

Technical data sheet

Polarized retro-reflective photoelectric sensor

Part no.: 50150325

PRK35CL1.1/LG



For illustration purposes only

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Technical data

Basic data

| | |
|---------------------|----------------------|
| Series | 35C |
| Operating principle | Reflection principle |

Optical data

| | |
|--------------------------------------|---|
| Operating range | 0.2 ... 20 m (guaranteed operating range), With reflector TK(S) 100x100 |
| Operating range limit | 0.15 ... 25 m (typical operating range), With reflector TK(S) 100x100 |
| Beam path | Collimated |
| Light source | Laser, Red |
| Wavelength | 650 nm |
| Laser class | 1, IEC/EN 60825-1:2014 |
| Max. laser power | 0.0043 W |
| Transmitted-signal shape | Pulsed |
| Pulse duration | 4.5 µs |
| Light spot size [at sensor distance] | 3 mm x 5 mm [1,000 mm] |
| Type of light spot geometry | elliptic |
| Shift angle | Typ. ± 1.5° |

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 ... 20 mA |

Outputs

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

Switching outputs

| | |
|-------------------------|---|
| Type | Digital switching output |
| Voltage type | DC |
| Switching current, max. | 100 mA |
| Switching voltage | high: $\geq(U_B - 2.5V)$ low: $\leq 2.5 V$ |

Switching output 1

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

Switching output 2

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

Time behavior

| | |
|---------------------|----------|
| Switching frequency | 2,500 Hz |
| Response time | 0.2 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 | 6140 |
| SIO-mode support | Yes |

Connection

| | |
|-----------------------|------------|
| Number of connections | 1 Piece(s) |
|-----------------------|------------|

Connection 1

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

Mechanical data

| | |
|---------------------------------|--|
| Dimension (W x H x L) | 18.8 mm x 55.3 mm x 32.4 mm |
| Housing material | Stainless steel |
| Stainless steel housing | AISI 316L, DIN X2CrNiMo17132, W. No1.4404 |
| Material of operational control | Plastic (POM Hostaform C9021, copoly-ester Tritan TX1001), non-diffusive |
| Housing roughness | Ra ≤ 0,8, Typical value for the stainless steel housing |
| Lens cover material | Plastic (PMMA+) with scratch-resistant Indium protective coating |
| Net weight | 120 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 | 270° potentiometer |
| Function of the operational control | Sensitivity adjustment |

Environmental data

| | |
|--------------------------------|-------------------------------|
| Ambient temperature, operation | -40 ... 60 °C, (70 °C ≤15min) |
| Ambient temperature, storage | -40 ... 70 °C |

Certifications

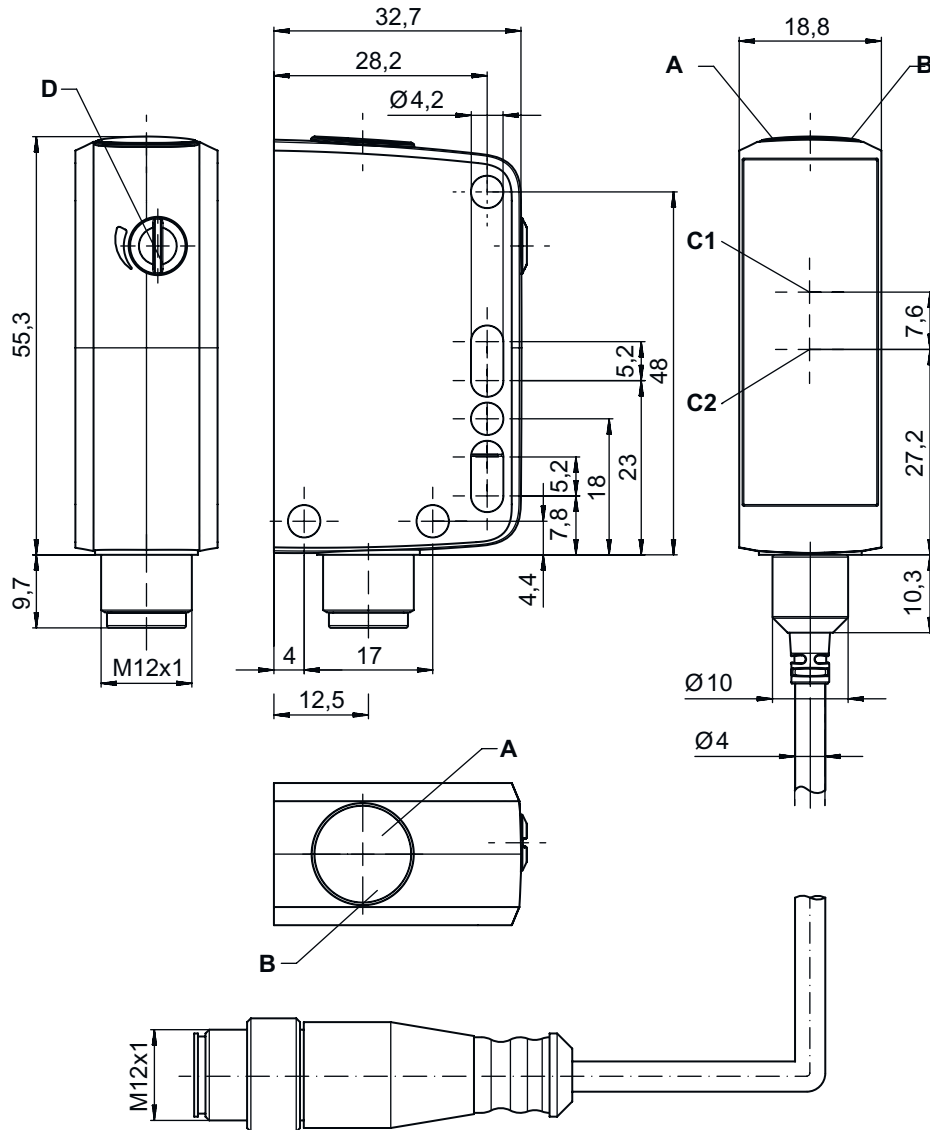
| | |
|----------------------|--------------------------|
| Degree of protection | IP 67 IP 68 IP 69K |
| Protection class | III |
| Approvals | c UL US |
| Standards applied | IEC 60947-5-2 |

Technical data

| | |
|-----------------------|----------|
| 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 |
| ECLASS 15.0 | 27270902 |
| ECLASS 16.0 | 27270902 |
| ETIM 5.0 | EC002717 |
| ETIM 6.0 | EC002717 |
| ETIM 7.0 | EC002717 |
| ETIM 8.0 | EC002717 |
| ETIM 9.0 | EC002717 |
| ETIM 10.0 | EC002717 |
| UNSPSC 26.08 | 39121528 |

Dimensioned drawings

All dimensions in millimeters



- A Green LED C Optical axis
 B Yellow LED D Potentiometer

Electrical connection

Connection 1

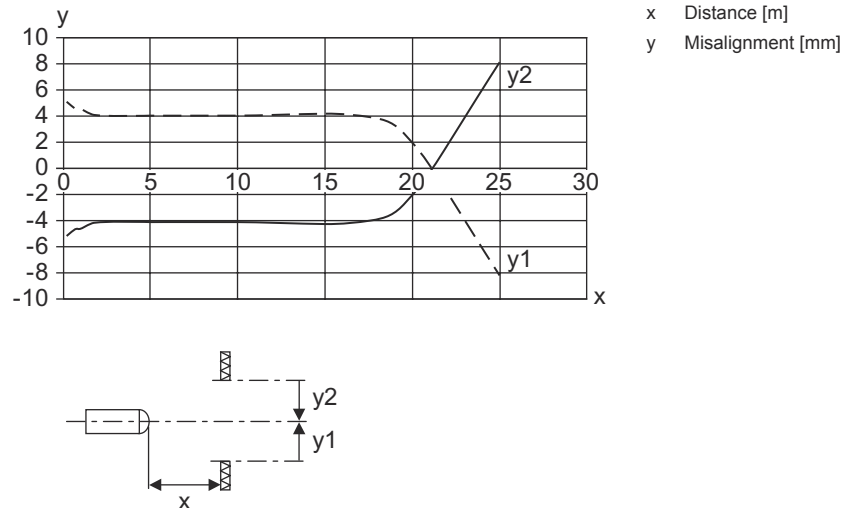
| | |
|----------------------|---------------------|
| Function | Signal IN |
| | Signal OUT |
| | Voltage supply |
| Type of connection | Cable |
| Cable length | 2,000 mm |
| Sheathing material | PVC |
| Cable color | Black |
| Number of conductors | 4 -wire |
| Wire cross section | 0.2 mm ² |

Electrical connection

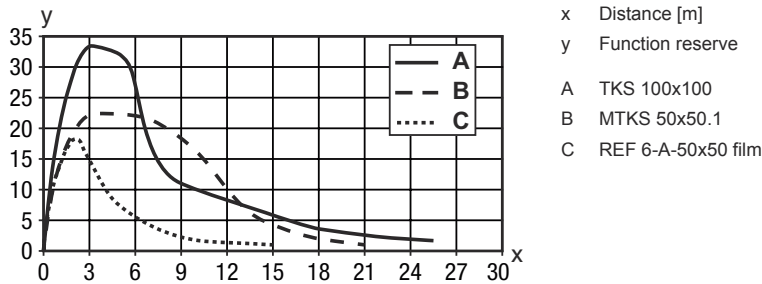
| Conductor color | Conductor assignment |
|-----------------|----------------------|
| Brown | V+ |
| White | OUT 2 |
| Blue | GND |
| Black | IO-Link / OUT 1 |

Diagrams

Typ. response behavior (TKS100x100)



Typ. function reserve



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 limit | Description |
|---|----------|---------------|---|--|
|  | 50136824 | MTKS 12x20M.5 | 0.2 ... 6 m 0.15 ... 7.5 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 |
|  | 50106961 | MTKS 14x23.P | 0.2 ... 4 m 0.15 ... 5 m | Design: Rectangular Triple reflector size: 12 mm Reflective surface: 11 mm x 21 mm Material: Plastic Base material: Plastic Chemical designation of the material: PES Fastening: Through-hole mounting, Adhesive Compatibility of materials: ECOLAB |
|  | 50151449 | MTKS 20x20.SC | 0.2 ... 0.6 m 0.15 ... 0.8 m | Design: Rectangular Triple reflector size: 1.1 mm Reflective surface: 20 mm x 20 mm Material: Plastic Base material: Plastic Chemical designation of the material: Solidchem Fastening: Through-hole mounting, Adhesive Compatibility of materials: Alcohol, ECOLAB, H2O2 |
|  | 50117583 | MTKS 50x50.1 | 0.15 ... 15 m 0.12 ... 18 m | Design: Rectangular Triple reflector size: 1.2 mm Reflective surface: 50 mm x 50 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Through-hole mounting, Adhesive |
|  | 50136823 | MTKS 7x7M.5 | 0.2 ... 3.5 m 0.15 ... 4 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 |
|  | 50108300 | REF 4-A-50x50 | 0.2 ... 2.2 m 0.15 ... 3 m | Design: Rectangular Reflective surface: 50 mm x 50 mm Material: Plastic Chemical designation of the material: PMMA Fastening: Self-adhesive |
|  | 50110192 | REF 6-A-50x50 | 0.2 ... 10 m 0.15 ... 12 m | Design: Rectangular Triple reflector size: 0.3 mm Reflective surface: 50 mm x 50 mm Material: Plastic Chemical designation of the material: PMMA Fastening: Self-adhesive |
|  | 50116939 | TK 10.P | 0.15 ... 2.5 m 0.12 ... 3 m | Design: Round Triple reflector size: 1.5 mm Reflective surface, diameter: 8.5 mm Material: Plastic Base material: Plastic Chemical designation of the material: PES Fastening: Rear side can be glued Compatibility of materials: ECOLAB |

Reflectors & reflective tapes

| | Part no. | Designation | Operating range Operating range limit | Description |
|---|----------|----------------|---|--|
|  | 50022816 | TKS 100X100 | 0.2 ... 20 m 0.15 ... 25 m | Design: Rectangular Triple reflector size: 4 mm Reflective surface: 96 mm x 96 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Through-hole mounting, Adhesive |
|  | 50106958 | TKS 20.P | 0.15 ... 3.5 m 0.12 ... 4 m | Design: Round Triple reflector size: 2.3 mm Reflective surface, diameter: 17 mm Material: Plastic Base material: Plastic Chemical designation of the material: PES Fastening: M4 threaded pin Compatibility of materials: ECOLAB |
|  | 50081283 | TKS 20X40 | 0.2 ... 9 m 0.15 ... 11 m | Design: Rectangular Triple reflector size: 2.3 mm Reflective surface: 16 mm x 38 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Through-hole mounting, Adhesive |
|  | 50106960 | TKS 20x40.P | 0.15 ... 4 m 0.12 ... 5 m | Design: Rectangular Triple reflector size: 2.3 mm Reflective surface: 16 mm x 38 mm Material: Plastic Base material: Plastic Chemical designation of the material: PES Fastening: Through-hole mounting, Adhesive Compatibility of materials: ECOLAB |
|  | 50040820 | TKS 40X60 | 0.2 ... 15 m 0.15 ... 18 m | Design: Rectangular Triple reflector size: 4 mm Reflective surface: 37 mm x 56 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Through-hole mounting, Adhesive |
|  | 50120538 | TKS 40x60.1.AF | 0.2 ... 14 m 0.18 ... 15.5 m | Special version: Anti-fog coating Design: Rectangular Triple reflector size: 2.3 mm Reflective surface: 37 mm x 56 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Through-hole mounting, Adhesive |
|  | 50136383 | TKS 40x60.Chem | 0.2 ... 9 m 0.18 ... 11 m | Design: Rectangular Triple reflector size: 4 mm Reflective surface: 37 mm x 56 mm Material: Plastic Base material: Plastic Chemical designation of the material: PET Fastening: Through-hole mounting, Adhesive Compatibility of materials: Alcohol, ECOLAB, H2O2 |
|  | 50106957 | TKS 40x60.P | 0.15 ... 9 m 0.12 ... 11 m | Design: Rectangular Triple reflector size: 4 mm Reflective surface: 37 mm x 56 mm Material: Plastic Base material: Plastic Chemical designation of the material: PES Fastening: Through-hole mounting, Adhesive Compatibility of materials: ECOLAB |

Reflectors & reflective tapes

| | Part no. | Designation | Operating range Operating range limit | Description |
|---|----------|----------------|---|--|
|  | 50151448 | TKS 50x50.1.SC | 0.17 ... 5 m 0.15 ... 6 m | Design: Rectangular Triple reflector size: 4 mm Reflective surface: 51.3 mm x 51.2 mm Material: Plastic Base material: Plastic Chemical designation of the material: Solidchem Fastening: Adhesive, Through-hole mounting Compatibility of materials: Alcohol, ECOLAB, H2O2 |

Part number code

Part designation: **AAA35C d EE.GGH/iJ-K**

| | |
|---------------|---|
| AAA35C | Operating principle LS35C: Throughbeam photoelectric sensor transmitter LE35C: Throughbeam photoelectric sensor receiver PRK35C: Retro-reflective photoelectric sensor with polarization filter HT35C: Diffuse reflection sensor with background suppression DRT35C: Dynamic reference diffuse sensor |
| d | Light type n/a: red light l: infrared light |
| EE | Light source n/a: LED PP: Power PinPoint® LED L1: laser class 1 |
| GG | Equipment A: Autocollimation principle (single lens) D: Detection of stretch-wrapped objects X: extended model XL: Extra long light spot TT: autocollimation principle (single lens) for highly transparent bottles with tracking R: greater operating range XXR: super power transmitter |
| H | Operating range adjustment 1: 270° potentiometer 2: multiturn potentiometer 3: teach-in via button |
| i | Switching output/function OUT 1/IN: Pin 4 or black conductor X: pin not used 8: activation input (activation with high signal) L: IO-Link interface (SIO mode: PNP light switching, NPN dark switching) 4: PNP transistor output, light switching 6: push-pull switching output, PNP light switching, NPN dark switching 1: IO-Link / light switching (NPN) / dark switching (PNP) |
| J | Switching output / function OUT 2/IN: pin 2 or white conductor T: teach-in via cable G: Push-pull switching output, PNP dark switching, NPN light switching X: pin not used P: PNP transistor output, dark switching 6: push-pull switching output, PNP light switching, NPN dark switching |
| K | Electrical connection n/a: cable, standard length 2000 mm, 4-wire 200-M12: cable, length 200 mm with M12 connector, 4-pin, axial (plug) M12: M12 connector, 4-pin (plug) |

Note



A list with all available device types can be found on the Leuze website at www.leuze.com.

Notes

| | |
|------------------------------|---|
| Observe intended use! | |
| | <ul style="list-style-type: none"> ⌘ 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. |

| | |
|---|---|
| WARNING! 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> <ul style="list-style-type: none"> ⌘ 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

- Ambient temperature, operation: +70 °C permissible only briefly (≤ 15min)
- IP 69K only in combination with connector
- Light source: Average life expectancy 50,000 h at an ambient temperature of 25 °C
- Sum of the output currents for both outputs 100 mA

Accessories

Connection technology - Connection unit



| | Part no. | Designation | Article | Description |
|--|----------|-----------------------|----------------|---|
| | 50144900 | MD 798i-11-82/L5-2222 | IO-Link master | Current consumption, max.: 11,000 mA Interface: IO-Link, Automatic protocol detection, EtherNet IP, Modbus TCP, PROFINET Connections: 12 Piece(s) Sensor connections: 8 Piece(s) Degree of protection: IP 67, IP 65, IP 69K |

Mounting technology - Mounting brackets

| | Part no. | Designation | Article | Description |
|--|----------|-------------|------------------|---|
| | 50118543 | BT 300M.5 | Mounting bracket | Design of mounting device: Angle, L-shape Fastening, at system: Through-hole mounting Mounting bracket, at device: Screw type, Suited for M4 screws Type of mounting device: Adjustable Material: Stainless steel |

Accessories

Mounting technology - Rod mounts

| | Part no. | Designation | Article | Description |
|---|----------|----------------|-----------------|---|
|  | 50117252 | BTU 300M-D12 | Mounting system | Contains: 2x M4 x 25 screw, 2x M4 x 20 screw, 4x position washers Design of mounting device: Mounting system Fastening, at system: For 12 mm rod, Sheet-metal mounting Mounting bracket, at device: Screw type, Suited for M4 screws Type of mounting device: Clampable, Adjustable, Turning, 360° Material: Metal |
|  | 50120425 | BTU 300M.5-D12 | Mounting system | Contains: 2x M4 x 25 screw, 2x M4 mounting nut, 2x M4 x 20 screw, 2x position washers Design of mounting device: Mounting system Fastening, at system: For 12 mm rod, Sheet-metal mounting Mounting bracket, at device: Screw type, Suited for M4 screws Type of mounting device: Clampable, Adjustable, Turning, 360° 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.