

# **Technical data sheet** Safety light curtain transmitter

Part no.: 68000330 MLC500T30-3000



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We reserve the right to make technical changes eng • 2021-01-28

# **Technical data**

#### **Basic data**

| Series      | MLC 500                |
|-------------|------------------------|
| Device type | Transmitter            |
| Contains    | 2x BT-NC sliding block |
| Application | Hand protection        |
| Functions   |                        |

Functions

#### Range reduction Transmission channel changeover

#### **Characteristic parameters**

| Туре                        | 4, IEC/EN 61496          |
|-----------------------------|--------------------------|
| SIL                         | 3, IEC 61508             |
| SILCL                       | 3, IEC/EN 62061          |
| Mission time T <sub>M</sub> | 20 years, EN ISO 13849-1 |

30 mm 3,000 mm

0 ... 10 m

#### **Protective field data**

Resolution Protective field height Operating range

#### **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 |  |
|                                    |                         |  |
| Performance data                   |                         |  |
| Supply voltage U <sub>B</sub>      | 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                   |                         |  |
| Туре                               | 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 | Connector         |
| Thread size        | M12               |
| Material           | Metal             |
| No. of pins        | 5 -pin            |

# Cable properties Permissible conductor cross section, typ. Length of connection cable, max. Permissible cable resistance to load, max.

#### Mechanical data

| Dimension (W x H x L)                 | 29 mm x 3,066 mm x 35.4 mm |
|---------------------------------------|----------------------------|
| Housing material                      | Metal                      |
| Metal housing                         | Aluminum                   |
| U U U U U U U U U U U U U U U U U U U |                            |
| Lens cover material                   | Plastic / PMMA             |
| Material of end caps                  | Diecast zinc               |
| Net weight                            | 3,150 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/s²        |
| Shock resistance     | 100 m/s²       |
| 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 |

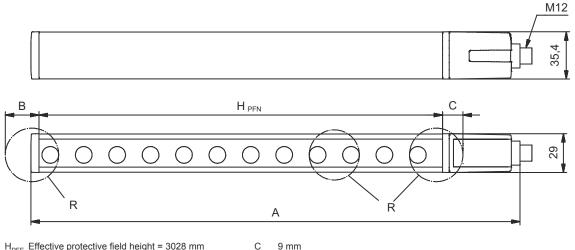


# **Dimensioned drawings**



All dimensions in millimeters

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



 $H_{PFE}$  Effective protective field height = 3028 mm

9 mm

 $H_{PFN}$  Nominal protective field height = 3000 mm

А Total height = 3066 mm

В 19 mm R

Effective protective field height  $\rm H_{PFE}$  goes beyond the dimensions of the optics area to the outer borders of the circles labeled with R.

# **Electrical connection**

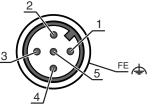
#### **Connection 1**

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

#### Pin **Pin assignment**

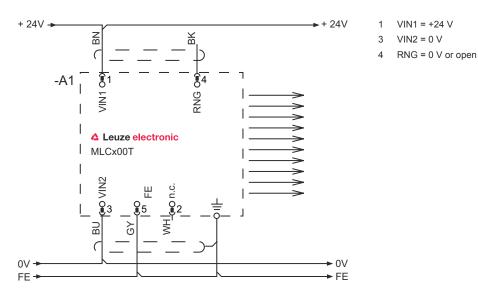
#### **Conductor color**

| 1 | VIN1      | Brown |   |
|---|-----------|-------|---|
| 2 | n.c.      | White |   |
| 3 | VIN2      | Blue  | 3 |
| 4 | RNG       | Black |   |
| 5 | FE/SHIELD | Gray  |   |
|   |           |       | 4 |

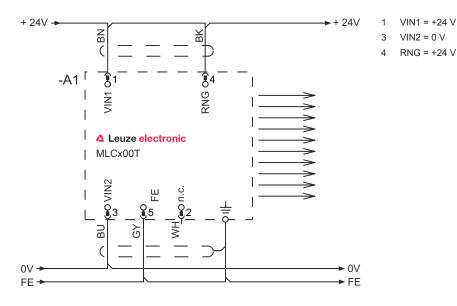


# **Circuit diagrams**

#### Transmission channel C1, reduced range



#### Transmission channel C1, standard range



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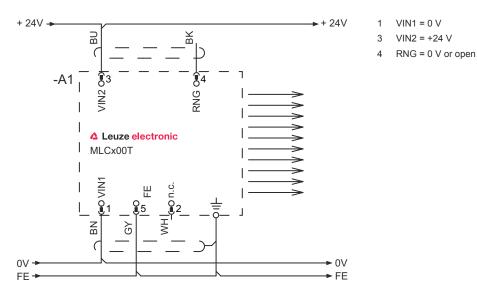
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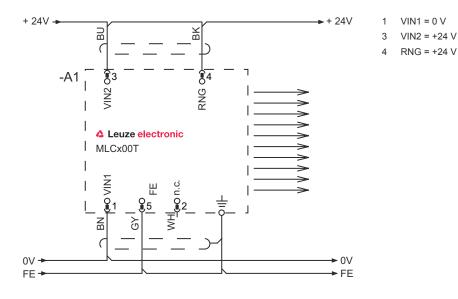
# **Circuit diagrams**

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Transmission channel C2, reduced range



#### 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

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| <br>Part no. | Designation            | Article                          | Description  |
|--------------|------------------------|----------------------------------|--|
| 68001330     | MLC510R30-3000         | Safety light curtain<br>receiver | Resolution: 30 mm<br>Protective field height: 3,000 mm<br>Response time: 26 ms<br>Connection: Connector, M12, Metal, 5 -pin<br>Function package: Basic                 |
| 68002330     | MLC520R30-3000         | Safety light curtain receiver    | Resolution: 30 mm<br>Protective field height: 3,000 mm<br>Response time: 26 ms<br>Connection: Connector, M12, Metal, 8 -pin<br>Function package: Standard              |
| 68003330     | MLC530R30-3000         | Safety light curtain<br>receiver | Resolution: 30 mm<br>Protective field height: 3,000 mm<br>Response time: 26 ms<br>Connection: Connector, M12, Metal, 8 -pin<br>Function package: Extended              |
| 68009330     | MLC530R30-3000-<br>SPG | Safety light curtain<br>receiver | Resolution: 30 mm<br>Protective field height: 3,000 mm<br>Response time: 100 ms<br>Connection: Connector, M12, Metal, 8 -pin<br>Function package: Smart Process Gating |

### Part number code

#### Part designation: MLCxyy-za-hhhhei-ooo

| MLC  | Safety light curtain   |
|------|--|
| x    | Series<br>3: MLC 300<br>5: MLC 500   |
| уу   | Function classes<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 |
| z    | Device type<br>T: transmitter<br>R: receiver   |
| а    | Resolution<br>14: 14 mm<br>20: 20 mm<br>30: 30 mm<br>40: 40 mm<br>90: 90 mm  |
| hhhh | Protective field height<br>150 … 3000: from 150 mm to 3000 mm  |
| e    | Host/Guest (optional)<br>H: Host<br>MG: Middle Guest<br>G: Guest   |

# Part number code



| MLC | Safety light curtain  |
|-----|---|
| i   | Interface (optional)<br>/A: AS-i  |
| 000 | Option<br>/V: high Vibration-proof<br>EX2: explosion protection (zones 2 + 22)<br>SPG: Smart Process Gating |
|     | Note  |
| 1   | ∜ A list with all available device types can be found on the Leuze website at www.leuze.com.                |

# Notes

| Observe intended use!   |
|---|
| <ul> <li>№ The product may only be put into operation by competent persons.</li> <li>№ Only use the product in accordance with its intended use.</li> </ul> |

# Accessories

# Connection technology - Connection cables

| <br>Part no. | Designation        | Article          | Description  |
|--------------|--------------------|------------------|--|
| 50133860     | KD S-M12-5A-P1-050 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin<br>Connection 2: Open end<br>Shielded: Yes<br>Cable length: 5,000 mm<br>Sheathing material: PUR |

# Mounting technology - Swivel mounts

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

# Alignment aids

| Alignment aid | Housing material: Plastic |  |
|---------------|---------------------------|--|
|               |                           |  |

## Accessories

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## 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<br>current standards and guidelines. Inclusion of the device and machine data in<br>a database, production of a test log per application.<br>Conditions: It must be possible to stop the machine, support provided by<br>customer's employees and access to the machine for Leuze employees must<br>be ensured.<br>Restrictions: Travel costs and accommodation expenses charged separately<br>and according to expenditure. |
| ц.<br>С | 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.  |

|   | Note  |
|---|---|
| 0 | ∜ A list with all available accessories can be found on the Leuze website in the Download tab of the article detailed page. |