Technical data sheet
Multiple light beam safety device transmitter
Part no.: 66502200
MLD500-T3L



For Illustration purposes only

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Technical data

Basic data

Series	MLD 500
Device type	Transmitter

Special version

Special version	Integrated laser alignment aid

Functions

Functions	Range reduction
Integrated laser alignment aid	Yes

Characteristic parameters

Type	4, IEC/EN 61496
SIL	3, IEC 61508
SILCL	3, IEC/EN 62061
$MTTF_d$	204 years, EN ISO 13849-1
Mission time T_M	20 years, EN ISO 13849-1

Protective field data

Operating range	0.5 ... 50 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	Continuous
LED risk group	Exempt group (in acc. with EN 62471:2008)
Laser alignment aid, light color	Laser, red
Laser alignment aid, light wavelength	650 nm
Laser alignment aid, class	2, IEC 60825-1:2014 / EN 60825-1:2014+A11:2021
Laser alignment aid, transmitted-signal shape	Continuous
Laser alignment aid, transmitting power	1,000 µW

Electrical data

Protective circuit	Overvoltage protection
	Short circuit protected

Performance data

Supply voltage U_B	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 mm²
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

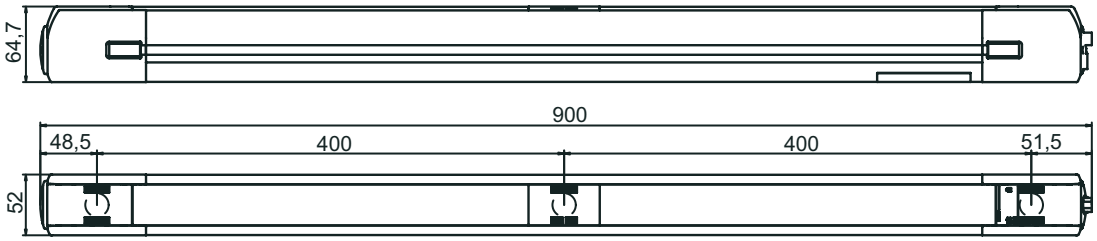
Degree of protection	IP 67
Protection class	III
Approvals	c CSA US
	c TÜV NRTL US
	TÜV Süd
US patents	US 6,418,546 B
	US 7,741,595 B

Classification

Customs tariff number	85365019
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
ECLASS 15.0	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

Dimensioned drawings

All dimensions in millimeters

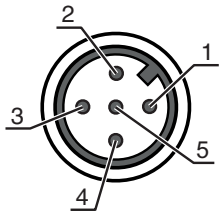


Electrical connection

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
	66536200	MLD510-R3L	Multiple light beam safety device receiver	Special version: Reflective element for laser alignment aid Number of beams: 3 Piece(s) Beam spacing: 400 mm Response time: 25 ms Connection: Connector, M12, Metal, 5 -pin

Suitable receivers

	Part no.	Designation	Article	Description
	66556200	MLD520-R3L	Multiple light beam safety device receiver	Special version: Reflective element for laser alignment aid Number of beams: 3 Piece(s) Beam spacing: 400 mm Response time: 25 ms Connection: Connector, M12, Metal, 8 -pin
	66555200	MLD520-R3LM	Multiple light beam safety device receiver	Special version: Integrated status indicator, Reflective element for laser alignment aid Number of beams: 3 Piece(s) Beam spacing: 400 mm Response time: 25 ms Connection: Connector, M12, Metal, 8 -pin
	66566200	MLD530-R3L	Multiple light beam safety device receiver	Special version: Reflective element for laser alignment aid Number of beams: 3 Piece(s) Beam spacing: 400 mm Response time: 50 ms Connection: Connector, M12, Metal, 8 -pin
	66565200	MLD530-R3LM	Multiple light beam safety device receiver	Special version: Integrated muting indicator, Integrated status indicator, Reflective element for laser alignment aid Number of beams: 3 Piece(s) Beam spacing: 400 mm Response time: 50 ms Connection: Connector, M12, Metal, 8 -pin
	66576200	MLD535-R3L	Multiple light beam safety device receiver	Special version: Reflective element for laser alignment aid Number of beams: 3 Piece(s) Beam spacing: 400 mm 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	**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

Part number code

MLD	Multiple light beam safety device
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.

Notes

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

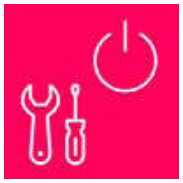
Connection technology - Connection cables

	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
	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

Mounting technology - Swivel mounts

	Part no.	Designation	Article	Description
	560340	BT-SET-240BC	Mounting bracket set	Fastening, at system: Through-hole mounting Mounting bracket, at device: Clampable Type of mounting device: Turning, 240° Material: Metal Shock absorber: No
	540350	BT-SET-240BC-E	Mounting bracket set	Fastening, at system: Through-hole mounting Mounting bracket, at device: Clampable Type of mounting device: Turning, 240° Material: Metal, Plastic Shock absorber: No

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

Accessories

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