



the sensor people





Part no.: 68000315 MLC500T30-1500 Safety light curtain transmitter















Figure can vary

Contents

- · Technical data
- Dimensioned drawings
- Electrical connection
- Circuit diagrams
- Operation and display
- Suitable receivers
- · Part number code
- Notes
- Accessories



Technical data

| Series MLC 500 Device type Transmitter Contains 2x BT-NC siding block Application Hand protection Functions Functio | Basic data | |
|--|------------------------------------|--|
| Device type Transmitter Contains 2x BT-NC sliding block Application Hand protection Functions F | | MI C 500 |
| Contains 2x BT-NC sliding block Application Hand protection Functions Functions Functions Range reduction Transmission channel changeover Characteristic parameters Type 4, IEC/EN 61496 SIL 3, IEC 61508 SILC 3, IEC/EN 62061 Mission time T _M 20 years , EN ISO 13849-1 Protective field data Resolution 30 mm Protective field height 1,500 mm Operating range 010 m Optical data 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 Us 24 V. DC20 20 % Current consumption, max 50 mA Fuse 2 A semi time-lag Inputs Number of digital switching inputs 1 Plece(s) Switching voltage low, max 2.5 V Switching voltage loy, max 2.5 V Switching voltage loy, max 2.5 V Voltage type Dc Connection | | |
| Application Functions Functions Functions Functions Functions Functions Range reduction Transmission channel changeover Characteristic parameters Type | | |
| Functions Functions Range reduction Transmission channel changeover Characteristic parameters Type | | - |
| Functions Range reduction Transmission channel changeover Characteristic parameters Type | Application | Tranu protection |
| Transmission channel changeover Type | Functions | |
| Type | Functions | |
| Type | | |
| SIL 3, IEC/EN 62061 Mission time T _M 20 years , EN ISO 13849-1 Protective field data Resolution 30 mm Protective field height 1,500 mm Operating range 0 10 m Optical data 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 UB 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 low, max. 2.5 V Switching voltage, typ. 22.5 V Voltage type DC Connection | | |
| SILCL 3, IEC/EN 62061 Mission time T _M 20 years , EN ISO 13849-1 Protective field data Resolution 30 mm Protective field height 1,500 mm Operating range 0 10 m Optical data 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 UB 24 V , DC , -20 20 % Current consumption, max. 50 mA Fuse 2 A semit time-lag Inputs Number of digital switching inputs 1 Piece(s) Switching inputs Type Digital switching input Switching voltage low, max. 2.5 V Switching voltage, typ. 22.5 V Voltage type DC Connection | | |
| Mission time T _M 20 years , EN ISO 13849-1 Protective field data Resolution 30 mm Protective field height 1,500 mm Operating range 0 10 m Optical data 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 dircuit Overvoltage protection Short circuit protected Performance data Supply voltage UB 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 low, max. 2.5 V Switching voltage low, max. 2.5 V Switching voltage, typ. 22.5 V Voltage type DC Connection | | |
| Protective field data Resolution 30 mm Protective field height 1,500 mm Operating range 0 10 m Optical data Synchronization Optical between transmitter and receiver Light source LED , Infrared LED light wavelength 940 mm 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 UB 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 low, max. 2.5 V Switching voltage low, max. 2.5 V Switching voltage low, max. 2.5 V Switching voltage, typ. DC Connection | | |
| Resolution 30 mm Protective field height 1,500 mm Operating range 0 10 m Optical data 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 UB 24 V , DC , -20 20 % Current consumption, max. 50 mA Fuse 2 A semi time-lag Imputs Number of digital switching inputs 1 Piece(s) Switching inputs Type Digital switching input Switching voltage low, max. 2.5 V Switching voltage low, max. 2.5 V Switching voltage low, max. 2.5 V Switching voltage, typ. 22.5 V Voltage type DC Connection | Mission time T _M | 20 years , EN ISO 13849-1 |
| Resolution 30 mm Protective field height 1,500 mm Operating range 0 10 m Optical data 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 UB 24 V , DC , -20 20 % Current consumption, max. 50 mA Fuse 2 A semi time-lag Imputs Number of digital switching inputs 1 Piece(s) Switching inputs Type Digital switching input Switching voltage low, max. 2.5 V Switching voltage low, max. 2.5 V Switching voltage low, max. 2.5 V Switching voltage, typ. 22.5 V Voltage type DC Connection | Protective field data | |
| Protective field height 1,500 mm Optical data 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 UB 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 voltage high, min. 18 V Switching voltage, typ. 22.5 V Voltage type DC Connection | | 30 mm |
| Operating range 0 10 m Optical data 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 UB 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 low, max. 2.5 V Switching voltage, typ. 22.5 V Voltage type DC Connection | | |
| Optical data 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 UB 24 V , DC , -20 20 % Current consumption, max. Fuse 2 A semi time-lag Inputs Number of digital switching inputs 1 Piece(s) Switching inputs Type Digital switching input Switching voltage ligh, min. 18 V Switching voltage low, max. 2.5 V Switching voltage, typ. 22.5 V Voltage type DC | | |
| 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 UB 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 low, max. 2.5 V Switching voltage low, max. 2.5 V Switching voltage, typ. 22.5 V Voltage type DC Connection | Operating range | 0 10 111 |
| LED, Infrared LED light wavelength Pulsed LED group Exempt group in acc. with EN 62471:2008 Electrical data Protective circuit Overvoltage protection Short circuit protected Performance data Supply voltage UB Current consumption, max. Fuse 1 A semi time-lag Inputs Number of digital switching inputs Type Switching inputs Switching voltage low, max. Switching voltage low, max. Switching voltage low, max. Switching voltage low, max. Switching voltage, typ. Voltage type Digital switching input Connection | Optical data | |
| LED light wavelength Transmitted-signal shape LED group Exempt group in acc. with EN 62471:2008 Electrical data Protective circuit Overvoltage protection Short circuit protected Performance data Supply voltage UB Current consumption, max. 50 mA Fuse 2 A semi time-lag Inputs Number of digital switching inputs Type Digital switching input Switching voltage low, max. 2.5 V Switching voltage low, max. 2.2.5 V Voltage type DC Connection | Synchronization | Optical between transmitter and receiver |
| Transmitted-signal shape LED group Exempt group in acc. with EN 62471:2008 Electrical data Protective circuit Overvoltage protection Short circuit protected Performance data Supply voltage UB 24 V , DC , -20 20 % Current consumption, max. 50 mA Fuse 2 A semi time-lag Inputs Number of digital 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 | Light source | LED , Infrared |
| Electrical data Protective circuit Performance data Supply voltage UB Current consumption, max. Fuse Inputs Number of digital switching inputs Type Switching voltage low, max. Switching voltage low, max. Exempt group in acc. with EN 62471:2008 Description of Short circuit protected Overvoltage protection Short circuit protected 2 4 V , DC , -20 20 % Current consumption, max. 50 mA Fuse 2 A semi time-lag Inputs Digital switching inputs Type Digital switching input Switching voltage high, min. 18 V Switching voltage low, max. 2.5 V Switching voltage, typ. DC Connection | LED light wavelength | 940 nm |
| Electrical data Protective circuit Overvoltage protection Short circuit protected Performance data Supply voltage UB Current consumption, max. 50 mA Fuse 1 Piece (s) Switching inputs Type Digital switching input Switching voltage low, max. Switching voltage low, max. Switching voltage, typ. Voltage type Dovervoltage protection Short circuit protected Device of circuit protec | Transmitted-signal shape | Pulsed |
| Protective circuit Overvoltage protection Short circuit protected Performance data Supply voltage UB Current consumption, max. 50 mA Fuse 2 A semi time-lag Inputs Number of digital switching inputs Type Digital switching input Switching voltage high, min. Switching voltage low, max. Switching voltage, typ. Voltage type Connection | LED group | Exempt group in acc. with EN 62471:2008 |
| Protective circuit Overvoltage protection Short circuit protected Performance data Supply voltage UB Current consumption, max. 50 mA Fuse 2 A semi time-lag Inputs Number of digital switching inputs Type Digital switching input Switching voltage high, min. Switching voltage low, max. Switching voltage, typ. Voltage type Connection | Flactrical data | |
| Short circuit protected Performance data Supply voltage UB | | Overvoltage protection |
| Supply voltage UB 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. Voltage type DC Connection | | |
| 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 | | |
| 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 | Supply voltage U _B | 24 V , DC , -20 20 % |
| Inputs Number of digital switching inputs Switching inputs Type Digital switching input Switching voltage high, min. Switching voltage low, max. Switching voltage, typ. Voltage type DC Connection | Current consumption, max. | 50 mA |
| Number of digital switching inputs Switching inputs Type Digital switching input Switching voltage high, min. Switching voltage low, max. Switching voltage, typ. Voltage type Connection | Fuse | 2 A semi time-lag |
| 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 | 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 digital switching inputs | 1 Piece(s) |
| Switching voltage high, min. Switching voltage low, max. Switching voltage, typ. 22.5 V Voltage type DC Connection | Switching inputs | |
| Switching voltage low, max. Switching voltage, typ. 22.5 V Voltage type DC Connection | Туре | Digital switching input |
| Switching voltage, typ. 22.5 V Voltage type DC Connection | Switching voltage high, min. | 18 V |
| Voltage type DC Connection | Switching voltage low, max. | 2.5 V |
| Connection | Switching voltage, typ. | 22.5 V |
| | Voltage type | DC |
| | Connection | |
| | | 4 Piece/e) |
| Number of connections | Number of connections | 1 Piece(s) |



| Connection 1 | | | |
|--|--|--|--|
| Type of connection | Connector | | |
| Function | Machine interface | | |
| Thread size | M12 | | |
| Material | Metal | | |
| No. of pins | 5 -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 1,566 mm x 35.4 mm | | |
| Housing material | Metal , Aluminum | | |
| Lens cover material | Plastic / PMMA | | |
| Material of end caps | Diecast zinc | | |
| Net weight | 1,650 g | | |
| Housing color | Yellow, RAL 1021 | | |
| Type of fastening | Groove mounting Mounting bracket Mounting on Device Column Swivel mount | | |
| Operation and display | | | |
| Type of display | LED | | |
| Number of LEDs | 2 Piece(s) | | |
| NUMBER OF LEDS | 211666(3) | | |
| 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 | | |

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

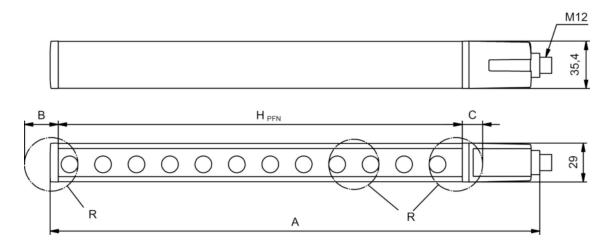
| Classification | |
|-----------------------|----------|
| Customs tariff number | 85365019 |
| eCl@ss 8.0 | 27272704 |
| eCl@ss 9.0 | 27272704 |
| ETIM 5.0 | EC002549 |
| ETIM 6.0 | EC002549 |



Dimensioned drawings

All dimensions in millimeters

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



HPFE Effective protective field height = 1528 mm

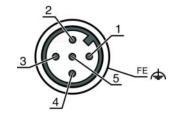
H_{PFN} Nominal protective field height = 1500 mm

- A Total height = 1566 mm
- B 19 mm
- C 9 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 |
| 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 | n.c. | White |
| 3 | VIN2 | Blue |
| 4 | RNG | Black |
| 5 | FE/SHIELD | Gray |

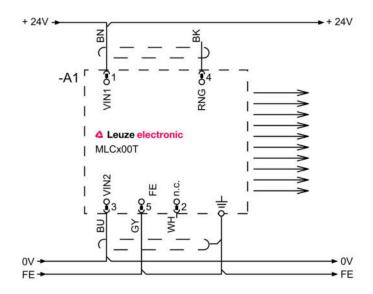


Leuze electronic GmbH + Co. KG, In der Braike 1, 73277 Owen Phone: +49 7021 573-0, Fax: +49 7021 573-199



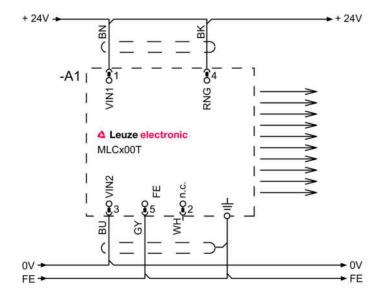
Circuit diagrams

Transmission channel C1, reduced range



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

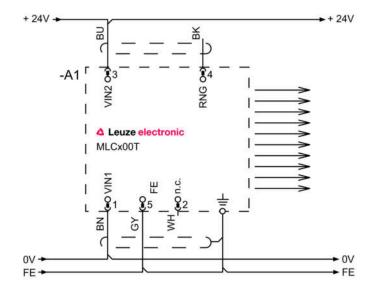
Transmission channel C1, standard range



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

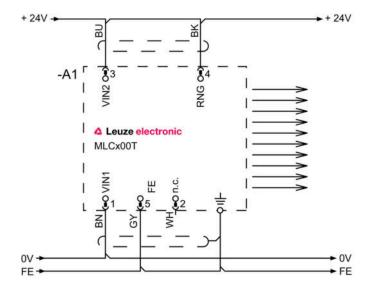


Transmission channel C2, reduced range



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

Transmission channel C2, standard range



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

Operation and display

LEDs

| LED | Display | Meaning |
|-----|---------|---------------------|
| 1 | Off | Device switched off |



| LED | Display | Meaning |
|-----|---|---|
| | 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 |

Suitable receivers

| Part no. | Designation | Article | Description |
|----------|--------------------|----------------------------------|--|
| 68001315 | MLC510R30-1500 | Safety light curtain receiver | Resolution: 30 mm Protective field height: 1,500 mm Response time: 14 ms Connection: Connector, M12, Metal, 5 -pin Function package: Basic |
| 68002315 | MLC520R30-1500 | Safety light curtain receiver | Resolution: 30 mm Protective field height: 1,500 mm Response time: 14 ms Connection: Connector, M12, Metal, 8 -pin Function package: Standard |
| 68003315 | MLC530R30-1500 | Safety light curtain receiver | Resolution: 30 mm Protective field height: 1,500 mm Response time: 14 ms Connection: Connector, M12, Metal, 8 -pin Function package: Extended |
| 68009315 | MLC530R30-1500-SPG | Safety light curtain receiver | Resolution: 30 mm Protective field height: 1,500 mm Response time: 100 ms Connection: Connector, M12, Metal, 8 -pin Function package: Smart Process Gating |

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 | |



| MLC | Safety light curtain | |
|------|--|--|
| 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 | |
| е | 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.

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.

Accessories

Connection technology - Connection cables

| Part no. | Designation | Article | Description |
|----------|------------------------|------------------|--|
| 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 |

Mounting technology - Swivel mounts

| | Part no. | Designation | Article | Description |
|--------|----------|-------------|----------------------|---|
| P. Co. | 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 |

Leuze electronic GmbH + Co. KG, In der Braike 1, 73277 Owen Phone: +49 7021 573-0, Fax: +49 7021 573-199



Alignment aids

| | Part no. | Designation | Article | Description |
|---|----------|-------------|---------------|---------------------------|
| 1 | 520101 | AC-ALM-M | Alignment aid | Housing material: 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. 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. 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. Conditions: Devices and connection cables are already mounted, price not including travel costs and, if applicable, accommodation expenses. 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. |

Note

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