



LS 96

Throughbeam photoelectric sensors



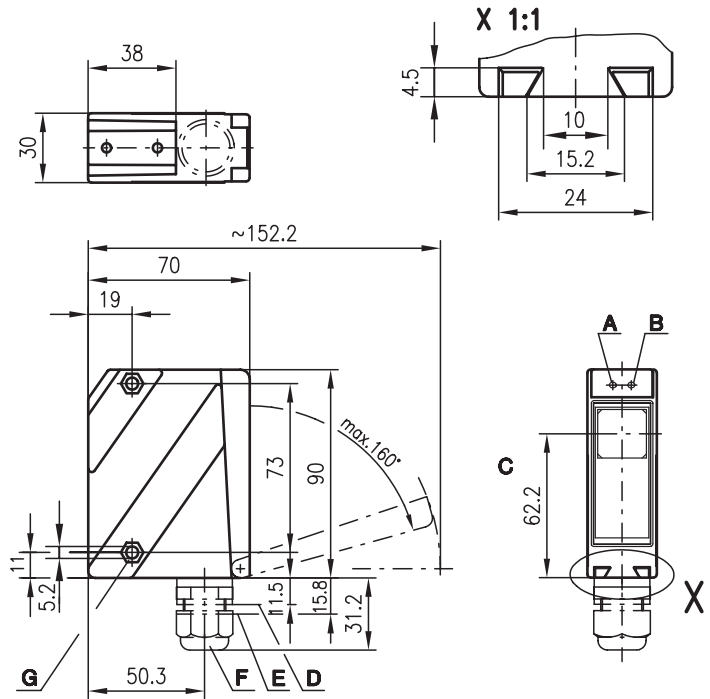
39m  
65m

10 - 30 V  
DC

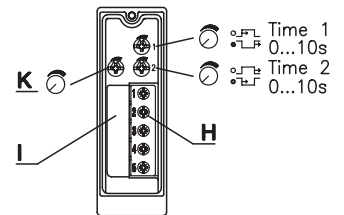


- Throughbeam photoelectric sensors with high performance reserve in visible red light or infrared light
- Robust metal housing with glass cover or plastic housing, protection class IP 67/ IP 69K for industrial application
- Complementary outputs, sensitivity adjustment and delay before start-up for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

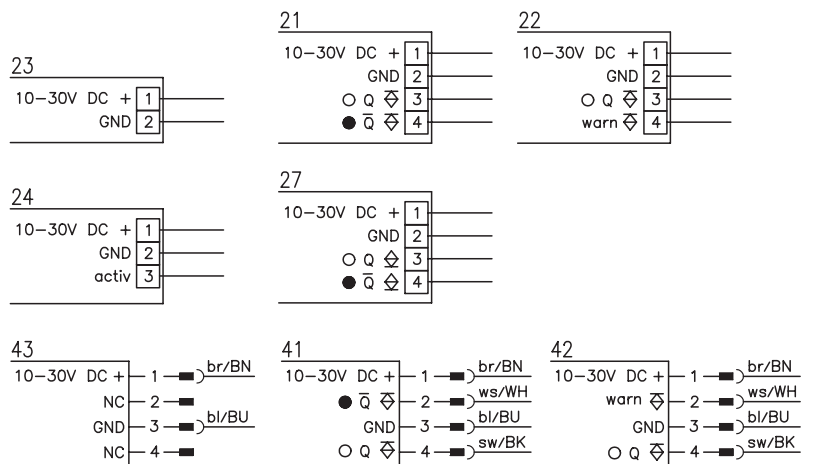
Dimensioned drawing



- A Indicator diode green
- B Indicator diode yellow
- 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 ...)
- Ready-made cables (K-D ...)
- Alignment aid ARH 96

We reserve the right to make changes • 96\_a01e.fm



### Specifications

#### 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

#### Timing

Switching frequency 500Hz  
 Response time 1ms  
 Delay before start-up ≤ 200ms

#### Electrical data

Operating voltage  $U_B$  10 ... 30VDC (incl. residual ripple)  
 Residual ripple ≤ 15% of  $U_B$   
 Bias current ≤ 50mA, ≤ 130mA with optional optics heating  
 Switching output NPN or PNP transistor  
 Function characteristics light/dark switching  
 Signal voltage high/low ≥ ( $U_B - 2V$ ) / ≤ 2V (PNP)  
 Output current max. 100mA  
 Sensitivity adjustable

#### Indicators

LED green ready  
 LED yellow light path free  
 LED yellow flashing light path free, no performance reserve

#### Mechanical data

Housing diecast zinc  
 Optics cover glass  
 Weight 380g  
 Connection type terminals or M12 connector

#### Environmental data

Ambient temp. (operation/storage) -20°C ... +60°C / -40°C ... +70°C  
 Protective circuit <sup>3)</sup> 1, 2, 3  
 VDE safety class <sup>4)</sup> II, all-insulated  
 Protection class IP 67, IP 69K <sup>5)</sup>  
 LED class 1 (acc. to EN 60825-1)  
 Standards applied IEC 60947-5-2

#### Options

**Activation input** activ ≥ 8V / ≤ 2V (≥ 2V / ≤ 2V) <sup>6)</sup>  
 Transmitter active/not active ≤ 0.5ms  
 Activation/disable delay 47KΩ ± 10%  
 Input resistance PNP transistor, 100mA, counting principle  
**Warning output autoControl** warn for temperature changes, prevents fogging  
**Optics heating** to -35°C  
**Low temperature**  
**Switching delay** (slow oper./release) 0 ... 10s (separately adjustable)

- 1) Typ. operating range limit: max. attainable range without performance reserve
- 2) Operating range: recommended range with performance 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 connector	●			●	
Features		optics heating/low temp.		●			
		switching delay	●	●	●	●	
		warning output	●	●	●	●	
		activation input		● <sup>6)</sup>			
		NPN switching output					●

### Tables

#### Red light

0	30	39
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#### Infrared light

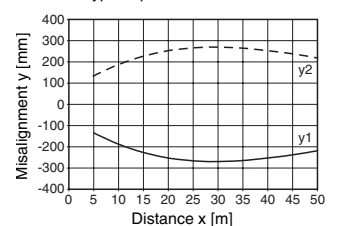
0	50	65
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□ Operating range [m]  
 ▒ Typ. operating range limit [m]

### Diagrams

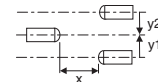
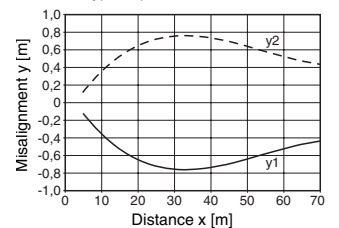
#### Red light

Typ. response behaviour



#### Infrared light

Typ. response behaviour



### Remarks

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