

## CTM-LBI-BP-M-AZ-SA-166088 (Order no. 166088)

### Transponder-coded safety switch CTM-LBI-BP, M12

- ▶ Bistable guard locking
- ▶ Category 4 / PL e according to EN ISO 13849-1
- ▶ Actuating force 20 N
- ▶ Extraction force 18 N
- ▶ Retention force 5 N
- ▶ Plug connector M12, 8-pin
- ▶ Auxiliary release
- ▶ Multicode



### Multicode evaluation

Every suitable actuator is detected by the switch.

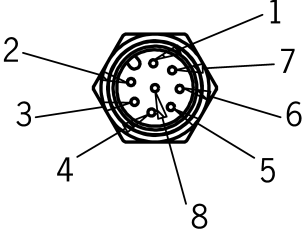
### Guard locking type

CTM-LBI Guard locking operated by means of input signal.

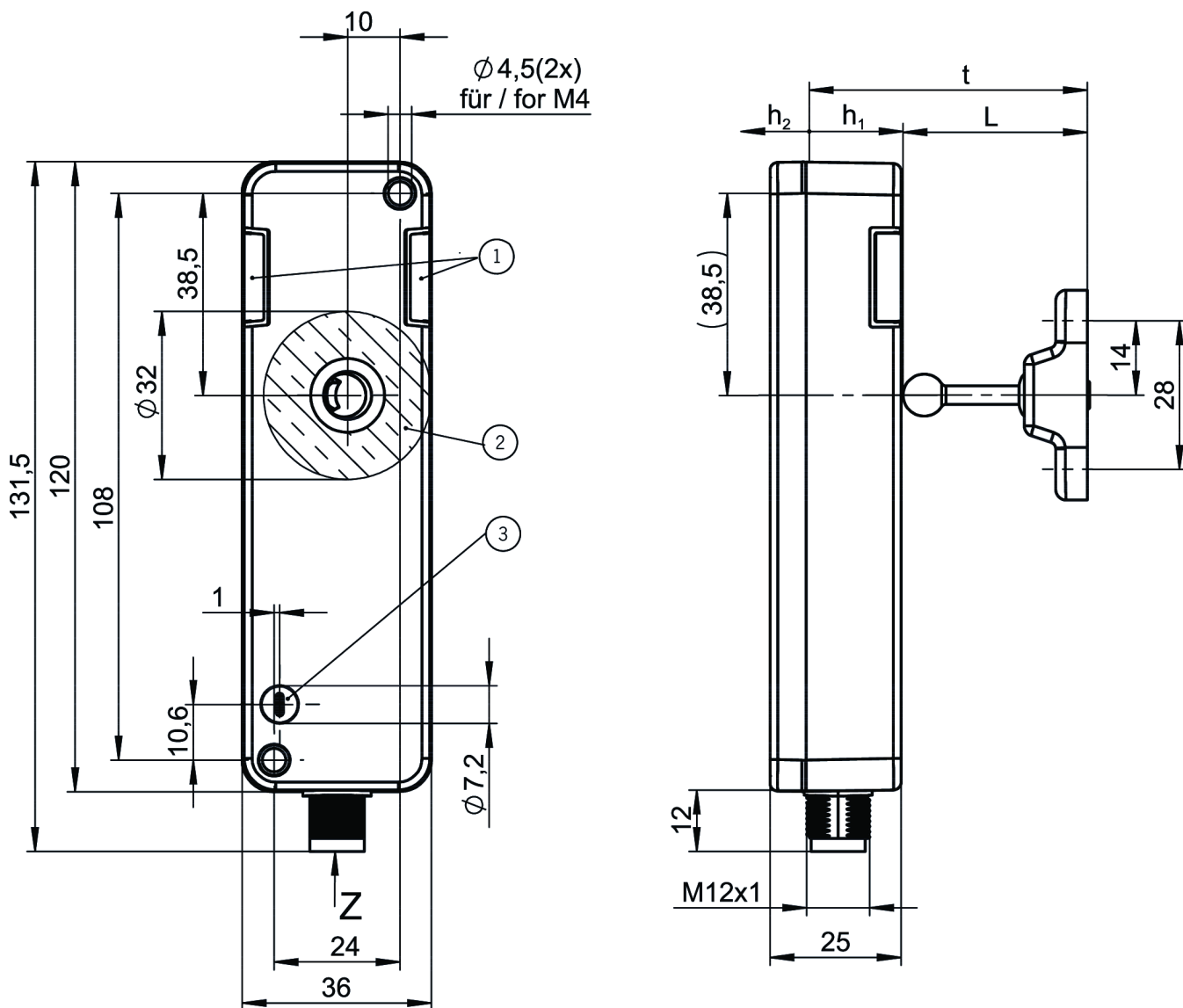
This type of guard locking has a function to prevent

- ▶ persons from unintentionally locking themselves inside if the safety door is open in case of a power failure or if the machine is switched off.
- ▶ the deactivation of the activated guard locking in case of a power failure.

## Connector assignment

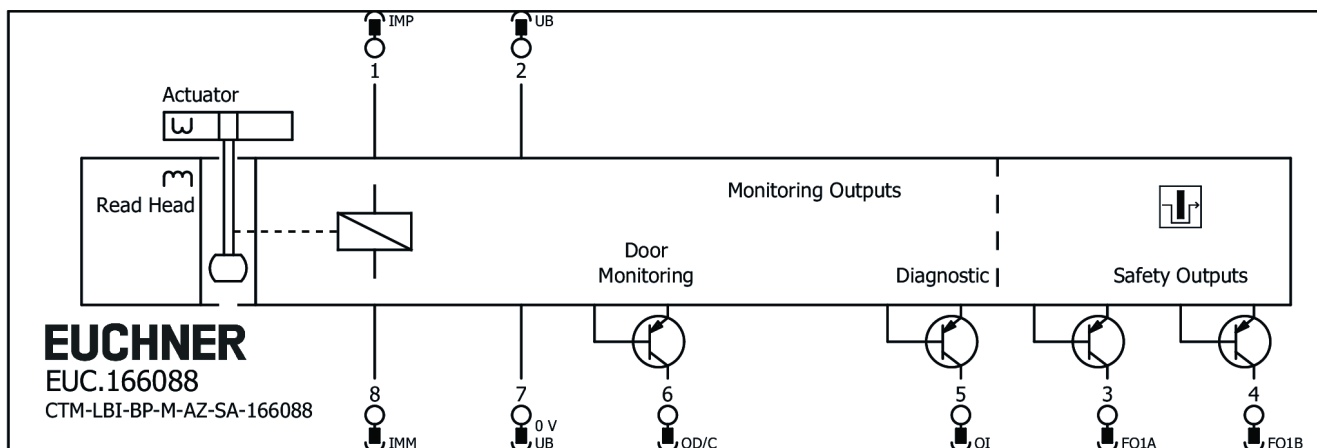
Plug connector (view of connection side)	Pin	Designation	Function	Connecting cable conductor coloring
	1	IMP	Solenoid control input 24 V DC	WH
	2	UB	Electronics and solenoid operating voltage, 24 V DC	BN
	3	FO1A	Safety output, channel A	GN
	4	FO1B	Safety output, channel B	YE
	5	OI	Diagnostic monitoring output	GY
	6	OD/C	Door position monitoring output/communication	PK
	7	0VUB	Electronics and solenoid operating voltage, 0 V DC	BU
	8	IMM	Solenoid control input 0 V DC	RD

## Dimensional drawings



- 1 LEDs
- 2 Active read head face
- 3 Auxiliary release

## Connection examples



## Technical data

### Approvals



### Workspace

Repeat accuracy R	
	according to EN 60947-5-2 10 %

### Electrical connection values

Fuse	
external (operating voltage $U_B$ )	0.7 ... 8 A
Power consumption	
at max. switching frequency	3 W
Rated insulation voltage $U_i$	50 V
Rated impulse withstand voltage $U_{imp}$	0.5 kV
Discrepancy time	
both safety outputs	max. 10 ms Acc. to EN 60947-5-3
Turn-on time	max. 400 ms
Solenoid duty cycle	100 %
Off-state current $I_r$	max. 0.25 mA
Risk time according to EN 60947-5-3	max. 200 ms
Risk time according to EN 60947-5-3, extension for each additional device	max. 10 ms
Switching load	DC 24V, UL Class 2 (alternatively, see operating instructions)
Safety class	
	EN IEC 61140 III
Test pulse duration	max. 0.3 ms
Test pulse interval	100 ms

Degree of contamination (external, according to EN 60947-1)	
Industry	3
<b>Solenoid IMP / IMM</b>	
Input voltage	
Guard locking not active (open)	20.4 ... 26.4 V DC
Guard locking active (closed)	0 ... 5 V DC
Current consumption	
Guard locking not active (open)	20 ... 50 mA
<b>Diagnostic output OI, monitoring output OD/C</b>	
Output type	p-switching, short circuit-proof
Output voltage	0.8xUB ... UB V DC
Switching current	1 ... 50 mA
<b>Safety outputs FO1A / FO1B</b>	
Output type	2 semiconductor outputs, p-switching, short circuit-proof
Output voltage	
LOW U(FO1A) / U(FO1B)	0 ... 1 V DC
HIGH U(FO1A) / U(FO1B)	UB-1.5 ... UB V DC
Discrepancy time	
both safety outputs	max. 10 ms Acc. to EN 60947-5-3
Turn-on time	max. 400 ms
Utilization category	
DC-13	24 V 150 mA (Caution: outputs must be protected with a free-wheeling diode in case of inductive loads)
Off-state current $I_r$	max. 0.25 mA
Risk time according to EN 60947-5-3	
Single device	max. 200 ms
Risk time according to EN 60947-5-3, extension for each additional device	max. 10 ms
Electrical switching frequency	max. 0.25 Hz
Switching current	
per safety output FO1A / FO1B	1 ... 150 mA

Test pulse duration max. 0.3 ms  
(Applies to a load with  $C \leq 30 \text{ nF}$  and  $R \leq 20 \text{ kohm}$ )

Test pulse interval 100 ms

### Operating voltage $U_B$

Operating voltage DC

$U_{UB}$  24 V DC  $-15\% \dots +15\%$  reverse polarity protected, regulated, residual ripple  $<5\%$ , PELV

Current consumption

$I_{UB}$  at operating voltage  $U_B = 24 \text{ V}$  max. 500 mA

### Mechanical values and environment

Approach speed max. 20 m/min

Connection type Plug connector M12, 8-pin

Extraction force 18 N

Ready delay 5.5 s

Actuating force 20 N

Installation orientation any

Switching frequency max. 0.25 Hz

Mechanical life  $1 \times 10^6$

Overtravel 2 mm

Retention force 5 N

Shock and vibration resistance Acc. to EN IEC 60947-5-3

Degree of protection IP65/IP67  
(screwed tight plug connector/mating component)

Ambient temperature

at  $U_B = 24 \text{ V DC}$   $-20 \dots +60 \text{ }^\circ\text{C}$

Material

Seals Fluorinated rubber (FKM)

Safety switch housing Reinforced thermoplastic

Locking force  $F_{max}$  1300 N

Locking force  $F_{Zh}$  1000 N

Guard locking principle BiState

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

Mission time	20 y
<b>Control of guard locking</b>	
Category	3
Performance Level	PL d
PFH <sub>D</sub>	$1.03 \times 10^{-7}$
<b>Monitoring of guard locking</b>	
Category	4
Performance Level	PL e
PFH <sub>D</sub>	$4.52 \times 10^{-9}$

## 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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## Downloads

All documentation for this material can be found on our website:

<https://www.euchner.de/en-us/a/166088/?#downloads-tab>



**Ordering data**

Ordernumber	166088
Item designation	CTM-LBI-BP-M-AZ-SA-166088
Gross weight	0,26kg
Customs tariff number	85365019
ECLASS	27-27-24-05 Safety-related transponder switch with guardlocking

## Accessories

### Actuator

#### Actuator for safety switch CTM



**161642**  
A-B-A1-A1-161642

- ▶ Flexible ball actuator
- ▶ Door radii from 150 mm



**168489**  
A-B-A5-A1-168489

- ▶ Ball actuator supported on floating bearing
- ▶ With M5 threaded bushings
- ▶ Door radii from 150 mm

### Connection material

#### Connecting cable with 2 plug connectors M12, 8-pin, 1 m



**123430**  
C-M12M08-08X025PV01,0-M12F08-123430

- ▶ 8-pin M12 male plug, straight
- ▶ 8-pin M12 female plug, straight
- ▶ PVC cable
- ▶ Cable length 1 m

#### Connecting cable with 2 plug connectors M12, 8-pin, 10 m



**123433**  
C-M12M08-08X025PV10,0-M12F08-123433

- ▶ 8-pin M12 male plug, straight
- ▶ 8-pin M12 female plug, straight
- ▶ PVC cable
- ▶ Cable length 10 m

#### Connecting cable with 2 plug connectors M12, 8-pin, 2 m



**123431**  
C-M12M08-08X025PV02,0-M12F08-123431

- ▶ 8-pin M12 male plug, straight
- ▶ 8-pin M12 female plug, straight
- ▶ PVC cable
- ▶ Cable length 2 m

#### Connecting cable with 2 plug connectors M12, 8-pin, 5 m



**123432**  
C-M12M08-08X025PV05,0-M12F08-123432

- ▶ 8-pin M12 male plug, straight
- ▶ 8-pin M12 female plug, straight
- ▶ PVC cable
- ▶ Cable length 5 m

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



**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



**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

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



**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
- ▶ With flying lead



**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

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



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

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



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

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

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



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

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



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

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

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



**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, 40 m



**156065**

C-M12F08-08X025PV40,0-MA-156065

- ▶ M12 female plug, 8-pin
- ▶ Straight plug connector
- ▶ PVC cable
- ▶ Cable length 40 m
- ▶ With flying lead

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



**100177**

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

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



**115112**

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

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

## ESM

### IO-Link Gateway with relay outputs for BP/BR switches



**158875**

ESM-CB-AZ-FI2-BR-IO-158875

- ▶ IO-Link device for reading process and device data of BP/BR safety switches and transferring them to a higher-level control system
- ▶ Control of guard locking of BP/BR switches, depending on the switch used
- ▶ Compact version measuring only 18 mm in width
- ▶ Rail mounting
- ▶ LED status indicators
- ▶ Sensor circuit 1: connection of single- or dual-channel safety switches with floating contacts; short circuit, earth fault and ground fault detection
- ▶ Sensor circuit 2: connection of 2 safety outputs for BP/BR switches
- ▶ Use as safety relay with two safe outputs
- ▶ Start button and feedback loop can be connected
- ▶ Safety relay: use up to category 4 according to EN ISO 13849-1

## GWY

### IO-Link Gateway for BP/BR switches



#### **165049**

GWY-CB-1-BR-IO-165049

- ▶ IO-Link device for reading process and device data of BP/BR safety switches and transferring them to a higher-level control system
- ▶ Control of guard locking of BP/BR switches, depending on the switch used
- ▶ Compact version measuring only 12.5 mm in width
- ▶ Rail mounting
- ▶ LED status indicators