



Figure can vary

Part no.: 68010103
MLC500T14-300H
Safety light curtain transmitter



Contents

- Technical data
- Suitable receivers
- Dimensioned drawings
- Electrical connection
- Circuit diagrams
- Operation and display
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Technical data

| Basic data | |
|------------------------------------|--|
| Series | MLC 500 |
| Device type | Transmitter |
| Cascading | Host |
| Contains | 2x BT-NC sliding block |
| Application | Finger protection |
| Functions | |
| Functions | Range reduction Transmission channel changeover |
| Characteristic parameters | |
| Type | 4, IEC/EN 61496 |
| SIL | 3, IEC 61508 |
| SILCL | 3, IEC/EN 62061 |
| Mission time T_M | 20 years, EN ISO 13849-1 |
| Protective field data | |
| Resolution | 14 mm |
| Protective field height | 300 mm |
| Operating range | 0 ... 6 m |
| Optical data | |
| Number of beams | 30 Piece(s) |
| Synchronization | Optical between transmitter and receiver |
| Light source | LED, Infrared |
| LED light wavelength | 940 nm |
| Transmitted-signal shape | Pulsed |
| LED group | Exempt group in acc. with EN 62471:2008 |
| Electrical data | |
| Protective circuit | Overvoltage protection Short circuit protected |
| Performance data | |
| Supply voltage U_B | 24 V, DC, -20 ... 20 % |
| Current consumption, max. | 50 mA |
| Fuse | 2 A semi time-lag |
| 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, typ. | 22.5 V |
| Voltage type | DC |
| Connection | |
| Number of connections | 2 Piece(s) |

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Connection 1

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

Connection 2

| | |
|--------------------|---|
| Type of connection | Cable with connector |
| Function | Cascade, Middle Guest Out Cascade, Guest Out |
| 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 mm ² |
| 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 366 mm x 53 mm |
| Housing material | Metal, Aluminum |
| Lens cover material | Plastic / PMMA |
| Material of end caps | Diecast zinc |
| Net weight | 525 g |
| Housing color | Yellow, RAL 1021 |
| Type of fastening | Swivel mount Mounting bracket Groove mounting |

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 CSA US c TÜV NRTL US TÜV Süd |
| Vibration resistance | 50 m/s ² |
| Shock resistance | 100 m/s ² |
| US patents | US 6,418,546 B |

Classification

| | |
|------------|----------|
| eCl@ss 8.0 | 27272704 |
| eCl@ss 9.0 | 27272704 |
| ETIM 5.0 | EC002549 |
| ETIM 6.0 | EC002549 |

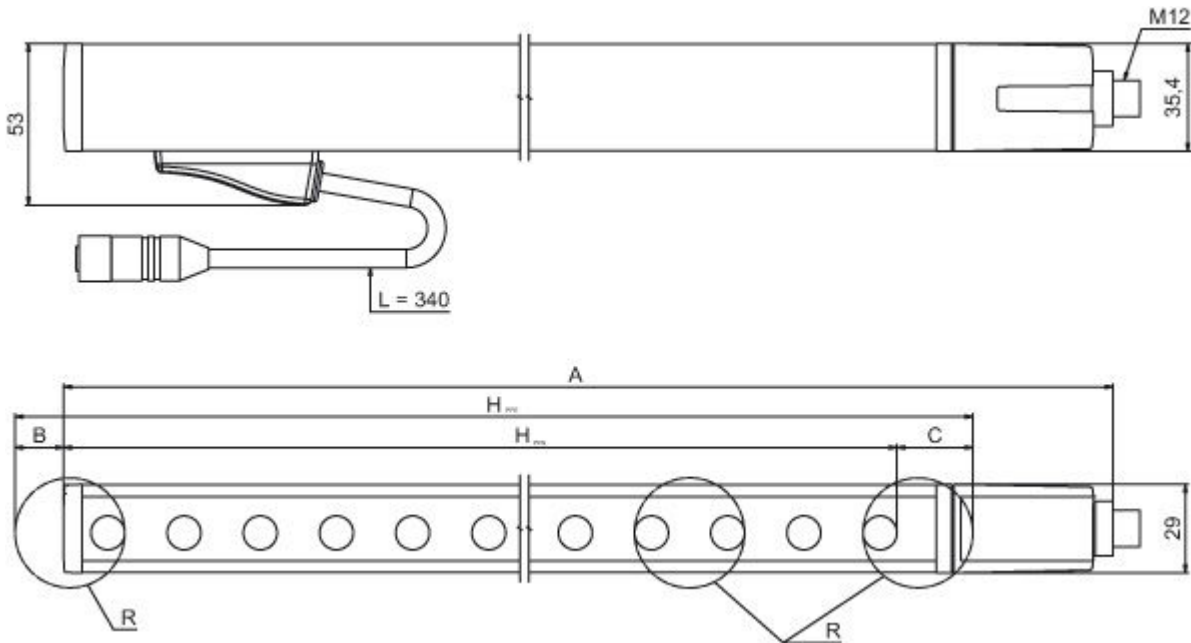
Suitable receivers

| | Part no. | Designation | Article | Description |
|---|----------|----------------|-------------------------------|--|
|  | 68012103 | MLC520R14-300H | Safety light curtain receiver | Resolution: 14 mm Protective field height: 300 mm Response time: 8 ms Connection: Connector, M12, Metal, 8 -pin Function package: Standard |

Dimensioned drawings

All dimensions in millimeters

Calculation of the effective protective field height $HPFE = HPFN + B + C$



- HPFE Effective protective field height = 312 mm
- HPFN Nominal protective field height = 300 mm
- A Total height = 366 mm
- B 6 mm
- C 6 mm
- R Effective protective field height $HPFE$ 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 | 5 -pin |
| Encoding | A-coded |
| Connector housing | FE/SHIELD |

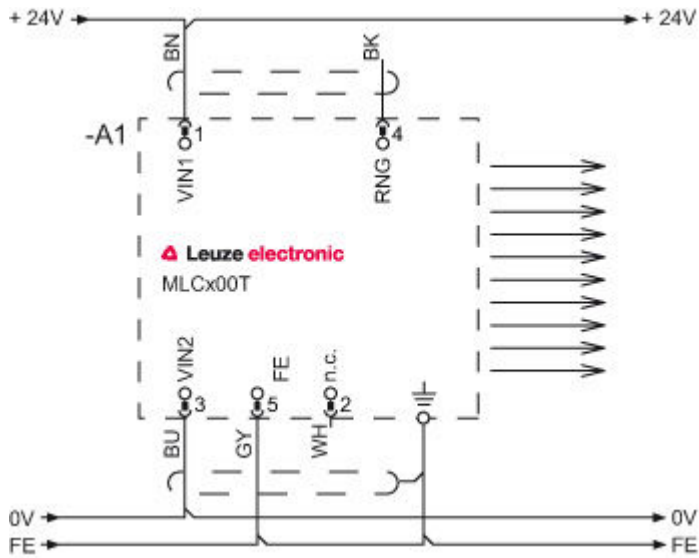
| Pin | Pin assignment | Conductor color |
|-----|----------------|-----------------|
| 1 | VIN1 | Brown |
| 2 | n.c. | White |
| 3 | VIN2 | Blue |
| 4 | RNG | Black |
| 5 | FE/SHIELD | Gray |



| Connection 2 | |
|--------------------|---|
| Type of connection | Cable with connector |
| Function | Cascade, Middle Guest Out Cascade, Guest Out |
| Cable length | 330 mm |
| Sheathing material | PUR |
| Cable color | Black |
| Wire cross section | 0.14 mm ² |
| Type of stranding | Pair stranding (twisted pair) |
| Thread size | M12 |
| Type | Female |
| Material | Plastic |
| No. of pins | 8 -pin |
| Encoding | A-coded |

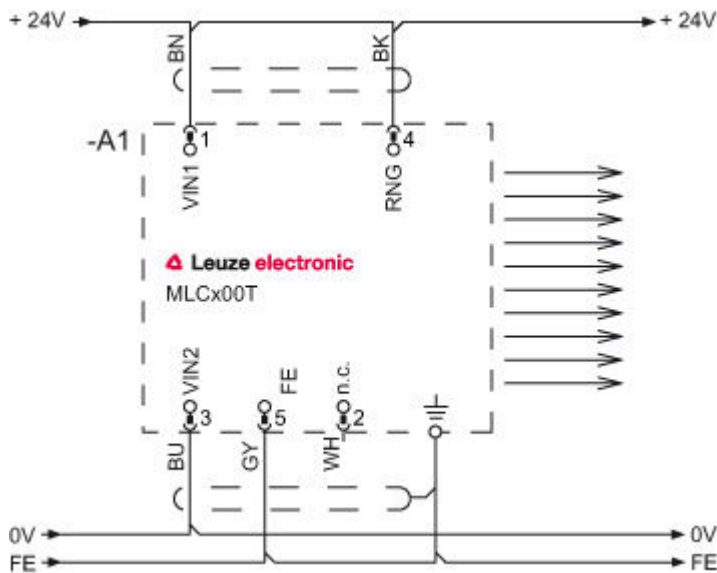
Circuit diagrams

Transmission channel C1, reduced range



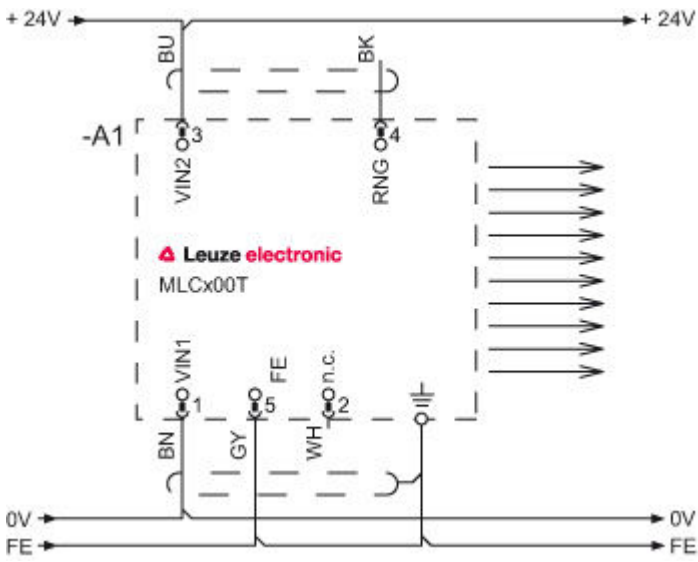
- 1 VIN1 = +24 V
- 3 VIN2 = 0 V
- 4 RNG = 0 V or open

Transmission channel C1, standard range



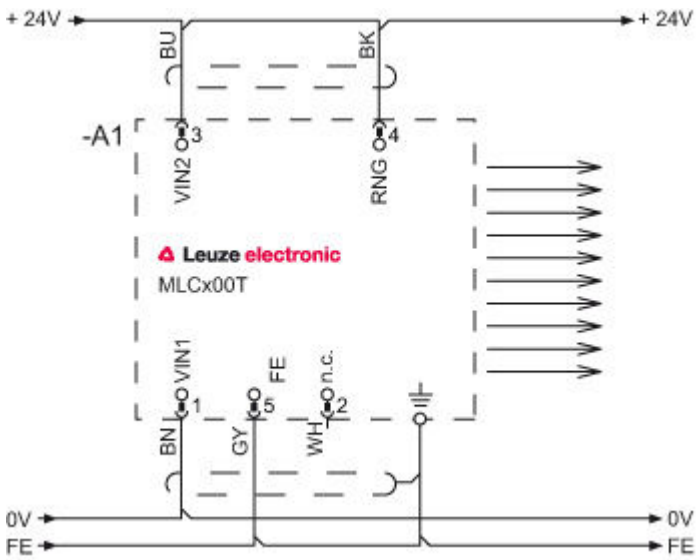
- 1 VIN1 = +24 V
- 3 VIN2 = 0 V
- 4 RNG = +24 V

Transmission channel C2, reduced range



- 1 VIN1 = 0 V
- 3 VIN2 = +24 V
- 4 RNG = 0 V or open

Transmission channel C2, standard range



- 1 VIN1 = 0 V
- 3 VIN2 = +24 V
- 4 RNG = +24 V

Operation and display

LEDs

| LED | Display | Meaning |
|-----|---|---|
| 1 | Off | Device switched off |
| | Red, continuous light | Device error |
| | Green, continuous light | Normal operation |
| 2 | Green, flashing, 10 s long after switching on | Reduced range selected by the wiring of pin 4 |
| | Off | Transmission channel C1 |
| | Green, continuous light | Transmission channel C2 |

Part number code

Part designation: **MLCxyy-za-hhhhei-ooo**




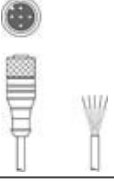
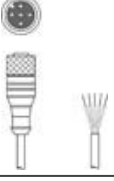




| MLC | Safety light curtain |
|-----|--|
| x | Series: 3: MLC 300 5: MLC 500 |
| yy | Function classes: 00: Transmitter 01: transmitter (AIDA) 02: Transmitter with test input 10: Basic receiver - automatic restart 11: basic receiver - automatic restart (AIDA) 20: Standard receiver - EDM/RES selectable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

Note


A list with all available device types can be found on the Leuze electronic website at www.leuze.com.

Accessories


Connection technology - Connection cables

| | Part no. | Designation | Article | Description |
|---|----------|--------------------|------------------|---|
|  | 429088 | CB-M12-15000-5GF | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Open end Shielded: No Cable length: 15,000 mm Sheathing material: PUR |
|  | 429089 | CB-M12-25000-5GF | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Open end Shielded: No Cable length: 25,000 mm Sheathing material: PUR |
|  | 678058 | CB-M12-25000E-5GF | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Open end Shielded: Yes Cable length: 25,000 mm Sheathing material: PUR |
|  | 429281 | CB-M12-50000-5GF | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Open end Shielded: No Cable length: 50,000 mm Sheathing material: PUR |
|  | 50133860 | KD S-M12-5A-P1-050 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Open end Shielded: Yes Cable length: 5,000 mm Sheathing material: PUR |
|  | 50133861 | KD S-M12-5A-P1-100 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Open end Shielded: Yes Cable length: 10,000 mm Sheathing material: PUR |
|  | 50137014 | KD S-M12-5A-P1-150 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Open end Shielded: Yes Cable length: 10,000 mm Sheathing material: PVC |
|  | 50137013 | KD S-M12-5A-P1-500 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Open end Shielded: Yes Cable length: 10,000 mm Sheathing material: PVC |
|  | 50133841 | KD U-M12-5A-P1-050 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PUR |



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| | Part no. | Designation | Article | Description |
|---|----------|--------------------|------------------|--|
|  | 50132534 | KD U-M12-5A-P1-100 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Open end Shielded: No Cable length: 10,000 mm Sheathing material: PUR |





Connection technology - Connectors

| | Part no. | Designation | Article | Description |
|---|----------|-------------|-----------|--|
|  | 429175 | CB-M12-5GF | Connector | Connection: Connector, M12, Axial, Female, A-coded, 5 -pin |

Connection technology - Terminating resistors



| | Part no. | Designation | Article | Description |
|---|----------|---------------|------------------------------|--|
|  | 426128 | AC-MLC-END | Connector set | Degree of protection: IP 67 |
|  | 426126 | AC-MLC-HT-END | Host transmitter termination | Connection 1: Connector, M12, Axial, Male, 8 -pin Connector, encoding: A-coded Degree of protection: IP 67 |

Mounting technology - Mounting brackets






| | Part no. | Designation | Article | Description |
|---|----------|-------------|----------------------|--|
|  | 429056 | BT-2L | Mounting bracket set | Design of mounting device: Angle, L-shape Fastening, at system: Through-hole mounting Mounting bracket, at device: Screw type Material: Metal |
|  | 429006 | BT-2L-HG | Mounting device set | Mounting bracket, at device: Screw type Material: Metal |
|  | 429057 | BT-2Z | Mounting bracket set | Design of mounting device: Angle, Z-shape Fastening, at system: Through-hole mounting Mounting bracket, at device: Screw type Material: Metal |
|  | 429005 | BT-L-HG | Mounting device set | Mounting bracket, at device: Screw type Material: Metal |

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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 Fastening, at system: Through-hole mounting Mounting bracket, at device: Clampable Type of mounting device: Turning, 360° Material: Metal, Plastic |
|  | 429394 | BT-2HF-S | Mounting bracket set | Contains: 2x BT-HF swivel mount, 1 cylinder for mounting on the light curtain Fastening, at system: Through-hole mounting Mounting bracket, at device: Clampable Type of mounting device: Turning, 360° Material: Metal, Plastic Shock absorber: Yes |



Mounting technology - Other

| | Part no. | Designation | Article | Description |
|---|----------|-------------|----------------------|---|
|  | 425740 | BT-10NC60 | Sliding block set | Contains: 10x BT-NC sliding block Bore hole 1: Ø 4.7 mm Bore hole 2: M6 Design of mounting device: Sliding block Fastening, at system: Mounting thread Mounting bracket, at device: Groove mounting Material: Metal |
|  | 425741 | BT-10NC64 | Sliding block set | Contains: 10x BT-NC-M4-M6 sliding block Bore hole 1: M4 Bore hole 2: M6 Design of mounting device: Sliding block Fastening, at system: Mounting thread Mounting bracket, at device: Groove mounting Material: Metal |
|  | 425742 | BT-10NC65 | Sliding block set | Contains: 10x BT-NC-M5-M6 sliding block Bore hole 1: M5 Bore hole 2: M6 Design of mounting device: Sliding block Fastening, at system: Mounting thread Mounting bracket, at device: Groove mounting Material: Metal |
|  | 424422 | BT-2SB10 | Mounting bracket set | Contains: 2x BT-SB10 Design of mounting device: Mounting clamp Fastening, at system: Through-hole mounting Mounting bracket, at device: Clampable, On the lateral C-groove Type of mounting device: Swiveling Swivel range: -8 ... 8° Material: Metal |
|  | 424423 | BT-2SB10-S | Mounting bracket set | Contains: 2x BT-SB10-S Design of mounting device: Mounting clamp Fastening, at system: Through-hole mounting Mounting bracket, at device: Clampable, On the lateral C-groove Swivel range: -8 ... 8° Material: Metal Shock absorber: Yes |



Alignment aids

| | Part no. | Designation | Article | Description |
|---|----------|-------------|---------------|---------------------------|
|  | 427300 | AC-ALM | Alignment aid | Housing material: Plastic |

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| | Part no. | Designation | Article | Description |
|---|----------|-------------|---------------|---|
|  | 520101 | AC-ALM-M | Alignment aid | Housing material: Plastic |
|  | 560020 | LA-78U | Alignment aid | Light source: laser, Red Housing material: Metal |

Protective screens

| | Part no. | Designation | Article | Description |
|--|----------|-------------|----------------------|---|
|  | 429038 | MLC-2PSF | Mounting bracket set | Type of fastening: Clampable Mounting device material: Metal |
|  | 347072 | MLC-PS300 | Protective screen | Protective field height: 300 mm Material: PMMA, clear |

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.