

## Technical data sheet

### Multiple light beam safety device transmitter

Part no.: 66501101

MLD500-T2/A



For illustration purposes only

#### Contents

- Technical data
- Dimensioned drawings
- Electrical connection
- Operation and display
- Suitable receivers
- Part number code
- Accessories



## Technical data

### Basic data

|             |             |
|-------------|-------------|
| Series      | MLD 500     |
| Device type | Transmitter |

### Functions

|                                |                 |
|--------------------------------|-----------------|
| Functions                      | Range reduction |
| Integrated laser alignment aid | No              |

### Characteristic parameters

|                             |                           |
|-----------------------------|---------------------------|
| Type                        | 4, IEC/EN 61496           |
| SIL                         | 3, IEC 61508              |
| SILCL                       | 3, IEC/EN 62061           |
| MTTF <sub>d</sub>           | 204 years, EN ISO 13849-1 |
| Mission time T <sub>M</sub> | 20 years, EN ISO 13849-1  |

### Protective field data

|                 |              |
|-----------------|--------------|
| Operating range | 0.5 ... 50 m |
|-----------------|--------------|

### Optical data

|                                 |                                           |
|---------------------------------|-------------------------------------------|
| Number of beams                 | 2 Piece(s)                                |
| Beam spacing                    | 500 mm                                    |
| Light source                    | LED, Infrared                             |
| Wavelength                      | 850 nm                                    |
| Mean power of transmitter diode | 1.369 µW                                  |
| Transmitted-signal shape        | Pulsed                                    |
| LED risk group                  | Exempt group (in acc. with EN 62471:2008) |

### Electrical data

|                                       |                 |
|---------------------------------------|-----------------|
| <b>Performance data</b>               |                 |
| Supply voltage U <sub>B</sub>         | 26.5 ... 31.6 V |
| Current consumption from AS-i circuit | 50 mA           |

### Interface

|                                        |                               |
|----------------------------------------|-------------------------------|
| Type                                   | AS-Interface Safety at Work   |
| <b>AS-i</b>                            |                               |
| 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)        |
| <b>Connection 1</b>   |                   |
| 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 600 mm x 64.7 mm |
| Housing material      | Metal                    |
| Metal housing         | 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 | 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 UL US<br>TÜV Süd               |
| US patents           | US 6,418,546 B<br>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 11.0           | 27272703 |
| ECLASS 12.0           | 27272703 |
| ECLASS 13.0           | 27272703 |
| ECLASS 14.0           | 27272703 |
| ECLASS 15.0           | 27272703 |
| ECLASS 16.0           | 27272703 |
| ETIM 5.0              | EC001832 |
| ETIM 6.0              | EC001832 |
| ETIM 7.0              | EC001832 |
| ETIM 8.0              | EC001832 |
| ETIM 9.0              | EC001832 |
| ETIM 10.0             | EC001832 |
| UNSPSC 26.08          | 32151804 |

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

LEDs per light axis

Meaning

|                         |                             |
|-------------------------|-----------------------------|
| Green, continuous light | Transmitted beam active     |
| Off                     | Transmitted beam not active |

Suitable receivers

|                                                                                     | Part no. | Designation  | Article                                    | Description                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------------------|----------|--------------|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 66533101 | MLD510-R2/A  | Multiple light beam safety device receiver | Special version: Integrated muting indicator<br>Number of beams: 2 Piece(s)<br>Beam spacing: 500 mm<br>Response time: 30 ms<br>Type of interface: AS-Interface Safety at Work<br>Connection: Connector, M12, Metal, 5 -pin                     |
|                                                                                     | 66533102 | MLD510-R2E/A | Multiple light beam safety device receiver | Special version: Connection socket for external muting indicator<br>Number of beams: 2 Piece(s)<br>Beam spacing: 500 mm<br>Response time: 30 ms<br>Type of interface: AS-Interface Safety at Work<br>Connection: Connector, M12, Metal, 5 -pin |

## Suitable receivers

|                                                                                   | Part no. | Designation  | Article                                    | Description                                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------|----------|--------------|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 66534101 | MLD510-R2M/A | Multiple light beam safety device receiver | Special version: Integrated muting indicator, Integrated status indicator<br>Number of beams: 2 Piece(s)<br>Beam spacing: 500 mm<br>Response time: 30 ms<br>Type of interface: AS-Interface Safety at Work<br>Connection: Connector, M12, Metal, 5 -pin |

## Part number code

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

|            |                                                                                                                                                                                                                                                                                                       |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>MLD</b> | <b>Multiple light beam safety device</b>                                                                                                                                                                                                                                                              |
| <b>x</b>   | <b>Series</b><br>3: MLD 300<br>5: MLD 500                                                                                                                                                                                                                                                             |
| <b>yy</b>  | <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                                                                                                                                     |
| <b>z</b>   | <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                                                                                                                                                              |
| <b>a</b>   | Number of beams                                                                                                                                                                                                                                                                                       |
| <b>b</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) |
| <b>/t</b>  | <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 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 | Application: Oil and lubricant resistant<br>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 | Application: Oil and lubricant resistant<br>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 |

## Alignment aids

|                                                                                     | Part no. | Designation | Article       | Description                                         |
|-------------------------------------------------------------------------------------|----------|-------------|---------------|-----------------------------------------------------|
|  | 520023   | LA-78M      | Alignment aid | Light source: Laser, Red<br>Housing material: Metal |
|  | 520024   | LA-78M-UDC  | Alignment aid | Light source: Laser, Red<br>Housing material: Metal |

## 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.                                                                                                                                         |

Accessories

| 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> |