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**Part no.: 66553600**
**MLD520-XR3**
**Multiple light beam safety device receiver**

# Contents




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# Part no.: 66553600 – MLD520-XR3 – Multiple light beam safety device receiver

## Technical data

| | |
|---|---|
| ***Basic data*** | |
| Series | MLD 500 |
| Device type | Receiver |
| ***Functions*** | |
| Functions | Contactor monitoring (EDM), selectable<br>Start/restart interlock (RES), selectable |
| ***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 | 3 Piece(s) |
| Beam spacing | 400 mm |
| ***Electrical data*** | |
| Protective circuit | Overvoltage protection<br>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 | 3 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 for start/restart interlock (RES) |

# Part no.: 66553600 – MLD520-XR3 – Multiple light beam safety device receiver

| | |
|---|---|
| ***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 | 25 ms |
| Restart delay time | 100 ms |

| | |
|---|---|
| ***Connection*** | |
| Number of connections | 1 Piece(s) |
| ***Connection 1*** | |
| Type of connection | Connector |
| Function | Machine interface |
| Thread size | M12 |
| Material | Metal |
| No. of pins | 8 -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 |

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| *Mechanical data* | |
|---|---|
| Dimension (W x H x L) | 52 mm x 900 mm x 64.7 mm |
| Housing material | Metal , 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<br>Swivel mount |

| *Operation and display* | |
|---|---|
| Type of display | LED |
| Number of LEDs | 1 Piece(s) |

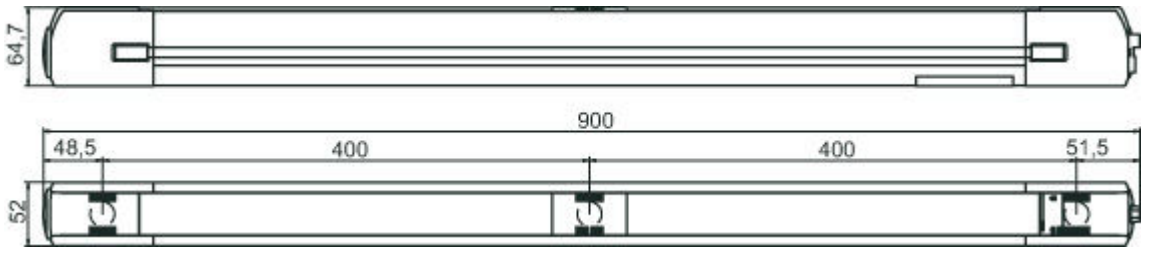
| *Environmental data* | |
|---|---|
| Ambient temperature, operation | -30 ... 55 °C |
| Ambient temperature, storage | -40 ... 75 °C |
| Relative humidity (non-condensing) | 0 ... 95 % |

| *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

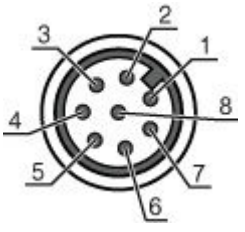
All dimensions in millimeters



## 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/OSSD status signal | White |
| 2 | +24V | Brown |
| 3 | EDM | Green |
| 4 | MODE | Yellow |
| 5 | OSSD2 | Gray |
| 6 | OSSD1 | Pink |
| 7 | 0 V | Blue |
| 8 | n.c. | Red |




## 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 |
|---|---|---|---|---|
|  | 66501600 | MLD500-XT3 | Multiple light beam safety device transmitter | Operating range: 20 ... 70 m<br>Number of beams: 3 Piece(s)<br>Beam spacing: 400 mm<br>Connection: Connector, M12, Metal, 5 -pin |

## Part number code

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

# Part no.: 66553600 – MLD520-XR3 – Multiple light beam safety device receiver

| 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 electronic 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 |

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## 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. |