

# Technical data sheet Safety light curtain receiver

Part no.: 68017410

MLC510R40-1050H/A



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## **Technical data**



#### Basic data

| Series      | MLC 500                |
|-------------|------------------------|
| Device type | Receiver               |
| Cascading   | Host                   |
| Contains    | 2x BT-NC sliding block |
| Application | Access guarding        |
|             | Danger zone guarding   |
|             | Hand protection        |

## **Characteristic parameters**

| Туре                        | 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              | 40 mm    |
|-------------------------|----------|
| Protective field height | 1,050 mm |

#### **Optical data**

| Number of beams | 42 Piece(s)                              |
|-----------------|------------------------------------------|
| Synchronization | Optical between transmitter and receiver |

#### **Electrical data**

| Protective circuit | Overvoltage protection  |
|--------------------|-------------------------|
|                    | 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      | 10 ms, plus response times of the Middle Guest/Guest devices |
|--------------------|--------------------------------------------------------------|
| Restart delay time | 100 ms                                                       |
|                    |                                                              |

#### Interface

| Туре |                                        | AS-Interface Safety at Work |  |
|------|----------------------------------------|-----------------------------|--|
|      | AS-i                                   |                             |  |
|      | Function                               | Process                     |  |
|      | AS-i profile                           | S-0.B.F                     |  |
|      | Slave address                          | 131 programmable, default=0 |  |
|      | Cycle time acc. to AS-i specifications | Max. 5 ms ms                |  |

#### Connection

**Number of connections** 

| Connection 1       |                   |
|--------------------|-------------------|
| Function           | Machine interface |
| Type of connection | Connector         |
| Thread size        | M12               |
| Material           | Metal             |
| No. of pins        | 5 -pin            |

2 Piece(s)

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|-----|-----|-----|----|---|
| [1] | 111 | 100 | юн | _ |

| Function    | unction            | Cascade, Guest Out        |
|-------------|--------------------|---------------------------|
|             |                    | 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 | No. of pins        | 8 -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 1,116 mm x 53 mm |  |
|-----------------------|--------------------------|--|
| Housing material      | Metal                    |  |
| Metal housing         | Aluminum                 |  |
| Lens cover material   | Plastic / PMMA           |  |
| Material of end caps  | Diecast zinc             |  |
| Net weight            | 1,275 g                  |  |
| Housing color         | Yellow, RAL 1021         |  |
| Type of fastening     | Groove mounting          |  |
|                       | Mounting brackets        |  |
|                       | 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       |
|                      | c UL US             |
|                      | TÜV Süd             |
| Vibration resistance | 50 m/s <sup>2</sup> |
| Shock resistance     | 100 m/s²            |
| US patents           | US 6,418,546 B      |

## **Technical data**

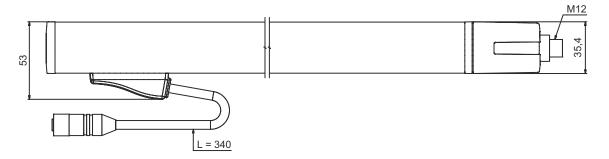


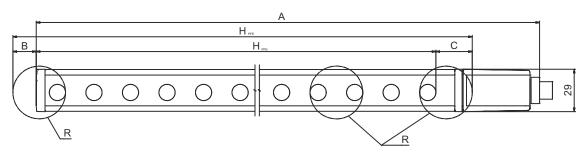
| Customs tariff number | 85365019 |
|-----------------------|----------|
| ECLASS 5.1.4          | 27272704 |
| ECLASS 8.0            | 27272704 |
| ECLASS 9.0            | 27272704 |
| ECLASS 10.0           | 27272704 |
| ECLASS 11.0           | 27272704 |
| ECLASS 12.0           | 27272704 |
| ECLASS 13.0           | 27272704 |
| ECLASS 14.0           | 27272704 |
| 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  $H_{PFE} = H_{PFN} + B + C$ 





 $H_{\mathrm{PFE}}$  Effective protective field height = 1090 mm H<sub>PFN</sub> Nominal protective field height = 1050 mm

Total height = 1116 mm

25 mm

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

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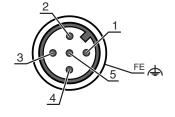
## **Electrical connection**



## **Connection 1**

| Function           | Machine interface |
|--------------------|-------------------|
| Type of connection | Connector         |
| Thread size        | M12               |
| Туре               | 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                           |  |
| Туре               | 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                                                                                                                                                  |
|----------|-------------------|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 68016410 | MLC500T40-1050H/A | Safety light curtain<br>transmitter | Resolution: 40 mm Protective field height: 1,050 mm Operating range: 0 20 m Interface: AS-Interface Safety at Work Connection: Connector, M12, Metal, 5 -pin |

## Part number code

Part designation: MLCxvv-za-hhhhei-ooo

| MLC  | Safety light curtain                                                                                                                                                                                                                                                                                    |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| х    | Series 3: MLC 300 5: MLC 500                                                                                                                                                                                                                                                                            |
| уу   | Function classes  00: transmitter 01: transmitter (AIDA) 02: transmitter with test input 10: basic receiver - automatic restart 11: basic receiver - automatic restart (AIDA) 20: standard receiver - EDM/RES selectable 30: Extended receiver blanking/muting or gating 35: Extended receiver – Gating |
| z    | Device type T: transmitter R: receiver                                                                                                                                                                                                                                                                  |
| a    | Resolution 14: 14 mm 20: 20 mm 30: 30 mm 40: 40 mm 90: 90 mm                                                                                                                                                                                                                                            |
| hhhh | Protective field height 150 3000: from 150 mm to 3000 mm                                                                                                                                                                                                                                                |
| е    | Host/Guest (optional) H: Host MG: Middle Guest G: Guest                                                                                                                                                                                                                                                 |
| i    | Interface (optional)<br>/A: AS-i                                                                                                                                                                                                                                                                        |
| 000  | Option  /V: high Vibration-proof  EX2: explosion protection (zones 2 + 22)  SPG: Smart Process Gating  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.

## **Notes**



## Observe intended use!



 $\ ^{\ \ }\ \$  Only use the product in accordance with its intended use.

## **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                                                                                                                                                 |
|-------|----------|-------------|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P. Ca | 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.  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.  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.

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