

**RKR 3B Gloss**

**Retro-reflective photoelectric sensor**

en 09-2014/05 50106778-01



**0.02 ... 5m**  
**0.02 ... 7m**



- Retro-reflective photoelectric sensor with visible red light
- High performance reserve
- Small and compact construction with robust plastic housing, protection class IP 67 for industrial application
- Fast alignment through *brightVision*®
- A²LS - Active Ambient Light Suppression
- PNP/NPN switching outputs
- High switching frequency for detection of fast events
- Special version for glossy objects, e.g. metallic surfaces

We reserve the right to make changes • DS\_RKR3BGlanz\_en\_50106778\_01.fm

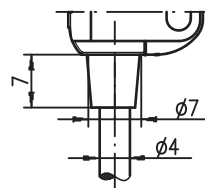
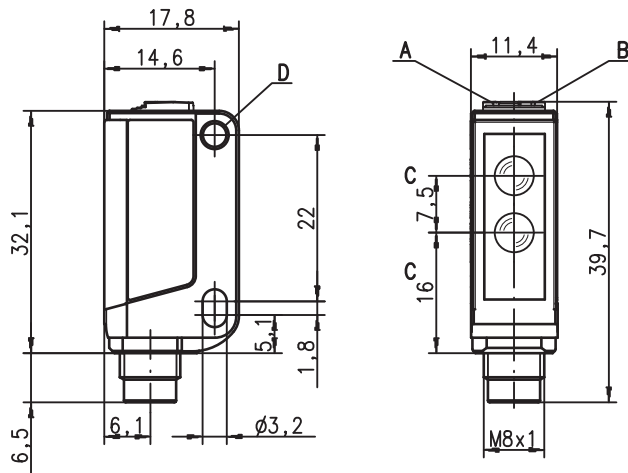


**Accessories:**

(available separately)

- Mounting systems (BT 3...)
- Reflectors
- Reflective tapes

**Dimensioned drawing**



- A** Green indicator diode
- B** Yellow indicator diode
- C** Optical axis
- D** Attachment sleeve

**Electrical connection**

Cable, 4-wire

|             |       |
|-------------|-------|
| 10-30V DC + | br/BN |
| OUT 2       | ws/WH |
| GND         | bl/BU |
| OUT 1       | sw/BK |

**Specifications**

|  |  |   |
|--|--|---|
| <b>Optical data</b>                                | <b>RKR 3B/...D.01...</b>                                   | <b>RKR 3B/66.11</b>   |
| Typ. op. range limit (TK(S) 100x100) <sup>1)</sup> | 0.02 ... 5m  | 0.02 ... 7m   |
| Operating range <sup>2)</sup>                      | see tables   |   |
| Light source <sup>3)</sup>                         | LED (modulated light)                                      |   |
| Wavelength   | 620nm (visible red light, not polarized)                   |   |
| <b>Timing</b>                                      |  |   |
| Switching frequency                                | 1,500Hz  | 1,000Hz   |
| Response time                                      | 0.33ms   | 0.5ms   |
| Delay before start-up                              | ≤ 300ms  |   |
| <b>Electrical data</b>                             |  |   |
| Operating voltage U <sub>B</sub> <sup>4)</sup>     | 10 ... 30VDC (incl. residual ripple)                       |   |
| Residual ripple                                    | ≤ 15% of U <sub>B</sub>                                    |   |
| Open-circuit current                               | ≤ 14mA   |   |
| Switching output                                   | .../44D  | 2 PNP switching outputs<br>OUT 1 (black): dark switching, n.o.<br>OUT 2(white): light switching, n.c.   |
|  | .../22D  | 2 NPN switching outputs<br>OUT 1 (black): dark switching, n.o.<br>OUT 2(white): light switching, n.c.   |
|  | .../66 <sup>5)</sup>                                       | 2 push-pull switching outputs<br>OUT 2 (ws/WH): PNP dark switching, NPN light switching<br>OUT 1 (sw/BK): PNP light switching, NPN dark switching<br>light/dark switching <sup>6)</sup> |
| Function characteristics                           |  | ≥ (U <sub>B</sub> -2V)/≤ 2V   |
| Signal voltage high/low                            |  | max. 100mA  |
| Output current                                     |  | fixed setting   |
| Operating range                                    |  |   |
| <b>Indicators</b>                                  |  |   |
| Green LED  | ready  |   |
| Yellow LED   | light path free  |   |
| <b>Mechanical data</b>                             |  |   |
| Housing  | plastic (PC-ABS); 1 attachment sleeve, nickel-plated steel |   |
| Optics cover                                       | plastic (PMMA)   |   |
| Weight   | with 2m cable: 50g   |   |
| Connection type                                    | 2m cable (cross section 4x0.20mm <sup>2</sup> )            |   |
| <b>Environmental data</b>                          |  |   |
| Ambient temp. (operation/storage)                  | -30°C ... +55°C/-30°C ... +70°C                            |   |
| Protective circuit <sup>7)</sup>                   | 2, 3   |   |
| VDE safety class                                   | III  |   |
| Protection class                                   | IP 67  |   |
| Light source                                       | free group (in accordance with EN 62471)                   |   |
| Standards applied                                  | IEC 60947-5-2  |   |
| Certifications                                     | UL 508, C22.2 No.14-13 <sup>4) 8)</sup>                    |   |

- 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) For UL applications: for use in class 2 circuits according to NEC only
- 5) The push-pull switching outputs must not be connected in parallel
- 6) Dark switching = n.o. / light switching = n.c.
- 7) 2=polarity reversal protection, 3=short-circuit protection for all transistor outputs
- 8) 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)

**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.

**Tables**

**RKR 3B/...D.01...**

| Reflectors |               | Operating range |       |
|------------|---------------|-----------------|-------|
| 1          | TK(S) 100x100 | 0.02 ... 4.0m   |       |
| 2          | Tape 4 50x50  | 0.02 ... 1.2m   |       |
| 1          | 0,02          |                 | 4   5 |
| 2          | 0,02          | 1,2             | 1,6   |

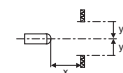
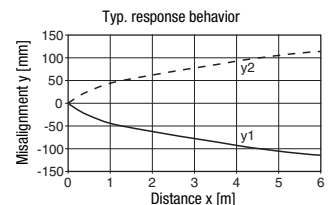
**RKR 3B/66.11**

| Reflectors |               | Operating range |         |
|------------|---------------|-----------------|---------|
| 1          | TK(S) 100x100 | 0.02 ... 6.5m   |         |
| 2          | Tape 4 50x50  | 0.02 ... 2.5m   |         |
| 1          | 0,02          |                 | 6,5   7 |
| 2          | 0,02          | 2,5             | 3       |

Operating range [m]  
 Typ. operating range limit [m]  
 TK ... = adhesive  
 TKS ... = screw type

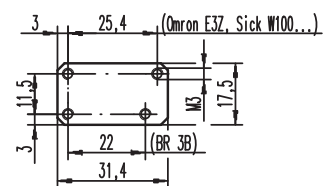
**Diagrams**

**Only RKR 3B/...D.01...**



**Remarks**

Adapter plate:  
 BT 3.2 (part no. 50103844)  
 for alternate mounting on  
 25.4mm hole spacing  
 (Omron E3Z, Sick W100...):









Mounting system:



- ① = BT 3 (part no. 50060511)
- ②+③ = BT 3.1 <sup>1)</sup> (part no. 50105585)
- ①+②+③ = BT 3B (part no. 50105546)

1) Packaging unit: PU = 10 pcs.

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**Order guide**

| Selection table     |                                  |   | Order code →                       |                                    |   |                                   |                                   |   |   |
|---------------------|----------------------------------|---|------------------------------------|------------------------------------|---|-----------------------------------|-----------------------------------|---|---|
| Equipment ↓         |                                  |   | RKR 3B/44D.01<br>Part No. 50106511 | RKR 3B/22D.01<br>Part No. 50106512 | RKR 3B/44D.01, 160-AMP<br>Part No. 50109491 | RKR 3B/66.11<br>Part No. 50109023 | RKR 3B/22.11<br>Art.-Nr. 50118015 |   |   |
| Output 1<br>(OUT 1) | PNP transistor output            |  | light switching, n.c.              | <input type="radio"/>              |   |                                   |                                   |   |   |
|                     |                                  |   | dark switching, n.o.               | <input checked="" type="radio"/>   | ●   |                                   | ●                                 |   |   |
|                     | NPN transistor output            |  | light switching, n.c.              | <input type="radio"/>              |   |                                   |                                   |   | ● |
|                     |                                  |   | dark switching, n.o.               | <input checked="" type="radio"/>   |   | ●                                 |                                   |   |   |
|                     | Push-pull transistor output      |  | PNP light switching                | <input type="radio"/>              |   |                                   |                                   | ● |   |
|                     |                                  |   | NPN dark switching                 | <input checked="" type="radio"/>   |   |                                   |                                   | ● |   |
| Output 2<br>(OUT 2) | PNP transistor output            |  | light switching, n.c.              | <input type="radio"/>              | ●   |                                   | ●                                 |   |   |
|                     |                                  |   | dark switching, n.o.               | <input checked="" type="radio"/>   |   |                                   |                                   |   |   |
|                     | NPN transistor output            |  | light switching, n.c.              | <input type="radio"/>              |   | ●                                 |                                   |   |   |
|                     |                                  |   | dark switching, n.o.               | <input checked="" type="radio"/>   |   |                                   |                                   |   | ● |
|                     | Push-pull transistor output      |  | PNP, dark switching                | <input checked="" type="radio"/>   |   |                                   |                                   | ● |   |
|                     |                                  |   | NPN, light-switching               | <input type="radio"/>              |   |                                   |                                   | ● |   |
| Connection          | cable 2,000 mm                   |   | 4-wire                             | ●                                  | ●   |                                   | ●                                 | ● |   |
|                     | cable 160 mm with AMP connector  |   | 4-wire                             |                                    |   | ●                                 |                                   |   |   |
| Configuration       | permanently set to maximum range |   |                                    | ●                                  | ●   | ●                                 | ●                                 | ● |   |

