

Technical data sheet

Safety sensor/receiver set

Part no.: 544039
MLC530R20-300-IP-25



For illustration purposes only

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Technical data

Basic data

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

Functions

Function package	Extended
Functions	Automatic start/restart Configuration by means of wiring Transmission channel changeover

Characteristic parameters

Type	4, IEC/EN 61496
SIL	3, IEC 61508
SILCL	3, IEC/EN 62061
Performance Level (PL)	e, EN ISO 13849-1
PFFH _D	7.73E-09 per hour
Mission time T _M	20 years, EN ISO 13849-1
Category	4, EN ISO 13849

Protective field data

Resolution	20 mm
Protective field height	300 mm

Optical data

Synchronization	Optical between transmitter and receiver
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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.	150 mA
Fuse	2 A semi time-lag

Outputs

Number of safety-related switching outputs (OSSDs)	2 Piece(s)
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Safety-related switching outputs

Type	Safety-related switching output OSSD
Switching voltage high, min.	18 V
Switching voltage low, max.	2.5 V
Switching voltage, type.	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, type.	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

Time behavior

Response time	7 ms
Restart delay time	100 ms

Connection

Number of connections	1 Piece(s)
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Connection 1

Function	Machine interface
Type of connection	Cable with connector
Cable length	25,000 mm
Sheathing material	PVC
Thread size	M12
Material	Metal
No. of pins	8 -pin

Cable properties

Permissible conductor cross section, type.	0.25 mm ²
Length of connection cable, max.	100 m
Permissible cable resistance to load, max.	200 Ω

Mechanical data

Dimension (Ø x L)	52.5 mm x 500 mm
Housing material	Metal
Metal housing	Aluminum
Lens cover material	Plastic / PMMA
Material of end caps	Diecast zinc
Net weight	450 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 %

Technical data

Certifications

Degree of protection	IP 65
	IP 66
	IP 67
	IP 69K
Protection class	III
Approvals	c TÜV NRTL US
	c UL US
	S Mark
	TÜV Süd
Vibration resistance	50 m/s ²
Shock resistance	100 m/s ²
US patents	US 6,418,546 B

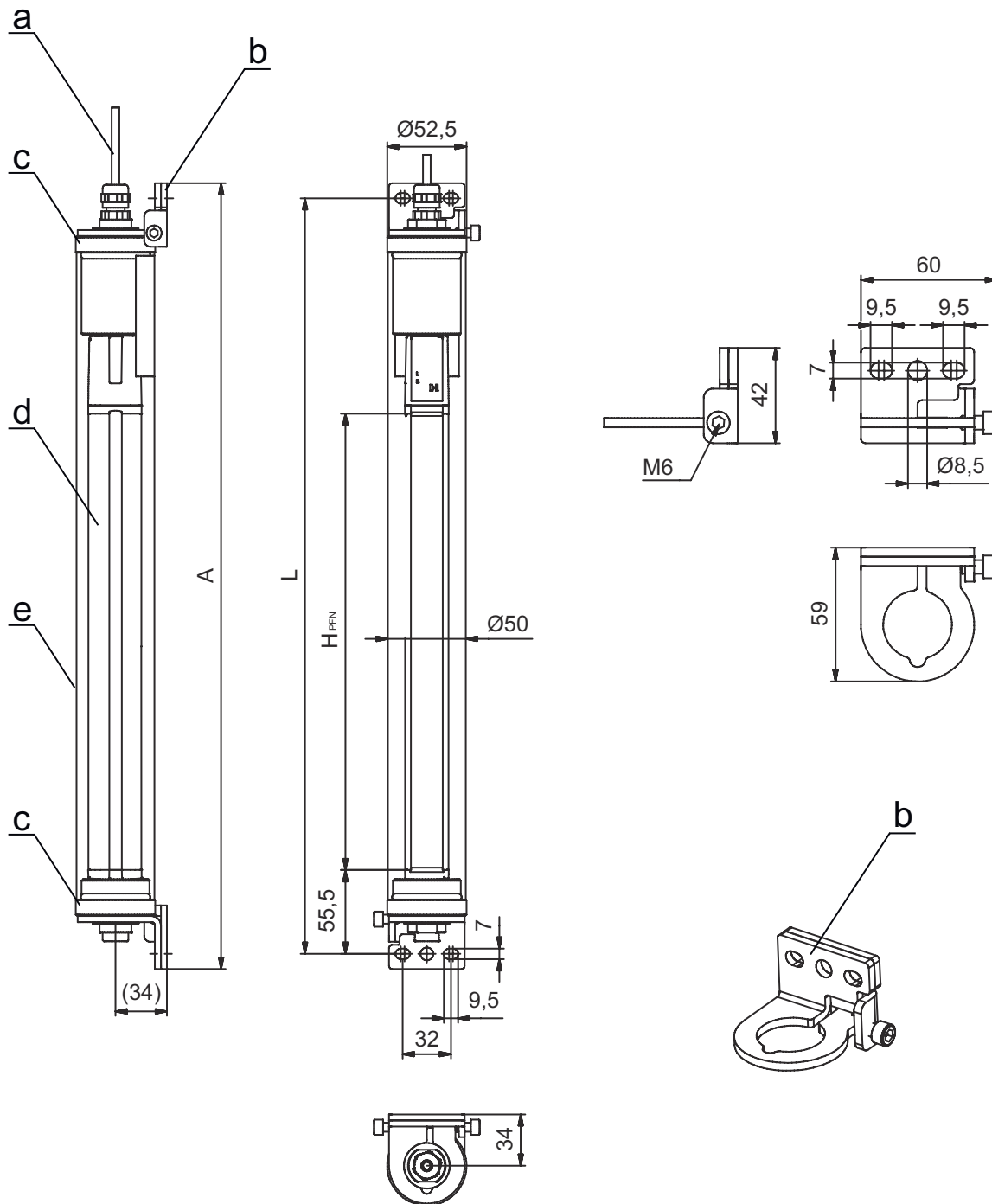
Classification

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
ECLASS 15.0	27272704
ETIM 5.0	EC002549
ETIM 6.0	EC002549
ETIM 7.0	EC002549
ETIM 8.0	EC002549
ETIM 9.0	EC002549
ETIM 10.0	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 receiver
- e IP protective tube

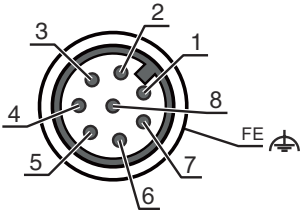
- A Total height incl. mounting brackets = 520 mm
- L Spacing of drilled holes for mounting brackets = 500 mm
- H_{PFN} Effective protective field height = 300 mm

Electrical connection

Connection 1

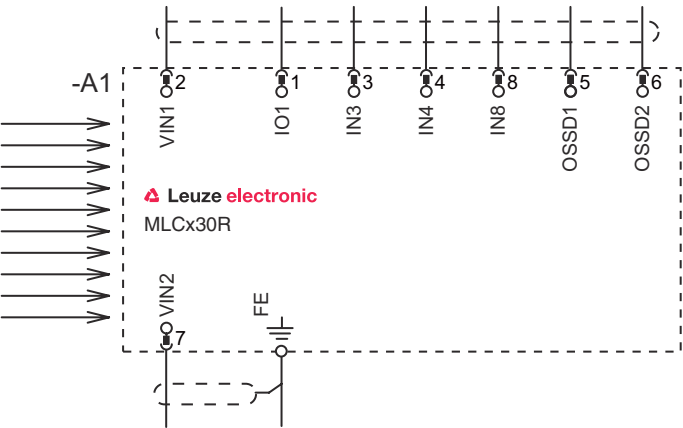
Function	Machine interface
Type of connection	Cable with connector
Cable length	25,000 mm
Sheathing material	PVC
Cable color	Gray
Thread size	M12
Type	Male
Material	Metal
No. of pins	8 -pin
Encoding	A-coded
Connector housing	FE/SHIELD

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



Circuit diagrams

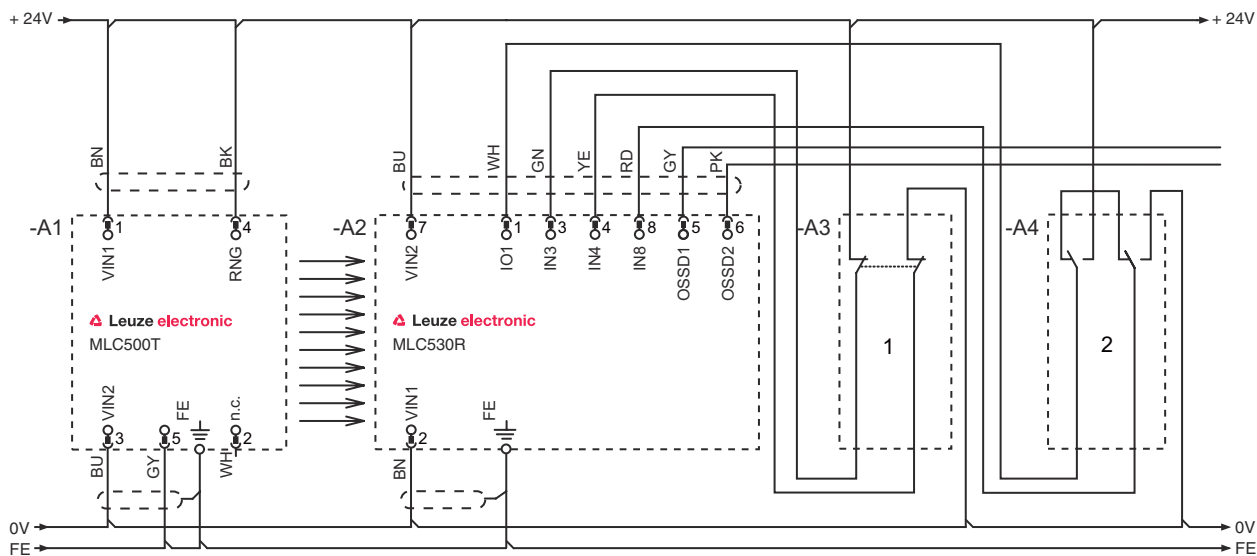
Connection diagram receiver



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

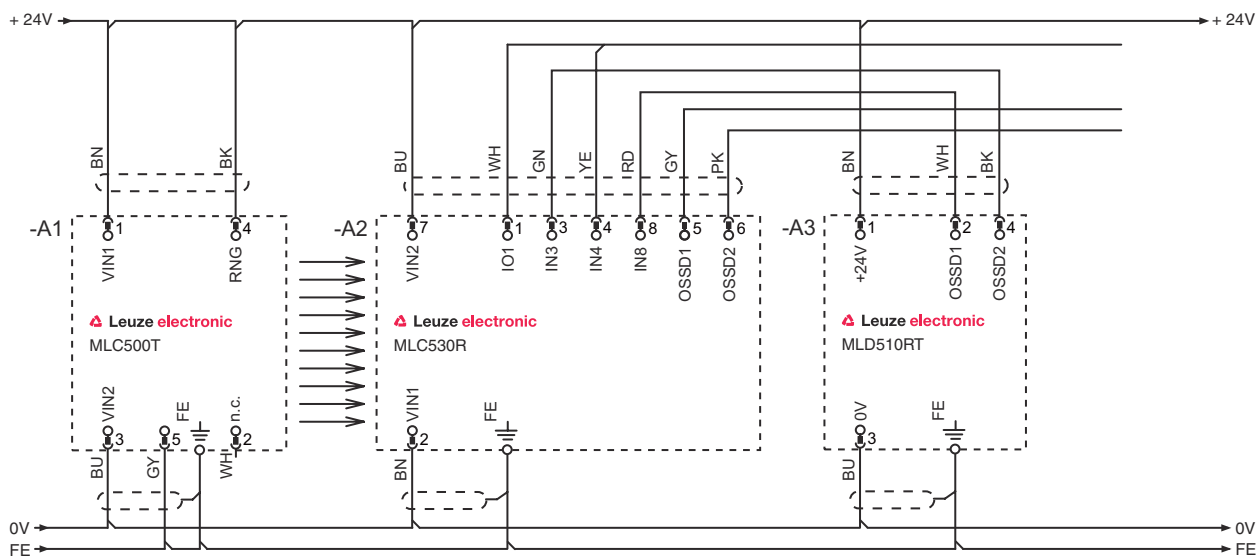
Circuit diagrams

Operating mode 1: connection example with Smart Process Gating (SPG)



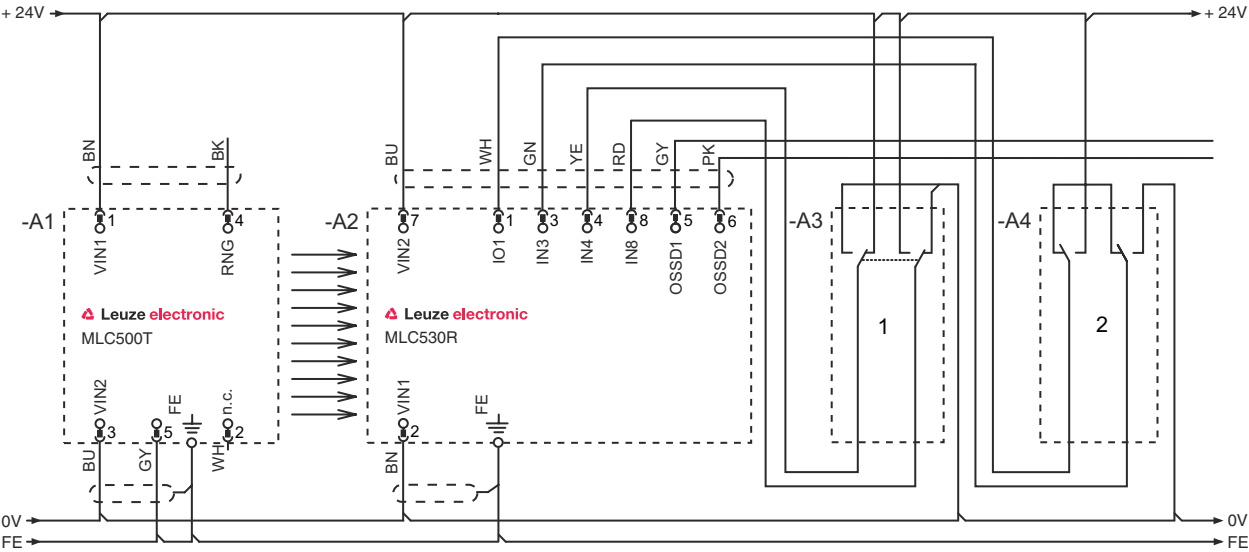
- 1 Linked safety sensor, e.g. safety door switch
- 2 Key switch for teaching ("teach key switch")

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



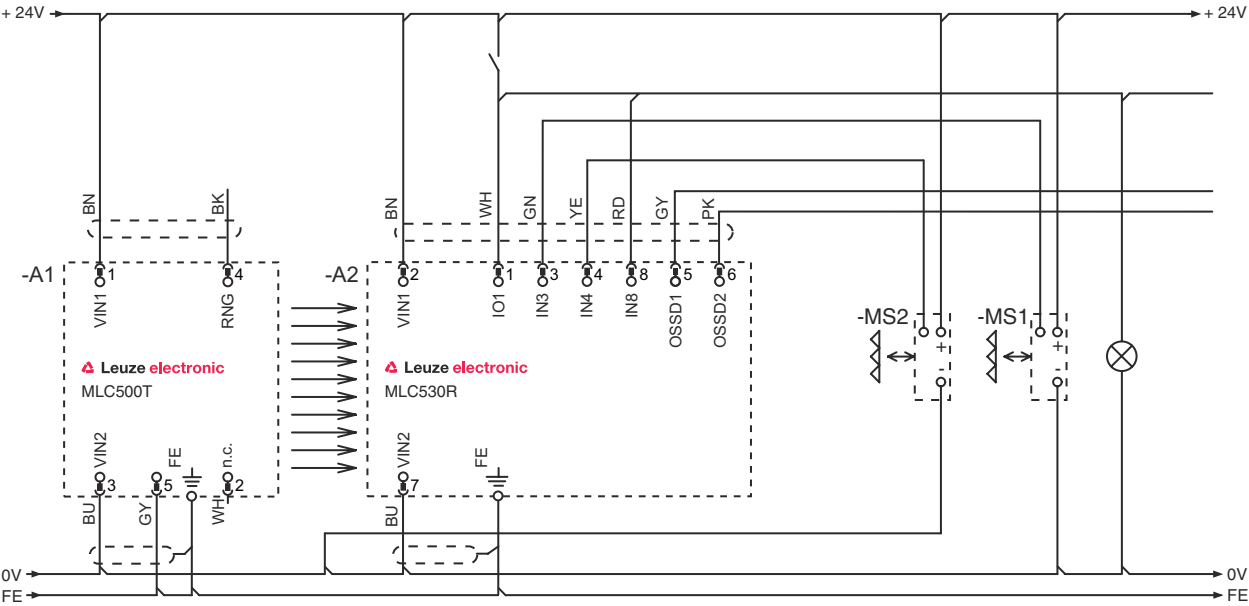
Circuit diagrams

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

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



Operation and display

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

Operation and display

LED	Display	Meaning
1	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

Suitable transmitters

	Part no.	Designation	Article	Description
	544038	MLC500T20-300-IP-25	Safety sensor/transmitter set	Resolution: 20 mm Protective field height: 300 mm Operating range: 0 ... 12 m Connection: Cable with connector, M12, Metal, 5 -pin, 25,000 mm, PVC

Part number code

Part designation: **MLCxxy-za-hhhhei-ooo**

MLC	Safety light curtain
x	Series 3: MLC 300 5: MLC 500
yy	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 or gating 35: Extended receiver – Gating
z	Device type T: transmitter R: receiver
a	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
ooo	Option /V: high Vibration-proof EX2: explosion protection (zones 2 + 22) SPG: Smart Process Gating SPG RR: Smart Process Gating – Reduced resolution

Note



A list with all available device types can be found on the Leuze 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.