

Non-contact safety switches CES-AP-...

Your advantages

- ▶ High protection against tampering
- ▶ Category 4 / PL e according to EN ISO 13849-1
- ▶ Integrated short circuit monitoring
- ▶ Large operating distance
- ▶ Connection via plug connectors
- ▶ Diagnostics using LED

The CES-AP makes transponder technology available to protect even very small guards and doors. The typical CES features such as large read distance and center offset are naturally also offered by the CES-AP. What is more, mounting on profile rails couldn't be easier.

Design and functionality

The safety switch CES-AP... has two safety outputs. These outputs are connected directly to drives, downstream safety relays or safe control systems. The switch monitors itself for short circuits using pulsed signals. External clock signals are therefore not required.

Indication for actuator in the boundary area

If the safety door with the actuator should settle over time, the actuator can drift out of the read head operating distance. The device recognizes this situation and indicates that the actuator is in the boundary area. This allows the safety door to be readjusted in time.

Connection to safe control systems or safety relays

Do not use a control system or safety relay with pulsing for monitoring short circuits or switch off the pulsing function in these devices. The switch generates its own clock signals on the output lines OA/OB. A downstream device must tolerate these test pulses, which may have a length of up to 0.4ms.

The inputs on the downstream device must be suitable for positive-switching devices (pnp outputs), as the two outputs on the safety switch deliver a level of +24 V in the switched-on state.

OUT output (depending on version)

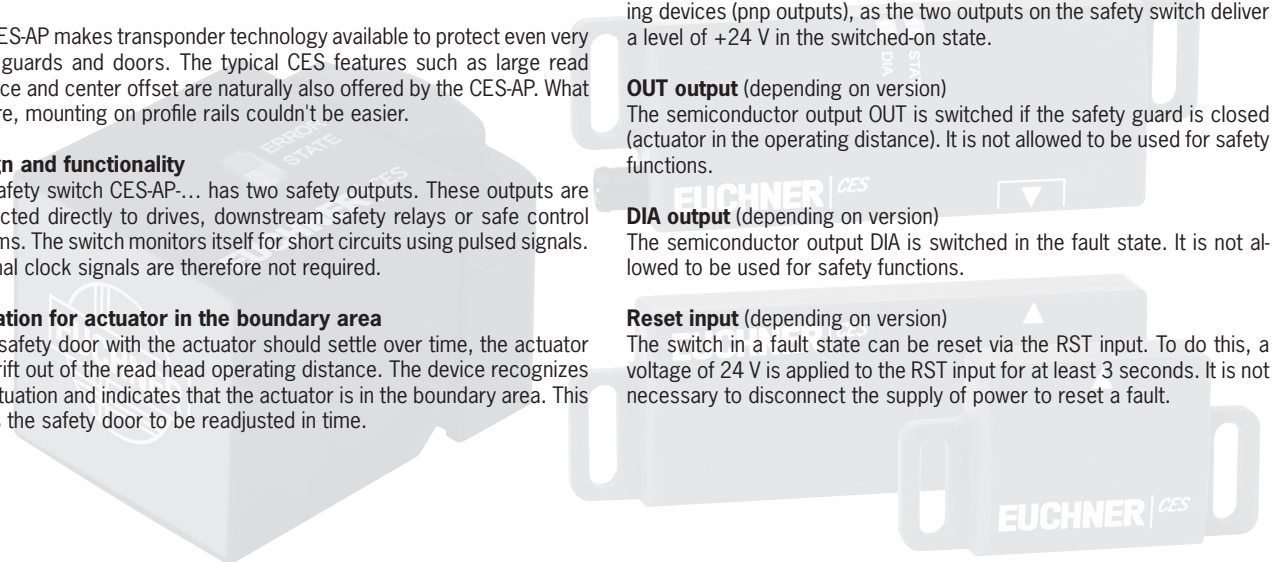
The semiconductor output OUT is switched if the safety guard is closed (actuator in the operating distance). It is not allowed to be used for safety functions.

DIA output (depending on version)

The semiconductor output DIA is switched in the fault state. It is not allowed to be used for safety functions.

Reset input (depending on version)

The switch in a fault state can be reset via the RST input. To do this, a voltage of 24 V is applied to the RST input for at least 3 seconds. It is not necessary to disconnect the supply of power to reset a fault.



Typical system times CES-AP

Ready delay

After switching on, the unit carries out a self-test for 8 s (500 ms for CES-AP-C01). The system is ready for operation only after this time.

Switch-on time of safety outputs

The max. reaction time from the moment when the actuator is at the operating distance (safety door closed) to the moment when the safety outputs switch on T_{on} is 400 ms.

Risk time according to EN 60947-5-3

If an actuator moves outside the operating distance, the safety outputs OA and OB are deactivated after a maximum of 260 ms.




Difference time

The safety outputs OA and OB switch with a slight time offset. They have the same signal state at the latest after a difference time of 10 ms.

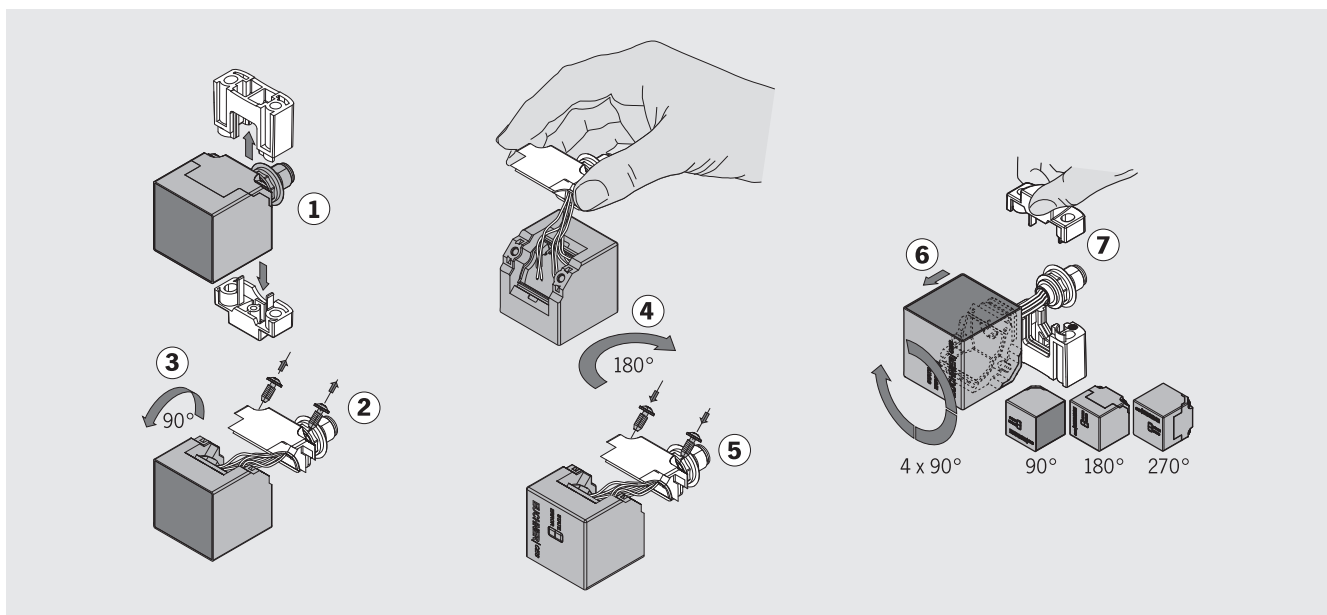
Fault detection time

Faults are detected after max. 300 ms.

LED indicators

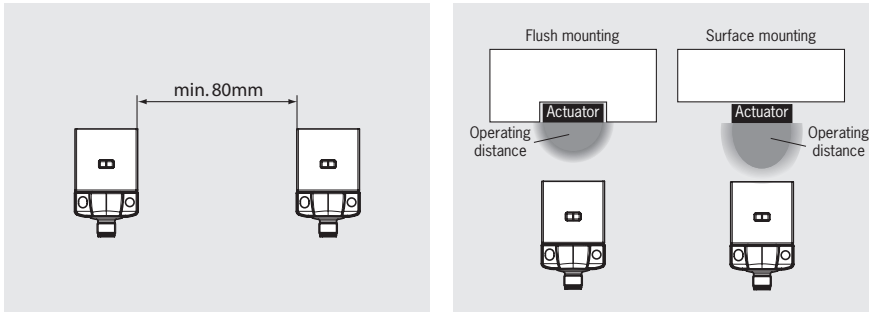
LED	Color	State	Significance
STATE	green	illuminated 	Normal operation
		flashing 	- Door open - Teach-in operation or Power Up - Actuator in boundary area (refer to the status table for further signal functions)
DIA	red	illuminated 	- Internal electronics fault - Fault at the inputs/outputs

Changing the approach direction for CES-AP-C01

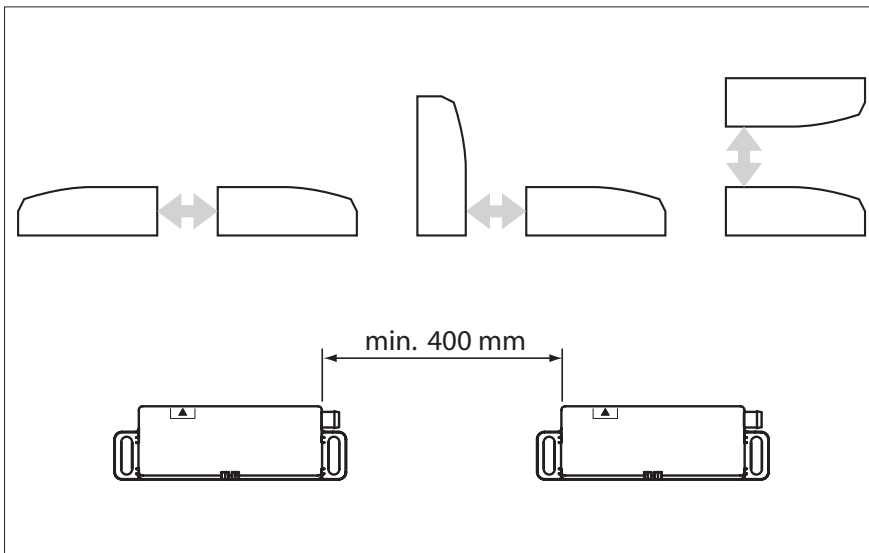


Mounting CES-AP-C01

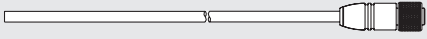





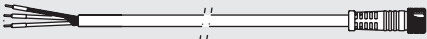
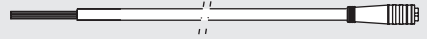
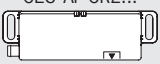
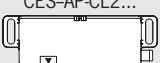






When mounting several safety switches, observe the stipulated minimum distance to avoid mutual interference. distance changes as a function of the installation depth and the safety guard material.



Approach directions and minimum distance CES-AP-C.2



Component overview for non-contact safety switches CES-AP

Connection cable	Safety switch	Actuator	Bolt
 <p>Page 128</p>	<p>CES-AP-C01...</p>  <p>Page 116</p>	<p>CES-A-BBA</p>  <p>Page 119</p> <p>CES-A-BCA</p>  <p>Page 119</p> <p>CES-A-BPA</p>  <p>Page 120</p> <p>CES-A-BRN</p>  <p>Page 121</p>	<p>Page 177/178</p>
 <p>Page 128</p>  <p>Page 128</p>	<p>CES-AP-CR2...</p>  <p>Page 122</p> <p>CES-AP-CL2...</p>  <p>Page 122</p>	<p>CES-A-BLN-R2</p>  <p>Page 126</p> <p>CES-A-BLN-U2</p>  <p>Page 126</p> <p>CES-A-BDN</p>  <p>Page 127</p> <p>CES-A-BLN-L2</p>  <p>Page 126</p> <p>CES-A-BLN-U2</p>  <p>Page 126</p> <p>CES-A-BDN</p>  <p>Page 127</p>	





CES-AP

Possible combinations for CES components

To give you a quick overview of which CES components can be combined with each other, there is a combinations table for each evaluation unit and for each safety switch. The table will answer the following questions:

- ▶ Which actuator can be read by the selected safety switch?
- ▶ What is the operating distance of this combination?
- ▶ Which type of guard locking can be realized with the selected combination?

Important: Only typical values are listed in the table. The minimum and maximum values are listed in the technical data for the related product.

Key to symbols	15	Combination possible, typ. switch-on distance 15 mm
		Combination possible, guard locking for process protection
		Combination possible, guard locking for personal protection
		Combination not permissible

Non-contact safety switches CES-AP

Safety switch	Actuator							
	CES-A-BLN-R2-100776 100776	CES-A-BLN-L2-104510 104510	CES-A-BLN-U2-103450 103450	CES-A-BDN-06-104730 104730	CES-A-BBA 071840	CES-A-BCA 088786	CES-A-BPA 098775	CES-A-BRN 100251
CES-AP-C01-...					18	18	22	27
CES-AP-CR2-...	15		15	19				
CES-AP-CL2-...		15	15	19				



Non-contact safety switches CES-AP-C01-...

- ▶ Read head with integrated evaluation electronics
- ▶ No series connection
- ▶ Short circuit monitoring
- ▶ 2 safety outputs (semiconductor outputs)
- ▶ Cat. 4 / PL e acc. to EN ISO 13849-1



For possible combinations see page 114

Approach direction

Can be adjusted in 90° steps

Short circuit monitoring

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

Unicode evaluation

Each actuator is unique. The safety switch detects only the actuator that has been taught-in. Additional actuators can be taught-in. Only the last actuator taught-in is detected.

Multicode evaluation

Every suitable actuator is detected by the safety switch.

Category according to EN ISO 13849-1

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

- ▶ Category 4 / PL e according to EN ISO 13849-1

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

LED indicator

STATE Status LED
DIA Diagnostics LED

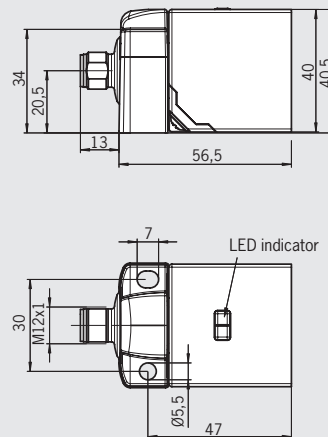
Additional connections

DIA Diagnostics output (semiconductor)
RST Reset input

Non-contact safety switches CES-AP-C01-... M12 plug

Cat. 4
PL e

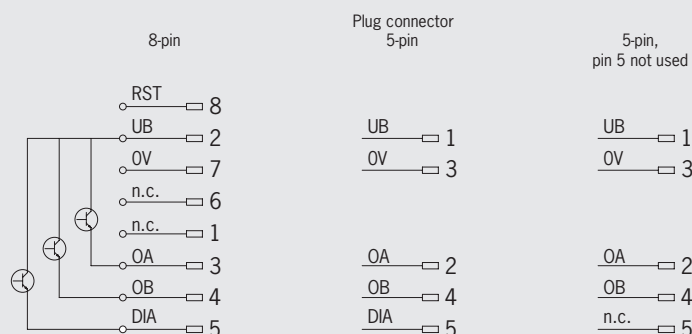
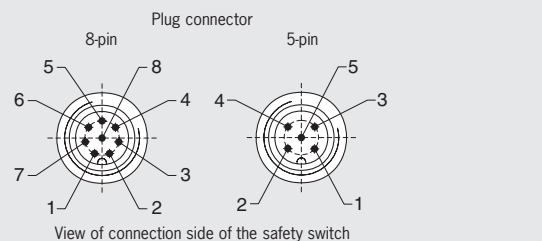
Dimension drawing



For connection cable see page 128

Terminal assignment

Plug connector pin			Designation	Description
8-pin	5-pin	5-pin, pin 5 not used		
1	-	-	n.c.	Not used
2	1	1	UB	Power supply, DC 24 V
3	2	2	OA	Safety output, channel 1
4	4	4	OB	Safety output, channel 2
5	5	-	DIA	Monitoring output
6	-	-	n.c.	Not used
7	3	3	OV	Ground, DC 0 V
8	-	-	RST	Reset input for hardware reset





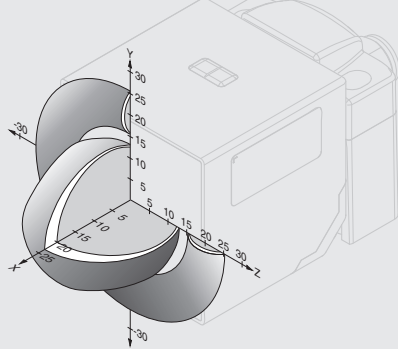

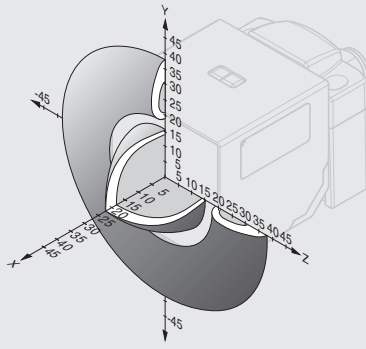

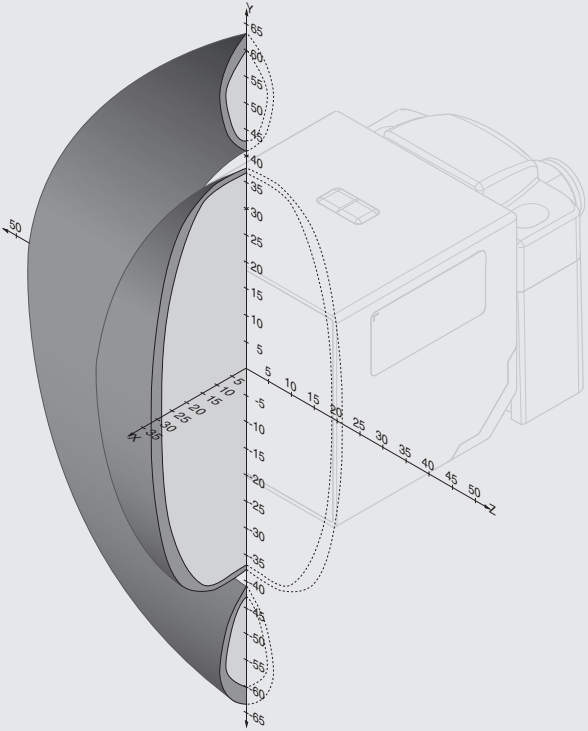


Ordering table

Series	Category and PL acco. to EN ISO 13849-1	Version	Order no.
CES-AP-C01-CH-SB Multicode	4 / PL e	M12 plug connector 5-pin	106798 CES-AP-C01-CH-SB-106798
CES-AP-C01-CH-SB Multicode	4 / PL e	M12 plug connector 5-pin, pin 5 not used	111708 CES-AP-C01-CH-SB-111708
CES-AP-C01-AH-SB Unicode	4 / PL e	M12 plug connector 5-pin, pin 5 not used	111145 CES-AP-C01-AH-SB-111145
CES-AP-C01-CH-SA Multicode	4 / PL e	M12 plug connector 8-pin	100250 ¹⁾ CES-AP-C01-CH-SA-100250

1) Employers' liability insurance association (DGUV) and UL approval

Typical operating distances

 	<p>Safety switch</p> <p>CES-AP-C01-...</p>
<p>CES-A-BBA</p>  <p>Page 119</p> <p>CES-A-BCA</p>  <p>Page 119</p>	 <p>For a side approach direction for the actuator and safety switch, a minimum distance of $s = 4$ mm must be maintained so that the operating distance of the side lobes is not entered.</p>
<p>CES-A-BPA</p>  <p>Page 120</p>	 <p>For a side approach direction for the actuator and safety switch, a minimum distance of $s = 4$ mm must be maintained so that the operating distance of the side lobes is not entered.</p>
<p>CES-A-BRN</p>  <p>Page 121</p>	 <p>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.</p>

Actuator

CES-AP

Technical data non-contact safety switches CES-AP-C01-...

Parameter	Value			Unit
	min.	typ.	max.	
Housing material	PBT VO GF30			
Dimensions	According to EN 60947-5-2			mm
Weight	0.17			kg
Ambient temperature at $U_B = DC 24 V$	-20	-	+55	°C
Degree of protection	IP67			
Safety class	III			
Degree of contamination	3			
Installation position	Any			
Connection	M12 plug connector, 5 and 8-pin			
Operating voltage U_B (reverse polarity protected, regulated, residual ripple < 5%)	24 ± 15%			V DC
For the approval according to UL the following applies	Operation only with UL Class 2 power supply, or equivalent measures			
Current consumption	80			mA
Switching load according to UL	DC 24 V, class 2			
External fuse (operating voltage U_B)	0.25	-	8	A
Classification acc. to EN 60947-5-3	PDF-M			
EMC protection requirements	In acc. with EN 60947-5-3			
Safety outputs (OA/OB, 2 semiconductor outputs, p-switching, short circuit-proof)				
- Output voltage $U(OA)/U(OB)$ ¹⁾				
HIGH $U(OA)$	$U_B - 1.5$	-	U_B	V DC
HIGH $U(OB)$	$U_B - 1.5$	-	U_B	V DC
LOW $U(OA)/U(OB)$	0	-	1	V DC
Switching current per safety output	1	-	400	mA
Utilization category according to EN 60947-5-2	DC-13 24 V 400mA Caution: outputs must be protected with a free-wheeling diode in case of inductive loads			
Off-state current I_r	≤ 0.25			mA
Rated insulation voltage U_i	-	-	75	V
Rated impulse withstand voltage U_{imp}	-	-	1.5	kV
Resilience to vibration	According to EN 60947-5-2			
Switching frequency	-	-	1	Hz
Repeat accuracy R	≤ 10			%
Monitoring output (OUT) (Semiconductor output, p-switching, short circuit-proof)				
Output voltage	$0.8 \times U_B$	-	U_B	V DC
Max. load	-	-	200	mA
In combination with actuator CES-A-BBA/CES-A-BCA				
Operating distance for center offset $m = 0$				
- Switch-on distance	-	18	-	mm
- Assured switch-on distance s_{ao} ²⁾	15	-	-	
- Switching hysteresis ²⁾	1	3	-	
- Assured switch-off distance s_{ar}	-	-	45	
In combination with actuator CES-A-BPA				
Operating distance for center offset $m = 0$				
- Switch-on distance	-	22 ³⁾	-	mm
- Assured switch-on distance s_{ao}	18	-	-	
- Switching hysteresis ²⁾	1	2	-	
- Assured switch-off distance s_{ar}	-	-	58	
In combination with actuator CES-A-BRN				
Operating distance for center offset $m = 0$				
- Switch-on distance	-	27 ⁴⁾	-	mm
- Assured switch-on distance s_{ao}	20	-	-	
- Switching hysteresis ⁴⁾	-	3	-	
- Assured switch-off distance s_{ar}	-	-	75	
Reliability values according to EN ISO 13849-1				
Category	4			
Performance Level (PL)	e			
PFH_d	$2.1 \times 10^{-9} / h$ ⁵⁾			
Mission time	20			years

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

2) Values apply for surface mounting of the actuator.

3) On surface mounting on aluminum, in a non-metallic environment the typical switching distance increases to 30 mm.

4) In case of surface mounting on steel.

5) Applying the limit value from EN ISO 13849-1:2008, Section 4.5.2 (MTTF_d = max. 100 years), the employers' liability insurance association (DGUV) certifies a PFH_d of 2.47 x 10⁻⁸.

Actuator CES-A-BBA/CES-A-BCA

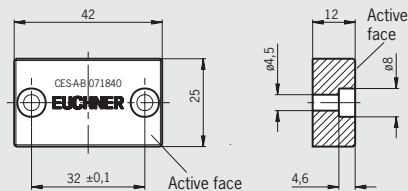
- ▶ Rectangular design
42 x 25 mm



For possible combinations see page 114

Actuator CES-A-BBA

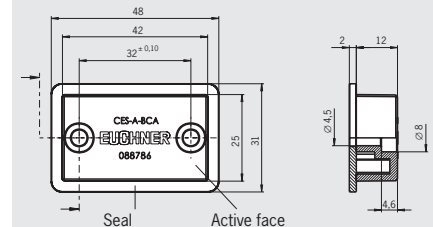
Dimension drawing



2 safety screws
M4x14 included

Actuator CES-A-BCA

Housing material PE-HD



2 safety screws
M4x14 included

Ordering table

Series	Comment	Version	Order no.
CES-A-BBA	2 safety screws M4 x 14 are supplied	-	071840 CES-A-BBA
CES-A-BCA	2 safety screws M4 x 14 are supplied Flat seal included	Housing material PE-HD ¹⁾	088786 CES-A-BCA

1) Suitable for use in aggressive media (e. g. acids, alkalis)

Technical data

Parameter	Value			Unit
	min.	typ.	max.	
Housing material	Fortron, reinforced thermoplastic, fully encapsulated			
- CES-A-BBA	Fortron, reinforced thermoplastic, fully encapsulated			
- CES-A-BCA	Plastic PE-HD without reinforcement, fully encapsulated			
Flat seal material (CES-A-BCA only)	Fluororubber 75 FPM 4100			
Dimensions	42 x 25 x 12			mm
Weight	0.02			kg
Ambient temperature				°C
- CES-A-BBA	-25	-	+70	
- CES-A-BCA	-25	-	+50	
Degree of protection	IP67/IP69K			
Installation position	Active face opposite read head			
Power supply	Inductive via read head			

Actuator CES-A-BPA

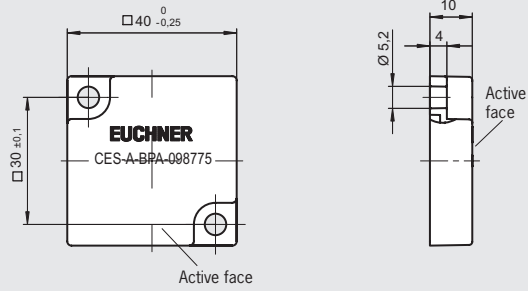
- ▶ Rectangular design
40 x 40 mm



For possible combinations see page 114

Actuator CES-A-BPA

Dimension drawing



2 safety screws
M5x10 included

Ordering table

Series	Comment	Version	Order no.
CES-A-BPA	2 safety screws M5 x 10 are supplied	-	098775 CES-A-BPA

Technical data

Parameter	Value			Unit
	min.	typ.	max.	
Housing material	PBT			
Weight	0.025			kg
Degree of protection acc. to IEC 60529	IP67/IP69K			
Ambient temperature	-25	-	+70	°C
Installation position	Active face opposite read head			
Power supply	Inductive via read head			

Actuator CES-A-BRN

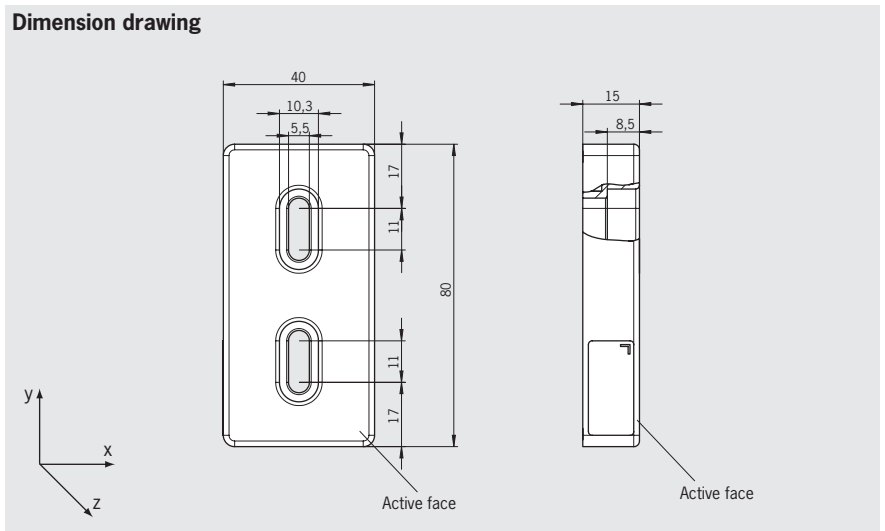
- ▶ Elongated operating distance in the y direction
- ▶ Rectangular design
80 x 40 mm



For possible combinations see page 114

Actuator CES-A-BRN

Dimension drawing



Ordering table

Series	Comment	Version / actuator number	Order no.
CES-A-BRN	2 safety screws M5 x 16 are supplied	-	100251 CES-A-BRN-100251

Technical data

Parameter	Value			Unit
	min.	typ.	max.	
Housing material	PPS			
Dimensions	80 x 40 x 15			mm
Weight	0.06			kg
Ambient temperature	-25	-	+70	°C
Degree of protection acc. to EN IEC 60529	IP 67			
Installation position	Active face opposite read head			
Power supply	Inductive via read head			



Non-contact safety switches CES-AP-C.2-...

- ▶ Read head with integrated evaluation electronics
- ▶ No series connection
- ▶ Short circuit monitoring
- ▶ 2 safety outputs (semiconductor outputs)
- ▶ Category 4 / PL e according to EN ISO 13849-1



For possible combinations see page 114

Approach direction

For approach directions see illustration "Approach directions and minimum distance" on page 111.

Short circuit monitoring

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

Unicode evaluation

Each actuator is unique. The safety switch detects only the actuator that has been taught-in. Additional actuators can be taught-in. Only the last actuator taught-in is detected.

Multicode evaluation

Every suitable actuator is detected by the safety switch.

Category according to EN ISO 13849-1

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

- ▶ Category 4 / PL e according to EN ISO 13849-1

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

LED indicator

STATE Status LED
DIA Diagnostics LED

Additional connections

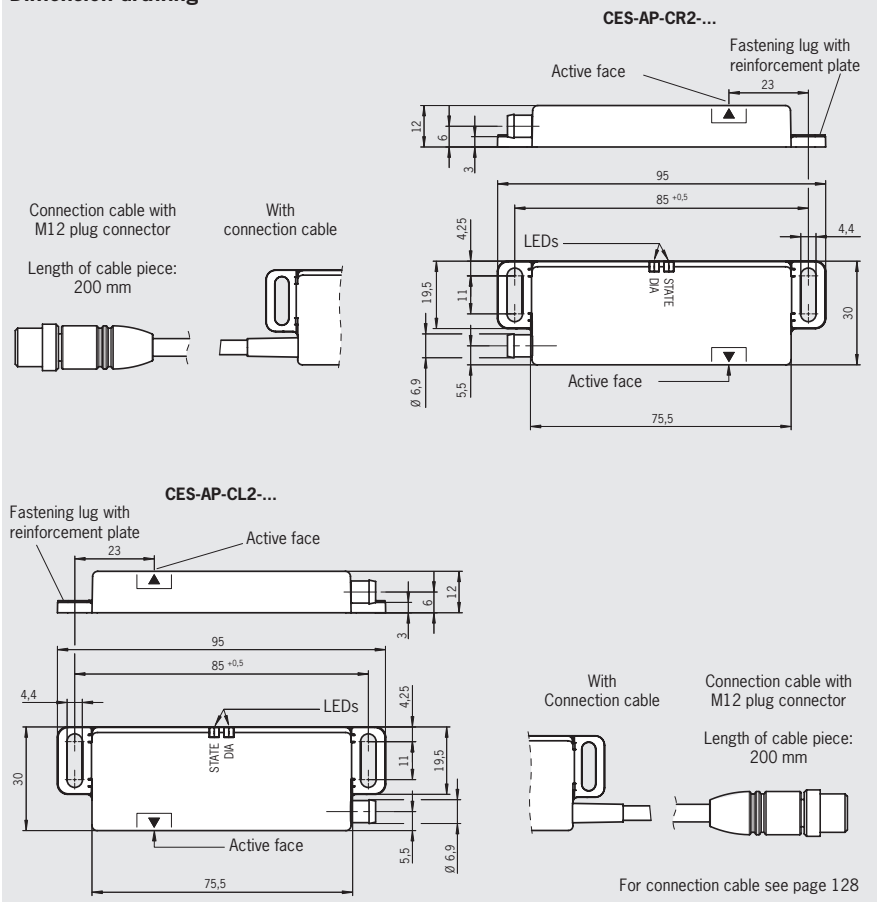
OUT Monitoring output (semiconductor)

For ordering table see page 125.

Non-contact safety switches CES-AP-C.2-...

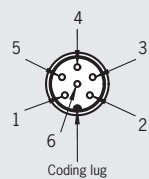
Cat. 4
PLe

Dimension drawing



Terminal assignment

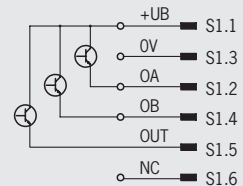
Plug connector with latching connection, 6-pin, or flying lead



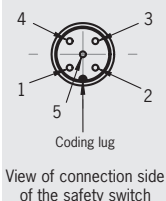
View of connection side of the safety switch

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

Connector assignment



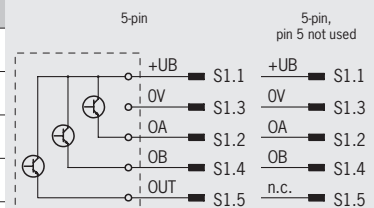
Connection cable with M12 plug connector, 5-pin



View of connection side of the safety switch






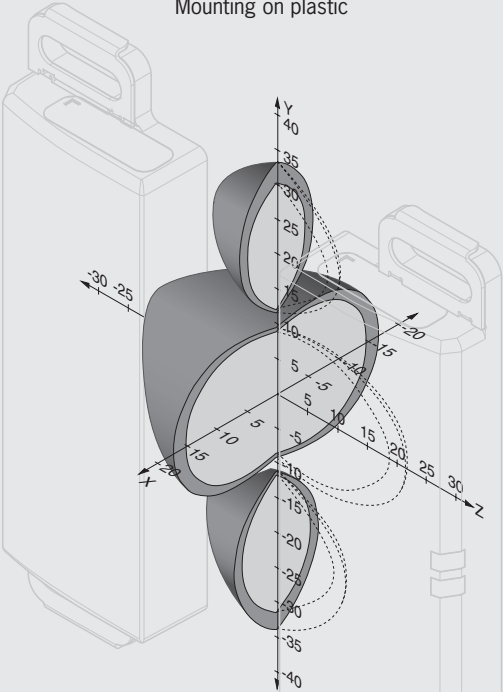

Pin	Designation/description	Wire color
1	UB Power supply DC 24 V	BN
2	OA Safety output channel 1	WH
3	OV Ground DC 0 V	BU
4	OB Safety output channel 2	BK
5	OUT/ n.c.	GY

Connector assignment



1) Partial UL approval (see ordering table page 125)

Typical operating distances

 	<p>Safety switch</p> <p>CES-AP-C.2-...</p>	
<p>Actuator</p> <p>CES-A-BLN...</p>  <p>Page 126</p>  <p>Page 126</p>	<p>Mounting on plastic</p>  <p>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.</p>	
<p>CES-A-BDN-06</p>  <p>Page 127</p>	<p>Operating distance as for actuator CES-A-BLN... (see above)</p>	

Attention:

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

CES-AP

Technical data non-contact safety switches 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 $U_b = DC 24 V$ - For switches from serial number xxxxxx002000	- 20	-	+ 55	°C
	- 40	-	+ 65	
Storage temperature	- 40	-	+ 70	
Degree of protection	IP69K (IP67 for version with M12 plug connector)			
Safety class	III			
Degree of contamination	3			
Installation position	Any			
Connection	Plug connector or connection cable			
Operating voltage U_b (reverse polarity protected, regulated, residual ripple < 5%)	24 ± 15%			V DC
For the approval according to «UL» the following applies	Operation only with UL Class 2 power supply, or equivalent measures			
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)	$U_b - 1.5$	-	U_b	V DC
HIGH U(OB)				
LOW U(OA)/U(OB)	0		1	
Switching current per safety output	1	-	150	mA
Utilization category according to EN 60947-5-2	DC-13 24 V 150 mA Caution: outputs must be protected with a free-wheeling diode in case of inductive loads.			
Off-state current I_r	≤ 0.25			mA
Classification acc. to EN 60947-5-3	PDF-M			
Monitoring output OUT ¹⁾	Semiconductor output 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	-	-	75	V
Rated impulse withstand voltage U_{imp}	-	-	1.5	kV
Resilience to vibration	In acc. with EN 60947-5-2			
Switching frequency	-	-	1	Hz
Repeat accuracy R	≤ 10			%
EMC protection requirements	In acc. with EN 60947-5-3			
In combination with actuator CES-A-BLN... ²⁾				
Operating distance for center offset $m = 0$				
- Switch-on distance	-	15	-	mm
- Assured switch-on distance s_{so}	10	-	-	
- Switching hysteresis ²⁾	1	2	-	
- Assured switch-off distance s_{sr} in x/z direction	-	-	40	
in y direction	-	-	60	
In combination with actuator CES-A-BDN... ²⁾				
Operating distance for center offset $m = 0$				
- Switch-on distance	-	19	-	mm
- Assured switch-on distance s_{so}	14	-	-	
- Switching hysteresis ²⁾	-	2	-	
- Assured switch-off distance s_{sr} in x/z direction	-	-	40	
in y direction	-	-	60	
Reliability values according to EN ISO 13849-1				
Category	4			
Performance Level (PL)	e			
PFH_d	$1.8 \times 10^{-9} / h^{3)}$			
Mission time	20			years

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

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

3) Applying the limit value from EN ISO 13849-1:2008, Section 4.5.2 (MTTF_d = max. 100 years), the employers' liability insurance association (DGUV) certifies a PFH_d of 2.47×10^{-8} .



Ordering table

Series	Comment	Version	Order no. / item
Safety switch CES-AP-C.2-AH-... Unicode	2 safety screws M4 X 14 and reinforcement plates included	Door hinge right, plug connector with latching connection, 6-pin	105295 ¹⁾ CES-AP-CR2-AH-SF-105295
		Door hinge left, plug connector with latching connection, 6-pin	105294 ¹⁾ CES-AP-CL2-AH-SF-105294
		Door hinge right, connection cable PUR, length 0.2 m, with plug connector M12, 5-pin	106552 CES-AP-CR2-AH-SB-106552
		Door hinge left, connection cable PUR, length 0.2 m, with plug connector M12, 5-pin	106553 CES-AP-CL2-AH-SB-106553
		Door hinge right, connection cable PUR, length 0.2 m, with connection cable M12, 5-pin, pin 5 not used	111748 CES-AP-CR2-AH-SB-111748
		Door hinge left, connection cable PUR, length 0.2 m, with connection cable M12, 5-pin, pin 5 not used	111747 CES-AP-CL2-AH-SB-111747
		Door hinge right, connection cable PVC, 6-pin, length 5 m, flying lead	105601 CES-AP-CR2-AH-L05-105601
		Door hinge left, connection cable PVC, 6-pin, length 5 m, flying lead	105603 CES-AP-CL2-AH-L05-105603
		Door hinge right, connection cable PVC, 6-pin, length 10 m, flying lead	106191 CES-AP-CR2-AH-L10-106191
		Door hinge left, connection cable PVC, 6-pin, length 10 m, flying lead	106192 CES-AP-CL2-AH-L10-106192
		Door hinge right, connection cable PVC, 6-pin, length 20 m, flying lead	106195 CES-AP-CR2-AH-L20-106195
		Door hinge left, connection cable PVC, 6-pin, length 20 m, flying lead	106196 CES-AP-CL2-AH-L20-106196
Safety switch CES-AP-C.2-CH-... Multicode	2 safety screws M4 X 14 and reinforcement plates included	Door hinge right, plug connector with latching connection, 6-pin	100775 ¹⁾ CES-AP-CR2-CH-SF-100775
		Door hinge left, plug connector with latching connection, 6-pin	104509 ¹⁾ CES-AP-CL2-CH-SF-104509
		Door hinge right, connection cable PUR, length 0.2 m, with plug connector M12, 5-pin	106550 CES-AP-CR2-CH-SB-106550
		Door hinge left, connection cable PUR, length 0.2 m, with plug connector M12, 5-pin	106551 CES-AP-CL2-CH-SB-106551
		Door hinge right, connection cable PUR, length 0.2 m, with connection cable M12, 5-pin, pin 5 not used	109168 CES-AP-CR2-CH-SB-109168
		Door hinge left, connection cable PUR, length 0.2 m, with connection cable M12, 5-pin, pin 5 not used	109167 CES-AP-CL2-CH-SB-109167
		Door hinge right, connection cable PVC, 6-pin, length 5 m, flying lead	105600 CES-AP-CR2-CH-L05-105600
		Door hinge left, connection cable PVC, 6-pin, length 5 m, flying lead	105602 CES-AP-CL2-CH-L05-105602
		Door hinge right, connection cable PVC, 6-pin, length 10 m, flying lead	106189 CES-AP-CR2-CH-L10-106189
		Door hinge left, connection cable PVC, 6-pin, length 10 m, flying lead	106190 CES-AP-CL2-CH-L10-106190
		Door hinge right, connection cable PVC, 6-pin, length 20 m, flying lead	106193 CES-AP-CR2-CH-L20-106193
		Door hinge left, connection cable PVC, 6-pin, length 20 m, flying lead	106194 CES-AP-CL2-CH-L20-106194

1) UL approval

Actuator CES-A-BLN...

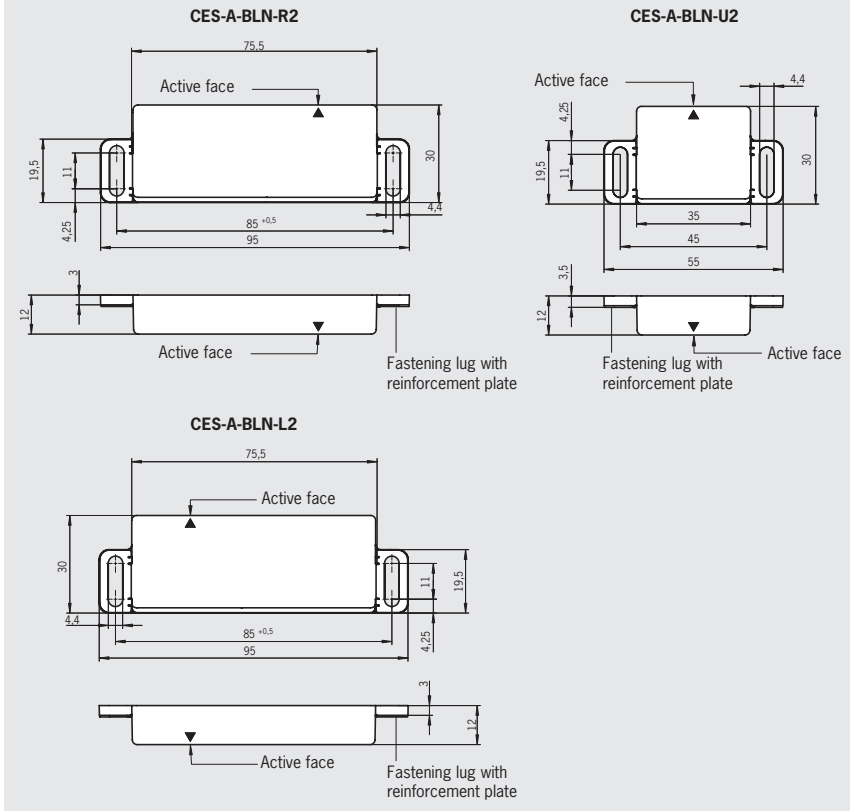
- ▶ Rectangular design 55 x 30 mm and 95 x 30 mm



For possible combinations see page 114

Actuator CES-A-BLN...

Dimension drawing



Ordering table

Series	Comment	Version	Order no./ Article
Actuator CES-A-BLN...	2 safety screws M4 X 14 and reinforcement plates included	95 mm x 30 mm x 12 mm Door hinge right	100776 CES-A-BLN-R2-100776
		95 mm x 30 mm x 12 mm Door hinge left	104510 CES-A-BLN-L2-104510
		55 mm x 30 mm x 12 mm Usage independent of position of door hinge	103450 CES-A-BLN-U2-103450

Technical data

Parameter	Value			Unit
	min.	typ.	max.	
Housing material	Plastic PBT			
Dimensions				
- CES-A-BLN-R2/CES-A-BLN-L2	95 x 30 x 12			mm
- CES-A-BLN-U2	55 x 30 x 12			
Weight				
- CES-A-BLN-R2/CES-A-BLN-L2	0.04			kg
- CES-A-BLN-U2	0.02			
Ambient temperature	- 40	-	+ 70	°C
Degree of protection according to EN 60529	IP67/IP69K			
Installation position	Active face opposite read head			
Power supply	Inductive via read head			

Actuator CES-A-BDN-06

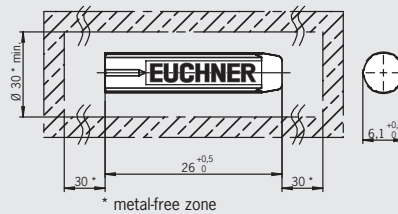
- ▶ Cylindrical design \varnothing 6 mm



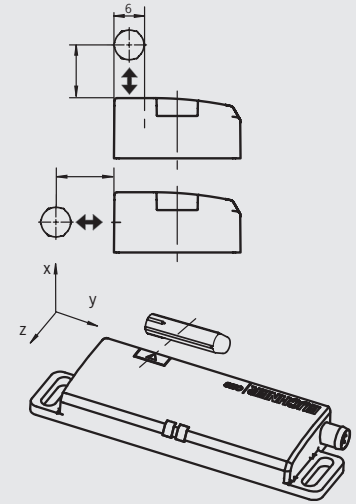
For possible combinations see page 114

Actuator CES-A-BDN-06

Dimension drawing



Installation options



Ordering table

Series	Comment	Version	Order no. / item
CES-A-BDN-06			104730 CES-A-BDN-06-104730

Technical data

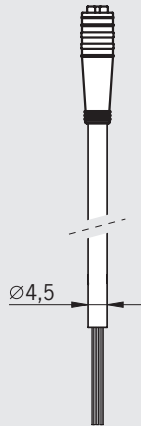
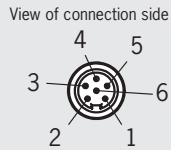
Parameter	Value			Unit
	min.	typ.	max.	
Housing material	Macromelt PA-based plastic			
Dimensions	26 x \varnothing 6			mm
Weight	0.005			kg
Ambient temperature	-40	-	+70	°C
Degree of protection	IP67 / IP69K ¹⁾			
Installation position	Active face opposite read head			
Power supply	Inductive via read head			

1) With flush installation

Connection cables and safety screws

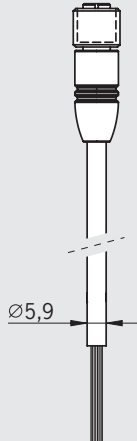
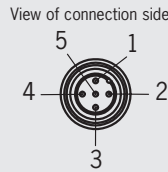
Flying lead
M8 snap-on, 6-pin

Dimension drawing



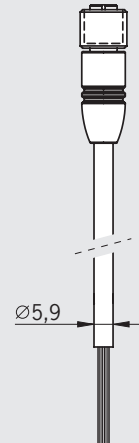
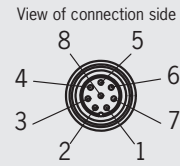
- 1 = BN ▶ U_B
- 2 = WH ▶ OA
- 3 = BU ▶ 0 V
- 4 = BK ▶ OB
- 5 = GY ▶ OUT
- 6 = PK ▶ NC

Flying lead
M12 female plug 5-pin



- 1 = BN ▶ U_B
- 2 = WH ▶ OA
- 3 = BU ▶ 0 V
- 4 = BK ▶ OB
- 5 = GY ▶ DIA/OUT

Flying lead
M12 female plug 8-pin



- 1 = WH ▶ IB
- 2 = BN ▶ UB
- 3 = GN ▶ OA
- 4 = YE ▶ OB
- 5 = GY ▶ DIA
- 6 = PK ▶ IA
- 7 = BU ▶ 0 V
- 8 = RD ▶ RST

Ordering table

Series	Comment	Order no. / item
M8 connection cable PVC with snap-on, 6-pin, flying lead, 6 x 0,14 mm² for the connection of a CES-AP-C.2...SF	M8 snap-on 6-pin, length 5 m	103556 C-R08F06-06X014PV05,0-ES-103556
	M8 snap-on 6-pin, length 10 m	103557 C-R08F06-06X014PV10,0-ES-103557
	M8 snap-on 6-pin, length 15 m	103558 C-R08F06-06X014PV15,0-ES-103558
	M8 snap-on 6-pin, length 20 m	103559 C-R08F06-06X014PV20,0-ES-103559
	M8 snap-on 6-pin, length 25 m	103560 C-R08F06-06X014PV25,0-ES-103560
M12 connection cable PVC 5-core, flying lead, 5 x 0,34 mm² for the connection of a CES-AP-C.1...SB / CES-AP-C.2...SB	M12 female plug 5-pin, length 5 m	100183 C-M12F05-05X034PV05,0-MA-100183
	M12 female plug 5-pin, length 10 m	100184 C-M12F05-05X034PV10,0-MA-100184
	M12 female plug 5-pin, length 20 m	100185 C-M12F05-05X034PV20,0-MA-100185
M12 connection cable PVC 8-core, flying lead, 8 x 0,25 mm² for the connection of a CES-AP-C01...SA	M12 female plug 8-pin, length 5 m	100177 C-M12F08-08X025PV05,0-MA-100177
	M12 female plug 8-pin, length 10 m	100178 C-M12F08-08X025PV10,0-MA-100178
	M12 female plug 8-pin, length 20 m	100179 C-M12F08-08X025PV20,0-MA-100179
Safety screws (replacement) for safety switch CES-AP-C.2... and actuator CES-ABL...)	M4 x 14 packaging unit 100 ea.	074063 Safety screws M4 x 14