

## Technical data sheet

### Single beam safety device receiver

Part no.: 66566000

MLD530-R1L



Figure can vary

#### Contents

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



## Technical data

### Basic data

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

### Special design

Special design	Reflective element for laser alignment aid
----------------	--

### Functions

Functions	Alternative connection for second muting signal
	Contact monitoring (EDM), selectable
	Muting enable function
	Muting-timeout extension
	Partial muting
	Sequence controlled 2-sensor muting
	Start/restart interlock (RES)
	Timing controlled 2-sensor muting

### 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

### Electrical data

Selection of operating mode	Connection 1, pin 2: +24 V for operating mode 1, 2, 4
	Connection 1, pin 2: 0 V for operating mode 3, 5, 6
	Connection 1, pin 7: +24 V for operating mode 3, 5, 6
	Connection 1, pin 7: 0 V for operating mode 1, 2, 4
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

### Inputs

Number of digital switching inputs	4 Piece(s)
------------------------------------	------------

### Switching inputs

Type	Digital switching input
Switching voltage high, min.	18.2 V
Switching voltage low, max.	2.5 V
Switching voltage, typ.	23 V
Voltage type	DC
Switching current, max.	5 mA

### Outputs

Number of safety-related switching outputs (OSSDs)	2 Piece(s)
Number of digital switching outputs	1 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, typ.	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, typ.	0.002 mA
Voltage drop	1 V

### Safety-related switching output 1

Switching element	Transistor, PNP
-------------------	-----------------

### Safety-related switching output 2

Switching element	Transistor, PNP
-------------------	-----------------

### Switching outputs

Switching voltage high, min.	18.2 V
Switching voltage low, max.	2.5 V
Switching voltage, typ.	23 V
Voltage type	DC

### Switching output 1

Assignment	Connection 1, pin 1
Switching element	Transistor, PNP
Switching principle	+24 V switching
Function	"State of OSSDs" signal output

### Timing

Response time	50 ms
Restart delay time	100 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	8 -pin

### Connection 2

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

### Cable properties

Permissible conductor cross section, typ.	0.25 mm <sup>2</sup>
Permissible cable resistance to load, max.	200 Ω

## Technical data

### Mechanical data

Design	Cubic
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

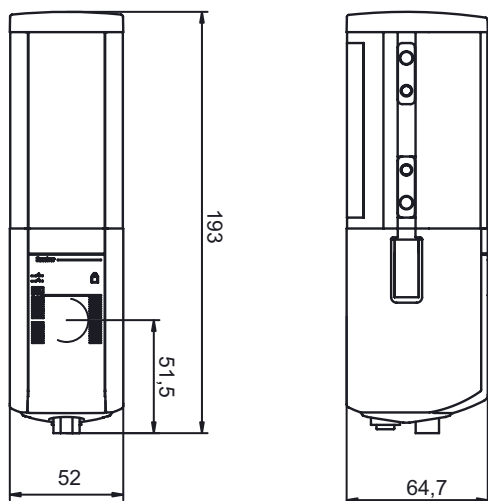
Degree of protection	IP 67
Protection class	III
Certifications	c CSA US
	c TÜV NRTL US
	TÜV Süd
US patents	US 6,418,546 B
	US 7,741,595 B

### 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	8 -pin
Encoding	A-coded

## Electrical connection

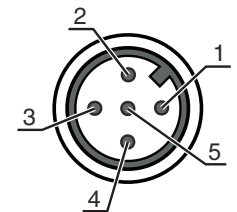
Pin	Pin assignment	Conductor color
1	RES/OSSD status signal	White
2	VIN	Brown
3	EDM	Green
4	MS2	Yellow
5	OSSD2	Gray
6	OSSD1	Pink
7	VIN	Blue
8	M-EN/TO	Red



### Connection 2

Function	Local interface
Type of connection	Connector
Thread size	M12
Type	Female
Material	Metal
No. of pins	5 -pin
Encoding	A-coded


Pin	Pin assignment	Conductor color
1	+24V	Brown
2	MS2	White
3	0 V	Blue
4	MS1	Black
5	RES/LMP	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.
2	Yellow, continuous light	Start/restart interlock locked.

## Suitable transmitters

	Part no.	Designation	Article	Description
	66502000	MLD500-T1L	Single beam safety device transmitter	Operating range: 0.5 ... 70 m Light source: LED, Infrared Connection: Connector, M12, Metal, 5 -pin Special design: Integrated laser alignment aid

## Part number code

Part designation: MLDxyy-zab/t

**MLD**      **Multiple light beam safety device**

x	Series
	3: MLD 300
	5: MLD 500

## Part number code

### MLD

### Multiple light beam safety device

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 [www.leuze.com](http://www.leuze.com).

## Accessories

### Connection technology - Connection cables

	Part no.	Designation	Article	Description
	50135128	KD S-M12-8A-P1-050	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 8 -pin Connection 2: Open end Shielded: Yes Cable length: 5,000 mm Sheathing material: PUR

### 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

## Accessories

## 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.

### Note



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