

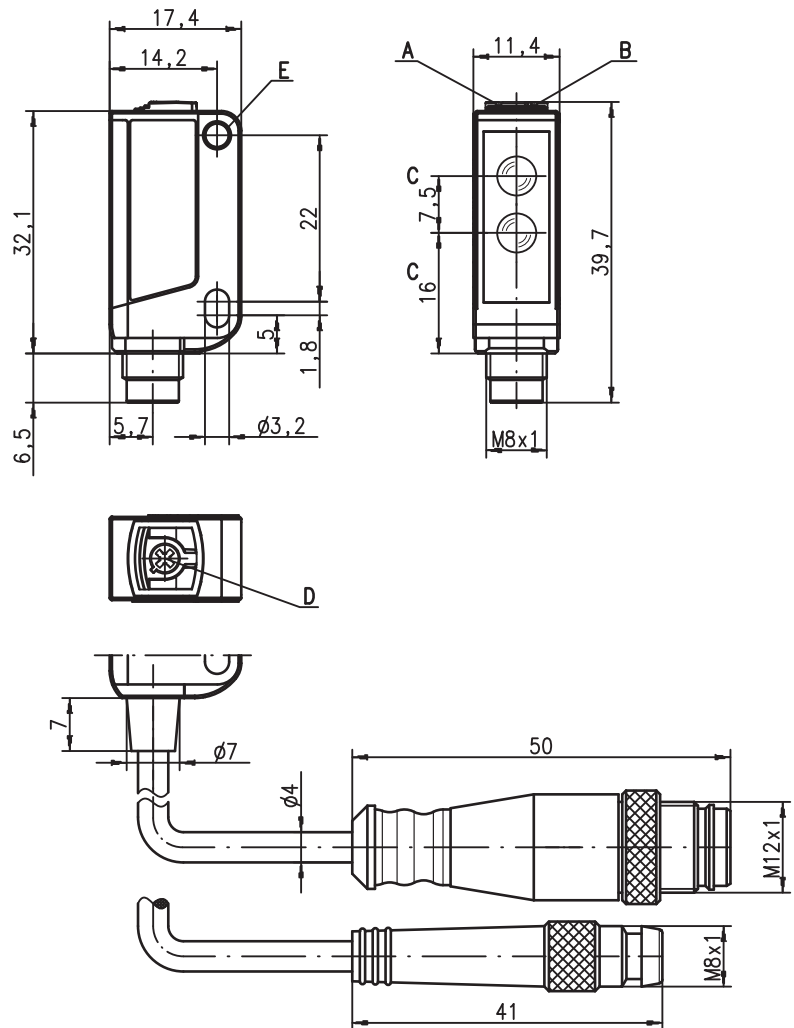
RTFR 3B

Diffuse reflection light scanner with fading

Part No. 501 08963



Dimensioned drawing



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



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/ IP 69K 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

Electrical connection



Accessories:

(available separately)

- Mounting systems (BT 3...)
- Cable with M8 or M12 connector (K-D ...)

Plug connection, 4-pin

10-30V DC +	1	br/BN
OUT 2	2	ws/WH
GND	3	bl/BU
OUT 1	4	sw/BK

Cable, 4-wire

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

Plug connection, 3-pin

10-30V DC +	1	br/BN
GND	3	bl/BU
OUT 1	4	sw/BK

We reserve the right to make changes • 3B_c04gb.fm

Specifications

Optical data

Typ. scanning range limit ¹⁾	0 ... 450mm
Scanning range ²⁾	0 ... 420mm ³⁾ , see table
Background behaviour	from approx. 520mm no object detection ³⁾
Light source ⁴⁾	LED (modulated light)
Wavelength	620nm (visible red light)

Timing

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

Electrical data

Operating voltage U_B ⁵⁾	10 ... 30VDC (incl. residual ripple)
Residual ripple	≤ 15% of U_B
Open-circuit current	≤ 10mA
Switching output	.../66 ⁶⁾ 2 push-pull switching outputs pin 2: PNP dark switching, NPN light switching pin 4: PNP light switching, NPN dark switching
	.../6 ⁵⁾ 1 push-pull switching output pin 4: PNP light switching, NPN dark switching
	.../6D ⁵⁾ 1 push-pull switching output pin 4: PNP dark switching, NPN light switching
Function characteristics	light/dark switching
Signal voltage high/low	$\geq (U_B - 2V) \leq 2V$
Output current	max. 100mA
Scanning range	adjustable with potentiometer, rotational angle approx. 250°

Indicators

Green LED	ready
Yellow LED	light path free

Mechanical data

Housing	plastic (PC-ABS); 1 attachment sleeve, nickel-plated steel
Optics cover	plastic (PMMA)
Weight	with connector: 10g with 200mm cable and connector: 20g with 2m cable: 50g
Connection type	2m cable (cross section 4x0.20mm ²), connector M8 metal, 0.2m cable with connector M8 or M12

Environmental data

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

Options

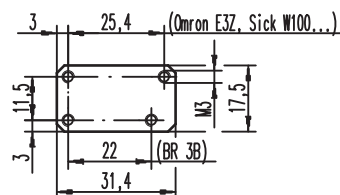
Warning output autoControl warn	PNP transistor, counting principle
Signal voltage high/low	$\geq (U_B - 2V) \leq 2V$
Output current	max. 100mA

- 1) Typ. scan. range limit/adjustment range: max. achievable scanning range/adjustment range for light objects (white 90%)
- 2) Scanning range: recommended scanning range for objects with different diffuse reflection
- 3) Object white with 90% diffuse reflection
- 4) Average life expectancy 100,000h at an ambient temperature of 25°C
- 5) For UL applications: for use in class 2 circuits according to NEC only
- 6) The push-pull switching outputs must not be connected in parallel
- 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...)



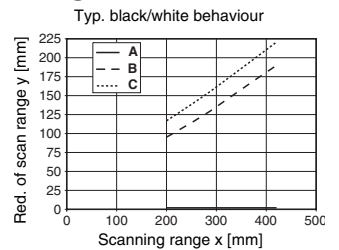
Tables

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

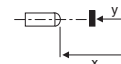
1	white 90%
2	grey 18%
3	black 6%

□	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 ¹⁾ (Part No. 501 05585)
- ①+②+③ = BT 3B (Part No. 501 05546)

1) Packaging unit: PU = 10 pcs.

RTFR 3B
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Order guide

Selection table				Order code →	RTFR 3B/66 Part No. 501 08496	RTFR 3B/66-S8 Part No. 501 08495	RTFR 3B/66-200-S8 Part No. 501 08504	RTFR 3B/6-S8.3 Part No. 501 08498	RTFR 3B/6D-S8.3 Part No. 501 08499
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	●				
	M8 connector, metal			3-pin				●	●
	M8 connector, metal			4-pin		●			
	200mm cable with M8 connector			4-pin			●		

