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Part no.: 68001404 MLC510R40-450 Safety light curtain receiver



Figure can vary

Contents

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

Part no.: 68001404 – MLC510R40-450 – Safety light curtain receiver

Technical data

Basic data		
Series	MLC 500	
Device type	Receiver	
Contains	2x BT-NC sliding block	
Application	Hand protection Danger zone guarding Access guarding	
Functions		
Function package	Basic	
Functions	Transmission channel changeover Automatic start/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	
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	40 mm	
Protective field height	450 mm	
Optical data		
Synchronization	Optical between transmitter and receiver	
Electrical data		
Protective circuit	Overvoltage protection Short circuit protected	
Performance data		
Supply voltage	24 V, DC, -20 20 %	
Current consumption, max.	150 mA	
Fuse	2 A semi time-lag	

Part no.: 68001404 – MLC510R40-450 – Safety light curtain receiver

mber of safety-related switching outputs (OSSDs)	2 Piece(s)
Safety-related switching outputs	2 Field(5)
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 2
Switching element	Transistor, PNP
Safety-related switching output 2	
Assignment	Connection 1, pin 4
Switching element	Transistor, PNP
ing	
ponse time	5 ms
tart delay time	100 ms
tart delay time	
tart delay time	100 ms
tart delay time Interction Inter of connections	
tart delay time nection aber of connections connection 1	100 ms 1 Piece(s)
tart delay time mection aber of connections connection 1 ype of connection	100 ms 1 Piece(s) Connector
tart delay time nection ber of connections connection 1 ype of connection unction	100 ms 1 Piece(s) Connector Machine interface
tart delay time	100 ms 1 Piece(s) Connector Machine interface M12
tart delay time	100 ms 100 ms 1 Piece(s) Connector Machine interface M12 Metal
tart delay time	100 ms 1 Piece(s) Connector Machine interface M12
tart delay time	100 ms 1 Piece(s) Connector Machine interface M12 Metal 5 -pin
tart delay time	100 ms 1 Piece(s) Connector Machine interface M12 Metal 5 -pin 0.25 mm ²
tart delay time	100 ms 1 Piece(s) Connector Machine interface M12 Metal 5 -pin 0.25 mm ² 100 m
tart delay time	100 ms 1 Piece(s) Connector Machine interface M12 Metal 5 -pin 0.25 mm ²
tart delay time	100 ms 1 Piece(s) Connector Machine interface M12 Metal 5 -pin 0.25 mm ² 100 m
tart delay time	100 ms 1 Piece(s) Connector Machine interface M12 Metal 5 -pin 0.25 mm² 100 m 200 Ω
tart delay time	100 ms 100 ms 1 Piece(s) Connector Machine interface M12 Metal 5 -pin 0.25 mm² 100 m 200 Ω 29 mm x 516 mm x 35.4 mm
tart delay time	100 ms 1 Piece(s) Connector Machine interface M12 Metal 5 -pin 0.25 mm² 100 m 200 Ω 29 mm x 516 mm x 35.4 mm Metal, Aluminum
tart delay time	100 ms 1 Piece(s) Connector Machine interface M12 Metal 5 -pin 0.25 mm² 100 m 200 Ω 29 mm x 516 mm x 35.4 mm Metal, Aluminum Plastic / PMMA
tart delay time	100 ms 1 Piece(s) Connector Machine interface M12 Metal 5 -pin 0.25 mm² 100 m 200 Ω 29 mm x 516 mm x 35.4 mm Metal, Aluminum Plastic / PMMA Diecast zinc
tart delay time	100 ms 1 Piece(s) Connector Machine interface M12 Metal 5 -pin 0.25 mm² 100 m 200 Ω 29 mm x 516 mm x 35.4 mm Metal, Aluminum Plastic / PMMA Diecast zinc 600 g
tart delay time	100 ms 1 Piece(s) Connector Machine interface M12 Metal 5 -pin 0.25 mm² 100 m 200 Ω 29 mm x 516 mm x 35.4 mm Metal, Aluminum Plastic / PMMA Diecast zinc

Operation and display

Part no.: 68001404 – MLC510R40-450 – Safety light curtain receiver

Type of display	LED			
Number of LEDs	2 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			
	TÜV Süd S Mark			
Vibration resistance	50 m/s²			
Shock resistance	100 m/s²			
US patents	US 6,418,546 B			
Classification				
eCl@ss 8.0	27272704			
eCl@ss 9.0	27272704	27272704		

Suitable transmitters

ETIM 5.0

Part no.	Designation	Article	Description
68000404	MLC500T40-450	Safety light curtain transmitter	Resolution: 40 mm Protective field height: 450 mm Operating range: 0 20 m Connection: Connector, M12, Metal, 5 -pin
68008404	MLC502T40-450	Safety light curtain transmitter	Resolution: 40 mm Protective field height: 450 mm Operating range: 0 20 m Connection: Connector, M12, Metal, 5 -pin

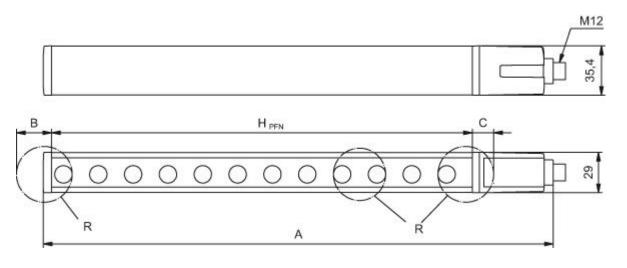
EC002549

Dimensioned drawings

All dimensions in millimeters

Part no.: 68001404 – MLC510R40-450 – Safety light curtain receiver

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

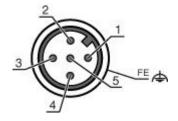


- HPFE Effective protective field height = 490 mm
- Hpfn Nominal protective field height = 450 mm
- Total height = 516 mm
- A B C
- 15 mm Effective protective field height HPFE goes beyond the dimensions of the optics area to the outer R borders of the circles labeled with R.

Electrical connection

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

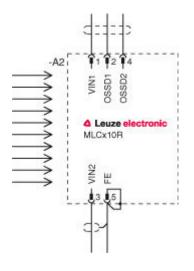
Pin	Pin assignment	Conductor color
1	VIN1	Brown
2	OSSD1	White
3	VIN2	Blue
4	OSSD2	Black
5	FE/SHIELD	Gray



Part no.: 68001404 – MLC510R40-450 – Safety light curtain receiver

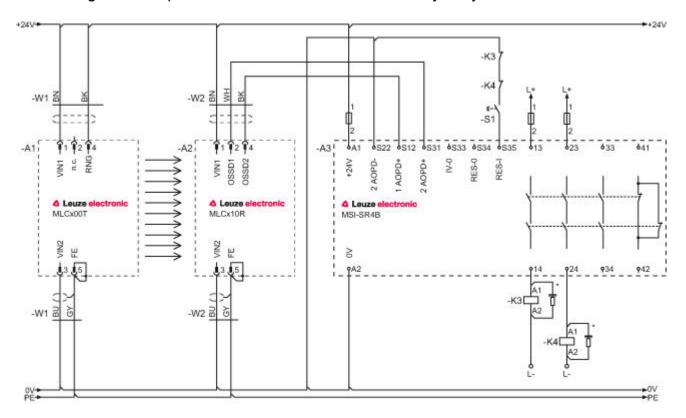
Circuit diagrams

Connection diagram receiver



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

Circuit diagram example with downstream MSI-SR4B safety relay



Part no.: 68001404 – MLC510R40-450 – Safety light curtain receiver

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	Transmission channel C1
	Red, continuous light	OSSD off, transmission channel C2

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
e	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.

Accessories

Connection technology - Connection cables

Part no.	Designation	Article	Description
429088	CB- M12-15000-5GF	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Open end Shielded: No Cable length: 15,000 mm Sheathing material: PUR
678057	CB- M12-15000E-5GF	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Open end Shielded: Yes Cable length: 15,000 mm Sheathing material: PUR
429089	CB- M12-25000-5GF	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Open end Shielded: No Cable length: 25,000 mm Sheathing material: PUR
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
429281	CB- M12-50000-5GF	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Open end Shielded: No Cable length: 50,000 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
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
50133841	KD U-M12-5A- P1-050	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PUR

Part no.: 68001404 – MLC510R40-450 – Safety light curtain receiver

Part no.	Designation	Article	Description
	KD U-M12-5A- P1-100	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Open end Shielded: No Cable length: 10,000 mm Sheathing material: PUR

Connection technology - Connectors

	Part no.	Designation	Article	Description
· Dedu	429175	CB-M12-5GF	Connector	Connection: Connector, M12, Axial, Female, A-coded, 5 -pin

Mounting technology - Mounting brackets

	Part no.	Designation	Article	Description
	429056	BT-2L	Mounting bracket set	Design of mounting device: Angle, L-shape Mounting bracket, at system: Through-hole mounting Mounting bracket, at device: Screw type Material: Metal
The state	429057	BT-2Z	Mounting bracket set	Design of mounting device: Angle, Z-shape Mounting bracket, at system: Through-hole mounting Mounting bracket, at device: Screw type Material: Metal

Mounting technology - Swivel mounts

	Part no.	Designation	Article	Description
P.G.	429393	BT-2HF	Mounting bracket set	Contains: 2x BT-HF swivel mount, 1 cylinder for mounting on the light curtain Mounting bracket, at system: Through-hole mounting Mounting bracket, at device: Clampable Type of mounting device: Turning, 360° Material: Metal, Plastic
	429394	BT-2HF-S	Mounting bracket set	Contains: 2x BT-HF swivel mount, 1 cylinder for mounting on the light curtain Mounting bracket, at system: Through-hole mounting Mounting bracket, at device: Clampable Type of mounting device: Turning, 360° Material: Metal, Plastic Shock absorber: Yes

Mounting technology - Other

Part no.	Designation	Article	Description
425740	BT-10NC60	Sliding block set	Contains: 10x BT-NC sliding block Bore hole 1: Ø 4.7 mm Bore hole 2: M6 Design of mounting device: Sliding block Mounting bracket, at system: Mounting thread Mounting bracket, at device: Groove mounting Material: Metal

Leuze electronic GmbH + Co. KG, In der Braike 1, D-73277 Owen Phone: +49 7021 573-0, Fax +49 7021 573-199

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Part no.: 68001404 – MLC510R40-450 – Safety light curtain receiver

	Part no.	Designation	Article	Description
***	425741	BT-10NC64	Sliding block set	Contains: 10x BT-NC-M4-M6 sliding block Bore hole 1: M4 Bore hole 2: M6 Design of mounting device: Sliding block Mounting bracket, at system: Mounting thread Mounting bracket, at device: Groove mounting Material: Metal
	425742	BT-10NC65	Sliding block set	Contains: 10x BT-NC-M5-M6 sliding block Bore hole 1: M5 Bore hole 2: M6 Design of mounting device: Sliding block Mounting bracket, at system: Mounting thread Mounting bracket, at device: Groove mounting Material: Metal
E.E.	424417	BT-2P40	Mounting bracket set	Contains: 2x BT-P40 clamp bracket Design of mounting device: Mounting clamp Mounting bracket, at system: Groove mounting Mounting bracket, at device: Groove mounting Type of mounting device: Clampable Material: Metal
And And	424422	BT-2SB10	Mounting bracket set	Contains: 2x BT-SB10 Design of mounting device: Mounting clamp Mounting bracket, at system: Through-hole mounting Mounting bracket, at device: Clampable, an der seitlichen C-Nut Type of mounting device: Swiveling Swivel range: -8 8 ° Material: Metal
C.	424423	BT-2SB10-S	Mounting bracket set	Contains: 2x BT-SB10-S Design of mounting device: Mounting clamp Mounting bracket, at system: Through-hole mounting Mounting bracket, at device: Clampable, an der seitlichen C-Nut Swivel range: -8 8 ° Material: Metal Shock absorber: Yes

Test rods

Part no.	Designation	Article	Description
349939	AC-TR20/40	Test piece	Diameter 1: 20mm Diameter 2: 40mm Housing material: Plastic, Terluran HH106 black

Alignment aids

	Part no.	Designation	Article	Description
0	427300	AC-ALM	Alignment aid	Housing material: Plastic
	520101	AC-ALM-M	Alignment aid	Housing material: Plastic
	560020	LA-78U	Alignment aid	Light source: laser, Red Housing material: Metal

Part no.: 68001404 – MLC510R40-450 – Safety light curtain receiver

Part no.	Designation	Article	Description
520004	LA-78UDC	Alignment aid	Light source: laser, Red Housing material: Metal

Protective screens

Part no.	Designation	Article	Description
429038	MLC-2PSF	Mounting bracket set	Type of fastening: Clampable Mounting device material: Metal
347073	MLC-PS450	Protective screen	Protective field height: 450 mm Material: PMMA, clear

Deflecting mirror

Part no.	Designation	Article	Description
529604	UM60-450	Deflecting mirror	Dimensions: 25 mm x 520 mm x 68 mm Protected field height up to: 450 mm Mirror length: 510 mm

Device columns

	Part no.	Designation	Article	Description
방	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
	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

Part no.: 68001404 – MLC510R40-450 – Safety light curtain receiver

	Part no.	Designation	Article	Description
	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
2	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

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.