

ITEM 077750 CES-A-C5E-01

Description	Technical data	Accessories	Downloads
-------------	----------------	-------------	-----------



Features

- › Safety switch with integrated evaluation electronics
- › Possible to switch pulsed signals
- › 2 safety outputs (semiconductor outputs)
- › Category 3/PL e according to EN ISO 13849-1
- › Unicode

Approach direction

Can be adjusted in 90° steps

Unicode evaluation

Each actuator is unique. The switch detects only taught-in actuators. Additional actuators can be taught in.

Category according to EN ISO 13849-1

Due to two redundantly designed semiconductor outputs (safety outputs) with internal monitoring suitable for:

- › Category 3/PL e according to EN ISO 13849-1

LED indicator

STATE Status LED

OUT/ERROR Safety outputs status / diagnostics LED (combined)

Additional connection

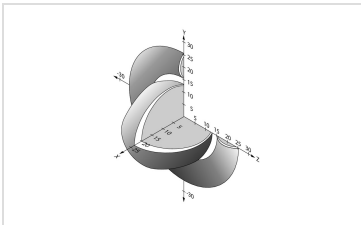
OUT Monitoring output (semiconductor)

Typical operating distances

Attention:

The operating distance may vary depending on the background material and installation situation.

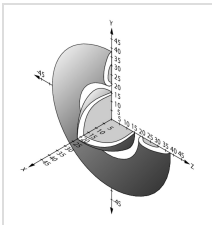
(Only in combination with actuator CES-A-BBA, CES-A-BCA)



► Typical operating distance

For a side approach direction for the actuator and safety switch, a minimum distance of $s = 4 \text{ mm}$ must be maintained so that the operating distance of the side lobes is not entered.

(Only in combination with actuator CES-A-BPA)



► Typical operating distance

For a side approach direction for the actuator and safety switch, a minimum distance of $s = 6 \text{ mm}$ must be maintained so that the operating distance of the side lobes is not entered.

Approvals



Mechanical values and environment

Dimensions	According to EN 60947-5-2: (LxWxH) 131x40x40
Housing material	Plastic, PBT

Weight	Net	0,4 kg
Ambient temperature	At $U_B = 24$ V DC	-20 ... 55 °C
Degree of protection		IP67
Mounting distance	Between 2 switches or 2 actuators	min.80 mm
Installation position		Any
Tightening torque	Screws fastening bracket read head	max.0,6 Nm
	Fixing screws housing	max.1 Nm
Ready delay		max.3 s ^[1]
Reaction time	After change in the actuation status	max.180 ms ^[2]
Switching frequency		max.1 Hz
Dwell time		min.0,5 s ^[3]
Connection		M12 plug connector, 8-pin, screen can be applied

Electrical connection ratings

Operating voltage DC		18 ... 24 ... 27 V DC
Current consumption		80 mA
Fusing	(External) operating voltage	0,25 ... 8 A
Rated insulation voltage U_i		300 V ^[4]
Rated impulse withstand voltage U_{imp}		max.1,5 kV
EMC protection requirements		In acc. with EN 60947-5-3
Degree of contamination (external, according to EN 60947-1)		3
		Safety outputs LA / LB
Type of output		Semiconductor outputs, p-switching, short circuit-proof, electrically decoupled ^[5]
Output voltage	HIGH U(LA)	$U(+LA) - 1,5 \dots U(+LA)$ V DC
	HIGH U(LB)	$U(+LB) - 1,5 \dots U(+LB)$ V DC
	LOW U(LA) / U(LB)	0 ... 1 V DC
Output current	per safety output	1 ... 400 mA
Fusing	External, safety circuit U(+LA) / U(+LB)	0.4 A medium slow-blow
Utilization category according to EN 60947-5-2	DC-13	24V 400mA
Switching load	According to UL	max. DC 24 V, class 2
Rated conditional short-circuit current		max.100 A

Discrepancy time (Between the operating points of both safety outputs)	max.120 ms
Power supply output load U(+LA) / U(+LB)	18 ... 24 V DC 27 V DC
	Monitoring output OUT
Type of output	Semiconductor output, p-switching, short circuit-proof
Output voltage	0,8 x UB ... UB V DC
Output current	max.20 mA
	STATE LED
LED indicator	Status LED
	LED OUT / ERROR
LED indicator	Safety outputs status / diagnostics LED (combined)

Operating distance

Repeat accuracy R According to EN 60947-5-2	max.10 %
--	----------

Miscellaneous

For the approval according to UL the following applies	Operation only with UL class 2 power supply, or equivalent measures
--	---

Reliability values according to EN ISO 13849-1

	Monitoring of the safety guard position
Category	3
Performance Level	PL e
PFH _D	4.29×10^{-8}

Diagnostic Coverage (DC)	90 %
Mission time	20 y

in combination with Actuator CES-A-BPA

Operating distance

Distance a, actuator Minimum distance for side approach direction	min.6 mm
Switch-on distance With center offset m=0	22 mm [6]
Assured switch-off distance S _{AR}	max.58 mm
Assured operating distance S _{a0}	

With center offset $m=0$	min.15 mm [7]
Switching hysteresis	1 ... 2 mm [8]

in combination with Actuator CES-A-BBA, CES-A-BCA

Operating distance

Distance a, actuator	
Minimum distance for side approach direction	min.4 mm
Switch-on distance	
With center offset $m=0$	20 mm [9]
Assured switch-off distance S_{aR}	max.40 mm
Assured operating distance S_{aO}	
With center offset $m=0$	min.18 mm [10]
Switching hysteresis	2 ... 3 mm [11]

in combination with Actuator CES-A-BDA-20

Operating distance

Distance a, actuator	
Minimum distance for side approach direction	min.5 mm
Switch-on distance	
With center offset $m=0$	21 mm [12]
Assured switch-off distance S_{aR}	max.41 mm
Assured operating distance S_{aO}	
With center offset $m=0$	min.19 mm [13]
Switching hysteresis	2 ... 3 mm [14]

[1] After the operating voltage is switched on, the semiconductor outputs are switched off and the monitoring outputs are set LOW during the ready delay.

[2] Corresponds to the risk time according to EN 60947-5-3. This is the maximum switch-off delay for the safety outputs following removal of the actuator.

[3] The dwell time of an actuator inside and outside the operating distance must be at least 0.5 s to ensure reliable detection of internal faults in the evaluation unit (self-monitoring).

[4] Tested by employers' liability insurance association up to 75 V.

[5] To ensure safety, both safety outputs (LA and LB) must be evaluated.

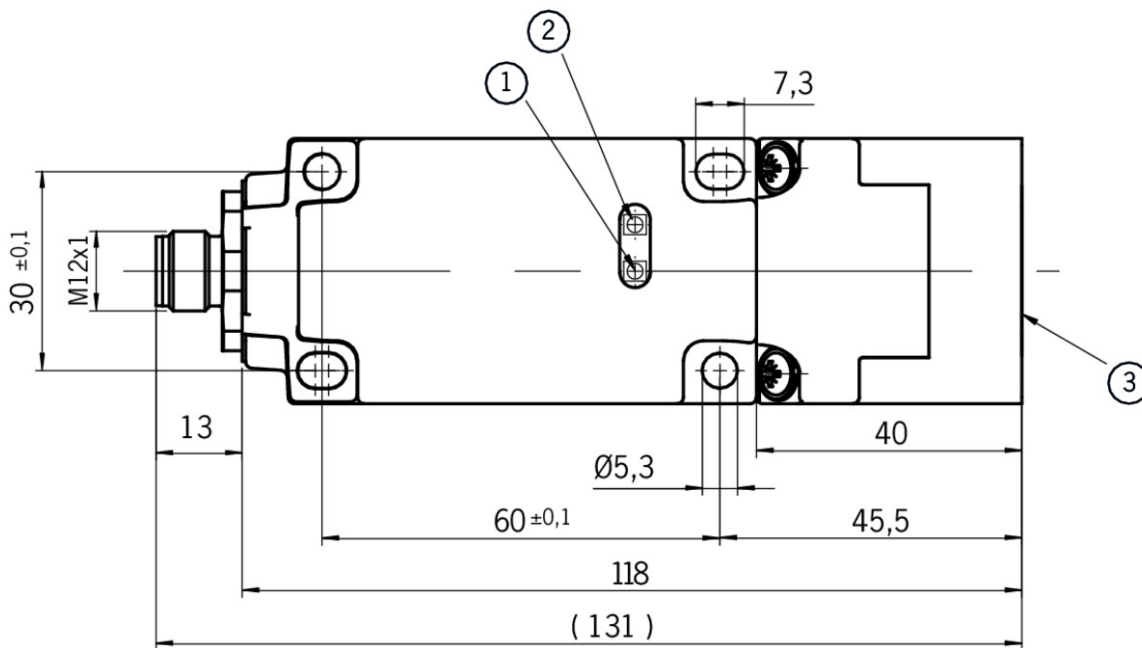
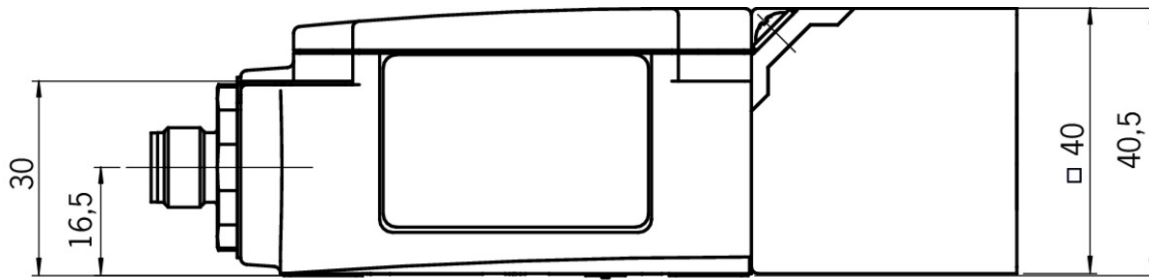
[6] Applies on surface mounting on aluminum; in a non-metallic environment the typical operating distance increases to 30 mm.

[7, 8] Applies for surface mounting on aluminum

[9, 10, 11] The values apply for surface installation of the actuator.

[12, 13, 14] In non-metallic environment

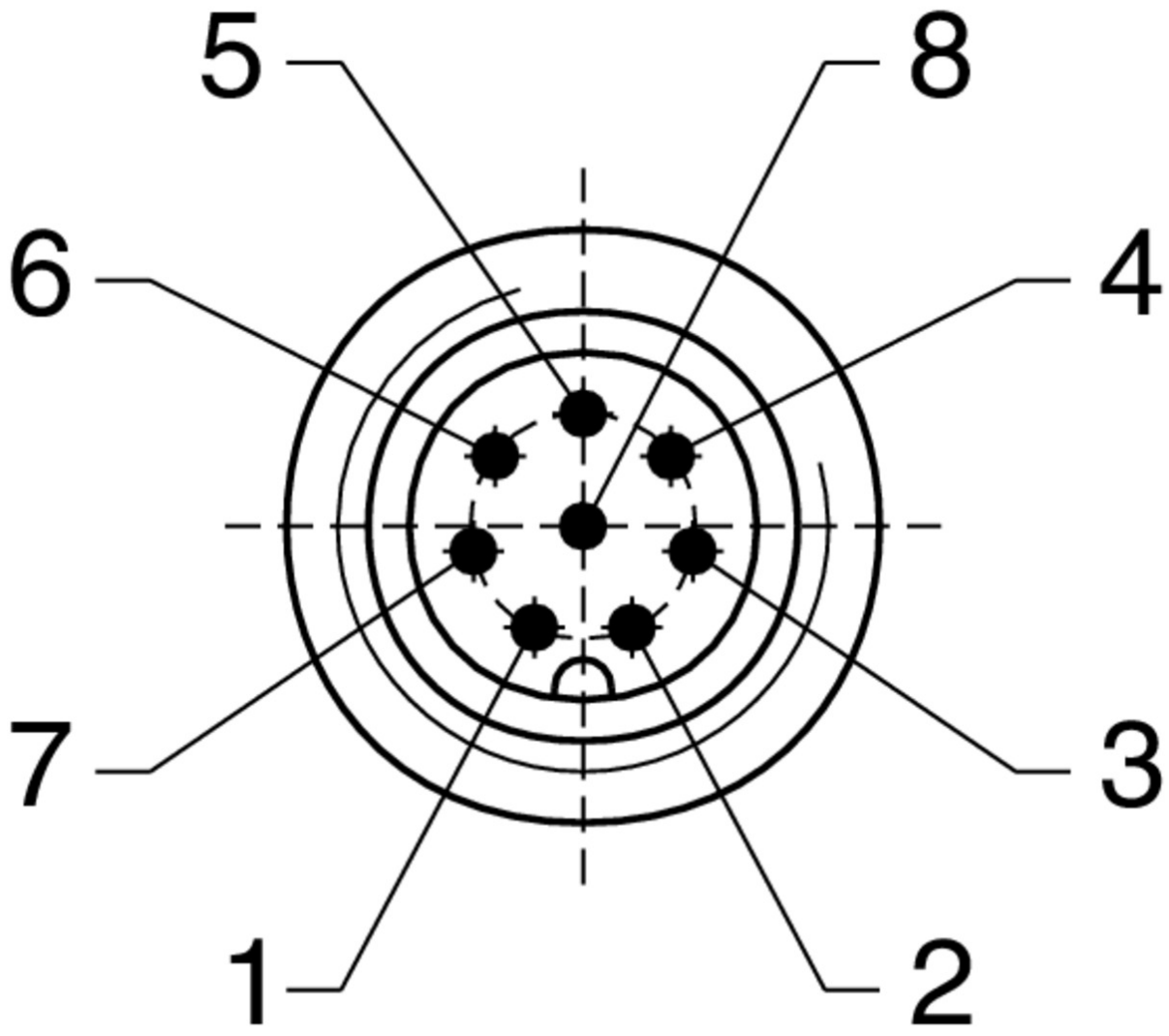
Dimension drawing



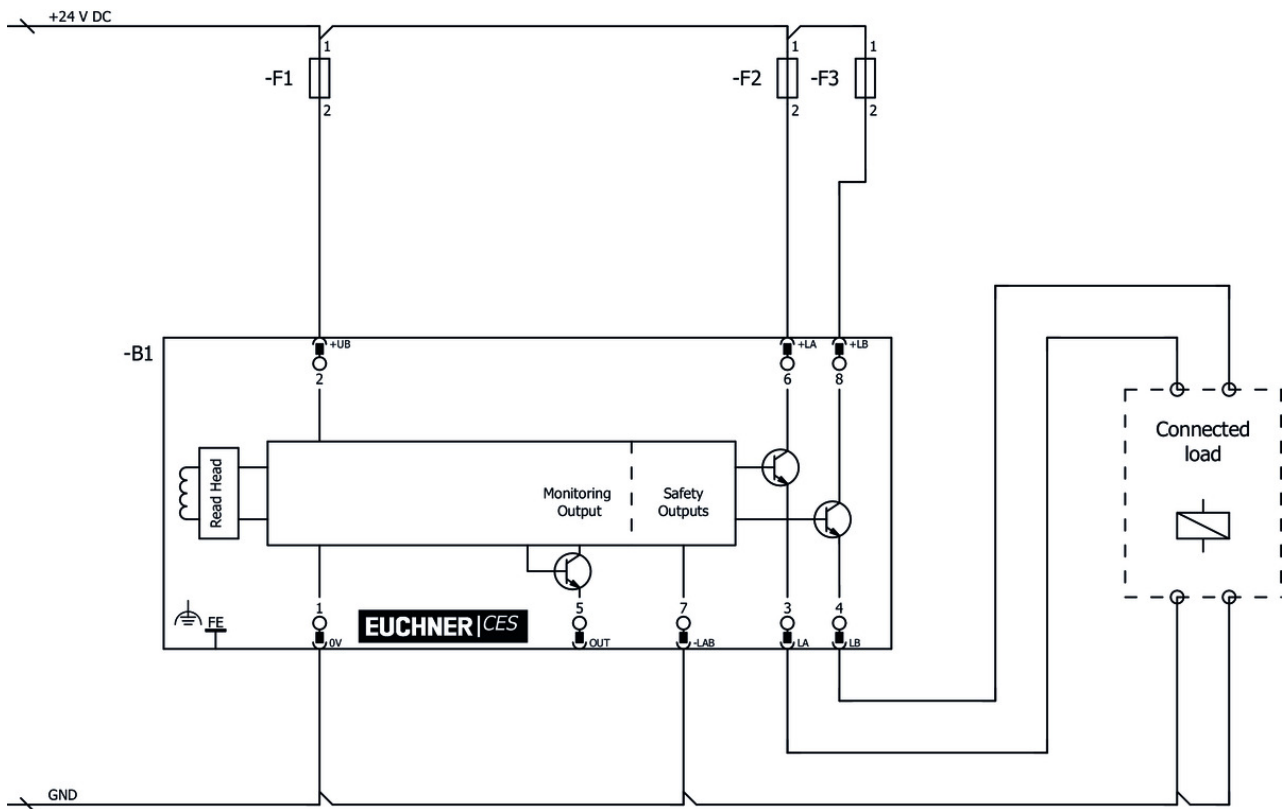
Legende

- 1 LED status indication red/yellow
- 2 LED status indication green
- 3 Active face

(View of connection side on the safety switch)



Wiring diagram



Bolt

✓ Bolt CES-A-C



082220 RIEGEL CES-A-C

✓ Features

- › Steel bolt
- › For non-contact safety switch CES-A-C.../CES-A-W.../CES-AR...
- › For left or right hinged doors
- › Ball detent mechanism in closed position
- › Can be locked in open position with padlocks
- › Actuator included

✓ Bolt CES-A-C/F with escape release



098357 RIEGEL CES-A-C/F

✓ Features

- › Steel bolt
- › For doors hinged on the left or right
- › Lever for escape release from the danger area
- › For non-contact safety switches CES-A-C.../ CES-A-W.../ CES-...C01-...
- › Connection via M12 plug connector
- › Detent knob in open position
- › Can be locked in open position with padlocks
- › CES actuator integrated in the bolt tongue

Connection material

- ▼ Connection cable with plug connector M12, 8-pin, 50m



077873 C-M12F08-08X025PV50,0-MW-077873

- ▼ Features

- › M12 female plug, 8-pin
 - › Straight plug connector
 - › PVC cable
 - › Cable length 50 m
 - › With flying lead
-

- ▼ Connection cable with plug connector M12, 8-pin, 20m



077871 C-M12F08-08X025PV20,0-MW-077871

- ▼ Features

- › M12 female plug, 8-pin
 - › Straight plug connector
 - › PVC cable
 - › Cable length 20 m
 - › With flying lead
-

- ▼ Connection cable with plug connector M12, 8-pin, 25m



077872 C-M12F08-08X025PV25,0-MW-077872

- ▼ Features

- › M12 female plug, 8-pin
 - › Straight plug connector
 - › PVC cable
 - › Cable length 25 m
 - › With flying lead
-

- ▼ Connection cable with plug connector M12, 8-pin, 5m



077751 C-M12F08-08X025PV05,0-GA-077751

- ▼ Features

- › M12 female plug, 8-pin
 - › Straight plug connector
 - › PVC cable
 - › Cable length 5 m
 - › With flying lead
-

- ▼ Connection cable with plug connector M12, 8-pin, 15m



077753 C-M12F08-08X025PV15,0-MW-077753

- ▼ Features

- › M12 female plug, 8-pin
 - › Straight plug connector
 - › PVC cable
 - › Cable length 15 m
 - › With flying lead
-

- ▼ Connection cable with plug connector M12, 8-pin, 10m



077752 C-M12F08-08X025PV10,0-MW-077752

- ▼ Features

- › M12 female plug, 8-pin
 - › Straight plug connector
 - › PVC cable
 - › Cable length 10 m
 - › With flying lead
-

Actuator

- ▼ Actuator CES-A-BBA



071840 CES-A-BBA

- ▼ Features

- › Cube-shaped design 42 x 25 mm
 - › Two safety screws M4x14 included
-

- ▼ Actuator CES-A-BPA



098775 CES-A-BPA

- ▼ Features

- › Cube-shaped design 40 x 40 mm
-

- ▼ Actuator CES-A-BCA



088786 CES-A-BCA

- ▼ Features

- › Cube-shaped design 42 x 25 mm
 - › Two safety screws M4x14 included
-

Mounting accessories

- ▼ Safety screws M4 x 14

071863 M4X14-CES/V20

- ▼ Features

- › Safety screws M4 x 14
 - › Packaging unit 20 pieces
-

- ▼ Safety screws for actuators, M5 x 10











073455 M5X10-NIRO/V100 NZ/TZ

- ▼ Features







- › Safety screws M5 x 10
 - › Packaging unit 100 pieces
-

Instructions

Operating Instructions Safety System CES-A-C5... (Unicode)









	Doc. no.	Version	Language	Download
Betriebsanleitung Sicherheitssystem CES-A-C5... (Unicode)	2096580	12-07/17		 1.9 MB
Operating Instructions Safety System CES-A-C5... (Unicode)	2096580	12-07/17		 1.9 MB
Mode d'emploi système de sécurité CES-A-C5... (Unicode)	2096580	12-07/17		 1.9 MB
Manual de instrucciones del sistema de seguridad CES-A-C5... (Unicode)	2096580	12-07/17		 1.9 MB
Istruzioni di impiego del sistema di sicurezza CES-A-C5... (Unicode)	2096580	12-07/17		 1.9 MB

Safety Information and Maintenance CES-A-.5

	Doc. no.	Version	Language	Download
Sicherheitsinformation und Wartung CES-A-.5 Safety Information and Maintenance CES-A-.5 Información de seguridad y mantenimiento CES-A-.5 Information de sécurité et entretien CES-A-.5 Informazioni sulla sicurezza e manutenzione CES-A-.5	109084	04-05/16	    	 0.4 MB

Catalogs







Transponder-coded safety switches - Interlocking devices and guard locking devices

	Doc. no.	Version	Language	Download
Transpondercodierte Sicherheitsschalter - Verriegelungseinrichtungen und Zuhaltungen	127594	01-09/16		 5.1 MB
Transponder-coded safety switches - Interlocking devices and guard locking devices	127595	01-09/16		 5.0 MB
Interrupteurs de sécurité à codage par transpondeur - Dispositifs de verrouillage et interverrouillages	137558	01-09/16		 5.0 MB
Interruptores de seguridad con codificación por transponder - Dispositivos de enclavamiento y bloqueos	137560	01-09/16		 5.0 MB

Declaration of conformity

EU declaration of conformity

Doc. no.	Version	Language	Download
----------	---------	----------	----------

EU-Konformitätserklärung	2110270	07-01/17		 0.4 MB
EU declaration of conformity				
Declaración UE de conformidad				
Déclaration UE de conformité				
Dichiarazione di conformità				

CAD data

CAD data for this item on TraceParts