

## CET3-AP-CRA-AH-50X-SA-122398 (ORDER NO. 122398)

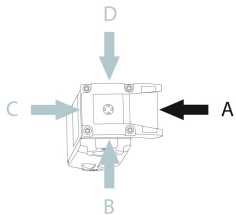
### Non-contact safety switch CET-AP-..., M12

- ▶ Safety switch with guard locking and integrated evaluation electronics
- ▶ Locking force up to 6,500 N
- ▶ Short circuit monitoring
- ▶ 2 safety outputs (semiconductor outputs)
- ▶ Category 4 / PL e according to EN ISO 13849-1
- ▶ With 1 plug connector M12, 8-pin
- ▶ Unicode
- ▶ Door monitoring output
- ▶ Indication of the door position by LED
- ▶ Approach direction A (delivery state)



### Description

#### Approach direction



Horizontal

Can be adjusted in 90° steps

#### Safety switch

The device may be operated only in conjunction with the actuator CET-A-...

**Important:** The actuator must be ordered separately.

#### Unicode evaluation

Each actuator is highly coded (unicode). The switch detects only taught-in actuators. Additional actuators can be taught-in. Only the last actuator taught-in is detected.

#### Solenoid operating voltage

- ▶ DC 24 V 10%, -15%

#### Guard locking type

CET3 Closed-circuit current principle, guard locking by spring force. Release by applying voltage to the guard locking solenoid. The door position is also monitored. The door monitoring output OUT D is set to HIGH as soon as the actuator is above the extended plunger (state: door closed, guard locking not active). The output OUT D also remains set when guard locking is active.

#### LED function display

State LED Status LED

- DIA LED Diagnostics LED
- LED 1 rd illuminates when the solenoid is energized
- LED 2 gn illuminates when the door is closed

**Additional connections**

- OUT Monitoring output (semiconductor)
- OUT D Door monitoring output

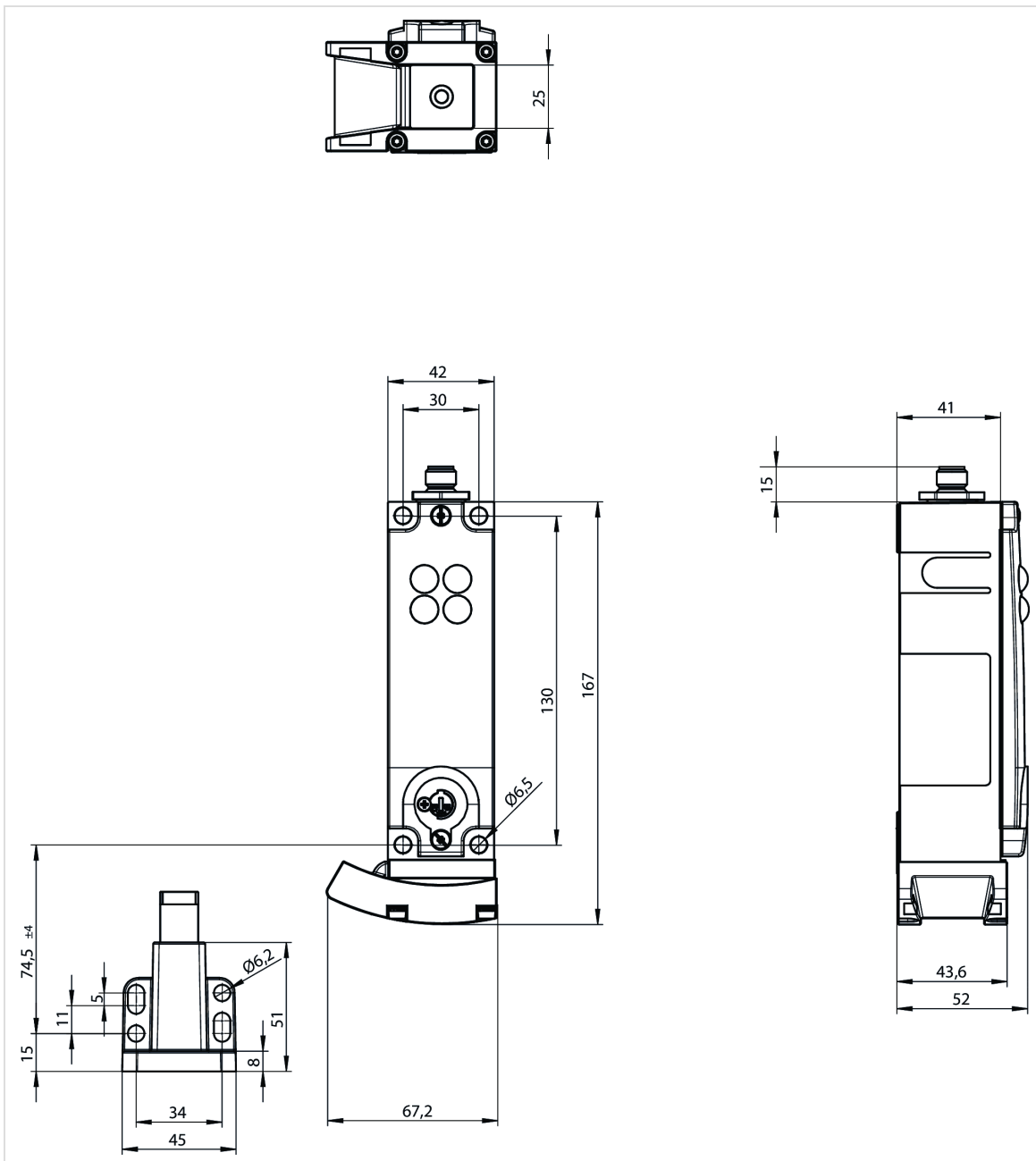
**Category according to EN ISO 13849-1**

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

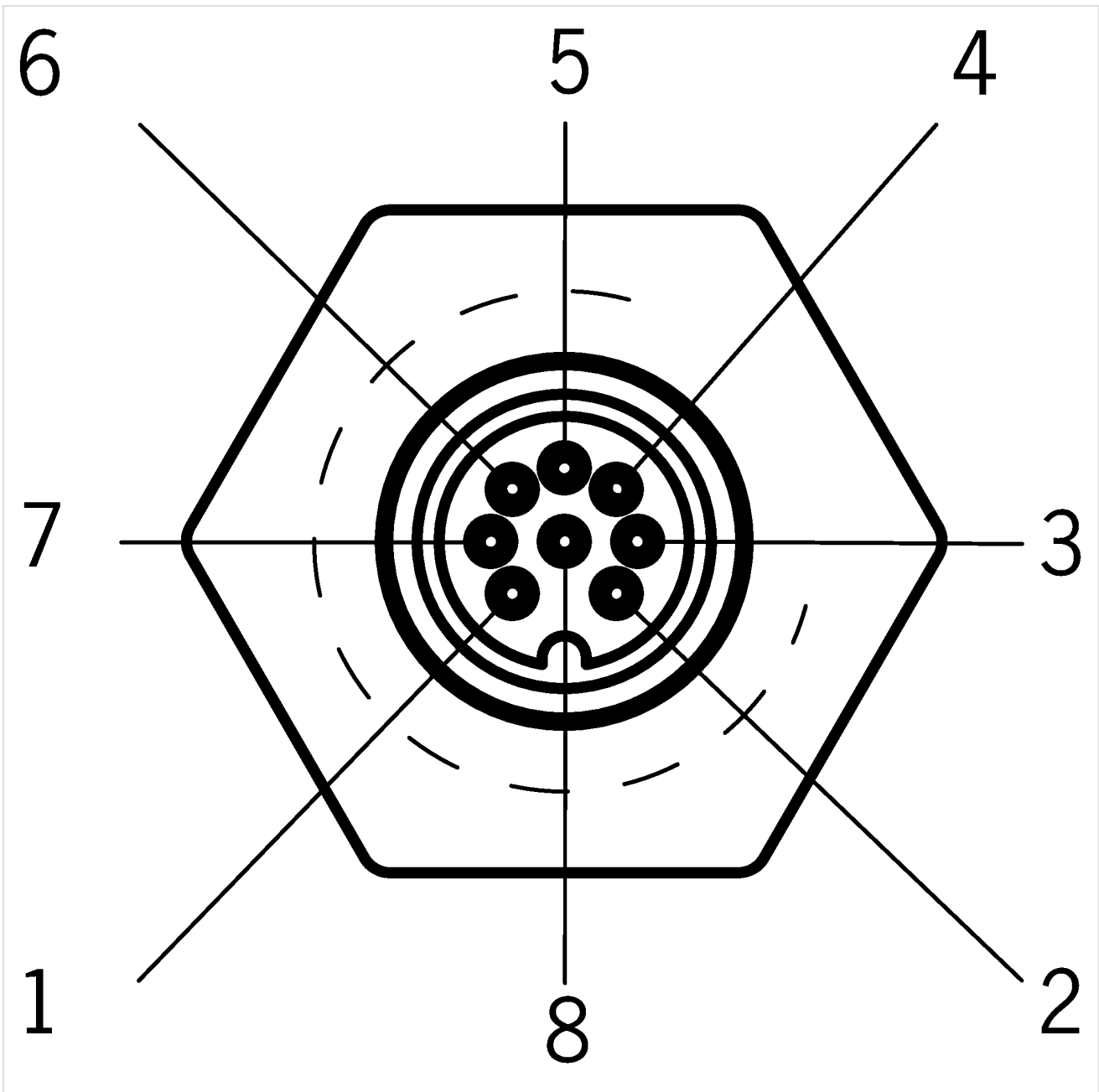
- ▶ Category 4/PL e according to EN ISO 13849-1
- ▶ The stated safety characteristics apply to any installation orientations of the safety switch.

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

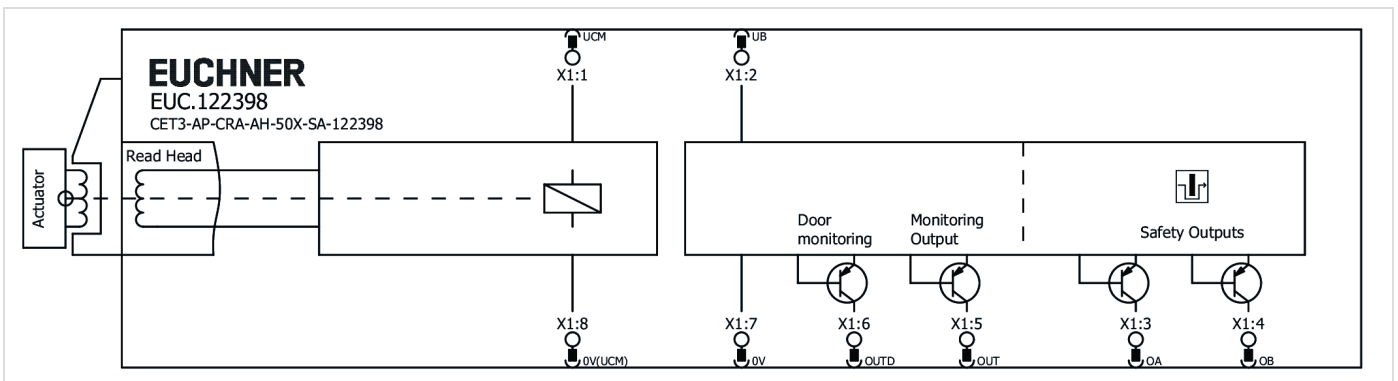
**Dimensional drawings**



**Connection examples**



Connection examples



## Technical data

### Approvals



### Workspace

Repeat accuracy R

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according to EN 60947-5-2 10 %

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### Electrical connection values

Fuse		
	external (operating voltage $U_B$ )	0.25 ... 8 A
	external (solenoid operating voltage $U_{CM}$ )	0.5 ... 8 A
Power consumption		
	Solenoid	11 W
Connecting cable		30V DC, 2A (for UL requirement UL category code (CYJV/CYJV7))
Operating voltage DC		
	$U_B$	24 V DC -15% ... +15% reverse polarity protected, regulated, residual ripple < 5%, PELV (The device tolerates voltage interruptions of up to 5 ms)
	LED	24 V DC -15% V DC ... +10% V DC
EMC protection requirements		according to EN IEC 60947-5-3
Utilization category		
	DC-13	24V 200mA (Caution: outputs must be protected with a free-wheeling diode in case of inductive loads)
Solenoid operating voltage DC		
	$U_{CM}$	24 V DC -15% ... +10% reverse polarity protected, regulated, residual ripple < 5%, PELV
Solenoid duty cycle		100 %
Switching load		
	according to UL	24V DC, Class 2 (For alternatives, see operating instructions)
Safety class		
	EN IEC 61140	III
Current consumption		
	$I_B$	80 mA
	$I_{CM}$	450 mA
Test pulse duration		max. 0.3 ms (Applies to a load with $C \leq 30$ nF and $R \leq 20$ kohm)
Degree of contamination (external, according to EN 60947-1)		3
		<b>Monitoring output OUT D</b>
Output type		p-switching, short circuit-proof
Output voltage		
	OUT D	$0.8 \times U_B$ ... $U_B$ V DC
Switching current		
	OUT D	1 ... 50 mA
Switching delay from state change		max. 700 ms
		<b>Monitoring output OUT</b>
Output type		p-switching, short circuit-proof
Output voltage		
	OUT	$0.8 \times U_B$ ... $U_B$ V DC
Switching current		
	OUT	1 ... 50 mA
Switching delay from state change		max. 400 ms

## Mechanical values and environment

Approach speed	max. 20 m/min
Connection type	1 plug connector M12, 8-pin
Ready delay	1 s
Installation orientation	any (preferably head downward)
Switching frequency	max. 0.5 Hz
Degree of freedom X	±5 mm
Degree of freedom Y	±5 mm
Degree of freedom Z	±4 mm
Mechanical life	2 x 10 <sup>6</sup>
Shock and vibration resistance	according to EN IEC 60947-5-3
Degree of protection	IP67 (screwed tight plug connector/mating component)
Ambient temperature	at U <sub>B</sub> = 24V DC -20 ... +55 °C
Material	
	Safety switch housing Die-cast aluminum
	Ramp stainless steel
Locking force F <sub>max</sub>	6500 N
Locking force F <sub>Zh</sub>	5000 N (FZH = FMAX/1.3)
Guard locking principle	Closed-circuit current principle

### Characteristic values according to EN ISO 13849-1 and EN IEC 62061

Mission time	20 y
	<b>Control of guard locking</b>
Category	Depending on external control of guard locking
Performance Level	Depending on external control of guard locking
PFH <sub>D</sub>	Depending on external control of guard locking
	<b>Monitoring of guard locking and the guard position</b>
Category	
	Any installation orientation 4
Performance Level	PL e
PFH <sub>D</sub>	
	Any installation orientation 3.1 x 10 <sup>-9</sup>

### Miscellaneous

The following applies to the approval according to UL	Operation only with UL Class 2 power supply or equivalent measures; see operating instructions
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## Accessories

### Actuator

#### Actuator CET-A-BWK-50X



096327  
CET-A-BWK-50X

- ▶ Actuator for read head/safety switch CET
- ▶ Four safety screws M5x16 included

#### Actuator CET-A-BWR-50X-170115



170115  
CET-A-BWR-50X-170115

- ▶ Actuator for read head/safety switch CET
- ▶ Transponder coding
- ▶ Improved properties for use in harsh environments (dirt, swarf)
- ▶ Four M5x16 safety screws included in scope of delivery

### Bolt

#### Bolt CET-A-C



104309  
RIEGEL CET-A-C

- ▶ Steel bolt
- ▶ In combination with CET
- ▶ For doors hinged on the left or right
- ▶ Can be locked in open position with padlocks

#### Bolt CET-A-C, for swing doors without end stop



109672  
RIEGEL CET-A-C-C2308

- ▶ Steel bolt
- ▶ In combination with CET
- ▶ For doors hinged on the left or right
- ▶ Can be locked in open position with padlocks
- ▶ Bolt without door stop, suitable for swing doors

### Connection accessories

#### Connecting cable with angled plug connector M12, 8-pin, 10 m



113189  
C-M12F08-08X025PU10,0-MA-113189

- ▶ M12 female plug, 8-pin
- ▶ Angled plug connector
- ▶ Cable outlet C (left)
- ▶ PUR cable
- ▶ Cable length 10 m
- ▶ With flying lead



113188  
C-M12F08-08X025PU10,0-MA-113188

- ▶ M12 female plug, 8-pin
- ▶ Angled plug connector
- ▶ Cable outlet A (right)
- ▶ PUR cable
- ▶ Cable length 10 m
- ▶ With flying lead

#### Connecting cable with angled plug connector M12, 8-pin, 20m



120999  
C-M12F08-08X025PU20,0-MA-120999

- ▶ M12 female plug, 8-pin
- ▶ Angled plug connector
- ▶ Cable outlet C (left)
- ▶ PUR cable
- ▶ Cable length 20 m
- ▶ With flying lead



120998  
C-M12F08-08X025PU20,0-MA-120998

- ▶ M12 female plug, 8-pin
- ▶ Angled plug connector
- ▶ Cable outlet A (right)
- ▶ PUR cable
- ▶ Cable length 20 m

### Connecting cable with plug connector M12, 8-pin, 10m



**115113**  
C-M12F08-08X025PU10,0-MA-115113

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



**100178**  
C-M12F08-08X025PV10,0-MA-100178

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

### Connecting cable with plug connector M12, 8-pin, 20m



**115114**  
C-M12F08-08X025PU20,0-MA-115114

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



**100179**  
C-M12F08-08X025PV20,0-MA-100179

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

### Connecting cable with plug connector M12, 8-pin, 30m



**115116**  
C-M12F08-08X025PV30,0-MA-115116

- ▶ M12 female plug, 8-pin
- ▶ Straight plug connector
- ▶ PVC cable
- ▶ Cable length 30 m
- ▶ With flying lead



**115257**  
C-M12F08-08X025PU30,0-MA-115257

- ▶ M12 female plug, 8-pin
- ▶ Straight plug connector
- ▶ PUR cable
- ▶ Cable length 30 m
- ▶ With flying lead

### Connecting cable with plug connector M12, 8-pin, 5m



**115112**  
C-M12F08-08X025PU05,0-MA-115112

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



**100177**  
C-M12F08-08X025PV05,0-MA-100177

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

### Function expansion

#### Auxiliary key release for read head/switch CET



**098850**  
SCHLUESSEL-HILFSENTRIEGELUNG

- ▶ Identical locking
- ▶ Key removable in "unlocked" and "locked" positions



### Cover for actuator CET



**124979**  
AM-C-124979

- ▶ Cover for actuator CET
- ▶ Horizontal and vertical mounting option on the actuator
- ▶ Mounting using 4 screws M5x16 (included with the actuator)
- ▶ Suitable for combination with the lockout bar for CET actuator AE-L-CET-156429

### Cover for read head and actuator CET



**098807**  
CET ABDECKUNG LINKS

- ▶ Cover for read heads / safety switches CET and actuators CET
- ▶ For approach direction C



**098808**  
CET ABDECKUNG RECHTS

- ▶ Cover for read heads / safety switches CET and actuators CET
- ▶ For approach direction A

### Double ramp for safety switch/read head CET



**114091**  
CET-DR

### Emergency release for CET



**159080**  
AE-M-CET-159080



**103714**  
AE-M-CET-103714

### Holder for lockout bar for CET actuator



**156338**  
Y-CHN-A1-156338

- ▶ Holder (incl. wire rope) for lockout bar CET

### Lockout bar and holder for CET actuator



**155865**  
AE-SET-LCHN-A1-155865

- ▶ Prevents unintentional closing of the door
- ▶ Can be secured with padlocks

### Lockout bar for CET actuator



**156429**  
AE-L-CET-156429

- ▶ Prevents unintentional closing of the door
- ▶ Can be secured with padlocks



**122609**  
AE-L-CET-122609

- ▶ Prevents unintentional closing of the door
- ▶ Can be secured with padlocks
- ▶ Not suitable in combination with cover AM-C for actuator CET

## Mounting accessories