

LS 96

Throughbeam photoelectric sensors



39m
65m

10 - 30 V
DC

- 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

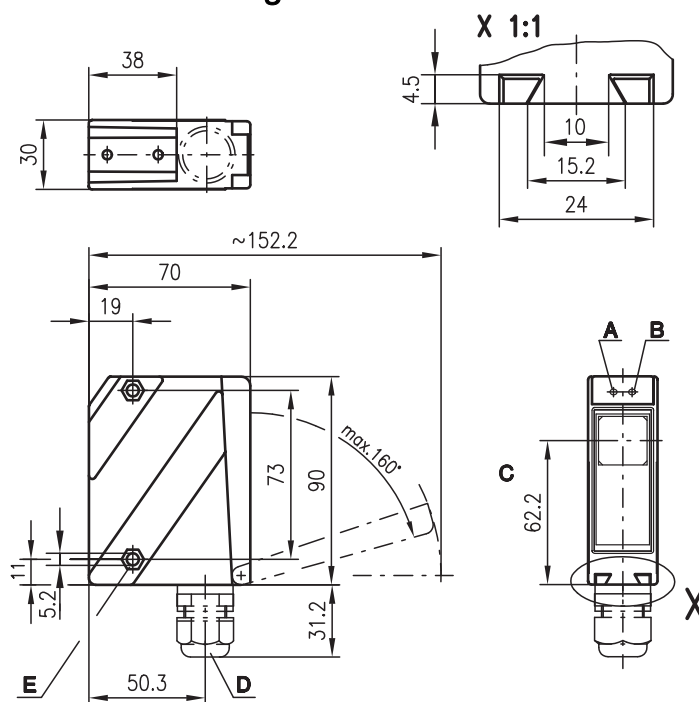


Accessories:

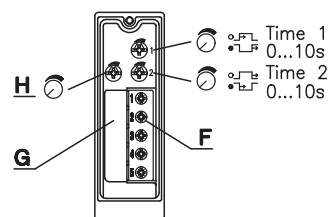
(available separately)

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

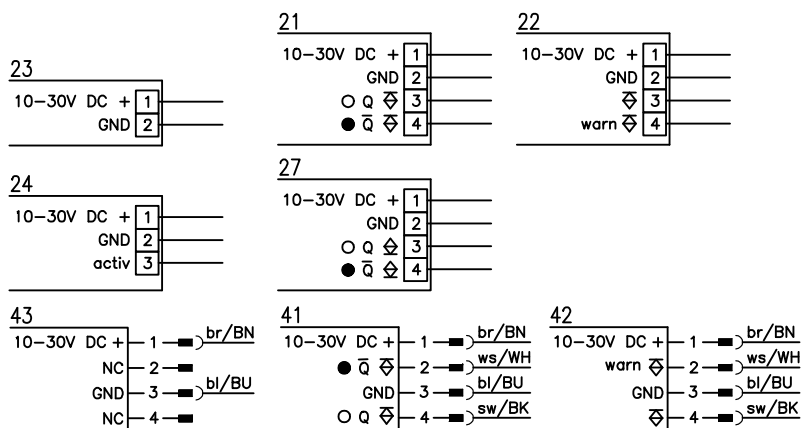
Dimensioned drawing



- 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



Technical data

Optical data

Typ. operating range limit ¹⁾
Operating range ²⁾
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 ³⁾ 1, 2, 3
VDE protection class ⁴⁾ II, all-insulated
Degree of protection IP 67, IP 69K ⁵⁾
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) ⁶⁾
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 →					
Equipment ↓		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)	
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
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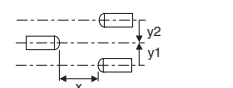
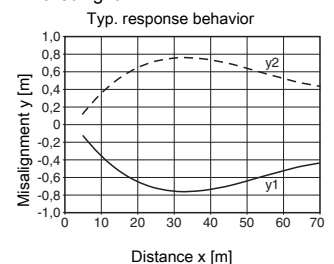
Infrared light

0	50	65
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□	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.