



**Specifications**

**Optical data**

Typ. scanning range limit <sup>1)</sup> 5 ... 100mm  
 Scanning range <sup>2)</sup> see tables  
 Adjustment range 20 ... 100mm  
 Light spot approx. 3 x 33mm<sup>2</sup> at 50mm  
 Light source <sup>3)</sup> LED (modulated light)  
 Wavelength 620nm (visible red light)

**Timing**

Switching frequency 150Hz  
 Response time 3.3ms  
 Delay before start-up ≤ 300ms (acc. to. IEC 60947-5-2)

**Electrical data**

Operating voltage U<sub>B</sub> <sup>4)</sup> 10 ... 30VDC (incl. residual ripple)  
 Residual ripple ≤ 15% of U<sub>B</sub>  
 Open-circuit current ≤ 15mA  
 Switching output .../44 2 PNP switching outputs, complementary  
 Function characteristics light/dark switching  
 Signal voltage high/low ≥ (U<sub>B</sub>-2V)/≤ 2V  
 Output current max. 100mA  
 Scanning range adjustable via 8-turn potentiometer

**Indicators**

Green LED ready  
 Yellow LED object detected - reflection

**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<sup>2</sup>), connector M8 metal, 0.2m cable with connector M8 or M12

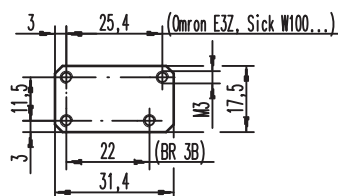
**Environmental data**

Ambient temp. (operation/storage) -30°C ... +55°C/-30°C ... +70°C  
 Protective circuit <sup>5)</sup> 2, 3  
 VDE safety class II for cable <sup>6)</sup>, 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 <sup>4)</sup>

- 1) Typ. scan. range limit: max. achievable scanning range for light objects (white 90%)
- 2) Scanning range: recommended scanning range for objects with different diffuse reflection
- 3) Average life expectancy 100,000h at an ambient temperature of 25°C
- 4) Observe the safety regulations and installation instructions regarding power supply and wiring; for UL applications: only for use in "Class 2" circuits acc. to NEC
- 5) 2=polarity reversal protection, 3=short-circuit protection for all transistor outputs
- 6) 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...)



● **Approved purpose:**

The retro-reflective photoelectric sensors are optoelectronic sensors for the optical, contactless detection of objects. 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.

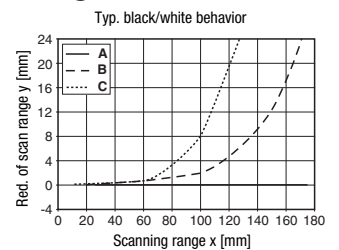
**Tables**

1	5	50	100
2	5	45	90
3	5	40	80

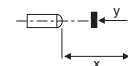
1	white 90%
2	grey 18%
3	black 6%

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

**Diagrams**



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



**Remarks**

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.

## HRTR 3B "L"

## Diffuse reflection light scanner with background suppression

### Order guide

Selection table			Order code →																	
Equipment ↓				HRTR 3B/44-L-S8 Part No. 50111443	HRTR 3B/44-L-200-S8 Part No. 50113317															
Output 1 (OUT 1)	push-pull switching output	 light switching	○																	
		 dark switching	●																	
	PNP transistor output	 light switching	○	●	●															
		 dark switching	●																	
	NPN transistor output	 light switching	○																	
		 dark switching	●																	
Output 2 (OUT 2)	push-pull switching output	 light switching	○																	
		 dark switching	●																	
	PNP transistor output	 light switching	○	●	●															
		 dark switching	●																	
	NPN transistor output	 light switching	○																	
		 dark switching	●																	
Connection	cable 2,000mm	4-wire																		
	M8 connector, metal	3-pin																		
	M8 connector, metal	4-pin		●																
	200mm cable with M8 connector	3-pin																		
	200mm cable with M8 connector	4-pin			●															
	200mm cable with M12 connector	4-pin																		
	200mm cable with XHP connector	4-pin																		
	pin 2: not assigned, suitable for connecting to AS-i coupling module																			
Configuration	freely adjustable via 8-turn potentiometer		●	●																
	preset to scanning range [mm]:																			

### Application notes



- For glossy surfaces (e.g. metals), the light beam should not be incident on the object surface at a right angle. A slight inclination is sufficient for preventing undesired direct reflections. This may result in a reduction in the scanning range.
- Objects should only be moved laterally from the right or left. Moving in objects from the connector side or operating side is to be avoided.
- Outside of the scanning range, the sensor operates as an energetic diffuse reflection light scanner. Light objects can still be reliably detected up to the scanning range limit.
- The sensors are equipped with effective measures for the maximum avoidance of mutual interference should they be mounted opposite one another. Opposite mounting of multiple sensors of the same type should, however, absolutely be avoided.

