

Non-Contact Safety Switch

CES-AP-C.2-...



More than safety.



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Non-Contact Safety Switch CES-AP-C.2-...

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Safety Switch CES-AP-C.2-...

- ▶ Integrated evaluation unit
- ▶ Short circuit monitoring
- ▶ 2 safety outputs (semiconductor outputs)
- ▶ Different approach directions possible
- ▶ Unicode and multicode switches



Approach direction

Approach direction see illustration "Installation positions" on page 3.

Short circuit monitoring

The switch generates its own clock signal on the output lines OA/OB. Pay attention to this aspect when connecting to control systems and relays.

LED indicator

STATE Status LED

DIA Diagnostics LED

Unicode evaluation unit

Each actuator is unique. The evaluation unit detects only the actuator that has been taught-in. Additional actuators can be taught-in.

Multicode evaluation unit

Every actuator is detected by the evaluation unit.

Category in accordance with EN 13849-1 or EN 954-1

Due to two redundant design semiconductor outputs (safety outputs) with internal monitoring suitable for:

- ▶ Category 4 in accordance with EN 13849-1 and EN 954-1

Important: To achieve the stated category in accordance with EN 13849-1 or EN 954-1, both safety outputs (OA and OB) must be evaluated.

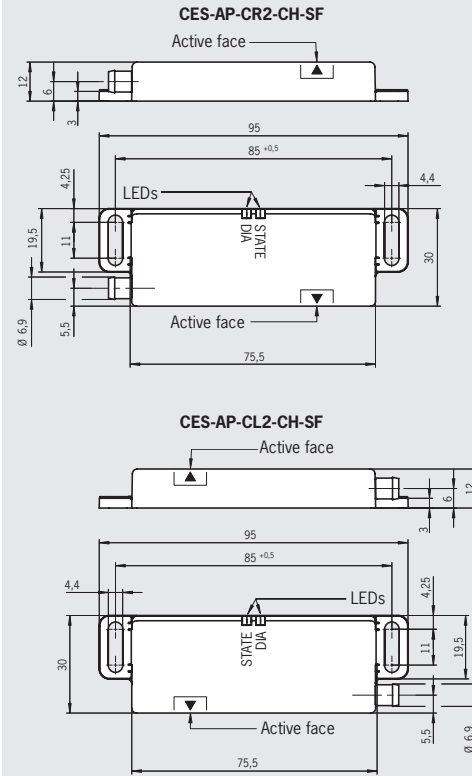
Additional connections

OUT Monitoring output (semiconductor)

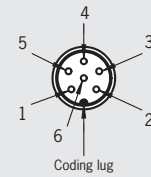
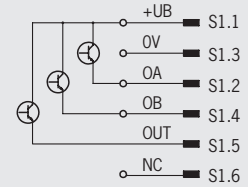
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Cat. 4

Dimension drawing



Pin assignment



Pin	Designation/Description	Wire color	
1	UB	Power supply DC 24 V	BN
2	OA	Safety output channel 1	WH
3	OV	Ground DC 0 V	BU
4	OB	Safety output channel 2	BK
5	OUT	Monitoring output	GY
6	-	not used	PK

Possible combinations

Safety Switch	Actuator		
	Door hinge right	Door hinge left	Usage independent of position of door hinge
CES-A-BLN-R2-100776 100 776		CES-A-BLN-L2-104510 104 510	CES-A-BLN-U2-103450 103 450
CES-AP-CR2-CH-SF-100775 100 775	●		●
CES-AP-CL2-CH-SF-104509 104 509		●	●

Key to symbols ● Combination possible

Ordering table

Series	Version	Order No./Item
Safety Switch CES-AP-C.2-... Multicode	Door hinge right	100 775 ^{1) 2)} CES-AP-CR2-CH-SF-100775
	Door hinge left	104 509 ^{1) 2)} CES-AP-CL2-CH-SF-104509
Connection cable 6-pin, M8 snap-on	5 m	103 556
	10 m	103 557
	15 m	103 558
	20 m	103 559
	25 m	103 560

1) BG approval pending



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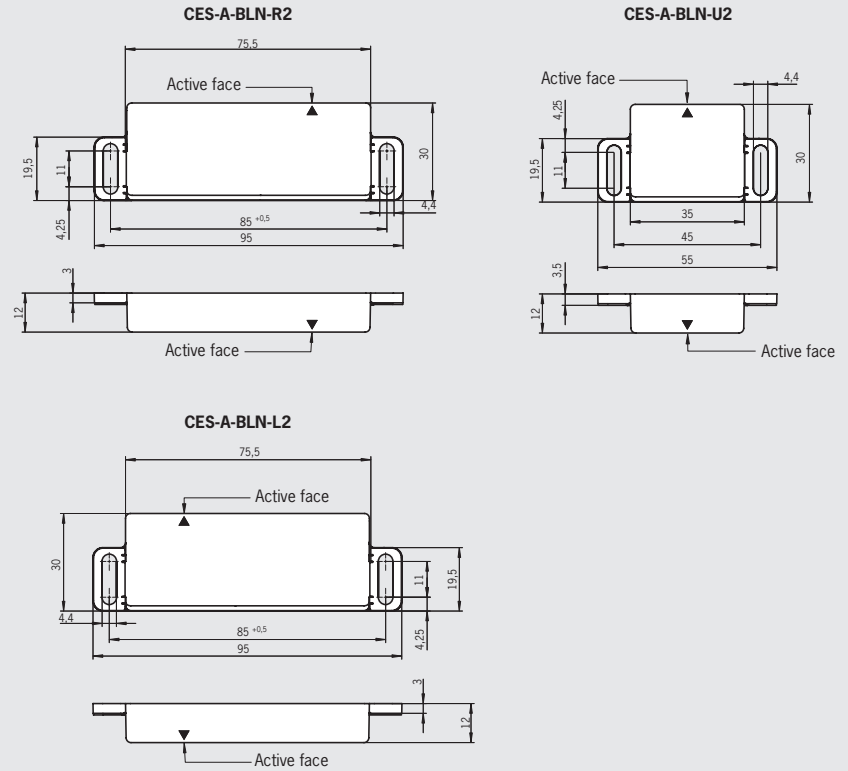
Actuator CES-A-BLN...

- ▶ Compact housing
- ▶ Cube-shaped design 55 x 30 mm and 95 x 30 mm



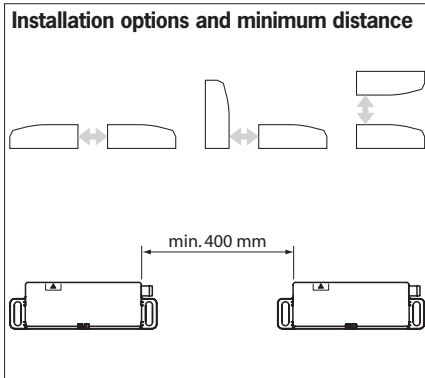
Actuator CES-A-BLN...

Dimension drawing



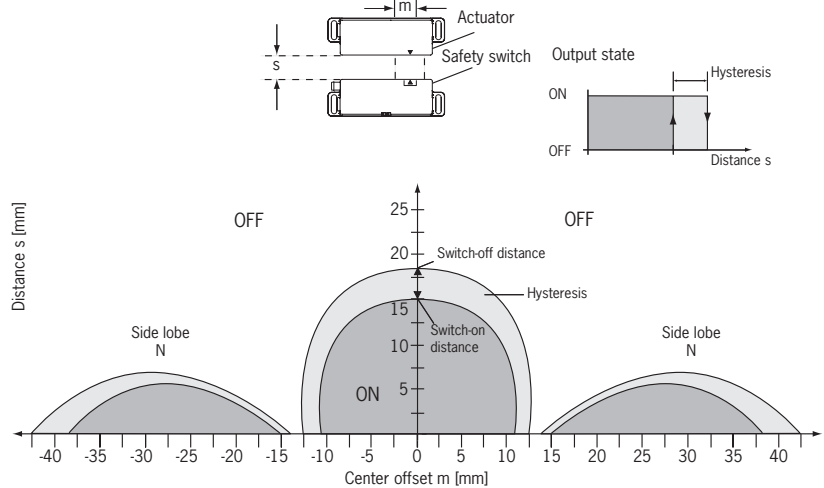
Warning:

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



Typical operating distance

(Actuator CES-A-BLN... in combination with safety switch CES-AP-C.2-...)



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

Ordering table

Series	Version	Order No./Item
Actuator CES-A-BLN...	95 mm x 30 mm x 12 mm Door hinge right	100 776 CES-A-BLN-R2-100776
	95 mm x 30 mm x 12 mm Door hinge left	104 510 CES-A-BLN-L2-104510
	55 mm x 30 mm x 12 mm Usage independent of position of door hinge	103 450 CES-A-BLN-U2-103450

1) BG approval pending



Technical Data Safety Switch CES-AP-C.2-...

Parameter	Value			Unit
	min.	typ.	max.	
Housing material	Plastic PBT			
Dimensions	95 x 30 x 12			mm
Weight	0.04			kg
Ambient temperature at $U_B = DC 24 V$	- 20	-	+ 55	°C
Storage temperature	- 20	-	+ 70	
Degree of protection acc. to EN 60529	IP 67			
Safety class according to EN 61558	III (degree of contamination 3)			
Installation position	any			
Connection type	M8 plug connector, 6-pin, snap-on			
Operating voltage U_B (reverse polarity protected, regulated, residual ripple < 5 %)	24 ± 15%			V DC
For the approval according to CE the following applies	Operation with UL-class 2 power supply only			
Current consumption	30			mA
Switching load according to UL	DC 24 V, Class 2			
External fuse (operating voltage)	0.25	-	1.5	A
Safety outputs OA/OB	Semiconductor outputs, p-switching, short circuit-proof			
- Output voltage $U(OA)/U(OB)$ ¹⁾				
HIGH U(OA)	$U_B \cdot 1.5$	-	U_B	V DC
HIGH U(OB)				
LOW U(OA)/U(OB)	0	-	1	
Switching current per safety output	1	-	150	mA
Utilization category acc. to EN 60947-5-2	DC-13 24 V 150 mA Caution: Outputs must be protected by a free-wheeling diode in the case of inductive loads.			
Classification acc. to EN 60947-5-3	PDF-M			
Monitoring output OUT ¹⁾	Semiconductor outputs, p-switching, short circuit-proof			
- Output voltage	$0.8 \times U_B$	-	U_B	V DC
- Max load	-	-	100	mA
Rated insulation voltage U_i	-	-	30	V
Rated impulse withstand voltage U_{imp}	-	-	1.5	kV
Resilience to vibration	As per EN 60947-5-2			
Switching frequency	-	-	1	Hz
EMC protection requirements	As per EN 60947-5-3			

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

Technical Data Actuator CES-A-BLN...

Parameter	Value			Unit
	min.	typ.	max.	
Housing material	Plastic PBT			
Dimensions	95 x 30 x 12			mm
- CES-A-BLN-R2/CES-A-BLN-L2	55 x 30 x 12			
Weight	0.04			kg
- CES-A-BLN-R2/CES-A-BLN-L2	0.02			
Ambient temperature	- 25	-	+ 70	°C
Degree of protection acc. to EN 60529	IP 67			
Installation position	Active face opposite read head			
Power supply	Inductive via read head			
Operating distance for center offset $m = 0$ ²⁾ only in combination with safety switch CES-AP-C.2-...				
Switch-on distance	-	15	-	mm
Assured switch-on distance s_{ao}	10	-	-	
Switching hysteresis	1	2	-	
Assured switch-off distance s_{ar}	-	-	40	

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

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