

Technical data sheet

Safety locking device

Part no.: 50142128

L250-P31ML-CB02M12S8-SCA

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For illustration purposes only



Technical data

Basic data

| | |
|--------|------|
| Series | L250 |
|--------|------|

Functions

| | |
|-----------------------------------|---|
| Functions | Locking device with guard interlocking in acc. with EN ISO 14119 (type 4) |
| Activation mode of safety outputs | Safety outputs active if safety door is closed and locked |
| Operating principle | Power to lock – Actuator locked if electromagnet is activated |

Characteristic parameters

| | |
|-----------------------------|---------------------------------------|
| SIL | 3, IEC 61508 |
| SILCL | 3, IEC/EN 62061 |
| Performance Level (PL) | Up to and including e, EN ISO 13849-1 |
| MTTF _d | 2,254 years, EN ISO 13849-1 |
| PFH _D | 1.23E-09 per hour |
| Mission time T _M | 20 years, EN ISO 13849-1 |
| Category | 4, EN ISO 13849 |
| DC | High |
| Encoding level | Low, EN ISO 14119 |

Electrical data

| | |
|--|----------------------------|
| Type of wiring | Single connection |
| External safeguarding for supply circuit | 2A type Gg (or equivalent) |
| Performance data | |
| Supply voltage U _B | 24 V, DC, -10 ... 10 % |
| Current consumption, max. | 1,200 mA |

Inputs

| | |
|---|------------|
| Number of safety-related switching inputs | 2 Piece(s) |
| Number of digital switching inputs | 3 Piece(s) |

Switching inputs

| | |
|----------------------------|-------------------------|
| Type | Digital switching input |
| Switching voltage, type. | 24 V |
| Voltage type | DC |
| Current consumption, type. | 5 mA |

Digital switching input 1

| | |
|----------|-------------------------------------|
| Function | IE1 activation input: electromagnet |
|----------|-------------------------------------|

Digital switching input 2

| | |
|----------|-------------------------------------|
| Function | IE2 activation input: electromagnet |
|----------|-------------------------------------|

Digital switching input 3

| | |
|----------|----------------------------|
| Function | I3 control input for reset |
|----------|----------------------------|

Safety-related switching inputs

| | |
|--------------------------|------------------------|
| Type | Safety switching input |
| Voltage type | DC |
| Switching voltage, type. | 24 V |

| | |
|----------------------------|------|
| Current consumption, type. | 5 mA |
|----------------------------|------|

Outputs

| | |
|--|------------|
| Number of safety-related switching outputs (OSSDs) | 2 Piece(s) |
| Number of digital switching outputs | 1 Piece(s) |

Safety-related switching outputs

| | |
|--------------|--------------------------------------|
| Type | Safety-related switching output OSSD |
| Voltage type | DC |

Safety-related switching output 1

| | |
|-------------------|-----------------|
| Switching element | Transistor, PNP |
|-------------------|-----------------|

Safety-related switching output 2

| | |
|-------------------|-----------------|
| Switching element | Transistor, PNP |
|-------------------|-----------------|

Switching outputs

| | |
|--------------------------|--------------------------|
| Type | Digital switching output |
| Switching voltage, type. | 24 V |
| Voltage type | DC |

Switching output 1

| | |
|-------------------|--|
| Switching element | Transistor, PNP |
| Function | O3 signal output: protective-device closed |

Connection

| | |
|-----------------------|------------|
| Number of connections | 1 Piece(s) |
|-----------------------|------------|

Connection 1

| | |
|---------------------------|---------------------|
| Function | Connection with PLC |
| | Contact connection |
| | Voltage supply |
| Type of connection | |
| Cable length | 200 mm |
| Cable color | Black |
| Number of conductors | 8 -wire |
| Thread size | M12 |
| Type | Male |
| Material | Metal |
| No. of pins | 8 -pin |
| Encoding | A-coded |

Cable properties

Mechanical data

| | |
|-------------------------------------|--|
| Design | Cubic |
| Dimension (W x H x L) | 40 mm x 178 mm x 40 mm |
| Housing material | Plastic |
| Net weight | 500 g |
| Housing color | Gray |
| Type of fastening | Through-hole mounting |
| Side of cable entry | Lateral |
| Switch type | Interlock device with guard interlocking |
| Approach speed | 0.001 ... 0.5 m/s |
| Locking type | Electromagnetic |
| Locking actuation | Magnet |
| Locking force, max. | 2,100 N |
| Mechanical life time | 1,000,000 actuation cycles, IEC 60947-5-1 switching cycles |
| Actuation frequency, max. | 600 per hour, IEC 60947-5-1 |
| Extraction force, unlocked actuator | 20 N |

Technical data

RFID sensor data

| | |
|-------------------------------------|---|
| Assured operating distance S_{ao} | 2 mm |
| Assured cut-out distance S_{ar} | 10 mm (actuator locked) 6 mm (actuator not locked) |
| Nominal switching distance S_n | 3 mm |
| Repeatability | $\leq 10\% S_n$ |
| Differential travel | $\leq 20\% S_n$ |
| Max. switching frequency | 1 Hz |

Operation and display

| | |
|-----------------|------------|
| Type of display | LED |
| Number of LEDs | 5 Piece(s) |

Environmental data

| | |
|--------------------------------|---------------|
| Ambient temperature, operation | -20 ... 50 °C |
| Ambient temperature, storage | -40 ... 75 °C |

Classification

| | |
|--------------|----------|
| ECLASS 5.1.4 | 27272603 |
| ECLASS 8.0 | 27272603 |
| ECLASS 9.0 | 27272603 |
| ECLASS 10.0 | 27272603 |
| ECLASS 11.0 | 27272603 |
| ECLASS 12.0 | 27272603 |
| ECLASS 13.0 | 27272603 |
| ECLASS 14.0 | 27272603 |
| ECLASS 15.0 | 27272603 |
| ECLASS 16.0 | 27272603 |
| ETIM 5.0 | EC002593 |
| ETIM 6.0 | EC002593 |
| ETIM 7.0 | EC002593 |
| ETIM 8.0 | EC002593 |
| ETIM 9.0 | EC002593 |
| ETIM 10.0 | EC002593 |

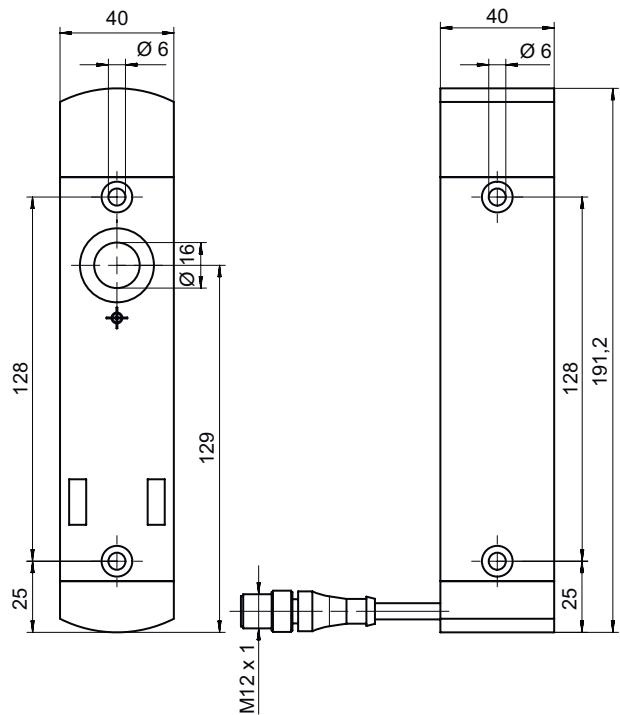
Certifications

| | |
|----------------------|---------|
| Degree of protection | IP 67 |
| | IP 69K |
| Approvals | c UL US |
| | ECOLAB |
| | TÜV Süd |

Dimensioned drawings

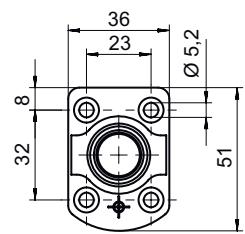
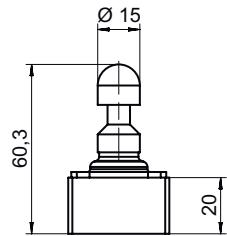
All dimensions in millimeters

Safety locking device



Dimensioned drawings

Actuator

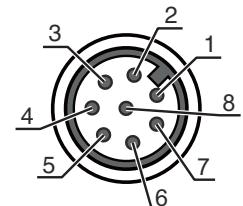


Electrical connection

Connection 1

| | |
|----------------------|---------------------|
| Function | Connection with PLC |
| Type of connection | Contact connection |
| Cable length | 200 mm |
| Cable color | Black |
| Number of conductors | 8-wire |
| Thread size | M12 |
| Type | Male |
| Material | Metal |
| No. of pins | 8-pin |
| Encoding | A-coded |

| Pin | Pin assignment | Conductor color |
|-----|--|-----------------|
| 1 | A1 +24 V | White |
| 2 | O3 signal output: protective-device closed | Brown |
| 3 | A2 +0 V | Green |
| 4 | OS1 safe output | Yellow |
| 5 | IE2 activation input: electromagnet | Gray |
| 6 | I3 control input for reset | Pink |
| 7 | OS2 safe output | Blue |
| 8 | IE1 activation input: electromagnet | Red |



Notes

NOTE



↳ The wire color specifications refer to the connection cables listed in the accessories.

Accessories

Connection technology - Connection cables

| Part no. | Designation | Article | Description |
|----------|-------------|--------------------|---|
| | 50135128 | KD S-M12-8A-P1-050 | Connection cable Application: Oil and lubricant resistant Connection 1: Connector, M12, Axial, Female, A-coded, 8 -pin Connector, LED: No Connection 2: Open end Shielded: Yes Cable length: 5,000 mm Sheathing material: PUR |
| | 50135129 | KD S-M12-8A-P1-100 | Connection cable Application: Oil and lubricant resistant Connection 1: Connector, M12, Axial, Female, A-coded, 8 -pin Connector, LED: No Connection 2: Open end Shielded: Yes Cable length: 10,000 mm Sheathing material: PUR |
| | 50135121 | KD U-M12-8A-P1-020 | Connection cable Application: Oil and lubricant resistant Connection 1: Connector, M12, Axial, Female, A-coded, 8 -pin Connector, LED: No Connection 2: Open end Shielded: No Cable length: 2,000 mm Sheathing material: PUR |
| | 50135122 | KD U-M12-8A-P1-050 | Connection cable Application: Oil and lubricant resistant Connection 1: Connector, M12, Axial, Female, A-coded, 8 -pin Connector, LED: No Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PUR |

Actuators

| Part no. | Designation | Article | Description |
|----------|-------------|-------------|--|
| | 50142097 ** | AC-L250-SCA | Actuator Code type: Standard code Encoding level: Low, EN ISO 14119 Housing material: Plastic Housing color: Black Type of fastening: Through-hole mounting |

** Included in delivery contents

Accessories

General

| Part no. | Designation | Article | Description |
|---|-------------|-----------------------|---|
|  | 50149361 | AC-L250-LCKL | Lockout device Suitable for: L250 safety locking devices Housing color: Black, Red Mounting: On left side Material: Metal, with powder coating |
|  | 50149360 | AC-L250-LCKR | Lockout device Suitable for: L250 safety locking devices Housing color: Black, Red Mounting: On right side Material: Metal, with powder coating |
|  | 50149305 | AC-L250-SH2-G0-B000-Z | Safety door handle Suitable for: L250 safety locking devices |
|  | 50149355 | CD-B1-Z-C01 | Command device Functions: Protected screw fitting, Dimensions and design identical to L250 series locking devices Switching current via button: 0 ... 550 mA Housing material: Plastic, Glass fiber reinforced, self-extinguishing, shock-resistant Type of fastening: Through-hole mounting, Wall mounting Type of display: Continuous light, LED Operational controls: 1 command device (pushbutton blue) Degree of protection: IP 65 |
|  | 50149356 | CD-B2-Z-C01 | Command device Functions: Protected screw fitting, Dimensions and design identical to L250 series locking devices Switching current via button: 0 ... 550 mA Housing material: Plastic, Glass fiber reinforced, self-extinguishing, shock-resistant Type of fastening: Through-hole mounting, Wall mounting Type of display: LED, Continuous light Operational controls: 2 command devices (blue pushbutton, white pushbutton) Degree of protection: IP 65 |
|  | 50149357 | CD-B3-Z-C01 | Command device Functions: Position-dependent E-Stop command input, Dimensions and design identical to L250 series locking devices, Protected screw fitting, Reset function (via rotary knob, for E-Stop button) Switching current via button: 0 ... 550 mA Housing material: Plastic, Glass fiber reinforced, self-extinguishing, shock-resistant Type of fastening: Through-hole mounting, Wall mounting Type of display: LED, Continuous light Operational controls: 1 E-Off switch, 2 command devices (blue pushbutton, white pushbutton) Degree of protection: IP 65 |

Note

 A list with all available accessories can be found on the Leuze website in the Download tab of the article detailed page.