

**LSR 53**

**Throughbeam photoelectric sensors**

en 03-2017/11 50110267-01

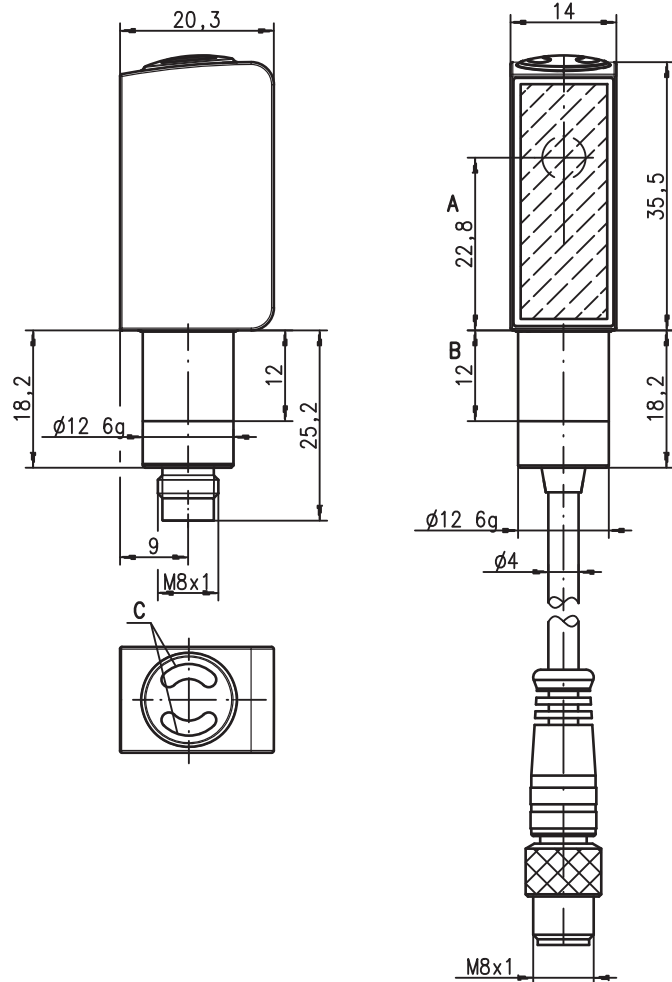


**0 ... 10m**



- Throughbeam photoelectric sensor with visible red light
- 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
- High switching frequency for detection of fast events

**Dimensioned drawing**



- A** Optical axis
- B** Permissible clamping range
- C** Indicator diode

We reserve the right to make changes • DS\_LSR53\_en\_50110267\_01.fm

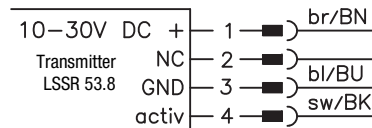
**Accessories:**

(available separately)

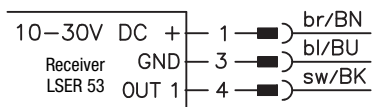
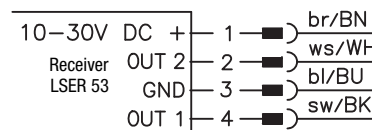
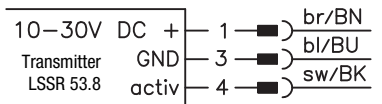
- Cables with M8 or M12 connector (KD ...)
- Cables for food and beverages
- Mounting devices

**Electrical connection**

Plug connection, 4-pin



Plug connection, 3-pin



## Specifications

### Optical data

Typ. operating range limit <sup>1)</sup>	0 ... 10m
Operating range <sup>2)</sup>	0.05 ... 8.5m
Light source <sup>3)</sup>	LED (modulated light)
Wavelength	620nm (visible red light)

### Timing

Switching frequency	1,000Hz (see order guide)
Response time	0.5ms
Delay before start-up	≤ 300ms

### Electrical data

Operating voltage $U_B$ <sup>4)</sup>	10 ... 30VDC (incl. residual ripple)
Residual ripple	≤ 15% of $U_B$
Open-circuit current	≤ 14mA (per sensor)
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
Function characteristics	light/dark switching
Signal voltage high/low	≥ ( $U_B - 2V$ ) / ≤ 2V
Output current	max. 100mA
Operating range	fixed setting

### Indicators

Green LED	ready
Yellow LED	light path free
Flashing yellow LED	light path free, no performance reserve

### 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	50g
Connection type	M8 connector, 4-pin or 3-pin
Fastening	via fit (see "Remarks")
Max. tightening torque	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 acc. 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)

### Options

#### Activation input

Transmitter active/not active	≥ 8V / ≤ 2V
Activation/disable delay	≤ 1ms
Input resistance	30kΩ

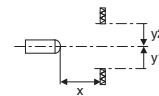
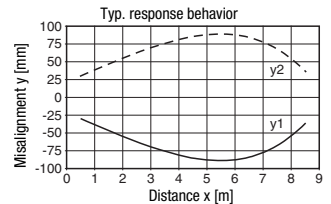
- 1) Typ. operating range limit: max. attainable range without performance reserve
- 2) Operating range: recommended range with performance reserve
- 3) Average life expectancy 100,000h at an ambient temperature of 25°C
- 4) For UL applications: for use in class 2 circuits according to NEC only
- 5) 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 mounting 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

0	8.5	10
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	Operating range [m]
	Typ. operating range limit [m]

## Diagrams



## 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 light axis consists of a transmitter and a receiver with the following designations:

LSR	= Complete light axis
LSSR	= Transmitter
LSER	= Receiver

- 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.

**Order guide**

<b>Selection table</b>		<b>Order code →</b>			
<b>Equipment ↓</b>		<b>LSR 53/66.8-S8</b> Part No. 50108736 (Tr) Part No. 50108742 (Re)	<b>LSR 53/6.8-S8.3</b> Part No. 50108737 (Tr) Part No. 50108743 (Re)		
Switching output	1 x Push-pull switching output		●		
	2 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		●		
Indicators	green LED: ready	●	●		
	yellow LED: switching output	●	●		
Features	activation input	●	●		

