

PRK18B / RK18B

Retro-reflective sensors

en 02-2014/01 50121194



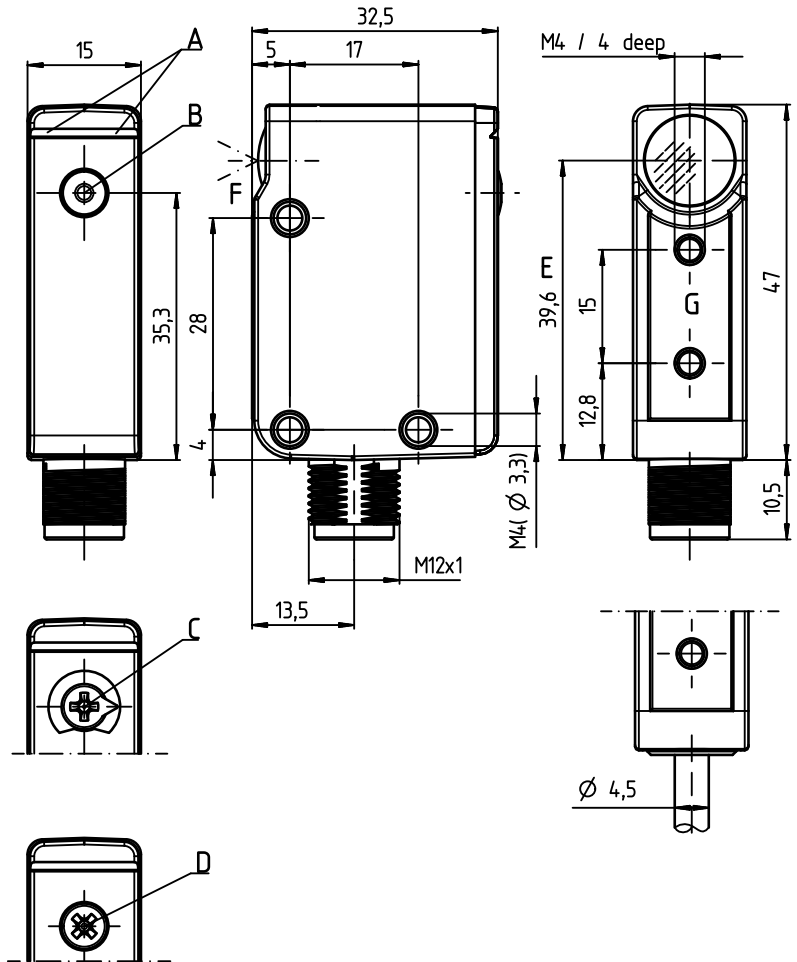
10 - 30 V
DC

0 ... 7.2m



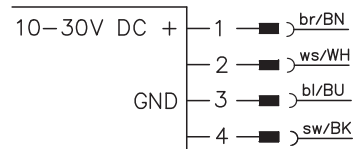
- Retro-reflective photoelectric sensors with autocollimation optics for reliable detection of containers
- Retro-reflective photoelectric sensors with autocollimation optics for operating with glass triple reflectors and any desired reflective tapes
- Adaptation to the application by means of 270° potentiometer

Dimensioned drawing



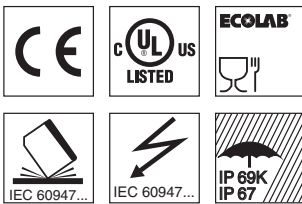
- A Display
- B Teach button
- C 270° potentiometer
- D 11-turn potentiometer
- E Optical axis
- F Optical accuracy
- G Reference plane for F

Electrical connection



	Pin 1	Pin 2	Pin 3	Pin 4
PRK18B.1/4P-M12	+	PNP dark	GND	PNP light
PRK18B.1/2N-M12	+	NPN dark	GND	NPN light
RK18B.1/4P-M12	+	PNP dark	GND	PNP light
RK18B.1/2N-M12	+	NPN dark	GND	NPN light

We reserve the right to make changes • DS_PRK18B1RK18B1_en_50121194.fm



Accessories:

(available separately)

- Mounting system (BTU 200, BT 95)
- M12 connection technology (K-D M12)
- Reflectors (TK, MTK)
- Reflective tape (REF)
- Deflecting mirrors (US18B)

Specifications

Optical data

Typ. op. range limit (TK(S) 100x100) ¹⁾	0 ... 7.2m
Operating ranges ²⁾	see tables
Light source ³⁾	LED (modulated light)
Wavelength	620nm (visible red light)
Optical accuracy	type dependent (see order guide)

Timing

Switching frequency	500Hz
Response time	1ms
Delay before start-up	< 300ms

Electrical data

Operating voltage UB ⁴⁾	10 ... 30VDC (incl. residual ripple)
Residual ripple	≤ 15% of UB
Open-circuit current	≤ 18mA
Switching outputs/functions	/4P 2 PNP switching outputs, antivalent /4X 1 PNP switching output, light switching /PX 1 PNP switching output, dark switching /2N 2 NPN switching outputs, antivalent /2X 1 NPN switching output, light switching /NX 1 NPN switching output, dark switching
Signal voltage high/low	≥ (UB-2V)/≤ 2V
Output current	max. 100mA
Sensitivity	adjustable with 270° potentiometer (see order guide)

Indicators

Green LED	ready
Yellow LED	light path free
Yellow LED, flashing	light path free, minimum performance reserve

Mechanical data

Housing ⁵⁾	diecast zinc, chemically nickel-plated
Connector	diecast zinc, chemically nickel-plated
Optics	glass
Operation	270° potentiometer
Weight	with M12 connector: 60g with 6000mm cable: 240g
Connection type	M12 connector, 4-pin cable 6000mm, 4 x 0.20mm ²

Environmental data

Ambient temp. (operation/storage)	-40°C ... +60°C/-40°C ... +70°C
Protective circuit ⁶⁾	2, 3
VDE safety class ⁷⁾	III
Protection class	IP67, IP 69K
Light source	exempt group (in acc. with EN 62471)
Standards applied	IEC 60947-5-2
Certifications	UL 508, C22.2 No.14-13 ⁴⁾ 8)
Chemical resistance	tested in accordance with ECOLAB

- 1) Typ. operating range limit: max. attainable range without performance reserve
- 2) Operating range: recommended range with performance reserve
- 3) Average life expectancy 100,000h at an ambient temperature of 25°C
- 4) For UL applications: for use in class 2 circuits according to NEC only
- 5) Color changes due to cleaning agents do not adversely affect the coating
- 6) 2=polarity reversal protection, 3=short circuit protection for all transistor outputs
- 7) Rating voltage 50V
- 8) These proximity switches shall be used with UL Listed Cable assemblies rated 30V, 0.24A min, in the field installation, or equivalent (categories: CYJV/CYJV7 or PVVA/PVVA7)

Remarks

- **Approved purpose:**
This product may only be used by qualified personnel and must only be used for the approved purpose. This sensor is not a safety sensor and is not to be used for the protection of persons.
- **RK18B models:**
Suitable in combination with glass triple reflectors. Glossy and reflective objects can lead to switching errors.

Tables

Plastic reflectors:

Reflectors	Operating range
1 TK(S) 100x100	0 ... 6.0m
2 MTKS 50x50.1	0 ... 4.5m
3 TK(S) 40x60	0 ... 3.5m
4 TK(S) 30x50	0 ... 2.0m
5 TK(S) 20x40	0 ... 2.0m
6 Tape 6 50x50	0 ... 2.0m

1 0	6.0	7.2
2 0	4.5	5.5
3 0	3.5	4.2
4 0	2.0	2.4
5 0	2.0	2.4
6 0	2.0	2.4

Glass reflectors (RK18B only):

Reflectors	Operating range
1 TG29 Ø 29mm	0 ... 1.3m
2 TG6 Ø 7mm	0 ... 0.6m

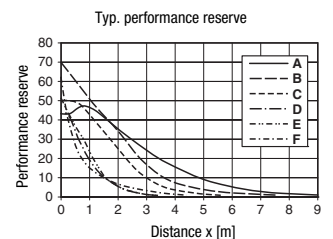
1 0	1.3	1.5
2 0	0.6	0.7

- Operating range [m]
- ▒ Typ. operating range limit [m]

- TK ... = adhesive
- TKS ... = screw type
- Tape 6 = adhesive
- TG6 = adhesive, pressable
- TG29 = with M3 threaded pin

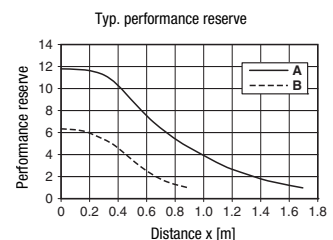
Diagrams

Plastic reflectors:



- A TK(S) 100x100
- B MTKS 50x50.1
- C TK(S) 40x60
- D TK(S) 30x50
- E TK(S) 20x40
- F Tape 6 50x50

Glass reflectors (RK18B only):



- A TG29
- B TG6

PRK18B / RK18B

Retro-reflective sensors

Part number code

P	R	K	1	8	B	.	F	X	T	T	3	/	4	P	-	M	1	2
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Operating principle

PRK	Retro-reflective photoelectric sensor for bottles
RK	Retro-reflective photoelectric sensor for tape (Function against any reflective tapes and glass triple reflectors)

Series

18B	18B series
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Timing

F	High speed
free	Standard

Optical accuracy

X	Optical axis aligned, shift angle <math>< \pm 0.25^\circ</math>
free	Standard

Detection properties

T	Setting of 11% is possible
free	Setting of 11% is not possible

Tracking function available

T 1)	Tracking function/contamination compensation
free	No tracking function

Setting

1	270° potentiometer
2	11-turn potentiometer
3	Teach button
free	No setting

Pin assignment of connector pin 4 / black cable wire

2	NPN, light switching
N	NPN, dark switching
4	PNP, light switching
P	PNP, dark switching
L	IO-Link

Pin assignment of connector pin 2 / white cable wire

X	Not assigned
2	NPN, light switching
N	NPN, dark switching
4	PNP, light switching
P	PNP, dark switching
T	Teach input

Connection technology

M12	M12 connector, 4-pin
6000	Cable 6 m

1) Only possible in conjunction with the detection property "T".

Order guide

The sensors listed here are preferred types; current information at www.leuze.com.

Selection table		Order code →			
		PRK18B: 1/4P-M12 Part no. 50117359	PRK18B: 1/2N-M12 Part no. 50117357	RK18B: 1/4P-M12 Part no. 50117375	RK18B: 1/2N-M12 Part no. 50117373
Equipment ↓ Switching output	1 x PNP, light switching				
	1 x PNP, dark switching				
	2 x PNP, antivalent	●		●	
	1 x NPN, dark switching				
	2 x NPN, antivalent		●		●
	1 x IO-Link, 1 x PNP, dark switching				
	1 x IO-Link, 1 x NPN, dark switching				
	Optical accuracy	calibrated $\leq \pm 0.25^\circ$			
Switching frequency/response time/jitter	500Hz/1 ms/320µs	●	●	●	●
	1500Hz/333µs/110µs				
	5000Hz/100µs/32µs				
Detection properties	highly transparent bottles and glasses				
	highly transparent tape < 20µm thick				
	transparent containers / glass triple reflectors	●	●	●	●
Tracking function	exists				
Setting	270° potentiometer	●	●	●	●
	11-turn potentiometer				
	teach button				
Connection technology	M12 connector	●	●	●	●
	cable, 6000mm				

Sensor adjustment by means of 270° potentiometer

The sensor is factory-adjusted for maximum operating range (potentiometer position **max.**).

	Operating range	
	small operating range	large operating range
Sensor sensitivity	minimum	maximum
Setting	