

Technical data sheet Polarized retro-reflective photoelectric sensor

Part no.: 50133741

PRK3CL1.A3/4P-200-M12



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Technical data



Basic data

Series	3C
Operating principle	Reflection principle
Special version	
Special version	Autocollimation
Optical data	
Operating range	0 2 m, With reflector MTKS 50x50.1
Operating range	Guaranteed operating range
Operating range limit	0 3 m, With reflector MTKS 50x50.1
Operating range limit	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

Pulsed

 $5.3~\mu s$

Round

Typ. ± 2°

3 mm [1,000 mm]

Electrical data

Shift angle

Pulse duration

Transmitted-signal shape

Type of light spot geometry

Light spot size [at sensor distance]

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)

S	wit	С	hing	outputs	
Vo	lta	g	e type	е	
_					

Voltage type	DC
Switching current, max.	100 mA
ŭ ŭ	high: ≥(U _B -2V)
	low: ≤ 2 V

Switching output 1 Assignment

Switching element Switching principle

Switching element	Transistor, PNP
Switching principle	Light switching
Switching output 2	
Owntoning output 2	
Assignment	Connection 1, pin 2

Connection 1, pin 4

Transistor, PNP

Dark switching

Time behavior

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

Connection 1	
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 mm ²
Thread size	M12
Туре	Male
Material	Metal
No. of pins	4 -pin
Encoding	A-coded

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	20 g
Housing color	Red
Type of fastening	Through-hole mounting
	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

67
69K
JL US
C 60947-5-2

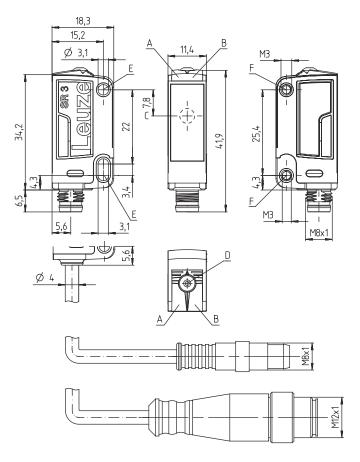
Classification

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
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

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All dimensions in millimeters



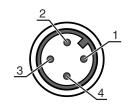
- Green LED
- Yellow LED В
- С Optical axis
- Teach button D
- Ε Mounting sleeve (standard)
- Threaded sleeve (3C.B series)

Electrical connection

Connection 1

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







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
	50040894	MTKS 20x30	0 1.6 m 0 2.2 m	Design: Rectangular Triple reflector size: 1.2 mm Reflective surface: 19 mm x 29 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Through-hole mounting, Adhesive
	50104130	MTKS 20x40.1	0 1 m 0 1.5 m	Design: Rectangular Triple reflector size: 12 mm Reflective surface: 17 mm x 38 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Through-hole mounting, Adhesive
20	50117583	MTKS 50x50.1	0 2 m 0 3 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
	50110192	REF 6-A-50x50	0 1 m 0 1.4 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

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 ODT3C: Distance diffuse sensor with background suppression
d	Light type n/a: red light I: infrared light
EE	Light source n/a: LED L1: laser class 1 L2: laser class 2 PP: Power PinPoint LED
f	Preset range (optional) n/a: operating range acc. to data sheet xxxF: Preset range [mm] 2M: operating range of 2 meters

Part number code



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

HF: Suppression of HF illumination (LED)

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

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)

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

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



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♦ A list with all available device types can be found on the Leuze 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.

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Notes



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 - CLASS 1 LASER PRODUCT



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.

- 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

- 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. 5kOhm is recommended
- Sum of the output currents for both outputs, 50 mA for ambient temperatures > 40 $^{\circ}$ C

Accessories

Connection technology - Connection cables

	Part no.	Designation	Article	Description
W 0	50130652	KD U-M12-4A-V1- 050	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin Connector, LED: No Connection 2: Open end Shielded: No Cable length: 5.000 mm Sheathing material: PVC
¥	50130690	KD U-M12-4W-V1- 050	Connection cable	Connection 1: Connector, M12, Angled, Female, A-coded, 4-pin Connector, LED: No Connection 2: Open end Shielded: No Cable length: 5.000 mm Sheathing material: PVC

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Accessories



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Mounting technology - Mounting brackets

	Part no.	Designation	Article	Description
19	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	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
	50104130	MTKS 20x40.1	Reflector	Design: Rectangular Triple reflector size: 12 mm Reflective surface: 17 mm x 38 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Through-hole mounting, Adhesive
2	50117583	MTKS 50x50.1	Reflector	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

Note



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