

## Technical data sheet

### Polarized retro-reflective photoelectric sensor

Part no.: 50138203

PRK3C.A3/6T-M8



For illustration purposes only

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- Electrical connection
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## Technical data

### Basic data

|                     |                      |
|---------------------|----------------------|
| Series              | 3C                   |
| Operating principle | Reflection principle |

### Special version

|                 |                 |
|-----------------|-----------------|
| Special version | Autocollimation |
|                 | Teach input     |

### Optical data

|                          |                                                                      |
|--------------------------|----------------------------------------------------------------------|
| Operating range          | 0 ... 4 m (guaranteed operating range), With reflector TK(S) 100x100 |
| Operating range limit    | 0 ... 5 m (typical operating range), With reflector TK(S) 100x100    |
| Light source             | LED, Red                                                             |
| Wavelength               | 635 nm                                                               |
| Transmitted-signal shape | Pulsed                                                               |
| LED group                | Exempt group (in acc. with EN 62471)                                 |

### Electrical data

|                    |                              |
|--------------------|------------------------------|
| Protective circuit | Polarity reversal protection |
|                    | 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 ... 15 mA                            |

#### Inputs

|                        |            |
|------------------------|------------|
| Number of teach inputs | 1 Piece(s) |
|------------------------|------------|

#### Teach inputs

|                   |                                                             |
|-------------------|-------------------------------------------------------------|
| Type              | Teach input                                                 |
| Voltage type      | DC                                                          |
| Switching voltage | high: $\geq 0.65 \times U_B$<br>low: $\leq 0.35 \times U_B$ |
| Delay             | 1 ms                                                        |
| Input resistance  | 20,000 $\Omega$                                             |

#### Teach input 1

|                        |                                                                    |
|------------------------|--------------------------------------------------------------------|
| Assignment             | Connection 1, pin 2                                                |
| Function               | Keyboard lockout<br>Light/dark switching<br>Sensitivity adjustment |
| Active switching state | High                                                               |

#### Outputs

|                                     |            |
|-------------------------------------|------------|
| Number of digital switching outputs | 1 Piece(s) |
|-------------------------------------|------------|

#### Switching outputs

|                         |                                            |
|-------------------------|--------------------------------------------|
| Type                    | Digital switching output                   |
| Voltage type            | DC                                         |
| Switching current, max. | 100 mA                                     |
| Switching voltage       | high: $\geq (U_B - 2V)$<br>low: $\leq 2 V$ |

#### Switching output 1

|                     |                                            |
|---------------------|--------------------------------------------|
| Assignment          | Connection 1, pin 4                        |
| Switching element   | Transistor, Push-pull                      |
| Switching principle | Light switching (PNP)/dark switching (NPN) |

### Time behavior

|                     |             |
|---------------------|-------------|
| Switching frequency | 1,500 Hz    |
| Response time       | 0.33 ms     |
| Readiness delay     | 300 ms      |
| Response jitter     | 110 $\mu$ s |

### Connection

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

#### Connection 1

|                    |                                           |
|--------------------|-------------------------------------------|
| Function           | Signal IN<br>Signal OUT<br>Voltage supply |
| Type of connection | Connector                                 |
| Thread size        | M8                                        |
| Type               | Male                                      |
| Material           | Metal                                     |
| No. of pins        | 4 -pin                                    |

### Mechanical data

|                            |                                                       |
|----------------------------|-------------------------------------------------------|
| Dimension (W x H x L)      | 11.4 mm x 34.2 mm x 18.3 mm                           |
| Housing material           | Plastic                                               |
| Plastic housing            | PC-ABS                                                |
| Lens cover material        | Plastic / PMMA                                        |
| Net weight                 | 10 g                                                  |
| Housing color              | Red                                                   |
| Type of fastening          | Through-hole mounting<br>Via optional mounting device |
| Compatibility of materials | ECOLAB                                                |

### Operation and display

|                                     |                        |
|-------------------------------------|------------------------|
| Type of display                     | LED                    |
| Number of LEDs                      | 2 Piece(s)             |
| Operational controls                | Teach button           |
| Function of the operational control | Sensitivity adjustment |

### Environmental data

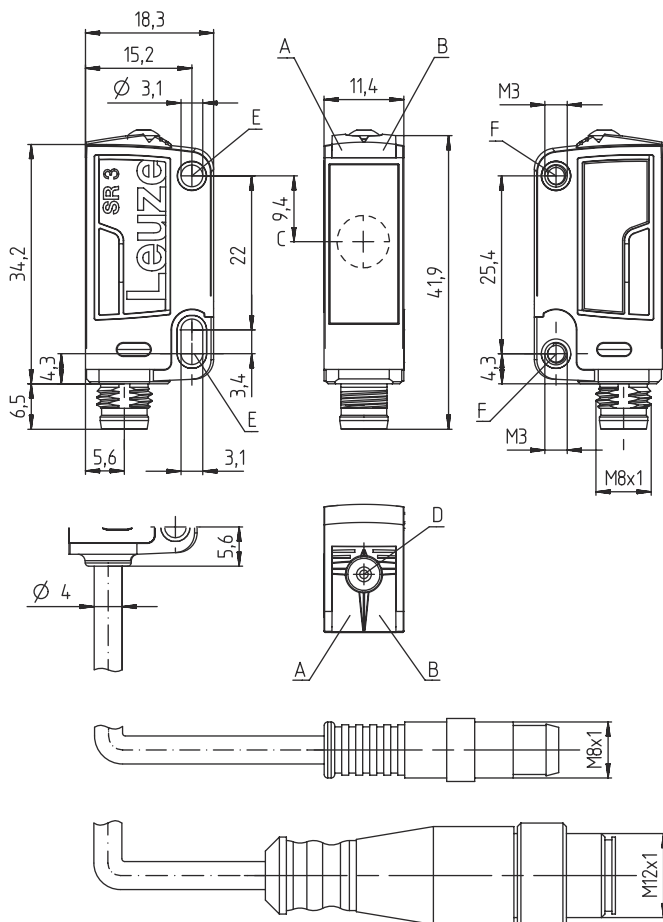
|                                |               |
|--------------------------------|---------------|
| Ambient temperature, operation | -40 ... 60 °C |
| Ambient temperature, storage   | -40 ... 70 °C |

### Certifications

|                      |                 |
|----------------------|-----------------|
| Degree of protection | IP 67<br>IP 69K |
| Protection class     | III             |
| Approvals            | c UL US         |
| Standards applied    | IEC 60947-5-2   |

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

All dimensions in millimeters

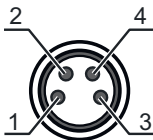


Electrical connection

Connection 1

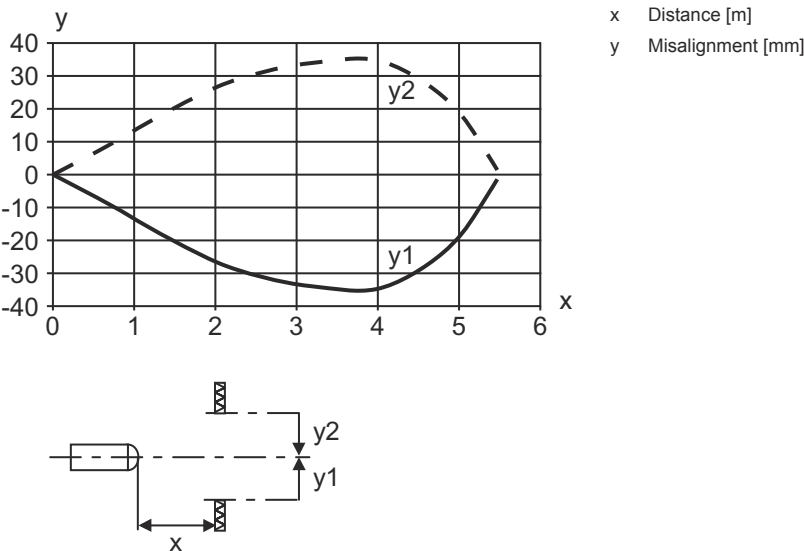
|                    |                |
|--------------------|----------------|
| Function           | Signal IN      |
|                    | Signal OUT     |
|                    | Voltage supply |
| Type of connection | Connector      |
| Thread size        | M8             |
| Type               | Male           |
| Material           | Metal          |
| No. of pins        | 4 -pin         |

| Pin | Pin assignment |
|-----|----------------|
| 1   | VIN            |
| 2   | Teach-in       |
| 3   | GND            |
| 4   | OUT 1          |

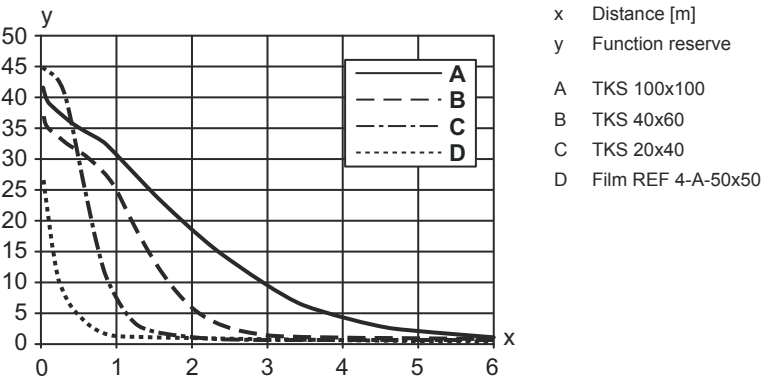


Diagrams

Typ. response behavior



Typ. function reserve



## Operation and display

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

## Part number code

Part designation: **AAA 3C d EE-f.GG H/i J-K**

|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>AAA3C</b> | <b>Operating principle / construction</b><br>HT3C: Diffuse reflection sensor with background suppression<br>LS3C: Throughbeam photoelectric sensor transmitter<br>LE3C: Throughbeam photoelectric sensor receiver<br>PRK3C: Retro-reflective photoelectric sensor with polarization filter<br>ODT3C: Distance diffuse sensor with background suppression                                                                                                                                                                                                                                                                   |
| <b>d</b>     | <b>Light type</b><br>n/a: red light<br>I: infrared light                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>EE</b>    | <b>Light source</b><br>n/a: LED<br>L1: laser class 1<br>L2: laser class 2<br>PP: Power PinPoint® LED                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>f</b>     | <b>Preset range (optional)</b><br>n/a: operating range acc. to data sheet<br>xxxF: Preset range [mm]<br>2M: operating range of 2 meters                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>GG</b>    | <b>Equipment</b><br>n/a: standard<br>A: Autocollimation principle (single lens) for positioning tasks<br>B: Housing model with two M3 threaded sleeves, brass<br>F: Permanently set range<br>L: Long light spot<br>S: small light spot<br>T: autocollimation principle (single lens) for highly transparent bottles without tracking<br>TT: autocollimation principle (single lens) for highly transparent bottles with tracking<br>V: V-optics<br>XL: Extra long light spot<br>X: extended model<br>HF: Suppression of HF illumination (LED)                                                                              |
| <b>H</b>     | <b>Operating range adjustment</b><br>n/a with HT: range adjustable via 8-turn potentiometer<br>n/a with retro-reflective photoelectric sensors (PRK): operating range not adjustable<br>1: 270° potentiometer<br>3: teach-in via button<br>6: auto-teach                                                                                                                                                                                                                                                                                                                                                                   |
| <b>i</b>     | <b>Switching output/function OUT 1/IN: Pin 4 or black conductor</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>6: push-pull switching output, PNP light switching, NPN dark switching<br>G: Push-pull switching output, PNP dark switching, NPN light switching<br>L: IO-Link interface (SIO mode: PNP light switching, NPN dark switching)<br>8: activation input (activation with high signal)<br>X: pin not used<br>1: IO-Link / light switching (NPN) / dark switching (PNP) |
| <b>J</b>     | <b>Switching output / function OUT 2/IN: pin 2 or white conductor</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>6: push-pull switching output, PNP light switching, NPN dark switching<br>G: Push-pull switching output, PNP dark switching, NPN light switching<br>W: warning output<br>X: pin not used<br>8: activation input (activation with high signal)<br>9: deactivation input (deactivation with high signal)<br>T: teach-in via cable                                 |

## Part number code

K

## Electrical connection

n/a: cable, standard length 2000 mm, 4-wire  
 5000: cable, standard length 5000 mm, 4-wire  
 M8: M8 connector, 4-pin (plug)  
 M8.3: M8 connector, 3-pin (plug)  
 200-M8: cable, length 200 mm with M8 connector, 4-pin, axial (plug)  
 200-M8.3: cable, length 200 mm with M8 connector, 3-pin, axial (plug)  
 200-M12: cable, length 200 mm with M12 connector, 4-pin, axial (plug)

## Note



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

## Accessories

## Connection technology - Connection cables

|  | Part no. | Designation       | Article          | Description                                                                                                                                                              |
|--|----------|-------------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50130850 | KD U-M8-4A-V1-050 | Connection cable | Connection 1: Connector, M8, Axial, Female, 4 -pin<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 5.000 mm<br>Sheathing material: PVC  |
|  | 50130871 | KD U-M8-4W-V1-050 | Connection cable | Connection 1: Connector, M8, Angled, Female, 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                                                                                                                                                                              |
|--|----------|-------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50060511 | BT 3        | Mounting device | 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                                                                                                                                                                                                                                                  |
|--|----------|--------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 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> |