



the sensor people



Part no.: 68003316 MLC530R30-1650 Safety light curtain receiver















Figure can vary

Contents

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



Technical data

Basic data			
Series	MLC 500		
Device type	Receiver		
Contains	2x BT-NC sliding block		
Application	Hand protection		
Functions			
Function package	Extended		
Functions	Combination of floating/fixed blanking, can be changed to "fixed blanking" during operation Contactor monitoring (EDM) Fixed blanking with 1-beam tolerance Fixed blanking without tolerance Fixed blanking without tolerance, can be activated/deactivated during operation Floating blanking, can be changed to "fixed blanking" during operation Integration of "contact-based safety circuit" Integration of "electronic safety-related switching outputs" MaxiScan Partial muting Reduced resolution, can be changed to "fixed blanking" during operation Start/restart interlock (RES) Timing controlled 2-sensor muting Transmission channel changeover		
Characteristic parameters			
Туре	4 , IEC/EN 61496		
SIL	3 , IEC 61508		
SILCL	3 , IEC/EN 62061		
Performance Level (PL)	e , EN ISO 13849-1		
PFHD	7.73E-09 per hour		
Mission time T _M	20 years , EN ISO 13849-1		
Category	4 , EN ISO 13849		
Protective field data			
Resolution	30 mm		
Protective field height	1,650 mm		
Optical data			
Synchronization	Optical between transmitter and receiver		
•	<u> </u>		
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		
Fuse	2 A semi time-lag		



Inputs			
Number of digital switching inputs	3 Piece(s)		
Switching inputs			
Туре	Digital switching input		
Switching voltage high, min.	18 V		
Switching voltage low, max.	2.5 V		
Switching voltage, typ.	22.5 V		
Voltage type	DC		
Outputs			
Number of safety-related switching outputs (OSSDs)	2 Piece(s)		
Safety-related switching outputs			
Туре	Safety-related switching output OSSD		
Switching voltage high, min.	18 V		
Switching voltage low, max.	2.5 V		
Switching voltage, typ.	22.5 V		
Voltage type	DC		
Current load, max.	380 mA		
Load inductivity	2,000 μΗ		
Load capacity	0.3 μF		
Residual current, max.	0.2 mA		
Residual current, typ.	0.002 mA		
Voltage drop	1.5 V		
Safety-related switching output 1			
Assignment	Connection 1, pin 5		
Switching element	Transistor , PNP		
Safety-related switching output 2			
Assignment	Connection 1, pin 6		
Switching element	Transistor , PNP		
ming			
esponse time	15 ms		
estart delay time	100 ms		
onnection			
umber of connections	1 Piece(s)		
Connection 1			
Type of connection	Connector		
Function	Machine interface		
Thread size	M12		
Material	Metal		
No. of pins	8 -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		
echanical data			
imension (W x H x L)	29 mm x 1,716 mm x 35.4 mm		
and the same and t	Motal Aluminum		

Metal, Aluminum

Housing material



Lens cover material	Plastic / PMMA	
Material of end caps	Diecast zinc	
Net weight	1,800 g	
Housing color	Yellow, RAL 1021	
Type of fastening	Groove mounting Mounting bracket Mounting on Device Column Swivel mount	

Operation and display	
Type of display	7-segment display LED
Number of LEDs	3 Piece(s)

Environmental data		
Ambient temperature, operation	-30 55 °C	
Ambient temperature, storage	-30 70 °C	
Relative humidity (non-condensing)	0 95 %	

Certifications			
Degree of protection	IP 65		
Protection class	III		
Certifications	c CSA US c TÜV NRTL US S Mark TÜV Süd	c TÜV NRTL US S Mark	
Vibration resistance	50 m/s²		
Shock resistance	100 m/s²		
US patents	US 6,418,546 B		

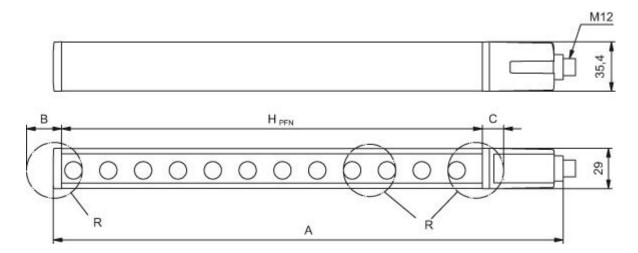
Classification		
Customs tariff number	85365019	
eCl@ss 8.0	27272704	
eCl@ss 9.0	27272704	
ETIM 5.0	EC002549	
ETIM 6.0	EC002549	

Dimensioned drawings

All dimensions in millimeters



Calculation of the effective protective field height Hpfe = Hpfn + B + C



HPFE Effective protective field height = 1678 mm

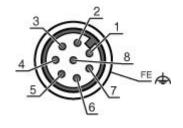
HPFN Nominal protective field height = 1650 mm

- A Total height = 1716 mm
- B 19 mm
- C 9 mm
- R Effective protective field height H_{PFE} goes beyond the dimensions of the optics area to the outer borders of the circles labeled with R.

Electrical connection

Connection 1	
Type of connection	Connector
Function	Machine interface
Thread size	M12
Туре	Male
Material	Metal
No. of pins	8 -pin
Encoding	A-coded
Connector housing	FE/SHIELD

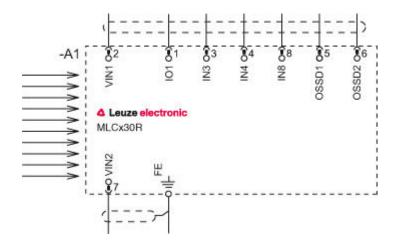
Pin	Pin assignment	Conductor color
1	IO1	White
2	VIN1	Brown
3	IN3	Green
4	IN4	Yellow
5	OSSD1	Gray
6	OSSD2	Pink
7	VIN2	Blue
8	IN8	Red





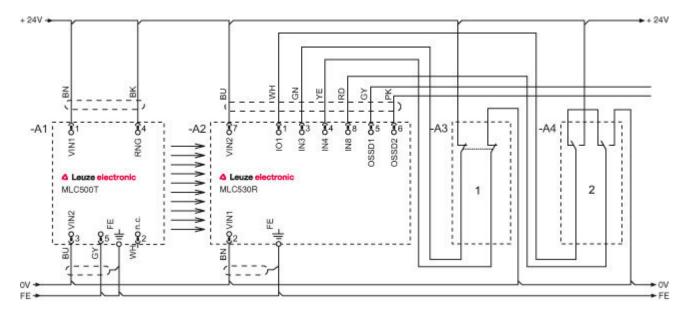
Circuit diagrams

Connection diagram receiver



- VIN1 = +24 V, VIN2 = 0 V: transmission channel C1 VIN1 = 0 V, VIN2 = +24 V: transmission channel C2

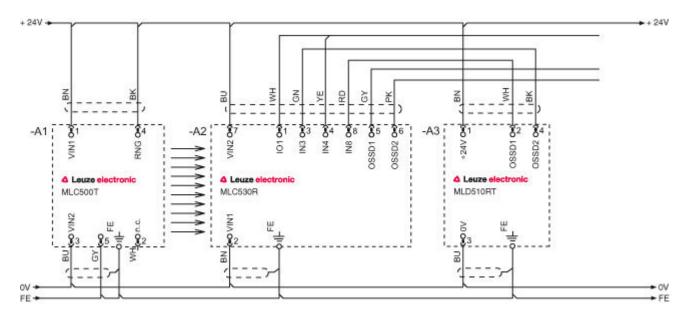
Operating mode 1: circuit diagram example of linkage with position switch for monitoring for the presence of machine parts with fixed blanking



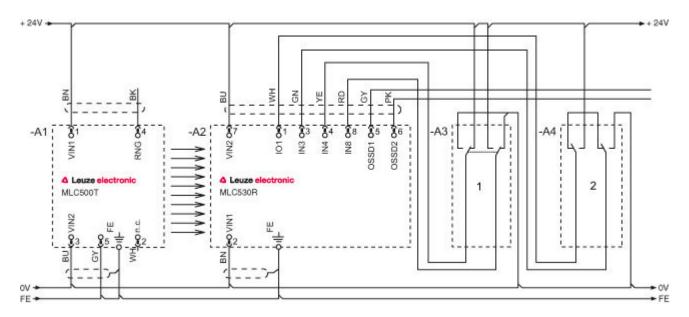
- Linked safety sensor, e.g. safety door switch Key switch for teaching ("teach key switch")
- 2



Operating mode 2: circuit diagram example of linkage of electronic safety-related switching outputs for the combined monitoring of access points and areas



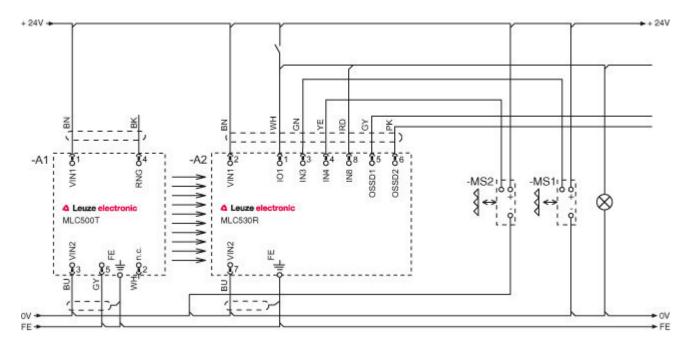
Operating mode 3: circuit diagram example of a linked, contact-based position switch for monitoring of the blanked object and a changeover switch for switching between function groups FG1 and FG2



- 1 Changeover key switch for switching between function groups FG1 and FG2
- 2 Key switch for teaching blanking areas



Operating mode 4: circuit diagram example for timing controlled 2-sensor muting



Operation and display

LEDs

LED	Display	Meaning		
1	Off	Device switched off		
	Red, continuous light	OSSD off		
	Red, flashing, 1 Hz	External error		
	Red, flashing, 10 Hz	Internal error		
	Green, flashing, 1 Hz	OSSD on, weak signal		
	Green, continuous light	OSSD on		
2	Off	RES deactivated or RES activated and enabled or RES blocked and protective field interrupted		
	Yellow, continuous light	RES activated and blocked but ready to be unlocked - protective field free and linked sensor is enabled if applicable		
	Yellow, flashing	Upstream safety circuit opened		
	Yellow, flashing (1x or 2x)	Changeover of the upstream safety circuit		
3	Off	No special function (blanking, muting, etc.) active		
	Blue, continuous light	Protective field parameter (blanking) correctly taught		
	Blue, flashing, 1 Hz	Muting active		
	Blue, short flashing	Teaching of protective field parameters or muting restart required or muting override active		
	Blue, flashing, 10 Hz	Error during teaching of protective field parameters		



Suitable transmitters

Part no.	Designation	Article	Description
68000316		transmitter	Resolution: 30 mm Protective field height: 1,650 mm Operating range: 0 10 m Connection: Connector, M12, Metal, 5 -pin

Part number code

Part designation: MLCxyy-za-hhhhei-ooo

MLC	Safety light curtain
х	Series: 3: MLC 300 5: MLC 500
уу	Function classes: 00: Transmitter 01: transmitter (AIDA) 02: Transmitter with test input 10: Basic receiver - automatic restart 11: basic receiver - automatic restart (AIDA) 20: Standard receiver - EDM/RES selectable 30: Extended receiver - blanking/muting
z	Device type: T: transmitter R: receiver
а	Resolution: 14: 14 mm 20: 20 mm 30: 30 mm 40: 40 mm 90: 90 mm
hhhh	Protective field height: 150 3000: from 150 mm to 3000 mm
е	Host/Guest (optional): H: Host MG: Middle Guest G: Guest
i	Interface (optional): /A: AS-i
000	Option: /V: high Vibration-proof EX2: explosion protection (zones 2 + 22) SPG: Smart Process Gating

Note

A list with all available device types can be found on the Leuze electronic website at www.leuze.com.

Notes

Observe intended use!

- The product may only be put into operation by competent persons.
- Only use the product in accordance with its intended use.



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

Mounting technology - Swivel mounts

Part no.	Designation	Article	Description
429393	BT-2HF	Mounting bracket set	Contains: 2x BT-HF swivel mount, 1 cylinder for mounting on the light curtain Fastening, at system: Through-hole mounting Mounting bracket, at device: Clampable Type of mounting device: Turning, 360° Material: Metal, Plastic

Services

	Part no.	Designation	Article	Description
14/8/14/8/8/8/14/8/8/8/14/8/8/8/8	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.