

## Technical data sheet

### Safety light curtain receiver

Part no.: 68017106

MLC510R14-600H/A



For illustration purposes only

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Technical data

Basic data

|             |                        |
|-------------|------------------------|
| Series      | MLC 500                |
| Device type | Receiver               |
| Cascading   | Host                   |
| Contains    | 2x BT-NC sliding block |
| Application | Finger 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              | 14 mm  |
| Protective field height | 600 mm |

Optical data

|                 |  |
|-----------------|--|
| Number of beams | 60 Piece(s)                              |
| 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      | 14 ms, plus response times of the Middle Guest/Guest devices |
| 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 | 2 Piece(s)        |
| Connection 1          |                   |
| Function              | Machine interface |
| Type of connection    | Connector         |
| Thread size           | M12               |
| Material              | Metal             |
| No. of pins           | 5 -pin            |

Connection 2

|                    |   |
|--------------------|---|
| Function           | Cascade, Guest Out<br>Cascade, Middle Guest Out |
| Type of connection | Cable with connector                            |
| Cable length       | 330 mm  |
| Sheathing material | PUR   |
| Thread size        | M12   |
| Material           | Plastic   |
| No. of pins        | 8 -pin  |

Cable properties

|  |          |
|--|----------|
| Permissible conductor cross section, typ.  | 0.25 mm² |
| 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 666 mm x 53 mm                               |
| Housing material      | Metal  |
| Metal housing         | Aluminum   |
| Lens cover material   | Plastic / PMMA                                       |
| Material of end caps  | Diecast zinc   |
| Net weight            | 825 g  |
| Housing color         | Yellow, RAL 1021                                     |
| Type of fastening     | Groove mounting<br>Mounting brackets<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 TÜV NRTL US<br>c UL US<br>TÜV Süd |
| Vibration resistance | 50 m/s²                             |
| Shock resistance     | 100 m/s²                            |
| US patents           | US 6,418,546 B                      |

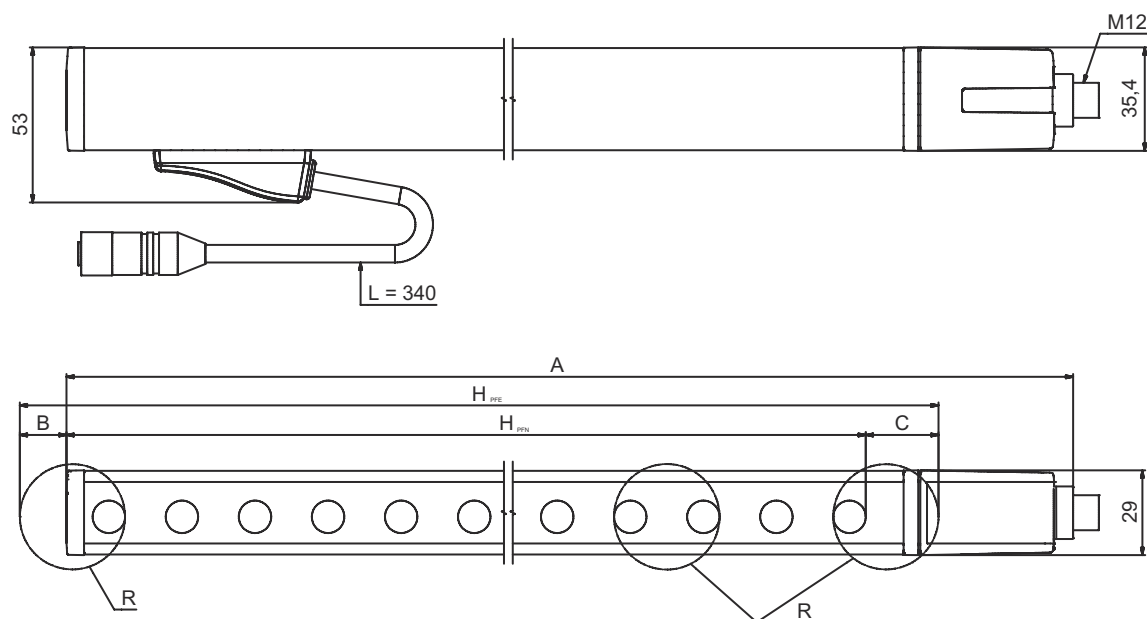
## Technical data

|                       |          |
|-----------------------|----------|
| 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 |
| ETIM 5.0              | EC002549 |
| ETIM 6.0              | EC002549 |
| ETIM 7.0              | EC002549 |
| ETIM 8.0              | EC002549 |
| ETIM 9.0              | 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 = 612 mm

$H_{PFN}$  Nominal protective field height = 600 mm

A Total height = 666 mm

B 6 mm

C 6 mm

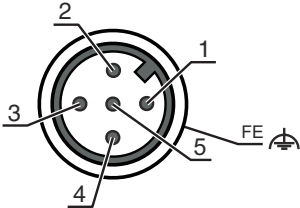
R Effective protective field height  $H_{PFE}$  goes beyond the dimensions of the optics area to the outer borders of the circles labeled with R.

Electrical connection

Connection 1

|                    |                   |
|--------------------|-------------------|
| 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.           |




Connection 2

|                    |                               |
|--------------------|-------------------------------|
| Function           | Cascade, Guest Out            |
|                    | Cascade, Middle Guest Out     |
| Type of connection | Cable with connector          |
| Cable length       | 330 mm                        |
| Sheathing material | PUR                           |
| Cable color        | Black                         |
| Wire cross section | 0.14 mm²                      |
| Type of stranding  | Pair stranding (twisted pair) |
| Thread size        | M12                           |
| Type               | Female                        |
| Material           | Plastic                       |
| No. of pins        | 8 -pin                        |
| Encoding           | A-coded                       |

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        |
|     | 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   |
|---|----------|------------------|----------------------------------|---|
|  | 68016106 | MLC500T14-600H/A | Safety light curtain transmitter | Resolution: 14 mm<br>Protective field height: 600 mm<br>Operating range: 0 ... 6 m<br>Interface: AS-Interface Safety at Work<br>Connection: Connector, M12, Metal, 5 -pin |

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  |

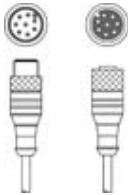
| Note   |  |
|--|--|
|  | A list with all available device types can be found on the Leuze website at <a href="http://www.leuze.com">www.leuze.com</a> . |

Notes


|  Observe intended use! |  |
|---|--|
|                         | <p>The product may only be put into operation by competent persons.</p> <p>Only use the product in accordance with its intended use.</p> |

Accessories



Connection technology - Interconnection cables

|  | Part no. | Designation      | Article               | Description  |
|--|----------|------------------|-----------------------|--|
|  | 429278   | CB-M12-2000E-8TP | Interconnection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 8 -pin<br>Connection 2: Connector, M12, Axial, Male, A-coded, 8 -pin<br>Shielded: Yes<br>Cable length: 2,000 mm<br>Sheathing material: PUR |


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.