

# Product Overview










## Safety Engineering electronic










# EUCHNER

More than safety.

# Safety Engineering at a Glance

Safety System Multifunctional Gate Box MGB						
	Without guard locking	With guard locking	With/Without guard locking	With/Without guard locking	Control module	
						
	Safety system MGB-L0	Safety system MGB-L1/L2	Safety system MGB Profinet L0/L1/L2	Safety system MGB EtherNet/IP L0/L1/L2	Control module MGB-C	
Approvals						
Features/specific advantages	<ul style="list-style-type: none"> <li>system consisting of a handle, interlocking and integrated control module</li> </ul>	<ul style="list-style-type: none"> <li>system consisting of a handle, guard locking and integrated control module</li> </ul>	<ul style="list-style-type: none"> <li>system consisting of a handle, guard locking and integrated control module</li> </ul>	<ul style="list-style-type: none"> <li>system consisting of a handle, guard locking and integrated control module</li> </ul>	<ul style="list-style-type: none"> <li>maximum design flexibility when equipping</li> </ul>	
Safety category/PL acc. to EN ISO 13849-1	Cat. 4 / PL e	Cat. 4 / PL e	Cat. 4 / PL e	Cat. 4 / PL e	–	
Guard locking	without	mechanical / electrical	without / mechanical / electrical	without / mechanical / electrical	–	
Switches (optional)	up to 4 (buttons, indicators, emergency stop, ...)	up to 4 (buttons, indicators, emergency stop, ...)	up to 14 (buttons, indicators, emergency stop, ...)	up to 8 (buttons, indicators, emergency stop, ...)	up to 6 buttons, indicators, key-operated switches, emergency stop, ...)	
Inputs/outputs	Semiconductor safety outputs	2 (semiconductor)	2 (semiconductor)	10	7	–
	Monitoring outputs	4 (semiconductor)	4 (semiconductor)	72	24	–
	Series connection (Quantity)	10	10	–	–	–
	Monitoring/connection feedback loop	–	–	–	–	–
	Monitoring/connection start button	–	–	–	–	–
	Switching current per safety output	200 mA	200 mA	–	–	–
	Mechanical life min.	1 x 10 <sup>6</sup>	1 x 10 <sup>6</sup>	1 x 10 <sup>6</sup>	1 x 10 <sup>6</sup>	–
Environment	Dimensions min. (W x H x D)	114 x 289 x 109 mm	114 x 289 x 109 mm	345 x 289 x 115 mm	345 x 289 x 115 mm	121 x 155 x 45 mm
	Ambient temperature	-20 to +55 °C	-20 to +55 °C	-20 to +55 °C	-20 to +55 °C	-20 to +55 °C
	Degree of protection max. acc. to EN 60529	IP 65	IP 65	IP 54	IP 54	IP 65
	LED displays	●	●	●	●	–
	Solenoid operating voltage	–	24 V DC	– / 24 V	– / 24 V	–
Locking force max.	–	2000 N	2000 N	2000 N	–	
Connection	Cable entry	4 x M20 x 1.5	4 x M20 x 1.5	–	–	2 x M20 x 1.5
	Plug connector	●	●	RJ45 / M12	M12	–
	Connection cable (pre-assembled)	○	○	–	–	–

# Safety Engineering at a Glance

				Evaluation Units		
						
				Evaluation unit CES-CB	Evaluation unit CES-AZ-01B/-02B/-04B	Field evaluation unit CES-FD
Approvals					 	UQS
Features/specific advantages				<ul style="list-style-type: none"> <li>• connection of read heads</li> <li>• 4 safety outputs</li> <li>• LED indicators</li> <li>• 25 stored configurations as standard, expandable</li> </ul>	<ul style="list-style-type: none"> <li>• connection of read heads</li> </ul>	<ul style="list-style-type: none"> <li>• AP interface</li> <li>• connection of read heads CKS and CES-ALMN</li> </ul>
Safety category/PL acc. to EN ISO 13849-1				Cat. 4 / PL e	Cat. 4 / PL e	Cat. 4 / PL e
AS-Interface <i>Safety at Work</i> 				-	-	-
Variants	Unicode: detects only actuator taught-in			●	●	●
	Multicode: detects all actuators			●	●	●
	Fixcode: actuator allocation fixed			-	-	-
Inputs/outputs	Read heads			4	4	1
	Relay safety outputs			-	2	-
	Semiconductor safety outputs			3	-	2
	Monitoring outputs (semiconductor)			6	5	-
	Series connection (Quantity)			-	any	-
	Direct connection to ET200pro			-	-	●
	Monitoring/connection feedback loop			●	●	-
	Monitoring/connection start button			●	●	-
	Switching current per safety output			500 mA	6 A	150 mA
	Mechanical life min.			∞	10 x 10 <sup>6</sup>	∞
	Integrated short circuit monitoring of the safety outputs			●	-	●
Term of pulsed signals at the safety outputs				1 ms	any	0.3 ms
Environment	Dimensions min. (W x H x D)			114 x 99 x 45 mm	CES-AZ-01B 114 x 99 x 22.5 mm CES-AZ-02B/-04B 114 x 99 x 45 mm	95 x 30 x 12 mm
	Ambient temperature			-20 to +55°C	-20 to +55°C	-20 to +55°C
	Degree of protection max.			IP 20	IP 20	IP 67
	Typ. switch-on distance			depending on the used read head	depending on the used read head	depending on the used read head
	Locking/adhesive force max.			-	-	-
Connection				plug-in connection terminals	plug-in connection terminals	plug connector M8/M12
Bolts for safety guards				-	-	-

● available

◐ not available in all versions (see catalog)

○ available on request

- not available

Transponder-coded read heads with external evaluation

Read Heads



Read head CES-A-LNN/  
CES-A-LNA/CES-A-LCA

Read head  
CES-A-LQA

Read head  
CES-A-LMN

Read head  
CES-A-LSP

Read head  
CEM-A-LE05

Read head  
CEM-A-LH10

Read head  
CET-AX

Read head  
CKS



- small design
- with LED indicators (CES-A-LNN)

- large center offset
- large operating distance

- very small design in M12 housing

- direct routing in profile slots
- very flat design
- diagnostic function by means of LED

- guard locking on solenoid (without guard lock monitoring)
- adjustable adhesive force (optional)

- guard locking and guard lock monitoring

- safe entry into installations
- function as electronic lockout mechanism

Cat. 4 / PL e

Cat. 4 / PL e

Cat. 4 / PL e

Cat. 4 / PL e

Cat. 4 / PL e

Cat. 4 / PL e

Cat. 4 / PL e



∞

∞

∞

∞

∞

1 x 10<sup>6</sup>

∞

42 x 25 x 12 mm

50 x 50 x 20.2 mm

M12 x 1 mm  
Length: 38 mm

97.1 x 18.1 x 13.3 mm

CEM-A-LE05  
80 x 50 x 28 mm  
CEM-A-LH10  
95 x 65 x 38 mm

166 x 42 x 41 mm

83 x 40 x 50 mm

-25 to +70 °C

-25 to +70 °C

-25 to +85 °C

-25 to +70 °C

-25 to +50 °C

-20 to +55 °C

-20 to +70 °C

IP 67 / IP 69 K

IP 67

IP 67

IP 67

IP 67

IP 67

IP 67

CES-A-LNN: 19 mm  
CES-A-LNA: 15 mm

28 mm

5 mm

20 mm

2 mm

-

-

-

-

-

-

500 N/1000 N

6500 N

-

cable/plug connector M8

plug connector M8

plug connector M8

cable/plug connector M5

plug connector M8

plug connector M8/M12

plug connector M8



-

-



-

1) only CET1-AX

# Safety Engineering at a Glance

## Transponder-coded Safety Switches without guard locking



Safety switch  
CES-C01/CES-C02/  
CES-C04



Safety system  
ESL












Safety switch  
CES-A-C5/CES-A-W5

Approvals				
Features/specific advantages	<ul style="list-style-type: none"> <li>• safety switch with integrated evaluation electronics</li> <li>• small design</li> <li>• diagnostic function by means of LED</li> </ul>	<ul style="list-style-type: none"> <li>• handle module with integrated safety switch</li> <li>• suitable for mounting on profiles</li> </ul>	<ul style="list-style-type: none"> <li>• no internal pulsed signals at the safety outputs</li> <li>• external pulsed signals possible (e.g. by a Safety PLC)</li> <li>• ATEX version available</li> </ul>	
Safety category/PL acc. to EN ISO 13849-1	Cat. 4 / PL e	Cat. 4 / PL e	Cat. 4 / PL e	
AS-Interface Safety at Work	●	–	–	
Variants	Unicode: detects only actuator taught-in	●	●	
	Multicode: detects all actuators	●	●	
	Fixcode: actuator allocation fixed	●	–	
Inputs/outputs	Read heads	integrated	integrated	integrated
	Relay safety outputs	–	–	–
	Semiconductor safety outputs	2	2	2
	Monitoring outputs (semiconductor)	1	1	1
	Series connection (Quantity)	AP:1/AR:20	ESL-AR:20	3
	Direct connection to ET200pro	C01-AP; C02-AP; C04-AP	–	–
	Monitoring/connection start button	–	–	–
	Monitoring/connection feedback loop	–	–	–
	Switching current per safety output	C01: 400 mA C02: 150 mA C04: 150 mA	200 mA	400 mA
	Mechanical life min.	∞	1 x 10 <sup>6</sup>	∞
	Integrated short circuit monitoring of the safety outputs	●	●	–
Term of pulsed signals at the safety outputs	C01-AP: 0.40 ms C02-AP: 0.35 ms C04-AP: 0.30 ms C01/C02/C04-AR: 0.80 ms	0.8 ms	external pulsed signals, any	
Environment	Dimensions min. (W x H x D)	C01: 70 x 40 x 40 mm C02: 95 x 30 x 12 mm C04: 42 x 25 x 18 mm	107 x 100 x 46 mm	119 x 40 x 40 mm
	Ambient temperature	C01: -20 to +55 °C C02: -20 to +65 °C C04: -20 to +65 °C	-20 to +55 °C	-20 to +55 °C
	Degree of protection max. EN IEC 60529	C01: IP 67 / C02-C04: IP 67 / IP 69	IP 67	IP 67
	Typ. switch-on distance	C01: 18 mm C02: 15 mm C04: 15 mm	–	20 mm
	Locking/adhesive force max.	–	detent mechanism	–
Connection	cable/plug connector M8/M12	plug connector M12	plug connector M12	
Bolts for safety guards	●	–	●	

AP: Version for use as single device

AR: Version for series connection

All data given refer to the respective minimal or maximal values for the entire series.

	Transponder-coded Safety Switches with guard locking			Magnetically Coded Safety Switches
				
Safety switch CES-AH	Safety switch CET	Safety switch CTP	Sicherheitsschalter CEM-C40	Safety system CMS (Reed/Hall)
				
<ul style="list-style-type: none"> <li>currents up to 4A</li> <li>can be switched, internal pulsed signals on the safety outputs</li> </ul>	<ul style="list-style-type: none"> <li>high locking force</li> <li>very robust design</li> <li>actuator with large freedom of movement</li> </ul>	<ul style="list-style-type: none"> <li>small and narrow design</li> <li>compatible mounting with existing safety switches TP/STP</li> </ul>	<ul style="list-style-type: none"> <li>integrated solenoid (without guard lock monitoring)</li> <li>adjustable adhesive force</li> </ul>	<ul style="list-style-type: none"> <li>read heads/actuators available in different designs</li> </ul>
Cat. 3 / PL d	Cat. 4 / PL e	Cat. 4 / PL e	Cat. 4 / PL e	Cat. 3 / Cat. 4
-	●	●	-	-
●	●	●	●	●
○	●	●	●	●
-	-	-	-	-
integrated	integrated	integrated	integrated	1 to 30
-	-	-	-	2
2	2	2	2	-
-	2	3	3	1 (relay)
-	CET-AP:1/CET-AR:20	CTP-AP:1/CTP-AR:20	CEM-AY:1/CEM-AR:20	any
-	CET-AP	CTP-AP	-	-
●	●	-	-	●
●	●	-	-	●
4000 mA	200 mA	150 mA	150 mA	4 A
∞	1 x 10 <sup>6</sup>	1 x 10 <sup>6</sup>	1 x 10 <sup>6</sup>	10 x 10 <sup>6</sup>
-	●	●	●	-
6 ms	CET-AP: 0.3 ms CET-AR: 0.8 ms	CTP-AP: 0.3 ms CTP-AR: 0.8 ms	CEM-AY: 0.8 ms CEM-AR: 0.8 ms	-
171 x 40 x 40 mm	166 x 42 x 41 mm	190 x 42 x 40 mm	140 x 40 x 40 mm	114 x 99 x 22.5 mm 114 x 99 x 45 mm
-20 to +70 °C	-20 to +55 °C	-20 to +55 °C	-20 to +55 °C	0 to +50 °C
IP 67	IP 65 / IP 67	IP 67 / IP 69 / IP 69K	IP 65 / IP 67	IP 20
27 mm	-	-	-	depending on the used read head
-	6500 N	2600 N	600 N	-
plug connector M23	plug connector M12/M23	plug connector M12/M23	plug connector M12/M23	screw terminals
-	●	●	-	-

<sup>1)</sup> applied

# Safety Engineering at a Glance

Safety Control Systems and Safety Relays				
	Small Safe Control System MSC (Basic modul)	Safety Relays ESM	Safety Monitors GMOx	
Approvals				
Applications	<ul style="list-style-type: none"> <li>• Cat. 4 / PL e</li> <li>• stop category 0 and 1</li> </ul>	<ul style="list-style-type: none"> <li>• Cat. 4 / PL e</li> <li>• stop category 0 and 1</li> <li>• requirement level III C according to EN 574 for two-hand device</li> </ul>	<ul style="list-style-type: none"> <li>• Cat. 4 / PL e</li> <li>• stop category 0 and 1</li> <li>• requirement level III C according to EN 574 for two-hand device</li> </ul>	
Base module	<ul style="list-style-type: none"> <li>• 8 inputs</li> <li>• 1 or 2-channel control</li> <li>• feedback loop</li> <li>• start button</li> <li>• 2 OSSD outputs</li> <li>• 2 monitoring outputs</li> <li>• programmable</li> <li>• up to 14 expansion modules</li> </ul>	<ul style="list-style-type: none"> <li>• 1 or 2-channel control</li> <li>• up to 7 outputs (time-delay or non-time-delay)</li> <li>• version for two-hand circuits</li> <li>• LED status indicators</li> <li>• feedback loop</li> <li>• start button (monitoring possible)</li> <li>• short circuit monitoring</li> <li>• earth fault and ground fault monitoring</li> </ul>	<ul style="list-style-type: none"> <li>• programmable</li> <li>• up to 62 subscribers</li> <li>• 4 outputs, expandable up to 16</li> <li>• comprehensive LED status indications and diagnostic functions</li> <li>• feedback loop</li> <li>• start button (monitoring possible)</li> <li>• short circuit monitoring</li> <li>• earth fault and ground fault monitoring</li> <li>• formation of safety groups</li> </ul>	
Contact expansions/ output modules	<ul style="list-style-type: none"> <li>• up to 16 safe outputs (time-delay or non-time-delay)</li> <li>• LED status indicators</li> <li>• up to 28 monitoring outputs</li> <li>• OSSD or Relays outputs</li> </ul>	<ul style="list-style-type: none"> <li>• up to 4 outputs (time-delay or non-time-delay)</li> <li>• LED status indicators</li> </ul>	<ul style="list-style-type: none"> <li>• via AS-Interface</li> </ul>	
Input modules	<ul style="list-style-type: none"> <li>• up to 128 inputs (time-delay or non-time-delay)</li> <li>• LED status indicators</li> </ul>	–	<ul style="list-style-type: none"> <li>• via AS-Interface</li> </ul>	
Connection data	Switching current AC, max.	400 mA DC / 0,02 – 6A	6A / 8A	3A
	Switching voltage AC, max.	250 V AC / 24 V DC	250 V	30V
	Operating voltage	24 V DC	24 V AC/DC, 114/230 V AC	AS-Interface (30 V DC) oder 24 V DC
	Mechanical life, max.	> 40 – 10 <sup>6</sup>	1 x 10 <sup>7</sup> operating cycles	1 x 10 <sup>7</sup> operating cycles
	Connection type	plug-in screw terminals	plug-in screw terminals	plug-in spring terminals
Environment	Housing material	plastic	plastic	stainless steel
	Installation	DIN rail	DIN rail	DIN rail
	Dimensions (HxWxD)	114 x 99 x 22.5 mm	114 x 99 x 22.5 mm	120 x 96 x 100 mm
	Ambient temperature (at U <sub>b</sub> = 24 V)	-10 to +55 °C	-15 to +60 °C	0 to +55 °C
	Degree of protection according to IEC/EN 60529	IP 20	IP 20	IP 20
LED indicators	●	●	●	

# Safety Engineering at a Glance

## Bolts



Can be combined with	CES-C04	CES-A-C, CES-A-LN, CES-C01, CEM, CET, CTP
Material	aluminum	metal
Door stop	left and right	left and right
Detent mechanism open/closed	●/●	●/●
Escape release	●	●

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