

## Technical data sheet

### Safety sensor/transmitter set

Part no.: 544000  
MLC500T14-300-IP



Figure can vary

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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<br>Transmission channel changeover |
|-----------|--|

### 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 | 300 mm      |
| Operating range         | 0 ... 4.8 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<br>Short circuit protected |
|--------------------|---|

### 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) |
|------------------------------------|------------|

### 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) |
|-----------------------|------------|

### 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 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 %    |

### Certifications

|                      |  |
|----------------------|--|
| Degree of protection | IP 65<br>IP 66<br>IP 67<br>IP 69K              |
| Protection class     | III  |
| Certifications       | c CSA US<br>c TÜV NRTL US<br>S Mark<br>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                                 |

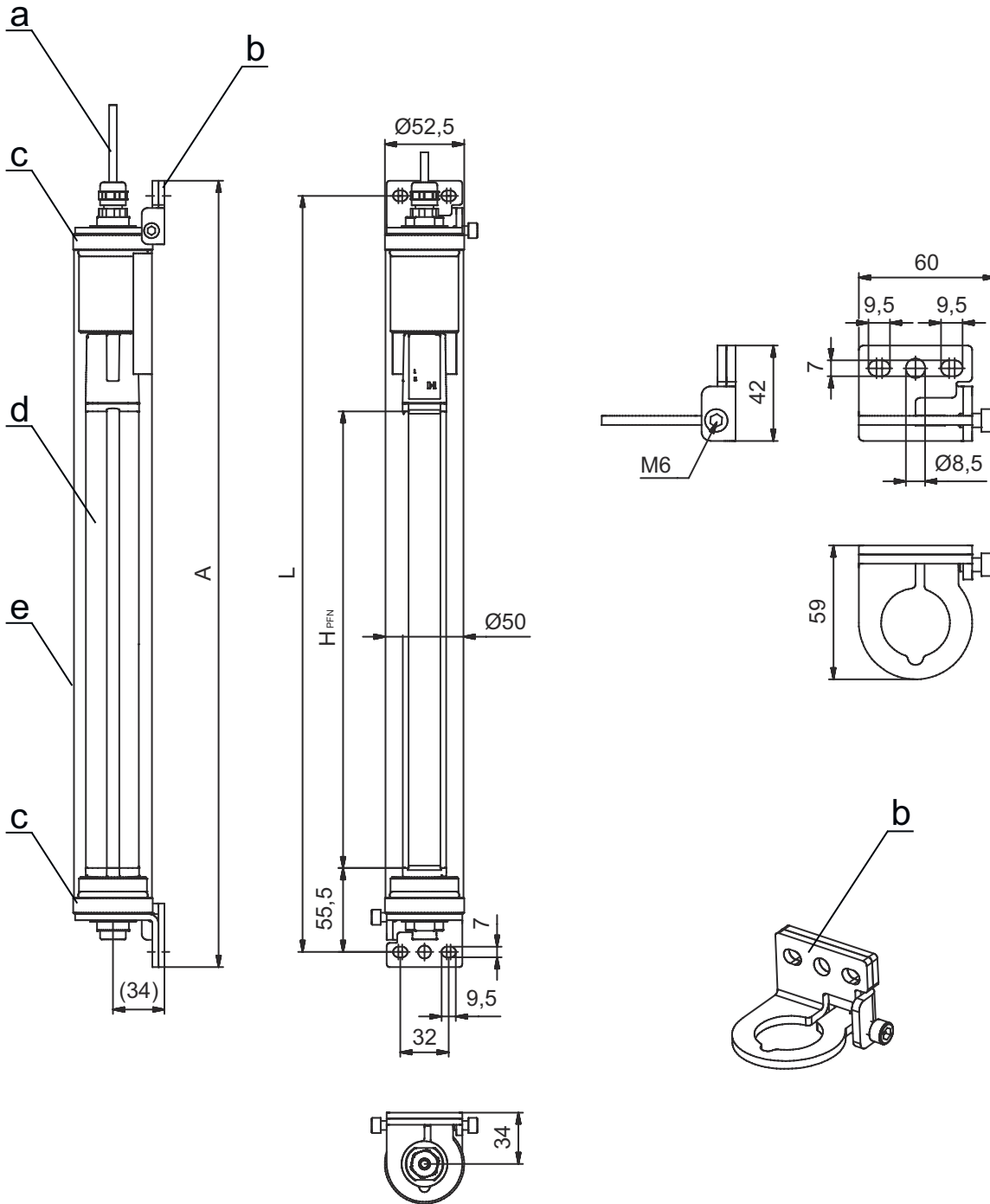
### Classification

|                       |          |
|-----------------------|----------|
| 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

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

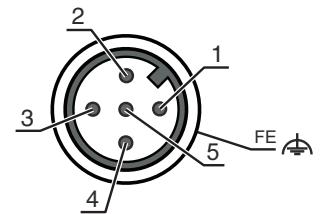
- A Total height incl. mounting brackets = 520 mm
- L Spacing of drilled holes for mounting brackets = 500 mm
- H<sub>PFN</sub> Effective protective field height = 300 mm

## Electrical connection

### Connection 1

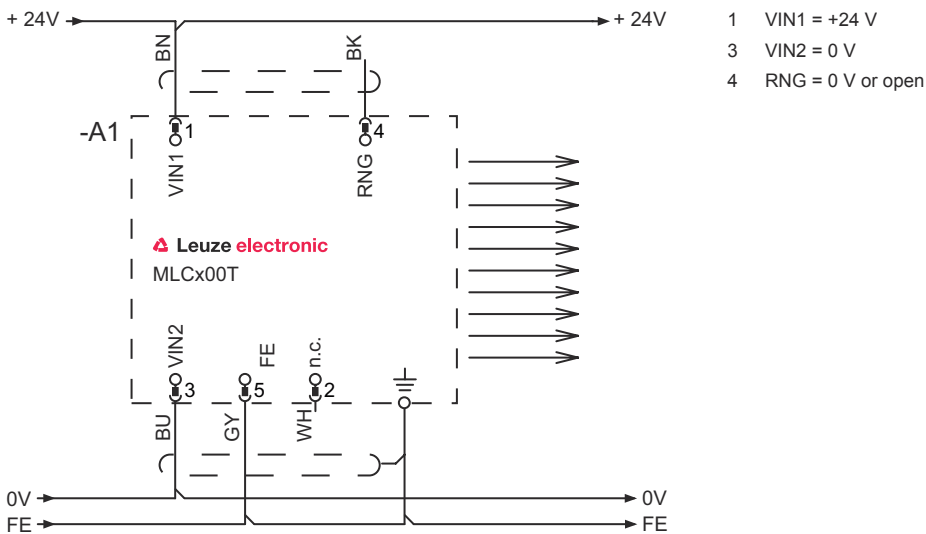
|                    |                      |
|--------------------|----------------------|
| Function           | Machine interface    |
| Type of connection | Cable with connector |
| Cable length       | 15,000 mm            |
| Sheathing material | PVC                  |
| Cable color        | Black                |
| 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            |



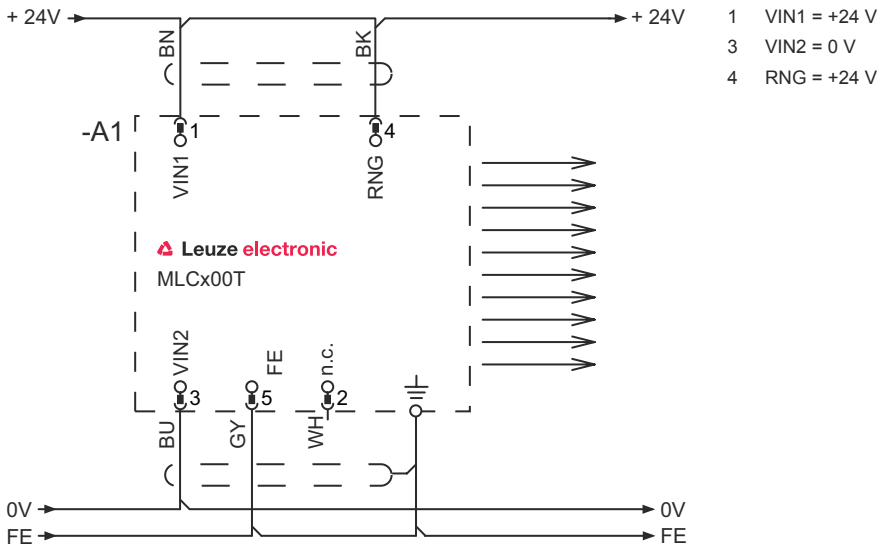
## Circuit diagrams

### Transmission channel C1, reduced range

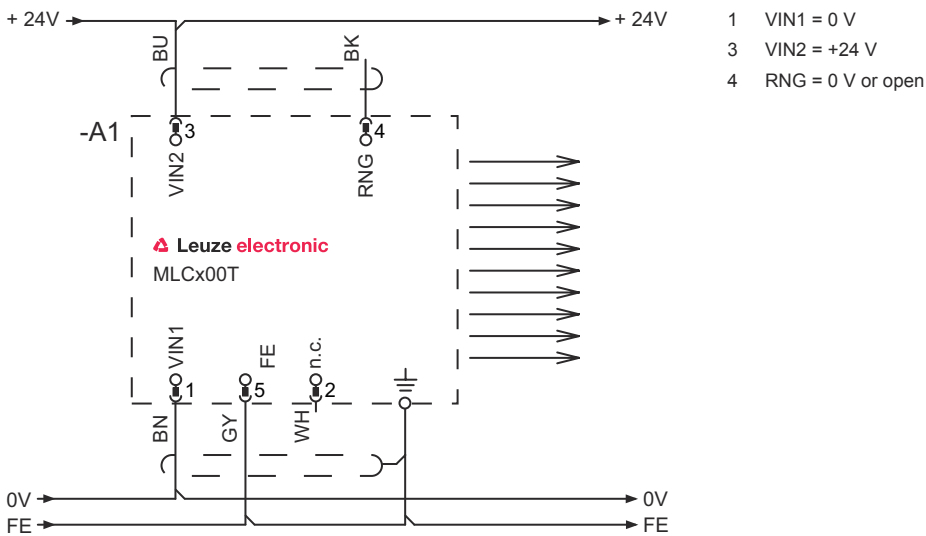


## Circuit diagrams

### Transmission channel C1, standard range

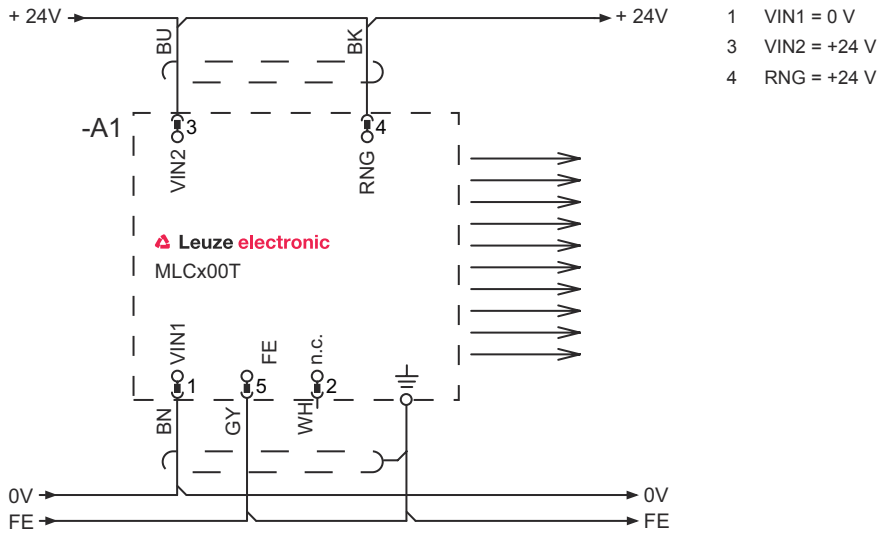


### Transmission channel C2, reduced range



## 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 receivers

| Part no. | Designation      | Article                    | Description  |
|----------|------------------|----------------------------|--|
| 544007   | MLC510R14-300-IP | Safety sensor/receiver set | Resolution: 14 mm<br>Protective field height: 300 mm<br>Response time: 8 ms<br>Connection: Cable with connector, M12, Metal, 5 -pin, 15,000 mm, PVC<br>Function package: Basic |

## Part number code

Part designation: MLCxyy-za-hhhhei-ooo

| MLC | Safety light curtain  |
|-----|---|
| x   | <b>Series</b><br>3: MLC 300<br>5: MLC 500   |
| yy  | <b>Function classes</b><br>00: transmitter<br>01: transmitter (AIDA)<br>02: transmitter with test input<br>10: basic receiver - automatic restart<br>11: basic receiver - automatic restart (AIDA)<br>20: standard receiver - EDM/RES selectable<br>30: extended receiver - blanking/muting |

## Part number code

### MLC Safety light curtain

|             |  |
|-------------|--|
| <b>z</b>    | <b>Device type</b><br>T: transmitter<br>R: receiver  |
| <b>a</b>    | <b>Resolution</b><br>14: 14 mm<br>20: 20 mm<br>30: 30 mm<br>40: 40 mm<br>90: 90 mm                                 |
| <b>hhhh</b> | <b>Protective field height</b><br>150 ... 3000: from 150 mm to 3000 mm   |
| <b>e</b>    | <b>Host/Guest (optional)</b><br>H: Host<br>MG: Middle Guest<br>G: Guest  |
| <b>i</b>    | <b>Interface (optional)</b><br>/A: AS-i  |
| <b>ooo</b>  | <b>Option</b><br>/V: high Vibration-proof<br>EX2: explosion protection (zones 2 + 22)<br>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<br>"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.<br>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.<br>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.<br>Conditions: Devices and connection cables are already mounted, price not including travel costs and, if applicable, accommodation expenses.<br>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.   |

## Accessories

### Note



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