

# Technical data sheet

## Safety light curtain receiver

Part no.: 68007304

MLC510R30-450/A



For illustration purposes only

### Contents

- Technical data
- Dimensioned drawings
- Electrical connection
- Operation and display
- Suitable transmitters
- Part number code
- Notes
- Accessories



## Technical data

### Basic data

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

### Characteristic parameters

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

### Protective field data

|                         |        |
|-------------------------|--------|
| Resolution              | 30 mm  |
| Protective field height | 450 mm |

### Optical data

|                 |                                          |
|-----------------|------------------------------------------|
| Synchronization | Optical between transmitter and receiver |
|-----------------|------------------------------------------|

### Electrical data

|                                       |                                                   |
|---------------------------------------|---------------------------------------------------|
| Protective circuit                    | Overvoltage protection<br>Short circuit protected |
| Performance data                      |                                                   |
| Supply voltage U <sub>B</sub>         | 26.5 ... 31.6 V                                   |
| Current consumption from AS-i circuit | 150 mA                                            |

### Time behavior

|                    |        |
|--------------------|--------|
| Response time      | 5 ms   |
| Restart delay time | 100 ms |

### Interface

|                                        |                               |
|----------------------------------------|-------------------------------|
| Type                                   | AS-Interface Safety at Work   |
| AS-i                                   |                               |
| Function                               | Process                       |
| AS-i profile                           | S-0.B.F                       |
| Slave address                          | 1..31 programmable, default=0 |
| Cycle time acc. to AS-i specifications | Max. 5 ms ms                  |

### 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 Ω                |

### Mechanical data

|                       |                                                                                   |
|-----------------------|-----------------------------------------------------------------------------------|
| Dimension (W x H x L) | 29 mm x 516 mm x 35.4 mm                                                          |
| Housing material      | Metal                                                                             |
| Metal housing         | Aluminum                                                                          |
| Lens cover material   | Plastic / PMMA                                                                    |
| Material of end caps  | Diecast zinc                                                                      |
| Net weight            | 600 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                      |

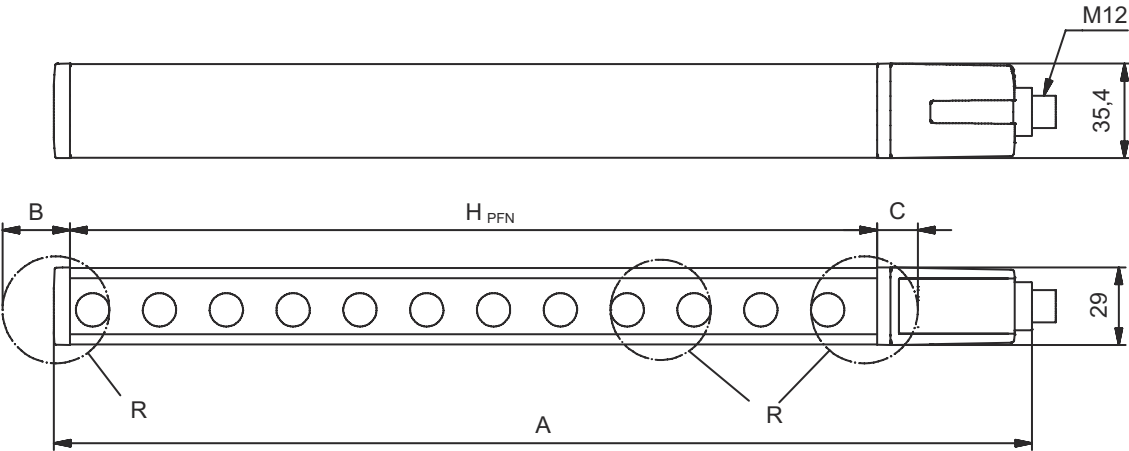
### Classification

|                       |          |
|-----------------------|----------|
| 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 |
| ETIM 5.0              | EC002549 |
| ETIM 6.0              | EC002549 |
| ETIM 7.0              | EC002549 |
| ETIM 8.0              | EC002549 |
| ETIM 9.0              | EC002549 |
| ETIM 10.0             | 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 = 478 mm
- $H_{PFN}$

Nominal protective field height = 450 mm
- A

Total height = 516 mm
- B

19 mm
- C

9 mm
- R

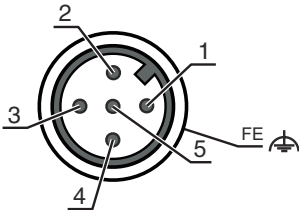
Effective protective field height  $H_{PFE}$  goes beyond the dimensions of the optics area to the outer borders of the circles labeled with R.

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           |

| Pin | Pin assignment |
|-----|----------------|
| 1   | AS-i+          |
| 2   | n.c.           |
| 3   | AS-i-          |
| 4   | n.c.           |
| 5   | n.c.           |



Operation and display

| LED | Display                 | Meaning                                       |
|-----|-------------------------|-----------------------------------------------|
| 1   | Off                     | Device switched off                           |
|     | Red, continuous light   | Protective field interrupted                  |
|     | Red, flashing, 1 Hz     | External error                                |
|     | Red, flashing, 10 Hz    | Internal error                                |
|     | Green, flashing, 1 Hz   | Protective field free, weak signal            |
|     | Green, continuous light | Protective field free                         |
| 2   | Off                     | No voltage                                    |
|     | On                      | OSSD off, transmission channel C2             |
|     | Green, continuous light | AS-i slave communicating with AS-i master     |
|     | Red, continuous light   | AS-i slave not communicating with AS-i master |

## Operation and display

| LED | Display                         | Meaning                                              |
|-----|---------------------------------|------------------------------------------------------|
| 2   | Yellow, flashing                | AS-i slave has invalid address 0                     |
|     | Red, flashing                   | AS-i slave device error or AS-i connection defective |
|     | Red/green, flashing alternately | Periphery error                                      |

## Suitable transmitters

|                                                                                   | Part no. | Designation     | Article                          | Description                                                                                                                                                                |
|-----------------------------------------------------------------------------------|----------|-----------------|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 68006304 | MLC500T30-450/A | Safety light curtain transmitter | Resolution: 30 mm<br>Protective field height: 450 mm<br>Operating range: 0 ... 10 m<br>Interface: AS-Interface Safety at Work<br>Connection: Connector, M12, Metal, 5 -pin |

## Part number code

Part designation: **MLCxyy-za-hhhh-ei-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

**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

### Mounting technology - Swivel mounts

|                                                                                  | Part no. | Designation | Article              | Description                                                                                                                                                 |
|----------------------------------------------------------------------------------|----------|-------------|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 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 |

## 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.                                                                                                                                         |

**Note**

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