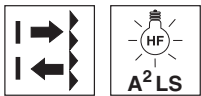


PRK 28

Retro-reflective photoelectric sensors for semi-transparent media

en 01-2015/11 50130115



0.02 ... 6.0m



- Polarized retro-reflective photoelectric sensor using visible red light
- Easy adjustment via teach button
- Active suppression of extraneous light A²LS
- Fast alignment through *brightVision*®
- Universal option for M18 hole mounting at the front and connector side
- Easy through-hole assembly with anti-rotation protection for mounting nuts on the housing
- Full control through green and yellow indicator LEDs
- Robust, glass fiber reinforced plastic housing acc. to IP 67 for industrial application
- Complementary outputs for light/dark switching

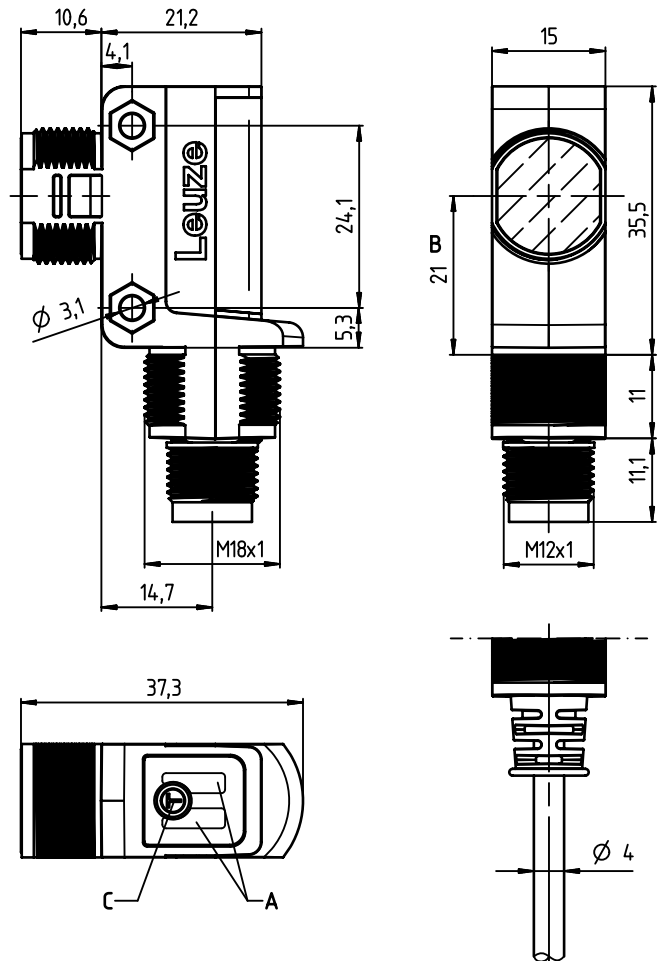


Accessories:

(available separately)

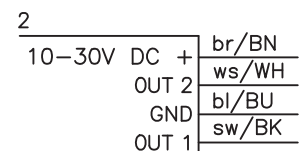
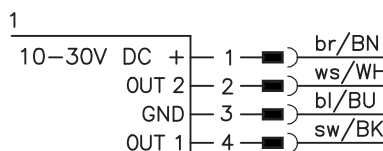
- Mounting systems (BTU 200 ..., BT 200..., BTU D18...)
- M12 connectors (KD ...)
- Ready-made cables (K-D ...)
- Reflectors
- Reflective tape

Dimensioned drawing



- A** Indicator diodes
- B** Optical axis
- C** Teach button

Electrical connection



Änderungen vorbehalten • DS_PRK28_3_en_50130115.fm

Specifications

Optical data

Typ. op. range limit (TK(S) 100x100) ¹⁾	0.02 ... 6.0m
Operating range ²⁾	see tables
Light source	LED (modulated light)
Wavelength	620nm (visible red light, polarised)

Timing

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

Electrical data

Operating voltage U_B ³⁾	10 ... 30VDC
Residual ripple	≤ 15% of U_B
Open-circuit current	≤ 20mA
Switching output	.../4P... 2 PNP transistor outputs pin 2: PNP dark switching, pin 4: PNP light switching 2 NPN transistor outputs pin 2: NPN dark switching, pin 4: NPN light switching
	.../2N... ≥ ($U_B - 2.5V$) ≤ 2.5V max. 100mA ⁴⁾
Signal voltage high/low	
Output current	

Indicators

Green LED	ready
Yellow LED	light path free
Yellow LED, flashing	light path free, no performance reserve

Mechanical data

Housing	plastic, glass fiber reinforced
Optics cover	plastic
Weight	25g with M12 connector 45g with 200mm cable and M12 connector 75g with 2m cable
Connection type	M12 connector, 4-pin cable 200mm with M12 connector, 4-pin cable 2m, 4x0.20mm ²

Environmental data

Ambient temp. (operation/storage)	-40°C ... +60°C/-40°C ... +70°C
Protective circuit ⁵⁾	2, 3
VDE safety class	III
Protection class	IP 67
Light source	free group (in acc. with EN 62471)
Standards applied	IEC 60947-5-2
Certifications	UL 508, C22.2 No.14-13 ³⁾ ⁶⁾

- 1) Typ. operating range limit: max. attainable range without performance reserve
- 2) Operating range: recommended range with performance reserve
- 3) For UL applications: for use in class 2 circuits according to NEC only
- 4) Sum of the output currents for both outputs, 50mA when ambient temperatures > 40°C
- 5) 2=polarity reversal protection, 3=short circuit protection for all outputs
- 6) 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)

Tables

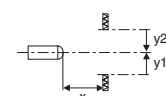
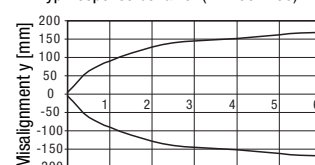
Reflectors	Operating range
1 TK(S) 100x100	0.02 ... 4.5m
2 TKS 40x60	0.02 ... 3.0m
3 TKS 82.2	0.05 ... 3.6m
4 TKS 30x50	0.03... 1.9m
5 TKS 20x40	0.04 ... 1.6m
6 Tape 4 50x50	0.08 ... 1.4m

1	0.02	4.5	6.0
2	0.02	3.0	4.0
3	0.05	3.6	4.5
4	0.03	1.9	2.5
5	0.04	1.6	2.2
6	0.08	1.4	2.0

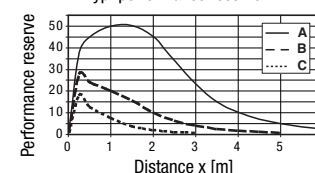
□ Operating range [m]
 ▒ Typ. operating range limit [m]

Diagrams

Typ. response behavior (TK 100x100)



Typ. performance reserve



- A TKS 100x100
- B TKS 40x60
- C TKS 20x40

Remarks

Operate in accordance with 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 the intended use.

PRK 28 Retro-reflective photoelectric sensors for semi-transparent media

Order guide

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

		Designation	Part no.
With 4-pin M12 connector	Pin 4: PNP light switching, pin 2: PNP dark switching	PRK 28.3/4P-M12	50122585
	Pin 4: NPN light switching, pin 2: NPN dark switching	PRK 28.3/2N-M12	50122587
With 200mm cable and M12 connector	Pin 4: PNP light switching, pin 2: PNP dark switching	PRK 28.3/4P-200-M12	50130047
	Pin 4: NPN light switching, pin 2: NPN dark switching	PRK 28.3/2N-200-M12	50130049
With cable, cable length 2m	Pin 4: PNP light switching, pin 2: PNP dark switching	PRK 28.3/4P	50122586
	Pin 4: NPN light switching, pin 2: NPN dark switching	PRK 28.3/2N	50122588

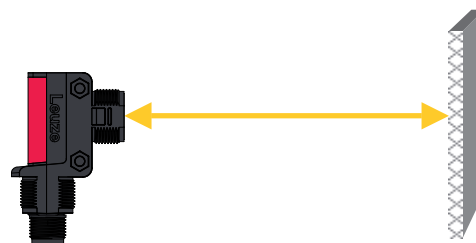
Part number code

		P	R	K	2	8	.	3	/	4	P	-	2	0	0	-	M	1	2
Operating principle																			
PRK	Polarized retro-reflective photoelectric sensor																		
Series																			
28	28 Series																		
Equipment																			
.3	Teach-in via teach button																		
Switching output/function /OUT1OUT2 (OUT1 = Pin 4, OUT2 = Pin 2)																			
4	PNP, light switching																		
P	PNP, dark switching																		
2	NPN, light switching																		
N	NPN, dark switching																		
X	Pin not used																		
Electrical connection																			
-M12	M12 connector, 4-pin																		
N/A	Cable, standard length 2m																		
-200-M12	200mm cable with M12 connector																		

Sensor adjustment (teach) 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.

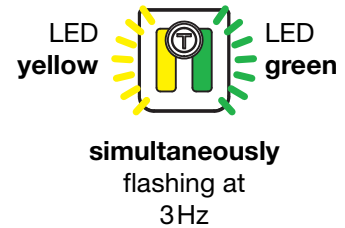
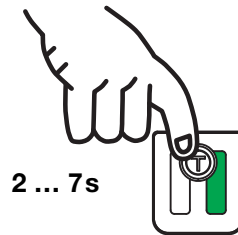


Standard teaching for average sensor sensitivity

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



After the standard teaching, the sensor switches when half of the light beam is covered by the object.

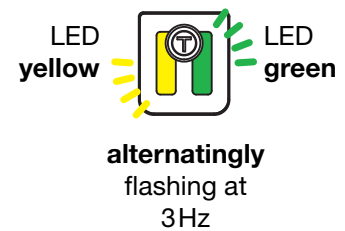
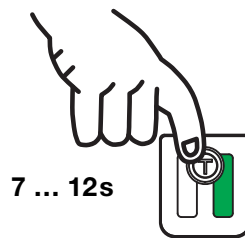


Teaching for increased sensor sensitivity

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

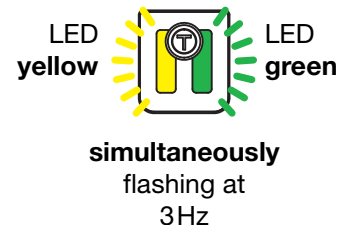
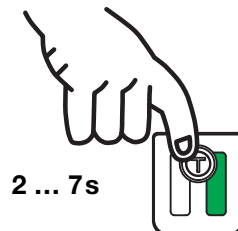
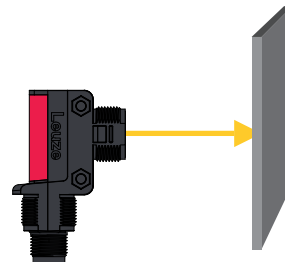


After the teaching for increased sensor sensitivity, the sensor switches when about 25 % of the light beam are covered by the object.



Teaching for maximum operating range (factory setting at delivery)

- **Prior to teaching:**
Cover the light path to the reflector!
- Procedure as for standard teaching.

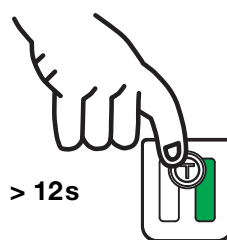


Adjusting the switching behavior of the switching output – light/dark switching

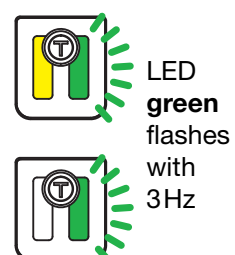
This function permits inversion of the sensors' switching logic.

- Press the teach button until only the green LED flashes. The yellow LED then shows the inverted switching logic:

- ON** = switching outputs light switching (in the case of complementary sensors, Q1 (pin 4) light switching, Q2 (pin 2) dark switching), this means output active when object is detected.
- OFF** = switching outputs dark switching (in the case of complementary sensors, Q1 (pin 4) dark switching, Q2 (pin 2) light switching), this means output inactive when object is detected.



LED yellow
ON = light switching
OFF = dark switching



- Release teach button.
- Ready.