

## Technical data sheet

### Polarized retro-reflective photoelectric sensor

Part no.: 50133697

PRK3CL1.T3/4P-M8

#### Contents

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



CDRH



UK  
CA

For illustration purposes only

# 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
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## Optical data

Operating range	0 ... 0.4 m (guaranteed operating range)
Operating range limit	0 ... 0.5 m (typical operating range)
Beam path	Collimated
Light source	Laser, Red
Wavelength	655 nm
Laser class	1, in accordance with IEC 60825-1:2014 (EN 60825-1:2014)
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
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## 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)
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## Switching outputs

Type	Digital switching output
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, PNP
Switching principle	Light switching

## Switching output 2

Assignment	Connection 1, pin 2
Switching element	Transistor, PNP
Switching principle	Dark switching

## Time behavior

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

## Connection

Number of connections	1 Piece(s)
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## Connection 1

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

## 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	10 g
Housing color	Red
Type of fastening	Through-hole mounting 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)
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

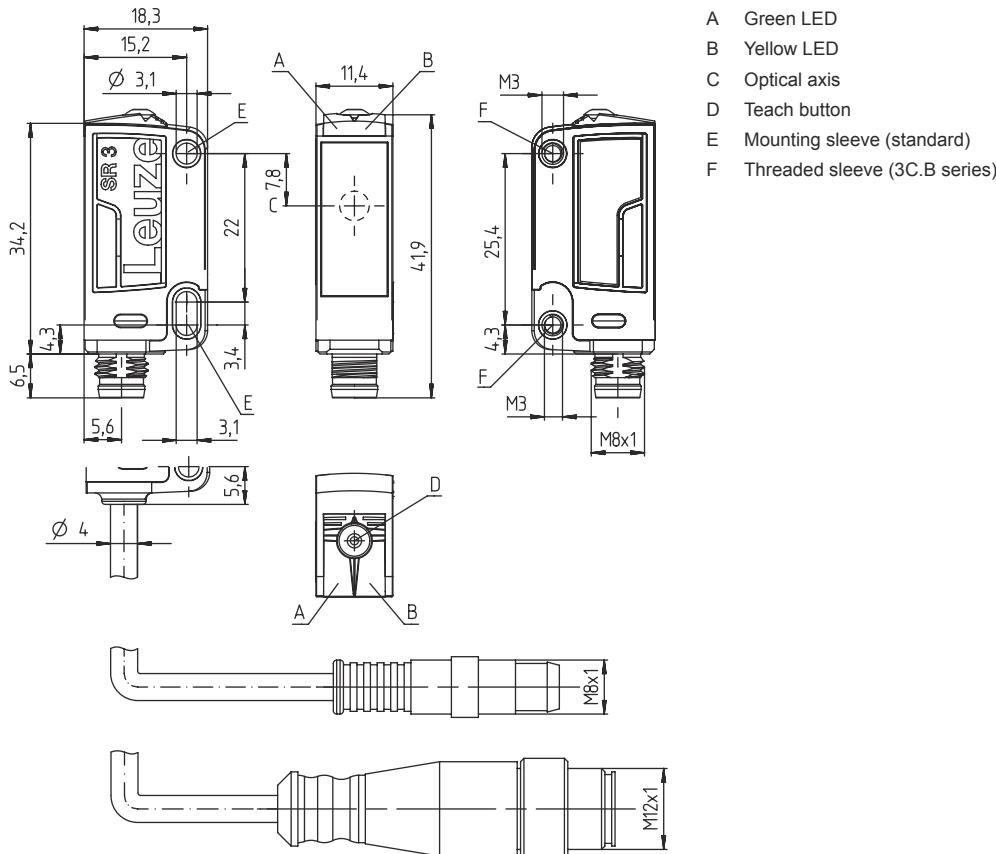
Degree of protection	IP 67
	IP 69K
Protection class	III
Approvals	c UL US
Standards applied	IEC 60947-5-2

## 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
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

## Dimensioned drawings

All dimensions in millimeters

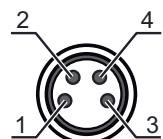


## Electrical connection

### Connection 1

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

Pin	Pin assignment
1	V+
2	OUT 2
3	GND
4	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
	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
	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: AAA 3C d EE-f.GG H/i J-K

AAA3C	<b>Operating principle / construction</b> 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 ODT3C: Distance diffuse sensor with background suppression
d	<b>Light type</b> n/a: red light l: infrared light
EE	<b>Light source</b> n/a: LED L1: laser class 1 L2: laser class 2 PP: Power PinPoint® LED
f	<b>Preset range (optional)</b> n/a: operating range acc. to data sheet xxxF: Preset range [mm] 2M: operating range of 2 meters
GG	<b>Equipment</b> 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 HF: Suppression of HF illumination (LED)
H	<b>Operating range adjustment</b> 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

## Part number code

i	<b>Switching output/function OUT 1/IN: Pin 4 or black conductor</b> 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)
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J	<b>Switching output / function OUT 2/IN: pin 2 or white conductor</b> 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
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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)
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### Note

	↳ A list with all available device types can be found on the Leuze website at <a href="http://www.leuze.com">www.leuze.com</a> .
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## Notes

	<b>Observe intended use!</b>
	<ul style="list-style-type: none"> <li>↳ This product is not a safety sensor and is not intended as personnel protection.</li> <li>↳ The product may only be put into operation by competent persons.</li> <li>↳ Only use the product in accordance with its intended use.</li> </ul>

### For UL applications:

	<ul style="list-style-type: none"> <li>↳ For UL applications, use is only permitted in Class 2 circuits in accordance with the NEC (National Electric Code).</li> <li>↳ 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)</li> </ul>
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## Notes

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 <b>laser class 1</b> 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>

## 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. 5 kOhm 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 Application: Chemical resistant Connection 1: Connector, M8, Axial, Female, 4 -pin Connector, LED: No Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PVC
 	50130871	KD U-M8-4W-V1-050	Connection cable Application: Chemical resistant Connection 1: Connector, M8, Angled, Female, 4 -pin Connector, LED: No Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PVC

### 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

## Accessories

### Mounting technology - Rod mounts

Part no.	Designation	Article	Description
	50117255	BTU 200M-D12	Mounting system Contains: 2x M3 x 16 screw, 2 M3 x 20 screws, 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 M3 screws Type of mounting device: Clampable, Adjustable, Turning, 360° 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.