

## Technical data sheet

### Safety sensor/transmitter set

Part no.: 544001  
MLC500T14-450-IP



For illustration purposes only

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## Technical data

### Basic data

Series	MLC 500
Device type	Transmitter
Contains	2x BT-IP swivel mount
Application	Finger protection

### 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	14 mm
Protective field height	450 mm
Operating range	0 ... 4.8 m

### Optical data

Synchronization	Optical between transmitter and receiver
Light source	LED, Infrared
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	Cable with connector
Cable length	15,000 mm
Sheathing material	PVC
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 ( $\varnothing$ x L)	52.5 mm x 650 mm
Housing material	Metal
Metal housing	Aluminum
Lens cover material	Plastic / PMMA
Material of end caps	Diecast zinc
Net weight	600 g
Housing color	Yellow, RAL 1021
Type of fastening	Swivel mount

### Protective tube

Material	PMMA, clear
Material of end caps	V4A stainless steel (1.4404)
Material of clamping cylinder	PA 6
Material of pressure-equalization membrane	PA 6
Cable gland material	PA 6

### Operation and display

Type of display	LED
Number of LEDs	2 Piece(s)

### Environmental data

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

### Certifications

Degree of protection	IP 65 IP 66 IP 67 IP 69K
Protection class	III
Certifications	c TÜV NRTL US c UL 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

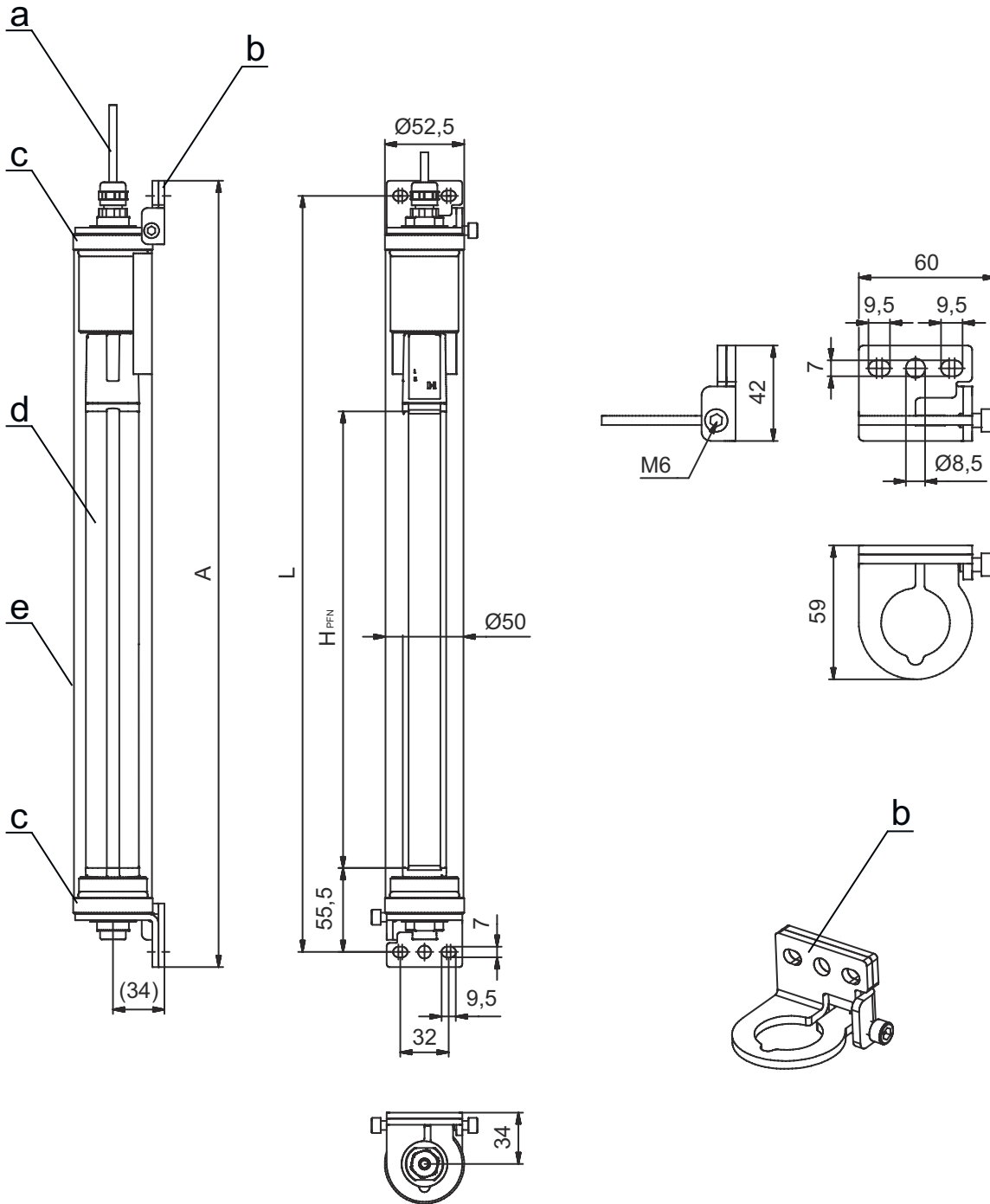
## Technical data

Customs tariff number	85365019
ECLASS 5.1.4	27272704
ECLASS 8.0	27272704
ECLASS 9.0	27272704
ECLASS 10.0	27272704
ECLASS 11.0	27272704
ECLASS 12.0	27272704
ECLASS 13.0	27272704
ECLASS 14.0	27272704
ETIM 5.0	EC002549
ETIM 6.0	EC002549
ETIM 7.0	EC002549
ETIM 8.0	EC002549
ETIM 9.0	EC002549

## Dimensioned drawings

All dimensions in millimeters

MLC safety light curtains pre-mounted in the IP protective tube



- a Connection cable
- b Mounting brackets for mounting
- c End caps, stainless steel V4A
- d MLC transmitter
- e IP protective tube

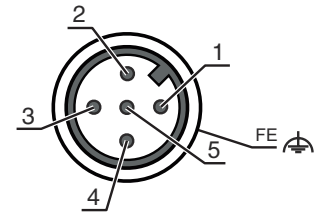
- A Total height incl. mounting brackets = 670 mm
- L Spacing of drilled holes for mounting brackets = 650 mm
- H<sub>PFN</sub> Effective protective field height = 450 mm

# Electrical connection

## Connection 1

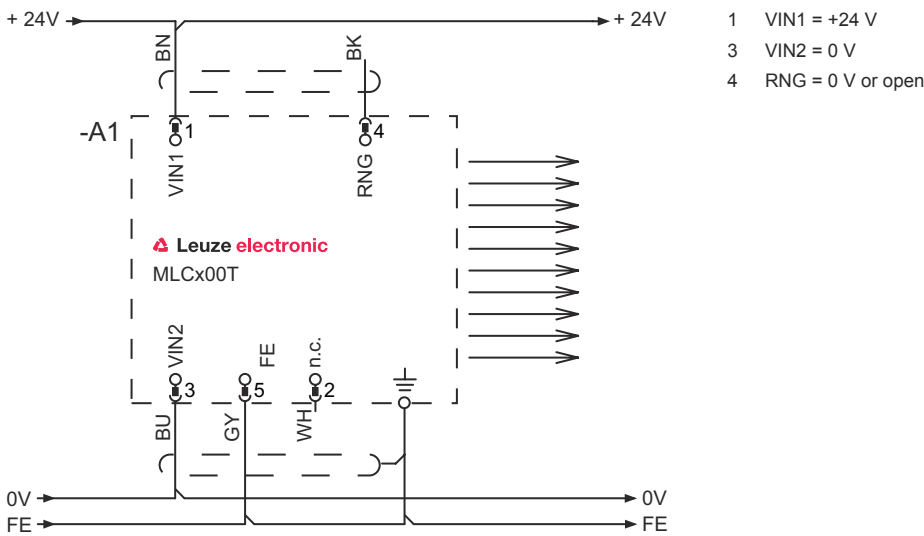
Function	Machine interface
Type of connection	Cable with connector
Cable length	15,000 mm
Sheathing material	PVC
Cable color	Black
Thread size	M12
Type	Male
Material	Metal
No. of pins	5 -pin
Encoding	A-coded
Connector housing	FE/SHIELD

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



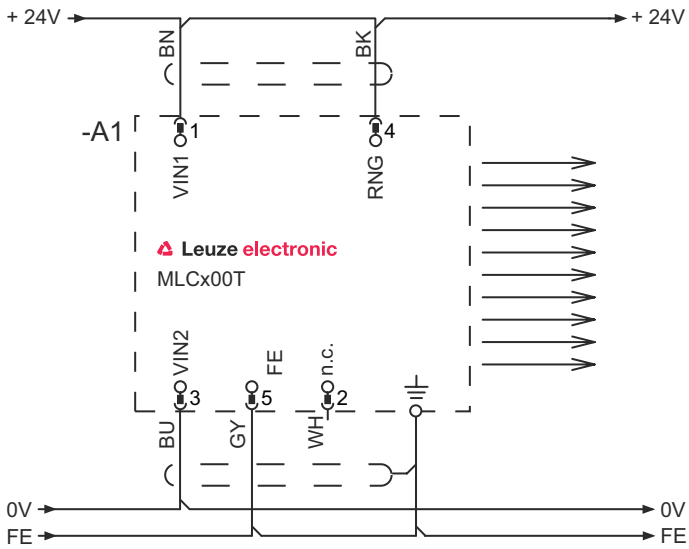
## Circuit diagrams

Transmission channel C1, reduced range



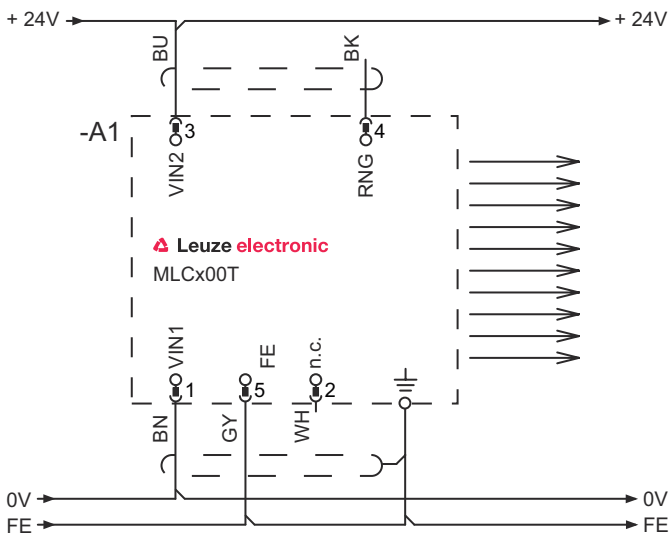
## Circuit diagrams

### Transmission channel C1, standard range



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

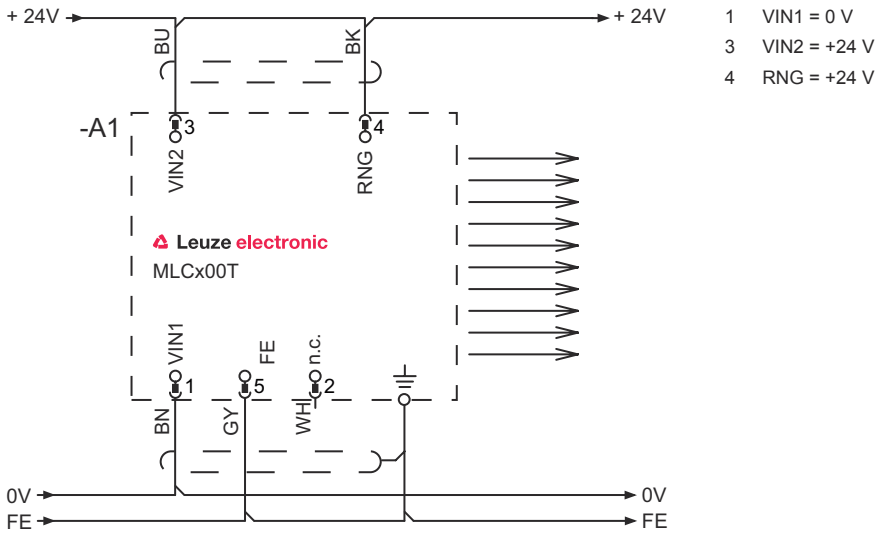
### Transmission channel C2, reduced range



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

# Circuit diagrams

## Transmission channel C2, standard range



## 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 transmitters

Part no.	Designation	Article	Description
544008	MLC510R14-450-IP	Safety sensor/receiver set	Function package: Basic Resolution: 14 mm Protective field height: 450 mm Response time: 11 ms Connection: Cable with connector, M12, Metal, 5 -pin, 15,000 mm, PVC
544063	MLC530R14-450-SPG-IP	Safety sensor/receiver set	Function package: Smart Process Gating Resolution: 14 mm Protective field height: 450 mm Response time: 100 ms Connection: Connector, M12, Metal, 8 -pin

## Part number code

Part designation: MLCxyy-za-hhhhei-ooo

**MLC** Safety light curtain

**x** Series  
3: MLC 300  
5: MLC 500

## Part number code

**MLC**      **Safety light curtain**


<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
<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

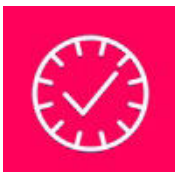
 **Observe intended use!**



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


## Accessories


### Services

	Part no.	Designation	Article	Description
	S981050	CS40-I-140	Safety inspection	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.



## Accessories

	Part no.	Designation	Article	Description
	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.

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