

# Technical data sheet

## Safety locking device

Part no.: 50145105

L300-B2-M41M23B19-MLM24-PB-UCA



For illustration purposes only

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- Technical data
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## Technical data

### Basic data

|          |                          |
|----------|--------------------------|
| Series   | L300-B2                  |
| Contains | 1x actuator              |
|          | 1x safety locking device |

### 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 <sub>d</sub>           | 2,968 years, EN ISO 13849-1           |
| PFH <sub>D</sub>            | 1.15E-9 per hour                      |
| Mission time T <sub>M</sub> | 20 years, EN ISO 13849-1              |
| Category                    | 4, EN ISO 13849-1                     |
| DC                          | High                                  |
| Encoding level              | High, EN ISO 14119                    |

### Electrical data

|                                          |                            |
|------------------------------------------|----------------------------|
| Type of wiring                           | Series connection          |
|                                          | 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 safety-related switching inputs | 2 Piece(s) |
| Number of digital switching inputs        | 2 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 | I4 activation input: electromagnet |
|----------|------------------------------------|

#### Digital switching input 2

|          |                                                |
|----------|------------------------------------------------|
| Function | I3 programming input / 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                | 2 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 |
| Voltage type | DC                       |

#### Switching output 1

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

#### Switching output 2

|                   |                                            |
|-------------------|--------------------------------------------|
| Switching element | Transistor, PNP                            |
| Function          | O4 signal output: protective-device locked |

### Connection

#### Connection 1

|                    |                     |
|--------------------|---------------------|
| Function           | Connection with PLC |
|                    | Contact connection  |
|                    | Voltage supply      |
| Type of connection | Connector           |
| Thread size        | M23                 |
| Type               | Male                |
| Material           | Metal               |
| No. of pins        | 19 -pin             |
| Encoding           | A-coded             |

### Cable properties

### Mechanical data

|                                     |                                                            |
|-------------------------------------|------------------------------------------------------------|
| Design                              | Cubic                                                      |
| Housing material                    | Metal                                                      |
| Net weight                          | 1,900 g                                                    |
| Housing color                       | Gray                                                       |
|                                     | Red                                                        |
| Type of fastening                   | Through-hole mounting                                      |
| Side of cable entry                 | From below                                                 |
| Release device                      | Escape release button                                      |
| Switch type                         | Interlock device with guard interlocking                   |
| Approach speed                      | 0.001 ... 0.5 m/s                                          |
| Locking type                        | Electromagnetic                                            |
| Locking actuation                   | Magnet                                                     |
| Locking force, max.                 | 9,750 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 | 30 N                                                       |

## Technical data

### RFID sensor data

|                                     |                            |
|-------------------------------------|----------------------------|
| Assured operating distance $S_{ao}$ | 2 mm                       |
| Assured cut-out distance $S_{ar}$   | 10 mm (actuator locked)    |
|                                     | 4 mm (actuator not locked) |
| Nominal switching distance $S_n$    | 2.5 mm                     |
| Repeatability                       | $\leq 10\% S_n$            |
| Max. switching frequency            | 1 Hz                       |

### Operation and display

|                                     |                                                     |
|-------------------------------------|-----------------------------------------------------|
| Type of display                     | LED                                                 |
| Number of LEDs                      | 5 Piece(s)                                          |
| Operational controls                | 3 command devices                                   |
| Function of the operational control | Button illuminates with icon "Acknowledge", blue    |
|                                     | Button illuminates with icon "Request", white       |
|                                     | E-Stop button, not illuminated, with rotary release |

### Environmental data

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

### Certifications

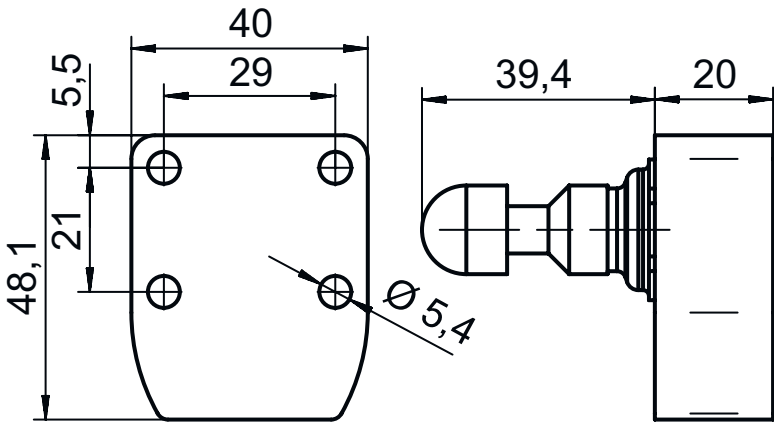
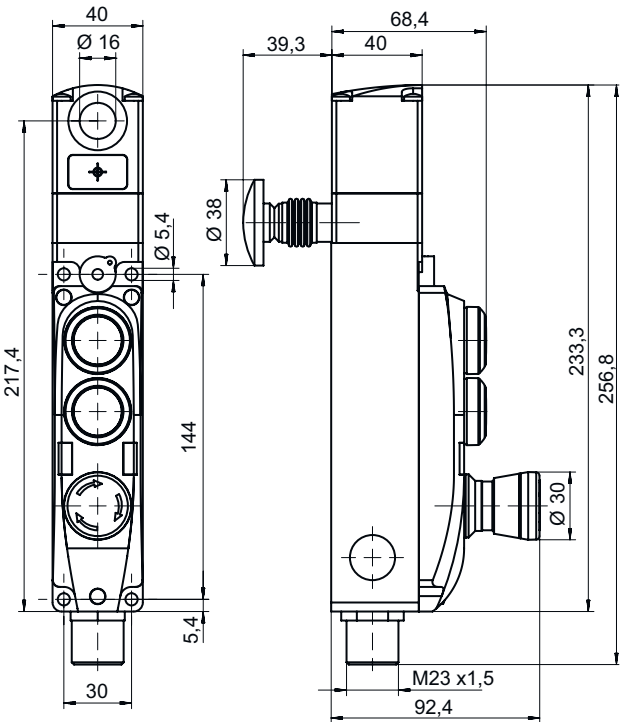
|                      |         |
|----------------------|---------|
| Degree of protection | IP 65   |
| Approvals            | c UL US |
|                      | ECOLAB  |
|                      | TÜV Süd |

### 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



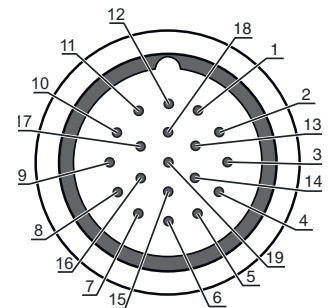
Electrical connection

Connection 1

|                    |                     |
|--------------------|---------------------|
| Function           | Connection with PLC |
|                    | Contact connection  |
|                    | Voltage supply      |
| Type of connection | Connector           |
| Thread size        | M23                 |
| Type               | Male                |
| Material           | Metal               |
| No. of pins        | 19 -pin             |
| Encoding           | A-coded             |

## Electrical connection

| Pin | Pin assignment                                 | Conductor color |
|-----|------------------------------------------------|-----------------|
| 1   | I4 activation input: electromagnet             | Violet          |
| 2   | IS1 safe input                                 | Red             |
| 3   | IS2 safe input                                 | Gray            |
| 4   | OS1 safe output                                | Blue / Red      |
| 5   | OS2 safe output                                | Green           |
| 6   | A1 +24 V                                       | Blue            |
| 7   | I3 programming input / control input for reset | Gray / Pink     |
| 8   | O3 signal output: protective-device closed     | Green / White   |
| 9   | O4 signal output: protective-device locked     | White / Yellow  |
| 10  | Device 3, contact 1                            | Gray / White    |
| 11  | Device 3, contact 1                            | Black           |
| 12  | n.c.                                           | Green / Yellow  |
| 13  | Device 3, contact 2                            | Brown / Yellow  |
| 14  | Device 3, contact 2                            | Brown / Green   |
| 15  | Device 2, contact 1                            | White           |
| 16  | LED2 +24 V                                     | Yellow          |
| 17  | Device 1, contact 1                            | Pink            |
| 18  | LED1 +24 V                                     | Brown / Gray    |
| 19  | A2 +0 V                                        | Brown           |



## Accessories

### Connection technology - Connection cables

|  | Part no. | Designation        | Article          | Description                                                                                                                                                                         |
|--|----------|--------------------|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50134971 | KD U-M23-JA-P1-050 | Connection cable | Connection 1: Connector, M23, Axial, Female, A-coded, 19 -pin<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 5.000 mm<br>Sheathing material: PUR  |
|  | 50134972 | KD U-M23-JA-P1-100 | Connection cable | Connection 1: Connector, M23, Axial, Female, A-coded, 19 -pin<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 10.000 mm<br>Sheathing material: PUR |
|  | 50136636 | KD U-M23-JA-P1-150 | Connection cable | Connection 1: Connector, M23, Axial, Female, A-coded, 19 -pin<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 15.000 mm<br>Sheathing material: PUR |

## Actuators

|  | Part no.    | Designation | Article  | Description                                                                                                                                                             |
|--|-------------|-------------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50132062 ** | AC-L300-UCA | Actuator | Code type: Unique code<br>Encoding level: high, EN ISO 14119<br>Dimensions: 40 mm x 48.1 mm x 59.4 mm<br>Housing color: Red<br>Type of fastening: Through-hole mounting |

\*\* Included in delivery contents

Accessories

General

|                                                                                  | Part no. | Designation           | Article            | Description                                                                                             |
|----------------------------------------------------------------------------------|----------|-----------------------|--------------------|---------------------------------------------------------------------------------------------------------|
|  | 50149358 | AC-L300-LCK           | Lockout device     | Dimensions: 45 mm x 43 mm x 134 mm<br>Housing color: Black, Red<br>Material: Metal, with powder coating |
|                                                                                  | 50149359 | AC-L300-LCK-A1        | Lockout device     | Dimensions: 52 mm x 63 mm x 359 mm<br>Housing color: Black, Red<br>Material: Metal, with powder coating |
|                                                                                  | 50149304 | AC-L300-SH2-G0-B000-Z | Safety door handle |                                                                                                         |

Note



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