



Figure can vary

**Part no.: 68004116**  
**MLC501T14-1650**  
**Safety light curtain transmitter**



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## Technical data

| <b>Basic data</b>                  |  |
|------------------------------------|--|
| Series                             | MLC 500  |
| Device type                        | Transmitter  |
| Contains                           | 2x BT-NC sliding block                             |
| Application                        | Finger protection                                  |
| <b>Functions</b>                   |  |
| Functions                          | Range reduction<br>Transmission channel changeover |
| <b>Characteristic parameters</b>   |  |
| Type                               | 4 , IEC/EN 61496                                   |
| SIL                                | 3 , IEC 61508                                      |
| SILCL                              | 3 , IEC/EN 62061                                   |
| Mission time $T_M$                 | 20 years , EN ISO 13849-1                          |
| <b>Protective field data</b>       |  |
| Resolution                         | 14 mm  |
| Protective field height            | 1,650 mm   |
| Operating range                    | 0 ... 6 m  |
| <b>Optical data</b>                |  |
| Synchronization                    | Optical between transmitter and receiver           |
| Light source                       | LED , Infrared                                     |
| LED light wavelength               | 940 nm   |
| Transmitted-signal shape           | Pulsed   |
| LED group                          | Exempt group in acc. with EN 62471:2008            |
| <b>Electrical data</b>             |  |
| Protective circuit                 | Overvoltage protection<br>Short circuit protected  |
| <b>Performance data</b>            |  |
| Supply voltage $U_B$               | 24 V , DC , -20 ... 20 %                           |
| Current consumption, max.          | 50 mA  |
| Fuse                               | 2 A semi time-lag                                  |
| <b>Inputs</b>                      |  |
| Number of digital switching inputs | 1 Piece(s)   |
| <b>Switching inputs</b>            |  |
| 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   |
| <b>Connection</b>                  |  |
| Number of connections              | 1 Piece(s)   |

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**Connection 1**

|                    |                   |
|--------------------|-------------------|
| Type of connection | Connector         |
| Function           | Machine interface |
| Thread size        | M12               |
| Material           | Metal             |
| No. of pins        | 4 -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 (W x H x L) | 29 mm x 1,716 mm x 35.4 mm   |
| Housing material      | Metal , Aluminum   |
| Lens cover material   | Plastic / PMMA   |
| Material of end caps  | Diecast zinc   |
| Net weight            | 1,800 g  |
| Housing color         | Yellow, RAL 1021   |
| Type of fastening     | Groove mounting<br>Mounting bracket<br>Mounting on Device Column<br>Swivel mount |

**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                                |
| Protection class     | III                                  |
| Certifications       | c CSA US<br>c TÜV NRTL US<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                       |

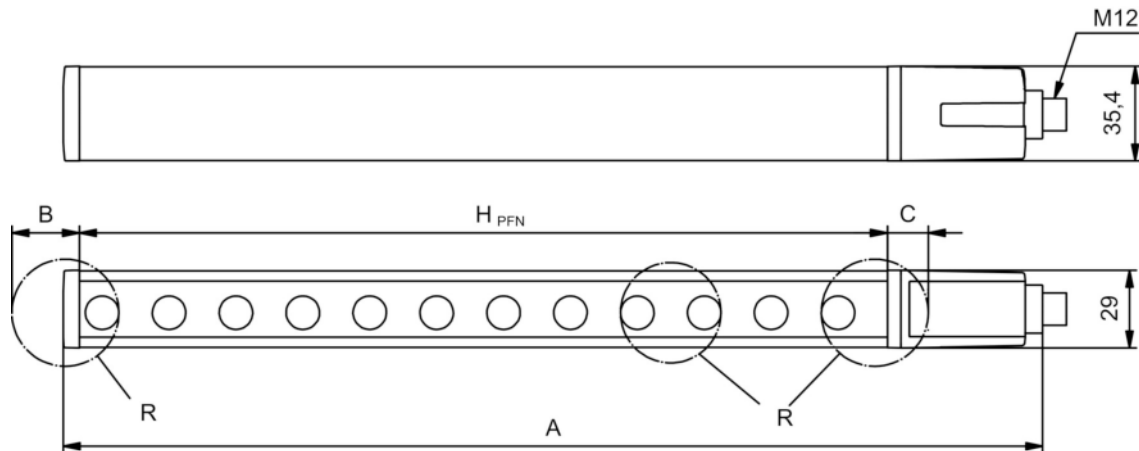
**Classification**

|                       |          |
|-----------------------|----------|
| Customs tariff number | 85365019 |
| eCl@ss 8.0            | 27272704 |
| eCl@ss 9.0            | 27272704 |
| ETIM 5.0              | EC002549 |
| ETIM 6.0              | 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 = 1662 mm

$H_{PFN}$  Nominal protective field height = 1650 mm

A Total height = 1716 mm

B 6 mm

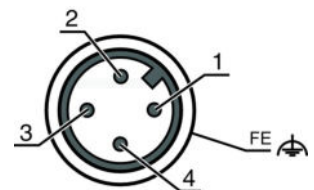
C 6 mm

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

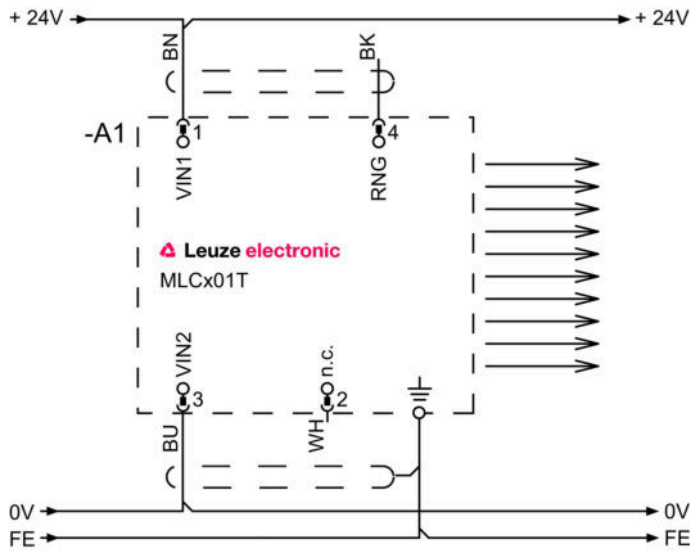
| Connection 1       |                   |
|--------------------|-------------------|
| Type of connection | Connector         |
| Function           | Machine interface |
| Thread size        | M12               |
| Type               | Male              |
| Material           | Metal             |
| No. of pins        | 4 -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           |



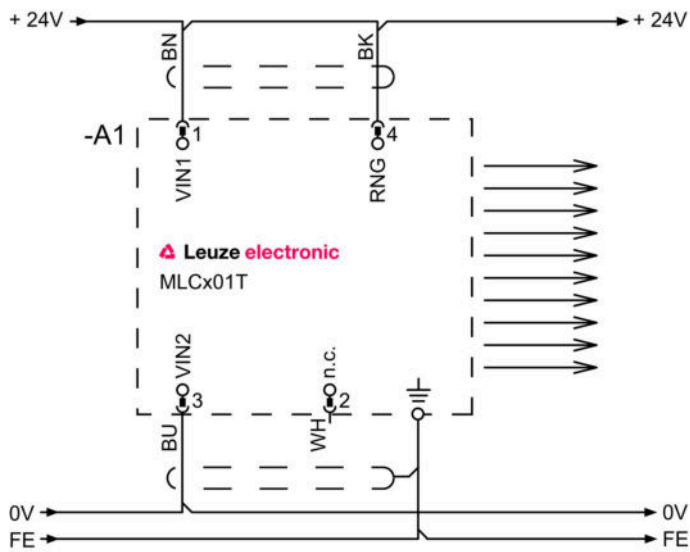
**Circuit diagrams**

Transmission channel C1, reduced range



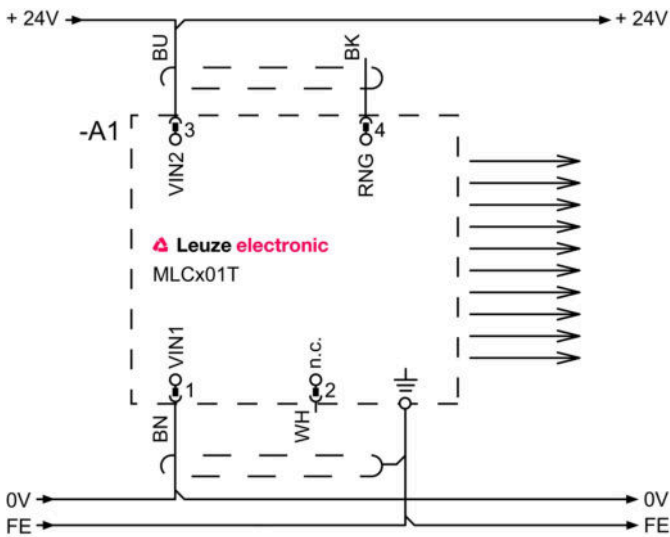
- 1 VIN1 = +24 V
- 3 VIN2 = 0 V
- 4 RNG = 0 V or open

Transmission channel C1, standard range



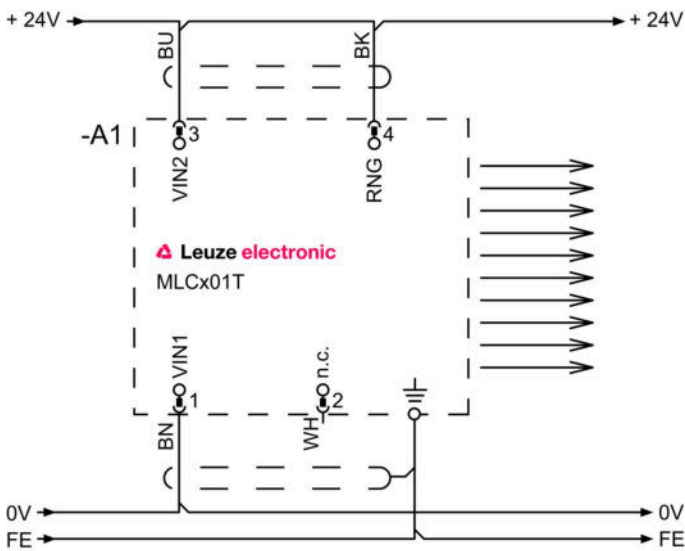
- 1 VIN1 = +24 V
- 3 VIN2 = 0 V
- 4 RNG = +24 V

Transmission channel C2, reduced range



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

Transmission channel C2, standard range



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

**Operation and display**


LEDs

| LED | Display | Meaning             |
|-----|---------|---------------------|
| 1   | Off     | Device switched off |

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| LED | Display                                       | Meaning                                       |
|-----|---|---|
|     | 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  |
|---|----------|----------------|-------------------------------|--|
|  | 68005116 | MLC511R14-1650 | Safety light curtain receiver | Resolution: 14 mm<br>Protective field height: 1,650 mm<br>Response time: 36 ms<br>Connection: Connector, M12, Metal, 4 -pin<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 |
| z   | <b>Device type:</b><br>T: transmitter<br>R: receiver   |
| a   | <b>Resolution:</b><br>14: 14 mm<br>20: 20 mm<br>30: 30 mm<br>40: 40 mm<br>90: 90 mm  |
| hhh | <b>Protective field height:</b><br>150 ... 3000: from 150 mm to 3000 mm  |
| e   | <b>Host/Guest (optional):</b><br>H: Host<br>MG: Middle Guest<br>G: Guest   |
| i   | <b>Interface (optional):</b><br>/A: AS-i   |
| ooo | <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 electronic website at [www.leuze.com](http://www.leuze.com).

## Notes


| Observe intended use!   |
|---|
| <ul style="list-style-type: none"> <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

|   | Part no. | Designation        | Article          | Description  |
|---|----------|--------------------|------------------|--|
|  | 50130726 | KD S-M12-4A-P1-050 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 4 -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  |
|---|----------|-------------|----------------------|--|
|  | 429393   | BT-2HF      | Mounting bracket set | Contains: 2x BT-HF swivel mount, 1 cylinder for mounting on the light curtain<br>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

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

## Services

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



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**Note**

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