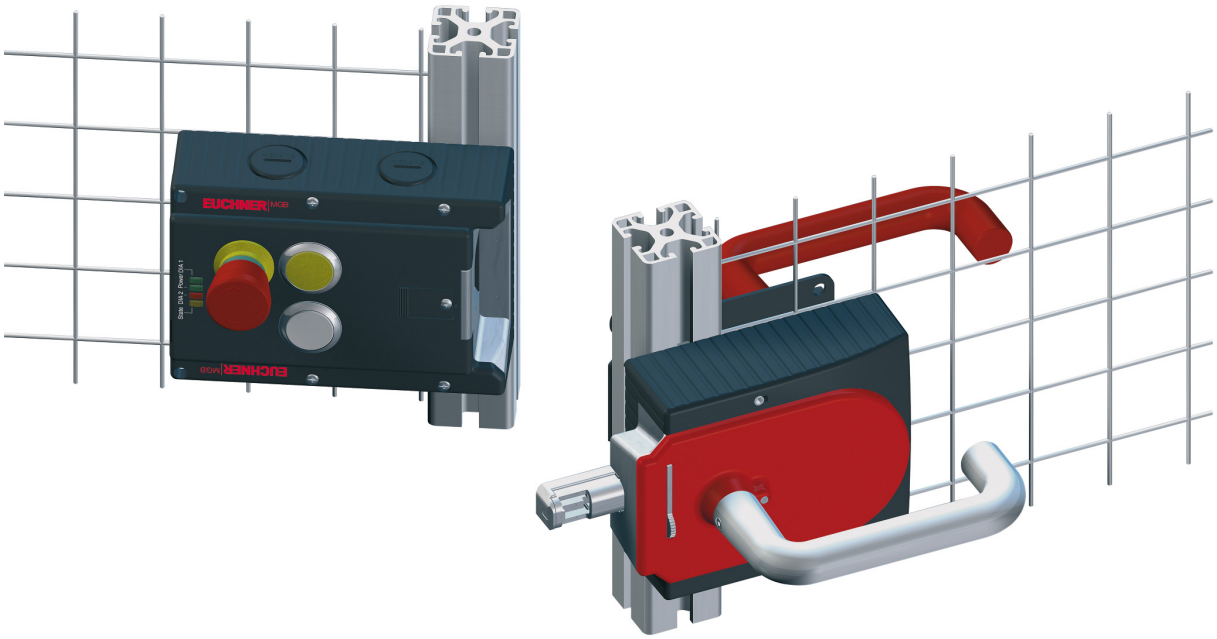
MGB

Help for Setup and Service

(up to V1.2.3)



More than safety.

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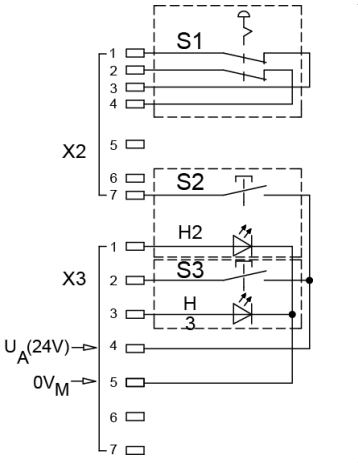
1 Connection

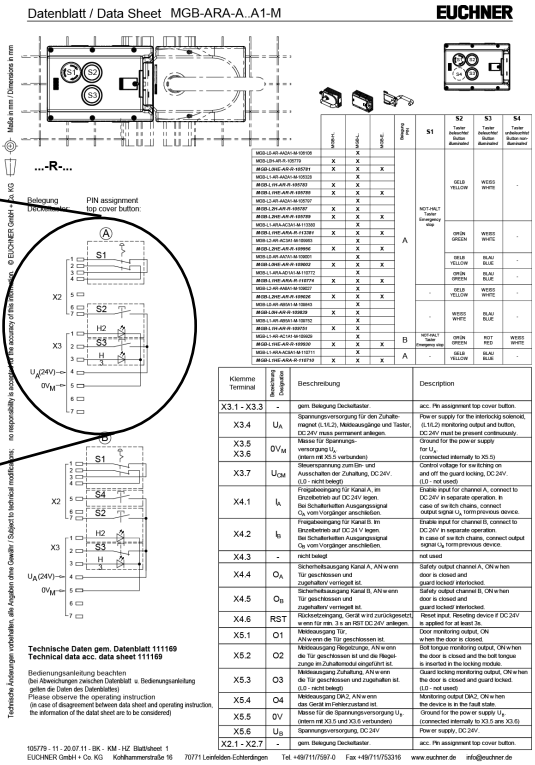
1.1 Connection of the buttons in the MGB

The terminal assignment of the switches (lights, buttons, emergency stop, etc.) in the cover of the MGB is not described in the system manual. These terminals can be found in the associated data sheet of the MGB included with every delivery. Please contact EUCHNER if the data sheet has been lost, and you will promptly be sent a data sheet. Alternatively, you can look in the MGB catalog.

The switches and the emergency stop are floating. However, the lights and the buttons all refer to a common potential. The terminals are to be found on connections X2 and X3.

Example:




Datenblatt / Data Sheet MGB-ARA-A..A1-M

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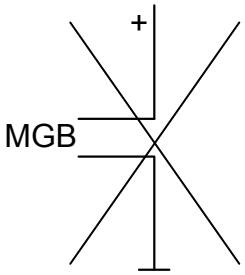
Technische Daten gem. Datenblatt 111169
Technical data acc. data sheet 111169

Klemme Terminal	Bezeichnung Designation	Beschreibung	Description
X3.1 - X3.3	-	gem. Belegung Deckeltaster.	acc. Pin assignment top cover button.
X3.4	U_A	Spannungsversorgung für den Zuhaltemagnet (L16.2), Meldeausgänge und Taster, DC 24V muss permanent anliegen.	Pow er supply for the interlocking solenoid, (L16.2) monitoring output and button, DC 24V must be present continuously.
X3.5 X3.6	$0V_M$	Masse für Spannungsversorgung U_A (intern mit X5.5 verbunden)	Ground for the pow er supply for U_A (connected internally to X5.5)
X3.7	U_{DM}	Steuerspannung zum Ein- und Ausschalten der Zuhaltung, DC 24V. (L0 - nicht belegt)	Control voltage for sw itching on and off the guard locking, DC 24V. (L0 - not used)
X4.1	I_A	Freigabeeingang für Kanal A, im Einzelbetrieb auf DC 24V legen. Bei Schalterreihen Ausgangssignal O_A vom Vorgänger anschließen.	Enable input for channel A, connect to DC 24V in separate operation. In case of sw itch chains, connect output signal U_A from previous device.
X4.2	I_B	Freigabeeingang für Kanal B im Einzelbetrieb auf DC 24 V legen. Bei Schalterreihen Ausgangssignal O_B vom Vorgänger anschließen.	Enable input for channel B, connect to DC 24V in separate operation. In case of sw itch chains, connect output signal U_B from previous device.
X4.3	-	nicht belegt	not used
X4.4	O_A	Sicherheitsausgang Kanal A, ON w enn Tür geschlossen und zugehalten/ verriegelt ist.	Safety output channel A, ON w hen door is closed and guard locked/ interlocked.
X4.5	O_B	Sicherheitsausgang Kanal B, ON w enn Tür geschlossen und zugehalten/ verriegelt ist.	Safety output channel B, ON w hen door is closed and guard locked/ interlocked.
X4.6	RST	Rückseteingang, Gerät w ird zurückgesetzt, w enn für min. 3 s an RST DC 24V anliegen.	Reset input. Reseting device if DC 24V is applied for at least 3s.
X5.1	O1	Meldeausgang Tür. ANw enn die Tür geschlossen ist.	Door monitoring output, ON w hen the door is closed.
X5.2	O2	Meldeausgang Riegelzunge, ANw enn die Tür geschlossen ist und die Riegelzunge im Zuhaltemodul eingeführt ist.	Bolt tongue monitoring output, ON w hen the door is closed and the bolt tongue is inserted in the locking module.
X5.3	O3	Meldeausgang Zuhaltung, ANw enn die Tür geschlossen und zugehalten ist. (L0 - nicht belegt)	Guard locking monitoring output, ON w hen the door is closed and guard locked. (L0 - not used)
X5.4	O4	Meldeausgang DIA2, ANw enn das Gerät im Fehlerzustand ist.	Monitoring output DIA2, ON w hen the device is in the fault state.
X5.5	0V	Masse für die Spannungsversorgung U_B (intern mit X3.5 und X3.6 verbunden)	Ground for the pow er supply U_B (connected internally to X3.5 are X3.6)
X5.6	U_B	Spannungsversorgung, DC 24V.	Pow er supply, DC 24V.
X2.1 - X2.7	-	gem. Belegung Deckeltaster.	acc. Pin assignment top cover button.

1.2 Control of the guard locking

The guard locking is typically controlled by a PLC via one channel. The monitoring of the installed solenoid in combination with the locking arm, which represents the locking device as defined in EN 1088, is suitable for PL e.

Two-channel activation, e.g. by a safe PLC, is not possible.



1.3 Parallel control of the guard locking

The guard locking solenoids are supplied from voltage U_A. The inputs U_{CM} serve to control the solenoids; the current draw here is only approx. 3 mA. Several U_{CM} inputs can be controlled in parallel if a common 0 V potential is present at OV_M.

1.4 Operation on safety relay

The MGB can be connected to most conventional safety relays. Since the outputs, similar to those on a so-called OSSD on light barriers or light curtains, produce clock pulses, a connection as described for non-contact systems must be used.

2 Troubleshooting

2.1 LED DIA 1 flashes 2 times (separate operation)

Fault symptom:

The MGB displays the fault state “input error (e.g. missing test pulses)”.

Possible fault causes:

- 24 V DC missing at inputs I_A and/or I_B
- A safety evaluation unit or a safe control system with clocking outputs is connected.

Remedy:

1. Check the wiring and correct it if necessary or switch the clock pulses off
2. Open the safety door
3. Switch the voltage off
   or
   press the reset button (if present) that controls the integrated reset input.
4. Switch the voltage on again
   or
   release the reset button
5. Wait until LED DIA1 flashes three times or stops flashing entirely (after approx. 8 s)
6. Close the safety door
   ➥ The MGBs are now ready for operation again

2.2 LED DIA 1 flashes 2 times (series operation)

Fault symptom:

The MGB displays the fault state “Input fault (e.g. missing test pulses, illogical switching state of downstream switch)”.

Possible fault causes:

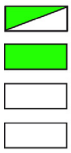
- 24 V DC missing at inputs I_A and/or I_B
- For series operation, I_A is connected to O_B or I_B to O_A
- In case of series operation, conventional safety components (switching contacts) are connected to I_A and/or I_B
- A safety evaluation unit or a safe control system with clocking outputs is connected.
- All connections are correct, but there is no common potential for the series-connected devices (several power supply units for one chain)

Remedy:

1. Check the wiring and correct it if necessary or switch the clock pulses off
2. Open all safety doors on which the DIA LED is flashing (irrespective of the number of flashing pulses)
3. Switch the voltage off at all devices
   or
   press the reset button (if present) that controls ALL integrated reset inputs in the series connection

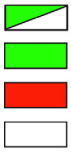
4. Switch the voltage on again
   or
   release the reset button
5. Wait until LEDs DIA1 flash three times or stop flashing entirely (after approx. 8 s)
6. Close the safety doors
   ➡ The MGBs are now ready for operation again

2.3 LED DIA 1 flashes 3 times



The device indicates that it is ready to teach in a new handle module. Observe the specifications for teaching in a handle module in the system manual for this purpose.

2.4 LED DIA 1 flashes 4 times (separate or series operation)



Fault symptom:

The MGB displays the fault state “output fault”.

Possible fault causes:

- The evaluation unit connected to the MGB and the MGB do not have a common reference potential (common ground)
- A ground loop has been produced by bridges having been installed both on the MGB and in the control cabinet (refer to the system manual for this purpose).
- The internal output circuit is damaged.
- 24 V present at output O_A or O_B

Remedy:

1. Check the wiring and correct it
2. Open all safety doors on which the DIA LED is flashing (irrespective of the number of flashing pulses)
3. Switch the voltage off at all devices
   or
   press the reset button (if present) that controls ALL integrated reset inputs in the series connection
4. Switch the voltage on again
   or
   release the reset button
5. Wait until LEDs DIA1 flash three times or stop flashing entirely (after approx. 8 s)
6. Close the safety doors
   ➡ The MGBs are now ready for operation again if no fault occurred in the internal output connection.

2.5 LED DIA 1 flashes 6 times (AR version)

Fault symptom:

The MGB displays the fault state “signal sequence incorrect”.

Possible fault causes:

- This state occurs if, with an MGB, the door was opened from the inside with the escape release or the guard locking solenoid was not opened before.
- If there is an internal fault (break)

Remedy:

1. Open all safety doors on which the DIA LED is flashing (irrespective of the number of flashing pulses)
2. Switch the voltage off at all devices
   or
   press the reset button (if present) that controls the integrated reset inputs.
3. Switch the voltage on again
   or
   release the reset button
4. Wait until LEDs DIA1 flash three times or stop flashing entirely (after approx. 8 s)
5. Close the safety doors.
   ➡ If there is no internal fault (break), the MGBs are now ready for operation again.

2.6 LED DIA 1 flashes 7 times (AP version)

Fault symptom:

The MGB displays the fault state “signal sequence incorrect”.

Possible fault causes:

- This state occurs if, with an MGB, the door was opened from the inside with the escape release or the guard locking solenoid was not opened before.

Remedy:

1. Open all safety doors on which the DIA LED is flashing (irrespective of the number of flashing pulses)
2. Switch the voltage off at all devices
   or
   press the reset button (if present) that controls the integrated reset inputs.
3. Switch the voltage on again
   or
   release the reset button
4. Wait until LEDs DIA1 flash three times or stop flashing entirely (after approx. 8 s)
5. Close the safety doors
   ➡ The MGBs are now ready for operation again

2.7 Separate operation functions on the safety relay, but not series operation

Fault symptom:

The connection of a separate MGB operation to a safety relay functions, but the connection in series operation to a safety relay does not function despite correct wiring. The safety relay displays a fault or does not switch on.

Possible fault causes:

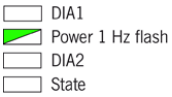
- The first MGB is connected to the safety relay with its inputs I_A and I_B, and the current that the safety relay can supply is insufficient.

Remedy:

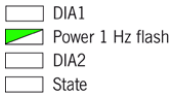
Wiring of the first inputs I_A und I_B directly to the 24 V DC power supply.

3 System status tables

3.1 MGB-AR

Operating mode	LED indicator	State
Diagnostics		Input fault
		Ready for teach-in
		Output fault
		Signal sequence erroneous
Setup		Positive acknowledgment after completion of teach-in operation
Normal operation		Normal operation, Door open

3.2 MGB-AP

Operating mode	LED indicator	State
Diagnostics		Input fault
		Ready for teach-in
		Output fault
		Signal sequence incorrect
Setup		Positive acknowledgment after completion of teach-in operation
Normal operation		Normal operation, door open

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