#### HRTR 3B V Diffuse reflection light scanner with V-optics and background suppression







15 ... 200 mm 100mm with black-white error < 10%

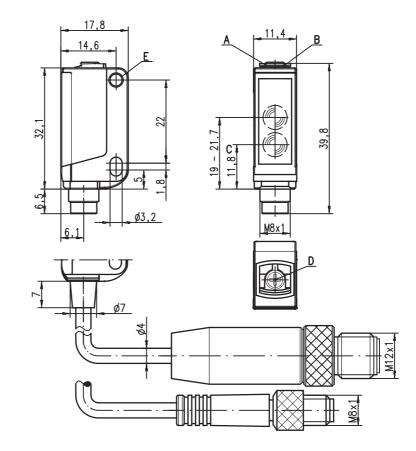






- Diffuse reflection light scanner with visible red light, V-optics and adjustable background suppression
- Thanks to V-optics, it is specially suited to the detection of very shiny or polished surfaces in a range of 30 ... 70mm
- Very good black-white behavior and precise background suppression
- Exact scanning range adjustment through 8-turn potentiometer
- High switching frequency for detection of fast events
- Also available in economy design

# **Dimensioned drawing**



- Green indicator diode
- В Yellow indicator diode
- С Optical axis
- D 8-turn potentiometer for scanning range adjustment
- Attachment sleeve













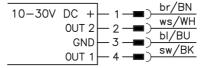
## Accessories:

(available separately)

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

# **Electrical connection**

### Plug connection, 4-pin



# Cable, 4 wires

10-30V	DC T	br/BN_
10-500		ws/WH
	0UT 2	bI/BU
	GND	sw/BK
	OUT 1	3W/ DIX

### Plug connection, 3-pin

10-30V DC +	L 1_ <b>-</b> >	br/BN
10-200 DC +	7 -	bI/BU
OUT 1	- 4	sw/BK
	_ 4 <del></del> ,	

### HRTR 3B V

# **Specifications**

### **Optical data**

Scanning range 1) 15 ... 200mm Adjustment range 1) 20 ... 200mm < 10 % up to 100mm Black/white error Light beam exit angle typ. 11° focussed at 200mm Light beam characteristic Light source 2) LED (modulated light) 620nm (visible red light) Wavelength

**Timing** 

Switching frequency 1,000 Hz Response time 0.5 ms

Delay before start-up ≤ 300ms (acc. to. IEC 60947-5-2)

**Electrical data** 

10 ... 30 VDC (incl. residual ripple)  $\leq 15\%$  of  $U_B$ Operating voltage U<sub>B</sub> <sup>3)</sup> Residual ripple Open-circuit current ≤ 15mA

Switching output .../66 4)

2 push-pull switching outputs pin 2: PNP dark switching, NPN light switching pin 4: PNP light switching, NPN dark switching

Function characteristics light/dark switching Signal voltage high/low ≥ (U<sub>B</sub>-2V)/≤ 2V max. 100 mA Output current

Scanning range adjustable via 8-turn potentiometer

Indicators

Green LED 5) readv object detected - reflection

Yellow LED

Mechanical data plastic (PC-ABS); 1 attachment sleeve, nickel-plated steel  $^{5)}\,\rm red,\,RAL\,3000$ Housing

Housing color Optics cover plastic (PMMA) through holes for 2 x M3

Fastening with connector: 10g
with 200mm cable and connector: 20g Weight

with 2m cable: 50g

Connection type

M8 connector, metal <sup>6)</sup>, 0.2m cable with M8 or M12 connector, 2m cable (cross section 4x0.20mm²)

**Environmental data** 

Ambient temp. (operation/storage) Protective circuit 7) -30°C ... +55°C/-30°C ... +70°C 2, 3 VDE safety class III

Protection class IP 67 ree group (in accordance with EN 62471) IEC 60947-5-2 UL 508, C22.2 No.14-13 <sup>3) 8)</sup> Light source

Standards applied

Certifications

1) Scanning range: recommended scanning range for objects with different diffuse reflection

Average life expectancy 100,000h at an ambient temperature of 25°C For UL applications: for use in class 2 circuits according to NEC only

The push-pull switching outputs must not be connected in parallel

N/A for economy design

M8 plastic connector for economy design

2=polarity reversal protection, 3=short-circuit protection for all transistor outputs

These proximity switches shall be used with UL Listed Cable assemblies rated 30V, 0.5A min, in the field installation, or equivalent (categories: CYJV/CYJV7 or PVVA/PVVA7)

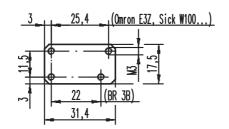
#### Operate in accordance with intended use!

- \$\text{This product is not a safety sensor and is not intended as personnel protection.}
- The product may only be put into operation by competent persons.

Solly use the product in accordance with the intended use.

### Remarks

Adapter plate: BT 3.2 (part no. 50103844) for alternate mounting on 25.4 mm hole spacing (Omron E3Z, Sick W100...)

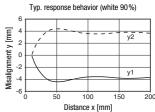


### **Tables**

_	r		
1	15		200
2	15	18	0
3	15	130	
1	white 90%		
2	gray 18%		
3	black 6 %		

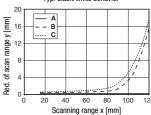
Scanning range [mm]

# **Diagrams**









- white 90%
- gray 18%



### Remarks

Mounting system:



1 = BT 3

(Part no. 50060511)

 $= BT 3.1^{1}$ (Part no. 50105585)

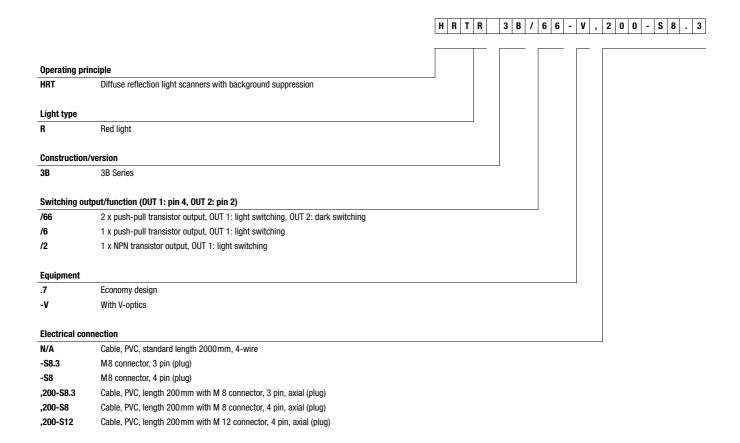
0+2+3 = BT 3B

(Part no. 50105546)

1)Packaging unit: PU = 10 pcs.

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### Part number code



# Order guide

The sensors listed here are preferred types; current information at <u>www.leuze.com</u>

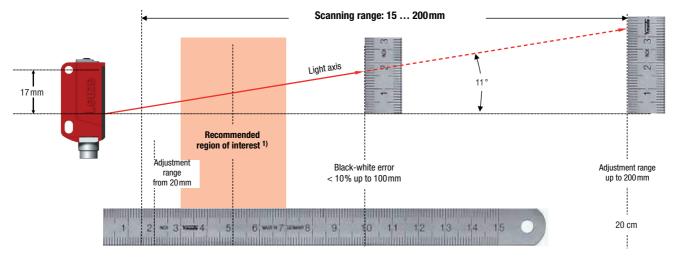
Order code	Part No.
HRTR 3B/66-V-S8	50114769
HRTR 3B/66-V, 200-S8	50114767
HRTR 3B/66-V, 200-S12	50114768
HRTR 3B/66-V	50114766
HRTR 3B/2.7-V	50115641

### HRTR 3B V

# **Application notes**



- The sensor must be aligned vertically and parallel to the object.
- Objects should only be moved in laterally from the right or left. Moving in objects from the connector side or operating side is not permitted.



1) The ability of the sensor to reliably detect reflective surfaces or transparent objects is the strongest in the recommended working range. The sensor can also reliably detect such objects in the entire scanning range; however, the performance reserve is reduced in comparison to the recommended working range.

- 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.

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