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Part no.: 68001216 MLC510R20-1650 Safety light curtain receiver



Figure can vary

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- Suitable transmitters
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Part no.: 68001216 – MLC510R20-1650 – Safety light curtain receiver

Technical data

| Basic data | | | |
|-----------------------------|--|--|--|
| Series | MLC 500 | | |
| Device type | Receiver | | |
| Contains | 2x BT-NC sliding block | | |
| Application | Hand protection | | |
| | | | |
| Functions | | | |
| Function package | Basic | | |
| Functions | Transmission channel changeover Automatic start/restart | | |
| Characteristic parameters | | | |
| Туре | 4, IEC/EN 61496 | | |
| SIL | 3, IEC 61508 | | |
| SILCL | 3, IEC/EN 62061 | | |
| Performance Level (PL) | e, EN ISO 13849-1 | | |
| PFHD | 7.73E-09 per hour | | |
| Mission time T _M | 20 years, EN ISO 13849-1 | | |
| Category | 4, EN ISO 13849 | | |
| Protective field data | | | |
| Resolution | 20 mm | | |
| Protective field height | 1,650 mm | | |
| Optical data | | | |
| Synchronization | Optical between transmitter and receiver | | |
| Electrical data | | | |
| Protective circuit | Overvoltage protection Short circuit protected | | |
| Performance data | | | |
| Supply voltage | 24 V, DC, -20 20 % | | |
| Current consumption, max. | 150 mA | | |
| Fuse 2 A semi time-lag | | | |

Part no.: 68001216 – MLC510R20-1650 – Safety light curtain receiver

| utputs | 2 Bioco(a) | |
|---|---|--|
| lumber of safety-related switching outputs (OSSDs) | 2 Piece(s) | |
| Safety-related switching outputs | Safety-related switching output OSSD | |
| Type Switching voltage high, min. | 18 V | |
| Switching voltage low, max. | 2.5 V | |
| Switching voltage low, max. Switching voltage, typ. | 22.5 V | |
| Voltage type | DC | |
| Current load, max. | 380 mA | |
| Load inductivity | 2,000 µH | |
| Load inductivity | 0.3 µF | |
| Residual current, max. | 0.2 mA | |
| Residual current, typ. | 0.002 mA | |
| | | |
| Voltage drop | 1.5 V | |
| Safety-related switching output 1 | Connection 4 min 2 | |
| Assignment | Connection 1, pin 2 | |
| Switching element | Transistor, PNP | |
| Safety-related switching output 2 | | |
| Assignment | Connection 1, pin 4 | |
| Switching element | Transistor, PNP | |
| | | |
| ning | | |
| | | |
| sponse time | 29 ms | |
| sponse time start delay time | 29 ms 100 ms | |
| | | |
| | | |
| start delay time | | |
| nnection | 100 ms | |
| nnection nber of connections | 100 ms | |
| nnection nber of connections Connection 1 | 100 ms 1 Piece(s) | |
| nnection nber of connections Connection 1 | 100 ms 1 Piece(s) Connector | |
| nnection nber of connections Connection 1 Type of connection Function | 100 ms 1 Piece(s) Connector Machine interface | |
| nnection nber of connections Connection 1 Type of connection Function Thread size | 100 ms 1 Piece(s) Connector Machine interface M12 | |
| Annection nnection nber of connections Connection 1 Type of connection Function Thread size Material | 100 ms 100 ms Connector Machine interface M12 Metal | |
| Annection nnection nber of connections Connection 1 Type of connection Function Thread size Material No. of pins | 100 ms 100 ms Connector Machine interface M12 Metal | |
| Annection nnection nber of connections Connection 1 Type of connection Function Thread size Material No. of pins Cable properties | 100 ms 1 Piece(s) Connector Machine interface M12 Metal 5 -pin | |
| Annection number of connections Connection 1 Type of connection Function Thread size Material No. of pins Cable properties Permissible conductor cross section, typ. | 100 ms 1 Piece(s) Connector Machine interface M12 Metal 5 -pin 0.25 mm ² | |
| Annection nnection nber of connections Connection 1 Type of connection Function Thread size Material No. of pins Cable properties Permissible conductor cross section, typ. Length of connection cable, max. | 100 ms 1 Piece(s) Connector Machine interface M12 Metal 5 -pin 0.25 mm ² 100 m | |
| Annection nnection nber of connections Connection 1 Type of connection Function Thread size Material No. of pins Cable properties Permissible conductor cross section, typ. Length of connection cable, max. | 100 ms 1 Piece(s) Connector Machine interface M12 Metal 5 -pin 0.25 mm ² 100 m | |
| Annection nnection nber of connections Connection 1 Type of connection Function Thread size Material No. of pins Cable properties Permissible conductor cross section, typ. Length of connection cable, max. Permissible cable resistance to load, max. | 100 ms 1 Piece(s) Connector Machine interface M12 Metal 5 -pin 0.25 mm ² 100 m | |
| Annection nnection nber of connections Connection 1 Type of connection Function Thread size Material No. of pins Cable properties Permissible conductor cross section, typ. Length of connection cable, max. Permissible cable resistance to load, max. Chanical data | 100 ms 1 Piece(s) Connector Machine interface M12 Metal 5 -pin 0.25 mm² 100 m 200 Ω | |
| Annection nher of connections Connection 1 Type of connection Function Thread size Material No. of pins Cable properties Permissible conductor cross section, typ. Length of connection cable, max. Permissible cable resistance to load, max. Chanical data hension (W x H x L) | 100 ms 1 Piece(s) Connector Machine interface M12 Metal 5 -pin 0.25 mm ² 100 m 200 Ω 29 mm x 1,716 mm x 35.4 mm | |
| start delay time nnection nber of connections Connection 1 Type of connection Function Function Thread size Material No. of pins Cable properties Permissible conductor cross section, typ. Length of connection cable, max. Permissible cable resistance to load, max. Chanical data nension (W x H x L) using material s cover material | 100 ms 1 Piece(s) Connector Machine interface M12 Metal 5 -pin 0.25 mm² 100 m 200 Ω 29 mm x 1,716 mm x 35.4 mm Metal, Aluminum | |
| start delay time nnection nber of connections Connection 1 Type of connection Function Function Thread size Material No. of pins Cable properties Permissible conductor cross section, typ. Length of connection cable, max. Permissible cable resistance to load, max. Chanical data tension (W x H x L) using material s cover material erial of end caps | 100 ms 1 Piece(s) Connector Machine interface M12 Metal 5 -pin 0.25 mm² 100 m 200 Ω 29 mm x 1,716 mm x 35.4 mm Metal, Aluminum Plastic / PMMA Diecast zinc | |
| start delay time nnection nber of connections Connection 1 Type of connection Function Function Furned size Material No. of pins Cable properties Permissible conductor cross section, typ. Length of connection cable, max. Permissible cable resistance to load, max. Chanical data tension (W x H x L) using material s cover material errial of end caps weight | 100 ms 1 Piece(s) Connector Machine interface M12 Metal 5 -pin 0.25 mm² 100 m 200 Ω 29 mm x 1,716 mm x 35.4 mm Metal, Aluminum Plastic / PMMA Diecast zinc 1,800 g | |
| start delay time nnection nber of connections Connection 1 Type of connection Function Furned size Material No. of pins Cable properties Permissible conductor cross section, typ. Length of connection cable, max. Permissible cable resistance to load, max. Chanical data nension (W x H x L) using material s cover material erial of end caps weight | 100 ms 1 Piece(s) Connector Machine interface M12 Metal 5 -pin 0.25 mm² 100 m 200 Ω 29 mm x 1,716 mm x 35.4 mm Metal, Aluminum Plastic / PMMA Diecast zinc 1,800 g Yellow, RAL 1021 | |
| start delay time nnection nber of connections Connection 1 Type of connection Function Function Furned size Material No. of pins Cable properties Permissible conductor cross section, typ. Length of connection cable, max. Permissible cable resistance to load, max. Chanical data tension (W x H x L) using material s cover material errial of end caps weight | 100 ms 1 Piece(s) Connector Machine interface M12 Metal 5 -pin 0.25 mm² 100 m 200 Ω 29 mm x 1,716 mm x 35.4 mm Metal, Aluminum Plastic / PMMA Diecast zinc 1,800 g | |

Operation and display

Part no.: 68001216 – MLC510R20-1650 – Safety light curtain receiver

| Type of display | LED | | | |
|------------------------------------|-------------------------|----------|--|--|
| Number of LEDs | 2 Piece(s) | | | |
| | | | | |
| Environmental data | | | | |
| Ambient temperature, operation | -30 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 S Mark | | | |
| | TÜV Süd | | | |
| | c CSA US | | | |
| Vibration resistance | 50 m/s² | | | |
| Shock resistance | 100 m/s² | | | |
| US patents | US 6,418,546 B | | | |
| | | | | |
| Classification | | | | |
| eCl@ss 8.0 | 27272704 | | | |
| eCl@ss 9.0 | 27272704 | 27272704 | | |

Suitable transmitters

ETIM 5.0

| Part no. | Designation | Article | Description |
|----------|----------------|-------------------------------------|--|
| 68000216 | MLC500T20-1650 | Safety light curtain transmitter | Resolution: 20 mm Protective field height: 1,650 mm Operating range: 0 15 m Connection: Connector, M12, Metal, 5 -pin |
| 68008216 | MLC502T20-1650 | Safety light curtain transmitter | Resolution: 20 mm Protective field height: 1,650 mm Operating range: 0 15 m Connection: Connector, M12, Metal, 5 -pin |

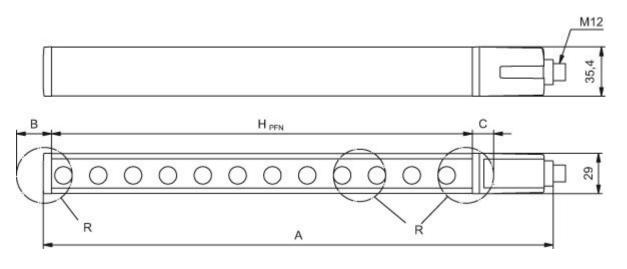
EC002549

Dimensioned drawings

All dimensions in millimeters

Part no.: 68001216 – MLC510R20-1650 – Safety light curtain receiver

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

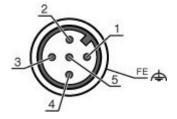


- HPFE Effective protective field height = 1667 mm
- Hpfn Nominal protective field height = 1650 mm
 - Total height = 1716 mm
- 7 mm
- A B C 10 mm
- Effective protective field height HPFE goes beyond the dimensions of the optics area to the outer R borders of the circles labeled with R.

Electrical connection

| Connection 1 | |
|--------------------|-------------------|
| Type of connection | Connector |
| Function | Machine interface |
| Thread size | M12 |
| Туре | Male |
| Material | Metal |
| No. of pins | 5 -pin |
| Encoding | A-coded |
| Connector housing | FE/SHIELD |

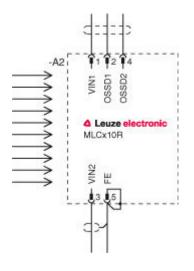
| Pin | Pin assignment | Conductor color |
|-----|----------------|-----------------|
| 1 | VIN1 | Brown |
| 2 | OSSD1 | White |
| 3 | VIN2 | Blue |
| 4 | OSSD2 | Black |
| 5 | FE/SHIELD | Gray |



Part no.: 68001216 – MLC510R20-1650 – Safety light curtain receiver

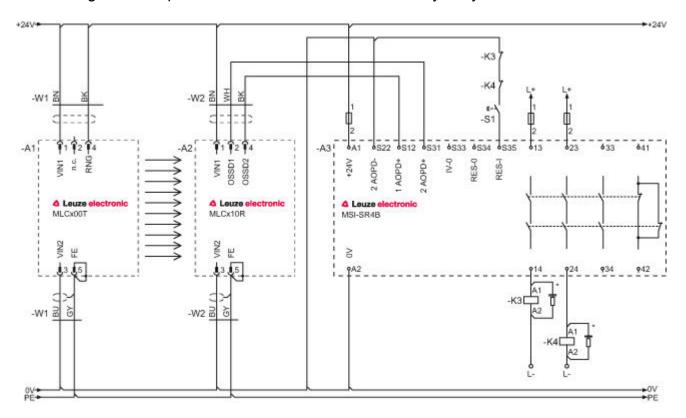
Circuit diagrams

Connection diagram receiver



VIN1 = +24 V, VIN2 = 0 V: transmission channel C1
 VIN1 = 0 V, VIN2 = +24 V: transmission channel C2

Circuit diagram example with downstream MSI-SR4B safety relay



Part no.: 68001216 – MLC510R20-1650 – Safety light curtain receiver

Operation and display

LEDs

| LED | Display | Meaning |
|-----|-------------------------|-----------------------------------|
| 1 | Off | Device switched off |
| | Red, continuous light | OSSD off. |
| | Red, flashing, 1 Hz | External error |
| | Red, flashing, 10 Hz | Internal error |
| | Green, flashing, 1 Hz | OSSD on, weak signal |
| | Green, continuous light | OSSD on |
| 2 | Off | Transmission channel C1 |
| | Red, continuous light | OSSD off, transmission channel C2 |

Part number code

Part designation: MLCxyy-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 |
| Z | Device type: T: transmitter R: receiver |
| а | 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 |
| e | Host/Guest (optional): H: Host MG: Middle Guest G: Guest |
| i | Interface (optional): /A: AS-i |
| 000 | 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 |
| 678057 | CB- M12-15000E-5GF | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Open end Shielded: Yes 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 |
| 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 |

Part no.: 68001216 – MLC510R20-1650 – Safety light curtain receiver

| | Part no. | Designation | Article | Description |
|---|----------|------------------------|---------|--|
| 5 | | KD U-M12-5A- P1-100 | | 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 |
|--------|----------|-------------|-----------|--|
| · Dedu | 429175 | CB-M12-5GF | Connector | Connection: Connector, M12, Axial, Female, A-coded, 5 -pin |

Mounting technology - Mounting brackets

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

Mounting technology - Swivel mounts

| | Part no. | Designation | Article | Description |
|------|----------|-------------|-------------------------|---|
| P.a. | 429393 | BT-2HF | Mounting bracket set | Contains: 2x BT-HF swivel mount, 1 cylinder for mounting on the light curtain Mounting bracket, 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 Mounting bracket, 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 Mounting bracket, at system: Mounting thread Mounting bracket, at device: Groove mounting Material: Metal |

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Part no.: 68001216 – MLC510R20-1650 – Safety light curtain receiver

| | Part no. | Designation | Article | Description |
|---|----------|-------------|-------------------------|---|
| *** | 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 Mounting bracket, 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 Mounting bracket, at system: Mounting thread Mounting bracket, at device: Groove mounting Material: Metal |
| E.E. | 424417 | BT-2P40 | Mounting bracket set | Contains: 2x BT-P40 clamp bracket Design of mounting device: Mounting clamp Mounting bracket, at system: Groove mounting Mounting bracket, at device: Groove mounting Type of mounting device: Clampable Material: Metal |
| And | 424422 | BT-2SB10 | Mounting bracket set | Contains: 2x BT-SB10 Design of mounting device: Mounting clamp Mounting bracket, at system: Through-hole mounting Mounting bracket, at device: Clampable, an der seitlichen C-Nut Type of mounting device: Swiveling Swivel range: -8 8 ° Material: Metal |
| A CAR | 424423 | BT-2SB10-S | Mounting bracket set | Contains: 2x BT-SB10-S Design of mounting device: Mounting clamp Mounting bracket, at system: Through-hole mounting Mounting bracket, at device: Clampable, an der seitlichen C-Nut Swivel range: -8 8 ° Material: Metal Shock absorber: Yes |

Test rods

| Part no. | Designation | Article | Description |
|----------|-------------|------------|---|
| 349939 | AC-TR20/40 | Test piece | Diameter 1: 20mm Diameter 2: 40mm Housing material: Plastic, Terluran HH106 black |

Alignment aids

| | Part no. | Designation | Article | Description |
|---|----------|-------------|---------------|---|
| 0 | 427300 | AC-ALM | Alignment aid | Housing material: Plastic |
| | 520101 | AC-ALM-M | Alignment aid | Housing material: Plastic |
| | 560020 | LA-78U | Alignment aid | Light source: laser, Red Housing material: Metal |

Part no.: 68001216 – MLC510R20-1650 – Safety light curtain receiver

| Part no. | Designation | Article | Description |
|----------|-------------|---------------|---|
| 520004 | LA-78UDC | Alignment aid | Light source: laser, Red Housing material: Metal |

Protective screens

| Part no. | Designation | Article | Description |
|----------|-------------|----------------------|---|
| | MLC-3PSF | Mounting bracket set | Type of fastening: Clampable Mounting device material: Metal |
| 347081 | MLC-PS1650 | Protective screen | Protective field height: 1,650 mm Material: PMMA, clear |

Deflecting mirror

| Part no. | Designation | Article | Description |
|----------|-------------|---------|---|
| 529616 | UM60-1650 | Ũ | Dimensions: 25 mm x 1,720 mm x 68 mm Protected field height up to: 1,650 mm Mirror length: 1,710 mm |

Device columns

| | Part no. | Designation | Article | Description |
|---|----------|-------------|---------------|---|
| 8 | 549854 | UDC-1900-S2 | Device column | Dimensions: 160 mm x 1,960 mm x 149 mm Column height without foot: 1,900 mm Functions: Mounting and protection of light curtains and multiple light beam devices, Adjustable, 3 directions |
| | 549867 | UDC-2100-S2 | Device column | Dimensions: 160 mm x 2,160 mm x 149 mm Column height without foot: 2,100 mm Functions: Adjustable, 3 directions, Mounting and protection of light curtains and multiple light beam devices |
| | 549857 | UDC-2500-S2 | Device column | Dimensions: 160 mm x 2,560 mm x 149 mm Column height without foot: 2,500 mm Functions: Adjustable, 3 directions, Mounting and protection of light curtains and multiple light beam devices |

Part no.: 68001216 – MLC510R20-1650 – Safety light curtain receiver

| Part no. | Designation | Article | Description |
|----------|-------------|---------------|---|
| 549865 | UDC-3100-S2 | Device column | Dimensions: 160 mm x 3,160 mm x 149 mm Column height without foot: 3,100 mm Functions: Mounting and protection of light curtains and multiple light beam devices, Adjustable, 3 directions |

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. | | | |