

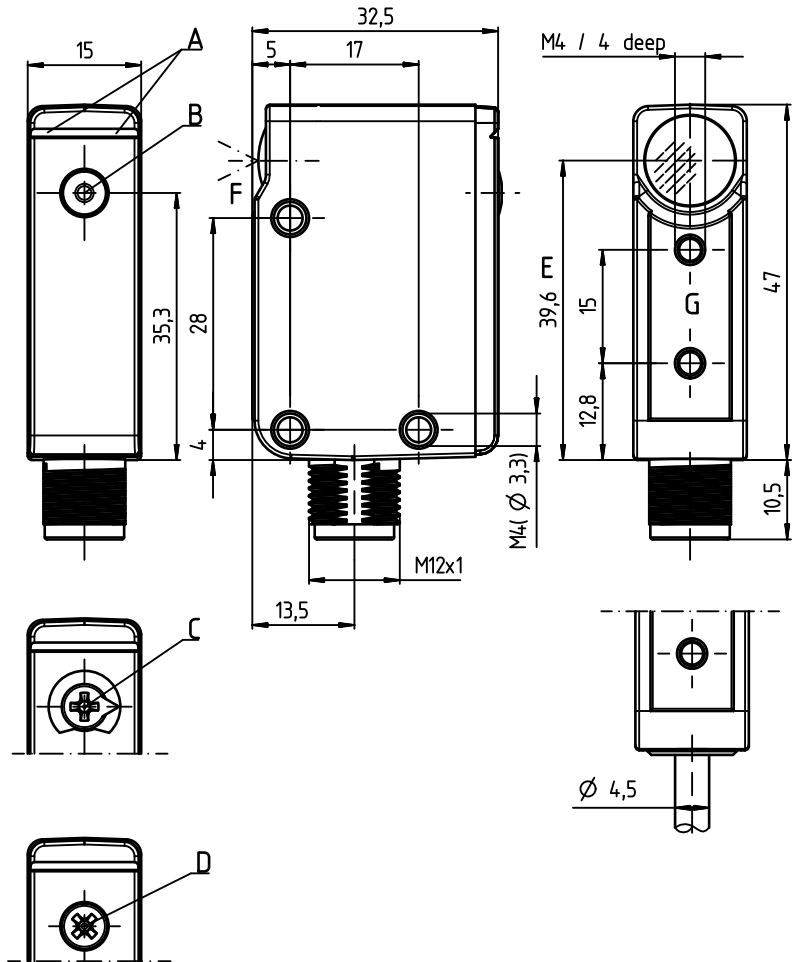
**PRK18B**

**Tracking retro-reflective sensor for bottles and tape**

en 01-2013/11 50121190

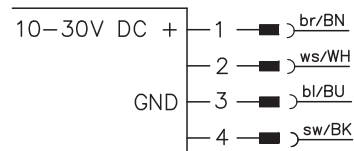


**Dimensioned drawing**



- 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
<b>PRK18B.TT3/4P-M12</b>	+	PNP dark	GND	PNP light
<b>PRK18B.XTT3/4P-M12</b>	+	PNP dark	GND	PNP light
<b>PRK18B.TT3/2N-M12</b>	+	NPN dark	GND	NPN light

- Retro-reflective photoelectric sensors with autocollimation optics for reliable detection of highly transparent bottles and tape
- Sensitivity adjustment via teach button
- Temperature compensation  $\pm 20^{\circ}\text{C}$
- Automatic contamination compensation (tracking function) for longer intervals between cleanings

**Accessories:**

(available separately)

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

We reserve the right to make changes • DS\_PRK18BTT\_en\_50121190.fm

## Specifications

### Optical data

Typ. op. range limit (TK(S) 100x100) <sup>1)</sup>	0 ... 3.6m
Operating ranges <sup>2)</sup>	see tables
Light source <sup>3)</sup>	LED (modulated light)
Wavelength	620nm (visible red light)
Optical accuracy	type dependent (see order guide)

### Timing

Switching frequency	1500Hz
Response time	0.333ms
Jitter time	110µs
Delay before start-up	< 300ms

### Electrical data

Operating voltage UB	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 via teach button (see order guide)

### Indicators

Green LED	ready
Yellow LED	light path free
Yellow/green LED, flashing synchronously (9Hz)	error

### Mechanical data

Housing <sup>4)</sup>	diecast zinc, chemically nickel-plated
Connector	diecast zinc, chemically nickel-plated
Optics	glass
Operation	teach button
Weight	with M12 connector: 60g with 6000mm cable: 240g
Connection type	M12 connector, 4-pin cable 6000mm, 4 x 0.20mm <sup>2</sup>

### Environmental data

Ambient temp. (operation/storage)	-40°C ... +60°C / -40°C ... +70°C
Protective circuit <sup>5)</sup>	2, 3
VDE safety class <sup>6)</sup>	III
Protection class	IP67, IP 69K
Light source	exempt group (in acc. with EN 62471)
Standards applied	IEC 60947-5-2
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) Color changes due to cleaning agents do not adversely affect the coating
- 5) 2=polarity reversal protection, 3=short circuit protection for all transistor outputs
- 6) Rating voltage 50V

## Tables

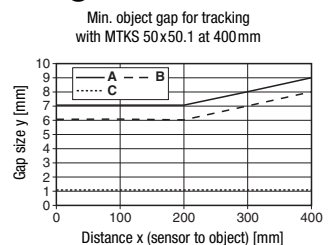
Reflectors			Operating range
1	TK(S)	100x100	0 ... 3.0m
2	MTKS	50x50.1	0 ... 2.8m
3	TK(S)	40x60	0 ... 2.5m
4	TK(S)	30x50	0 ... 1.1m
5	TK(S)	20x40	0 ... 1.1m
6	Tape 6	50x50	0 ... 1.0m

1	0	3.0	3.6
2	0	2.8	3.3
3	0	2.5	3.0
4	0	1.1	1.3
5	0	1.1	1.3
6	0	1.0	1.2

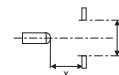
- Operating range [m]
- Typ. operating range limit [m]

TK ... = adhesive  
TKS ... = screw type  
Tape 6 = adhesive

## Diagrams



- A 11% sensor sensitivity
- B 18% sensor sensitivity
- C 100% sensor sensitivity



## 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.
- **Reflectors:**  
The light spot may not extend beyond the reflector. Preferably use MTK(S) reflectors or reflective tape 6.

# PRK18B

# Tracking retro-reflective sensor for bottles and tape

## Part number code

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

### 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

### Timing

**F** High speed  
**free** Standard

### Optical accuracy

**X** Optical axis aligned, shift angle <  $\pm 0.25^\circ$   
**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 6m

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](http://www.leuze.com).

<b>Selection table</b>		<b>Order code →</b>	<b>PRK18B.TT3/4P-M12</b> Part no. 50121229	<b>PRK18B.XTT3/4P-M12</b> Part no. 50124943	<b>PRK18B.TT3/2N-M12</b> Part no. 50121228
<b>Equipment ↓</b>					
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		●	●	●
Tracking function	exists		●	●	●
Setting	270° potentiometer				
	11-turn potentiometer				
	teach button		●	●	●
Connection technology	M12 connector		●	●	●
	cable, 6000mm				

**PRK18B**

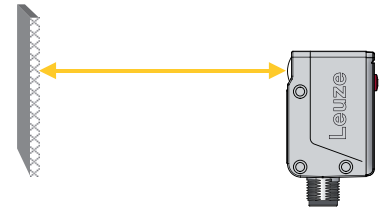
**Tracking retro-reflective sensor for bottles and tape**

**Sensor setting via teach button**



- **The sensor is factory-adjusted for maximum operating range.**  
Recommendation: teach only if the desired objects are not reliably detected.

- **Prior to teaching:**  
**Clear the light path to the reflector!**  
The device setting is stored in a fail-safe way. A reconfiguration following voltage interruption or switch-off is thus not required.

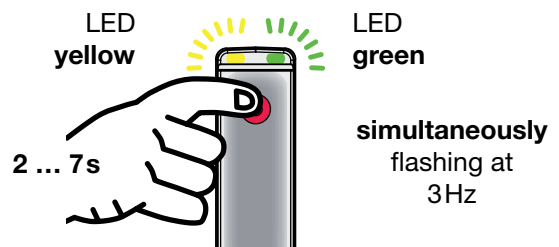


**Teaching for 11% sensor sensitivity (full single bottles or tape)**

- Press teach button until both LEDs flash **simultaneously**.
- Release teach button.
- Ready.



After the teaching, the sensor switches when about 11% of the light beam are covered by the object.



**Teaching for 18% sensor sensitivity (empty single bottles)**

- Press teach button until both LEDs flash **alternatingly**.
- Release teach button.
- Ready.

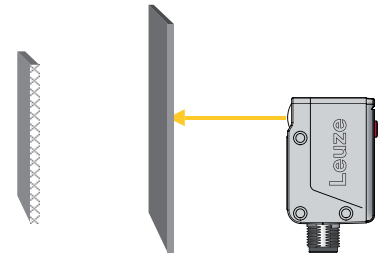


After the teaching, the sensor switches when about 18% of the light beam are covered by the object.

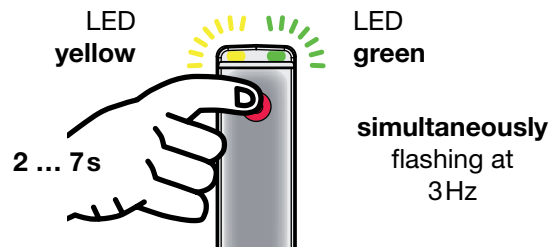


**Teaching for maximum operating range (factory setting at delivery)**

- Prior to teaching:  
**Interrupt** the light path to the reflector!



- Press teach button until both LEDs flash **simultaneously**.
- Release teach button.
- Ready.



**Activating/deactivating the tracking function**

- Press teach button until only the green LED flashes
- Release the teach button. The yellow LED displays the tracking function status for 2s:
  - Yellow LED ON = tracking activated (factory settings)
  - Yellow LED OFF = tracking deactivated
- After 2s: ready

