Diffuse reflection light scanner with background suppression







5 ... 400 mm 200 mm with black-white error < 10%







- Diffuse reflection light scanner with visible red light and adjustable background suppression
- 316L stainless steel housing in Hygiene-Design
- Enclosed optics design prevents bacterial carry-overs
- ECOLAB and CleanProof+ tested
- Paperless device identification
- Scratch resistant and non-diffusive plastic front cover
- Exact scanning range adjustment through 8-turn potentiometer
- Very good black/white behavior and reliable switching nearly independent of the object or background properties
- Fast alignment through brightVision®
- A²LS- Active Ambient Light Suppression
- Push-pull switching outputs
- High switching frequency for detection of fast events













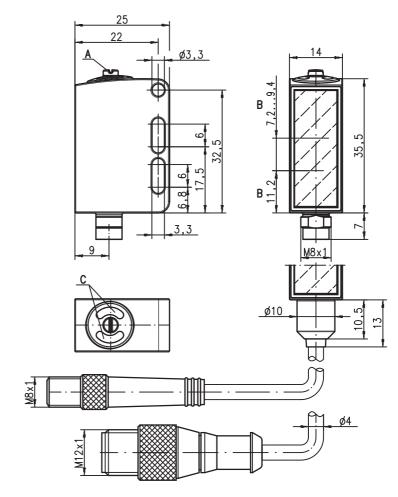


Accessories:

(available separately)

- Cable with M8 or M12 connector (K-D ...)
- Cable for food and beverages
- Mounting devices

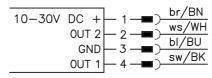
Dimensioned drawing



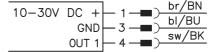
- A Adjustment screw
- B Optical axis
- C Indicator diode

Electrical connection

Plug connection, 4-pin (with/without cable)



Plug connection, 3-pin



Cable, 4 wires

10-30V	DC +	br/BN
10 30	0UT 2	ws/WH
		bI/BU
	GND	sw/BK
	0UT 1	

Specifications

Optical data

Typ. scanning range limit 1) Scanning range 2) Adjustment range Light beam characteristic Light source 3) Wavelength

Timing

Switching frequency Response time Delay before start-up

Electrical data

Operating voltage U_B 4) Residual ripple Open-circuit current

Switching output

Function characteristics Signal voltage high/low Output current Scanning range

Indicators

Green LED Yellow LED

Mechanical data

Housing design Housing roughness 6) Connector Optics cover Operation Weight

Connection type

Environmental data

Protective circuit VDE safety class 9) Protection class

LED class

Standards applied Certifications

Chemical resistance

5 ... 400 mm see tables 15 ... 400 mm

focussed at 200mm LED (modulated light) 620nm (visible red light)

1000 Hz $0.5 \, \mathrm{ms}$

.../665)

≤ 300ms (acc. to. IEC 60947-5-2)

10 ... 30VDC (incl. residual ripple)

 \leq 15 % of $U_B \leq$ 15 mA

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 light/dark switching

≥ (U_B-2V)/≤ 2V max. 100mA

adjustable via 8-turn potentiometer

ready

object detected - reflection

AISI 316L stainless steel, DIN X2CrNiMo17132, W.No1.4404 WASH-DOWN-Design

Ra ≤ 2.5

AISI 316L stainless steel, DIN X2CrNiMo17132, W.No1.4404 coated plastic (PMMA), scratch resistant and non-diffusive plastic (TPV - PE), non-diffusive

with M8 connector: 40g with 200mm cable and M12 connector: 60g with 5000mm cable: 110g

M8 connector, 4-pin,

0.2m cable with M12 connector, 4-pin,

5m cable, 4 x 0.20 mm²

-30°C ... +70°C/-30°C ... +70°C Ambient temp. (operation/storage) 7)

2, 3 Ш IP 67, IP 69K¹⁰)

ECOLAB, Clean*Proof*+ 1 (acc. to EN 60825-1) Environmentally tested acc. to

IEC 60947-5-2 UL 508 4)

tested in accordance with ECOLAB and CleanProof+

(see remarks)

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

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

Typical value for the stainless steel housing

Operating temperatures of +70°C permissible only briefly (≤ 15min)

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

9) Rating voltage 50 V

10)Only in combination with M12 connector

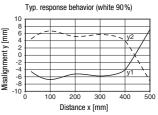
Tables

3 black 6%

_						
	1	5 400				
Γ	2	10	300			
Ī	3	15	200			
-		•				
Γ	1	white 90%				
Γ	2	gray 18%				

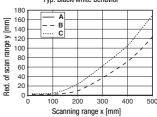
Scanning range [mm]

Diagrams









white 90%

gray 18%



Remarks

A list of tested chemicals can be found in the first part of the product description.

Approved purpose

The light scanners are optical electronic sensors for 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.

Diffuse reflection light scanner with background suppression

Order guide

Selection table Equipment		Order code →	HRTR 55/66-S8 Part No. 50107484	HRTR 55/6-S8.3 Part No. 50107491	HRTR 55/66,200-S12 Part No. 50107492	HRTR 55/66, 5000 Part No. 50111968
Switching output	2 x Push-pull switching output		•		•	•
	1 x Push-pull switching output			•		
Switching function	1 PNP light switching and NPN dark switching output		•	•	•	•
	1 PNP dark switching and NPN light switching output		•		•	•
Connection	M8 connector, metal, 4-pin		•			
	M8 connector, metal, 3-pin			•		
	cable 200 mm with M12 connector, 4-pin				•	
	cable 5000 mm, 4 wires					•
Indicators	green LED: ready		•	•	•	•
	yellow LED: switching output		•	•	•	•

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 in 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.

HRTR 55... Standard - 04 2010/01