

Technical data sheet

Polarized retro-reflective photoelectric sensor

Part no.: 50148198

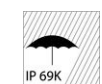
PRK55CL1.T3/LG-M8



For illustration purposes only

Contents

- Technical data
- Dimensioned drawings
- Electrical connection
- Operation and display
- Reflectors & reflective tapes
- Part number code
- Notes
- Further information
- Accessories



Technical data

Basic data

| | |
|---------------------|---|
| Series | 55C |
| Operating principle | Reflection principle |
| Application | Detection of highly transparent bottles Detection of transparent films |

Special version

| | |
|-----------------|-------------------------------------|
| Special version | Autocollimation Wash-Down design |
|-----------------|-------------------------------------|

Optical data

| | |
|--------------------------------------|----------------------------|
| Operating range | 0 ... 0.4 m |
| Operating range | Guaranteed operating range |
| Operating range limit | Typical operating range |
| Operating range limit | 0 ... 0.5 m |
| Beam path | Collimated |
| Light source | Laser, Red |
| Wavelength | 650 nm |
| Laser class | 1, IEC/EN 60825-1:2014 |
| Max. laser power | 0.0017 W |
| Transmitted-signal shape | Pulsed |
| Pulse duration | 5.3 μ s |
| Light spot size [at sensor distance] | 1 mm [500 mm] |
| Type of light spot geometry | Round |
| Shift angle | Typ. $\pm 2^\circ$ |

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 |

Outputs

| | |
|-------------------------------------|------------|
| Number of digital switching outputs | 2 Piece(s) |
|-------------------------------------|------------|

Switching outputs

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

Switching output 1

| | |
|---------------------|--|
| Assignment | Connection 1, pin 4 |
| Switching element | Transistor, Push-pull |
| Switching principle | IO-Link / light switching (PNP)/dark switching (NPN) |

Switching output 2

| | |
|---------------------|--|
| Assignment | Connection 1, pin 2 |
| Switching element | Transistor, Push-pull |
| Switching principle | Dark switching (PNP)/light switching (NPN) |

Time behavior

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

Interface

| | |
|------------------|----------------------|
| Type | IO-Link |
| IO-Link | |
| COM mode | COM2 |
| Profile | Smart sensor profile |
| Min. cycle time | COM2 = 2.3 ms |
| Frame type | 2.5 |
| Specification | V1.1 |
| Device ID | 6027 |
| SIO-mode support | Yes |

Connection

Connection 1

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

Mechanical data

| | |
|---------------------------------|--|
| Dimension (W x H x L) | 14 mm x 35.4 mm x 25 mm |
| Housing material | Stainless steel |
| Material of operational control | Plastic (POM Hostaform C9021, copoly-ester Tritan TX1001), non-diffusive |
| Housing roughness | $R_a \leq 0,8$, Typical value for the stainless steel housing |
| Stainless steel housing | AISI 316L, DIN X2CrNiMo17132, W. No1.4404 |
| Lens cover material | Plastic (PMMA+) with scratch-resistant Indium protective coating |
| Net weight | 42 g |
| Housing color | Silver |
| Type of fastening | Through-hole mounting Via optional mounting device |
| Compatibility of materials | CleanProof+ ECOLAB Johnson Diversey |

Operation and display

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

Environmental data

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

Technical data

Certifications

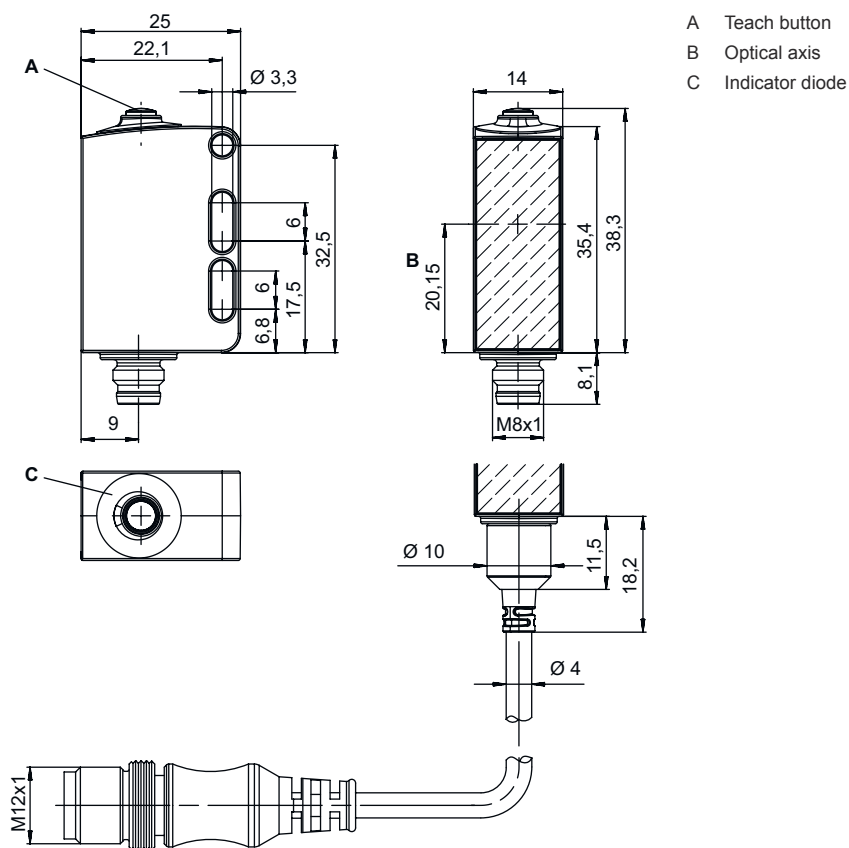
| | |
|----------------------|---------------|
| Degree of protection | IP 67 |
| | IP 68 |
| | IP 69K |
| Protection class | III |
| Certifications | c UL US |
| Standards applied | IEC 60947-5-2 |

Classification

| | |
|-----------------------|----------|
| Customs tariff number | 85365019 |
| ECLASS 5.1.4 | 27270902 |
| ECLASS 8.0 | 27270902 |
| ECLASS 9.0 | 27270902 |
| ECLASS 10.0 | 27270902 |
| ECLASS 11.0 | 27270902 |
| ECLASS 12.0 | 27270902 |
| ECLASS 13.0 | 27270902 |
| ECLASS 14.0 | 27270902 |
| ETIM 5.0 | EC002717 |
| ETIM 6.0 | EC002717 |
| ETIM 7.0 | EC002717 |
| ETIM 8.0 | EC002717 |
| ETIM 9.0 | EC002717 |

Dimensioned drawings

All dimensions in millimeters



Electrical connection

Connection 1

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





| Pin | Pin assignment |
|-----|-----------------|
| 1 | V+ |
| 2 | OUT 2 |
| 3 | GND |
| 4 | IO-Link / OUT 1 |




Operation and display

| LED | Display | Meaning |
|-----|--------------------------|-----------------------|
| 1 | Green, continuous light | Operational readiness |
| 2 | Yellow, continuous light | Light path free |

Reflectors & reflective tapes

| | Part no. | Designation | Operating range Operating range limit | Description |
|---|----------|---------------|---|--|
|  | 50136824 | MTKS 12x20M.5 | 0 ... 0.3 m 0 ... 0.4 m | Design: Rectangular Triple reflector size: 0.3 mm Reflective surface: 12 mm x 20 mm Material: Plastic Base material: Stainless steel Fastening: Through-hole mounting Compatibility of materials: Alcohol, CleanProof+, ECOLAB, H2O2 |
|  | 50136823 | MTKS 7x7M.5 | 0 ... 0.2 m 0 ... 0.3 m | Design: Rectangular Triple reflector size: 0.3 mm Reflective surface: 7 mm x 7 mm Material: Plastic Base material: Stainless steel Fastening: Through-hole mounting Compatibility of materials: Alcohol, CleanProof+, ECOLAB, H2O2 |
|  | 50110191 | REF 6-A-25x25 | 0 ... 0.4 m 0 ... 0.5 m | Design: Rectangular Triple reflector size: 0.3 mm Reflective surface: 25 mm x 25 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 Triple reflector size: 0.3 mm Reflective surface: 16 mm x 38 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Screw type |

Reflectors & reflective tapes

| | Part no. | Designation | Operating range Operating range limit | Description |
|---|----------|-------------|---|---|
|  | 50112142 | TK BR 53 | 0 ... 0.4 m 0 ... 0.5 m | Design: Rectangular Triple reflector size: 0.3 mm Reflective surface: 29 mm x 10 mm Material: Plastic Base material: Stainless steel Chemical designation of the material: Stainless steel Fastening: Housing fit |

Part number code


Part designation: **AAA55C d EE-f.GGGG H/i J-K**

| | |
|---------------|---|
| AAA55C | Operating principle / construction HT55C: Diffuse reflection sensor with background suppression LS55C: Throughbeam photoelectric sensor transmitter LE55C: Throughbeam photoelectric sensor receiver PRK55C: Retro-reflective photoelectric sensor with polarization filter ODT55C: Distance diffuse sensor with background suppression |
| d | Light type n/a: red light l: 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] |
| GGGG | Equipment n/a: standard A: Autocollimation principle (single lens) for positioning tasks F: Permanently set range H2O: Detection of aqueous liquids Fill-level monitoring 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 |
| 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 |
| 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) 7: Input for sensitivity adjustment |
| 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 T: teach-in via cable X: pin not used 8: activation input (activation with high signal) 9: deactivation input (deactivation with high signal) 7: Input for sensitivity adjustment |

Part number code


| | |
|----------|--|
| 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-M12: cable, length 200 mm with M12 connector, 4-pin, axial (plug) |
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Note


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|  | <p>↪ A list with all available device types can be found on the Leuze website at www.leuze.com.</p> |
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Notes


Observe intended use!

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|  | <p>↪ This product is not a safety sensor and is not intended as personnel protection.</p> <p>↪ The product may only be put into operation by competent persons.</p> <p>↪ Only use the product in accordance with its intended use.</p> |
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For UL applications:

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|--|--|
|  | <p>↪ For UL applications, use is only permitted in Class 2 circuits in accordance with the NEC (National Electric Code).</p> <p>↪ 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)</p> |
|--|--|

ATTENTION! LASER RADIATION – CLASS 1 LASER PRODUCT


| | |
|--|--|
|  | <p>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.</p> <p>↪ Observe the applicable statutory and local laser protection regulations.</p> <p>↪ 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.</p> |
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Further information



- Light source: Average life expectancy 50,000h 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
- Permissible operating temperature range during IO-Link operation: -10 °C to +60 °C
- Ambient temperature, operation: +70 °C permissible only briefly (≤ 15min)
- For REF 6-A- reflective tape, the sensor's side edge must be aligned parallel to the side edge of the reflective tape.
- The light spot may not exceed the reflector.
- IP 69K only in combination with connector
- Use of micro-triad-type reflectors beginning with MTK(S) or REF 6-A- reflective tape is preferred.

Accessories



Connection technology - Connection unit

| | Part no. | Designation | Article | Description |
|--|----------|-----------------------|----------------|---|
|  | 50144900 | MD 798i-11-82/L5-2222 | IO-Link master | Type: IO-Link master Current consumption, max.: 11,000 mA Switching outputs for each sensor connection: 1 Piece(s) Switching output: Transistor, PNP Interface: IO-Link, Automatic protocol detection, EtherNet IP, Modbus TCP, PROFINET Connections: 12 Piece(s) Sensor connections: 8 Piece(s) Connections for voltage supply: 2 Piece(s) Interface connections: 2 Piece(s) Degree of protection: IP 67, IP 65, IP 69K |

Connection technology - Connection cables



| | Part no. | Designation | Article | Description |
|--|----------|-----------------------|------------------|--|
|  | 50130856 | KD U-M8-4A-P1-050 | Connection cable | Connection 1: Connector, M8, Axial, Female, 4 -pin Connector, LED: No Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PUR |
|  | 50148347 | KD U-M8-4A-T0-050 F+B | Connection cable | Connection 1: Connector, M8, Axial, Female, A-coded, 4 -pin Connector, LED: No Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: TPE |

Mounting technology - Mounting brackets

| | Part no. | Designation | Article | Description |
|---|----------|-------------|------------------|---|
|  | 50118542 | BT 200M.5 | Mounting bracket | Design of mounting device: Angle, L-shape Fastening, at system: Through-hole mounting Mounting bracket, at device: Screw type, Suited for M3 screws Type of mounting device: Adjustable Material: Stainless steel |
|  | 50040269 | BT 25 | 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 |

Accessories

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 |
|  | 50120426 | BTU 200M.5-D12 | Mounting system | Design of mounting device: Mounting system Fastening, at system: For 12 mm rod Mounting bracket, at device: Screw type, Suited for M3 screws Type of mounting device: Turning, 360°, Adjustable, Clampable Material: Stainless steel |

Note



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