

# Technical data sheet

## Single light beam safety device transmitter

Part no.: 66502000

MLD500-T1L

### Contents

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



For illustration purposes only



## Technical data

### Basic data

Series	MLD 500
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### Special version

Special version	Integrated laser alignment aid
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### Functions

Functions	Range reduction
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### Characteristic parameters

Type	4, IEC/EN 61496
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SIL	3, IEC 61508
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SILCL	3, IEC/EN 62061
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Performance Level (PL)	e, EN ISO 13849-1:2008
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MTTF <sub>d</sub>	204 years, EN ISO 13849-1
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Mission time T <sub>M</sub>	20 years, EN ISO 13849-1
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Category	4, EN ISO 13849:2008
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### Protective field data

Operating range	0.5 ... 70 m
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### Optical data

Light source	LED, Infrared
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Wavelength	850 nm
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Transmitted-signal shape	Continuous
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LED risk group	Exempt group (in acc. with EN 62471:2008)
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Opening angle, max.	-2.5 ... 2.5 °
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### Electrical data

Protective circuit	Overvoltage protection
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	Short circuit protected
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### Performance data

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

Number of connections	1 Piece(s)
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### Connection 1

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

Permissible conductor cross section, type.	0.25 mm <sup>2</sup>
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Length of connection cable, max.	100 m
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Permissible cable resistance to load, max.	200 Ω
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### Mechanical data

Design	Cubic
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Dimension (W x H x L)	52 mm x 193 mm x 64.7 mm
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Housing material	Metal
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Metal housing	Aluminum
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Lens cover material	Plastic / PMMA
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Material of end caps	Diecast zinc
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Net weight	600 g
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Housing color	Yellow, RAL 1021
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Type of fastening	Groove mounting
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	Swivel mount
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### Operation and display

Type of display	LED
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Number of LEDs	1 Piece(s)
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### Environmental data

Ambient temperature, operation	-30 ... 55 °C
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Ambient temperature, storage	-40 ... 75 °C
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Relative humidity (non-condensing)	0 ... 95 %
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### Certifications

Degree of protection	IP 67
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Protection class	III
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Approvals	c CSA US
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	c TÜV NRTL US
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	TÜV Süd
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US patents	US 6,418,546 B
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	US 7,741,595 B
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### Classification

Customs tariff number	85365019
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ECLASS 5.1.4	27272701
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ECLASS 8.0	27272701
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ECLASS 9.0	27272701
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ECLASS 10.0	27272701
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ECLASS 11.0	27272701
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ECLASS 12.0	27272701
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ECLASS 13.0	27272701
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ECLASS 14.0	27272701
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ECLASS 15.0	27272701
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ETIM 5.0	EC001831
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ETIM 6.0	EC001831
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ETIM 7.0	EC001831
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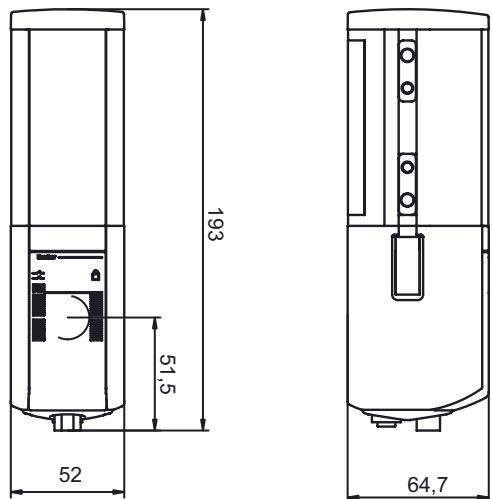
ETIM 8.0	EC001831
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ETIM 9.0	EC001831
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ETIM 10.0	EC001831
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## Dimensioned drawings

All dimensions in millimeters

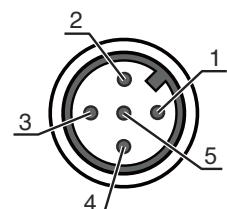


## Electrical connection

### 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	With integrated alignment aid, 24 V activation red light beam	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
	66536000 MLD510-R1L	Single light beam safety device receiver	Special version: Reflective element for laser alignment aid Response time: 25 ms Connection: Connector, M12, Metal, 5 -pin
	66556000 MLD520-R1L	Single light beam safety device receiver	Special version: Reflective element for laser alignment aid Response time: 25 ms Connection: Connector, M12, Metal, 8 -pin
	66566000 MLD530-R1L	Single light beam safety device receiver	Special version: Reflective element for laser alignment aid Response time: 50 ms Connection: Connector, M12, Metal, 8 -pin

## Part number code

Part designation: MLDxyy-zab/t

MLD	Multiple light beam safety device
x	<b>Series</b> 3: MLD 300 5: MLD 500
yy	<b>Function classes</b> 00: transmitter 10: automatic restart 12: external testing 20: EDM/RES 30: muting 35: timing controlled 4-sensor muting
z	<b>Device type</b> T: transmitter R: receiver RT: transceiver xT: transmitter with high range xR: receiver for high range
a	Number of beams
b	<b>Option</b> 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	<b>Safety-related switching outputs (OSSDs), connection technology</b> -: 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 <a href="http://www.leuze.com">www.leuze.com</a> .



## ATTENTION! LASER RADIATION – CLASS 2 LASER PRODUCT

**Do not stare into beam!**

The device satisfies the requirements of IEC/EN 60825-1:2014 safety regulations for a product of **laser class 2** as well as the U.S. 21 CFR 1040.10 and 1040.11 regulations with deviations corresponding to Laser Notice No. 56 from May 08, 2019.

- ↳ Never look directly into the laser beam or in the direction of reflected laser beams! If you look into the beam path over a longer time period, there is a risk of injury to the retina.
- ↳ Do not point the laser beam of the device at persons!
- ↳ Interrupt the laser beam using a non-transparent, non-reflective object if the laser beam is accidentally directed towards a person.
- ↳ When mounting and aligning the device, avoid reflections of the laser beam off reflective surfaces!
- ↳ CAUTION! The use of operating and adjusting devices other than those specified here or the carrying out of differing procedures may lead to dangerous exposure to radiation!
- ↳ Observe the applicable statutory and local laser protection regulations.
- ↳ The device must not be tampered with and must not be changed in any way.  
There are no user-serviceable parts inside the device.  
Repairs must only be performed by Leuze electronic GmbH + Co. KG.  
The alignment laser emits constant radiation that has a maximum output power of 1 mW and is emitted from the device collimated.

## NOTE

**Affix laser information and warning signs!**

Laser information and warning signs are affixed to the device. In addition, self-adhesive laser information and warning signs (stick-on labels) are supplied in several languages.

- ↳ "Affix the laser information sheet to the device in the language appropriate for the place of use. When using the device in the US, use the stick-on label with the "Complies with 21 CFR 1040.10/11" note.
- ↳ Affix the laser information and warning signs near the device if no signs are attached to the device (e.g. because the device is too small) or if the attached laser information and warning signs are concealed due to the installation position.
- ↳ Affix the laser information and warning signs so that they are legible without exposing the reader to the laser radiation of the device or other optical radiation.

**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 Connector, LED: No Connection 2: Open end Shielded: Yes Cable length: 2.000 mm Sheathing material: PUR
	50133860	KD S-M12-5A-P1-050	Connection cable Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connector, LED: No Connection 2: Open end Shielded: Yes Cable length: 5.000 mm Sheathing material: PUR
	50137014	KD S-M12-5A-P1-150	Connection cable Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connector, LED: No Connection 2: Open end Shielded: Yes Cable length: 15.000 mm Sheathing material: PUR

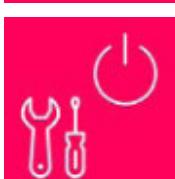
## Accessories

Part no.	Designation	Article	Description
  	50136146	KD S-M12-5A-P1-250	Connection cable Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connector, LED: No Connection 2: Open end Shielded: Yes Cable length: 25.000 mm Sheathing material: PUR

## Muting - Mounting systems

Part no.	Designation	Article	Description
	424421	BT-SB10	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	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.
	S981046	CS40-S-140	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.

### Note

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