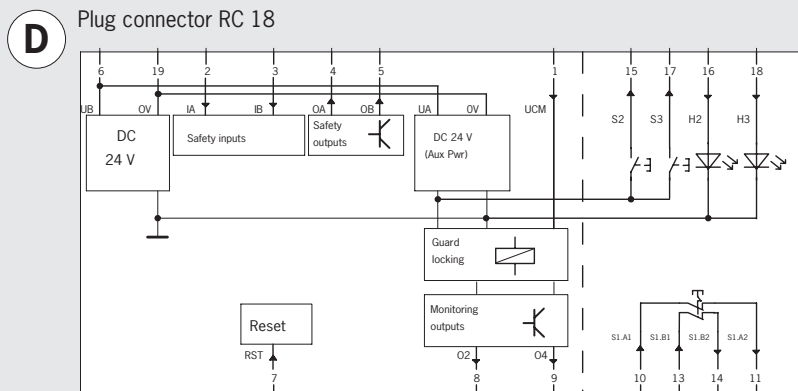
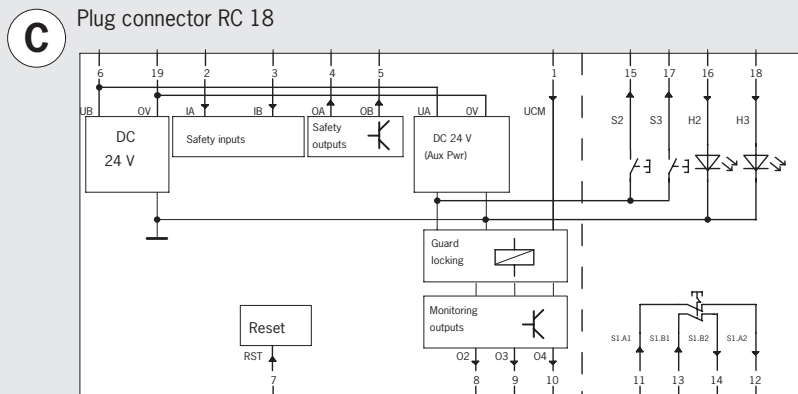
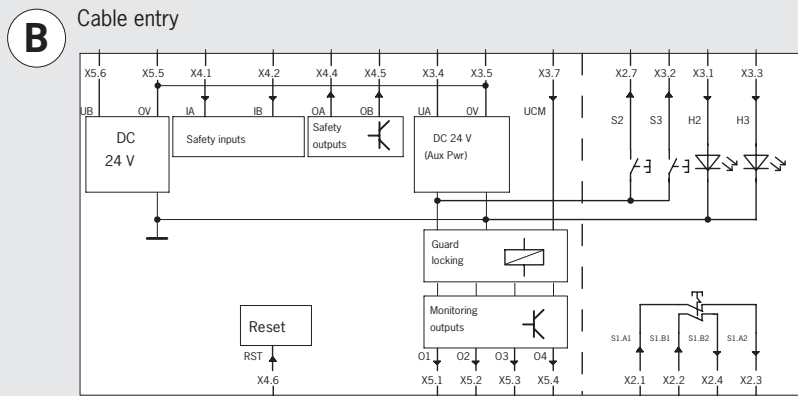
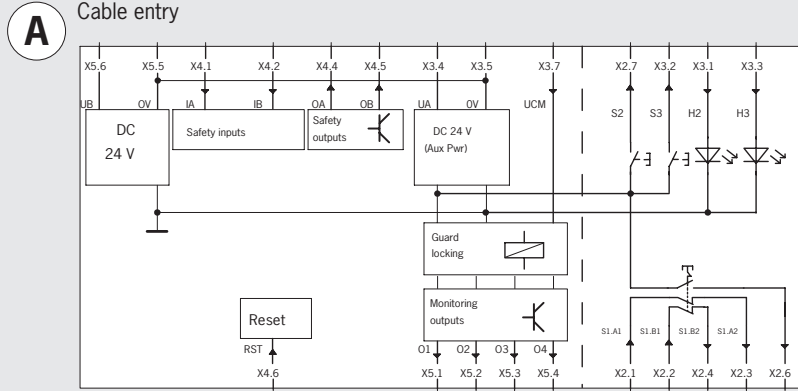
Locking sets MGB-L2-AR... (guard locking by solenoid force) with 3 controls or indicators



Ordering table (continued)

Modules in the set									Ordering data set
Version/configuration scheme Order no. separate module	Locking module				Connec- tion	Handle module Order no. separate module	Escape release Order no. separate module	Door stop (Factory setting)	Order no./item
	S1 H1	S2 H2	S3 H3	S4 H4					
111923 				-	Plug con- nector RC18 wiring diagram E	100464	not included	right	111924 MGB-L2H-ARA-R-111924
111925 				-	Plug con- nector RC18 wiring diagram E	106619	not included	left	111926 MGB-L2H-ARA-L-111926

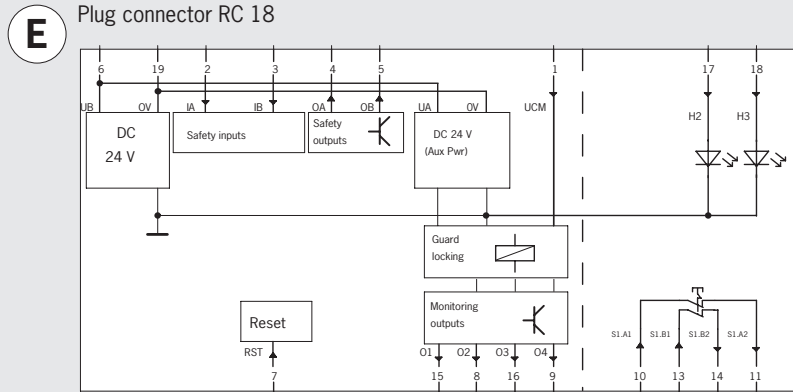
Block diagram and wiring diagrams for controls and indicators



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



Block diagram and wiring diagrams for controls and indicators



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 acc. 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

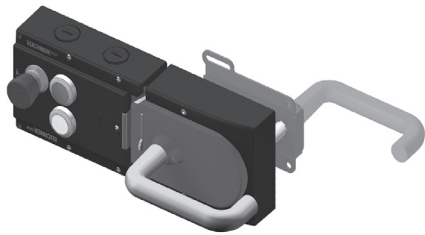
Terminal assignment plug connector RC18 acc. wiring diagram C

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 acc. wiring diagram E

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 E for controls and indicators.
12	-	Not used
13 to 14	-	See wiring diagram E for controls and indicators.
15	O1	Door monitoring output, ON when the door is closed.
16	O3	Guard locking monitoring output, ON when the door is closed and locked.
17 to 18	-	See wiring diagram E for controls and indicators.
19	0 V	Ground

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



Details

Selector switch

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

Further information

- ▶ Dimension drawings see p. 72
- ▶ Technical data see p. 71
- ▶ Accessories and spare parts see p. 77
- ▶ www.mgb.EUCHNER.de

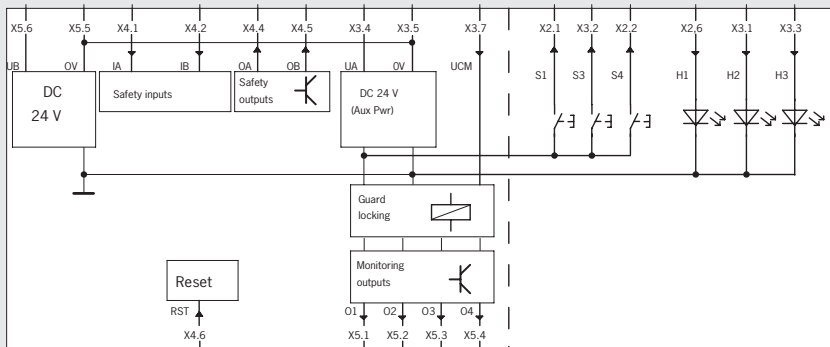
- ▶ Guard locking with guard lock monitoring in accordance with EN 1088
- ▶ Can be connected in series with other AR devices (e. g. CES-AR and CET-AR)
- ▶ With cable entry or plug connector
- ▶ Integrated controls and indicators

Ordering table

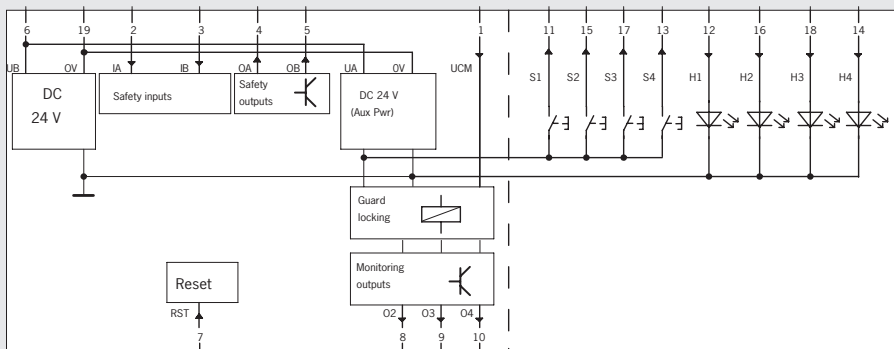
Modules in the set									Ordering data set
Version/configuration scheme <small>Order no. separate module</small>	Locking module				Conne- ction	Handle module <small>Order no. separate module</small>	Escape release <small>Order no. separate module</small>	Door stop <small>(Factory setting)</small>	Order no./item
	S1 H1	S2 H2	S3 H3	S4 H4					
112310 				 Form V 90°	Cable entry wiring diagram A	100464	not included	right	112311 MGB-L2H-ARA-R-112311
112312 				 Form V 90°	Cable entry wiring diagram A	106619	not included	left	112313 MGB-L2H-ARA-L-112313
109506 					Plug connector RC18 wiring diagram B	100464	not included	right	109513 MGB-L2H-AR-R-109513
109507 					Plug connector RC18 wiring diagram B	106619	not included	left	109514 MGB-L2H-AR-L-109514

Blockschaltbild und Anschlusspläne für Bedien- und Anzeigeelemente

A Cable entry



B Plug connector RC 18



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



Terminal assignment cable entry

Pin	Designation	Description
X2.1 to X2.7	-	See wiring diagrams A for controls and indicators.
X3.1 to X3.3	-	See wiring diagrams 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 und 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	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 B for controls and indicators.
19	0 V	Ground

Technical data

Parameter	Value	Unit
Housing material	Glass fiber reinforced plastic die-cast zinc, nickel-plated Stainless steel	
Dimensions	See dimension drawing	
Weight		
Locking module	0.75	kg
Handle module	1.00	
Escape release	0.50	
Ambient temperature at $U_B = DC 24 V$	-20 +55	°C
Degree of protection		
Cover not populated	IP 65	
Cover populated	IP 54	
Cover populated with IP 65 buttons/indicators	IP 65	
Cover populated with key-operated switch	IP 42	
Safety class	III	
Degree of contamination	3	
Installation position	Any	
Locking force	2000	N
Connection type	4 cable entries M20x1.5 or 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 $U_{OA} / U_{OB}^{1)}$		V DC
HIGH U_{OA} / U_{OB}	$U_B - 2V \dots U_B$	
LOW U_{OA} / U_{OB}	0 ... 1	
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	p-switching, short circuit-proof	mA
- Output voltage ¹⁾	$U_A - 2V \dots U_A$	
- Max. load	max. 200	
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	$2.4 \times 10^9 / h^{3)}$	
Mission time	20	years
$B_{10d}^{4)}$ emergency stop	1×10^5	cycles

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

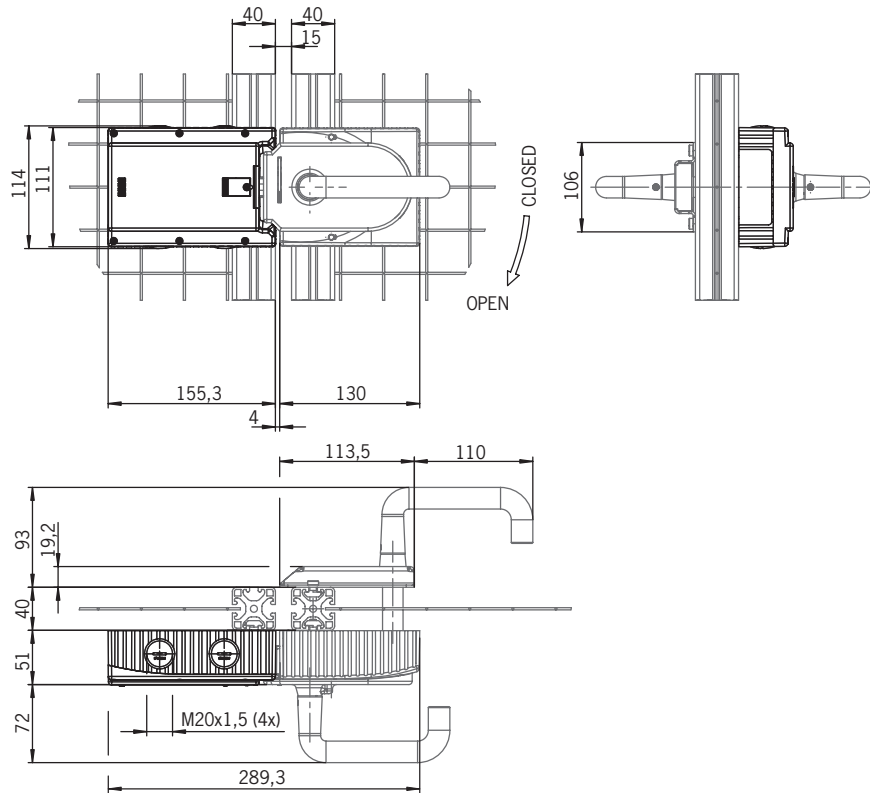
2) The reliability figures apply to the interlocking or the guard locking depending on the version.

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. 2.47×10^9 .

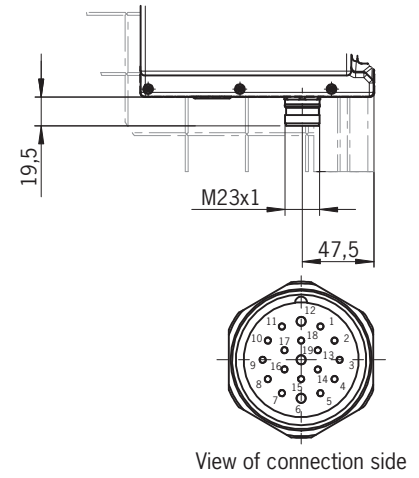
4) Information regarding wearing parts without consideration of fixed failure rates in electronic components.

Dimension drawings

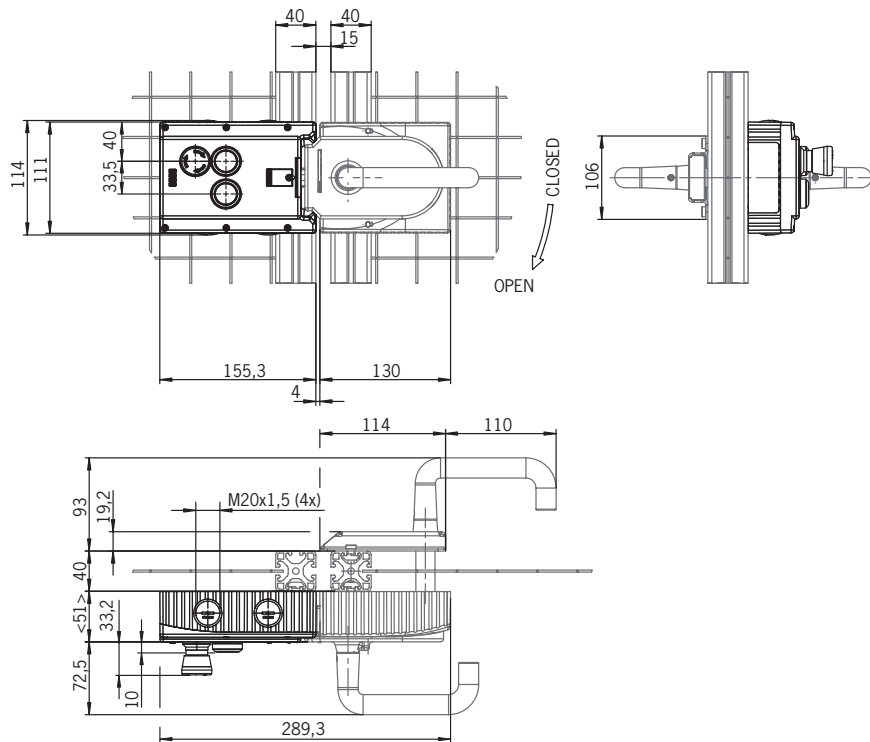
► MGB-...-AR without additional controls and indicators



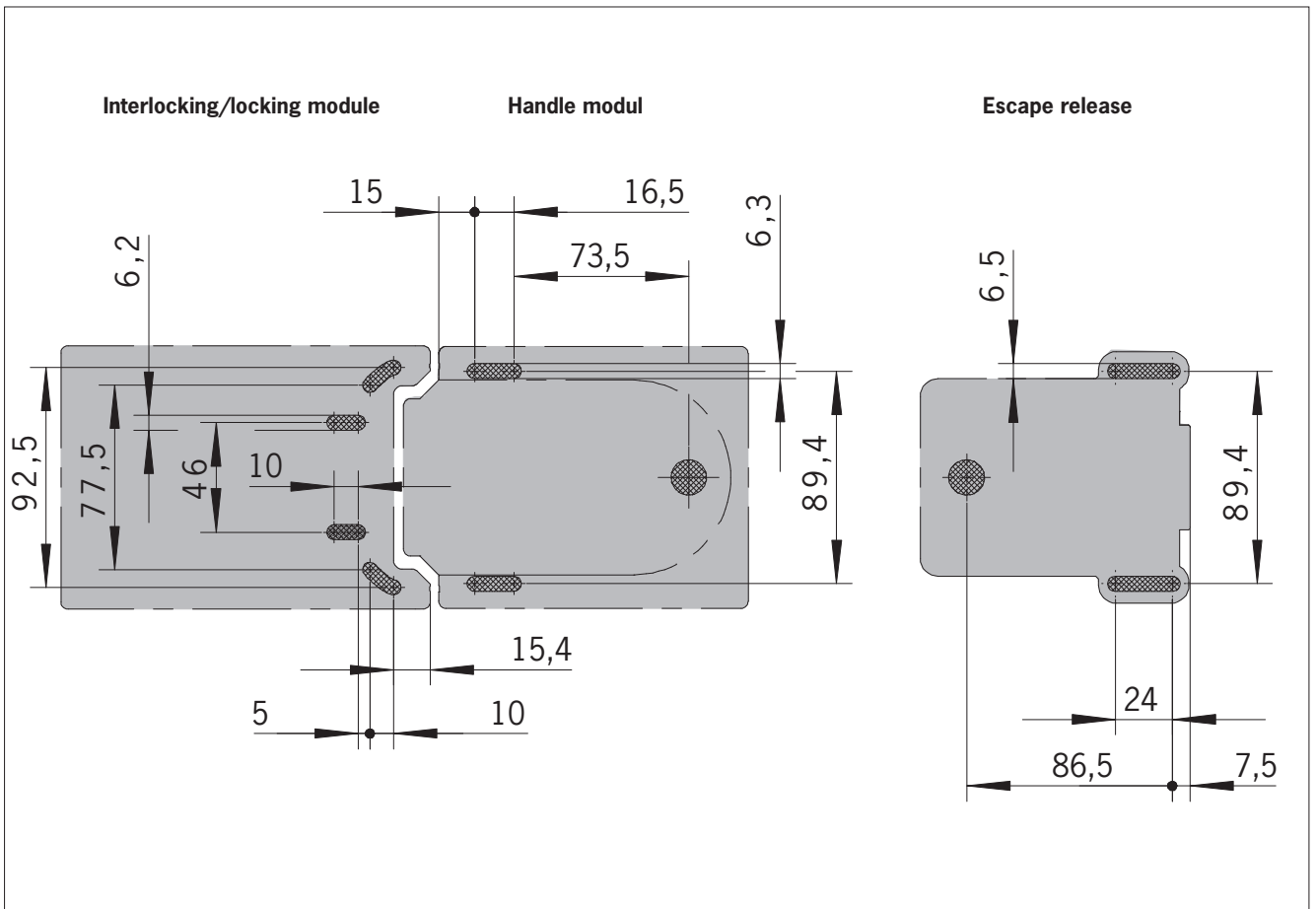
► Plug connector RC18



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



Drilling pattern

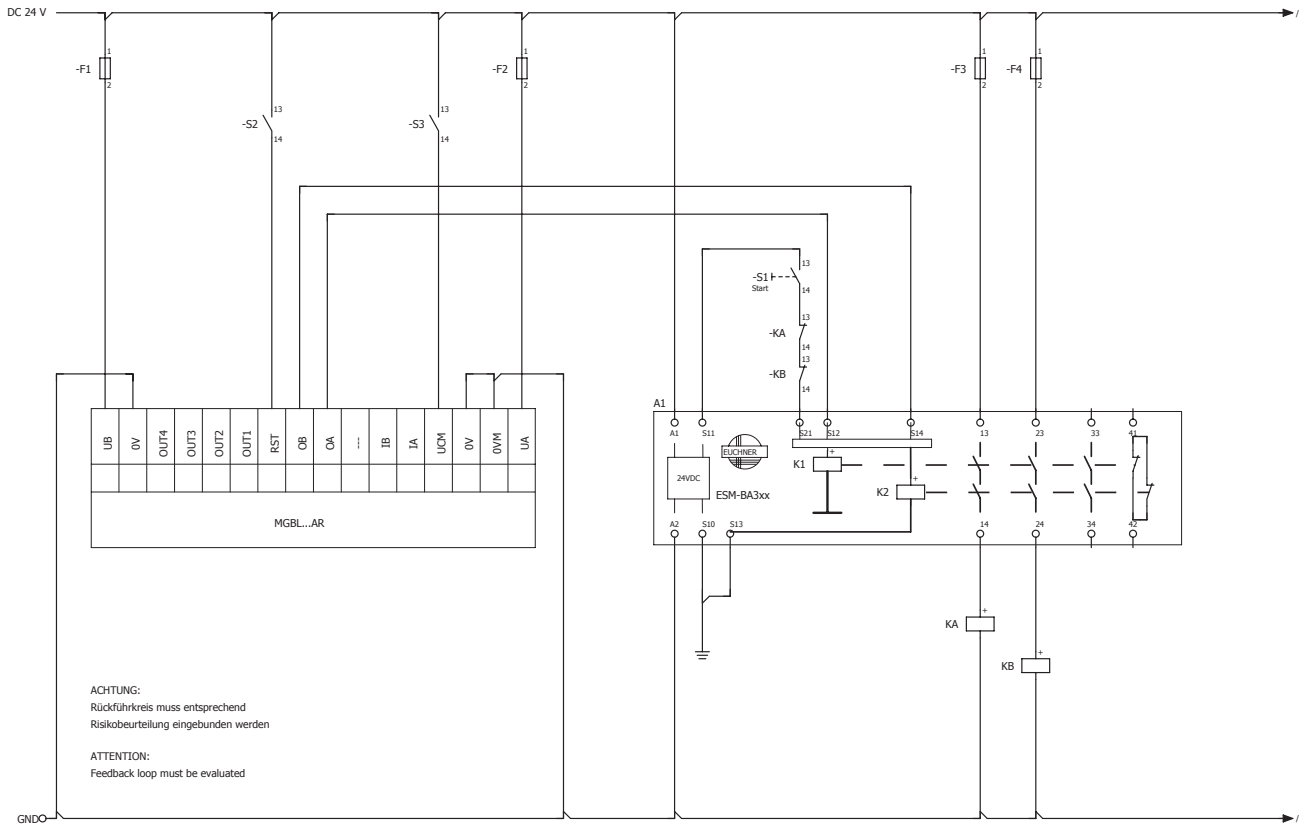


MGB-AR

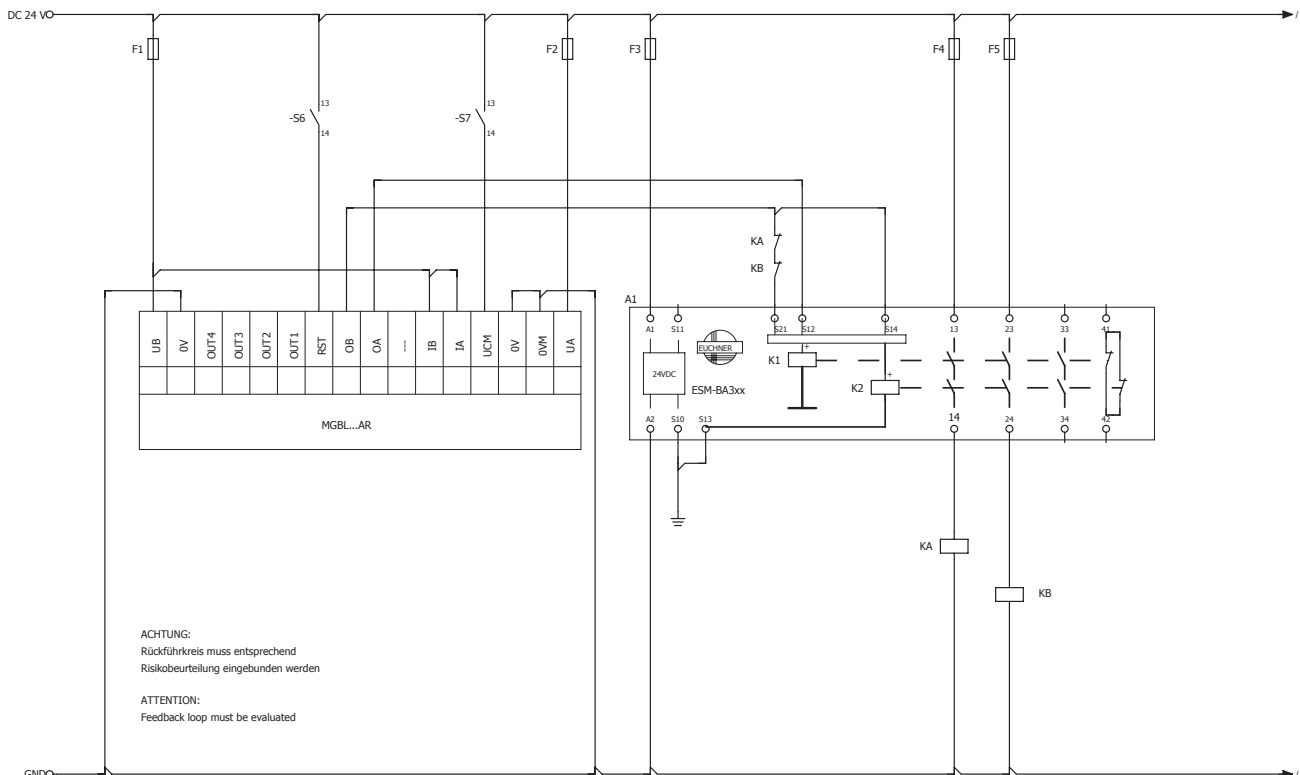
Connection examples

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.

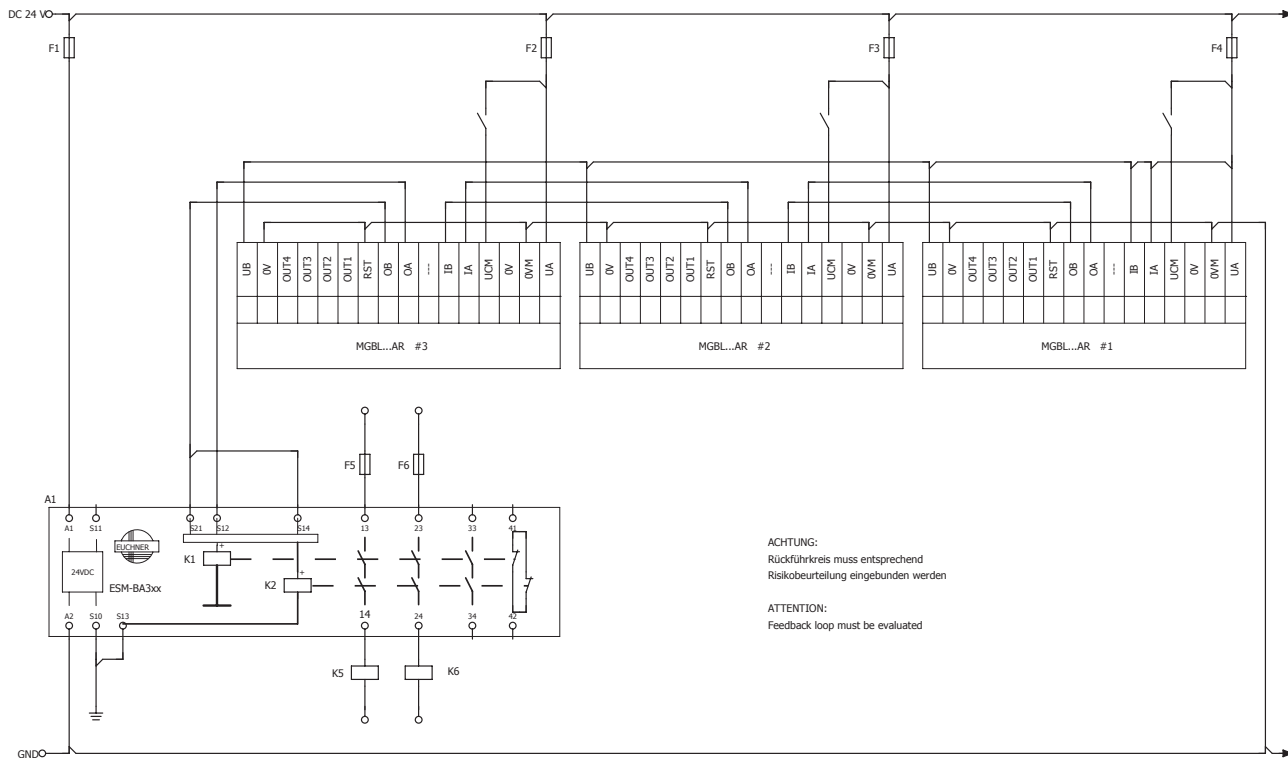
Separate operation on a EUCHNER safety relay ESM with feedback loop and monitored start button



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



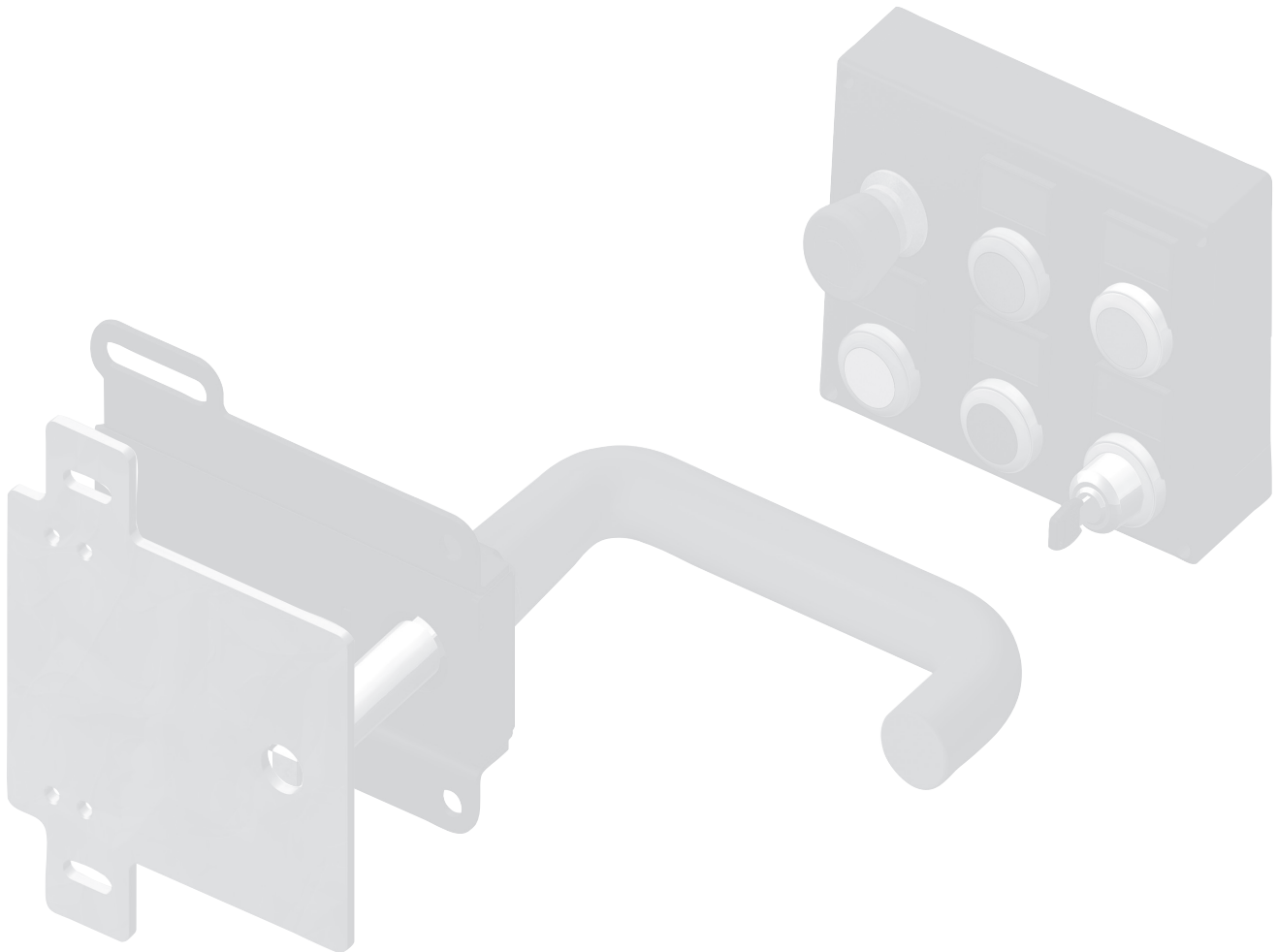
Operation of an AR switch chain on an EUCHNER safety relay ESM with automatic start, without feedback loop



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...	78 - 79
Escape release MGB-E...	80
Mounting plates for modules MGB-...-AR and MGB-...-AP	82 - 83
Plug connectors/ connection cables	84 - 85
Control module MGB-C	86 - 90
Scope of delivery, spare parts and accessories	86
Dimension drawing and configuration example	87
Overview controls and indicators	88
Combination options	89
Technical data	90

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

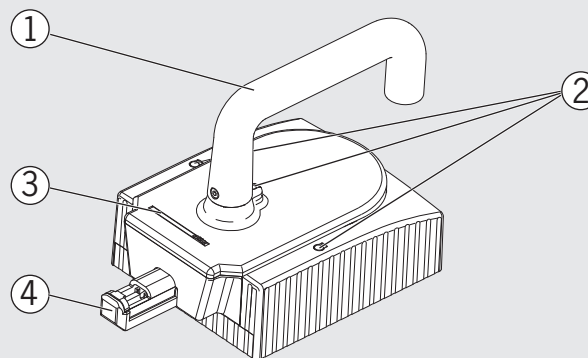
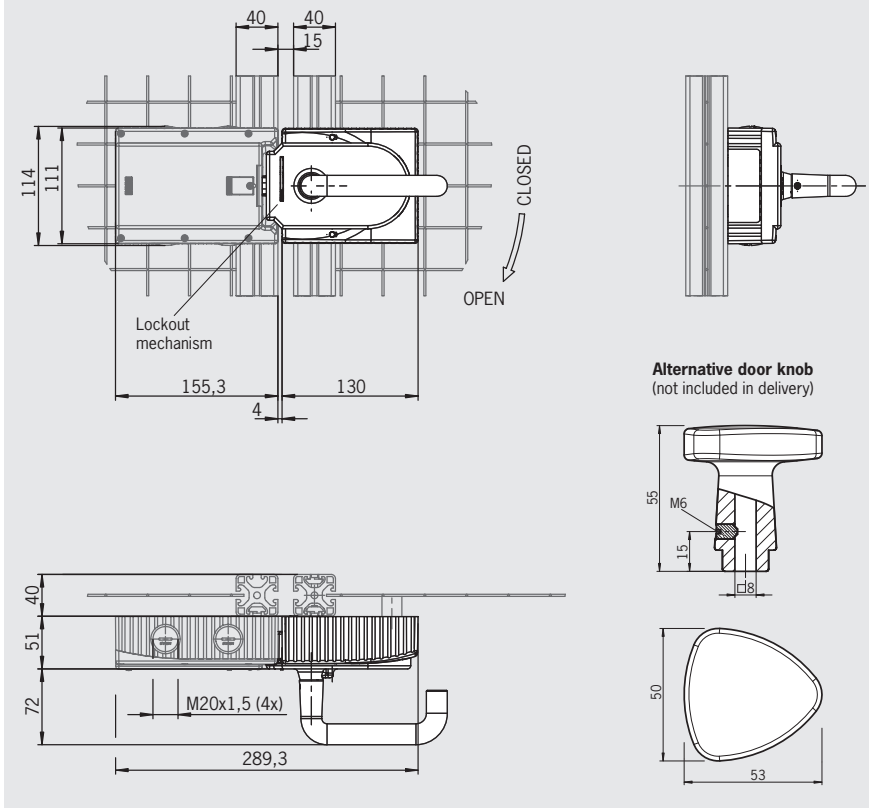
The MGB has a robust door handle that can be rotated in 90° steps to suit all installations. The actuating direction can be changed very easily for doors hinged on the left or right.

Door knob

As an alternative to the door handle the handle module can also be equipped with a door knob.

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

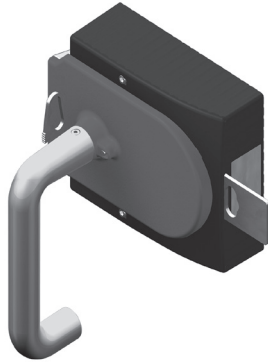
Ordering table

Series	Version	Order no./item
MGB-H... Handle module right	with fold-out lockout mechanism, black housing with red cover	100464 MGB-HAA1A1-R-100464
MGB-H... Handle module left	with fold-out lockout mechanism, black housing with red cover	106619 MGB-HAA1A1-L-106619
Door knob	Aluminum, silver anodized	111460 MGB-A-DOORKNOB-111460



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

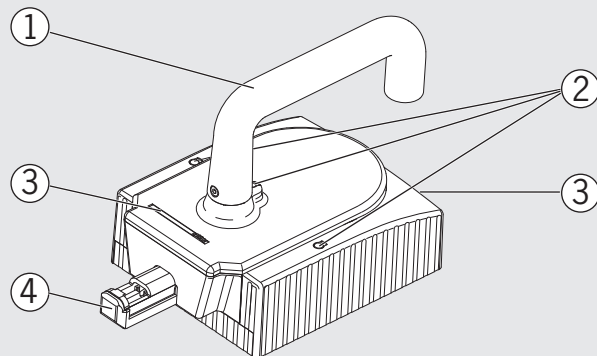
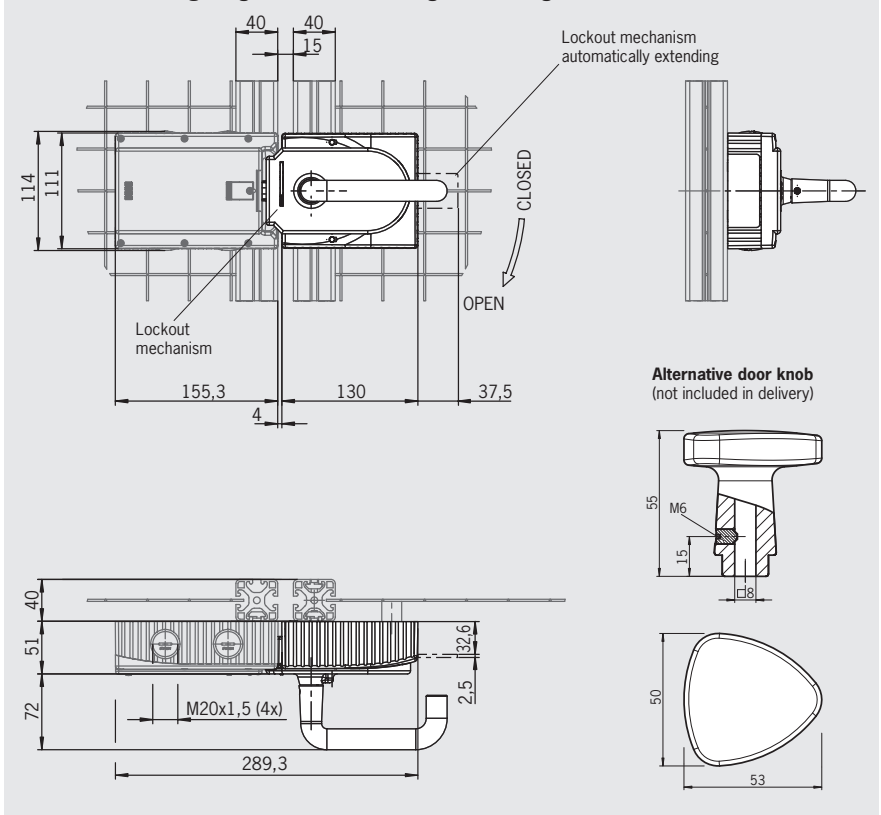
The MGB has a robust door handle that can be rotated in 90° steps to suit all installations. The actuating direction can be changed very easily for doors hinged on the left or right.

Door knob

As an alternative to the door handle the handle module can also be equipped with a door knob.

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... Handle module right	with fold-out and also second automatically extending lockout mechanism, black housing with red cover	111157 MGB-H-AA1A3-R-111157
MGB-H... Handle module left	with fold-out and also second automatically extending lockout mechanism, black housing with red cover	111158 MGB-H-AA1A3-L-111158
Door knob	Aluminum, silver anodized	111460 MGB-A-DOORKNOB-111460

Escape release module MGB-E...



► Door handle red



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.

The actuation axis supplied is suitable for profiles up to 40 mm.

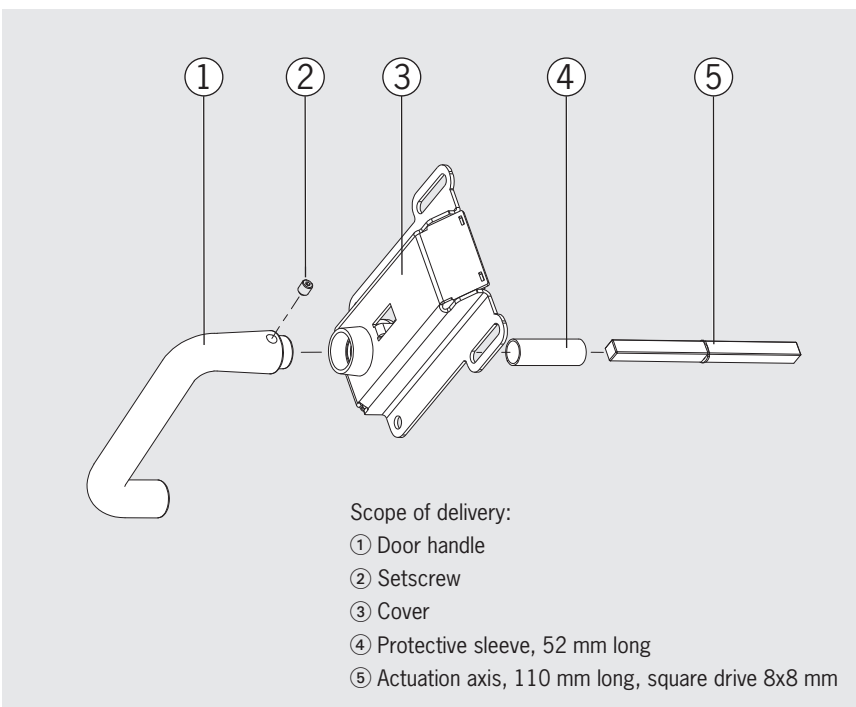
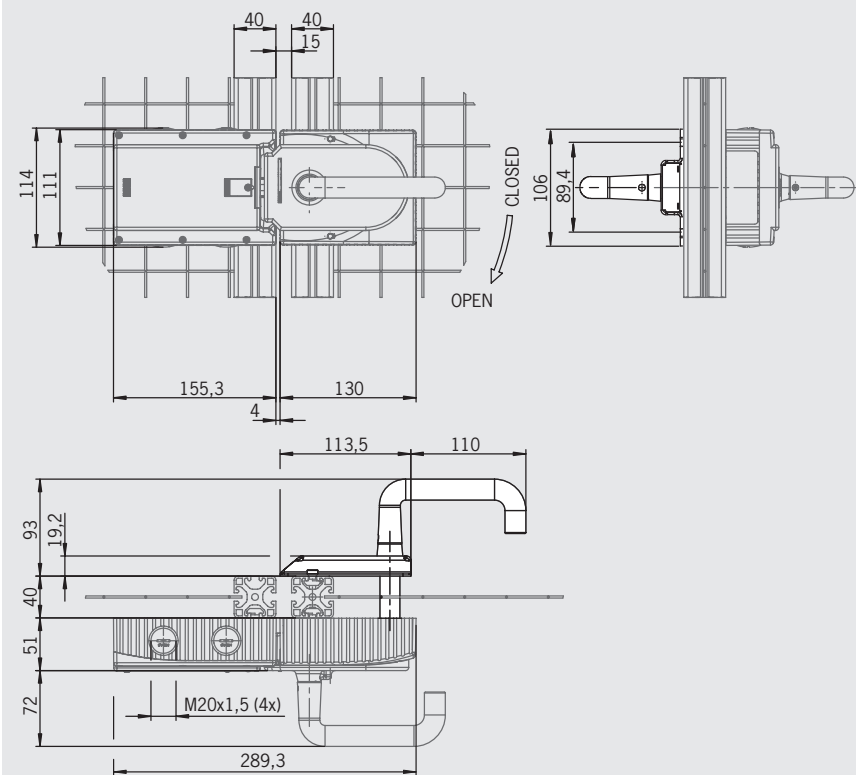
Extended actuation axis

Optionally a 250 mm long actuation axis (instead of 110 mm) can be ordered for thicker doors or profiles > 40 mm.

The axis can be shortened to the required dimension.

Escape release module MGB-E...

Dimension drawing (diagram shows door hinged on the right)



Ordering table

Series / designation	Version	Order no./item
MGB-E... Escape release	With red handle	100465 MGB-E-A-100465
Extended actuation axis	250 mm long, square drive 8 x 8 mm (with protective sleeve, 182 mm long)	106761
Escape release MGB-E-A-100465 pre-assembled on mounting plate		106051 MGB-E-A2-106051

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

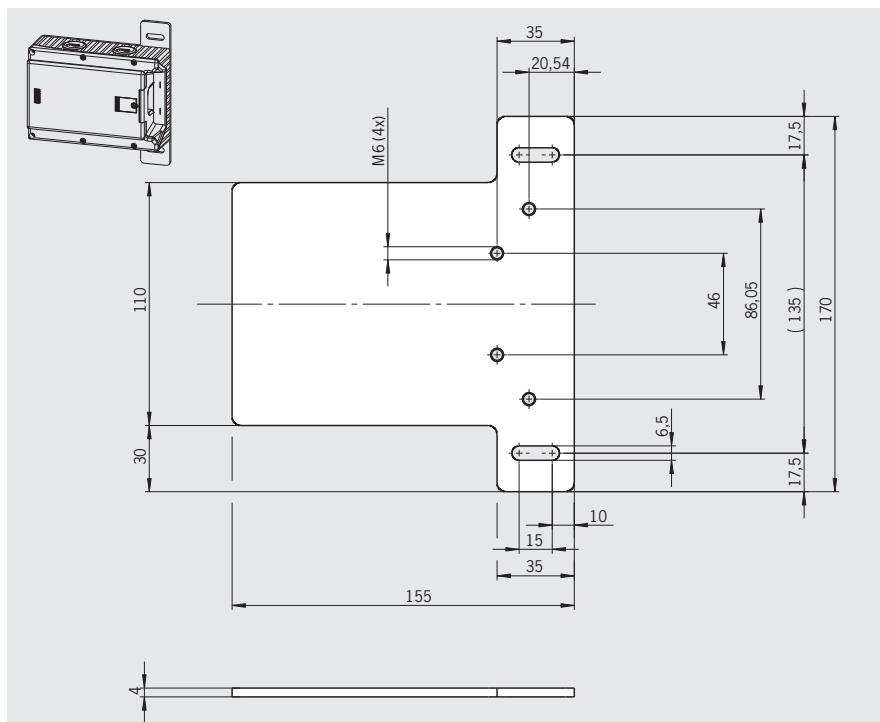
Mounting plate for evaluation module

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

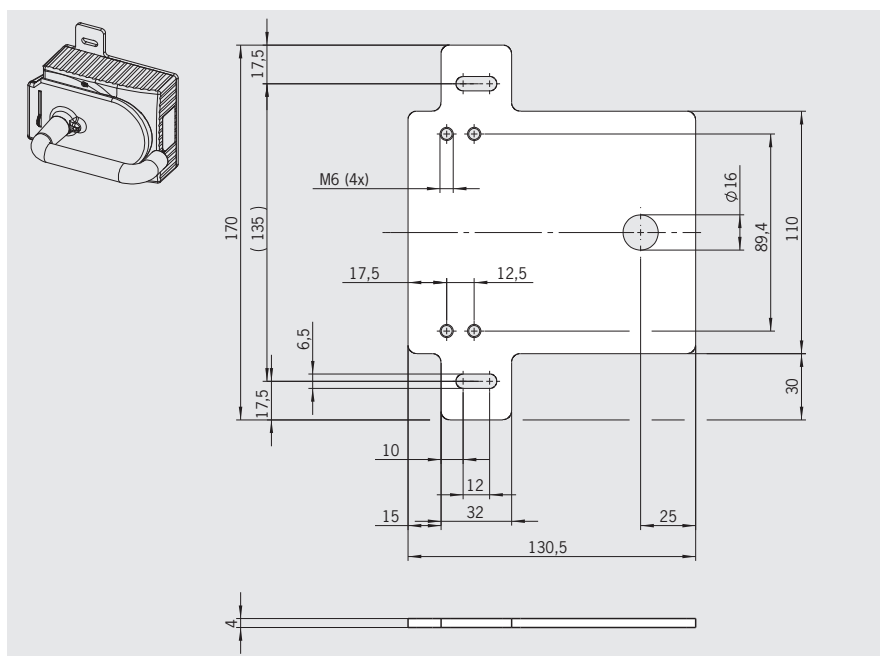


Mounting plate for handle modules

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.



Ordering table

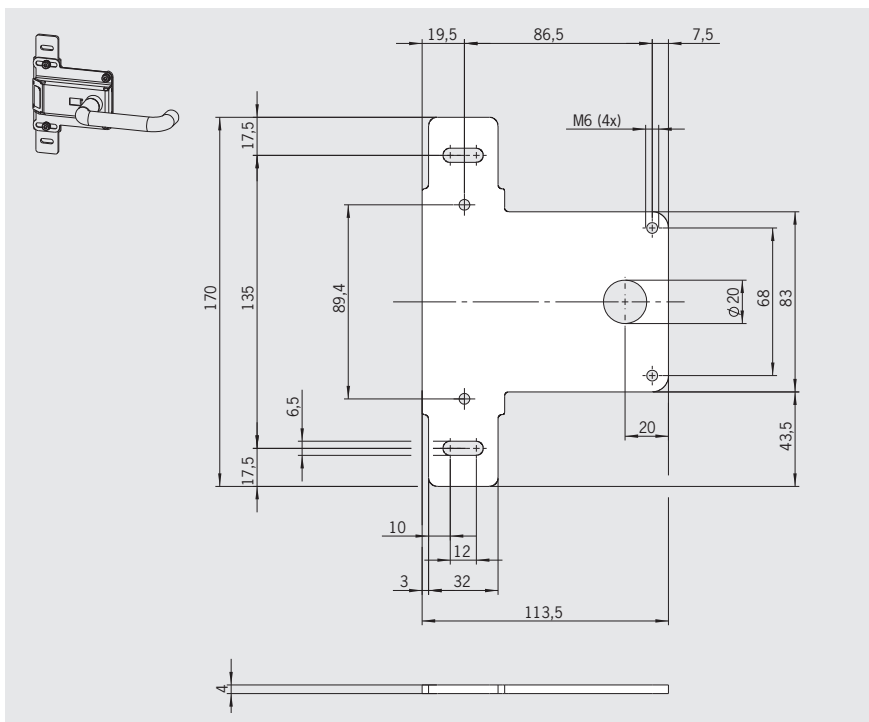
Series / designation	Version	Order no./item
Mounting plate for evaluation module	Suitable for all MGB-L-AR-... and MGB-L-AP-...	109490 MGB-A MOUNTING PLATE L-109490
Mounting plate for handle module	Suitable for all MGB handle modules	109491 MGB-A MOUNTING PLATE H-109491
Mounting plate for escape release	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).

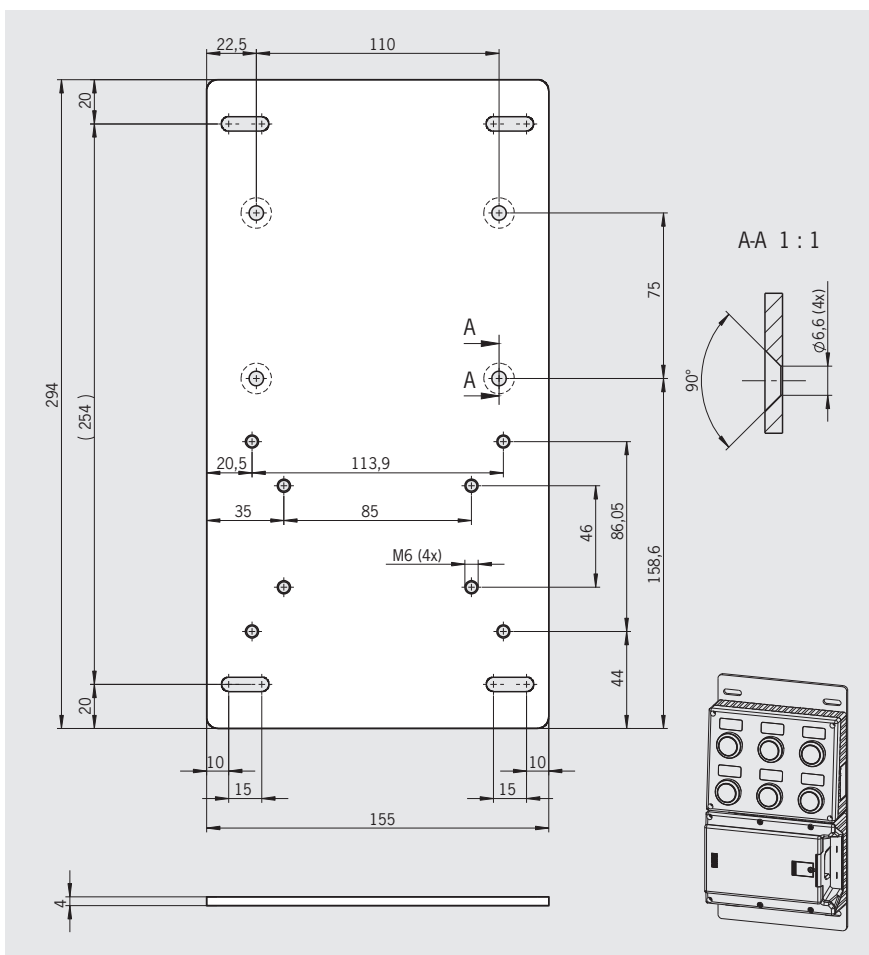


Mounting plate for evaluation module-control module combination

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 PUR (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 PUR halogen-free (optional)

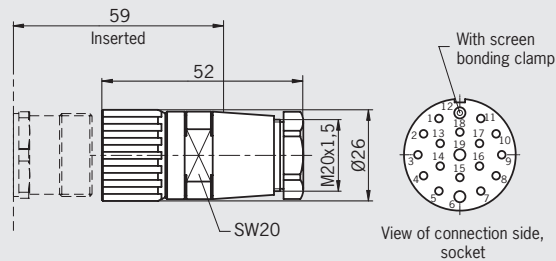
Cable sleeve PUR, color black, halogen-free, silicone-free. Reduction of toxic gases and smoke in case of fire (suitable for drag chain).

Wire cross-section 0.5 mm² or 1.0 mm².

Cores color-coded.

Plug connector RC18 19-pin

Dimension drawing



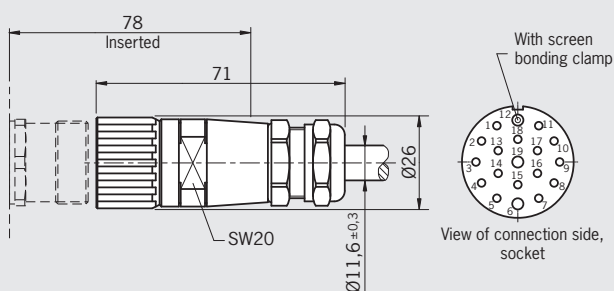
Ordering table

Designation	Version	Order no./item
Plug connector RC18 19-pin	EF-C1825 Female plug (Crimp contacts included)	077025 RC18EF-C1825
	Replacement pin crimp contacts Wire cross-section 16 x 0.38 - 0.5 mm ² 3 x 0.75 - 1 mm ²	094310 Pin crimp contact RCM-C1825

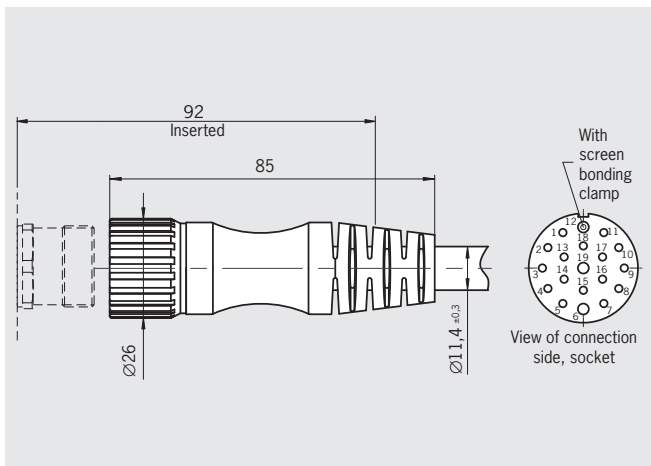
Connection cables with plug connector RC18

Connection cable PUR with plug connector RC18 18-pin + PE

Dimension drawing



Connection cable PUR with plug connector RC18 halogen-free 18-pin + PE



Assignment connection cable with plug connector 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
Connection cable PUR with plug connector RC18 18-pin + PE, female plug, 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
	40	102490 RC18EF40M-C1825
Connection cable PUR with plug connector RC18 18-pin + PE, female plug, 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
Connection cable PUR with plug connector RC18 halogen-free 18-pin + PE, female plug, 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
	30	109681 RC18EF30MF-C1825

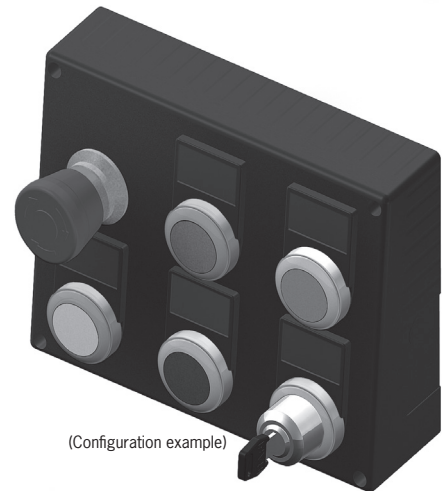
Expand your options - the control module for the MGB

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

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 - Pre-assembled wires and cable ties	109858	MGB-A-LPSET-109858

Spare parts and accessories

Designation	Description	Order no.	Item
Blind plug		109468	MP-AB-00-00-00-109468
Cover for indicators (without LED holder)	Transparent - (rd) red - (wh) white - (ye) yellow - (gn) green	105430 109451 105432 112375	MP-AL-RO-RD-00-105430 MP-AL-RO-WH-00-109451 MP-AL-RO-YE-00-105432 MP-AL-RO-GN-00-112375
Pushbutton (without switching element)	Transparent - (bu) blue - (wh) white - (ye) yellow - (gn) green - (rd) red	105427 105429 105428 110322 110321	MP-AP-RT-BU-A1-105427 MP-AP-RT-WH-A1-105429 MP-AP-RT-YE-A1-105428 MP-AP-RT-GN-A1-110322 MP-AP-RT-RD-A1-110321
Emergency stop (without switching element)	Latching, turn-to-reset	109454	MP-A-E-RD-00-A4-109454
Selector switch (without switching element)	2 positions, latching in 2 positions	109452	MP-A-S-RR-00-A2-109452
Key-operated switch (without switching element)	Incl. 2 keys 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	- 2 positively driven NC contacts, 1 NO contact - 1 NO contact (expandable with LED)	109456 109455	MP-A-C-GM-21-00-109456 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:

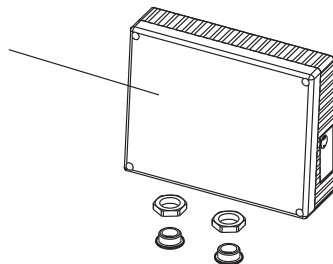
- 1 Stück Leergehäuse
- 1 Stück Deckel
- 2 Stück Blindverschraubung

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:

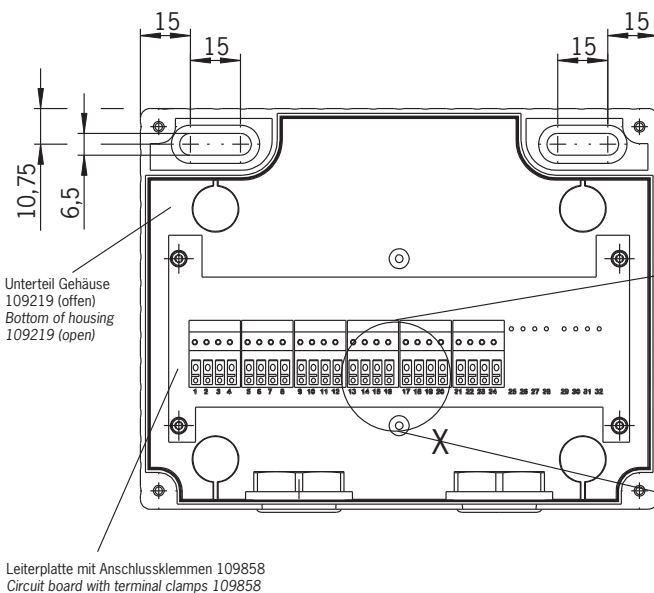
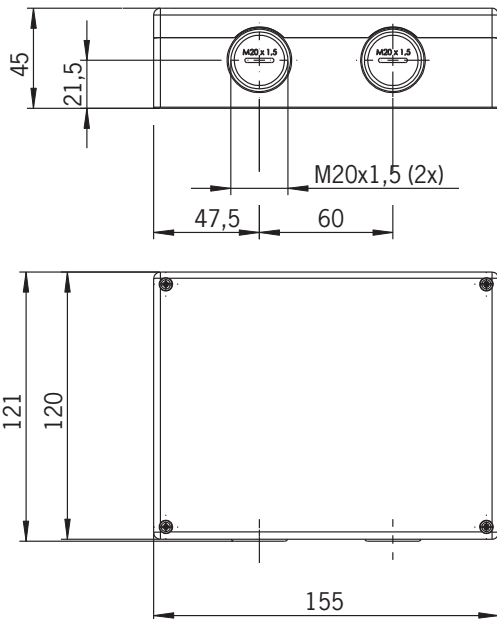
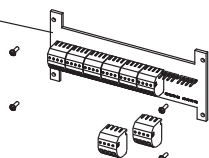
- 1 Stück Leiterplatte mit steckbaren Federzugklemmen
- 4 Stück Befestigungsschrauben für Leiterplatte
- 7 Stück Litzen kpl. 0,34 mm² - rot
- 7 Stück Litzen kpl. 0,34 mm² - blau
- 16 Stück Litzen kpl. 0,34 mm² - schwarz
- 6 Stück Kabelbinder

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



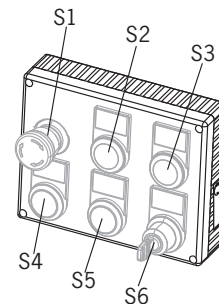
Unterteil Gehäuse
109219 (offen)
Bottom of housing
109219 (open)

Leiterplatte mit Anschlussklemmen 109858
Circuit board with terminal clamps 109858

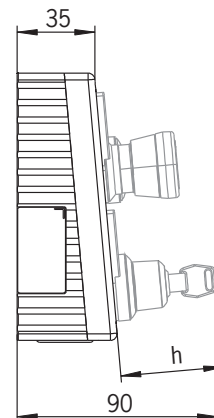
Beispielbestückung

Configuration Example

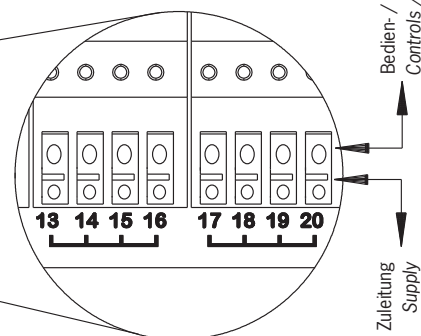
(z.B. Best.Nr. / e.g. Order no. 106795 MGB-C-1ELLPPK-106795)



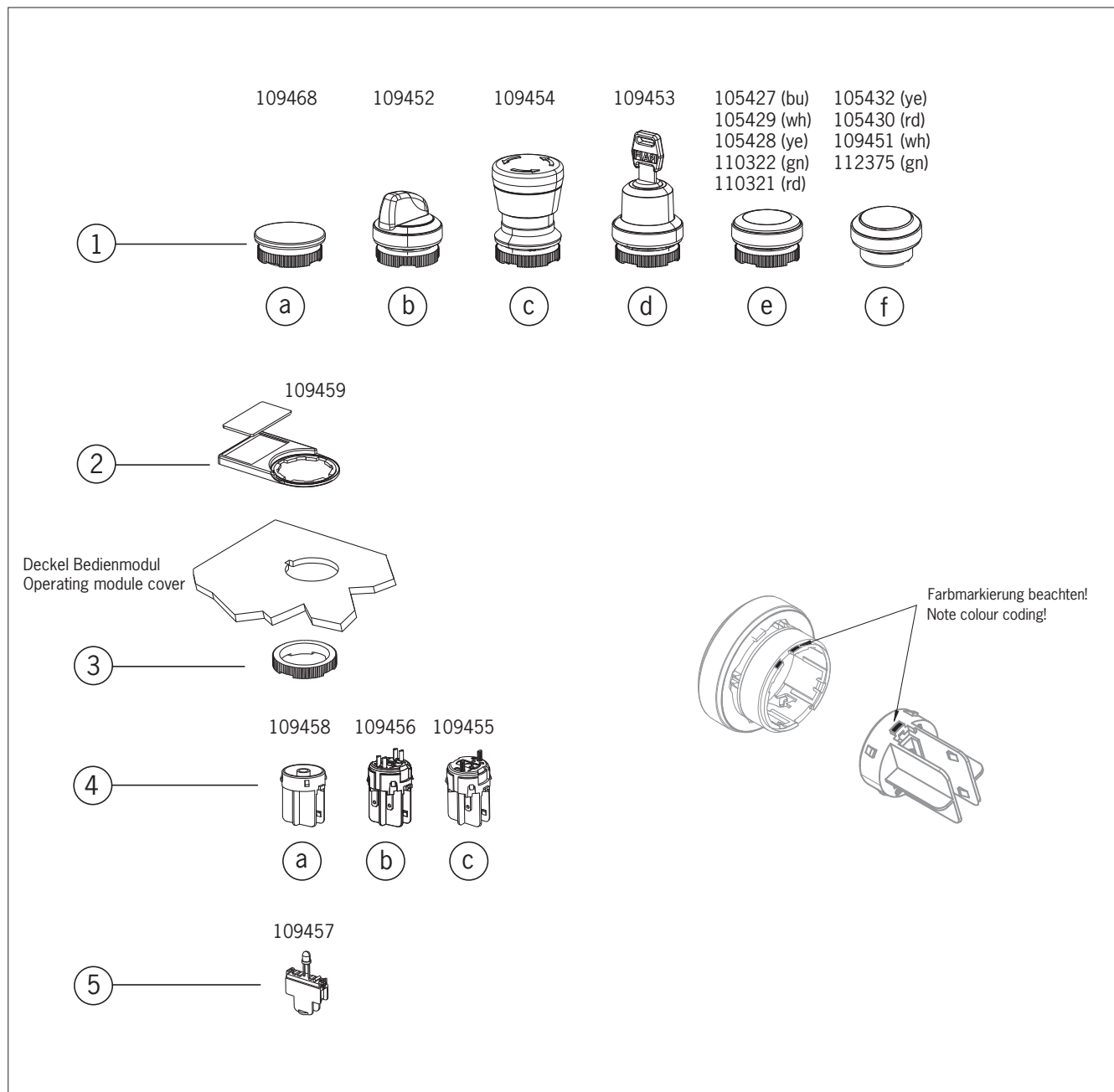
Position	Ausführung/Version	h
S1	Not-Halt-Taster Emergency stop	33,2 mm
S2	Leuchtvorsatz-rot LED-red	10 mm
S3	Leuchtvorsatz-grün LED-green	
S4	Taster beleuchtet-weiss Pushbutton illuminated-white	
S5	Taster beleuchtet-weiss Pushbutton illuminated-white	44,1 mm
S6	Schlüsselschalter Key-operated switch	



X 1.5 : 1




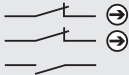
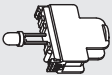
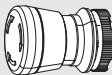
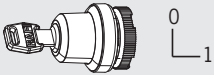



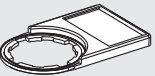



Overview controls and indicators



- 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	-	●	-
 Key-operated switch (2 positions) Order No. 109453 Incl. 2 keys Key removable in both positions	● 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) Order no. 112375 (gn)	-	-	●
 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 (plug-in spring terminals)	0.2 ... 1.5 mm ²

Controls

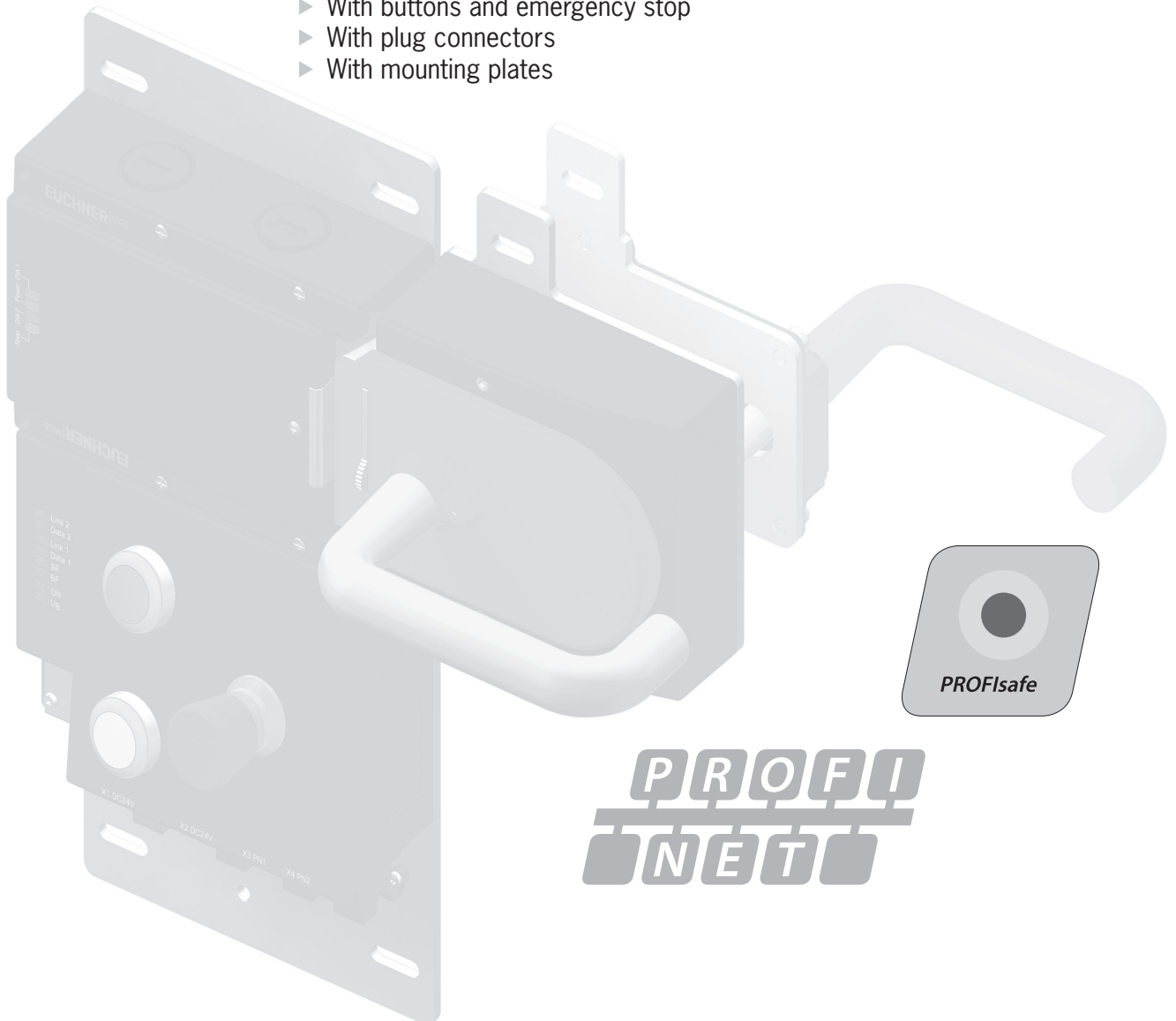
Parameter	Value
Mech. life	
- Pushbutton	1x10 ⁶
- Emergency stop	5x10 ⁴
- Selector switch	3x10 ³
- Key-operated switch	3x10 ⁴
Ambient temperature	-20 ... 55 °C
Type of protection according to EN 60529	IP 54 (installed)

Switching elements, LED

Parameter	Value
Life at 10 mA/24 V DC	
...GU...	1x10 ⁶
...GM...	5x10 ⁴
Ambient temperature	-20 ... 55 °C
Operating voltage	
- Switching elements	5 ... 35 V
- LED	24 V
Operating current	
- Switching elements	1 ... 100 mA
- LED	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 (positively driven NC contact)

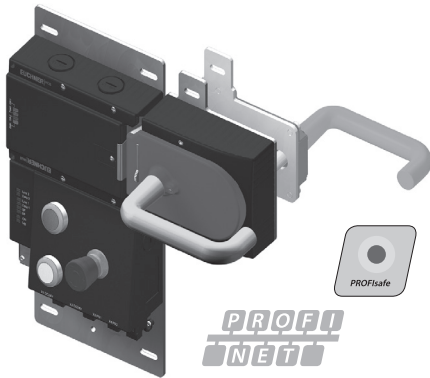
Complete sets system family MGB-PN

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



Locking sets MGB-L1-PN... (guard locking by spring force)	92 - 93
with 3 controls and indicators	92
Locking sets MGB-L2-PN... (guard locking by solenoid force)	94 - 95
with 3 controls and indicators	94
PROFINET data bytes	96
Assignment of the terminal plugs	97
Technical data	98
Dimension drawing	99

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



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

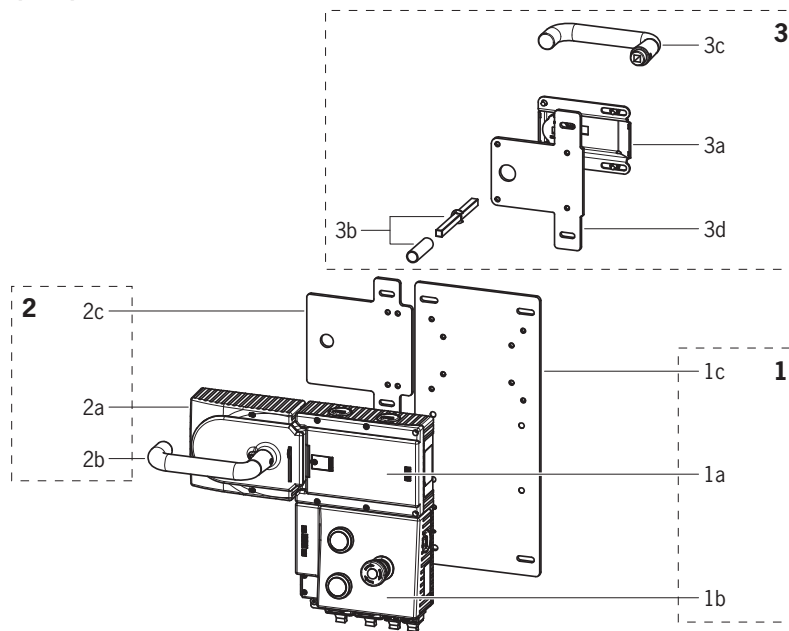
- ▶ Dimension drawings see p. 99
- ▶ Technical data see p. 98
- ▶ Accessories and spare parts see p. 93
- ▶ www.mgb.EUCHNER.de

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

Ordering table

Modules in the set						Ordering data set			
Version/configuration scheme Order no. module combination	Controls and indicators				Handle module Order no. separate module	Escape release Order no. separate module	Door stop (Factory setting)	Order no./item	
	S1	S2	S3	S4					
110739 Pre-assembled on mounting plate, incl. label carrier	-	-	-	-	106049 Pre-assembled on mounting plate	not included	right	110649 MGB-L1HB-PNA-R-110649	
S11	S8	S9	-						
			-						
110740 Pre-assembled on mounting plate, incl. label carrier	-	-	-	-	106221 Pre-assembled on mounting plate	not included	left	110648 MGB-L1HB-PNA-L-110648	
S11	S8	S9	-						
			-						

System components and spare parts

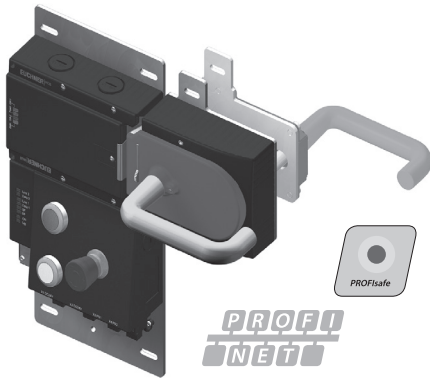


Ordering table for system components, spare parts and accessories

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)	-
		- Long escape-release shaft (instead of item 3b)	Length 250 mm (square 8x8 mm + sleeve 182 mm long)	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



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

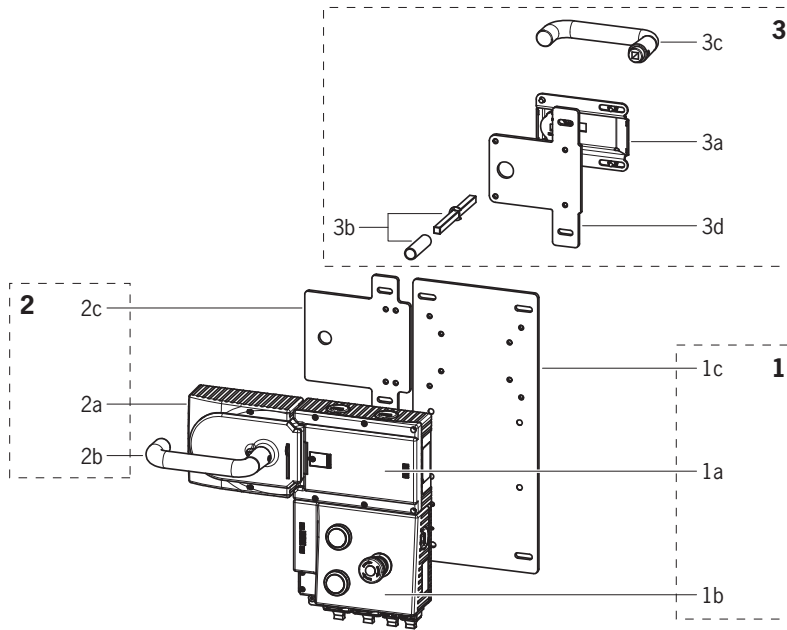
- ▶ Dimension drawings see p. 99
- ▶ Technical data see p. 98
- ▶ Accessories and spare parts see p. 95
- ▶ www.mgb.EUCHNER.de

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

Ordering table

Modules in the set					Ordering data set			
Version/configuration scheme Order no. module combination	Controls and indicators				Handle module Order no. separate module	Escape release Order no. separate module	Door stop (Factory setting)	Order no./item
	S1	S2	S3	S4				
110002 Pre-assembled on mounting plate, incl. label carrier	-	-	-	-	106049 Pre-assembled on mounting plate	not included	right	110001 MGB-L2HB-PNA-R-110001
S11	S8	S9	-					
			-					
110003 Pre-assembled on mounting plate, incl. label carrier	-	-	-	-	106221 Pre-assembled on mounting plate	not included	left	110000 MGB-L2HB-PNA-L-110000
S11	S8	S9	-					
			-					

System components and spare parts



Ordering table for system components, spare parts and accessories

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-HAA1A2-L-106221	
		For doors hinged on the right	106049 MGB-HAA1A2-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)	-
		- Long escape-release shaft (instead of item 3b)	Length 250 mm (square 8x8 mm + sleeve 182 mm long)	106758
	3c	- Door handle	Color red	-
3d	- Mounting plate	For escape release MGB-E-...	109492 MGB-A MOUNTING PLATE E-109492	

MGB-PN

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	S08	S07	S06	S05	S04	S03	S02	S01
Byte n+1	S016	S015	S014	S013	S012	S011	S010	S09
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)							

- S01: Guard locking solenoid – control voltage on
(function identical to bit O16 => but with control via PROFIsafe)
- S02: n.c.
- S03: n.c.
- S04: n.c.
- S05: n.c.
- S06: n.c.
- S07: n.c.
- S08: n.c.

- S09: n.c.
- S010: n.c.
- S011: n.c.
- S012: n.c.
- S013: n.c.
- S014: n.c.
- S016: 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.

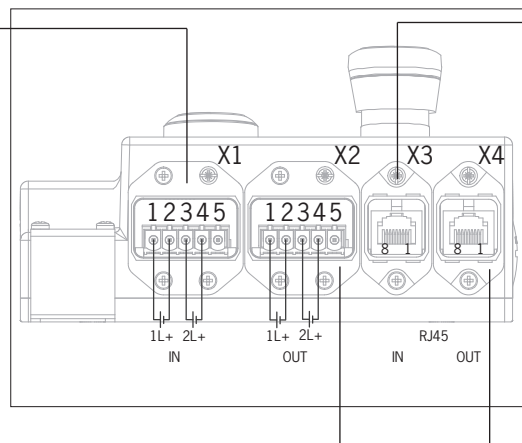
Assignment of the terminal plugs

Pin	Description
X1.1	1L+ operating voltage DC 24 V
X1.2	1M operating voltage 0 V
X1.3	2L+ auxiliary power* DC 24 V
X1.4	2M 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	1L+ operating voltage DC 24 V
X2.2	1M operating voltage 0 V
X2.3	2L+ auxiliary power* DC 24 V
X2.4	2M 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_{gr} max. door position	65 mm
Housing material	Reinforced plastic die-cast zinc, nickel-plated, stainless steel, 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% (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 x 10 ⁻⁸ / h
PFH _d for the evaluation of the emergency stop	2,5 x 10 ⁻⁸ / h
B_{10d} ⁴⁾	
- Emergency stop	1 x 10 ⁵
- Enabling switch	According to switch information from manufacturer

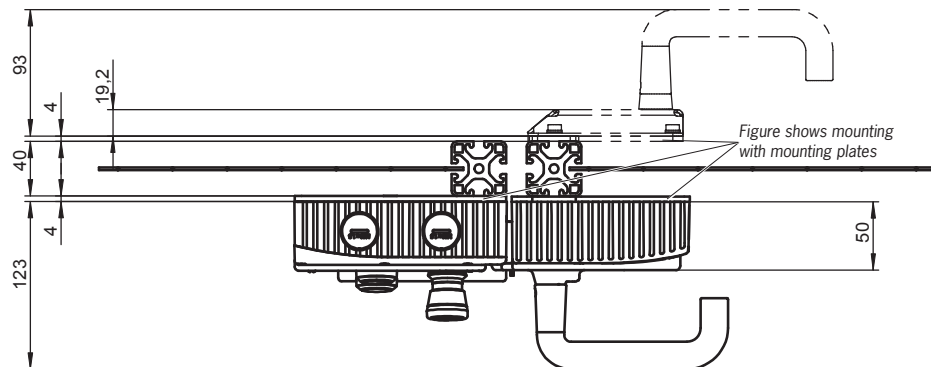
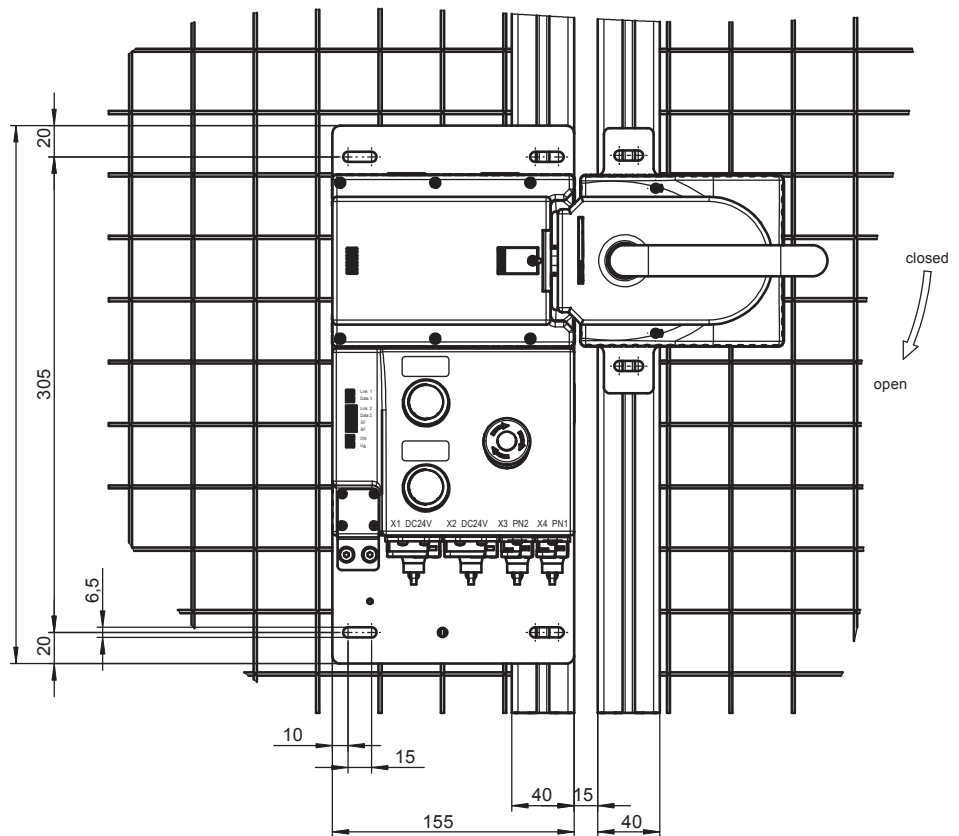
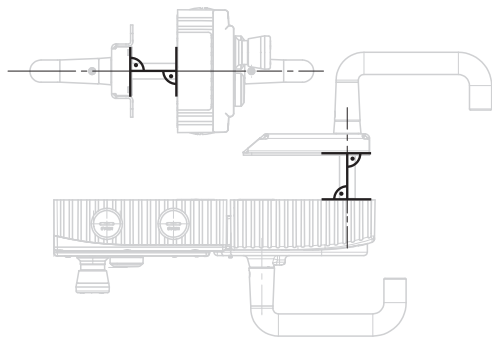
1) The document *PROFINET Cabling and Interconnection Technology* from the PNO aids in the correct selection of wiring.

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

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C-M23F19-PU10,0-MA-110304	110304	85
C-M23F19-PU15,0-MA-110305	110305	85
C-M23F19-PU20,0-MA-110306	110306	85
C-M23F19-PU25,0-MA-110307	110307	85
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MGB-A MOUNTING PLATE E-109492	109492	82/93/95
MGB-A MOUNTING PLATE H-109491	109491	82/93/95
MGB-A MOUNTING PLATE L-109490	109490	82
MGB-A MOUNTING PLATE LC-110072	110072	82/93/95
MGB-A-DOORKNOB-111460	111460	78/79
MGB-A-LPSET-109858	109858	86
MGB-C-000000-A1-109219	109219	86
MGB-E-A-100465	100465	80
MGB-E-A2-106051	106051	80/93/95
MGB-H-AA1A1-L-106619	106619	78
MGB-H-AA1A1-R-100464	100464	78
MGB-H-AA1A2-L-106221	106221	93/95
MGB-H-AA1A2-R-106049	106049	93/95
MGB-H-AA1A3-L-111158	111158	79
MGB-H-AA1A3-R-111157	111157	79
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MGB-LO-APA-AA6A1-S3-R-110546	110546	10
MGB-LO-AR-AA1A1-M-105331	105331	26
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MGB-L1-AR-AB9A1-S1-R-109887	109887	40
MGB-L1-AR-AB9A3-M-109974	109974	40
MGB-L1-AR-AC2A1-M-109934	109934	42
MGB-L1-AR-AC5A1-M-110236	110236	49
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110685	MGB-L1-ARA-AA2A1-S1-R-110685	50	111460	MGB-A-DOORKNOB-111460	78/79
110686	MGB-L1-ARA-AA2A1-S1-L-110686	50	111521	MGB-L1-ARA-AA1A1-S4-R-111521	37
110687	MGB-LO-ARA-AA2A1-S1-R-110687	33	111530	MGB-L1HE-ARA-R-111530	37
110688	MGB-LO-ARA-AA2A1-S1-L-110688	33	111533	MGB-L1-ARA-AA1A1-S4-L-111534	37
110689	MGB-L1HE-ARA-R-110689	50	111534	MGB-L1HE-ARA-L-111534	37
110690	MGB-L1HE-ARA-L-110690	50	111653	MGB-L1-ARA-AA8A1-S1-R-111436	43
110691	MGB-LOHE-ARA-R-110691	33	111654	MGB-L1-ARA-AA8A1-S1-L-111654	43
110692	MGB-LOHE-ARA-L-110692	33	111655	MGB-L1H-ARA-R-111655	43
110702	MGB-L1-ARA-AC8A1-M-110702	49	111656	MGB-L1H-ARA-L-111656	43
110703	MGB-L1HE-AR-R-110703	49	111898	MGB-L1-APA-AE4A1-S1-R-111898	14
110708	MGB-L2-ARA-AA2A1-S1-R-110708	63	111899	MGB-L1H-APA-R-111899	14
110709	MGB-L2-ARA-AA2A1-S1-L-110709	63	111903	MGB-L1-APA-AE4A1-S1-L-111903	14
110710	MGB-L1HE-ARA-R-110710	43	111904	MGB-L1H-APA-L-111904	14
110711	MGB-L1-ARA-AC9A1-M-110711	43	111923	MGB-L2-ARA-AE5A1-S1-R-111924	64
110739	MGB-L1B-PNA-R-110739	92	111924	MGB-L2H-ARA-R-111924	64
110739	MGB-L1B-PNA-L-110739	93	111925	MGB-L2-ARA-AE5A1-S1-L-111925	64
110740	MGB-L1B-PNA-L-110740	92/93	111926	MGB-L2H-ARA-L-111926	64
110772	MGB-L1-ARA-AD1A1-M-110772	48	111937	MGB-LO-ARA-AA1A1-S1-R-111937	27
110774	MGB-L1HE-ARA-R-110774	48	111938	MGB-LOHE-ARA-R-111938	27
110780	MGB-L1-ARA-AD2A3-M-110780	40	111939	MGB-L1-ARA-AA1A1-S1-R-111939	37
110782	MGB-L1HE-ARA-R-110782	40	111940	MGB-L1HE-ARA-R-111940	37
110792	MGB-L1-ARA-AA2A1-S1-R-110792	50	111941	MGB-LO-ARA-AA1A1-S1-L-111941	27
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110870	MGB-L1H-ARA-R-110870	50	111943	MGB-L1-ARA-AA1A1-S1-L-111943	37
110871	MGB-L1H-ARA-L-110871	50	111944	MGB-L1HE-ARA-L-111944	37
110872	MGB-L1-ARA-AD4A1-S1-R-110872	50	112310	MGB-L2-ARA-AE6A1-M-112310	68
110873	MGB-L1-ARA-AD4A1-S1-L-110873	50	112311	MGB-L2H-ARA-R-112311	68
110949	MGB-LOH-ARA-R-110949	26	112312	MGB-L2-ARA-AE7A1-M-112312	68
110950	MGB-LO-ARA-AA1A1-S1-R-110950	26	112313	MGB-L2H-ARA-L-112313	68
110952	MGB-LOH-ARA-L-110952	26	112375	MP-A-L-RO-GN-00-112375	86
110953	MGB-LO-ARA-AA1A1-S1-L-110953	26	112913	MGB-L1-ARA-AE9A1-M-112913	54
110955	MGB-LOH-ARA-R-110955	33	112914	MGB-L1-ARA-AF1A1-M-112914	54
110958	MGB-LOH-ARA-L-110958	33	112915	MGB-L1H-ARA-R-112915	54
111070	MGB-L1H-ARA-R-111070	36	112916	MGB-L1H-ARA-L-112916	54
111071	MGB-L1-ARA-AA1A1-S1-R-111071	36			
111073	MGB-L1H-ARA-L-111073	36			
111074	MGB-L1-ARA-AA1A1-S1-L-111074	36			

Lined area for taking notes, consisting of 26 horizontal gray lines.

A series of 30 horizontal grey bars, evenly spaced, intended for writing notes. The bars span the width of the page, leaving a small margin on the left and right.

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How to find "your" MGB:

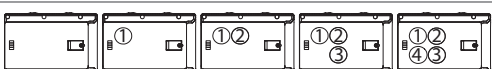
Step 1 Find the right system family

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








Step 2 Interlocking or guard locking?

-	MGB-LO...: Interlocking (only monitoring of the door position)
	MGB-L1...: Guard locking by spring force (Closed-circuit current principle)
	MGB-L2...: Guard locking by solenoid force (Open-circuit current principle)

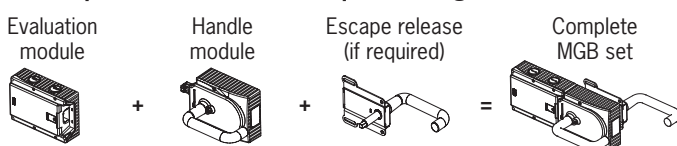
Step 3 Select number of controls/indicators required

Configuration scheme/ counting direction	
---	---

Step 4 Select type of controls and indicators

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

Step 5 Select complete MGB set with the required configuration

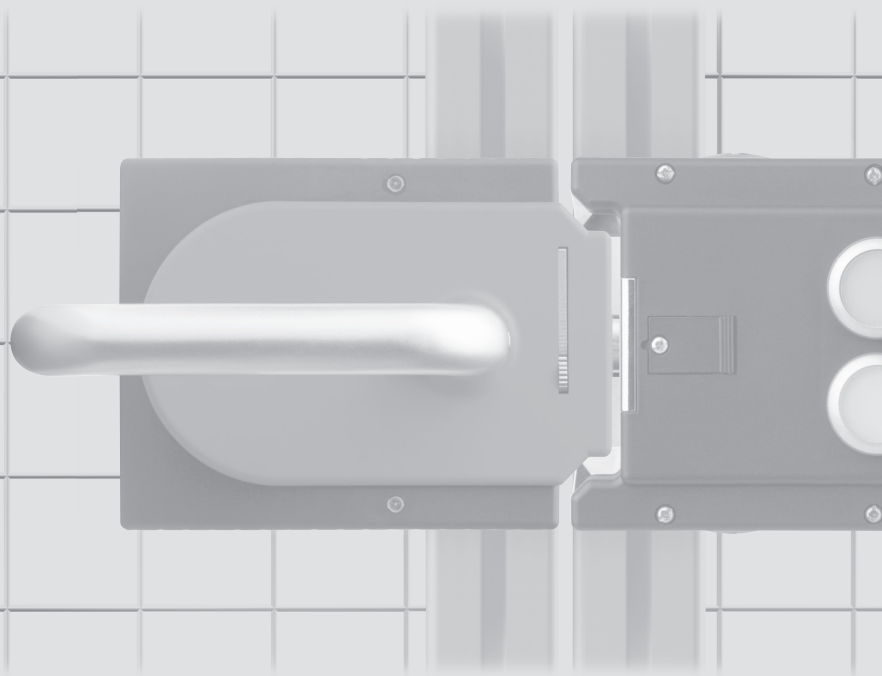


Have you not been able to find the configuration you require?

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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