

**RTFR 3B Economy**

**Diffuse reflection light scanner with fading**

Part No. 501 08964



**0 ... 450mm**

1 kHz

10 - 30 V DC

A<sup>2</sup>LS

ASIC

- 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/ IP 69K for industrial application
- Fast alignment through *brightVision*<sup>®</sup>
- A<sup>2</sup>LS - 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

CE ISO 9001 cUL US LISTED ECOLAB

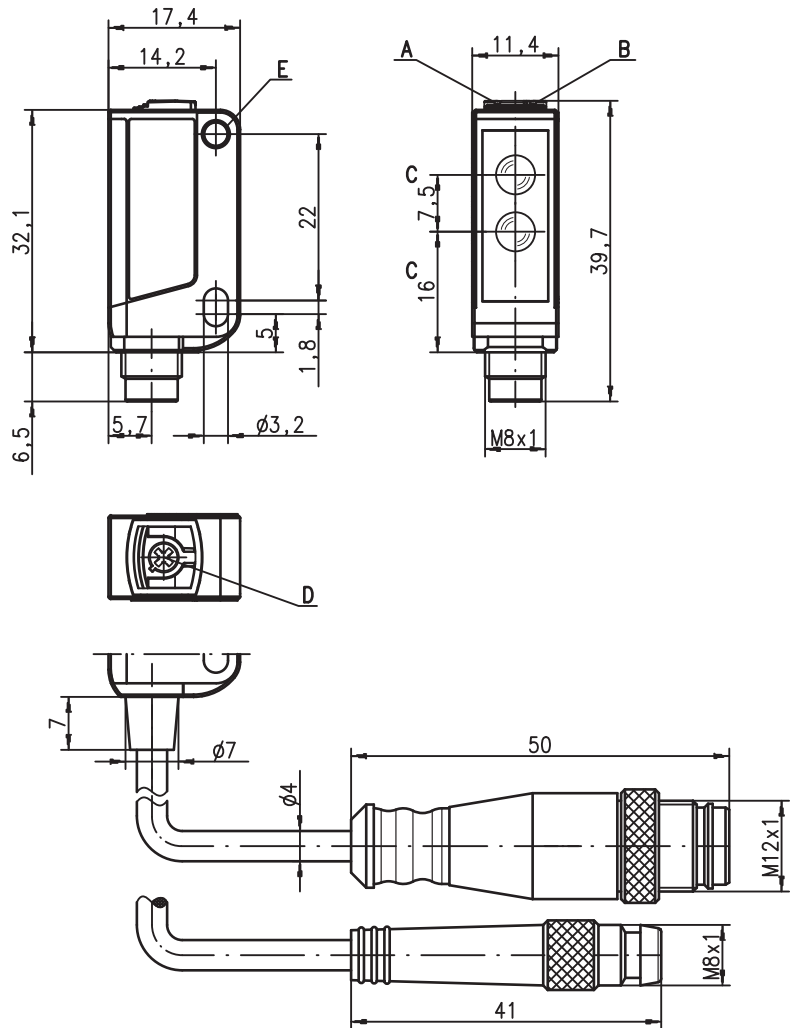
IEC 60947... IEC 60947... IP 69K IP 67

**Accessories:**

(available separately)

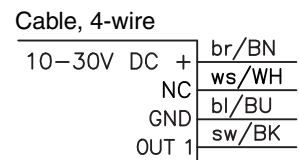
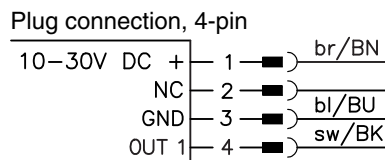
- Mounting systems (BT 3...)
- Cable with M8 connector (K-D ...)

**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 • 3B\_c03gb.fm

## Specifications

### Optical data

Typ. operating range limit <sup>1)</sup>	0 ... 450mm
Operating range <sup>2)</sup>	0 ... 420mm
Light source <sup>3)</sup>	LED (modulated light)
Wavelength	620nm (visible red light, polarised)

### 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	≤ 10mA
Switching output <sup>5)</sup>	.../6.7 1 push-pull switching output pin 4: PNP light switching, NPN dark switching; pin 2: not connected <sup>6)</sup>
	.../6D.7 1 push-pull switching output pin 4: PNP dark switching, NPN light switching; pin 2: not connected <sup>6)</sup>
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
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### Mechanical data

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

### Environmental data

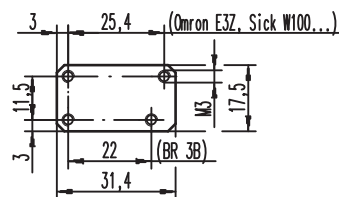
Ambient temp. (operation/storage)	-30°C ... +55°C / -30°C ... +70°C
Protective circuit <sup>7)</sup>	2, 3
VDE safety class <sup>8)</sup>	II
Protection class	IP 67, IP 69K
LED class	1 (acc. to EN 60825-1)
Standards applied	IEC 60947-5-2
Certifications	UL 508 <sup>4)</sup>

- 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) Pin 2: unassigned, hence especially suitable for the connection to AS-interface I/O coupling modules
- 7) 2=polarity reversal protection, 3=short-circuit protection for all transistor outputs
- 8) Rating voltage 50V

## Remarks

Adapter plate:

BT 3.2 (Part No. 501 03844) for alternate mounting on 25.4mm hole spacing (Omron E3Z, Sick W100...)



## Order guide

Selection table		Order code →				
Equipment ↓			RTFR 3B/6.7 Part No. 501 08501	RTFR 3B/6.7-S8 Part No. 501 08497	RTFR 3B/2.7 (NPN) on request	RTFR 3B/6D.7-S8 Part No. 501 08500
Output 1 (OUT 1)	push-pull switching output	light switching ○	●	●	●	●
		dark switching ●		●	●	
Connection	cable 2,000mm	4-wire	●		●	
	M8 connector, plastic	4-pin		●		●
	pin 2: not assigned, suitable for connecting to AS-i coupling module		●	●	●	●

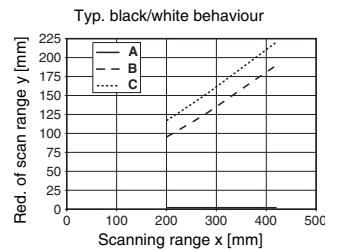
## Tables

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

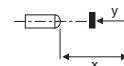
1	white 90%
2	grey 18%
3	black 6%

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

## Diagrams



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



## Remarks

- **Approved purpose:**  
The diffuse reflection light scanners are optical electronic sensors for optical, contactless detection of objects.
- 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. 500 60511)
- ②+③ = BT 3.1 <sup>1)</sup> (Part No. 501 05585)
- ①+②+③ = BT 3B (Part No. 501 05546)

1) Packaging unit: PU = 10 pcs.