

# Technical data sheet

## Safety locking device

Part no.: 50154627

L250-P31SL-CB02M12S8-PB-SCA

### Contents

- Technical data
- Dimensioned drawings
- Electrical connection
- Notes
- Accessories



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 release – Actuator locked if electromagnet is deactivated        |

### Characteristic parameters

|                             |                                       |
|-----------------------------|---------------------------------------|
| SIL                         | 3, IEC 61508                          |
| SILCL                       | 3, IEC/EN 62061                       |
| Performance Level (PL)      | Up to and including e, EN ISO 13849-1 |
| MTTF <sub>d</sub>           | 2,254 years, EN ISO 13849-1           |
| PFH <sub>d</sub>            | 1.23E-09 per hour                     |
| Mission time T <sub>M</sub> | 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 <sub>B</sub> | 24 V, DC, -10 ... 10 % |
| Current consumption, max.     | 1,200 mA               |

#### Inputs

|                                    |            |
|------------------------------------|------------|
| 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                    |
| Teach input for actuator   | Yes                     |

#### 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 |
|----------|----------------------------|

#### 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 with connector |
| 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 191.2 mm x 79.3 mm                                 |
| Housing material                    | Plastic                                                    |
| Net weight                          | 500 g                                                      |
| Housing color                       | Gray                                                       |
| Type of fastening                   | Through-hole mounting                                      |
| Side of cable entry                 | Lateral                                                    |
| Release device                      | Auxiliary release                                          |
|                                     | Escape release button                                      |
| Switch type                         | Interlock device with guard interlocking                   |
| Approach speed                      | 0.001 ... 0.5 m/s                                          |
| Locking type                        | Spring force                                               |
| Locking actuation                   | Spring                                                     |
| 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                                                       |

### RFID sensor data

|                                            |                            |
|--------------------------------------------|----------------------------|
| Assured operating distance S <sub>ao</sub> | 2 mm                       |
| Assured cut-out distance S <sub>ar</sub>   | 10 mm (actuator locked)    |
|                                            | 6 mm (actuator not locked) |
| Nominal switching distance S <sub>n</sub>  | 3 mm                       |
| Repeatability                              | ≤ 10 % S <sub>n</sub>      |
| Differential travel                        | ≤ 20 % S <sub>n</sub>      |
| Max. switching frequency                   | 1 Hz                       |

## Technical data

### 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 |

### Certifications

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

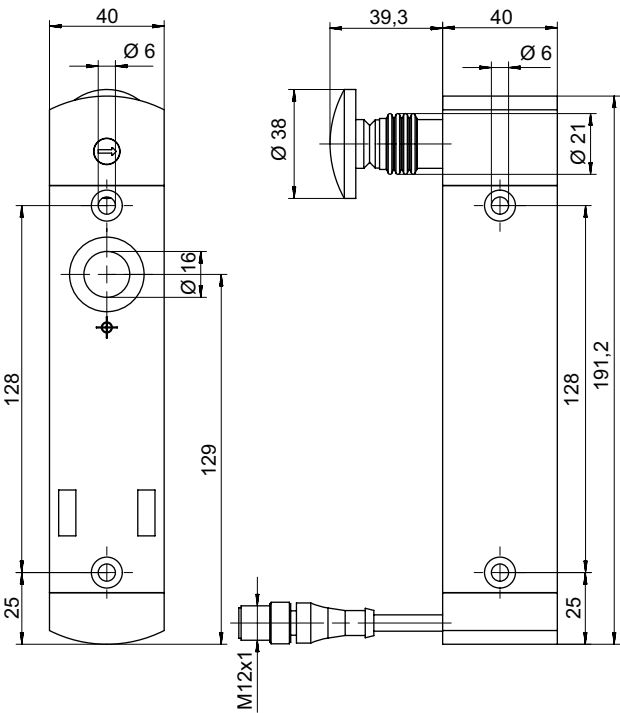
### Classification

|              |          |
|--------------|----------|
| 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 |
| ETIM 5.0     | EC002593 |
| ETIM 6.0     | EC002593 |
| ETIM 7.0     | EC002593 |
| ETIM 8.0     | EC002593 |
| ETIM 9.0     | EC002593 |
| ETIM 10.0    | EC002593 |

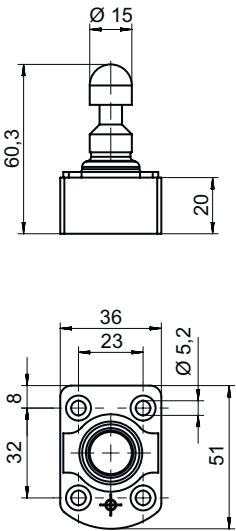
Dimensioned drawings

All dimensions in millimeters

Safety locking device



Actuator



Electrical connection

Connection 1

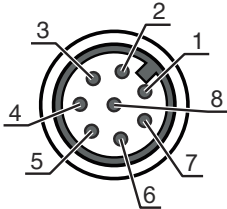
|                    |                      |
|--------------------|----------------------|
| Function           | Connection with PLC  |
|                    | Contact connection   |
|                    | Voltage supply       |
| Type of connection | Cable with connector |
| Cable length       | 200 mm               |
| Cable color        | Black                |

Electrical connection

Connection 1

|                      |         |
|----------------------|---------|
| 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 programming input / 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 | Connection 1: Connector, M12, Axial, Female, A-coded, 8 -pin<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: Yes<br>Cable length: 5.000 mm<br>Sheathing material: PUR  |
|  | 50135129 | KD S-M12-8A-P1-100 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 8 -pin<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: Yes<br>Cable length: 10.000 mm<br>Sheathing material: PUR |
|  | 50135121 | KD U-M12-8A-P1-020 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 8 -pin<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 2.000 mm<br>Sheathing material: PUR   |

## Accessories

|                                                                                   | Part no. | Designation        | Article          | Description                                                                                                                                                                       |
|-----------------------------------------------------------------------------------|----------|--------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50135122 | KD U-M12-8A-P1-050 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 8 -pin<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 5.000 mm<br>Sheathing material: PUR |

## Actuators

|                                                                                  | Part no.    | Designation | Article  | Description                                                                                                                                                                                             |
|----------------------------------------------------------------------------------|-------------|-------------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50142097 ** | AC-L250-SCA | Actuator | Code type: Standard code<br>Encoding level: Low, EN ISO 14119<br>Dimensions: 40 mm x 48.1 mm x 59.4 mm<br>Housing material: Plastic<br>Housing color: Black<br>Type of fastening: Through-hole mounting |

\*\* Included in delivery contents

## General

|                                                                                     | Part no. | Designation           | Article               | Description                                                                                                                                                                                                                                                                                                                          |
|-------------------------------------------------------------------------------------|----------|-----------------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50149361 | AC-L250-LCKL          | Lockout device        | Dimensions: 52 mm x 63 mm x 140 mm<br>Housing color: Black, Red<br>Mounting: On left side<br>Material: Metal, with powder coating                                                                                                                                                                                                    |
|  | 50149360 | AC-L250-LCKR          | Lockout device        | Dimensions: 52 mm x 63 mm x 140 mm<br>Housing color: Black, Red<br>Mounting: On right side<br>Material: Metal, with powder coating                                                                                                                                                                                                   |
|   | 50149363 | AC-L250-RPB-C01       | Remote escape release | Dimensions: 30 mm x 90 mm x 66 mm<br>Housing color: Red, White                                                                                                                                                                                                                                                                       |
|   | 50149305 | AC-L250-SH2-G0-B000-Z | Safety door handle    |                                                                                                                                                                                                                                                                                                                                      |
|  | 50149355 | CD-B1-Z-C01           | Command device        | Functions: Protected screw fitting, Dimensions and design identical to L250 series locking devices<br>Switching current via button: 0 ... 550 mA<br>Housing material: Plastic, Glass fiber reinforced, self-extinguishing, shock-resistant<br>Type of fastening: Through-hole mounting, Wall mounting<br>Degree of protection: IP 65 |

Accessories

|                                                                                   | Part no. | Designation | Article        | Description                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------------------------------------------------------------------|----------|-------------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50149356 | CD-B2-Z-C01 | Command device | Functions: Protected screw fitting, Dimensions and design identical to L250 series locking devices<br>Switching current via button: 0 ... 550 mA<br>Housing material: Plastic, Glass fiber reinforced, self-extinguishing, shock-resistant<br>Type of fastening: Through-hole mounting, Wall mounting<br>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)<br>Switching current via button: 0 ... 550 mA<br>Housing material: Plastic, Glass fiber reinforced, self-extinguishing, shock-resistant<br>Type of fastening: Through-hole mounting, Wall mounting<br>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.