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Part no.: 50133726
PRK3CL1.BTT3/4T-M8
Polarized retro-reflective photoelectric sensor



Contents

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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 design	
Special design	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 profile	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 μ s
Light-spot size [at sensor distance]	1 mm [500 mm]
Type of light-spot geometry	Round
Shift angle	Typ. \pm 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

Type of connection Connector
 Function Signal IN
 Signal OUT
 Voltage supply
 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

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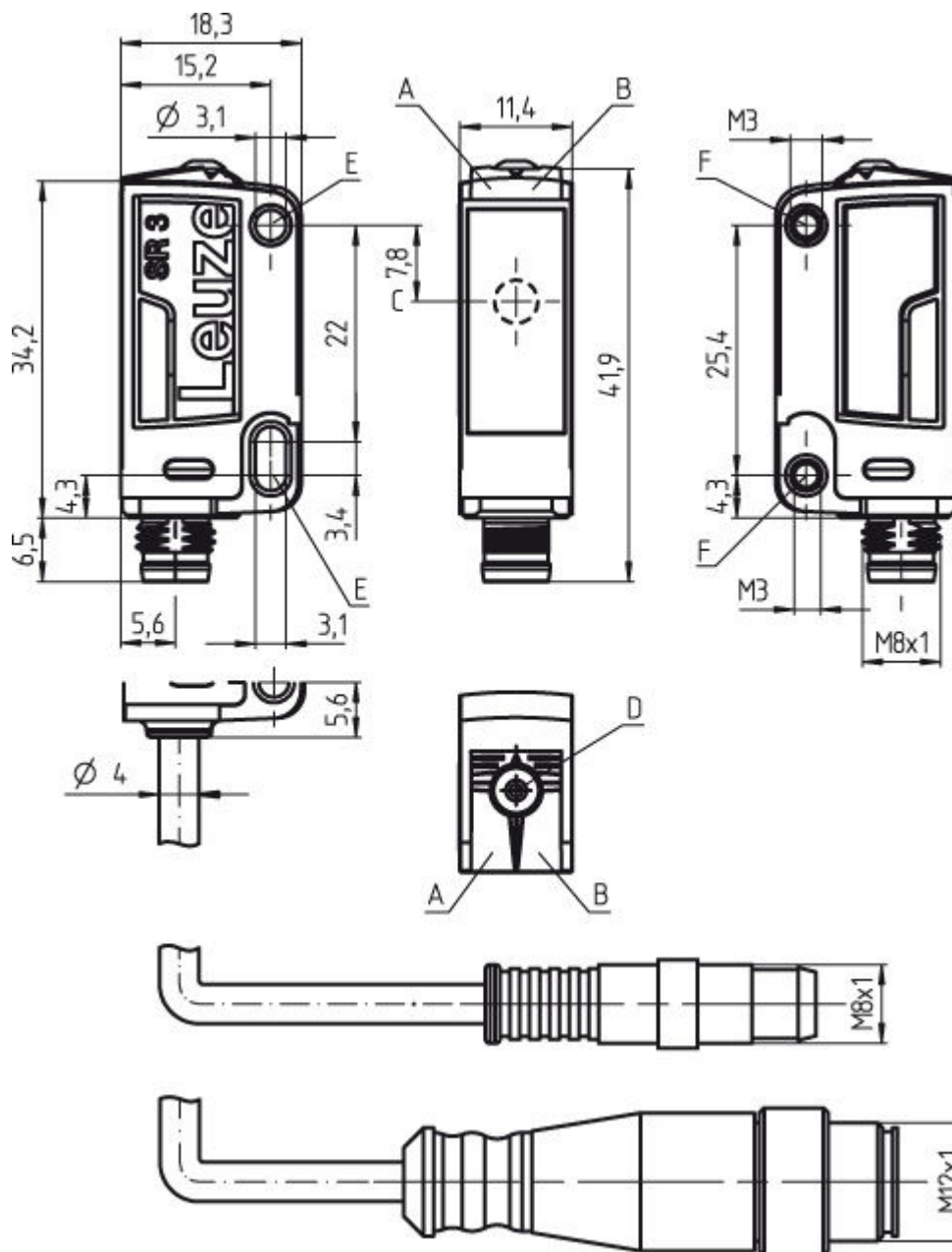
Protection class	III
Certifications	c UL US
Standards applied	IEC 60947-5-2

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

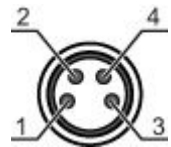


- A Green LED
- B Yellow LED
- C Optical axis
- D Teach button
- E Mounting sleeve (standard)
- F Threaded sleeve (3C.B series)

Electrical connection

Connection 1	
Type of connection	Connector
Function	Signal IN Signal OUT Voltage supply
Thread size	M8
Type	Male
Material	Metal
No. of pins	4 -pin
Encoding	

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




Operation and display



LEDs

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
	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

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	Part no.	Designation	Operating range/ Operating range limit	Description
	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 l: infrared light
EE	Light source: n/a: LED L1: laser class 1 L2: laser class 2
f	Pre-set range (optional): n/a: operating range acc. to data sheet XXXX: pre-set 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
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 8: activation input (activation with high signal) X: pin not used

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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 electronic 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 – LASER CLASS 1

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.

- 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.


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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


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	Contains: 2x M3 x 16 screw, 2x M3 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 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

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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