



LS 97

Throughbeam photoelectric sensors

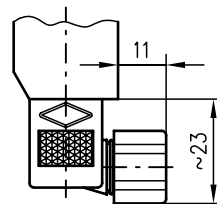
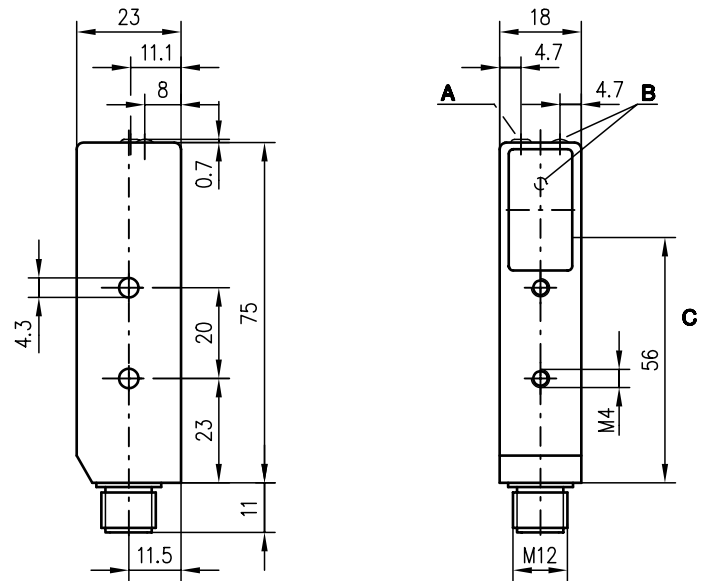


9m

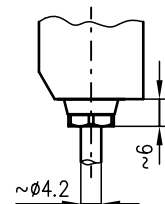
10 - 30 V  
DC

- Throughbeam photoelectric sensor with infrared light or visible red light
- Small construction with glass cover and robust metal housing for protection against environmental influences
- Connection via M12 connector, plug or cable
- Activation input for testing and interlinking
- Additional indicator diode on the front part (for exact alignment)

Dimensioned drawing



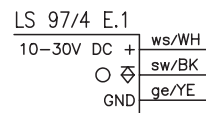
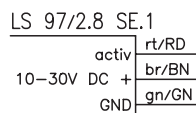
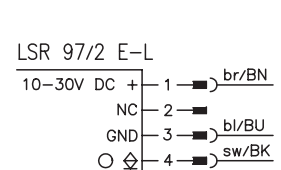
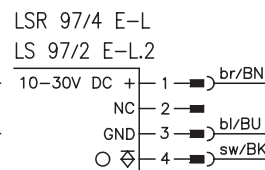
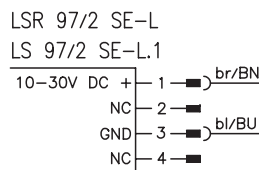
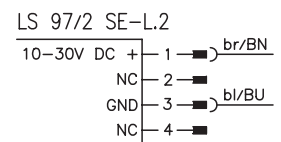
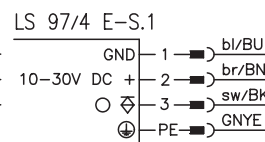
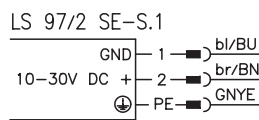
LS 97/2 SE-S.1  
LS 97/4 E-S.1



LS 97/2.8 SE.1  
LS 97/4 E.1

- A Sensitivity adjustment (only for LS 97/4 E-L.2)
- B Indicator diode
- C Optical axis

Electrical connection



We reserve the right to make changes • 97\_a01e.fm

Accessories:

(available separately)

- Mounting systems (BT 92, UMS 1, UMS 96-95)
- Diaphragm (BL 97.1)
- M12 connectors (KD ...)
- Ready-made cables (KB ...)

### Specifications

#### Optical data

Typ. operating range limit <sup>1)</sup>  
 Operating range <sup>2)</sup>  
 Light source  
 Wavelength

#### LS 97...

0 ... 9m  
 0 ... 5m  
 LED (modulated light)  
 880nm (infrared)/660nm (visible red light)

#### LS 97/4 L.2

0 ... 6m  
 0 ... 3.5m

#### Timing

Switching frequency  
 Response time  
 Delay before start-up

200Hz  
 2.5ms  
 ≤ 100ms

#### Electrical data

Operating voltage  $U_B$   
 Residual ripple  
 Bias current  
 Switching output  
 Function characteristics  
 Signal voltage high/low  
 Output current  
 Sensitivity

10 ... 30VDC (incl. residual ripple)  
 ≤ 15% of  $U_B$   
 ≤ 40mA  
 PNP or NPN transistor output  
 light switching  
 $\geq (U_B - 2V) \leq 2V$   
 max. 100mA

adjustable with  
 12-turn potentiometer

#### Indicators

LED yellow  
 LED yellow flashing

light path free  
 light path free, no performance reserve

#### Mechanical data

Housing  
 Optics cover  
 Weight  
 Connection type

diecast zinc  
 glass  
 85g  
 M12 connector 4-pin, stainless steel,  
 connector 4-pin or cable 2m (cross section 3x0.25mm<sup>2</sup>)

#### Environmental data

Ambient temp. (operation/storage)  
 Protective circuit <sup>3)</sup>  
 VDE safety class <sup>4)</sup>

-20°C ... +60°C/-30°C ... +70°C  
 2, 3  
 I (for S types)  
 II, all-insulated (for all L and cable types)  
 IP 67/IP 65 (for all S types)  
 1 (acc. to EN 60825-1)  
 IEC 60947-5-2

Protection class  
 LED class  
 Standards applied

#### Options

Activation input active  
 Transmitter active/not active  $\geq 8V \leq 2V$  or not connected

- 1) Typ. operating range limit: max. attainable range without performance reserve
- 2) Operating range: recommended range with performance reserve
- 3) 2=polarity reversal protection, 3=short-circuit protection for all outputs
- 4) Rating voltage 250VAC

### Tables

#### LS 97...

0	5	9
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Operating range [m]  
 Typ. operating range limit [m]

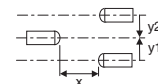
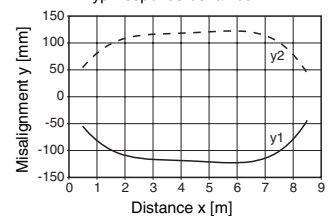
#### LS 97/4 L.2

0	3.5	6
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Operating range [m]  
 Typ. operating range limit [m]

### Diagrams

Typ. response behaviour



### Order guide

Selection table		Order code →						
Equipment ↓		LSR 97/2 L Part No. 500 29648 (Tr) Part No. 500 29647 (Re)	LS 97/4 S.1 Part No. 500 29651 (Tr) Part No. 500 29655 (Re)	LSR 97/4 L Part No. 500 29648 (Tr) Part No. 500 29649 (Re)	LS 97/4 L.2 Part No. 500 29650 (Tr) Part No. 500 29654 (Re)	LS 97/4.8.1 Part No. 500 29652 (Tr) Part No. 500 29653 (Re)		
Switching output	PNP transistor		●	●	●	●		
	NPN transistor	●						
Light source	red light	●		●				
	infrared light		●		●	●		
Connection	M12 connector	●		●	●			
	cable					●		
	plug		●					
Features	sensitivity adjustment				●			
	activation input					●		
	UL	●	●	●	●			

### Remarks

- The S types are shipped with connectors.