

**HRTR 53 "VXL"**

**Reflection light scanner with background suppression**

en 02-2017/11 50122234



**10 ... 90mm**  
80mm with  
black-white error < 20%



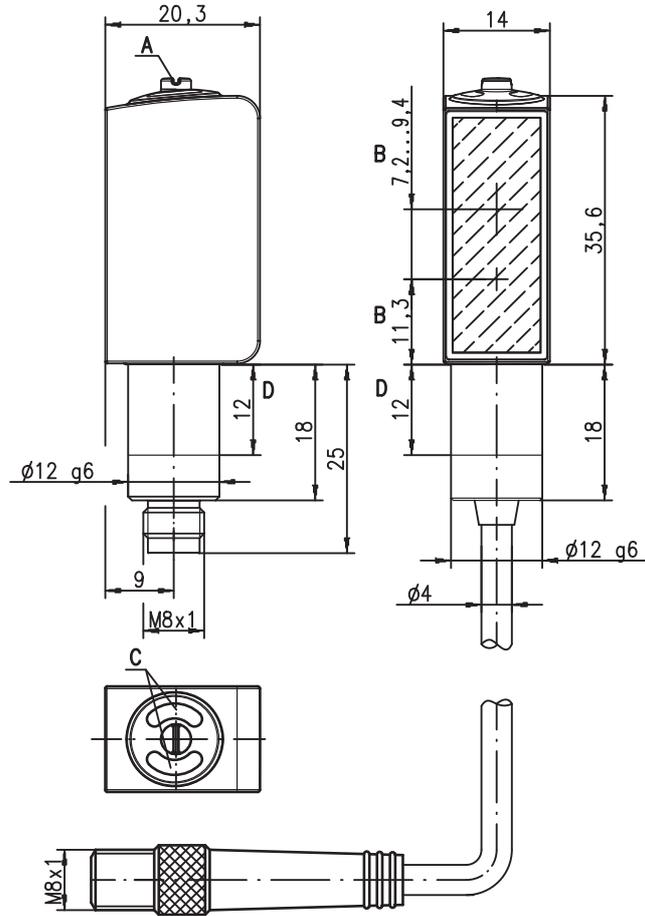
- Reflection light scanner with visible red light
- Rectangular light spot guarantees the reliable detection of:
  - Top layers of syringe trays
  - Top layers of ampule trays
  - Paper and plastic webs in front of glass containers
- 316L stainless steel housing in Hygiene-Design
- Enclosed optics design prevents bacterial carry-overs
- ECOLAB and CleanProof+ tested
- Paperless device identification
- Scratch resistant and non-diffusive plastic front cover
- A<sup>2</sup>LS- Active Ambient Light Suppression
- Push-pull switching outputs

**Accessories:**

(available separately)

- Mounting systems (BT 3...)
- Cables with M8 or M12 connector (KD ...)
- Mounting devices

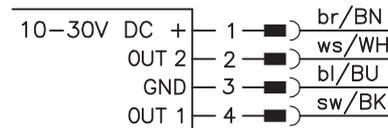
**Dimensioned drawing**



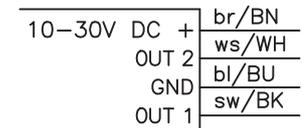
- A** Adjustment screw
- B** Optical axis
- C** Indicator diodes
- D** Permissible clamping range

**Electrical connection**

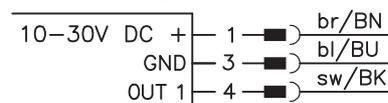
Plug connection, 4-pin  
(with/without cable)



Cable, 4 wires



Connector, 3-pin



We reserve the right to make changes • DS\_HRTR53VXL\_en\_50122234.fm

## Specifications

### Optical data

Typ. scanning range limit <sup>1)</sup>	10 ... 90mm
Scanning range <sup>2)</sup>	see tables
Adjustment range	20 ... 90mm
Light spot	approx. 5 x 30mm <sup>2</sup> at 70mm
Light source <sup>3)</sup>	LED (modulated light)
Wavelength	620nm (visible red light)

### Timing

Switching frequency	1000Hz
Response time	0.5ms
Delay before start-up	≤ 300ms (acc. to. IEC 60947-5-2)

### Electrical data

Operating voltage $U_B$ <sup>4)</sup>	10 ... 30VDC (incl. residual ripple)
Residual ripple	≤ 15% of $U_B$
Open-circuit current	≤ 15mA
Switching output	.../66 <sup>5)</sup> 2 push-pull switching outputs pin 2: PNP dark switching, NPN light switching pin 4: PNP light switching, NPN dark switching .../6 <sup>5)</sup> 1 push-pull switching output pin 4: PNP light switching, NPN dark switching light/dark switching
Function characteristics	adjustable via 8-turn potentiometer
Signal voltage high/low	≥ ( $U_B - 2V$ )/≤ 2V
Output current	max. 100mA
Scanning range	

### Indicators

LED green	ready
Yellow LED	object detected - reflection

### Mechanical data

Housing	AISI 316L stainless steel, DIN X2CrNiMo17132, W.No1.4404
Housing design	HYGIENE-Design
Housing roughness <sup>6)</sup>	$R_a \leq 2.5$
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: 50g with 200mm cable and M8 connector: 60g
Connection type	M8 connector, 4-pin or 3-pin
Fastening	0.2m cable with M8 connector, 4-pin
Max. tightening torque	via fit (see "Remarks") 3 Nm (permissible range, see dimensioned drawing)

### Environmental data

Ambient temp. (operation/storage) <sup>7)</sup>	-30°C ... +70°C / -30°C ... +70°C
Protective circuit <sup>8)</sup>	2, 3
VDE safety class <sup>9)</sup>	III
Protection class	IP 67, IP 69K <sup>10)</sup>
Environmentally tested acc. to	ECOLAB, CleanProof+
Light source	exempt group (in accordance with EN 62471)
Standards applied	IEC 60947-5-2
Certifications	UL 508, C22.2 No.14-13 <sup>4)</sup> <sup>7)</sup> <sup>11)</sup>
Chemical resistance	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
- 3) Average life expectancy 100,000h at an ambient temperature of 25°C
- 4) For UL applications: for use in class 2 circuits according to NEC only
- 5) The push-pull switching outputs must not be connected in parallel.
- 6) Typical value for the stainless steel housing
- 7) UL certification for a temperature range of -30°C to +55°C, operating temperatures of +70°C permissible only briefly (≤ 15min)
- 8) 2=polarity reversal protection, 3=short circuit protection for all transistor outputs
- 9) Rating voltage 50V
- 10) Only with internal tube wiring means of the M8 connector
- 11) These proximity switches shall be used with UL Listed Cable assemblies rated 30V, 0.24A min, in the field installation

## Tables

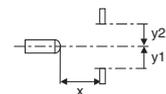
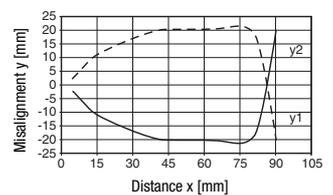
1	10	80	90
2	12	70	75
3	12	60	65

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

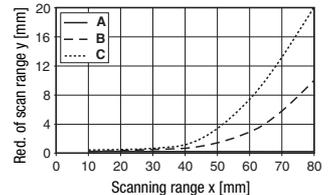
Scanning range [mm]
Typ. scanning range limit [mm]

## Diagrams

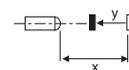
Typ. response behavior (white 90%)



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.
- Only secure in designated area using set screw.  
Max. tightening torque 3Nm.

## 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.

**HRTR 53 "VXL"**

**Reflection light scanner with background suppression**

**Order guide**

Selection table		Order code →
<b>Equipment ↓</b>		<b>HRTR 53/66-VXL-S8</b> Part no.: 50122261
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 M 8 connector, 4-pin	
	2000 mm cable, 4-wire	
Indicators	green LED: ready	●
	yellow LED: switching output	●

**Application notes**



- Install the sensor at a distance of 60 ... 80mm from the top layer.
- Position the sensor at an approx. 20° angle (tip plug side towards the top layer).
- Set the sensor with the adjusting spindle so that the top layer will be detected reliably.

