## SMART SENSOR BUSINESS

## Leuze electronic

the sensor people



Part no.: 68003915 MLC530R90-1500 Safety light curtain receiver



Figure can vary

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## Part no.: 68003915 – MLC530R90-1500 – Safety light curtain receiver

#### **Technical data**

Basic data	
Series	MLC 500
Device type	Receiver
Contains	2x BT-NC sliding block
Application	Access guarding Danger zone guarding

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 opera- tion 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 opera- tion 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 <sub>M</sub>	20 years , EN ISO 13849-1
Category	4 , EN ISO 13849

Protective field data			
Resolution	90 mm	90 mm	
Protective field height	1,500 mm		

Optical data	
Synchronization	Optical between transmitter and receiver
Electrical data	
Protective circuit	Overvoltage protection Short circuit protected
Performance data	
Supply voltage UB	24 V , DC , -20 20 %
Current consumption, max.	150 mA

2 A semi time-lag

Fuse

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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	22.5 V			
Outputs	2 Piece(s)			
Number of safety-related switching outputs (OSSDs)	2 Field(5)			
Safety-related switching outputs	Sefety related avitabing autout OSSD			
Type	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 µH			
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			
ïming				
Response time	6 ms			
Restart delay time	100 ms			
Connection				
lumber of connections	1 Piece(s)			
Connection 1				
Type of connection	Connector			
Function	Machine interface			
Thread size	M12			
Material	Metal			
No. of pins	8 -pin			
	o -pin			
Cable properties	0.25 mm <sup>2</sup>			
Permissible conductor cross section, typ.				
Length of connection cable, max.	100 m			
Permissible cable resistance to load, max.	200 Ω			
Nechanical data				
Dimension (W x H x L)	29 mm x 1,566 mm x 35.4 mm			
lousing material	Metal , Aluminum			

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Lens cover material	Plastic / PMMA		
Material of end caps	Diecast zinc		
Net weight	1,650 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			
Certifications	c CSA US c TÜV NRTL US S Mark TÜV Süd		
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		

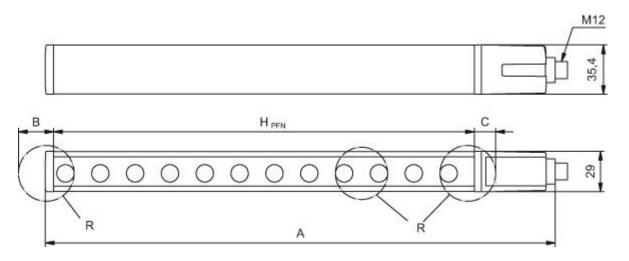
### **Dimensioned drawings**

All dimensions in millimeters

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#### Part no.: 68003915 – MLC530R90-1500 – Safety light curtain receiver

#### Calculation of the effective protective field height HPFE = HPFN + B + C



HPFE Effective protective field height = 1590 mm

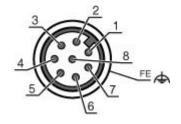
HPFN Nominal protective field height = 1500 mm

- A Total height = 1566 mm
- B 50 mm
- C 40 mm
- R Effective protective field height H<sub>PFE</sub> goes beyond the dimensions of the optics area to the outer borders of the circles labeled with R.

#### **Electrical connection**

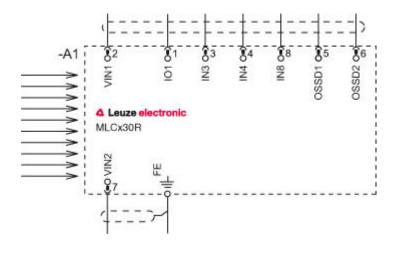
Connection 1		
Type of connection	Connector	
Function	Machine interface	
Thread size	M12	
Туре	Male	
Material	Metal	
No. of pins	8 -pin	
Encoding	A-coded	
Connector housing	FE/SHIELD	

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	



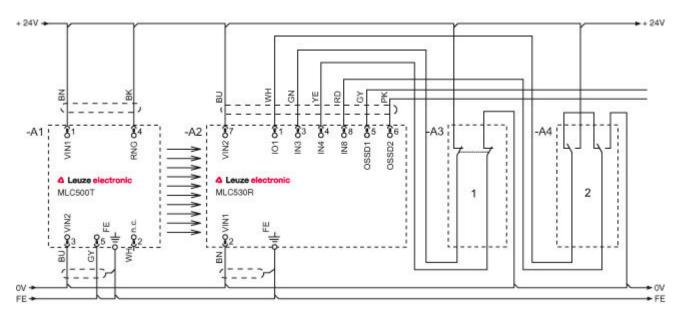
#### **Circuit diagrams**

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

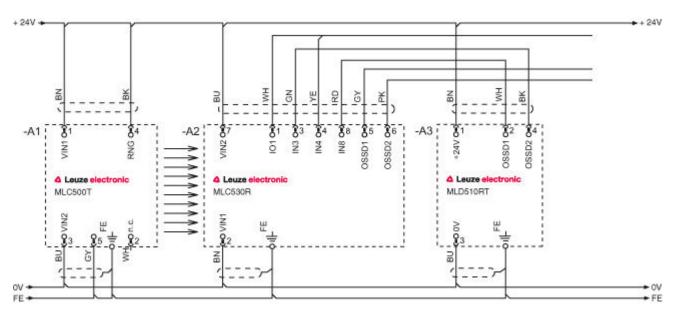


- Linked safety sensor, e.g. safety door switch Key switch for teaching ("teach key switch") 1
- 2

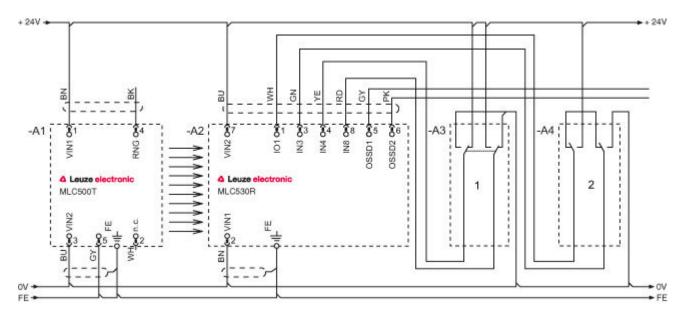
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Operating mode 2: circuit diagram example of linkage of electronic safety-related switching outputs for the combined monitoring of access points and areas



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

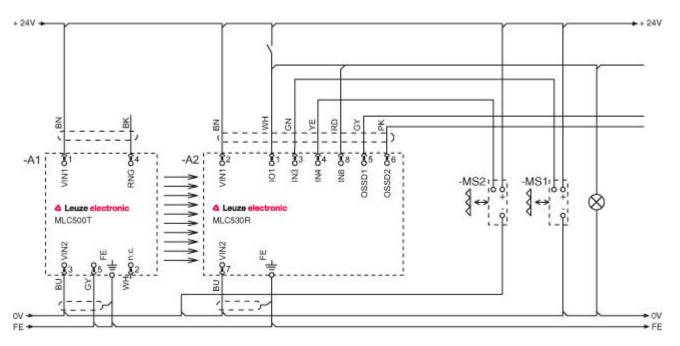


Changeover key switch for switching between function groups FG1 and FG2
Key switch for teaching blanking areas

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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

### Part no.: 68003915 – MLC530R90-1500 – Safety light curtain receiver

#### Suitable transmitters

Part no.	Designation	Article	Description
68000915	MLC500T90-1500	Safety light curtain transmitter	Resolution: 90 mm Protective field height: 1,500 mm Operating range: 0 20 m Connection: Connector, M12, Metal, 5 -pin

#### Part number code

Part designation: MLCxyy-za-hhhhei-ooo

MLC	Safety light curtain
x	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.

### Part no.: 68003915 – MLC530R90-1500 – Safety light curtain receiver

#### 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
<b>P</b> <sup>Q</sup> <sup>Q</sup> <sup>Q</sup>	429393	BT-2HF	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
A A A A A A A A A A A A A A A A A A A	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.