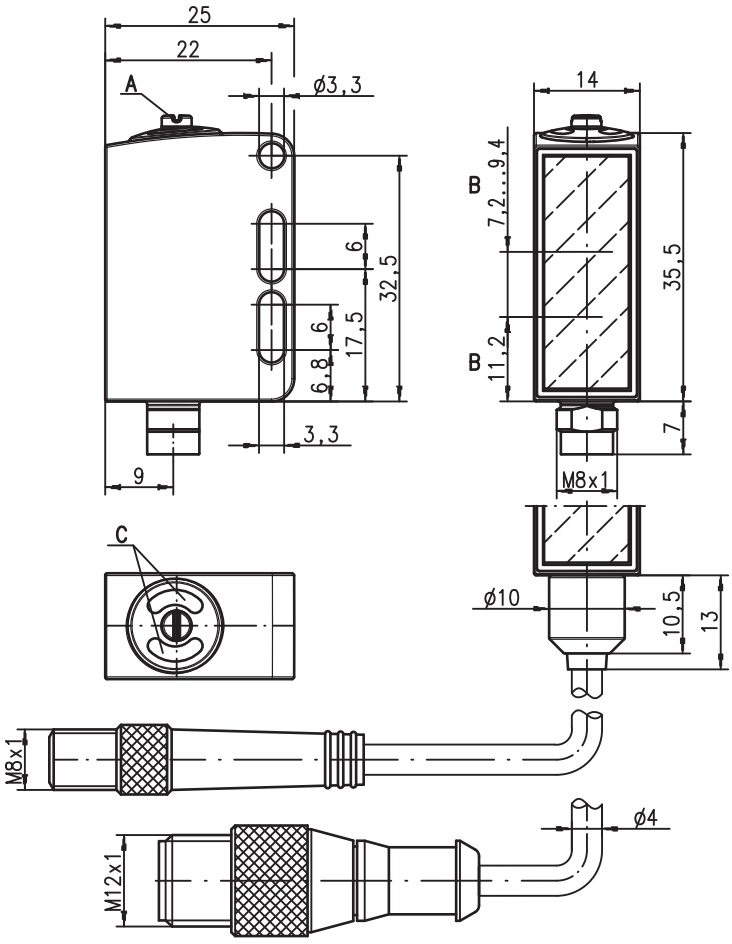
HRTR 55 V Reflect. light scanner with V-optics and background suppression

en 02-2017/11 50120884

15 … 100mm
100mm with black-white error < 10%

- Diffuse reflection light scanner with visible red light, V-optics and adjustable background suppression
- Due to the V-optics, it is particularly well-suited for detecting very shiny or polished surfaces as well as for transparent objects 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

Dimensioned drawing



A Green indicator diode
B Yellow indicator diode
C Optical axis
D 8-turn potentiometer for scanning range adjustment
E Mounting sleeve

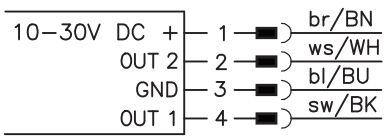
Accessories:

(available separately)

- Cables with M8 or M12 connector (KD …)
- Cables for food and beverages
- Mounting devices

Electrical connection

Plug connection, 4-pin



Specifications

Optical data

Scanning range [1]		18 … 100mm
Adjustment range		20 … 100mm
Black-white error		< 10% up to 100mm
Light beam exit angle		typ. 11°
Light beam characteristic		focussed at 200mm
Light source [2]		LED (modulated light)
Wavelength		620nm (visible red light)

Timing

Switching frequency		1,000Hz
Response time		0.5ms
Delay before start-up		≤ 300ms (acc. to. IEC 60947-5-2)

Electrical data

Operating voltage U_B [3]		10 … 30VDC (incl. residual ripple)
Residual ripple		≤ 15% of U_B
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_B-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	AISI 316L stainless steel, DIN X2CrNiMo17132, W.No1.4404
Housing design	WASH-DOWN-Design
Housing roughness [5]	Ra ≤ 2.5
Connector	AISI 316L stainless steel, DIN X2CrNiMo17132, W.No1.4404
Optics cover	coated plastic (PMMA), scratch resistant and non-diffusive
Operation	plastic (TPV-PE), non-diffusive
Weight	with M8 connector: 40g with 200mm cable and M12 connector: 60g with 5000mm cable: 110g
Connection type	M8 connector, 4-pin, 0.2m cable with M12 connector, 4-pin, 5m cable, 4 x 0.20mm²

Environmental data

Ambient temp. (operation/storage) [6]	-30°C … +70°C/-30°C … +70°C
Protective circuit [7]	2, 3
VDE safety class [8]	III
Protection class	IP 67, IP 69K[9]
Environmentally tested acc. to	ECOLAB, Clean*Proof*+
Light source	exempt group (in acc. with EN 62471)
Standards applied	IEC 60947-5-2
Certifications	UL 508, C22.2 No.14-13 [3] [6] [10]
Chemical resistance	tested in accordance with ECOLAB and Clean*Proof*+ (see Remarks)

1) Scanning range: recommended scanning range for objects with different diffuse reflection
2) Average life expectancy 100,000h at an ambient temperature of 25°C
3) For UL applications: for use in class 2 circuits according to NEC only
4) The push-pull switching outputs must not be connected in parallel
5) Typical value for the stainless steel housing
6) UL certification for a temperature range of -30°C to +55°C, operating temperatures of +70°C permissible only briefly (≤ 15min)
7) 2=polarity reversal protection, 3=short circuit protection for all transistor outputs
8) Rating voltage 50V
9) Only in combination with M12 connector
10) These proximity switches shall be used with UL Listed Cable assemblies rated 30V, 0.24A min, in the field installation

UL REQUIREMENTS

Enclosure Type Rating: Type 1
For Use in NFPA 79 Applications only.
Adapters providing field wiring means are available from the manufacturer. Refer to manufacturers information.
CAUTION – the use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
ATTENTION ! Si d'autres dispositifs d'alignement que ceux préconisés ici sont utilisés ou s'il est procédé autrement qu'indiqué, cela peut entraîner une exposition à des rayonnements et un danger pour les personnes.

Tables

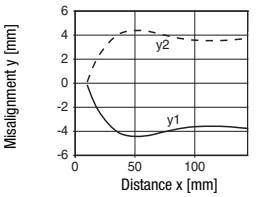
1	15	100
2	15	96
3	15	94

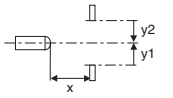
1	white 90%
2	gray 18%
3	black 6%

Scanning range [mm]

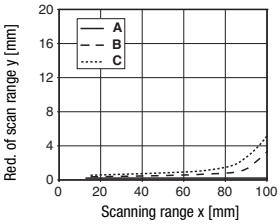
Diagrams

Typ. response behavior (white 90%)

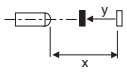




Typ. black/white behavior



A white 90%
B gray 18%
C black 6%



Remarks

Operate in accordance with intended use!

- 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.
- Only use the product in accordance with the intended use.

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

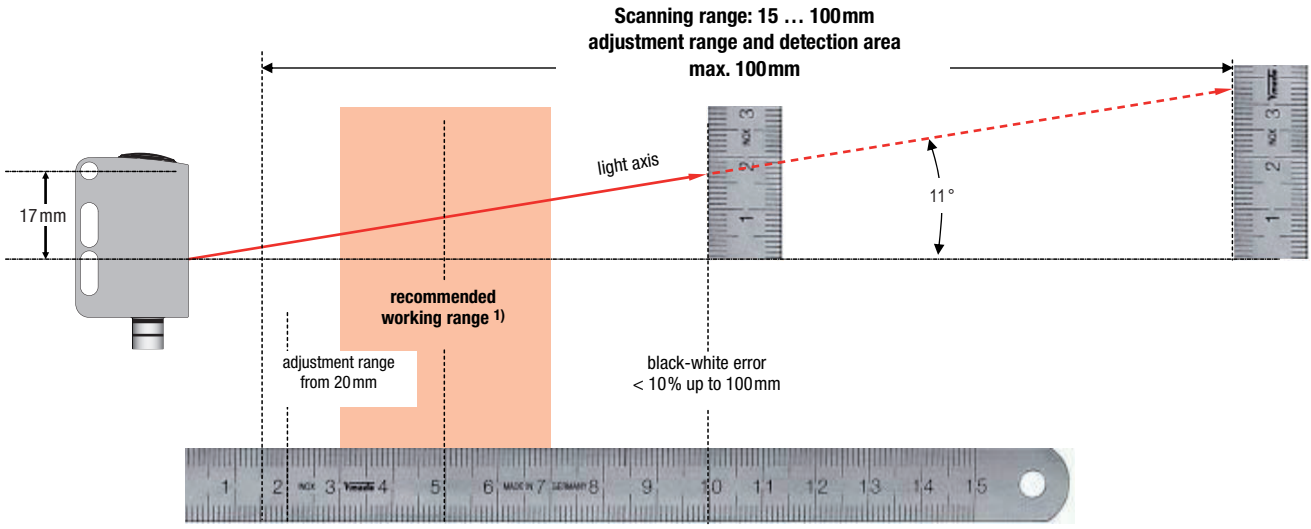
HRTR 55 V Reflect. light scanner with V-optics and background suppression

Order guide

Selection table Equipment ↓		Order code → HRTR 55/66-V.200-S12 Part no. 50120623
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-wire	
Indicators	green LED: ready	●
	yellow LED: switching output	●

Application notes

- **The sensor must be positioned perpendicularly 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 sensor is most capable of reliably detecting a reflective surface or transparent object in the recommended working range. Nevertheless, the sensor can reliably detect such objects in the entire scanning range; however, the performance reserve is reduced as compared with the recommended working range.

- 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.