



Figure can vary

**Part no.: 66063100**

**MLD330-R2**

**Multiple light beam safety device receiver**



## Contents

- Technical data
- Dimensioned drawings
- Electrical connection
- Operation and display
- Suitable transmitters
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## Technical data

| <b>Basic data</b> |          |
|-------------------|----------|
| Series            | MLD 300  |
| Device type       | Receiver |

| <b>Functions</b> |  |
|------------------|--|
| Functions        | Alternative connection for second muting signal<br>Contactor monitoring (EDM), selectable<br>Muting enable function<br>Muting-timeout extension<br>Partial muting<br>Sequence controlled 2-sensor muting<br>Start/restart interlock (RES)<br>Timing controlled 2-sensor muting |

| <b>Characteristic parameters</b> |                            |
|----------------------------------|----------------------------|
| Type                             | 2 , IEC/EN 61496           |
| SIL                              | 1 , IEC 61508              |
| SILCL                            | 1 , IEC/EN 62061           |
| Performance Level (PL)           | c , EN ISO 13849-1         |
| MTTF <sub>d</sub>                | 204 years , EN ISO 13849-1 |
| PFH <sub>D</sub>                 | 1.2E-08 per hour           |
| Mission time T <sub>M</sub>      | 20 years , EN ISO 13849-1  |
| Category                         | 3 , EN ISO 13849           |

| <b>Optical data</b> |            |
|---------------------|------------|
| Number of beams     | 2 Piece(s) |
| Beam spacing        | 500 mm     |

| <b>Electrical data</b>      |  |
|-----------------------------|--|
| Selection of operating mode | Connection 1, pin 2: +24 V for operating mode 1, 2, 4<br>Connection 1, pin 2: 0 V for operating mode 3, 5, 6<br>Connection 1, pin 7: +24 V for operating mode 3, 5, 6<br>Connection 1, pin 7: 0 V for operating mode 1, 2, 4 |
| Protective circuit          | Overvoltage protection<br>Short circuit protected  |

| <b>Performance data</b>       |                                |
|-------------------------------|--------------------------------|
| Supply voltage U <sub>B</sub> | 24 V , DC , -20 ... 20 %       |
| Current consumption, max.     | 150 mA , Without external load |
| Fuse                          | External with max. 3 A         |

| <b>Inputs</b>                      |   |
|------------------------------------|---|
| Number of digital switching inputs | 4 Piece(s)                                      |
| <b>Switching inputs</b>            |   |
| Type                               | Digital switching input                         |
| Switching voltage high, min.       | 18.2 V  |
| Switching voltage low, max.        | 2.5 V   |
| Switching voltage, typ.            | 23 V  |
| Voltage type                       | DC  |
| Switching current, max.            | 5 mA  |
| <b>Digital switching input 1</b>   |   |
| Assignment                         | Connection 1, pin 1                             |
| Function                           | Control input for start/restart interlock (RES) |
| <b>Digital switching input 2</b>   |   |
| Assignment                         | Connection 1, pin 3                             |
| Function                           | Control input for contactor monitoring (EDM)    |
| <b>Digital switching input 3</b>   |   |
| Assignment                         | Connection 1, pin 4                             |
| Function                           | Control input, second muting signal             |
| <b>Digital switching input 4</b>   |   |
| Assignment                         | Connection 1, pin 8                             |
| Function                           | Control input, muting enable/ timeout           |

| <b>Outputs</b>                                     |                                      |
|--|--------------------------------------|
| Number of safety-related switching outputs (OSSDs) | 2 Piece(s)                           |
| Number of digital switching outputs                | 1 Piece(s)                           |
| <b>Safety-related switching outputs</b>            |                                      |
| Type   | Safety-related switching output OSSD |
| Switching voltage high, min.                       | 18.2 V                               |
| Switching voltage low, max.                        | 2.5 V                                |
| Switching voltage, typ.                            | 23 V                                 |
| Voltage type                                       | DC                                   |
| Current load, max.                                 | 380 mA                               |
| Load inductivity                                   | 2,200,000 µH                         |
| Load capacity                                      | 0.3 µF                               |
| Residual current, max.                             | 0.2 mA                               |
| Residual current, typ.                             | 0.002 mA                             |
| Voltage drop                                       | 1 V                                  |
| <b>Safety-related switching output 1</b>           |                                      |
| Assignment   | Connection 1, pin 6                  |
| Switching element                                  | Transistor , PNP                     |
| <b>Safety-related switching output 2</b>           |                                      |
| Assignment   | Connection 1, pin 5                  |
| Switching element                                  | Transistor , PNP                     |
| <b>Switching outputs</b>                           |                                      |
| Type   | Digital switching output             |
| Switching voltage high, min.                       | 18.2 V                               |
| Switching voltage low, max.                        | 2.5 V                                |
| Switching voltage, typ.                            | 23 V                                 |
| Voltage type                                       | DC                                   |
| <b>Switching output 1</b>                          |                                      |
| Assignment   | Connection 1, pin 1                  |
| Switching element                                  | Transistor , PNP                     |

| <b>Timing</b>      |        |
|--------------------|--------|
| Response time      | 50 ms  |
| Restart delay time | 100 ms |

| <b>Connection</b>     |                   |
|-----------------------|-------------------|
| Number of connections | 2 Piece(s)        |
| <b>Connection 1</b>   |                   |
| Type of connection    | Connector         |
| Function              | Machine interface |
| Thread size           | M12               |
| Material              | Metal             |
| No. of pins           | 8 -pin            |
| <b>Connection 2</b>   |                   |
| Type of connection    | Connector         |
| Function              | Local interface   |
| Thread size           | M12               |
| Material              | Metal             |
| No. of pins           | 5 -pin            |

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### Cable properties

|  |                      |
|--|----------------------|
| Permissible conductor cross section, typ.  | 0.25 mm <sup>2</sup> |
| Length of connection cable, max.           | 100 m                |
| Permissible cable resistance to load, max. | 200 Ω                |

### Mechanical data

|                       |                                 |
|-----------------------|---------------------------------|
| Dimension (W x H x L) | 52 mm x 600 mm x 64.7 mm        |
| Housing material      | Metal , Aluminum                |
| Lens cover material   | Plastic / PMMA                  |
| Material of end caps  | Diecast zinc                    |
| Net weight            | 1,400 g                         |
| Housing color         | Yellow, RAL 1021                |
| Type of fastening     | Groove mounting<br>Swivel mount |

### Operation and display

|                 |            |
|-----------------|------------|
| Type of display | LED        |
| Number of LEDs  | 2 Piece(s) |

### Environmental data

|                                    |               |
|------------------------------------|---------------|
| Ambient temperature, operation     | -30 ... 55 °C |
| Ambient temperature, storage       | -40 ... 75 °C |
| Relative humidity (non-condensing) | 0 ... 95 %    |

### Certifications

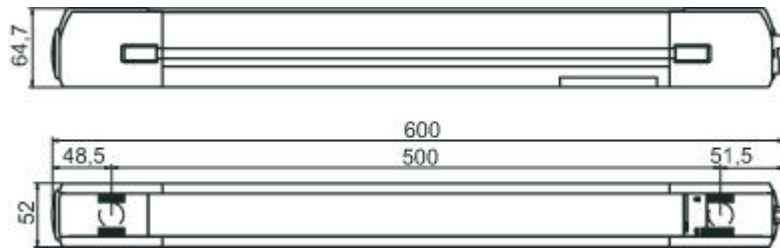
|                      |                                      |
|----------------------|--------------------------------------|
| Degree of protection | IP 67                                |
| Protection class     | III                                  |
| Certifications       | c CSA US<br>c TÜV NRTL US<br>TÜV Süd |
| US patents           | US 6,418,546 B<br>US 7,741,595 B     |

### Classification

|                       |          |
|-----------------------|----------|
| Customs tariff number | 85365019 |
| eCl@ss 8.0            | 27272703 |
| eCl@ss 9.0            | 27272703 |
| ETIM 5.0              | EC001832 |
| ETIM 6.0              | EC001832 |

## Dimensioned drawings

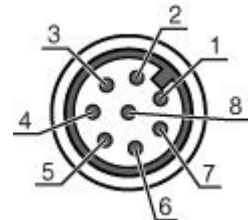
All dimensions in millimeters



## Electrical connection

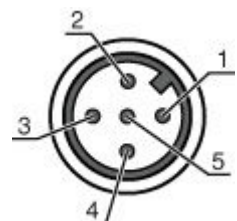
| Connection 1       |                   |
|--------------------|-------------------|
| Type of connection | Connector         |
| Function           | Machine interface |
| Thread size        | M12               |
| Type               | Male              |
| Material           | Metal             |
| No. of pins        | 8 -pin            |
| Encoding           | A-coded           |

| Pin | Pin assignment | Conductor color |
|-----|----------------|-----------------|
| 1   | RES            | White           |
| 2   | VIN            | Brown           |
| 3   | EDM            | Green           |
| 4   | MS2            | Yellow          |
| 5   | OSSD2          | Gray            |
| 6   | OSSD1          | Pink            |
| 7   | VIN            | Blue            |
| 8   | M-EN/TO        | Red             |



| Connection 2       |                 |
|--------------------|-----------------|
| Type of connection | Connector       |
| Function           | Local interface |
| Thread size        | M12             |
| Type               | Female          |
| Material           | Metal           |
| No. of pins        | 5 -pin          |
| Encoding           | A-coded         |

| Pin | Pin assignment | Conductor color |
|-----|----------------|-----------------|
| 1   | +24V           | Brown           |
| 2   | MS2            | White           |
| 3   | 0 V            | Blue            |
| 4   | MS1            | Black           |
| 5   | RES/LMP        | Gray            |




## Operation and display

### LEDs

| LED | Display                  | Meaning  |
|-----|--------------------------|--|
| 1   | Red, continuous light    | OSSD off.  |
|     | Green, continuous light  | OSSD on  |
|     | Red, flashing, 1 Hz      | External error                                       |
|     | Red, flashing, 10 Hz     | Internal error                                       |
|     | Green, flashing, 1 Hz    | Weak signal, device not optimally aligned or soiled. |
| 2   | Yellow, continuous light | Start/restart interlock locked.                      |

### Suitable transmitters

|  | Part no. | Designation | Article                                       | Description   |
|--|----------|-------------|---|---|
|  | 66001100 | MLD300-T2   | Multiple light beam safety device transmitter | Operating range: 0.5 ... 50 m<br>Number of beams: 2 Piece(s)<br>Beam spacing: 500 mm<br>Connection: Connector, M12, Metal, 5 -pin |

### Part number code

Part designation: **MLDxyy-zab/t**

| MLD | Multiple light beam safety device  |
|-----|--|
| x   | <b>Series:</b><br>3: MLD 300<br>5: MLD 500   |
| yy  | <b>Function classes:</b><br>00: Transmitter<br>10: automatic restart<br>12: external testing<br>20: EDM/RES<br>30: muting<br>35: timing controlled 4-sensor muting   |
| z   | <b>Device type:</b><br>T: transmitter<br>R: receiver<br>RT: transceiver<br>xT: transmitter with high range<br>xR: receiver for high range  |
| a   | Number of beams  |
| b   | <b>Option:</b><br>L: integrated laser alignment aid (for transmitter/receiver)<br>M: integrated status indicator (MLD 320, MLD 520) or integrated status and muting indicator (MLD 330, MLD 335, MLD 510/A, MLD 530, MLD 535)<br>E: connection socket for external muting indicator (AS-i models only) |
| /t  | <b>Safety-related switching outputs (OSSDs), connection technology:</b><br>-: transistor output, M12 plug<br>A: integrated AS-i interface, M12 plug, (safety bus system)   |

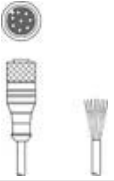
#### Note

A list with all available device types can be found on the Leuze electronic website at [www.leuze.com](http://www.leuze.com).



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## 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>Connection 2: Open end<br>Shielded: Yes<br>Cable length: 5,000 mm<br>Sheathing material: PUR |

## Services

|  | Part no. | Designation | Article                                   | Description  |
|--|----------|-------------|---|--|
|   | S981050  | CS40-I-140  | Safety inspection "Safety light barriers" | Details: Checking of a safety light barrier application in accordance with current standards and guidelines. Inclusion of the device and machine data in a database, production of a test log per application.<br>Conditions: It must be possible to stop the machine, support provided by customer's employees and access to the machine for Leuze employees must be ensured.<br>Restrictions: Travel costs and accommodation expenses charged separately and according to expenditure. |
|  | S981046  | CS40-S-140  | Start-up support                          | Details: For safety devices including stopping time measurement and initial inspection.<br>Conditions: Devices and connection cables are already mounted, price not including travel costs and, if applicable, accommodation expenses.<br>Restrictions: Max. 2 h., no mechanical (mounting) and electrical (wiring) work performed, no changes (attachments, wiring, programming) to third-party components in the nearby environment.   |