

Technical data sheet

Polarized retro-reflective photoelectric

Part no.: 50133726

PRK3CL1.BTT3/4T-M8



Figure can vary

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Technical data

Basic data

| | |
|---------------------|---|
| Series | 3C |
| Operating principle | Reflection principle |
| Application | Detection of highly transparent bottles Detection of transparent films |

Special version

| | |
|-----------------|--------------------------------------|
| Special version | Autocollimation Tracking function |
|-----------------|--------------------------------------|

Optical data

| | |
|--------------------------------------|----------------------------|
| Operating range | Guaranteed operating range |
| Operating range | 0 ... 0.4 m |
| Operating range limit | Typical operating range |
| Operating range limit | 0 ... 0.5 m |
| Beam path | Collimated |
| Light source | Laser, Red |
| Laser light wavelength | 655 nm |
| Laser class | 1, IEC/EN 60825-1:2007 |
| Max. laser power | 0.0017 W |
| Transmitted-signal shape | Pulsed |
| Pulse duration | 5.3 µs |
| Light spot size [at sensor distance] | 1 mm [500 mm] |
| Type of light spot geometry | Round |
| Shift angle | Typ. ± 2° |

Electrical data

| | |
|--------------------|---|
| Protective circuit | Polarity reversal protection 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 ... 15 mA |

Inputs

| | |
|------------------------|------------|
| Number of teach inputs | 1 Piece(s) |
|------------------------|------------|

Teach inputs

| | |
|-------------------|---|
| Voltage type | DC |
| Switching voltage | high: $\geq 0.65 \times U_B$ low: $\leq 0.35 \times U_B$ |
| Delay | 1 ms |
| Input resistance | 20,000 Ω |

Teach input 1

| | |
|------------------------|--|
| Assignment | Connection 1, pin 2 |
| Function | Keyboard lockout Light/dark switching Sensitivity adjustment |
| Active switching state | High |

Outputs

| | |
|-------------------------------------|------------|
| Number of digital switching outputs | 1 Piece(s) |
|-------------------------------------|------------|

Switching outputs

| | |
|-------------------------|---|
| Voltage type | DC |
| Switching current, max. | 100 mA |
| Switching voltage | high: $\geq (U_B - 2V)$ Low: $\leq 2V$ |

Switching output 1

| | |
|---------------------|---------------------|
| Assignment | Connection 1, pin 4 |
| Switching element | Transistor, PNP |
| Switching principle | Light switching |

Timing

| | |
|---------------------|----------|
| Switching frequency | 3,000 Hz |
| Response time | 0.17 ms |
| Readiness delay | 300 ms |

Connection

Connection 1

| | |
|--------------------|---|
| Function | Signal IN Signal OUT Voltage supply |
| Type of connection | Connector |
| Thread size | M8 |
| Type | Male |
| Material | Metal |
| No. of pins | 4 -pin |

Mechanical data

| | |
|----------------------------|---|
| Dimension (W x H x L) | 11.4 mm x 34.2 mm x 18.3 mm |
| Housing material | Plastic, PC-ABS |
| Lens cover material | Plastic / PMMA |
| Net weight | 10 g |
| Housing color | Red |
| Type of fastening | Two M3 threaded sleeves Via optional mounting device |
| Compatibility of materials | ECOLAB |

Operation and display

| | |
|-------------------------------------|------------------------|
| Type of display | LED |
| Number of LEDs | 2 Piece(s) |
| Operational controls | Teach button |
| Function of the operational control | Sensitivity adjustment |

Environmental data

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

Certifications

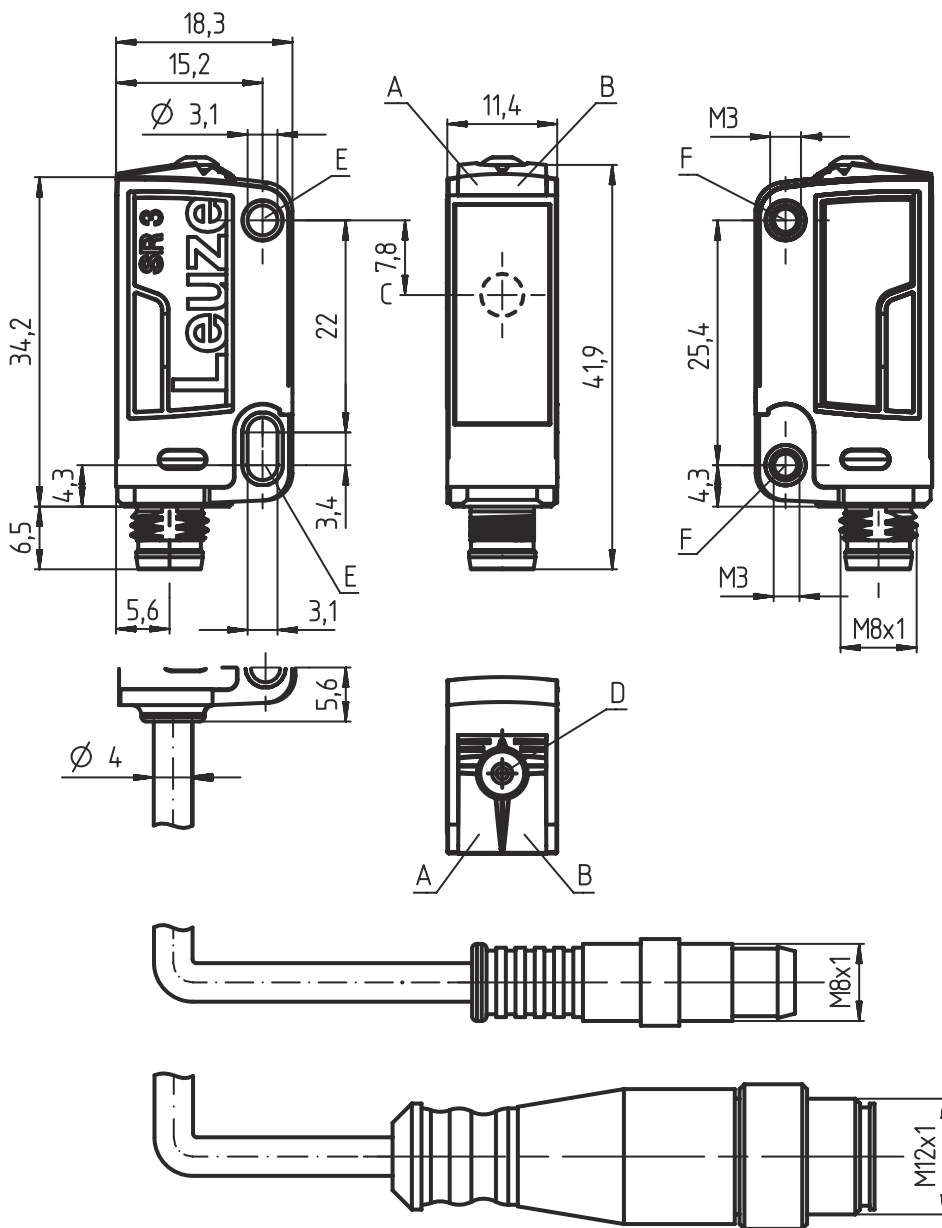
| | |
|----------------------|-----------------|
| Degree of protection | IP 67 IP 69K |
| Protection class | III |
| Certifications | c UL US |
| Standards applied | IEC 60947-5-2 |

Classification

| | |
|-----------------------|----------|
| Customs tariff number | 85365019 |
| eCl@ss 8.0 | 27270902 |
| eCl@ss 9.0 | 27270902 |
| ETIM 5.0 | EC002717 |
| ETIM 6.0 | EC002717 |

Dimensioned drawings

All dimensions in millimeters



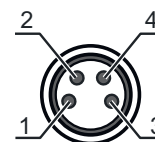
- | | | | |
|---|--------------|---|-------------------------------|
| A | Green LED | D | Teach button |
| B | Yellow LED | E | Mounting sleeve (standard) |
| C | Optical axis | F | Threaded sleeve (3C.B series) |

Electrical connection

Connection 1

| | |
|--------------------|----------------|
| Function | Signal IN |
| | Signal OUT |
| | Voltage supply |
| Type of connection | Connector |
| Thread size | M8 |
| Type | Male |
| Material | Metal |
| No. of pins | 4 -pin |

| Pin | Pin assignment |
|-----|----------------|
| 1 | V+ |
| 2 | Teach-in |
| 3 | GND |
| 4 | OUT 1 |



Operation and display

| LED | Display | Meaning |
|-----|--------------------------|--------------------------------------|
| 1 | Green, continuous light | Operational readiness |
| 2 | Yellow, continuous light | Light path free |
| | Yellow, flashing | Light path free, no function reserve |

Reflectors & reflective tapes

| | Part no. | Designation | Operating range Operating range | Description |
|--|----------|---------------|------------------------------------|---|
| | 50110191 | REF 6-A-25x25 | 0 ... 0.4 m 0 ... 0.5 m | Design: Rectangular Reflective surface: 25 mm x 25 mm Triple reflector size: 0.3 mm Material: Plastic Chemical designation of the material: PMMA Fastening: Self-adhesive |
| | 50114185 | REF 6-S-20x40 | 0 ... 0.4 m 0 ... 0.5 m | Design: Rectangular Reflective surface: 16 mm x 38 mm Triple reflector size: 0.3 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Screw type |
| | 50112142 | TK BR 53 | 0 ... 0.4 m 0 ... 0.5 m | Design: Rectangular Reflective surface: 29 mm x 10 mm Triple reflector size: 0.3 mm Material: Plastic Base material: Stainless steel Chemical designation of the material: Stainless steel Fastening: Housing fit |

Part number code

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

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

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 60825-1:2007 (EN 60825-1:2007) safety regulations for a product of **laser class 1 as well as the U.S. 21 CFR 1040.10 regulations with deviations corresponding to "Laser Notice No. 50" from June 24, 2007.**

- ⚠ 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
- Response time: For short decay times, an ohmic load of approx. 5kOhm is recommended
- Sum of the output currents for both outputs, 50 mA for ambient temperatures > 40 °C
- For REF 6-A reflective tape, the sensor's side edge must be aligned parallel to the side edge of the reflective tape.
- The devices may only be operated with the reflectors listed above.


Accessories

Connection technology - Connection cables


| | Part no. | Designation | Article | Description |
|--|----------|-------------------|------------------|--|
| | 50130850 | KD U-M8-4A-V1-050 | Connection cable | Connection 1: Connector, M8, Axial, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PVC |
| | 50130871 | KD U-M8-4W-V1-050 | Connection cable | Connection 1: Connector, M8, Angled, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PVC |

Accessories


Mounting technology - Mounting brackets

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


Mounting technology - Rod mounts

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

Micro-triad-type reflectors

| | Part no. | Designation | Article | Description |
|---|----------|---------------|-----------|---|
|  | 50114185 | REF 6-S-20x40 | Reflector | Design: Rectangular Reflective surface: 16 mm x 38 mm Triple reflector size: 0.3 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Screw type |

Reflective tapes for laser and clear-glass applications

| | Part no. | Designation | Article | Description |
|---|----------|---------------|-----------------|--|
|  | 50110191 | REF 6-A-25x25 | Reflective tape | Design: Rectangular Reflective surface: 25 mm x 25 mm Triple reflector size: 0.3 mm Material: Plastic Chemical designation of the material: PMMA Fastening: Self-adhesive |

Note



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