

Technical data sheet

Single beam safety device receiver

Part no.: 66533002

MLD510-R1E/A



Figure can vary

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Technical data

Basic data

| | |
|--------|---------|
| Series | MLD 500 |
|--------|---------|

Functions

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

Characteristic parameters

| | |
|-----------------------------|---------------------------|
| Type | 4, IEC/EN 61496 |
| SIL | 3, IEC 61508 |
| SILCL | 3, IEC/EN 62061 |
| Performance Level (PL) | e, EN ISO 13849-1:2008 |
| 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 |

Electrical data

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

Performance data

| | |
|---------------------------------------|-----------------|
| Supply voltage U _B | 26.5 ... 31.6 V |
| Current consumption from AS-i circuit | 50 mA |

Timing

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

Interface

| | |
|------|-----------------------------|
| Type | AS-Interface Safety at Work |
|------|-----------------------------|

AS-i

| | |
|--|-------------------------------|
| Function | Process |
| AS-i profile | Safe slave |
| Slave address | 1..31 programmable, default=0 |
| Cycle time acc. to AS-i specifications | Max. 5 ms ms |

Connection

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

Connection 1

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

Connection 2

| | |
|--------------------|---------------------------|
| Function | External muting indicator |
| 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 193 mm x 64.7 mm |
| Housing material | Metal, Aluminum |
| Lens cover material | Plastic / PMMA |
| Material of end caps | Diecast zinc |
| Net weight | 600 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

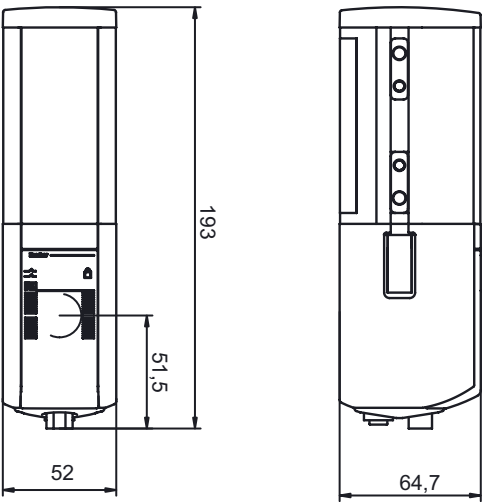
| | |
|----------------------|--------------------------------------|
| Degree of protection | IP 67 |
| Protection class | III |
| Certifications | c CSA US c TÜV NRTL US TÜV Süd |
| US patents | US 6,418,546 B US 7,741,595 B |

Classification

| | |
|-----------------------|----------|
| Customs tariff number | 85365019 |
| eCl@ss 8.0 | 27272701 |
| eCl@ss 9.0 | 27272701 |
| ETIM 5.0 | EC001831 |
| ETIM 6.0 | EC001831 |

Dimensioned drawings

All dimensions in millimeters

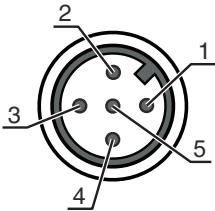


Electrical connection

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 |



Connection 2


| | |
|--------------------|---------------------------|
| Function | External muting indicator |
| Type of connection | Connector |
| Thread size | M12 |
| Type | Female |
| Material | Metal |
| No. of pins | 5 -pin |
| Encoding | A-coded |

| Pin | Pin assignment |
|-----|-----------------------------|
| 1 | AS-i+ |
| 2 | 0 V (auxiliary supply) |
| 3 | AS-i- |
| 4 | +24 V DC (auxiliary supply) |
| 5 | n.c. |

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 |
|---|----------|-------------|---------------------------------------|---|
|  | 66501001 | MLD500-T1/A | Single beam safety device transmitter | Operating range: 0.5 ... 70 m Light source: LED, Infrared Type of interface: AS-Interface Safety at Work Connection: Connector, M12, Metal, 5 -pin |

Part number code

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

| MLD | Multiple light beam safety device |
|-----------|---|
| x | Series 3: MLD 300 5: MLD 500 |
| yy | Function classes 00: transmitter 10: automatic restart 12: external testing 20: EDM/RES 30: muting 35: timing controlled 4-sensor muting |
| z | Device type T: transmitter R: receiver RT: transceiver xT: transmitter with high range xR: receiver for high range |
| a | Number of beams |
| b | Option L: integrated laser alignment aid (for transmitter/receiver) 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) E: connection socket for external muting indicator (AS-i models only) |
| /t | Safety-related switching outputs (OSSDs), connection technology -: transistor output, M12 plug 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 |
|---|----------|--------------------|------------------|---|
|  | 50133859 | KD S-M12-5A-P1-020 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Open end Shielded: Yes Cable length: 2,000 mm Sheathing material: PUR |
| | 50137014 | KD S-M12-5A-P1-150 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Open end Shielded: Yes Cable length: 15,000 mm Sheathing material: PUR |
| | 50136146 | KD S-M12-5A-P1-250 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Open end Shielded: Yes Cable length: 10,000 mm Sheathing material: PVC |

Muting - Mounting systems

| | Part no. | Designation | Article | Description |
|---|----------|-------------|------------------|---|
|  | 424421 | BT-SB10 | Mounting bracket | Design of mounting device: Mounting clamp Fastening, at system: Through-hole mounting Mounting bracket, at device: Clampable Type of mounting device: Swiveling Swivel range: -8 ... 8 ° Material: Metal |

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. 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. 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. Conditions: Devices and connection cables are already mounted, price not including travel costs and, if applicable, accommodation expenses. 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. |

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> |