

## Technical data sheet

### Multiple light beam safety device

Part no.: 66502301

MLD500-T4L/A



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## Technical data

### Basic data

Series	MLD 500
Device type	Transmitter

### 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
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	0.5 ... 50 m
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### Optical data

Number of beams	4 Piece(s)
Beam spacing	300 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/EN 60825-1:2014
Laser alignment aid, transmitted-signal shape	Continuous
Laser alignment aid, transmitting power	1,000 µW

### Electrical data

<b>Performance data</b>	
Supply voltage U <sub>B</sub>	26.5 ... 31.6 V
Current consumption from AS-i circuit	50 mA

### Interface

Type	AS-Interface Safety at Work
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<b>AS-i</b>	
Function	Process
AS-i profile	S-7.B.1
Slave address	1..31 programmable, default=0
Cycle time acc. to AS-i specifications	Max. 5 ms

### Connection

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

Function	Machine interface
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 1,000 mm x 64.7 mm
Housing material	Metal
Metal housing	Aluminum
Lens cover material	Plastic / PMMA
Material of end caps	Diecast zinc
Net weight	2,200 g
Housing color	Yellow, RAL 1021
Type of fastening	Groove mounting Swivel mount

### Operation and display

Type of display	LED
Number of LEDs	4 Piece(s)

### Environmental data

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

### Certifications

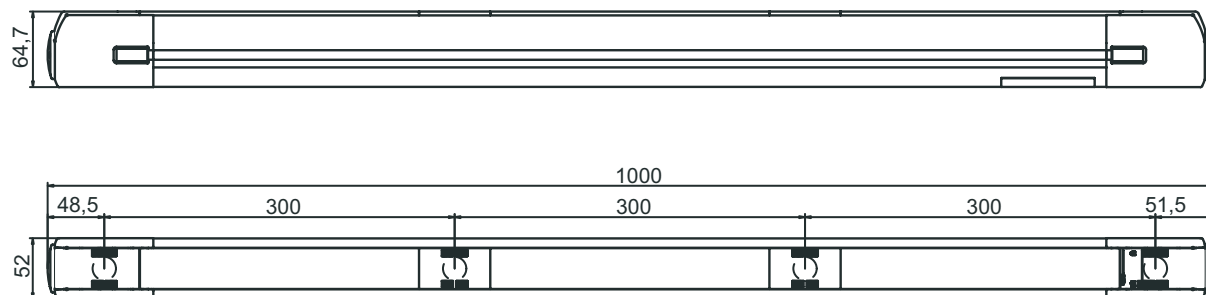
Degree of protection	IP 67
Protection class	III
Certifications	c CSA US c TÜV NRTL US TÜV Süd
US patents	US 6,418,546 B US 7,741,595 B

### Classification

Customs tariff number	85365019
eCl@ss 5.1.4	27272703
eCl@ss 8.0	27272703
eCl@ss 9.0	27272703
eCl@ss 10.0	27272703
eCl@ss 11.0	27272703
ETIM 5.0	EC001832
ETIM 6.0	EC001832
ETIM 7.0	EC001832

# Dimensioned drawings

All dimensions in millimeters

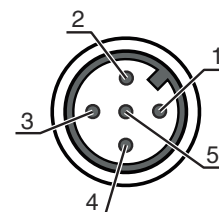


## Electrical connection

### 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	AS-i+	Brown
2	n.c.	White
3	AS-i-	Blue
4	n.c.	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
	66536301	MLD510-R4L/A	Multiple light beam safety device receiver	Special version: Reflexelement für Laserausrichthilfe Number of beams: 4 Piece(s) Beam spacing: 300 mm Response time: 30 ms Type of interface: AS-Interface Safety at Work Connection: Rundstecker, M12, Metall, 5 -pin

## Suitable receivers

	Part no.	Designation	Article	Description
	66536302	MLD510-R4LE/A	Multiple light beam safety device receiver	Special version: Reflexelement für Laserausrichtung, Anschlussbuchse für externen Muting-Leuchtmelder Number of beams: 4 Piece(s) Beam spacing: 300 mm Response time: 30 ms Type of interface: AS-Interface Safety at Work Connection: Rundstecker, M12, Metall, 5 -pin
	66535301	MLD510-R4LM/A	Multiple light beam safety device receiver	Special version: Integrierter Muting-Leuchtmelder, Integrierter Status-Leuchtmelder, Reflexelement für Laserausrichtung Number of beams: 4 Piece(s) Beam spacing: 300 mm Response time: 30 ms Type of interface: AS-Interface Safety at Work Connection: Rundstecker, M12, Metall, 5 -pin

## Part number code

Part designation: MLDxyy-zab/t

**MLD** Multiple light beam safety device

<b>x</b>	<b>Series</b> 3: MLD 300 5: MLD 500
<b>yy</b>	<b>Function classes</b> 00: transmitter 10: automatic restart 12: external testing 20: EDM/RES 30: muting 35: timing controlled 4-sensor muting
<b>z</b>	<b>Device type</b> T: transmitter R: receiver RT: transceiver xT: transmitter with high range xR: receiver for high range
<b>a</b>	Number of beams
<b>b</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)
<b>/t</b>	<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 [www.leuze.com](http://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! Use of controls or adjustments or performance of procedures other than specified herein may result in hazardous light exposure.
- ⌘ 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 Connection 2: Open end Shielded: Yes Cable length: 2,000 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: 25,000 mm Sheathing material: PUR

## Accessories

### Mounting technology - Swivel mounts

	Part no.	Designation	Article	Description
	560340	BT-SET-240BC	Mounting bracket set	Fastening, at system: Durchgangsbefestigung Mounting bracket, at device: klemmbar Type of mounting device: drehbar 240° Material: Metall
	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

### Services

	Part no.	Designation	Article	Description
	S981050	CS40-I-140	Safety inspection "Safety light barriers"	Details: Überprüfung einer Sicherheits-Lichtgitter-Applikation nach a Conditions: Stoppen der Maschine muss möglich sein, Unterstützung durch Restrictions: Kosten für Reise und Übernachtung separat und nach Aufwand.
	S981046	CS40-S-140	Start-up support	Details: Für Sicherheitsgeräte inkl. Nachlaufzeitmes Conditions: Geräte und Anschlussleitungen sind bereits montiert, Preis o Restrictions: Max. 2 h., keine Ausführung von mechanischen (Montage-) und

#### Note



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