

## Technical data sheet

### Multiple light beam safety device receiver

Part no.: 66535301

MLD510-R4LM/A



For illustration purposes only

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Technical data

Basic data

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

Special version

|                 |  |
|-----------------|--|
| Special version | Integrated muting indicator                |
|                 | Integrated status indicator                |
|                 | Reflective element for laser alignment aid |

Functions

|  |                   |
|--|-------------------|
| Functions                                  | Automatic restart |
| Reflective element for laser alignment aid | Yes               |
| Integrated muting indicator                | No                |
| Integrated status indicator                | Yes               |

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 <sub>d</sub>           | 204 years, EN ISO 13849-1 |
| PFH <sub>d</sub>            | 6.6E-09 per hour          |
| Mission time T <sub>M</sub> | 20 years, EN ISO 13849-1  |
| Category                    | 4, EN ISO 13849           |

Optical data

|                 |            |
|-----------------|------------|
| Number of beams | 4 Piece(s) |
| Beam spacing    | 300 mm     |

Electrical data

|                                       |                 |
|---------------------------------------|-----------------|
| Performance data                      |                 |
| Supply voltage U <sub>B</sub>         | 26.5 ... 31.6 V |
| Current consumption from AS-i circuit | 140 mA          |

Time behavior

|                    |        |
|--------------------|--------|
| Response time      | 30 ms  |
| Restart delay time | 100 ms |

Interface

|  |                               |
|--|-------------------------------|
| Type                                   | AS-Interface Safety at Work   |
| AS-i                                   |                               |
| Function                               | Process                       |
| AS-i profile                           | S-7.B.1                       |
| Slave address                          | 1..31 programmable, default=0 |
| Cycle time acc. to AS-i specifications | Max. 5 ms                     |

Connection

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

Connection 1

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

Mechanical data

|                       |                            |
|-----------------------|----------------------------|
| Dimension (W x H x L) | 52 mm x 1,000 mm x 64.7 mm |
| Housing material      | Metal                      |
| Metal housing         | Aluminum                   |
| Lens cover material   | Plastic / PMMA             |
| Material of end caps  | Diecast zinc               |
| Net weight            | 2,200 g                    |
| Housing color         | Yellow, RAL 1021           |
| Type of fastening     | Groove mounting            |
|                       | 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            |
| Approvals            | c TÜV NRTL US  |
|                      | c UL US        |
|                      | TÜV Süd        |
| US patents           | US 6,418,546 B |
|                      | US 7,741,595 B |

Classification

|                       |          |
|-----------------------|----------|
| Customs tariff number | 85365019 |
| ECLASS 5.1.4          | 27272703 |
| ECLASS 8.0            | 27272703 |
| ECLASS 9.0            | 27272703 |
| ECLASS 10.0           | 27272703 |
| ECLASS 12.0           | 27272703 |
| ECLASS 13.0           | 27272703 |
| ECLASS 14.0           | 27272703 |
| ETIM 5.0              | EC001832 |
| ETIM 6.0              | EC001832 |
| ETIM 7.0              | EC001832 |
| ETIM 8.0              | EC001832 |
| ETIM 9.0              | EC001832 |

Dimensioned drawings

All dimensions in millimeters

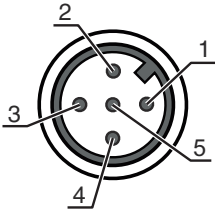


Electrical connection

Connection 1

|                    |                   |
|--------------------|-------------------|
| Function           | Machine interface |
| Type of connection | Connector         |
| Thread size        | M12               |
| Type               | Male              |
| Material           | Metal             |
| No. of pins        | 5 -pin            |
| Encoding           | A-coded           |


| Pin | Pin assignment | Conductor color |
|-----|----------------|-----------------|
| 1   | AS-i+          | Brown           |
| 2   | n.c.           | White           |
| 3   | AS-i-          | Blue            |
| 4   | n.c.           | Black           |
| 5   | n.c.           | 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.                      |
|     | Off  | No voltage on AS-i cable.                            |
|     | Red, continuous light                                  | AS-i slave not communicating with AS-i master        |
|     | Yellow, flashing                                       | AS-i slave has invalid address 0                     |
|     | Red/green, flashing alternately                        | AS-i slave device error or AS-i connection defective |
|     | Green, continuous light, flashing red at the same time | Periphery error                                      |
|     | Green, continuous light                                | AS-i slave communicating with AS-i master            |

Suitable transmitters

|   | Part no. | Designation  | Article                                       | Description  |
|---|----------|--------------|---|--|
|  | 66502301 | MLD500-T4L/A | Multiple light beam safety device transmitter | Special version: Integrated laser alignment aid<br>Operating range: 0.5 ... 50 m<br>Number of beams: 4 Piece(s)<br>Beam spacing: 300 mm<br>Type of interface: AS-Interface Safety at Work<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   |
| 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](http://www.leuze.com).

Accessories



Connection technology - Connection cables

|   | Part no. | Designation        | Article          | Description  |
|---|----------|--------------------|------------------|--|
|  | 50133859 | KD S-M12-5A-P1-020 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: Yes<br>Cable length: 2.000 mm<br>Sheathing material: PUR |



## Accessories

|   | Part no. | Designation        | Article          | Description   |
|---|----------|--------------------|------------------|---|
|  | 50136146 | KD S-M12-5A-P1-250 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: Yes<br>Cable length: 25.000 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<br>Shock absorber: No          |
|  | 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<br>Shock absorber: No |

## Services

|   | Part no. | Designation | Article           | Description  |
|---|----------|-------------|-------------------|--|
|  | S981050  | CS40-I-140  | Safety inspection | 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. |
|  | 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.   |

### Note

|  |  |
|--|--|
|  | <p>🔗 A list with all available accessories can be found on the Leuze website in the Download tab of the article detailed page.</p> |
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