

## Technical data sheet

### Multiple light beam safety device transmitter

Part no.: 66501600

MLD500-XT3

#### Contents

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



For illustration purposes only



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 | 20 ... 70 m |
|-----------------|-------------|

Optical data

|                                 |                                           |
|---------------------------------|-------------------------------------------|
| Number of beams                 | 3 Piece(s)                                |
| Beam spacing                    | 400 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

|                    |                         |
|--------------------|-------------------------|
| Protective circuit | Overvoltage protection  |
|                    | Short circuit protected |

Performance data

|                               |                              |
|-------------------------------|------------------------------|
| Supply voltage U <sub>B</sub> | 24 V, DC, -20 ... 20 %       |
| Current consumption, max.     | 50 mA, Without external load |
| Fuse                          | External with max. 3 A       |

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            |

Cable properties

|                                            |                      |
|--------------------------------------------|----------------------|
| Permissible conductor cross section, type. | 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 900 mm x 64.7 mm |
| Housing material      | Metal                    |
| Metal housing         | Aluminum                 |
| Lens cover material   | Plastic / PMMA           |
| Material of end caps  | Diecast zinc             |
| Net weight            | 2,000 g                  |
| Housing color         | Yellow, RAL 1021         |
| Type of fastening     | Groove mounting          |
|                       | Swivel mount             |

Operation and display

|                 |            |
|-----------------|------------|
| Type of display | LED        |
| Number of LEDs  | 3 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

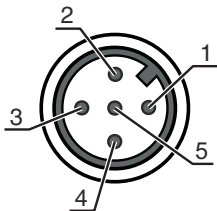


Electrical connection

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   | +24 V                                                                 | Brown           |
| 2   | n.c.                                                                  | White           |
| 3   | 0 V                                                                   | Blue            |
| 4   | Transmitter range switching: 0 V = entire range, 24 V = reduced range | 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                                                                                                              |
|-------------------------------------------------------------------------------------|----------|-------------|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
|  | 66533600 | MLD510-XR3  | Multiple light beam safety device receiver | Number of beams: 3 Piece(s)<br>Beam spacing: 400 mm<br>Response time: 25 ms<br>Connection: Connector, M12, Metal, 5 -pin |

Suitable receivers

|                                                                                    | Part no. | Designation | Article                                    | Description                                                                                                                                                              |
|------------------------------------------------------------------------------------|----------|-------------|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 66553600 | MLD520-XR3  | Multiple light beam safety device receiver | Number of beams: 3 Piece(s)<br>Beam spacing: 400 mm<br>Response time: 25 ms<br>Connection: Connector, M12, Metal, 8 -pin                                                 |
|                                                                                    | 66554600 | MLD520-XR3M | Multiple light beam safety device receiver | Special version: Integrated status indicator<br>Number of beams: 3 Piece(s)<br>Beam spacing: 400 mm<br>Response time: 25 ms<br>Connection: Connector, M12, Metal, 8 -pin |
|                                                                                    | 66563600 | MLD530-XR3  | Multiple light beam safety device receiver | Number of beams: 3 Piece(s)<br>Beam spacing: 400 mm<br>Response time: 50 ms<br>Connection: Connector, M12, Metal, 8 -pin                                                 |
|                                                                                    | 66573600 | MLD535-XR3  | Multiple light beam safety device receiver | Number of beams: 3 Piece(s)<br>Beam spacing: 400 mm<br>Response time: 50 ms<br>Connection: Connector, M12, Metal, 8 -pin                                                 |

Part number code

Part designation: MLDxxy-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                                                                                                                                            |

Part number code

|                                                                                  |                                                                                                                                                                                                                                                                                                       |
|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MLD                                                                              | Multiple light beam safety device                                                                                                                                                                                                                                                                     |
| 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)                                                                                                                               |
| <b>Note</b>                                                                      |                                                                                                                                                                                                                                                                                                       |
|  | A list with all available device types can be found on the Leuze website at <a href="http://www.leuze.com">www.leuze.com</a> .                                                                                                                                                                        |

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  |
|                                                                                    | 50133860 | KD S-M12-5A-P1-050 | 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: 5.000 mm<br>Sheathing material: PUR  |
|                                                                                    | 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 |

Accessories

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.                                                                                                                                         |

Note

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