



Figure can vary

Part no.: 66537100
MLD510-RT2
Multiple light beam safety device
transmitter/receiver



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Technical data

Basic data	
Series	MLD 500
Device type	Transceiver
Functions	
Functions	Automatic restart
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 _d	204 years, EN ISO 13849-1
PFH _D	6.6E-09 per hour
Mission time T _M	20 years, EN ISO 13849-1
Category	4, EN ISO 13849
Protective field data	
Operating range	0.5 ... 8 m
Optical data	
Number of beams	2 Piece(s)
Beam spacing	500 mm
Light source	LED, Infrared
LED light wavelength	850 nm
Mean power of transmitter diode	1.369 µW
Transmitted-signal shape	Pulsed
LED group	Exempt group in acc. with EN 62471:2008
Electrical data	
Protective circuit	Overvoltage protection Short circuit protected
Performance data	
Supply voltage U _B	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, 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

Assignment	Connection 1, pin 2
Switching element	Transistor, PNP

Safety-related switching output 2

Assignment	Connection 1, pin 4
Switching element	Transistor, PNP

Timing

Response time	25 ms
Restart delay time	100 ms

Connection

Number of connections 1 Piece(s)

Connection 1

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

Cable properties

Permissible conductor cross section, typ.	0.25 mm ²
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 600 mm x 64.7 mm
Housing material	Metal, Aluminum
Lens cover material	Plastic / PMMA
Material of end caps	Diecast zinc
Net weight	1,400 g
Housing color	Yellow, RAL 1021
Type of fastening	Groove mounting Swivel mount

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


Certifications

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

Classification

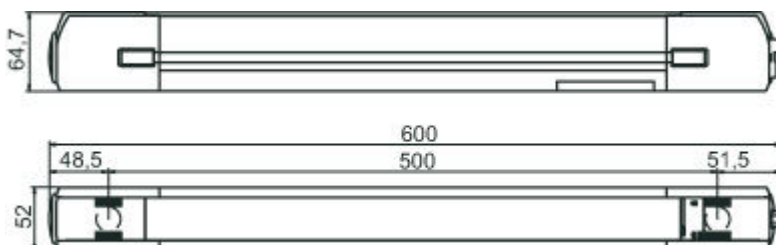
eCl@ss 8.0	27272703
eCl@ss 9.0	27272703
ETIM 5.0	EC001832

Suitable deflecting mirrors

	Part no.	Designation	Article	Description
	66500100	MLD-M002	Deflecting mirror	Number of beams: 2 Piece(s) Beam spacing: 500 mm Type of fastening: Groove mounting, Swivel mount, Mounting on Device Column

Dimensioned drawings

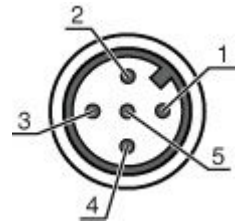
All dimensions in millimeters



Electrical connection

Connection 1	
Type of connection	Connector
Function	Machine interface
Thread size	M12
Type	Male
Material	Metal
No. of pins	5 -pin
Encoding	A-coded

Pin	Pin assignment	Conductor color
1	+24V	Brown
2	OSSD1	White
3	0 V	Blue
4	OSSD2	Black
5	n.c.	Gray



Operation and display

LEDs

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.

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

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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)

Accessories




Connection technology - Connection cables

	Part no.	Designation	Article	Description
	678058	CB-M12-25000E-5GF	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
	50133860	KD S-M12-5A-P1-050	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Open end Shielded: Yes Cable length: 5,000 mm Sheathing material: PUR
	50133861	KD S-M12-5A-P1-100	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Open end Shielded: Yes Cable length: 10,000 mm Sheathing material: PUR
	50137014	KD S-M12-5A-P1-150	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Open end Shielded: Yes Cable length: 10,000 mm Sheathing material: PVC
	50137013	KD S-M12-5A-P1-500	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Open end Shielded: Yes Cable length: 10,000 mm Sheathing material: PVC


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



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	Part no.	Designation	Article	Description
	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
	560342	BT-SET-240BCS	Mounting bracket set	Fastening, at system: Through-hole mounting Mounting bracket, at device: Clampable Type of mounting device: Turning, 240°, Shock absorber Material: Metal Shock absorber: Yes
	540352	BT-SET-240BCS-E	Mounting bracket set	Fastening, at system: Through-hole mounting Mounting bracket, at device: Clampable Type of mounting device: Shock absorber, Turning, 240° Material: Metal, Plastic Shock absorber: Yes


Mounting technology - Other

	Part no.	Designation	Article	Description
	424417	BT-2P40	Mounting bracket set	Contains: 2x BT-P40 clamp bracket Design of mounting device: Mounting clamp Fastening, at system: Groove mounting Mounting bracket, at device: Groove mounting Type of mounting device: Clampable Material: Metal









Alignment aids

	Part no.	Designation	Article	Description
	520023	LA-78M	Alignment aid	Light source: laser, Red Housing material: Metal
	520024	LA-78M-UDC	Alignment aid	Light source: laser, Red Housing material: Metal

Device columns

	Part no.	Designation	Article	Description
	549856	UDC-1000-S2	Device column	Dimensions: 160 mm x 1,060 mm x 149 mm Column height without foot: 1,000 mm Functions: Mounting and protection of light curtains and multiple light beam devices, Adjustable, 3 directions

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	Part no.	Designation	Article	Description
	549879	UDC-1140-S2	Device column	Dimensions: 160 mm x 1,200 mm x 149 mm Column height without foot: 1,140 mm Functions: Adjustable, 3 directions, Mounting and protection of light curtains and multiple light beam devices
	549852	UDC-1300-S2	Device column	Dimensions: 160 mm x 1,360 mm x 149 mm Column height without foot: 1,300 mm Functions: Mounting and protection of light curtains and multiple light beam devices, Adjustable, 3 directions
	549853	UDC-1600-S2	Device column	Dimensions: 160 mm x 1,660 mm x 149 mm Column height without foot: 1,600 mm Functions: Mounting and protection of light curtains and multiple light beam devices, Adjustable, 3 directions
	549854	UDC-1900-S2	Device column	Dimensions: 160 mm x 1,960 mm x 149 mm Column height without foot: 1,900 mm Functions: Mounting and protection of light curtains and multiple light beam devices, Adjustable, 3 directions
	549867	UDC-2100-S2	Device column	Dimensions: 160 mm x 2,160 mm x 149 mm Column height without foot: 2,100 mm Functions: Adjustable, 3 directions, Mounting and protection of light curtains and multiple light beam devices
	549857	UDC-2500-S2	Device column	Dimensions: 160 mm x 2,560 mm x 149 mm Column height without foot: 2,500 mm Functions: Adjustable, 3 directions, Mounting and protection of light curtains and multiple light beam devices
	549865	UDC-3100-S2	Device column	Dimensions: 160 mm x 3,160 mm x 149 mm Column height without foot: 3,100 mm Functions: Mounting and protection of light curtains and multiple light beam devices, Adjustable, 3 directions
	549855	UDC-900-S2	Device column	Dimensions: 160 mm x 960 mm x 149 mm Column height without foot: 900 mm Functions: Mounting and protection of light curtains and multiple light beam devices, Adjustable, 3 directions