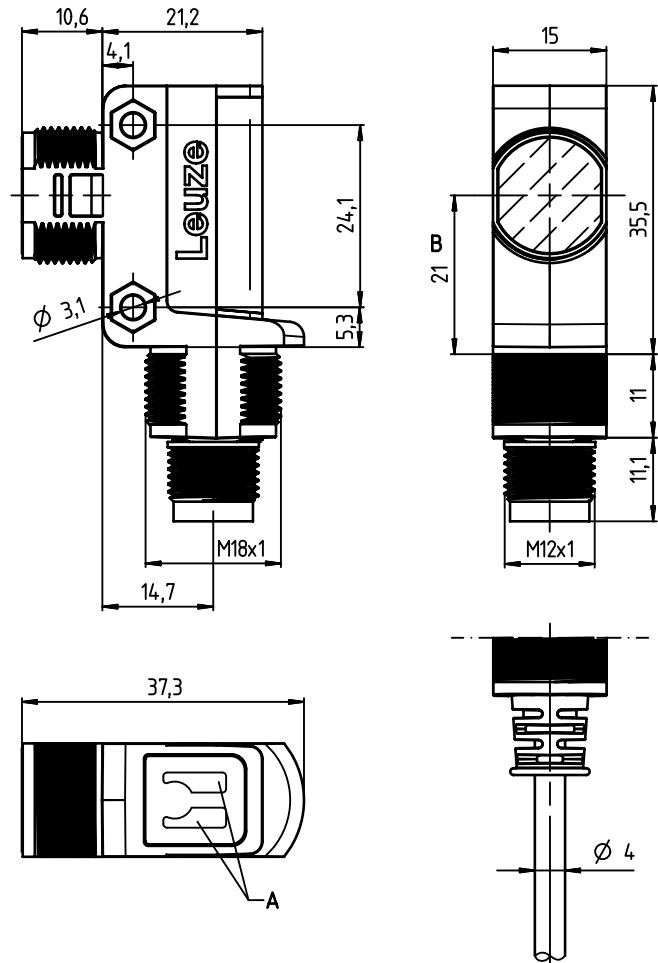


## PRK 28

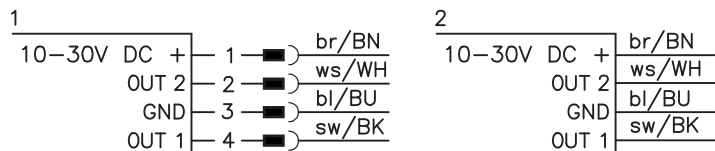
## Retro-reflective photoelectric sensors with polarization filter

### Dimensioned drawing

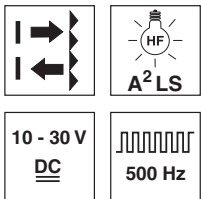


- A** Indicator diodes  
**B** Optical axis

### Electrical connection



0.02 ... 6.0m



- Polarized retro-reflective photoelectric sensor using visible red light
- 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

## Specifications

### Optical data

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

### Timing

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

### Electrical data

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

### 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<br>75g with 2m cable             |
| Connection type | M12 connector, 4-pin<br>cable 2m, 4x0.20mm <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                  | 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 <sup>3)</sup> 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

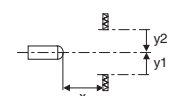
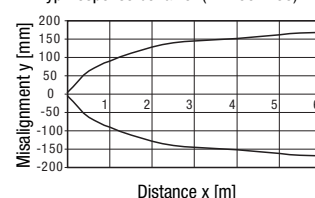
| Reflectors |               | Operating range |
|------------|---------------|-----------------|
| 1          | TK(S) 100x100 | 0.02 ... 4.5m   |
| 2          | TKS 40x60     | 0.02 ... 3.0m   |
| 3          | TKS 82.2      | 0.05 ... 3.6m   |
| 4          | TKS 30x50     | 0.03 ... 1.9m   |
| 5          | 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 |     |

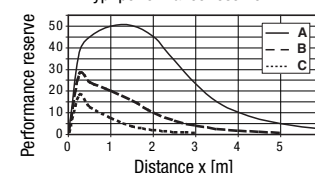
□ Operating range [m]  
 ▒ Typ. operating range limit [m]

## 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 with polarization filter

### Order guide

The sensors listed here are preferred types; current information at [www.leuze.com](http://www.leuze.com).

|                             |                                                       | Designation   | Part no. |
|-----------------------------|-------------------------------------------------------|---------------|----------|
| With 4-pin M12 connector    | Pin 4: PNP light switching, pin 2: PNP dark switching | PRK 28/4P-M12 | 50117924 |
|                             | Pin 4: NPN light switching, pin 2: NPN dark switching | PRK 28/2N-M12 | 50117926 |
| With cable, cable length 2m | Pin 4: PNP light switching, pin 2: PNP dark switching | PRK 28/4P     | 50117925 |
|                             | Pin 4: NPN light switching, pin 2: NPN dark switching | PRK 28/2N     | 50117927 |

### Part number code

|   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|
| P | R | K | 2 | 8 | / | 4 | P | - | M | 1 | 2 |
|---|---|---|---|---|---|---|---|---|---|---|---|

#### Operating principle

**PRK** Polarized retro-reflective photoelectric sensor

#### Series

**28** 28 Series

#### 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

