

Technical data sheet Polarized retro-reflective photoelectric

Part no.: 50133712 PRK3CL1.BT3/4P-200-M12



The Sensor People In der Braike 1, 73277 Owen

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We reserve the right to make technical changes eng • 2020-07-23

Reflection principle

Autocollimation

Detection of highly transparent bottles Detection of transparent films

3C

Technical data

Leuze

Basic data

Series Operating principle Application

Special version

Special version

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

Connection 1, pin 4

Connection 1, pin 2

Transistor, PNP

Dark switching

Transistor, PNP

Light switching

 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: ≥(U _B -2V)
	Low: ≤2V

Switching output 1 Assignment Switching element Switching principle

Switching output 2 Assignment Switching element Switching principle

Timing

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

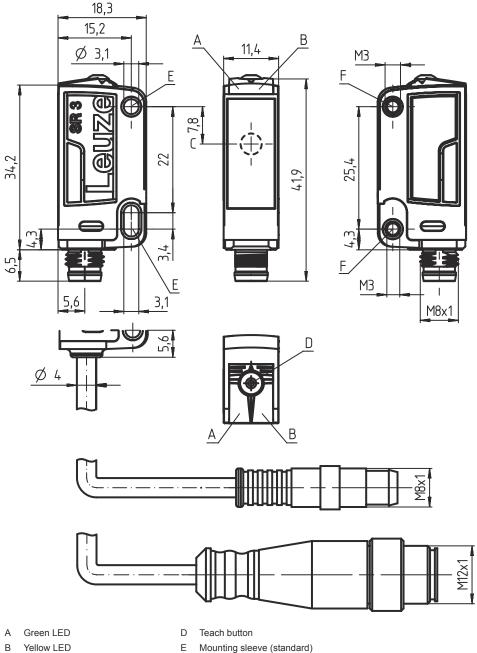
Function Signal OUT Voltage supply Type of connection Cable with connector Cable length 200 mm Sheathing material PUR Cable color Black Wire cross section 0.2 mm² Thread size M12 Type Male Material Metal No. of pins 4 -pin Encoding A-coded Mechanical data Plastic, PC-ABS Lens cover material Plastic / PMMA Note weight 20 g Housing material Plastic / PMMA Net weight 20 g Housing color Red Type of fastening Two M3 threaded sleeves Via optional mounting device Compatibility of materials Coperation and display LED Number of LEDs 2 Piece(s) Operational controls Teach buton Function of the operational control Sensitivity adjustment Environmental data III Portection class III Portection class	Connection 1	
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Dimensioned drawings

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All dimensions in millimeters



- Е
- С Optical axis
- Threaded sleeve (3C.B series) F

Electrical connection

Connection 1

Function	Signal OUT
	Voltage supply
Type of connection	Cable with connector
Cable length	200 mm
Sheathing material	PUR
Cable color	Black

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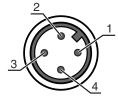
Electrical connection

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Connection 1

Wire cross section	0.2 mm ²
Thread size	M12
Туре	Male
Material	Metal
No. of pins	4 -pin
Encoding	A-coded

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
	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

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Part number code



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
Η	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 dark 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 6: push-pull switching output, dark switching, NPN dark switching 6: push-pull switching output, PNP light 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) 1: teach-in via cable
К	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 w	vith all available device types can be found on the Leuze website at www.leuze.com.

Notes

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Observe intended use!

- ✤ This product is not a safety sensor and is not intended as personnel protection.
- b The product may only be put into operation by competent persons.

	For UL applications:
	& For UL applications, use is only permitted in Class 2 circuits in accordance with the NEC (National Electric Code).
Û	* 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.
	Not be the applicable statutory and local laser protection regulations.
	The device must not be tampered with and must not be changed in any way.

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. 5 kOhm is recommended
- Sum of the output currents for both outputs, 50 mA for ambient temperatures > 40 $^\circ\text{C}$
- 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
Ŵ	50130652	KD U-M12-4A-V1- 050	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PVC
W	50130690	KD U-M12-4W-V1- 050	Connection cable	Connection 1: Connector, M12, Angled, Female, A-coded, 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
1	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
F:	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.