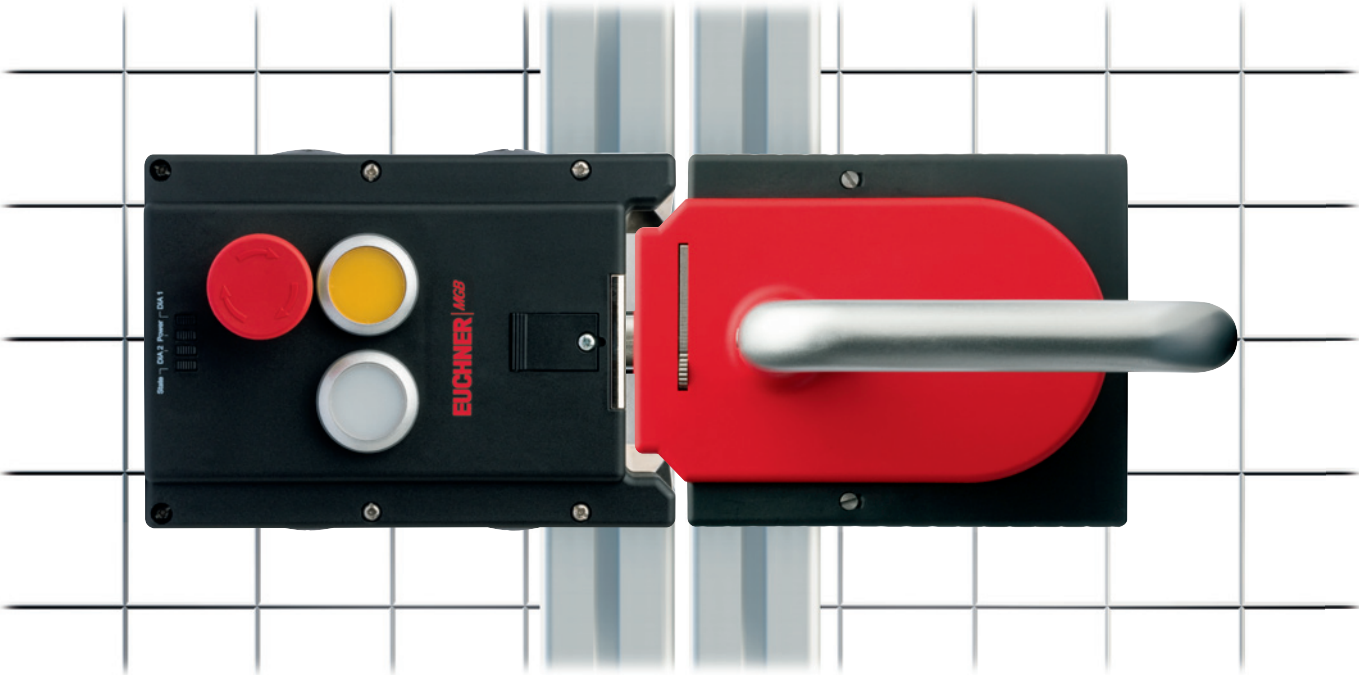
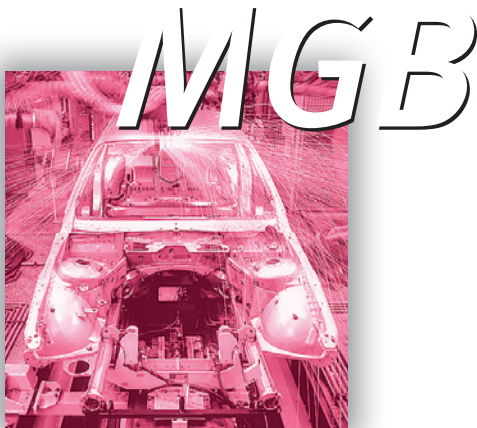


Multifunctional Gate Box



More than safety.



EUCHNER

More than safety.



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



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

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

Automation – Safety – ManMachine

Today, our products range from electromechanical and electronic components to complex system solutions. With this wide range of products we can provide the necessary technologies to offer the right solution for special requirements – regardless of whether these relate to reliable and precise positioning or to components and systems for safety engineering in the automation sector.

EUCHNER products are sold through a world-wide sales network of competent partners. With our closeness to the customer and the guarantee of reliable solutions throughout the globe, we enjoy the confidence of customers all over the world.

Quality, reliability, precision

Quality, reliability and precision are the hallmarks of our corporate philosophy. They represent concepts and values to which we feel totally committed.

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

EUCHNER – More than safety.



Quality – made by EUCHNER

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.

Be certain of compliance with new standards

Performance Level e in accordance with EN ISO 13849-1 or SIL3 in accordance with EN 62061 – even with the basic system you can comply with 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.

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 bar. Unintentional activation of the interlocking/guard locking is prevented.



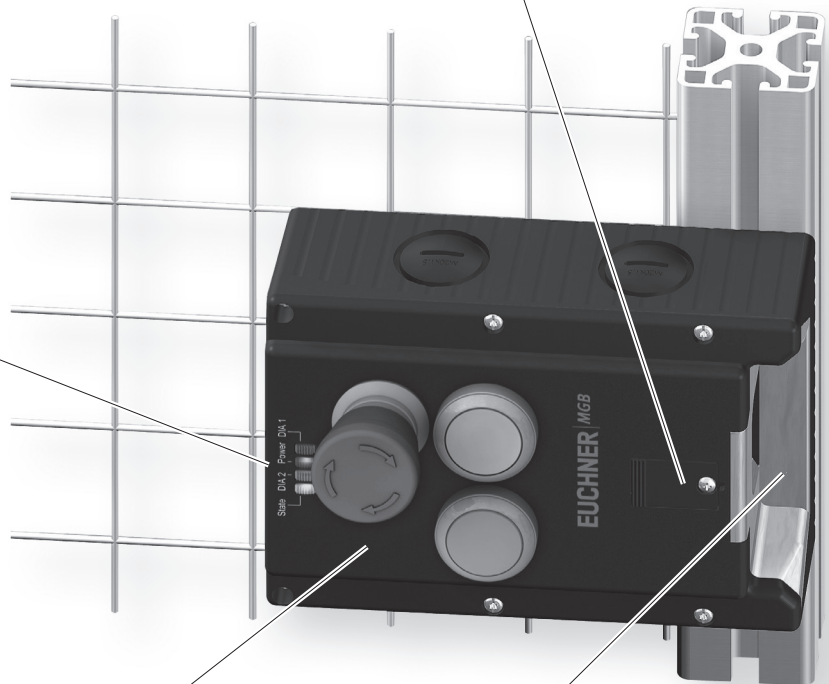
**Evaluation module
(as interlocking module or locking module)**

Mechanical release

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

Everything at a glance

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



Space for ideas...

Controls and indicators in the housing cover make the MGB 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. There is a marking on the stop that makes adjustment easier.



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.

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.

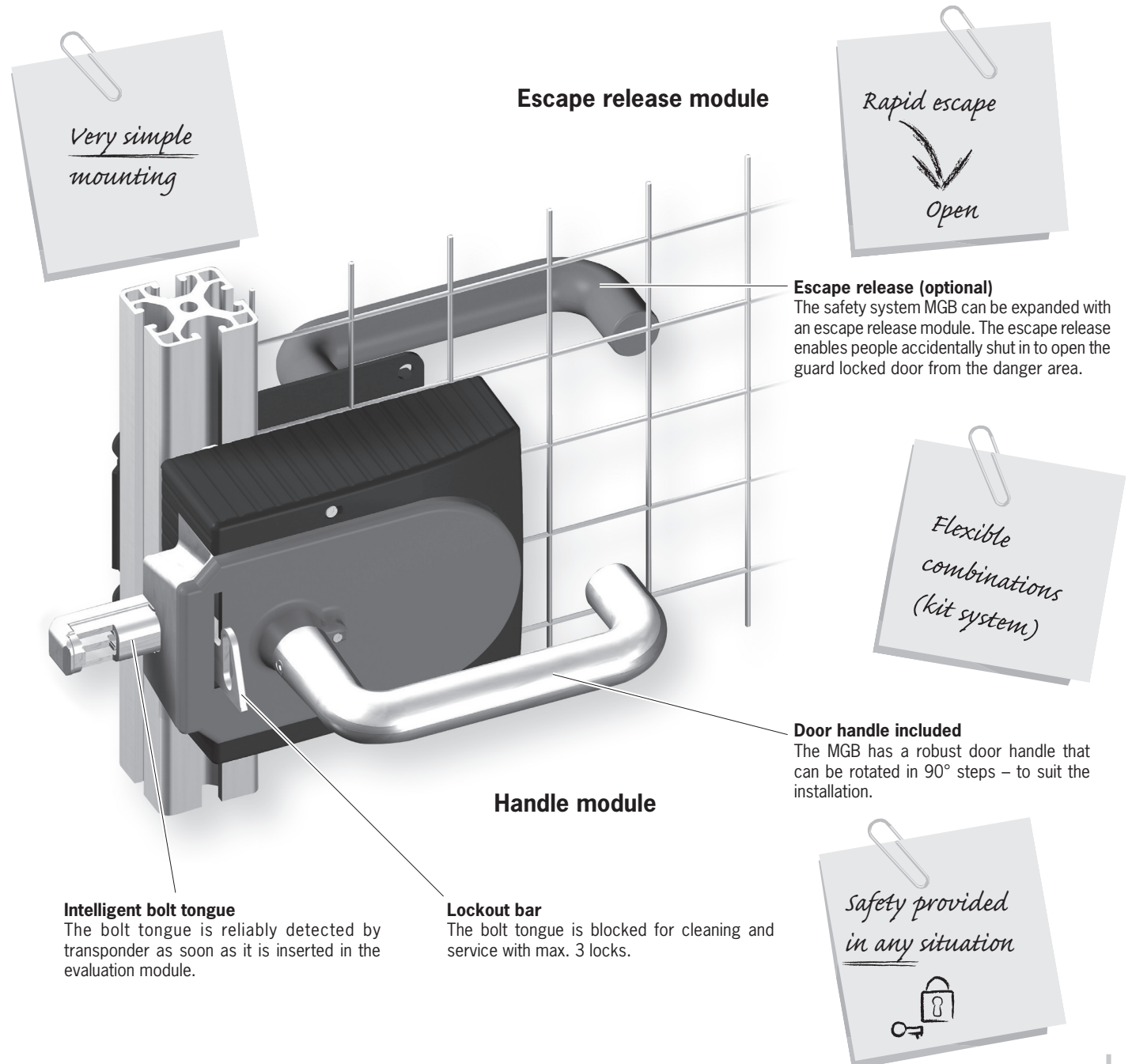
Bolt tongue, bolt guide and insertion funnel will also withstand occasional slamming of the door. Robust metal parts protect the MGB against this problem as well. To prevent injuries, the bolt tongue remains retracted with the door open.

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.

The advantages of the Multifunctional Gate Box MGB

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



Escape release module

Rapid escape

Open

Escape release (optional)

The safety system MGB can be expanded with an escape release module. The escape release enables people accidentally shut in to open the guard locked door from the danger area.

Flexible combinations (kit system)

Door handle included

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


Handle module







Intelligent bolt tongue

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

Lockout bar


The bolt tongue is blocked for cleaning and service with max. 3 locks.

Safety provided in any situation


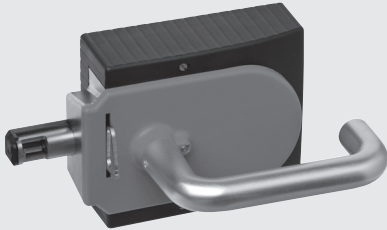
Evaluation modules	
	<p>Cat. 4 PLe</p> <p>Interlocking module</p> <ul style="list-style-type: none"> ▶ Without controls (see page 12)
	<p>Cat. 4 PLe</p> <p>Interlocking module</p> <ul style="list-style-type: none"> ▶ With EMERGENCY STOP device and 2 illuminated buttons (see page 13)
	<p>Cat. 4 PLe </p> <p>Locking module</p> <ul style="list-style-type: none"> ▶ Without controls (see page 14)
	<p>Cat. 4 PLe </p> <p>Locking module</p> <ul style="list-style-type: none"> ▶ With EMERGENCY STOP device and 2 illuminated buttons (see page 15)

Explanation of symbols

Safety category/guard locking

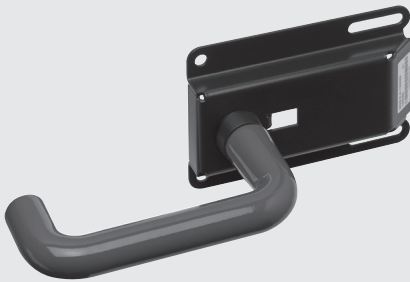
<p>Cat. 4 PLe</p>	<p>Suitable up to category 4 according to EN 954-1 and Performance Level PLe according to EN ISO 13849-1</p>
	<p>Guard locking for personal protection</p>

Handle module



Handle module
▶ With lockout bar
(see page 16)









Escape release module



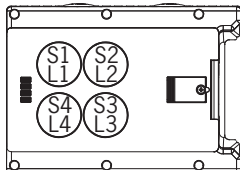
Escape release module
▶ With red handle
(see page 17)

Complete MGB sets in overview

Ordering table

Order no./ item	Evaluation modules					Handle module 100 464 MGB-H-AA1A1-R-100464 (see page 16)	Escape release module 100 465 MGB-E-A-100465 (see page 17)
	Interlocking module (without guard locking, see page 12 and 13)	Locking module (mechanical guard locking, see page 14 and 15)	Locking module (electrical guard locking, see page 14 and 15)	Additional functions			
				2 illuminated buttons (S2 and S3, in the evaluation module)	EMERGENCY STOP device (S1, in the evaluation module)		
105 778 MGB-LOH-AR-R-105778	Cat. 4 PLe					●	
105 779 MGB-LOH-AR-R-105779	Cat. 4 PLe			●	●	●	
105 780 MGB-LOHE-AR-R-105780	Cat. 4 PLe					●	●
105 781 MGB-LOHE-AR-R-105781	Cat. 4 PLe			●	●	●	●
105 782 MGB-L1H-AR-R-105782		Cat. 4 PLe				●	
105 783 MGB-L1H-AR-R-105783		Cat. 4 PLe				●	
105 784 MGB-L1HE-AR-R-105784		Cat. 4 PLe				●	●
105 785 MGB-L1HE-AR-R-105785		Cat. 4 PLe				●	●
105 786 MGB-L2H-AR-R-105786				Cat. 4 PLe		●	
105 787 MGB-L2H-AR-R-105787				Cat. 4 PLe		●	
105 788 MGB-L2HE-AR-R-105788				Cat. 4 PLe		●	●
105 789 MGB-L2HE-AR-R-105789				Cat. 4 PLe		●	●

Description of the individual modules starting from page 12.

Key to symbols	●	Included in the set
Button positions		

Individual MGB modules in overview

Evaluation modules

Guard locking	Order no./ item	2 illuminated buttons (S2 and S3, in the evaluation module)	EMERGENCY STOP device (S1, in the evaluation module)
Without	105 331 MGB-LO-AR-AA1A1-M-105331		
	106 106 MGB-LO-AR-AA2A1-M-106106	●	●
Mechanical	104 302 MGB-L1-AR-AA1A1-M-104302		
	105 328 MGB-L1-AR-AA2A1-M-105328	●	●
Electrical	104 303 MGB-L2-AR-AA1A1-M-104303		
	105 797 MGB-L2-AR-AA2A1-M-105797	●	●

Handle module

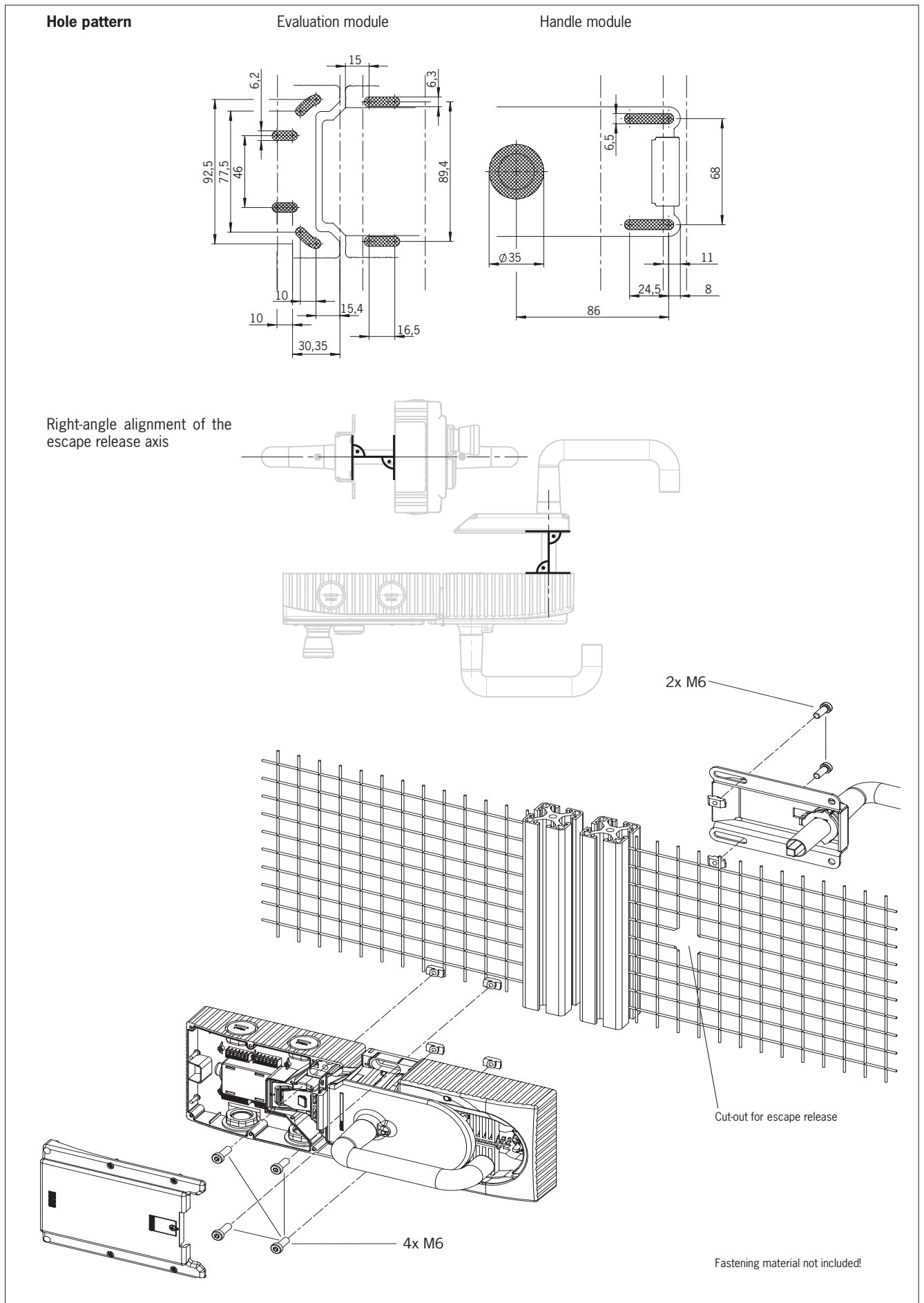
Order no./ item	Type
100 464 MGB-H-AA1A1-R-100464	With locking arm, black housing with red cover

Escape release

Order no./ item	Type
100 465 MGB-E-A-100465	Red handle

Key to symbols	●	Available functions
Button positions		

Installation example



Interlocking module MGB-LO...

- ▶ Solid door stop
- ▶ LED display
- ▶ 2 buttons optional
- ▶ EMERGENCY STOP device optional



Door stop

A mechanical door stop is permanently integrated into the evaluation module MGB-LO... There is a marking on the stop that makes adjustment easier.

LED display

The LED display indicates all important system and status information.

Buttons (optional)

- ▶ **S2** 1 NO contact, yellow, illuminated
- ▶ **S3** 1 NO contact, white, illuminated

EMERGENCY STOP device (optional)

- ▶ **S1** 2 positively driven contacts, EMERGENCY STOP with turn-to-reset, non-illuminated

Monitoring outputs

- ▶ **O1** Door position
- ▶ **O2** Bolt position
- ▶ **O3** Not used
- ▶ **O4** Diagnostic

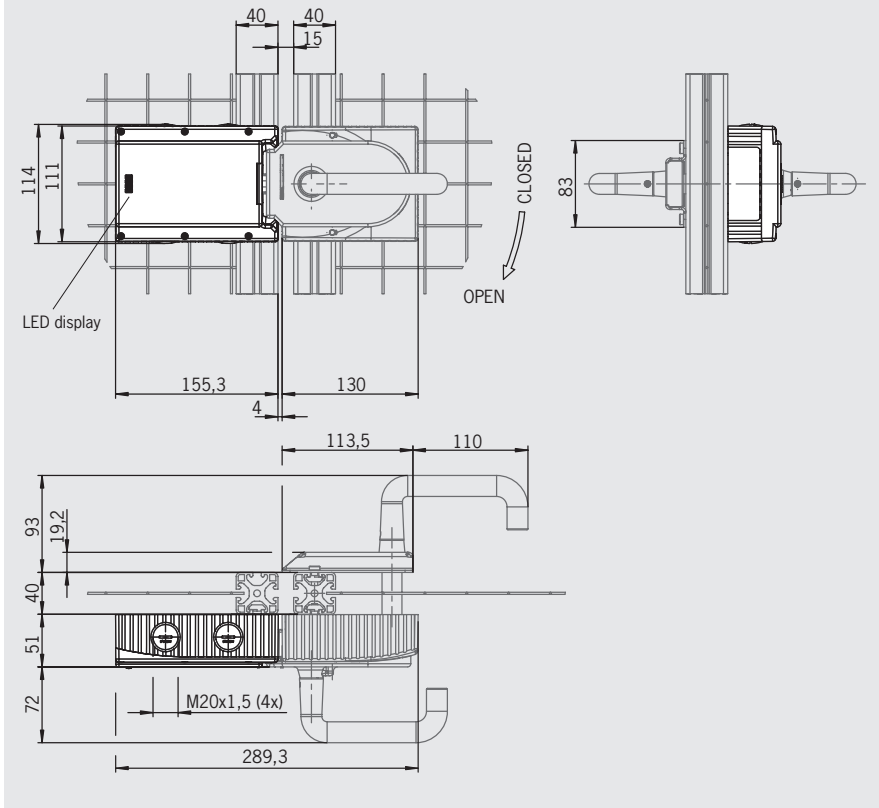
Ordering guide See page 9 and 10

Technical data See page 18

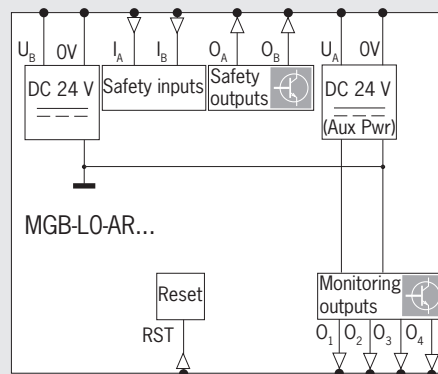
Interlocking module MGB-LO... Without controls

Cat.
4
PLe

Dimension drawing (Diagram shows door hinged on the right)



Block diagram



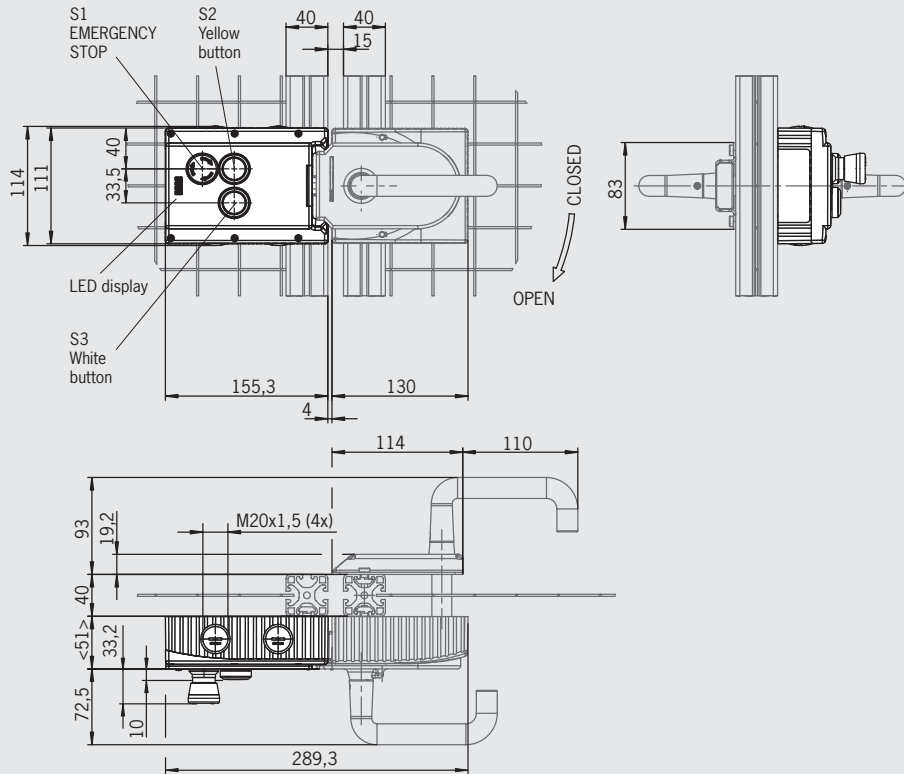
Ordering table

Series	Guard locking	Type	Order no./item
MGB-LO...	Without	Without controls	105 331 MGB-LO-AR-AA1A1-M-105331

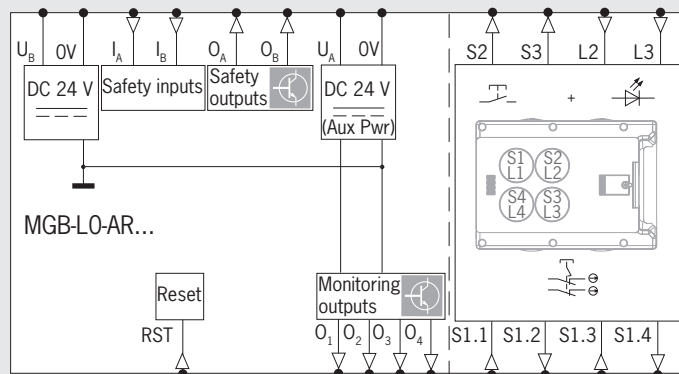
Interlocking module MGB-LO...
With 2 buttons and EMERGENCY STOP device

Cat.
4
PLe

Dimension drawing (Diagram shows door hinged on the right)



Block diagram



Ordering table

Series	Guard locking	Type	Order no./item
MGB-LO...	Without	With 2 buttons and EMERGENCY STOP device	106 106 MGB-LO-AR-AA2A1-M-106106

Locking module MGB-L1.../MGB-L2...

- ▶ Guard locking
- ▶ Solid door stop
- ▶ Mechanical release
- ▶ LED display
- ▶ 2 buttons optional
- ▶ EMERGENCY STOP device optional



Door stop

A mechanical door stop is permanently integrated into the evaluation module MGB-L1.../MGB-L2... There is a marking on the stop that makes adjustment easier.

Mechanical release

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

LED display

The LED display indicates all important system and status information.

Buttons (optional)

- ▶ S2 1 NO contact, yellow, illuminated
- ▶ S3 1 NO contact, white, illuminated

EMERGENCY STOP device (optional)

- ▶ S1 2 positively driven contacts, EMERGENCY STOP with turn-to-reset, non-illuminated

Guard locking types

MGB-L1... The locking arm is held in the locked position by spring force and is unlocked by solenoid force (closed-circuit current principle).

MGB-L2... The locking arm is held in the locked position by solenoid force and is unlocked by spring force when the solenoid is switched off (open-circuit current principle).

Monitoring outputs

- ▶ O1 Door position
- ▶ O2 Bolt position
- ▶ O3 Position of the guard locking
- ▶ O4 Diagnostic output

Ordering guide See page 9 and 10

Technical data See page 18

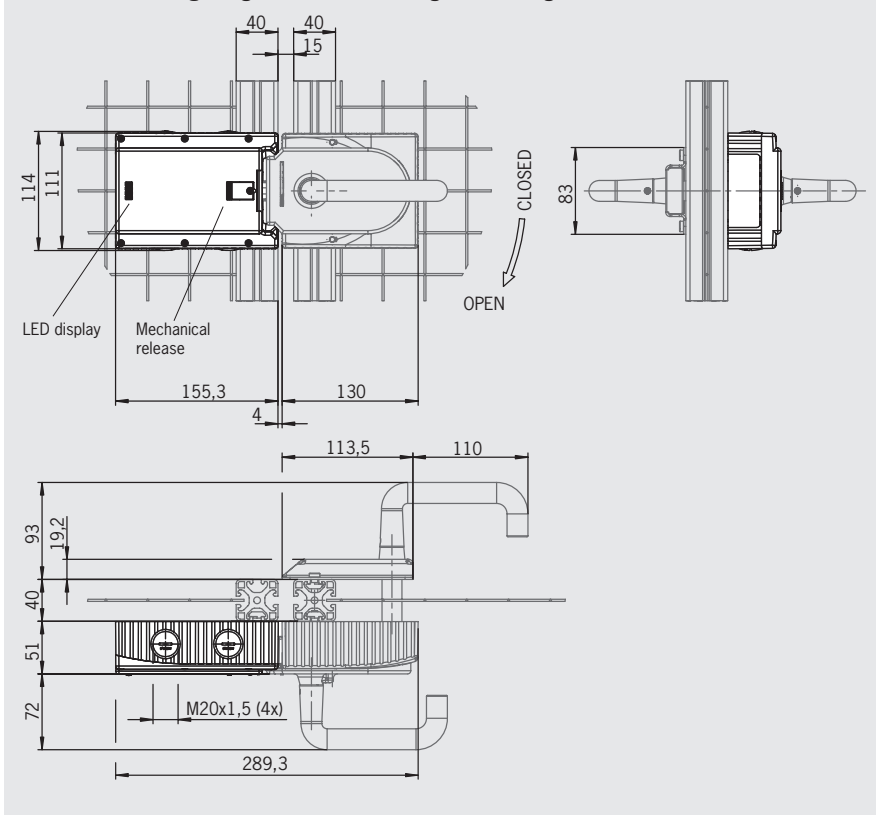
Ordering table

Series	Guard locking	Type	Order no./item
MGB-L1...	Mechanical	Without controls	104 302 MGB-L1-AR-AA1A1-M-104302
MGB-L2...	Electrical	Without controls	104 303 MGB-L2-AR-AA1A1-M-104303

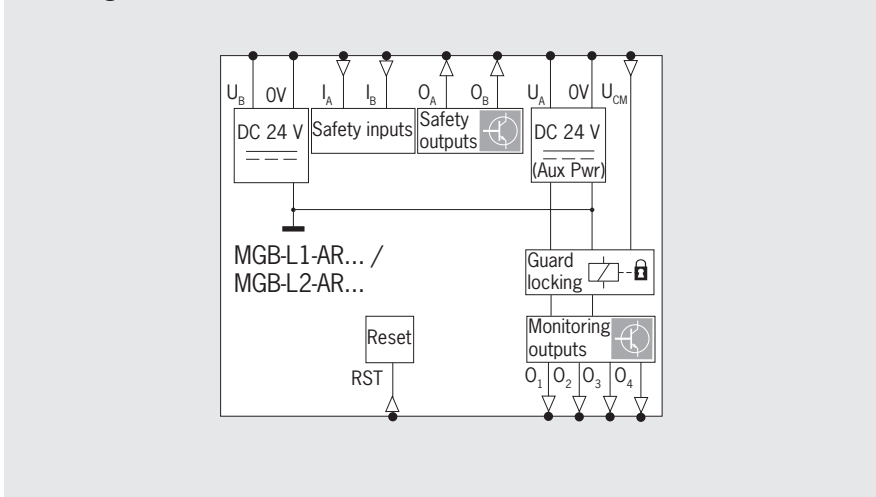
Locking module MGB-L1.../MGB-L2... Without controls



Dimension drawing (Diagram shows door hinged on the right)



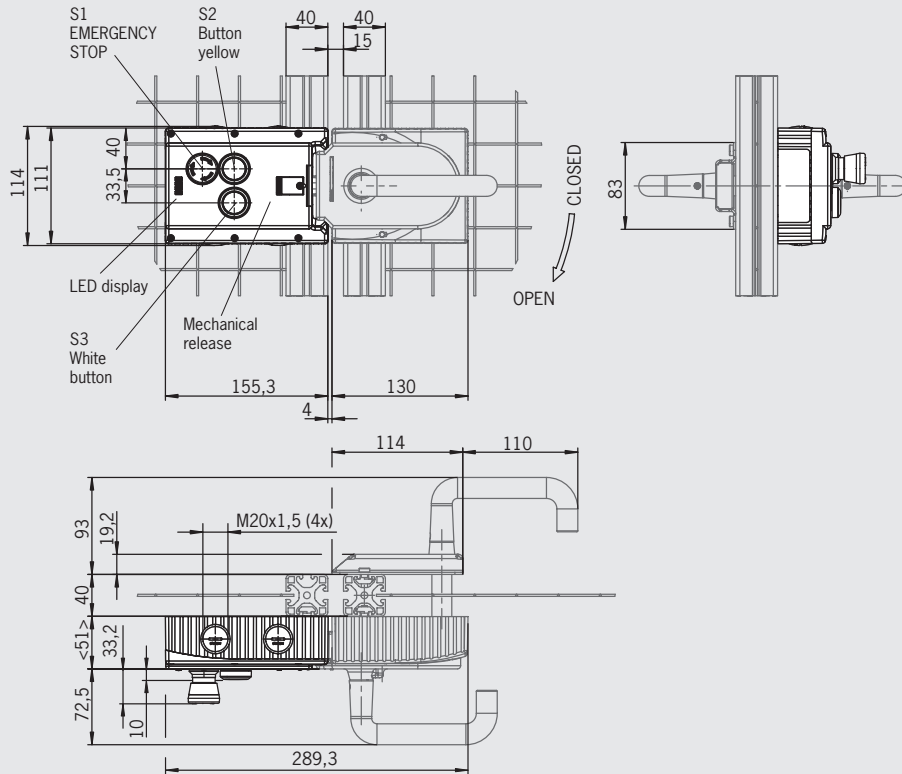
Block diagram



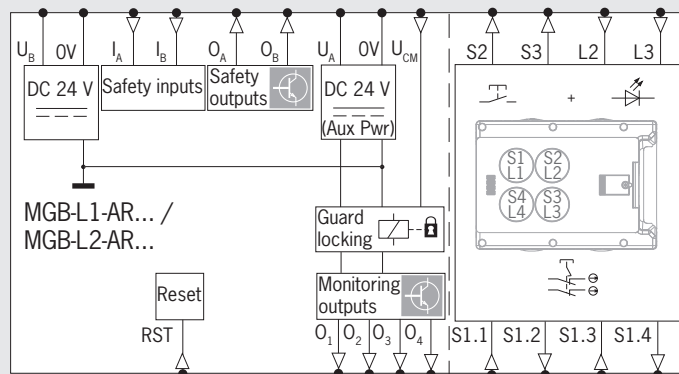
Locking module MGB-L1.../MGB-L2...
With 2 buttons and EMERGENCY STOP device

Cat. 4
PLe 

Dimension drawing (Diagram shows door hinged on the right)



Block diagram

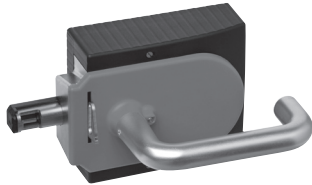


Ordering table

Series	Guard locking	Type	Order no./item
MGB-L1...	Mechanical	With 2 buttons and EMERGENCY STOP device	105 328 MGB-L1-AR-AA2A1-M-105328
MGB-L2...	Electrical	With 2 buttons and EMERGENCY STOP device	105 797 MGB-L2-AR-AA2A1-M-105797

Handle module MGB-H...

- ▶ Intelligent bolt tongue
- ▶ Lockout bar
- ▶ Door handle



Bolt tongue

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

Lockout bar

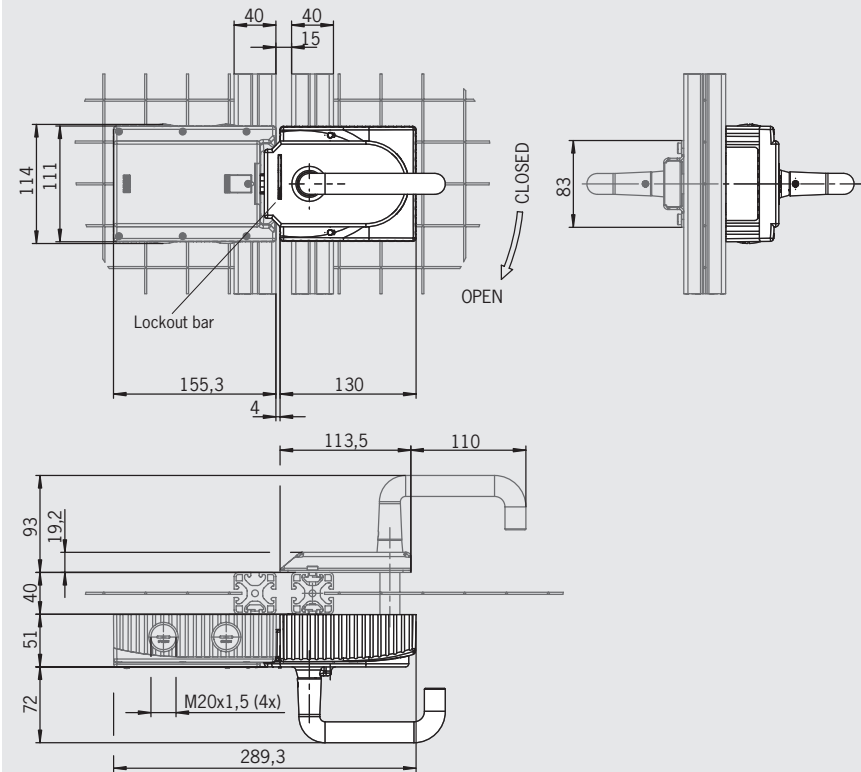
The bolt tongue can be blocked for cleaning and service with max. 3 locks.

Door handle

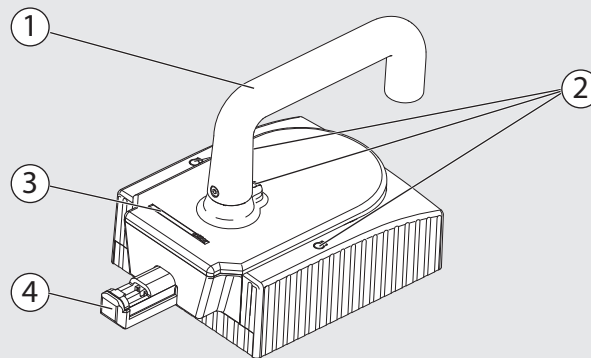
To suit all installations, the MGB has a robust door handle that can be rotated in 90° steps. The actuating direction can be changed for doors hinged on the left and on the right.

Handle module MGB-H...

Dimension drawing (Diagram shows door hinged on the right)



Ordering guide See page 9 and 10



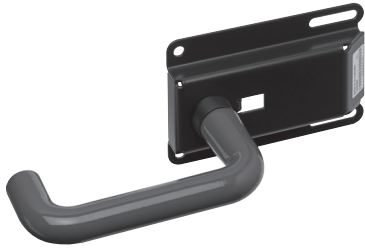
- ① Door handle
- ② Locking pins for housing cover and handle adjustment
- ③ Lockout bar
- ④ Bolt tongue

Ordering table

Series	Type	Order no./item
MGB-H...	With lockout bar, black housing with red cover	100 464 MGB-H-AA1A1-R-100464

Escape release module MGB-E...

- ▶ Escape release from the danger area
- ▶ Signal red door handle

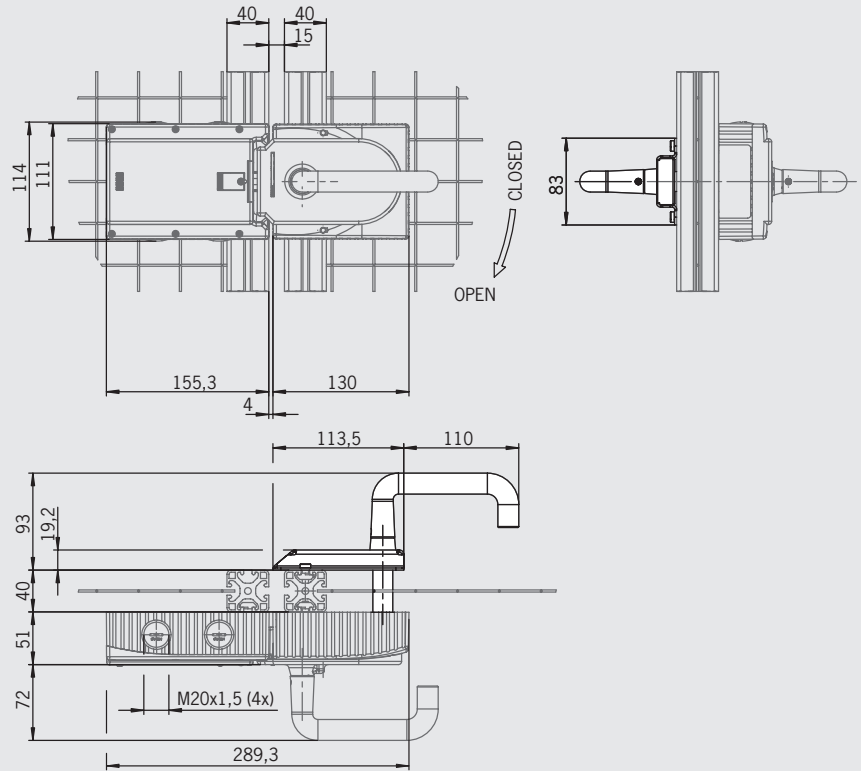


Escape release

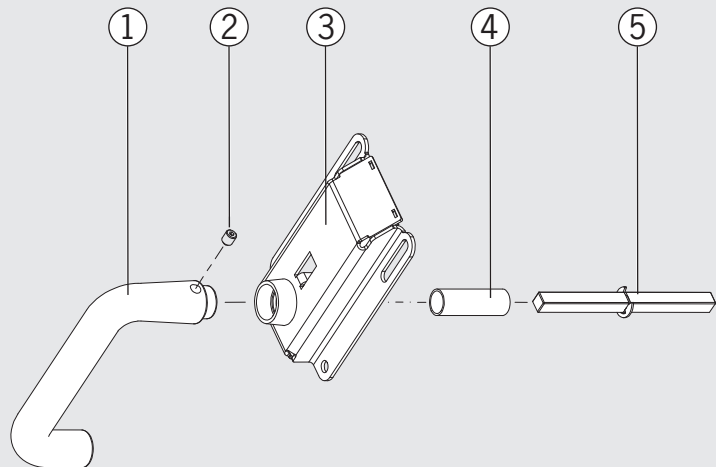
The safety system MGB can be equipped with an escape release module. The escape release enables people shut in to open the guard locked door from the danger area.

Escape release module MGB-E...

Dimension drawing (Diagram shows door hinged on the right)



Ordering guide See page 9 and 10



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

Ordering table

Series	Type	Order no./item
MGB-E...	With red handle	100 465 MGB-E-A100465

Technical data safety system MGB

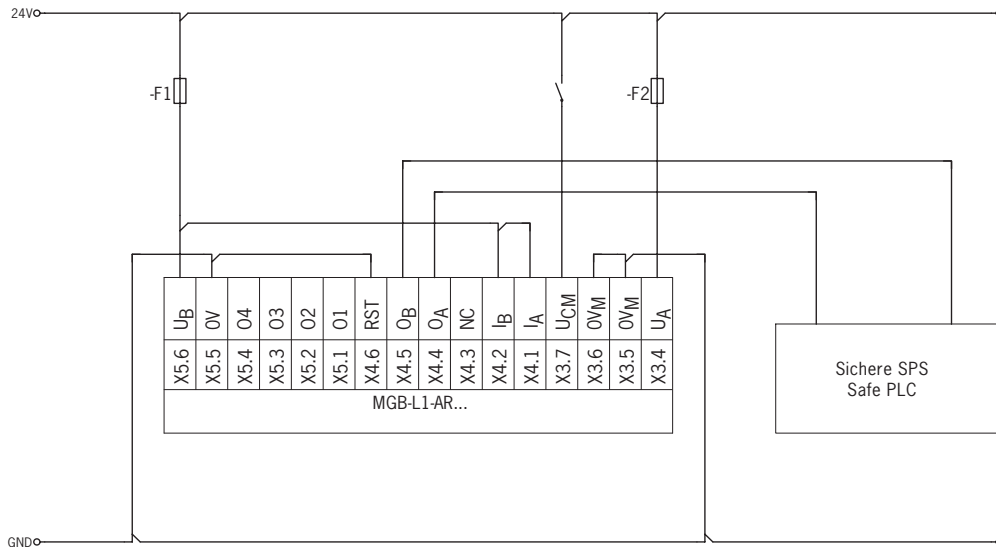
Parameter	Value			Unit
	min.	typ.	max.	
Housing material	Glass fiber reinforced plastic die-cast zinc, nickel-plated Stainless steel			
Dimensions	See dimension drawings			mm
Weight				
- Locking module	0.75			kg
- Handle module	1.00			
- Escape release	0.50			
Ambient temperature at $U_B = DC 24 V$	-20	-	+55	°C
Degree of protection acc. to EN IEC 60529	IP 54			
Safety class according to EN IEC 61558	III, degree of contamination 3			
Installation position	Any			
Locking force	2000			N
Connection type	4 cable entries M20x1.5			
Operating voltage U_B (reverse polarity protected, regulated, residual ripple < 5 %)	24 +10% / -15%			V DC
Auxiliary voltage U_A (reverse polarity protected, regulated, residual ripple < 5 %)	24 +10% / -15%			
Current consumption I_B (no load on any outputs)	80			mA
Interlocking solenoid current consumption I_A (with active guard locking)	350			
- Additional current consumption for version with controls and indicators in the cover	Max. 20			
Safety outputs OA/OB	Semiconductor outputs, p-switching, short circuit-proof			
Output voltage $U(OA)/U(OB)$ ¹⁾				
HIGH $U_{(OA)} / U_{(OB)}$	$U_B - 2V$	-	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 free-wheeling diode in case of inductive loads.			
Classification acc. to EN IEC 60947-5-3	PDF-M			
Monitoring outputs ¹⁾	p-switching, short circuit-proof			
- Output voltage	$U_A - 2V$	-	U_A	V DC
- Max. load	-	-	200	mA
Rated insulation voltage U_i	30			V
Rated impulse withstand voltage U_{imp}	1.5			kV
Resilience to vibration	As per EN IEC 60947-5-3			
Switching frequency	1			Hz
EMC protection requirements	As per EN IEC 60947-5-3			

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

Connection examples

Important: 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



Operation in a CES-AR switch chain

