

## Technical data sheet

### Safety light curtain transmitter

Part no.: 68090407  
MLC300T40-750



For illustration purposes only

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## Technical data

### Basic data

|             |  |
|-------------|--|
| Series      | MLC 300  |
| Device type | Transmitter  |
| Contains    | 2x BT-NC sliding block                                     |
| Application | Access guarding<br>Danger zone guarding<br>Hand protection |

### Functions

|           |  |
|-----------|--|
| Functions | Range reduction<br>Transmission channel changeover |
|-----------|--|

### Characteristic parameters

|                    |                          |
|--------------------|--------------------------|
| Type               | 2, IEC/EN IEC 61496      |
| SIL                | 1, IEC 61508             |
| SIL                | 3, IEC/EN IEC 62061      |
| Mission time $T_M$ | 20 years, EN ISO 13849-1 |

### Protective field data

|                         |            |
|-------------------------|------------|
| Resolution              | 40 mm      |
| Protective field height | 750 mm     |
| Operating range         | 0 ... 20 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<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, type.     | 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, type. | 0.25 mm <sup>2</sup> |
| Length of connection cable, max.           | 100 m                |
| Permissible cable resistance to load, max. | 200 $\Omega$         |

### Mechanical data

|                       |   |
|-----------------------|---|
| Dimension (W x H x L) | 29 mm x 816 mm x 35.4 mm  |
| Housing material      | Metal   |
| Metal housing         | Aluminum  |
| Lens cover material   | Plastic / PMMA  |
| Material of end caps  | Diecast zinc  |
| Net weight            | 900 g   |
| Housing color         | Yellow, RAL 1021  |
| Type of fastening     | Groove mounting<br>Mounting brackets<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                                 |
| Approvals            | c TÜV NRTL US<br>c UL 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 |
| 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 |
| ECLASS 16.0           | 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 |
| UNSPSC 26.08          | 46171620 |

## 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 = 790 mm

$H_{PFN}$  Nominal protective field height = 750 mm

A Total height = 816 mm

B 25 mm

C 15 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

|                    |                   |
|--------------------|-------------------|
| Function           | Machine interface |
| Type of connection | Connector         |
| 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



## Transmission channel C1, standard range



## Circuit diagrams

### 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

| LED | Display                 | Meaning                                       |
|-----|-------------------------|---|
| 1   | Off                     | Device switched off                           |
|     | Red, continuous light   | Device error                                  |
|     | Green, continuous light | Normal operation                              |
| 2   | Green, flashing         | 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  |
|----------|---------------|-------------------------------|--|
| 68091407 | MLC310R40-750 | Safety light curtain receiver | Function package: Basic<br>Resolution: 40 mm<br>Protective field height: 750 mm<br>Response time: 8 ms<br>Connection: Connector, M12, Metal, 5 -pin    |
| 68092407 | MLC320R40-750 | Safety light curtain receiver | Function package: Standard<br>Resolution: 40 mm<br>Protective field height: 750 mm<br>Response time: 8 ms<br>Connection: Connector, M12, Metal, 8 -pin |

## Part number code

Part designation: **MLC***xyy-za-hhhh***e***i***ooo**

**MLC** Safety light curtain

|             |   |
|-------------|---|
| <b>x</b>    | <b>Series</b><br>3: MLC 300<br>5: MLC 500   |
| <b>yy</b>   | <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 or gating<br>35: Extended receiver – Gating |
| <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<br>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](http://www.leuze.com).

## Notes

|                              |   |
|------------------------------|---|
| <b>Observe intended use!</b> |   |
|                              | <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  |
|--|----------|--------------------|------------------|--|
|  | 50133860 | KD S-M12-5A-P1-050 | Connection cable | Application: Oil and lubricant resistant<br>Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin<br>Connector, LED: No<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 | 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. |
|  | 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.   |

## Accessories

### Note



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