

# Technical data sheet

## Safety light curtain transmitter

Part no.: 68016410  
MLC500T40-1050H/A



For illustration purposes only

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## Technical data

### Basic data

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

### Characteristic parameters

|                             |                          |
|-----------------------------|--------------------------|
| Type                        | 4, IEC/EN 61496          |
| SIL                         | 3, IEC 61508             |
| SILCL                       | 3, IEC/EN 62061          |
| Mission time T <sub>M</sub> | 20 years, EN ISO 13849-1 |

### Protective field data

|                         |            |
|-------------------------|------------|
| Resolution              | 40 mm      |
| Protective field height | 1,050 mm   |
| Operating range         | 0 ... 20 m |

### Optical data

|                          |                                           |
|--------------------------|-------------------------------------------|
| Number of beams          | 42 Piece(s)                               |
| 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 <sub>B</sub>         | 26.5 ... 31.6 V |
| Current consumption from AS-i circuit | 50 mA           |

#### 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                      |

### 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                     |

### 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, 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<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                                 |
| 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                      |

## 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  $H_{PFE} = H_{PFN} + B + C$  $H_{PFE}$  Effective protective field height = 1090 mm $H_{PFN}$  Nominal protective field height = 1050 mm

A Total height = 1116 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           |

| 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   | Device error        |
|     | Green, continuous light | Normal operation    |

Suitable receivers

|                                                                                     | Part no. | Designation       | Article                       | Description                                                                                                                                                           |
|-------------------------------------------------------------------------------------|----------|-------------------|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 68017410 | MLC510R40-1050H/A | Safety light curtain receiver | Resolution: 40 mm<br>Protective field height: 1,050 mm<br>Response time: 10 ms<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 or gating<br>35: Extended receiver – Gating |
| 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<br>SPG RR: Smart Process Gating – Reduced resolution                                                                                                                                                               |

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

## 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 |

### 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.                                                                                                                                         |

#### Note



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