

## Technical data sheet

### Polarized retro-reflective photoelectric sensor

Part no.: 50123266

PRK5/4P-800-M12



For illustration purposes only

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## Technical data

### Basic data

|                     |                      |
|---------------------|----------------------|
| Series              | 5                    |
| Operating principle | Reflection principle |

### Optical data

|                          |                                                                           |
|--------------------------|---------------------------------------------------------------------------|
| Operating range          | 0.02 ... 4.5 m (guaranteed operating range), With reflector TK(S) 100x100 |
| Operating range limit    | 0.02 ... 6 m (typical operating range), With reflector TK(S) 100x100      |
| Light source             | LED, Red                                                                  |
| Wavelength               | 620 nm                                                                    |
| Transmitted-signal shape | Pulsed                                                                    |
| LED group                | Exempt group (in acc. with EN 62471)                                      |

### Electrical data

|                    |                                                         |
|--------------------|---------------------------------------------------------|
| Protective circuit | Polarity reversal protection<br>Short circuit protected |
|--------------------|---------------------------------------------------------|

### Performance data

|                      |                                        |
|----------------------|----------------------------------------|
| Supply voltage $U_B$ | 10 ... 30 V, DC, Incl. residual ripple |
| Residual ripple      | 0 ... 15 %, From $U_B$                 |
| Open-circuit current | 0 ... 20 mA                            |

### Outputs

|                                     |            |
|-------------------------------------|------------|
| Number of digital switching outputs | 2 Piece(s) |
|-------------------------------------|------------|

### Switching outputs

|                         |                                               |
|-------------------------|-----------------------------------------------|
| Type                    | Digital switching output                      |
| Voltage type            | DC                                            |
| Switching current, max. | 100 mA                                        |
| Switching voltage       | high: $\geq(U_B - 2.5V)$<br>low: $\leq 2.5 V$ |

### Switching output 1

|                     |                     |
|---------------------|---------------------|
| Assignment          | Connection 1, pin 4 |
| Switching element   | Transistor, PNP     |
| Switching principle | Light switching     |

### Switching output 2

|                     |                     |
|---------------------|---------------------|
| Assignment          | Connection 1, pin 2 |
| Switching element   | Transistor, PNP     |
| Switching principle | Dark switching      |

### Time behavior

|                     |        |
|---------------------|--------|
| Switching frequency | 500 Hz |
| Response time       | 1 ms   |
| Readiness delay     | 300 ms |

### Connection

|                       |            |
|-----------------------|------------|
| Number of connections | 1 Piece(s) |
|-----------------------|------------|

### Connection 1

|                    |                              |
|--------------------|------------------------------|
| Function           | Signal OUT<br>Voltage supply |
| Type of connection | Cable with connector         |
| Cable length       | 800 mm                       |
| Sheathing material | PUR                          |
| Cable color        | Black                        |
| Wire cross section | 0.2 mm <sup>2</sup>          |
| Thread size        | M12                          |
| Type               | Male                         |
| Material           | Plastic                      |
| No. of pins        | 4 -pin                       |
| Encoding           | A-coded                      |

### Mechanical data

|                                                |                           |
|------------------------------------------------|---------------------------|
| Dimension (W x H x L)                          | 14 mm x 32.5 mm x 20.2 mm |
| Housing material                               | Plastic                   |
| Plastic housing                                | ABS                       |
| Lens cover material                            | Plastic                   |
| Net weight                                     | 60 g                      |
| Housing color                                  | Black<br>Red              |
| Recommended tightening torque for M3 fastening | 0.9 N·m                   |

### Operation and display

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

### Environmental data

|                                |               |
|--------------------------------|---------------|
| Ambient temperature, operation | -40 ... 60 °C |
| Ambient temperature, storage   | -40 ... 70 °C |

### Certifications

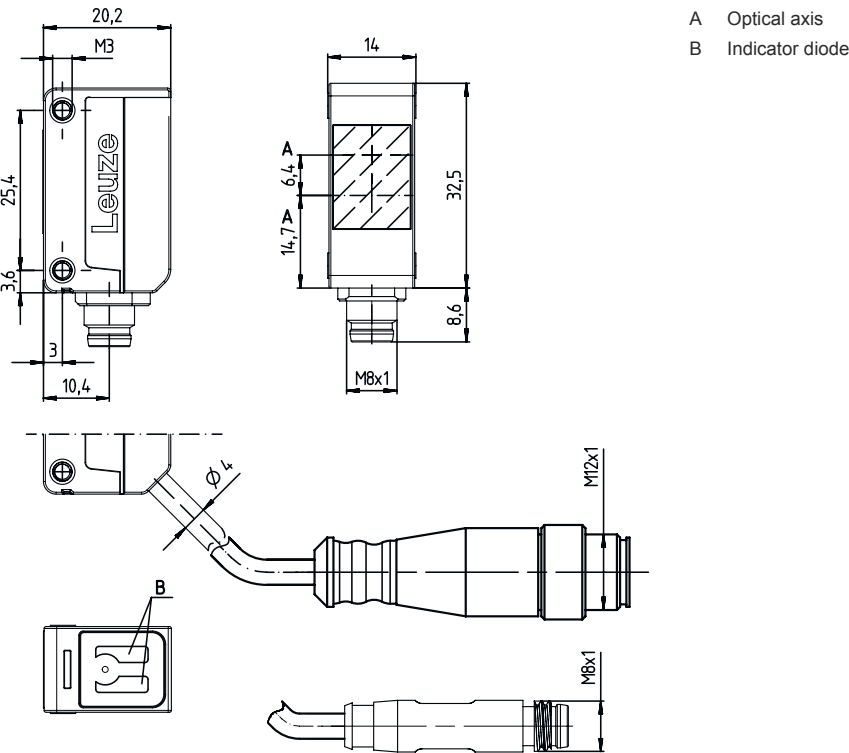
|                      |               |
|----------------------|---------------|
| Degree of protection | IP 67         |
| Protection class     | III           |
| Approvals            | c UL US       |
| Standards applied    | IEC 60947-5-2 |

### Classification

|                       |          |
|-----------------------|----------|
| Customs tariff number | 85365019 |
| ECLASS 5.1.4          | 27270902 |
| ECLASS 8.0            | 27270902 |
| ECLASS 9.0            | 27270902 |
| ECLASS 10.0           | 27270902 |
| ECLASS 11.0           | 27270902 |
| ECLASS 12.0           | 27270902 |
| ECLASS 13.0           | 27270902 |
| ECLASS 14.0           | 27270902 |
| ECLASS 15.0           | 27270902 |
| ETIM 5.0              | EC002717 |
| ETIM 6.0              | EC002717 |
| ETIM 7.0              | EC002717 |
| ETIM 8.0              | EC002717 |
| ETIM 9.0              | EC002717 |
| ETIM 10.0             | EC002717 |

Dimensioned drawings

All dimensions in millimeters



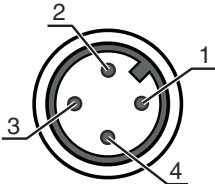
Electrical connection

Connection 1

|                    |                      |
|--------------------|----------------------|
| Function           | Signal OUT           |
|                    | Voltage supply       |
| Type of connection | Cable with connector |
| Cable length       | 800 mm               |
| Sheathing material | PUR                  |
| Cable color        | Black                |
| Wire cross section | 0.2 mm²              |
| Thread size        | M12                  |
| Type               | Male                 |
| Material           | Plastic              |
| No. of pins        | 4 -pin               |
| Encoding           | A-coded              |

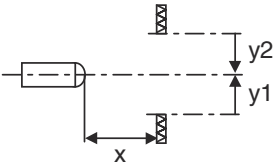
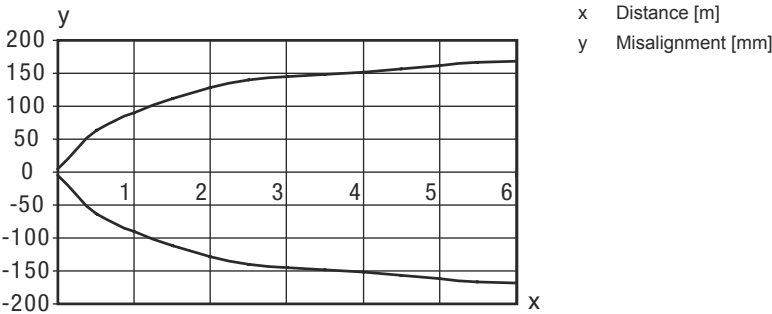
Pin Pin assignment

|   |       |
|---|-------|
| 1 | V+    |
| 2 | OUT 2 |
| 3 | GND   |
| 4 | OUT 1 |

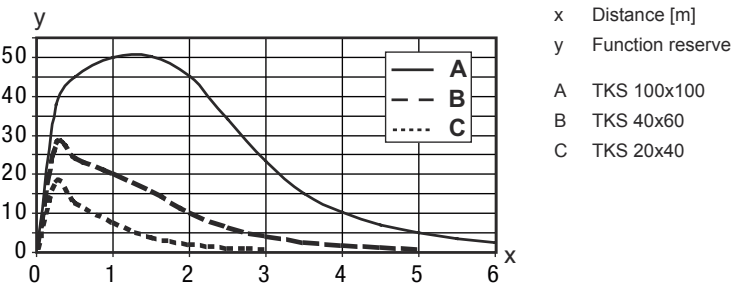


Diagrams

Typ. response behavior (TKS100x100)



Typ. function reserve



Operation and display

| LED | Display                  | Meaning                              |
|-----|--------------------------|--------------------------------------|
| 1   | Yellow, continuous light | Light path free                      |
|     | Yellow, flashing         | Light path free, no function reserve |
| 2   | Green, continuous light  | Operational readiness                |

Part number code

Part designation: AAA5d.EE/ ff-GG-hh-l

|      |                                                                                                                                                                                                                                                                                                                                                                                  |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AAA5 | <b>Operating principle / construction</b><br>HT5: diffuse reflection sensor with background suppression<br>LS5: throughbeam photoelectric sensor transmitter<br>LE5: throughbeam photoelectric sensor receiver<br>ET5: energetic diffuse reflection sensor<br>FT5: diffuse reflection sensor with fading<br>PRK5: retro-reflective photoelectric sensor with polarization filter |
| d    | <b>Light type</b><br>n/a: red light<br>I: infrared light                                                                                                                                                                                                                                                                                                                         |

## Part number code

|           |                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>EE</b> | <b>Equipment</b><br>1: adjustable range<br>M: for semi-transparent objects<br>H: For the detection of transparent films<br>X: reinforced fading<br>3: teach-in via button<br>R: combination product for reflector DTKS 30x50                                                                                                                                                                                            |
| <b>ff</b> | <b>Switching output / function / OUT1OUT2 (OUT1 = pin 4, OUT2 = pin 2)</b><br>2: NPN transistor output, light switching<br>N: NPN transistor output, dark switching<br>4: PNP transistor output, light switching<br>P: PNP transistor output, dark switching<br>X: pin not used<br>9: deactivation input (deactivation with high signal)<br>D: Deactivation input (deactivation with low signal)                        |
| <b>GG</b> | <b>Version</b><br>P1: narrow light beam                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>hh</b> | <b>Electrical connection</b><br>n/a: cable, standard length 2000 mm, 4-wire<br>M8: M8 connector, 4-pin (plug)<br>M8.3: M8 connector, 3-pin (plug)<br>200-M8: cable, length 200 mm with M8 connector, 4-pin, axial (plug)<br>200-M8.3: cable, length 200 mm with M8 connector, 3-pin, axial (plug)<br>200-M12: cable, length 200 mm with M12 connector, 4-pin, axial (plug)<br>M8.1: Snap-in, M8 connector, 4-pin (plug) |
| <b>I</b>  | <b>Parameterization</b><br>P1: different configuration                                                                                                                                                                                                                                                                                                                                                                  |

### Note



A list with all available device types can be found on the Leuze website at [www.leuze.com](http://www.leuze.com).

## Notes



### Observe 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 its intended use.

### For UL applications:



- Only for use in "class 2" circuits
- 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)

## Further information

- Sum of the output currents for both outputs, 50 mA for ambient temperatures > 40 °C

## Accessories

### Connection technology - Connection cables

|                                                                                   | Part no. | Designation        | Article          | Description                                                                                                                                                                        |
|-----------------------------------------------------------------------------------|----------|--------------------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50130652 | KD U-M12-4A-V1-050 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 5.000 mm<br>Sheathing material: PVC  |
|  | 50130690 | KD U-M12-4W-V1-050 | Connection cable | Connection 1: Connector, M12, Angled, Female, A-coded, 4 -pin<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 5.000 mm<br>Sheathing material: PVC |

### Mounting technology - Mounting brackets

|                                                                                    | Part no. | Designation   | Article             | Description                                                                                                                                                                                                                   |
|------------------------------------------------------------------------------------|----------|---------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50118542 | BT 200M.5     | Mounting bracket    | Design of mounting device: Angle, L-shape<br>Fastening, at system: Through-hole mounting<br>Mounting bracket, at device: Screw type, Suited for M3 screws<br>Type of mounting device: Adjustable<br>Material: Stainless steel |
|  | 50124651 | BT 205M-10SET | Mounting device set | Design of mounting device: Angle, L-shape<br>Fastening, at system: Through-hole mounting<br>Mounting bracket, at device: Screw type<br>Type of mounting device: Rigid<br>Material: Metal                                      |

### Mounting technology - Rod mounts

|                                                                                     | Part no. | Designation  | Article         | Description                                                                                                                                                                                                                                                  |
|-------------------------------------------------------------------------------------|----------|--------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50117829 | BTP 200M-D12 | Mounting system | Design of mounting device: Protection hood<br>Fastening, at system: For 12 mm rod<br>Mounting bracket, at device: Screw type<br>Type of mounting device: Clampable, Adjustable, Turning, 360°<br>Material: Metal                                             |
|  | 50117255 | BTU 200M-D12 | Mounting system | Design of mounting device: Mounting system<br>Fastening, at system: For 12 mm rod, Sheet-metal mounting<br>Mounting bracket, at device: Screw type, Suited for M3 screws<br>Type of mounting device: Clampable, Adjustable, Turning, 360°<br>Material: Metal |

Accessories

| Note                                                                             |                                                                                                                                  |
|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
|  | <p>A list with all available accessories can be found on the Leuze website in the Download tab of the article detailed page.</p> |