

**RK 3B Infrared**

**Retro-reflective photoelectric sensor**

en 05-2011/04 50107219

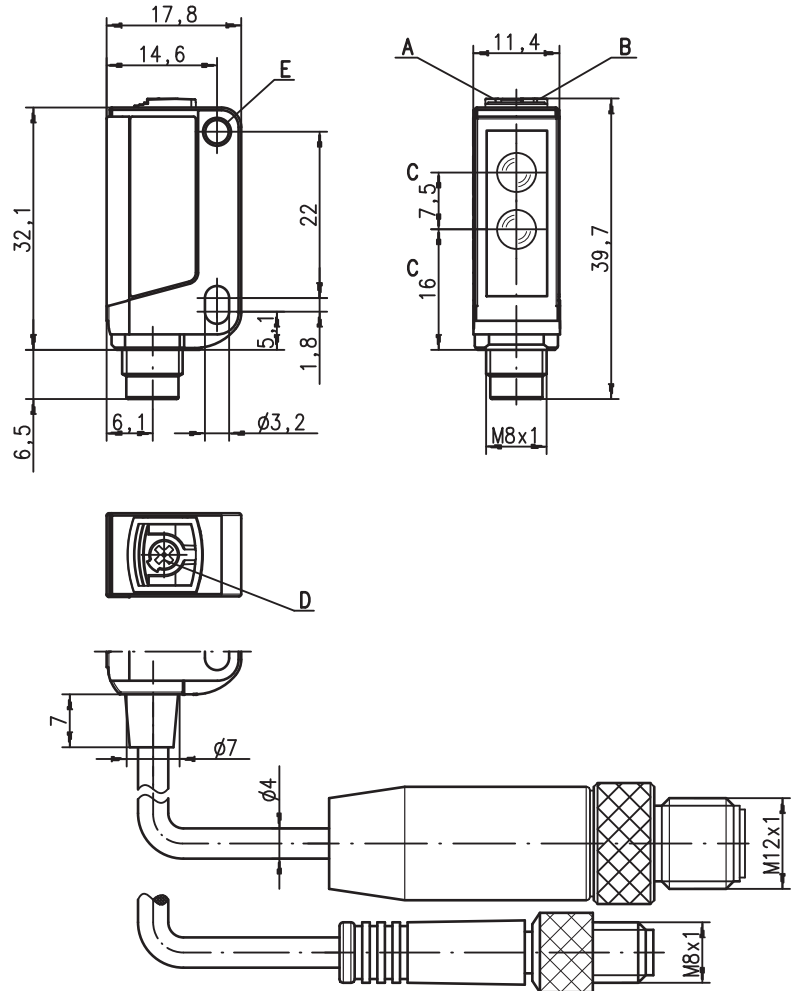


**0.02... 5.5m**



- 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** Attachment 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.fm

## Specifications

### Optical data

Typ. op. range limit (TK(S) 100x100) <sup>1)</sup>	0.02 ... 5.5m
Operating range <sup>2)</sup>	see tables
Light source <sup>3)</sup>	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 $U_B$ <sup>4)</sup>	10 ... 30VDC (incl. residual ripple)
Residual ripple	≤ 15% of $U_B$
Open-circuit current	≤ 14mA
Switching output	.../66.1 <sup>5)</sup> 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	light/dark switching
Signal voltage high/low	$\geq (U_B - 2V) / \leq 2V$
Output current	max. 100mA
Operating range	adjustable with potentiometer, rotational angle approx. 250°

### Indicators

Green LED	ready
Yellow LED	light path free

### Mechanical data

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

### Environmental data

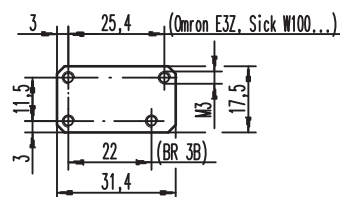
Ambient temp. (operation/storage)	-30°C ... +55°C / -30°C ... +70°C
Protective circuit <sup>8)</sup>	2, 3
VDE safety class	III
Protection class	IP 67
Light source	free group (in accordance with EN 62471)
Standards applied	IEC 60947-5-2
Certifications	UL 508 <sup>4)</sup>

- 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) 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 2,000 mm		4-wire		●		
Configuration	potentiometer, rotational angle approx. 250°				●		

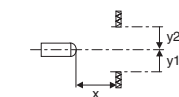
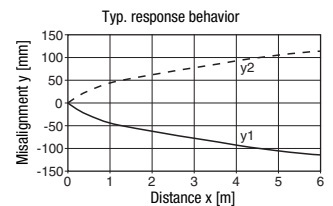
## Tables

Reflectors		Operating range	
1	TK(S) 100x100	0.02 ... 5.5m	
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 <sup>1)</sup> (part no. 50105585)
- ①+②+③ = BT 3B (part no. 50105546)

1) Packaging unit: PU = 10 pcs.