

## Technical data sheet

### Throughbeam photoelectric sensor transmitter

Part no.: 50137197

LS3CL1/XX



For illustration purposes only

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## Technical data

### Basic data

|                     |                       |
|---------------------|-----------------------|
| Series              | 3C                    |
| Operating principle | Throughbeam principle |
| Device type         | Transmitter           |

### Optical data

|                                      |                                                          |
|--------------------------------------|----------------------------------------------------------|
| Operating range                      | 0 ... 5 m (guaranteed operating range)                   |
| Operating range limit                | 0 ... 10 m (typical operating range)                     |
| Beam path                            | Collimated                                               |
| Light source                         | Laser, Red                                               |
| Wavelength                           | 650 nm                                                   |
| Laser class                          | 1, in accordance with IEC 60825-1:2014 (EN 60825-1:2014) |
| Transmitted-signal shape             | Pulsed                                                   |
| Light spot size [at sensor distance] | 2.5 mm x 2 mm [1,000 mm]                                 |
| Type of light spot geometry          | elliptic                                                 |

### Electrical data

|                      |                                                         |
|----------------------|---------------------------------------------------------|
| Protective circuit   | Polarity reversal protection<br>Short circuit protected |
| Performance data     |                                                         |
| Supply voltage $U_B$ | 10 ... 30 V, DC, Incl. residual ripple                  |
| Residual ripple      | 0 ... 15 %, From $U_B$                                  |
| Open-circuit current | 0 ... 20 mA                                             |

### Time behavior

|                 |        |
|-----------------|--------|
| Readiness delay | 300 ms |
|-----------------|--------|

### Connection

|                       |                     |
|-----------------------|---------------------|
| Number of connections | 1 Piece(s)          |
| Connection 1          |                     |
| Function              | Voltage supply      |
| Type of connection    | Cable               |
| Cable length          | 2,000 mm            |
| Sheathing material    | PUR                 |
| Cable color           | Black               |
| Number of conductors  | 4 -wire             |
| Wire cross section    | 0.2 mm <sup>2</sup> |

### Mechanical data

|                                                |                                                       |
|------------------------------------------------|-------------------------------------------------------|
| Dimension (W x H x L)                          | 11.4 mm x 34.2 mm x 18.3 mm                           |
| Housing material                               | Plastic                                               |
| Plastic housing                                | PC-ABS                                                |
| Lens cover material                            | Plastic / PMMA                                        |
| Net weight                                     | 50 g                                                  |
| Housing color                                  | Red                                                   |
| Type of fastening                              | Through-hole mounting<br>Via optional mounting device |
| Recommended tightening torque for M3 fastening | 0.9 N·m                                               |
| Compatibility of materials                     | ECOLAB                                                |

### Operation and display

|                 |            |
|-----------------|------------|
| Type of display | LED        |
| Number of LEDs  | 2 Piece(s) |

### Environmental data

|                                |               |
|--------------------------------|---------------|
| Ambient temperature, operation | -40 ... 55 °C |
| Ambient temperature, storage   | -40 ... 70 °C |

### Certifications

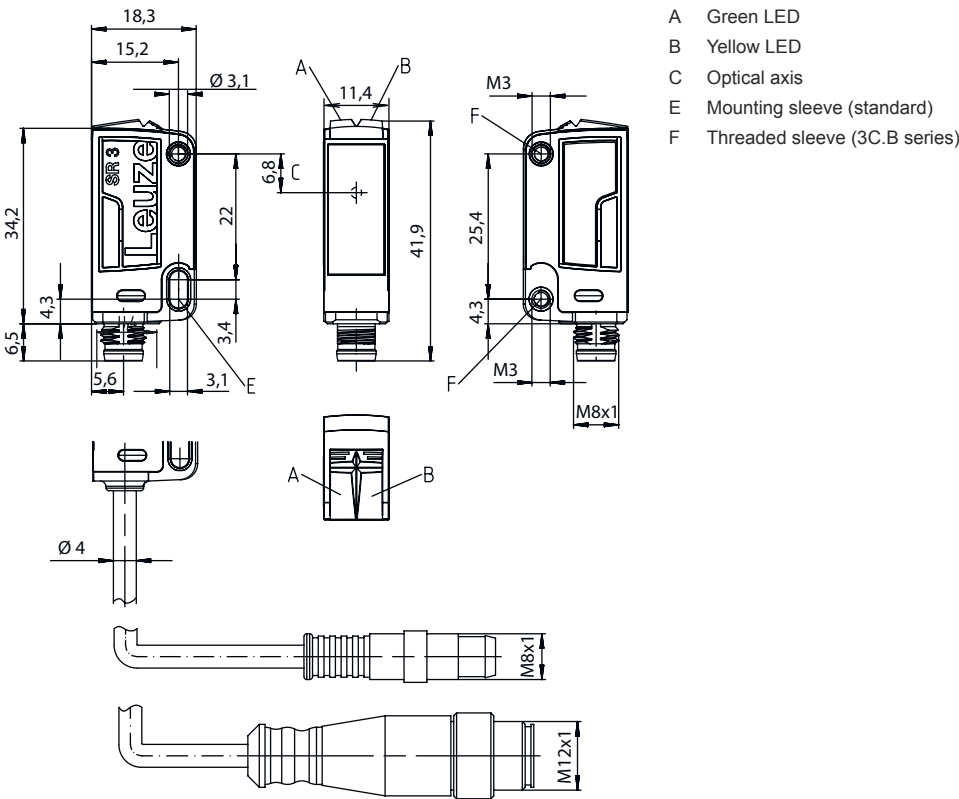
|                      |                 |
|----------------------|-----------------|
| Degree of protection | IP 67<br>IP 69K |
| Protection class     | III             |
| Approvals            | c UL US         |
| Standards applied    | IEC 60947-5-2   |

### Classification

|                       |          |
|-----------------------|----------|
| Customs tariff number | 85365019 |
| ECLASS 5.1.4          | 27270901 |
| ECLASS 8.0            | 27270901 |
| ECLASS 9.0            | 27270901 |
| ECLASS 10.0           | 27270901 |
| ECLASS 11.0           | 27270901 |
| ECLASS 12.0           | 27270901 |
| ECLASS 13.0           | 27270901 |
| ECLASS 14.0           | 27270901 |
| ECLASS 15.0           | 27270901 |
| ETIM 5.0              | EC002716 |
| ETIM 6.0              | EC002716 |
| ETIM 7.0              | EC002716 |
| ETIM 8.0              | EC002716 |
| ETIM 9.0              | EC002716 |
| ETIM 10.0             | EC002716 |

Dimensioned drawings

All dimensions in millimeters



Electrical connection

Connection 1

|                      |                |
|----------------------|----------------|
| Function             | Voltage supply |
| Type of connection   | Cable          |
| Cable length         | 2,000 mm       |
| Sheathing material   | PUR            |
| Cable color          | Black          |
| Number of conductors | 4 -wire        |
| Wire cross section   | 0.2 mm²        |

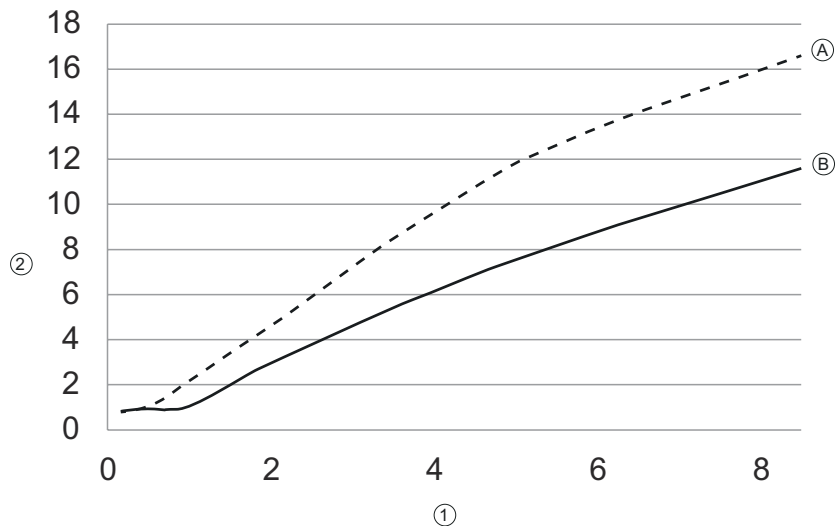
Conductor color

Conductor assignment

|       |      |
|-------|------|
| Brown | V+   |
| White | n.c. |
| Blue  | GND  |
| Black | n.c. |

Diagrams

Typ. light spot size



x Distance [m]  
y Diameter [mm]

1 Distance [m]      A Vertical  
2 Diameter [mm]    B Horizontal

Operation and display

| LED | Display                  | Meaning                 |
|-----|--------------------------|-------------------------|
| 1   | Green, continuous light  | Operational readiness   |
| 2   | Yellow, continuous light | Transmitted beam active |

Suitable receivers

|                                                                                     | Part no. | Designation | Operating range<br>Operating range<br>limit | Description                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------|----------|-------------|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50137204 | LE3CL1.1/6G | 0 ... 5 m<br>0 ... 10 m                     | Supply voltage: DC<br>Digital switching outputs: 2 Piece(s)<br>Switching output 1: Transistor, Push-pull, Light switching (PNP)/dark switching (NPN)<br>Switching output 2: Transistor, Push-pull, Dark switching (PNP)/light switching (NPN)<br>Switching frequency: 3,000 Hz<br>Connection: Cable, 2,000 mm, 4 -wire<br>Operational controls: 270° potentiometer |

## Part number code

Part designation: **AAA 3C d EE-f.GG H/i J-K**

|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>AAA3C</b> | <b>Operating principle / construction</b><br>HT3C: Diffuse reflection sensor with background suppression<br>LS3C: Throughbeam photoelectric sensor transmitter<br>LE3C: Throughbeam photoelectric sensor receiver<br>PRK3C: Retro-reflective photoelectric sensor with polarization filter<br>ODT3C: Distance diffuse sensor with background suppression                                                                                                                                                                                                                                                                   |
| <b>d</b>     | <b>Light type</b><br>n/a: red light<br>I: infrared light                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>EE</b>    | <b>Light source</b><br>n/a: LED<br>L1: laser class 1<br>L2: laser class 2<br>PP: Power PinPoint® LED                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>f</b>     | <b>Preset range (optional)</b><br>n/a: operating range acc. to data sheet<br>xxxF: Preset range [mm]<br>2M: operating range of 2 meters                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>GG</b>    | <b>Equipment</b><br>n/a: standard<br>A: Autocollimation principle (single lens) for positioning tasks<br>B: Housing model with two M3 threaded sleeves, brass<br>F: Permanently set range<br>L: Long light spot<br>S: small light spot<br>T: autocollimation principle (single lens) for highly transparent bottles without tracking<br>TT: autocollimation principle (single lens) for highly transparent bottles with tracking<br>V: V-optics<br>XL: Extra long light spot<br>X: extended model<br>HF: Suppression of HF illumination (LED)                                                                              |
| <b>H</b>     | <b>Operating range adjustment</b><br>n/a with HT: range adjustable via 8-turn potentiometer<br>n/a with retro-reflective photoelectric sensors (PRK): operating range not adjustable<br>1: 270° potentiometer<br>3: teach-in via button<br>6: auto-teach                                                                                                                                                                                                                                                                                                                                                                   |
| <b>i</b>     | <b>Switching output/function OUT 1/IN: Pin 4 or black conductor</b><br>2: NPN transistor output, light switching<br>N: NPN transistor output, dark switching<br>4: PNP transistor output, light switching<br>P: PNP transistor output, dark switching<br>6: push-pull switching output, PNP light switching, NPN dark switching<br>G: Push-pull switching output, PNP dark switching, NPN light switching<br>L: IO-Link interface (SIO mode: PNP light switching, NPN dark switching)<br>8: activation input (activation with high signal)<br>X: pin not used<br>1: IO-Link / light switching (NPN) / dark switching (PNP) |
| <b>J</b>     | <b>Switching output / function OUT 2/IN: pin 2 or white conductor</b><br>2: NPN transistor output, light switching<br>N: NPN transistor output, dark switching<br>4: PNP transistor output, light switching<br>P: PNP transistor output, dark switching<br>6: push-pull switching output, PNP light switching, NPN dark switching<br>G: Push-pull switching output, PNP dark switching, NPN light switching<br>W: warning output<br>X: pin not used<br>8: activation input (activation with high signal)<br>9: deactivation input (deactivation with high signal)<br>T: teach-in via cable                                 |

## Part number code

|   |                                                                       |
|---|-----------------------------------------------------------------------|
| K | <b>Electrical connection</b>                                          |
|   | n/a: cable, standard length 2000 mm, 4-wire                           |
|   | 5000: cable, standard length 5000 mm, 4-wire                          |
|   | M8: M8 connector, 4-pin (plug)                                        |
|   | M8.3: M8 connector, 3-pin (plug)                                      |
|   | 200-M8: cable, length 200 mm with M8 connector, 4-pin, axial (plug)   |
|   | 200-M8.3: cable, length 200 mm with M8 connector, 3-pin, axial (plug) |
|   | 200-M12: cable, length 200 mm with M12 connector, 4-pin, axial (plug) |

### Note



A list with all available device types can be found on the Leuze website at [www.leuze.com](http://www.leuze.com).

## Notes



### Observe intended use!



- ⚡ This product is not a safety sensor and is not intended as personnel protection.
- ⚡ The product may only be put into operation by competent persons.
- ⚡ Only use the product in accordance with its intended use.

### For UL applications:



- ⚡ For UL applications, use is only permitted in Class 2 circuits in accordance with the NEC (National Electric Code).
- ⚡ These proximity switches shall be used with UL Listed Cable assemblies rated 30V, 0.5A min, in the field installation, or equivalent (categories: CYJV/ CYJV7 or PVVA/PVVA7)

### WARNING! LASER RADIATION – CLASS 1 LASER PRODUCT



- The device satisfies the requirements of IEC/EN 60825-1:2014 safety regulations for a product of **laser class 1** and complies with 21 CFR 1040.10 except for conformance with IEC 60825-1 Ed. 3., as described in Laser Notice No. 56, dated May 8, 2019.
- ⚡ Observe the applicable statutory and local laser protection regulations.
  - ⚡ The device must not be tampered with and must not be changed in any way.  
There are no user-serviceable parts inside the device.  
Repairs must only be performed by Leuze electronic GmbH + Co. KG.

## Further information

- Light source: Average life expectancy 50,000 h at an ambient temperature of 25 °C

## Accessories

### Mounting technology - Mounting brackets

|                                                                                   | Part no. | Designation | Article         | Description                                                                                                                                                                              |
|-----------------------------------------------------------------------------------|----------|-------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50060511 | BT 3        | Mounting device | Design of mounting device: Angle, L-shape<br>Fastening, at system: Through-hole mounting<br>Mounting bracket, at device: Screw type<br>Type of mounting device: Rigid<br>Material: Metal |

### Mounting technology - Rod mounts

|                                                                                    | Part no. | Designation  | Article         | Description                                                                                                                                                                                                                                                  |
|------------------------------------------------------------------------------------|----------|--------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   | 50117829 | BTP 200M-D12 | Mounting system | Design of mounting device: Protection hood<br>Fastening, at system: For 12 mm rod<br>Mounting bracket, at device: Screw type<br>Type of mounting device: Clampable, Adjustable, Turning, 360°<br>Material: Metal                                             |
|  | 50117255 | BTU 200M-D12 | Mounting system | Design of mounting device: Mounting system<br>Fastening, at system: For 12 mm rod, Sheet-metal mounting<br>Mounting bracket, at device: Screw type, Suited for M3 screws<br>Type of mounting device: Clampable, Adjustable, Turning, 360°<br>Material: Metal |

#### Note



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