

RTFR 3B Economy

Diffuse reflection light scanner with fading

en 03-2011/04 50108964



0 ... 450mm



- Diffuse reflection light scanner with visible red light
- Potentiometer for scanning range adjustment
- Small and compact construction with robust plastic housing, protection class IP 67 for industrial application
- Fast alignment through *brightVision*®
- A²LS- Active Ambient Light Suppression
- push-pull switching output
- High switching frequency for detection of fast events
- Low current consumption
- Fading: No object detection in the background

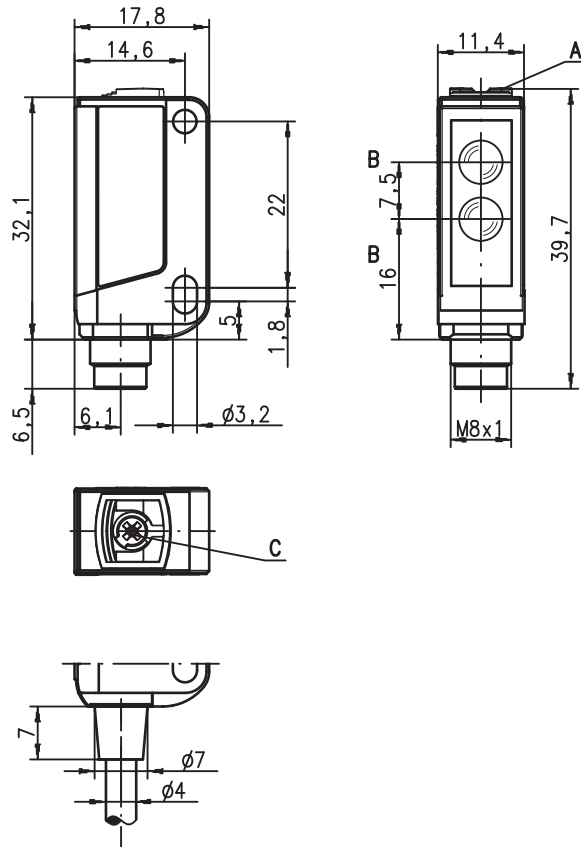


Accessories:

(available separately)

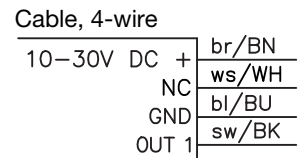
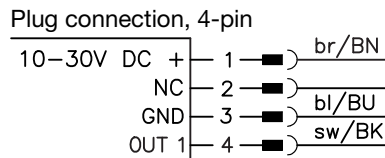
- Mounting systems (BT 3...)
- Cable with M8 connector (K-D ...)

Dimensioned drawing



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

Electrical connection



We reserve the right to make changes • DS_RTFR3B_econ_en.fm

Specifications

Optical data

Typ. operating range limit ¹⁾ 0 ... 450 mm
 Operating range ²⁾ 0 ... 420 mm
 Light source ³⁾ LED (modulated light)
 Wavelength 620nm (visible red light, 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 ≤ 10mA
 Switching output ⁵⁾ .../6.7 1 push-pull switching output
 pin 4: PNP light switching, NPN dark switching; pin 2: not connected ⁶⁾
 .../6D.7 1 push-pull switching output
 pin 4: PNP dark switching, NPN light switching; pin 2: not connected ⁶⁾
 Function characteristics light/dark switching
 Signal voltage high/low ≥ ($U_B - 2V$) ≤ 2V
 Output current max. 100mA
 Scanning range adjustable

Indicators

Yellow LED light path free

Mechanical data

Housing ⁷⁾ plastic (PC-ABS)
 Optics cover ⁸⁾ plastic (PMMA)
 Weight (plug/cable) 10g/50g
 Connection type 2m cable (cross section 4x0.20mm²), M8 plastic connector

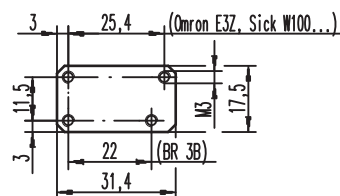
Environmental data

Ambient temp. (operation/storage) -30°C ... +55°C / -30°C ... +70°C
 Protective circuit ⁹⁾ 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 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) Pin 2: unassigned, hence especially suitable for the connection to AS-interface I/O coupling modules
- 7) Patent Pending Publ. No. US 7,476,848 B2
- 8) Patent Pending Publ. No. US 2009/0101791 A1
- 9) 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 25.4mm hole spacing (Omron E3Z, Sick W100...)



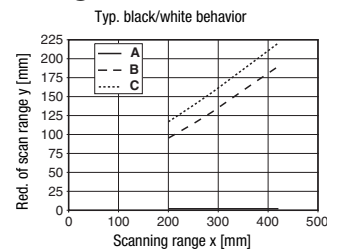
Tables

| | | | |
|---|---|-----|-----|
| 1 | 0 | 420 | 450 |
| 2 | 3 | 235 | 255 |
| 3 | 5 | 210 | 220 |

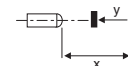
| | |
|---|-----------|
| 1 | white 90% |
| 2 | grey 18% |
| 3 | black 6% |

Scanning range [mm]
 Typ. scanning range limit [mm]

Diagrams



- A white 90%
- B grey 18%
- C black 6%



Remarks


- With the set scanning range, a tolerance of the scanning range limits is possible depending on the reflection properties of the material surface.
- 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.

Order guide

| Selection table | | | | Order code → | RTFR 3B/6.7 Part No. 50108501 | RTFR 3B/6.7-S8 Part No. 50108497 | RTFR 3B/2.7 Part No. 50108502 | RTFR 3B/6D.7-S8 Part No. 50108500 | | |
|---------------------|--|---|-----------------|--------------|----------------------------------|-------------------------------------|----------------------------------|--------------------------------------|---|--|
| Equipment ↓ | | | | | | | | | | |
| Output 1 (OUT 1) | push-pull switching output |  | light switching | ○ | ● | ● | | | | |
| | | | dark switching | ● | | ● | ● | | | |
| Connection | cable 2,000 mm | | 4-wire | | ● | | ● | | | |
| | M8 connector, plastic | | 4-pin | | | ● | | ● | | |
| | pin 2: not assigned, suitable for connecting to AS-i coupling module | | | | | ● | ● | ● | ● | |

● 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.

