



Part no.: 50140145
PRK412B/P
Polarized retro-reflective photoelectric sensor



Figure can vary

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Technical data

Basic data	
Series	412B
Operating principle	Reflection principle

Optical data	
Operating range	Guaranteed operating range
Operating range	0.02 ... 1.8 m, With reflector TK(S) 100x100
Operating range limit	Typical operating range
Operating range limit	0.02 ... 2.3 m, With reflector TK(S) 100x100
Light source	LED, Red
LED light wavelength	660 nm
Transmitted-signal shape	Pulsed
LED group	Exempt group (in acc. with EN 62471)

Electrical data	
Protective circuit	Polarity reversal protection Short circuit protected

Performance data	
Supply voltage U_B	10 ... 36 V, DC, Incl. residual ripple
Residual ripple	0 ... 20 %, From U_B
Open-circuit current	0 ... 15 mA

Outputs	
Number of digital switching outputs	1 Piece(s)

Switching outputs	
Voltage type	DC
Switching current, max.	200 mA

Switching output 1	
Switching element	Transistor, PNP
Switching principle	Dark switching

Timing	
Switching frequency	1,000 Hz
Response time	0.5 ms
Readiness delay	20 ms

Connection	
Connection 1	
Type of connection	Cable
Function	Signal OUT Voltage supply
Cable length	2,000 mm
Sheathing material	PVC
Cable color	Black
Number of conductors	3 -wire
Wire cross section	0.34 mm ²

Mechanical data	
Thread size	M12 x 1 mm

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Dimension (Ø x L)	12 mm x 51 mm
Housing material	Metal, Chromed brass
Lens cover material	Glass
Net weight	100 g
Housing color	Silver

Operation and display

Type of display	LED
Number of LEDs	2 Piece(s)

Environmental data

Ambient temperature, operation	-25 ... 55 °C
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Certifications

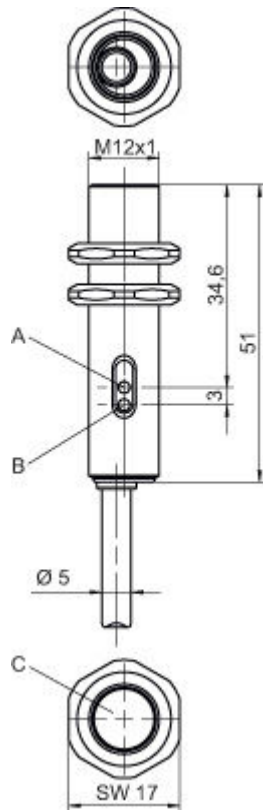
Degree of protection	IP 67
Protection class	III
Certifications	c UL US
Standards applied	IEC 60947-5-2

Classification

eCl@ss 8.0	27270902
eCl@ss 9.0	27270902
ETIM 5.0	EC002717

Dimensioned drawings

All dimensions in millimeters



A Green LED
 B Yellow LED
 C Optical axis

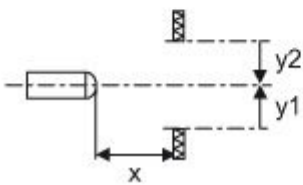
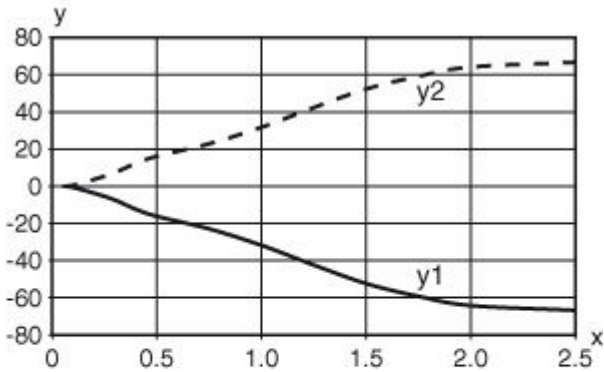
Electrical connection

Connection 1	
Type of connection	Cable
Function	Signal OUT Voltage supply
Cable length	2,000 mm
Sheathing material	PVC
Cable color	Black
Number of conductors	3 -wire
Wire cross section	0.34 mm ²

Conductor color	Conductor assignment
Brown	V+
Black	OUT 1
Blue	GND

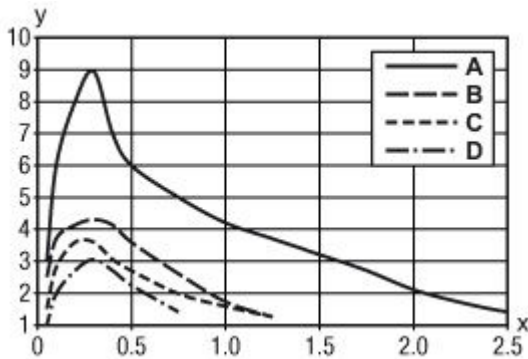
Diagrams

Typ. response behavior



x Distance [m]
y Misalignment [mm]

Typ. function reserve



x Distance [m]
y Function reserve
A TKS 100x100
B TKS 40x60
C MTKS 50x50.1
D Film REF 4-A-50x50

Operation and display

LEDs

LED	Display	Meaning
1	Green, continuous light	Function reserve

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LED	Display	Meaning
2	Yellow, continuous light	Switching output/switching state active

Reflectors & reflective tapes

	Part no.	Designation	Operating range/ Operating range limit	Description
	50117583	MTKS 50x50.1	0.015 ... 1 m 0.015 ... 1.3 m	Design: Rectangular Reflective surface: 50 mm x 50 mm Triple reflector size: 1.2 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Through-hole mounting, Adhesive
	50108300	REF 4-A-50x50	0.08 ... 0.6 m 0.08 ... 0.8 m	Design: Rectangular Reflective surface: 50 mm x 50 mm Material: Plastic Chemical designation of the material: PMMA Fastening: Self-adhesive
	50024127	TK 82.2	0.05 ... 1.6 m 0.05 ... 2 m	Design: Round Triple reflector size: 4 mm Reflection surface diameter: 79 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Through-hole mounting, Adhesive
	50022816	TKS 100X100	0.02 ... 1.8 m 0.02 ... 2.3 m	Design: Rectangular Reflective surface: 96 mm x 96 mm Triple reflector size: 4 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Through-hole mounting, Adhesive
	50081283	TKS 20X40	0.02 ... 0.5 m 0.02 ... 0.65 m	Design: Rectangular Reflective surface: 16 mm x 38 mm Triple reflector size: 2.3 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Through-hole mounting, Adhesive
	50023525	TKS 30X50	0.02 ... 0.65 m 0.02 ... 0.85 m	Design: Rectangular Reflective surface: 27 mm x 44 mm Triple reflector size: 3 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Through-hole mounting, Adhesive
	50040820	TKS 40X60	0.02 ... 1 m 0.02 ... 1.3 m	Design: Rectangular Reflective surface: 37 mm x 56 mm Triple reflector size: 4 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Through-hole mounting, Adhesive

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Part number code

Part designation: AAA412BGG.H/ii-K


AAA412B	Operating principle / construction: LS412B: throughbeam photoelectric sensor transmitter LE412B: throughbeam photoelectric sensor receiver ET412B: energetic diffuse reflection sensor PRK412B: retro-reflective photoelectric sensor with polarization filter
GG	Light source: n/a: LED L2: laser class 2
H	Operating range adjustment: 1: 270° potentiometer
ii	Switching output / function / OUT1OUT2 (OUT1 = pin 4, OUT2 = pin 2): 2: NPN transistor output, light switching N: NPN transistor output, dark switching 4: PNP transistor output, light switching P: PNP transistor output, dark switching D: deactivation input (deactivation with low signal) X: pin not used
K	Electrical connection: n/a: cable, PVC, standard length 2000 mm, 3-wire M12: M12 connector, 4-pin (plug)

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.

Accessories



Mounting technology - Mounting brackets

	Part no.	Designation	Article	Description
	50113549	BT D12M.5	Mounting bracket	Diameter, inner: 12 mm 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: Stainless steel


Standard reflectors

	Part no.	Designation	Article	Description
	50024127	TK 82.2	Reflector	Design: Round Triple reflector size: 4 mm Reflection surface diameter: 79 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Through-hole mounting, Adhesive


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Micro-triad-type reflectors

	Part no.	Designation	Article	Description
	50117583	MTKS 50x50.1	Reflector	Design: Rectangular Reflective surface: 50 mm x 50 mm Triple reflector size: 1.2 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Through-hole mounting, Adhesive

Reflective tapes for standard applications

	Part no.	Designation	Article	Description
	50108300	REF 4-A-50x50	Reflective tape	Design: Rectangular Reflective surface: 50 mm x 50 mm Material: Plastic Chemical designation of the material: PMMA Fastening: Self-adhesive