

# Technical data sheet

## Multiple light beam safety device receiver

Part no.: 66533600

MLD510-XR3

### Contents

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



For illustration purposes only



c **UL** US



**UK** **CA**

# Technical data

## Basic data

Series	MLD 500
Device type	Receiver

## Functions

Functions	Automatic restart
Reflective element for laser alignment aid	No
Integrated muting indicator	No
Integrated status 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
MTTF <sub>d</sub>	204 years, EN ISO 13849-1
PFH <sub>D</sub>	6.6E-09 per hour
Mission time T <sub>M</sub>	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 Short circuit protected
--------------------	---

## Performance data

Supply voltage U <sub>B</sub>	24 V, DC, -20 ... 20 %
Current consumption, max.	150 mA, Without external load
Fuse	External with max. 3 A

## Outputs

Number of safety-related switching outputs (OSSDs)	2 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, type.	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, type.	0.002 mA
Voltage drop	1 V

## Safety-related switching output 1

Assignment	Connection 1, pin 2
Switching element	Transistor, PNP

## Safety-related switching output 2

Assignment	Connection 1, pin 4
Switching element	Transistor, PNP

## Time behavior

Response time	25 ms
Restart delay time	100 ms

## 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 mm <sup>2</sup>
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	1 Piece(s)

## Environmental data

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

## Certifications

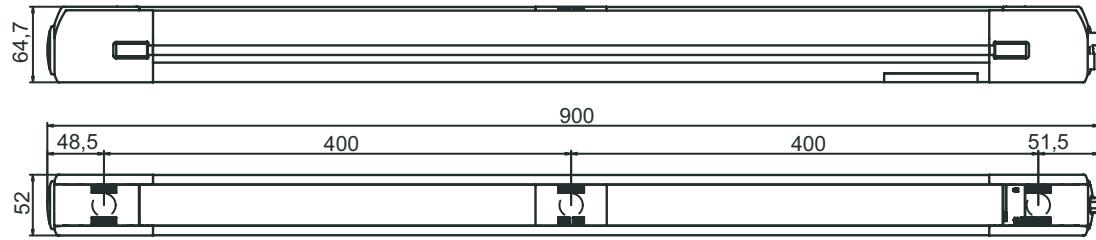
Degree of protection	IP 67
Protection class	III
Approvals	c TÜV NRTL US c UL US TÜV Süd
US patents	US 6,418,546 B US 7,741,595 B

## Technical data

Customs tariff number	85365019
<b>ECLASS 5.1.4</b>	27272703
<b>ECLASS 8.0</b>	27272703
<b>ECLASS 9.0</b>	27272703
<b>ECLASS 10.0</b>	27272703
<b>ECLASS 12.0</b>	27272703
<b>ECLASS 13.0</b>	27272703
<b>ECLASS 14.0</b>	27272703
<b>ECLASS 15.0</b>	27272703
<b>ETIM 5.0</b>	EC001832
<b>ETIM 6.0</b>	EC001832
<b>ETIM 7.0</b>	EC001832
<b>ETIM 8.0</b>	EC001832
<b>ETIM 9.0</b>	EC001832
<b>ETIM 10.0</b>	EC001832

## Dimensioned drawings

All dimensions in millimeters

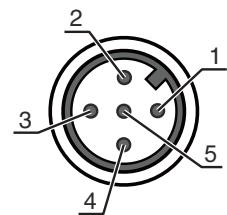


## Electrical connection

### 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	OSSD1	White
3	0 V	Blue
4	OSSD2	Black
5	n.c.	Gray



## 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.

## Suitable transmitters

Part no.	Designation	Article	Description
	66501600 MLD500-XT3	Multiple light beam safety device transmitter	Operating range: 20 ... 70 m Number of beams: 3 Piece(s) Beam spacing: 400 mm Connection: Connector, M12, Metal, 5 -pin

## Part number code

Part designation: MLD<sup>x</sup><sub>yy</sub>-zab/t

<b>MLD</b>	<b>Multiple light beam safety device</b>
<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>	<b>Number of beams</b>
<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 <a href="http://www.leuze.com">www.leuze.com</a> .
--	--

## 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.