



Figure can vary

**Part no.: 68002119**  
**MLC520R14-1950**  
**Safety light curtain receiver**



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## Technical data

| <b>Basic data</b> |                        |
|-------------------|------------------------|
| Series            | MLC 500                |
| Device type       | Receiver               |
| Contains          | 2x BT-NC sliding block |
| Application       | Finger protection      |

| <b>Functions</b> |   |
|------------------|---|
| Function package | Standard  |
| Functions        | Contactormonitoring (EDM)<br>Start/restart interlock (RES)<br>Transmission channel changeover |

| <b>Characteristic parameters</b> |                           |
|----------------------------------|---------------------------|
| Type                             | 4 , IEC/EN 61496          |
| SIL                              | 3 , IEC 61508             |
| SILCL                            | 3 , IEC/EN 62061          |
| Performance Level (PL)           | e , EN ISO 13849-1        |
| PFH <sub>D</sub>                 | 7.73E-09 per hour         |
| Mission time T <sub>M</sub>      | 20 years , EN ISO 13849-1 |
| Category                         | 4 , EN ISO 13849          |

| <b>Protective field data</b> |          |
|------------------------------|----------|
| Resolution                   | 14 mm    |
| Protective field height      | 1,950 mm |

| <b>Optical data</b> |  |
|---------------------|--|
| Synchronization     | Optical between transmitter and receiver |

| <b>Electrical data</b> |   |
|------------------------|---|
| Protective circuit     | Overvoltage protection<br>Short circuit protected |

| <b>Performance data</b>       |                          |
|-------------------------------|--------------------------|
| Supply voltage U <sub>B</sub> | 24 V , DC , -20 ... 20 % |
| Current consumption, max.     | 150 mA                   |
| Fuse                          | 2 A semi time-lag        |

| <b>Inputs</b>                      |            |
|------------------------------------|------------|
| Number of digital switching inputs | 3 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                      |

**Outputs**

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

**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, typ.      | 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, typ.       | 0.002 mA                             |
| Voltage drop                 | 1.5 V                                |

**Safety-related switching output 1**

|                   |                     |
|-------------------|---------------------|
| Assignment        | Connection 1, pin 5 |
| Switching element | Transistor , PNP    |

**Safety-related switching output 2**

|                   |                     |
|-------------------|---------------------|
| Assignment        | Connection 1, pin 6 |
| Switching element | Transistor , PNP    |

**Timing**

|                    |        |
|--------------------|--------|
| Response time      | 42 ms  |
| Restart delay time | 100 ms |

**Connection**

Number of connections 1 Piece(s)

**Connection 1**

|                    |                   |
|--------------------|-------------------|
| Type of connection | Connector         |
| Function           | Machine interface |
| Thread size        | M12               |
| Material           | Metal             |
| No. of pins        | 8 -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 2,016 mm x 35.4 mm   |
| Housing material      | Metal , Aluminum   |
| Lens cover material   | Plastic / PMMA   |
| Material of end caps  | Diecast zinc   |
| Net weight            | 2,100 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**

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|                 |                          |
|-----------------|--------------------------|
| Type of display | 7-segment display<br>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<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                                 |

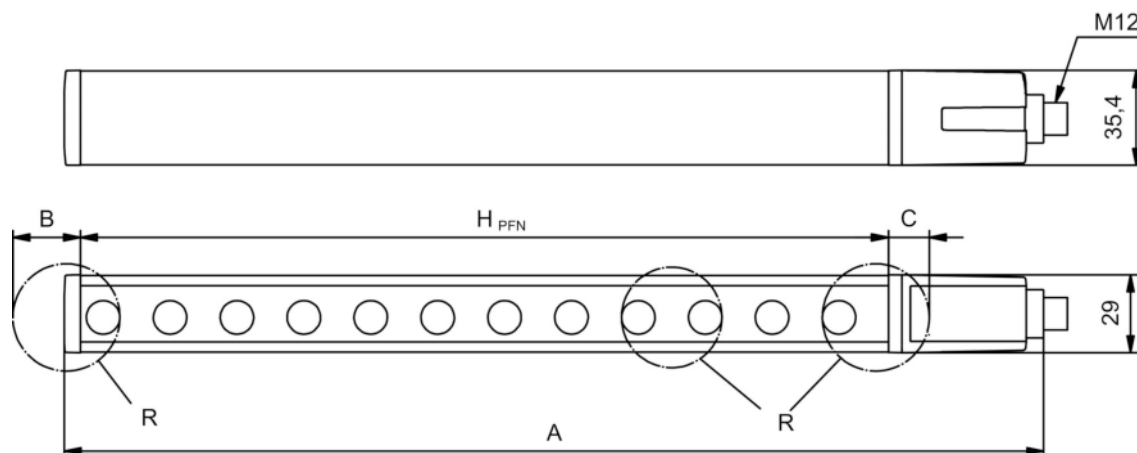
### Classification

|                       |          |
|-----------------------|----------|
| Customs tariff number | 85365019 |
| eCl@ss 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 = 1962 mm

$H_{PFN}$  Nominal protective field height = 1950 mm

A Total height = 2016 mm

B 6 mm

C 6 mm

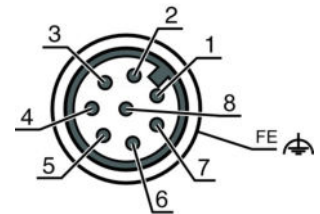
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R Effective protective field height  $H_{PFE}$  goes beyond the dimensions of the optics area to the outer borders of the circles labeled with R.

### Electrical connection

| Connection 1       |                   |
|--------------------|-------------------|
| Type of connection | Connector         |
| Function           | Machine interface |
| Thread size        | M12               |
| Type               | Male              |
| Material           | Metal             |
| No. of pins        | 8 -pin            |
| Encoding           | A-coded           |
| Connector housing  | FE/SHIELD         |

| Pin | Pin assignment | Conductor color |
|-----|----------------|-----------------|
| 1   | IO1            | 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 diagram example with downstream MSI-RM2 safety relay




## Operation and display

### LEDs

| 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  |
|     | Green, flashing, 1 Hz    | OSSD on, weak signal  |
|     | Green, continuous light  | OSSD on   |
| 2   | Off                      | RES deactivated or RES activated and enabled or RES blocked and protective field interrupted                          |
|     | Yellow, continuous light | RES activated and blocked but ready to be unlocked - protective field free and linked sensor is enabled if applicable |

### Suitable transmitters

|   | Part no. | Designation    | Article                          | Description   |
|---|----------|----------------|----------------------------------|---|
|  | 68000119 | MLC500T14-1950 | Safety light curtain transmitter | Resolution: 14 mm<br>Protective field height: 1,950 mm<br>Operating range: 0 ... 6 m<br>Connection: Connector, M12, Metal, 5 -pin |

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## 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  |
| hhhh | <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!

- The product may only be put into operation by competent persons.
- Only use the product in accordance with its intended use.

## Accessories

### Connection technology - Connection cables

|   | Part no. | Designation        | Article          | Description  |
|---|----------|--------------------|------------------|--|
|  | 50135128 | KD S-M12-8A-P1-050 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 8 -pin<br>Connection 2: Open end<br>Shielded: Yes<br>Cable length: 5,000 mm<br>Sheathing material: PUR |

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## 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 |

## 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.   |

### Note

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