

## Technical data sheet Safety light curtain transmitter

Part no.: 68000921

MLC500T90-2100



Figure can vary

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## Technical data

### Basic data

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

### Functions

Functions	Range reduction Transmission channel changeover
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### Characteristic parameters

Type	4, IEC/EN 61496
SIL	3, IEC 61508
SILCL	3, IEC/EN 62061
Mission time $T_M$	20 years, EN ISO 13849-1

### Protective field data

Resolution	90 mm
Protective field height	2,100 mm
Operating range	0 ... 20 m

### Optical data

Synchronization	Optical between transmitter and receiver
Light source	LED, Infrared
LED light wavelength	940 nm
Transmitted-signal shape	Pulsed
LED risk group	Exempt group (in acc. with EN 62471:2008)

### Electrical data

Protective circuit	Overvoltage protection Short circuit protected
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### Performance data

Supply voltage $U_B$	24 V, DC, -20 ... 20 %
Current consumption, max.	50 mA
Fuse	2 A semi time-lag

### Inputs

Number of digital switching inputs	1 Piece(s)
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### Switching inputs

Type	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

### Connection

Number of connections	1 Piece(s)
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### Connection 1

Function	Machine 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>
Length of connection cable, max.	100 m
Permissible cable resistance to load, max.	200 $\Omega$

### Mechanical data

Dimension (W x H x L)	29 mm x 2,166 mm x 35.4 mm
Housing material	Metal
Metal housing	Aluminum
Lens cover material	Plastic / PMMA
Material of end caps	Diecast zinc
Net weight	2,250 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	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 S Mark TÜV Süd
Vibration resistance	50 m/s <sup>2</sup>
Shock resistance	100 m/s <sup>2</sup>
US patents	US 6,418,546 B

### Classification

Customs tariff number	85365019
eCl@ss 5.1.4	27272704
eCl@ss 8.0	27272704
eCl@ss 9.0	27272704
eCl@ss 10.0	27272704
eCl@ss 11.0	27272704
ETIM 5.0	EC002549
ETIM 6.0	EC002549
ETIM 7.0	EC002549

## Dimensioned drawings

All dimensions in millimeters

Calculation of the effective protective field height  $H_{PFE} = H_{PFN} + B + C$



$H_{PFE}$  Effective protective field height = 2190 mm

$H_{PFN}$  Nominal protective field height = 2100 mm

A Total height = 2166 mm

B 50 mm

C 40 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

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

Pin	Pin assignment	Conductor color
1	VIN1	Brown
2	n.c.	White
3	VIN2	Blue
4	RNG	Black
5	FE/SHIELD	Gray



## Circuit diagrams

### Transmission channel C1, reduced range

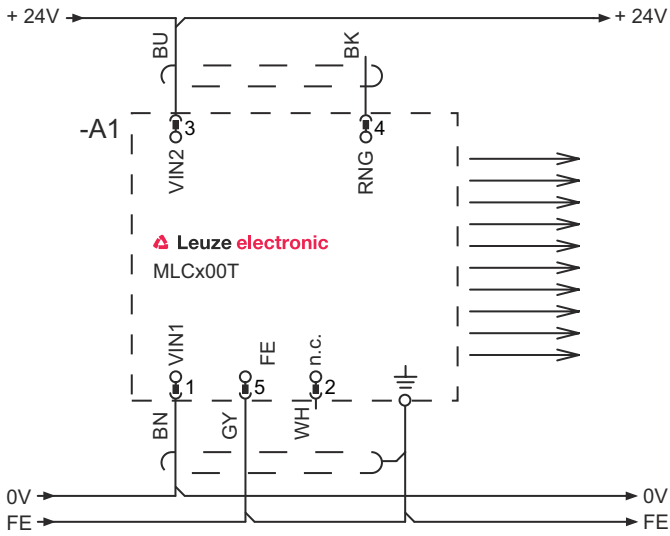


### Transmission channel C1, standard range



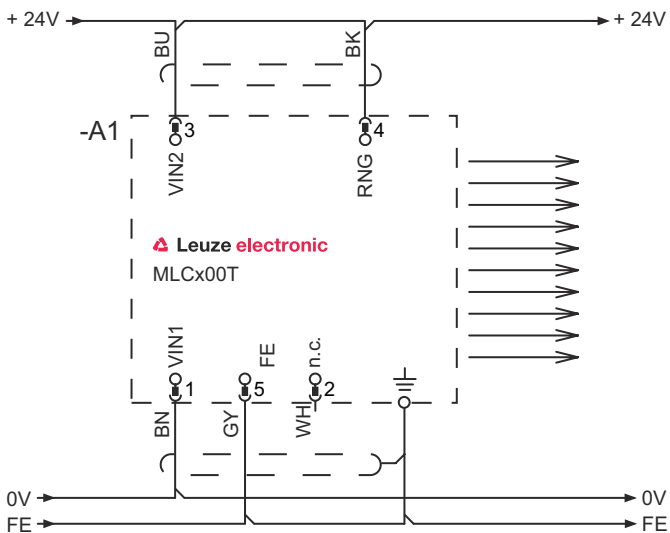
## Circuit diagrams

### Transmission channel C2, reduced range



- 1 VIN1 = 0 V
- 3 VIN2 = +24 V
- 4 RNG = 0 V or open

### Transmission channel C2, standard range



- 1 VIN1 = 0 V
- 3 VIN2 = +24 V
- 4 RNG = +24 V

## Operation and display

LED	Display	Meaning
1	Off	Device switched off
	Red, continuous light	Device error
	Green, continuous light	Normal operation
2	Green, flashing, 10 s long after switching on	Reduced range selected by the wiring of pin 4
	Off	Transmission channel C1
	Green, continuous light	Transmission channel C2

## Suitable receivers

Part no.	Designation	Article	Description
68001921	MLC510R90-2100	Safety light curtain receiver	Resolution: 90 mm Protective field height: 2,100 mm Response time: 7 ms Connection: Connector, M12, Metal, 5 -pin Function package: Basic
68002921	MLC520R90-2100	Safety light curtain receiver	Resolution: 90 mm Protective field height: 2,100 mm Response time: 7 ms Connection: Connector, M12, Metal, 8 -pin Function package: Standard
68003921	MLC530R90-2100	Safety light curtain receiver	Resolution: 90 mm Protective field height: 2,100 mm Response time: 7 ms Connection: Connector, M12, Metal, 8 -pin Function package: Extended
68009921	MLC530R90-2100-SPG	Safety light curtain receiver	Resolution: 90 mm Protective field height: 2,100 mm Response time: 100 ms Connection: Connector, M12, Metal, 8 -pin Function package: Smart Process Gating

## Part number code

Part designation: MLCxyy-za-hhhhei-ooo

**MLC** Safety light curtain

<b>x</b>	<b>Series</b> 3: MLC 300 5: MLC 500
<b>yy</b>	<b>Function classes</b> 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
<b>z</b>	<b>Device type</b> T: transmitter R: receiver
<b>a</b>	<b>Resolution</b> 14: 14 mm 20: 20 mm 30: 30 mm 40: 40 mm 90: 90 mm
<b>hhhh</b>	<b>Protective field height</b> 150 ... 3000: from 150 mm to 3000 mm
<b>e</b>	<b>Host/Guest (optional)</b> H: Host MG: Middle Guest G: Guest

## Part number code

**MLC**      **Safety light curtain**

<b>i</b>	<b>Interface (optional)</b> /A: AS-i
<b>ooo</b>	<b>Option</b> /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 website at [www.leuze.com](http://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
	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

### Mounting technology - Swivel mounts



	Part no.	Designation	Article	Description
	429393	BT-2HF	Mounting bracket set	Fastening, at system: Through-hole mounting Mounting bracket, at device: Clampable Type of mounting device: Turning, 360° Material: Metal, Plastic

### Alignment aids

	Part no.	Designation	Article	Description
	520101	AC-ALM-M	Alignment aid	Housing material: Plastic

## Accessories

## Services

	Part no.	Designation	Article	Description
	S981050	CS40-I-140	Safety inspection "Safety light barriers"	<p>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.</p> <p>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.</p> <p>Restrictions: Travel costs and accommodation expenses charged separately and according to expenditure.</p>
	S981046	CS40-S-140	Start-up support	<p>Details: For safety devices including stopping time measurement and initial inspection.</p> <p>Conditions: Devices and connection cables are already mounted, price not including travel costs and, if applicable, accommodation expenses.</p> <p>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.</p>

### Note



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