# Technical data sheet
# Multiple light beam safety device receiver
Part no.: 66564100
MLD530-R2M


Figure can vary

**Contents**

# Technical data

## Basic data

| | |
|---|---|
| **Series** | MLD 500 |
| **Device type** | Receiver |

## Special design

| | |
|---|---|
| **Special design** | Integrated muting indicator |
| | Integrated status indicator |

## Functions

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

## Characteristic parameters

| | |
|---|---|
| **Type** | 4, IEC/EN 61496 |
| **SIL** | 3, IEC 61508 |
| **SILCL** | 3, IEC/EN 62061 |
| **Performance Level (PL)** | e, EN ISO 13849-1 |
| **$MTTF_d$** | 204 years, EN ISO 13849-1 |
| **$PFH_D$** | 6.6E-09 per hour |
| **Mission time $T_M$** | 20 years, EN ISO 13849-1 |
| **Category** | 4, EN ISO 13849 |

## Optical data

| | |
|---|---|
| **Number of beams** | 2 Piece(s) |
| **Beam spacing** | 500 mm |

## Electrical data

| | |
|---|---|
| **Selection of operating mode** | Connection 1, pin 2: +24 V for operating mode 1, 2, 4 |
| | Connection 1, pin 2: 0 V for operating mode 3, 5, 6 |
| | Connection 1, pin 7: +24 V for operating mode 3, 5, 6 |
| | Connection 1, pin 7: 0 V for operating mode 1, 2, 4 |
| **Protective circuit** | Overvoltage protection |
| | Short circuit protected |

### Performance data

| | |
|---|---|
| **Supply voltage $U_B$** | 24 V, DC, -20 ... 20 % |
| **Current consumption, max.** | 150 mA, Without external load |
| **Fuse** | External with max. 3 A |

### Inputs

| | |
|---|---|
| **Number of digital switching inputs** | 4 Piece(s) |

#### Switching inputs

| | |
|---|---|
| **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 |

#### Digital switching input 1

| | |
|---|---|
| **Assignment** | Connection 1, pin 1 |
| **Function** | Control input for start/restart interlock (RES) |

#### Digital switching input 2

| | |
|---|---|
| **Assignment** | Connection 1, pin 3 |
| **Function** | Control input for contactor monitoring (EDM) |

#### Digital switching input 3

| | |
|---|---|
| **Assignment** | Connection 1, pin 4 |
| **Function** | Control input, second muting signal |

#### Digital switching input 4

| | |
|---|---|
| **Assignment** | Connection 1, pin 8 |
| **Function** | Control input, muting enable/ timeout |

### 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 |
| **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 |

#### Safety-related switching output 1

| | |
|---|---|
| **Assignment** | Connection 1, pin 6 |
| **Switching element** | Transistor, PNP |

#### Safety-related switching output 2

| | |
|---|---|
| **Assignment** | Connection 1, pin 5 |
| **Switching element** | Transistor, PNP |

#### Switching outputs

| | |
|---|---|
| **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 |

#### Switching output 1

| | |
|---|---|
| **Assignment** | Connection 1, pin 1 |
| **Switching element** | Transistor, PNP |
| **Function** | "State of OSSDs" signal output |

## Timing

| | |
|---|---|
| **Response time** | 50 ms |
| **Restart delay time** | 100 ms |

## Connection

| | |
|---|---|
| **Number of connections** | 2 Piece(s) |

# Technical data

### Connection 1

| | |
|---|---|
| **Function** | Machine interface |
| **Type of connection** | Connector |
| **Thread size** | M12 |
| **Material** | Metal |
| **No. of pins** | 8 -pin |

### Connection 2

| | |
|---|---|
| **Function** | Local interface |
| **Type of connection** | Connector |
| **Thread size** | M12 |
| **Material** | Metal |
| **No. of pins** | 5 -pin |

### Cable properties

| | |
|---|---|
| **Permissible conductor cross section, typ.** | 0.25 mm² |
| **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 |
| | Swivel mount |

## Operation and display

| | |
|---|---|
| **Type of display** | Integrated muting indicator |
| | 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

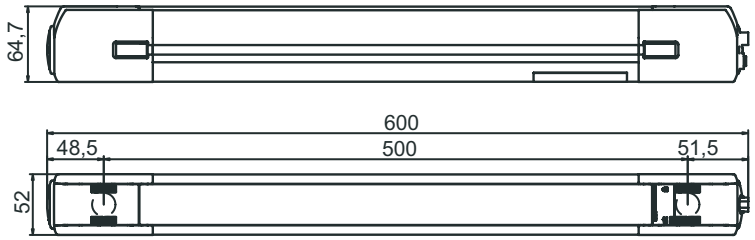
| | |
|---|---|
| **Degree of protection** | IP 67 |
| **Protection class** | III |
| **Certifications** | c CSA US |
| | c TÜV NRTL US |
| | TÜV Süd |
| **US patents** | US 6,418,546 B |
| | US 7,741,595 B |

## 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



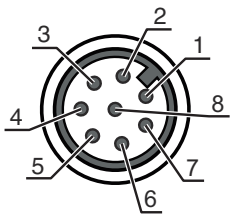

# Electrical connection

## Connection 1

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

# Electrical connection

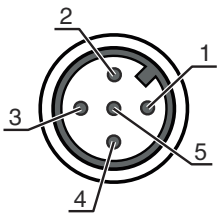
| Pin | Pin assignment | Conductor color |
|---|---|---|
| 1 | RES/OSSD status signal | White |
| 2 | VIN | Brown |
| 3 | EDM | Green |
| 4 | MS2 | Yellow |
| 5 | OSSD2 | Gray |
| 6 | OSSD1 | Pink |
| 7 | VIN | Blue |
| 8 | M-EN/TO | Red |




## Connection 2

| | |
|---|---|
| **Function** | Local interface |
| **Type of connection** | Connector |
| **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

| 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 |
|---|---|---|---|---|
|  | 66501100 | MLD500-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 | **Series**<br>3: MLD 300<br>5: MLD 500 |

# Part number code

| MLD | Multiple light beam safety device |
|---|---|
| **yy** | **Function classes**<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** | **Device type**<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** | **Option**<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** | **Safety-related switching outputs (OSSDs), connection technology**<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 website at www.leuze.com.

# Accessories

## Connection technology - Connection cables

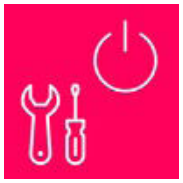
| | Part no. | Designation | Article | Description |
|---|---|---|---|---|
|  | 50135128 | KD S-M12-8A-P1-050 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 8 -pin<br>Connection 2: Open end<br>Shielded: Yes<br>Cable length: 5,000 mm<br>Sheathing material: PUR |

## Mounting technology - Swivel mounts

| | Part no. | Designation | Article | Description |
|---|---|---|---|---|
|  | 560340 | BT-SET-240BC | Mounting bracket set | Fastening, at system: Through-hole mounting<br>Mounting bracket, at device: Clampable<br>Type of mounting device: Turning, 240°<br>Material: Metal |
|  | 540350 | BT-SET-240BC-E | Mounting bracket set | Fastening, at system: Through-hole mounting<br>Mounting bracket, at device: Clampable<br>Type of mounting device: Turning, 240°<br>Material: Metal, Plastic |

# Accessories

## 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. |

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