

RK 3B Infrared

Retro-reflective photoelectric sensor

en 06-2012/08 50107219

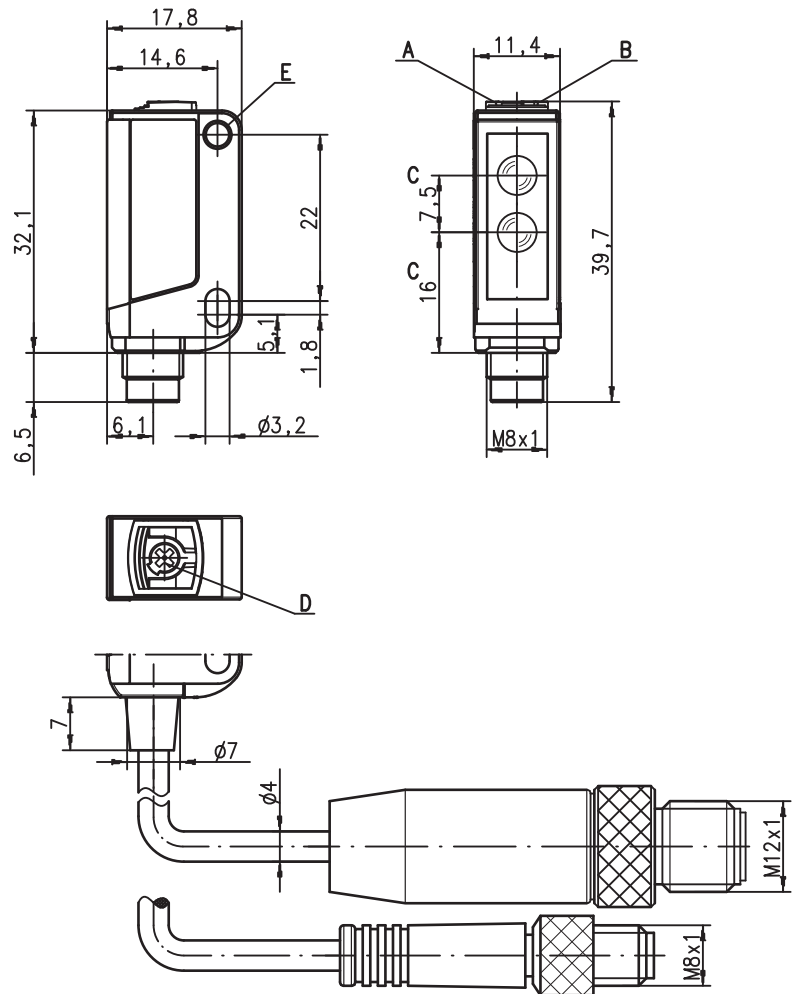


**0.02
... 5.5m**



- Retro-reflective photoelectric sensors with infrared light (IR)
- High performance reserve
- Small and compact construction with robust plastic housing, protection class IP 67 for industrial application
- A²LS - Active Ambient Light Suppression
- Push-pull switching output
- High switching frequency for detection of fast events
- Special version for glossy objects, e.g. metallic surfaces

Dimensioned drawing



- A** Green indicator diode
- B** Yellow indicator diode
- C** Optical axis
- D** Potentiometer for operating range adjustment
- E** Mounting sleeve

Electrical connection

Cable, 4-wire

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



Accessories:

(available separately)

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

We reserve the right to make changes • DS_RK3B_en_50107219.fm

Specifications

Optical data

| | |
|----------------------------------------------------|---------------------------------------|
| Typ. op. range limit (TK(S) 100x100) ¹⁾ | 0.02 ... 5.5m |
| Operating range ²⁾ | see tables |
| Light source ³⁾ | LED (modulated light) |
| Wavelength | 850nm (infrared light, not polarized) |

Timing

| | |
|-----------------------|---------|
| Switching frequency | 1,000Hz |
| Response time | 0.5ms |
| Delay before start-up | ≤ 300ms |

Electrical data

| | |
|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating voltage U_B ⁴⁾ | 10 ... 30VDC (incl. residual ripple) |
| Residual ripple | ≤ 15% of U_B |
| Open-circuit current | ≤ 14mA |
| Switching output | .../66.1 ⁵⁾ 2 push-pull switching outputs OUT 1: PNP light switching, NPN dark switching OUT 2: PNP dark switching, NPN light switching light/dark switching |
| Function characteristics | ≥ ($U_B - 2V$) / ≤ 2V |
| Signal voltage high/low | max. 100mA |
| Output current | adjustable with potentiometer, rotational angle approx. 250° |
| Operating range | |

Indicators

| | |
|------------|-----------------|
| Green LED | ready |
| Yellow LED | light path free |

Mechanical data

| | |
|----------------------------|------------------------------------------------------------|
| Housing ⁶⁾ | plastic (PC-ABS); 1 attachment sleeve, nickel-plated steel |
| Optics cover ⁷⁾ | plastic (PMMA) |
| Weight | with 2m cable: 50g |
| Connection type | 2m cable (cross section 4x0.20mm ²) |

Environmental data

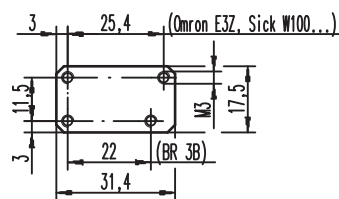
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|-----------------------------------|--------------------------------------|
| Ambient temp. (operation/storage) | -30°C ... +55°C / -30°C ... +70°C |
| Protective circuit ⁸⁾ | 2, 3 |
| VDE safety class | III |
| Protection class | IP 67 |
| Light source | exempt group (in acc. with EN 62471) |
| Standards applied | IEC 60947-5-2 |
| Certifications | UL 508 ⁴⁾ |

- 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) Patent Pending Publ. No. US 7,476,848 B2
- 7) Patent Pending Publ. No. US 2009/0101791 A1
- 8) 2=polarity reversal protection, 3=short circuit protection for all transistor outputs

Remarks

Adapter plate:

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



Order guide

| Selection table | | Order code → | | RK 3B/66.1 Part No. 50106852 | | | |
|------------------|----------------------------------------------|--------------|-----------------|---------------------------------|---|--|--|
| Equipment ↓ | | | | | | | |
| Output 1 (OUT 1) | push-pull switching output | ☐ | light switching | ○ | ● | | |
| | | ☐ | dark switching | ● | | | |
| Output 2 (OUT 2) | push-pull switching output | ☐ | light switching | ○ | | | |
| | | ☐ | dark switching | ● | ● | | |
| Connection | cable 2,000mm | | 4-wire | | ● | | |
| Configuration | potentiometer, rotational angle approx. 250° | | | | ● | | |

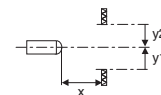
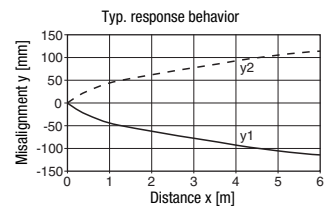
Tables

| Reflectors | Operating range |
|-----------------|-----------------|
| 1 TK(S) 100x100 | 0.02 ... 4.5m |
| 4 Tape 4 50x50 | 0.05 ... 1.2m |
| 1 0,02 | 4,5 5,5 |
| 4 0,05 1,2 1,4 | |

☐ Operating range [m]
 ☐ Typ. operating range limit [m]

TK ... = adhesive
 TKS ... = screw type

Diagrams



Remarks

- **Approved purpose:**
 This product may only be used by qualified personnel and must only be used for the approved purpose. This sensor is not a safety sensor and is not to be used for the protection of persons.

Mounting system:



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

1) Packaging unit: PU = 10 pcs.