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**Part no.: 68009330**
**MLC530R30-3000-SPG**
**Safety light curtain receiver**

# Contents

# Technical data

| | |
|---|---|
| ***Basic data*** | |
| Series | MLC 500 |
| Device type | Receiver |
| Contains | 2x BT-NC sliding block |
| Application | Hand protection<br>Smart Process Gating |

| | |
|---|---|
| ***Functions*** | |
| Function package | Smart Process Gating |
| Functions | Fixed blanking with 1-beam tolerance<br>Fixed blanking without tolerance<br>Integration of "contact-based safety circuit"<br>Integration of "electronic safety-related switching outputs"<br>MaxiScan<br>Muting-timeout extension<br>Qualified stop<br>Smart Process Gating<br>Start/restart interlock (RES)<br>Transmission channel changeover |

| | |
|---|---|
| ***Characteristic parameters*** | |
| Type | 4 , IEC/EN 61496 |
| SIL | 3 , IEC 61508 |
| SILCL | 3 , IEC/EN 62061 |
| Performance Level (PL) | e , EN ISO 13849-1 |
| $PFH_D$ | 7.73E-09 per hour |
| Mission time $T_M$ | 20 years , EN ISO 13849-1 |
| Category | 4 , EN ISO 13849 |

| | |
|---|---|
| ***Protective field data*** | |
| Resolution | 30 mm |
| Protective field height | 3,000 mm |

| | |
|---|---|
| ***Optical data*** | |
| Synchronization | Optical between transmitter and receiver |

| | |
|---|---|
| ***Electrical data*** | |
| Protective circuit | Overvoltage protection<br>Short circuit protected |

| | |
|---|---|
| ***Performance data*** | |
| Supply voltage $U_B$ | 24 V , DC , -20 ... 20 % |
| Current consumption, max. | 150 mA |
| Fuse | 2 A semi time-lag |
| ***Inputs*** | |
| Number of digital switching inputs | 3 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 |

| | |
|---|---|
| ***Outputs*** | |
| Number of safety-related switching outputs (OSSDs) | 2 Piece(s) |
| ***Safety-related switching outputs*** | |
| Type | Safety-related switching output OSSD |
| Switching voltage high, min. | 18 V |
| Switching voltage low, max. | 2.5 V |
| Switching voltage, typ. | 22.5 V |
| Voltage type | DC |
| Current load, max. | 380 mA |
| Load inductivity | 2,000 µH |
| Load capacity | 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*** | |
| Assignment | Connection 1, pin 5 |
| Switching element | Transistor , PNP |
| ***Safety-related switching output 2*** | |
| Assignment | Connection 1, pin 6 |
| Switching element | Transistor , PNP |

| | |
|---|---|
| ***Timing*** | |
| Response time | 100 ms |
| Restart delay time | 100 ms |

| | |
|---|---|
| ***Connection*** | |
| Number of connections | 1 Piece(s) |
| ***Connection 1*** | |
| Type of connection | Connector |
| Function | Machine interface |
| Thread size | M12 |
| Material | Metal |
| 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 3,066 mm x 35.4 mm |
| Housing material | Metal , Aluminum |
| Lens cover material | Plastic / PMMA |
| Material of end caps | Diecast zinc |
| Net weight | 3,150 g |
| Housing color | Yellow, RAL 1021 |
| Type of fastening | Groove mounting<br>Mounting bracket<br>Mounting on Device Column<br>Swivel mount |

| |
|---|
| ***Operation and display*** |

| | |
|---|---|
| Type of display | 7-segment display<br>LED |
| Number of LEDs | 3 Piece(s) |

| *Environmental data* | |
|---|---|
| Ambient temperature, operation | -30 ... 55 °C |
| Ambient temperature, storage | -30 ... 70 °C |
| Relative humidity (non-condensing) | 0 ... 95 % |

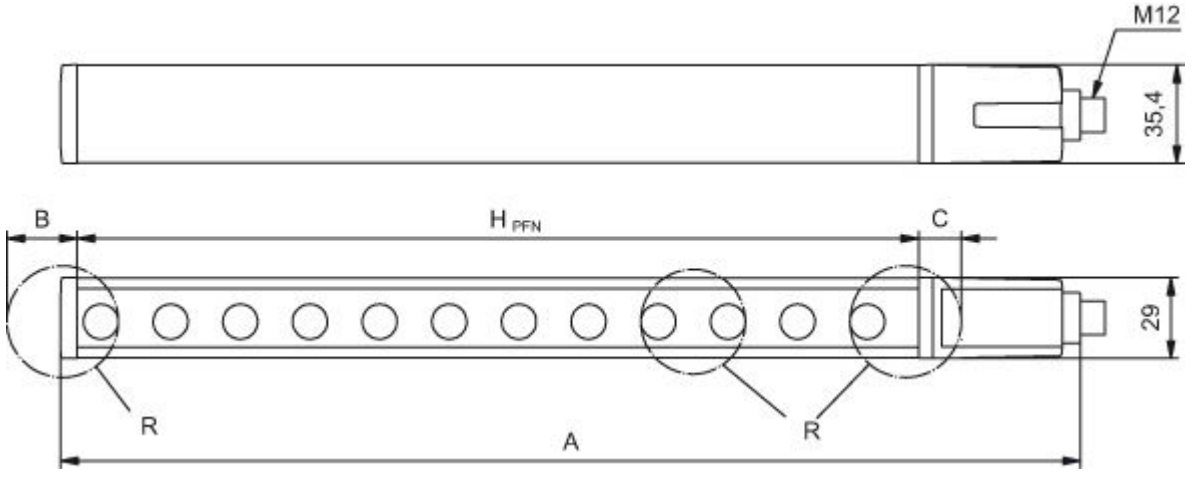
| *Certifications* | |
|---|---|
| Degree of protection | IP 65 |
| Protection class | III |
| Certifications | c CSA US<br>c TÜV NRTL US<br>S Mark<br>TÜV Süd |
| Vibration resistance | 50 m/s² |
| Shock resistance | 100 m/s² |
| US patents | US 6,418,546 B |

| *Classification* | |
|---|---|
| Customs tariff number | 85365019 |
| eCl@ss 8.0 | 27272704 |
| eCl@ss 9.0 | 27272704 |
| ETIM 5.0 | EC002549 |
| ETIM 6.0 | EC002549 |

## Dimensioned drawings

All dimensions in millimeters

### Calculation of the effective protective field height $H_{PFE} = H_{PFN} + B + C$



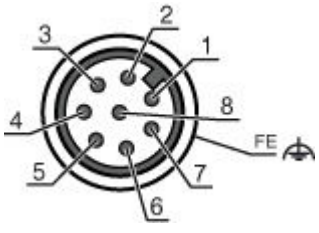

$H_{PFE}$ Effective protective field height = 3028 mm
$H_{PFN}$ Nominal protective field height = 3000 mm
A Total height = 3066 mm
B 19 mm
C 9 mm

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

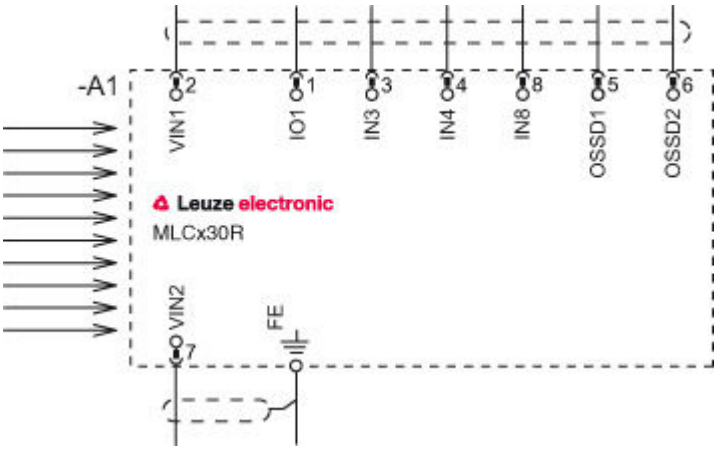
| Connection 1 | |
|---|---|
| Type of connection | Connector |
| Function | Machine interface |
| Thread size | M12 |
| Type | Male |
| Material | Metal |
| No. of pins | 8 -pin |
| Encoding | A-coded |
| Connector housing | FE/SHIELD |

| Pin | Pin assignment | Conductor color |
|---|---|---|
| 1 | IO1/RES | White |
| 2 | VIN1 | Brown |
| 3 | IN3 | Green |
| 4 | IN4 | Yellow |
| 5 | OSSD1 | Gray |
| 6 | OSSD2 | Pink |
| 7 | VIN2 | Blue |
| 8 | IN8 | Red |



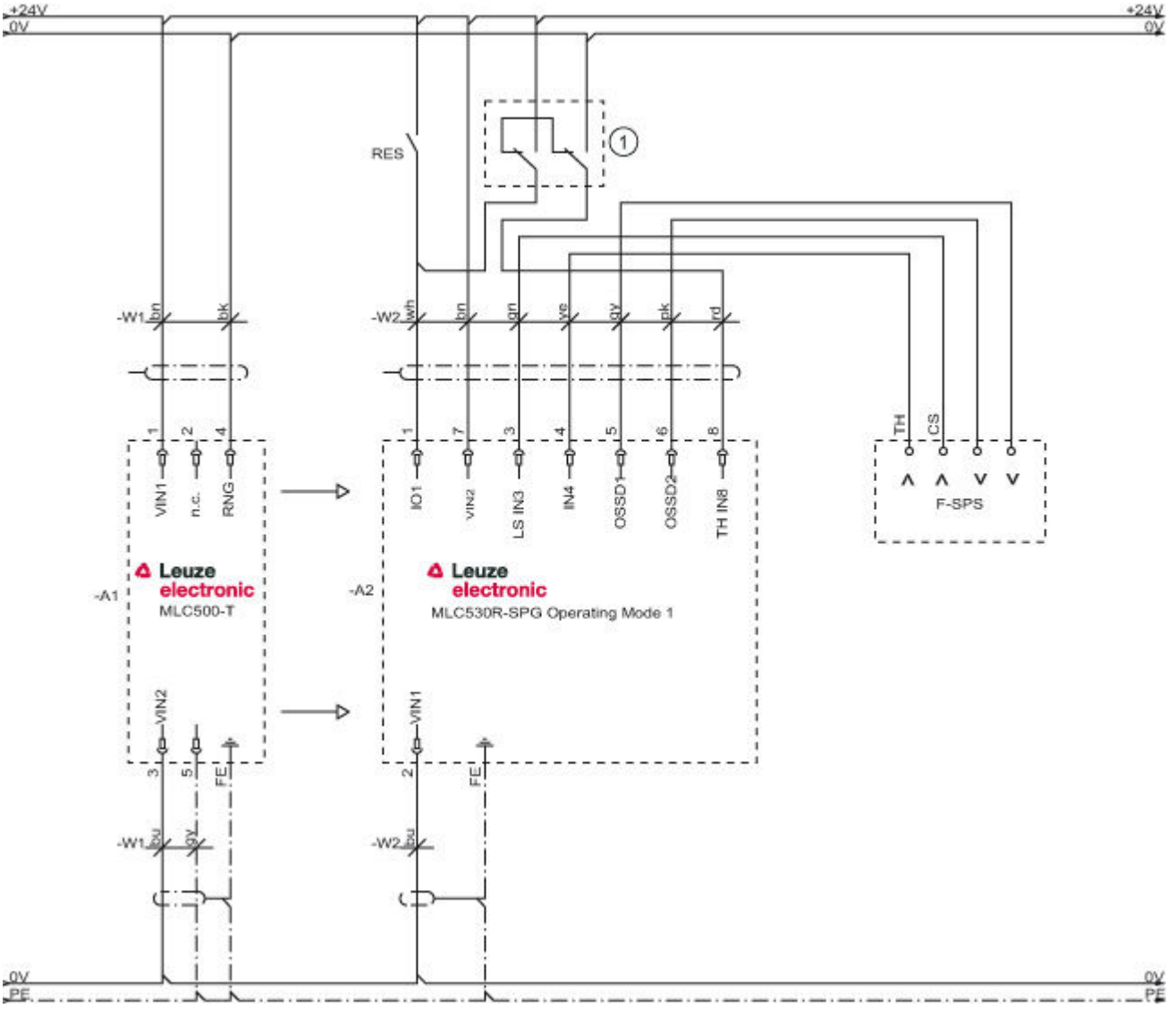

## Circuit diagrams

### Connection diagram receiver



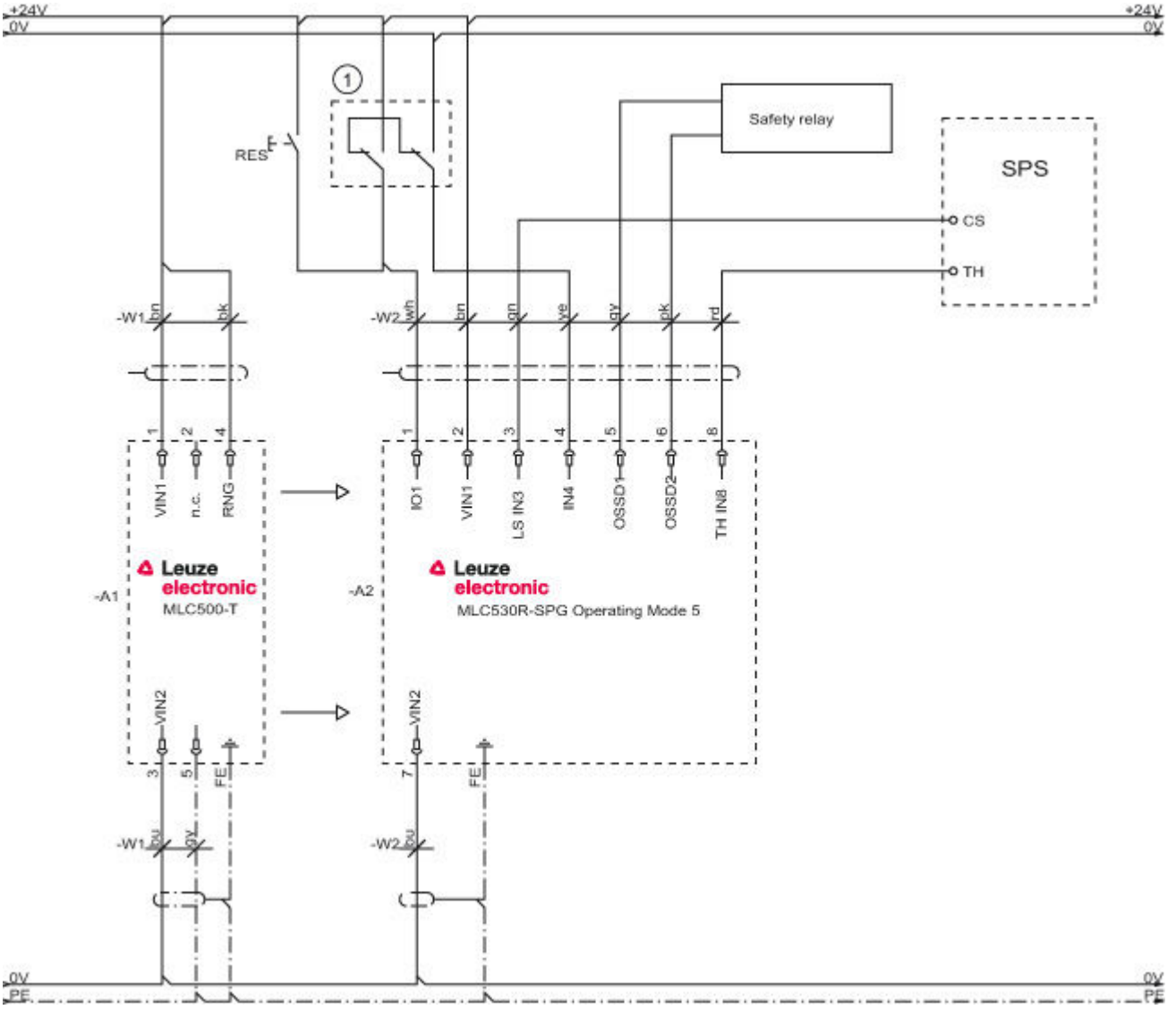

- VIN1 = +24 V, VIN2 = 0 V: transmission channel C1
- VIN1 = 0 V, VIN2 = +24 V: transmission channel C2

## Operating mode 1: connection example with Smart Process Gating (SPG)




1 Optional teach key switch

Operating mode 5: circuit diagram example with Smart Process Gating (SPG)




1 Optional teach key switch

## 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 | RES deactivated or RES activated and enabled or RES blocked and protective field interrupted |
| | Yellow, continuous light | RES activated and blocked but ready to be unlocked - protective field free and linked sensor is enabled if applicable |

| LED | Display | Meaning |
|---|---|---|
| | Yellow, flashing | Upstream safety circuit opened |
| | Yellow, flashing (1x or 2x) | Changeover of the upstream safety circuit |
| 3 | Off | No special function (blanking, muting, etc.) active |
| | Blue, continuous light | Protective field parameter (blanking) correctly taught |
| | Blue, flashing, 1 Hz | Muting active |
| | Blue, short flashing | Teaching of protective field parameters or muting restart required or muting override active |
| | Blue, flashing, 10 Hz | Error during teaching of protective field parameters |

## Suitable transmitters

| | Part no. | Designation | Article | Description |
|---|---|---|---|---|
|  | 68000330 | MLC500T30-3000 | Safety light curtain transmitter | Resolution: 30 mm<br>Protective field height: 3,000 mm<br>Operating range: 0 ... 10 m<br>Connection: Connector, M12, Metal, 5 -pin |

## Part number code

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

| MLC | Safety light curtain |
|---|---|
| x | **Series:**<br>3: MLC 300<br>5: MLC 500 |
| yy | **Function classes:**<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 | **Device type:**<br>T: transmitter<br>R: receiver |
| a | **Resolution:**<br>14: 14 mm<br>20: 20 mm<br>30: 30 mm<br>40: 40 mm<br>90: 90 mm |
| hhhh | **Protective field height:**<br>150 … 3000: from 150 mm to 3000 mm |
| e | **Host/Guest (optional):**<br>H: Host<br>MG: Middle Guest<br>G: Guest |
| i | **Interface (optional):**<br>/A: AS-i |
| ooo | **Option:**<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 electronic website at www.leuze.com. |

## Notes

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

## Accessories

### Connection technology - Connection cables

| | Part no. | Designation | Article | Description |
| --- | --- | --- | --- | --- |
|  | 50135128 | KD S-M12-8A-P1-050 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 8 -pin<br>Connection 2: Open end<br>Shielded: Yes<br>Cable length: 5,000 mm<br>Sheathing material: PUR |

### 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<br>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 "Safety light barriers" | 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.<br>Restrictions: Travel costs and accommodation expenses charged separately and according to expenditure. |
|  | 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.<br>Restrictions: Max. 2 h., no mechanical (mounting) and electrical (wiring) work performed, no changes (attachments, wiring, programming) to third-party components in the nearby environment. |