

**LS 96**

**Throughbeam photoelectric sensors**

en 2019/05/21 50142046

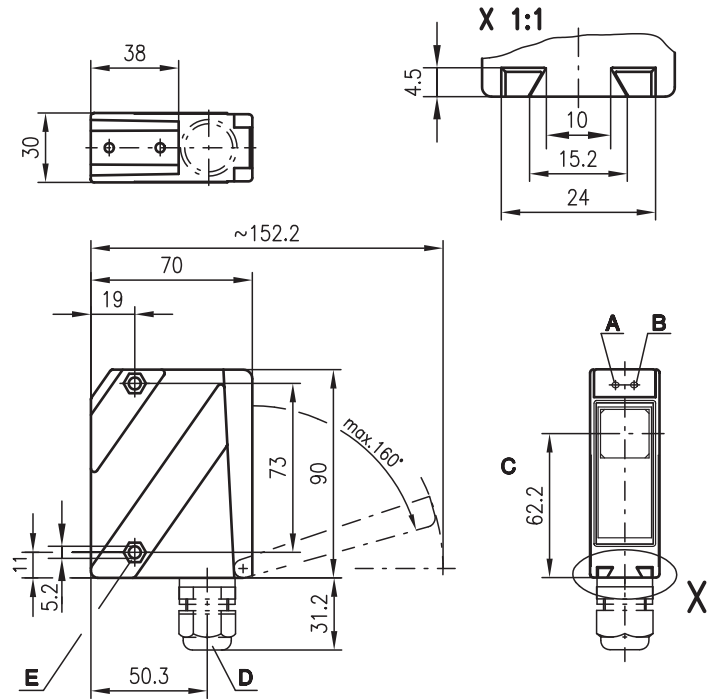


**39m  
65m**

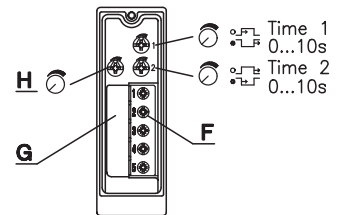


- Throughbeam photoelectric sensors with high function reserve using visible red light or infrared light
- Robust metal housing with glass cover or plastic housing, degree of protection IP 67/ IP 69K for industrial application
- Complementary outputs, sensitivity adjustment and delay before start-up for optimal adaptation to the application
- Connection via M12 connectors or terminal compartment
- Multiple options with warning output, activation input, switching delays and optics heating for use at low temperatures

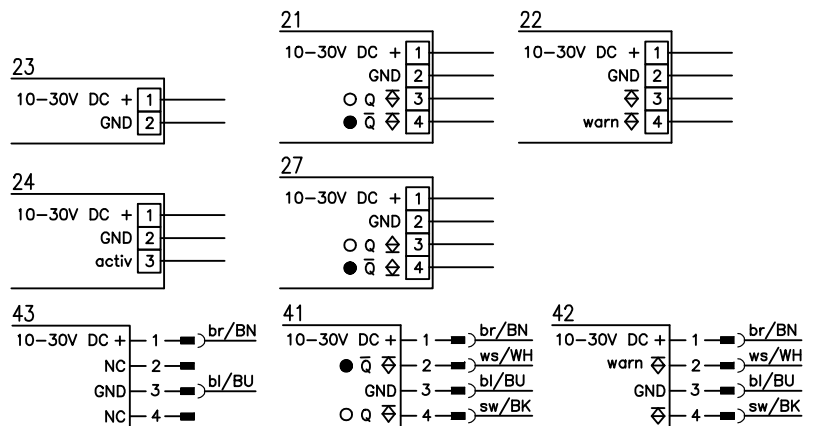
**Dimensioned drawing**



- A** Green indicator diode
- B** Yellow indicator diode
- C** Optical axis
- D** Device plug M12x1
- E** Device plug M18x1
- F** Screwed cable gland M16x1.5 for Ø 5 ... 10mm
- G** Countersinking for SK nut M5, 4.2 deep
- H** Connection terminals
- I** Cable entry
- K** Sensitivity adjustment



**Electrical connection**



**Accessories:**

(available separately)

- Mounting systems (BT 96, BT 96.1, UMS 96, BT 450.1-96)
- M12 connectors (KD ...)
- Alignment aid ARH 96

We reserve the right to make changes • DS\_LS96\_en\_50142046.fm



## Technical data

### Optical data

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

### Infrared light

0 ... 65m  
 0 ... 50m  
 LED (modulated light)  
 880nm

### Red light

0 ... 39m  
 0 ... 30m  
 LED (modulated light)  
 660nm

### Time behavior

Switching frequency 500Hz  
 Response time 1ms  
 Readiness delay ≤ 200ms

### Electrical data

Operating voltage  $U_B$  10 ... 30VDC (incl. residual ripple)  
 Residual ripple ≤ 15% of  $U_B$   
 Open-circuit current ≤ 50mA, ≤ 130mA optics heating option  
 Switching output NPN or PNP transistor  
 Function Light/dark switching  
 Signal voltage high/low ≥ ( $U_B - 2V$ ) ≤ 2V (PNP)  
 Output current Max. 100mA  
 Sensitivity Adjustable

### Indicators

Green LED Ready  
 Yellow LED Light path free  
 Yellow LED, flashing Light path free, no function reserve

### Mechanical data

Housing Diecast zinc  
 Optics cover Glass  
 Weight 380g  
 Connection type Terminals or M12 connector

### Environmental data

Ambient temp. (operation/storage) -30°C ... +60°C/-40°C ... +70°C  
 Protective circuit <sup>3)</sup> 1, 2, 3  
 VDE protection class <sup>4)</sup> II, all-insulated  
 Degree of protection IP 67, IP 69K <sup>5)</sup>  
 LED class 1 (acc. to EN 60825-1)  
 Standards applied IEC 60947-5-2

### Additional functions

**Activation input** active  
 Transmitter active/not active ≥ 8V/≤ 2V (≥ 2V/≤ 2V) <sup>6)</sup>  
 Activation/disable delay ≤ 0,5ms  
 Input resistance 47KΩ ± 10%  
**Warning output autoControl** warn PNP transistor, 100mA, counting principle  
**Optics heating** For temperature changes, prevents fogging  
**Low temperature** To -35°C  
**Switching delay** (slow oper./release) 0 ... 10s (separately adjustable)

- 1) Typ. operating range limit: max. attainable range without function reserve
- 2) Operating range: recommended range with function reserve
- 3) 1=transient protection, 2=polarity reversal protection, 3=short circuit protection for all outputs
- 4) Rating voltage 250VAC
- 5) IP 69K test acc. to DIN 40050 part 9 simulated, high pressure cleaning conditions without the use of additives, acids and bases are not part of the test
- 6) Active high

## Order guide

Selection table		Order code →	LS 96M/P-1040-4 Part No. 500 25228 (Tr) Part No. 500 25205 (Re)	LS 96M/P-1130-2 Part No. 500 25223 (Tr) Part No. 500 25201 (Re)	LS 96M/P-1170-2 Part No. 500 25217 (Tr) Part No. 500 25195 (Re)	LS 96M/P-1170-4 Part No. 500 25219 (Tr) Part No. 500 25197 (Re)	LS 96M/N-1010-2 Part No. 500 25225 (Tr) Part No. 500 31295 (Re)		
Equipment ↓									
	Housing	Metal	●	●	●	●	●		
		Plastic							
Light source		Red light (30m)			●	●			
		Infrared light (50m)	●	●			●		
Connection		Terminals		●	●		●		
		M12 plug	●			●			
Features		Optics heating/low temp.		●					
		Switching delay	●	●	●	●			
		Warning output	●	●	●	●			
		Activation input		● 6)					
		NPN switching output					●		

## Tables

### Red light

0	30	39
---	----	----

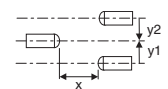
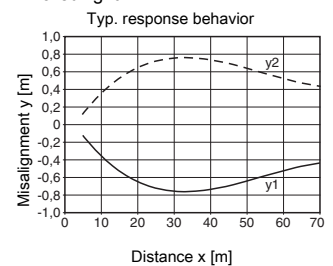
### Infrared light

0	50	65
---	----	----

□ Operating range [m]  
 □ Typ. operating range limit [m]

## Diagrams

### Infrared light



## Notes

- The throughbeam photoelectric sensor is also available with integrated AS-i chip for direct connection to the AS-i system.