



LS 96

Throughbeam photoelectric sensors



150m

10 - 30 V
DC



- Throughbeam photoelectric sensors with high performance reserve in infrared light
- Robust metal housing with glass cover, 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

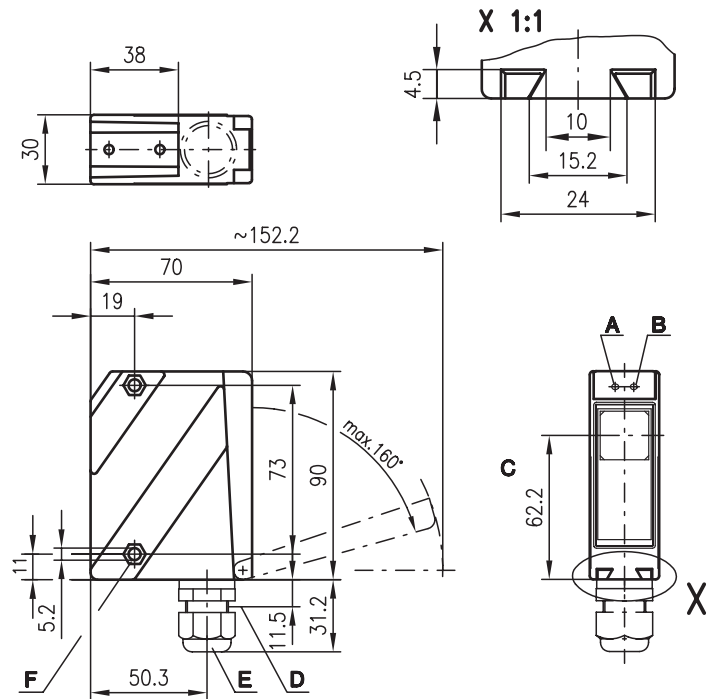


Accessories:

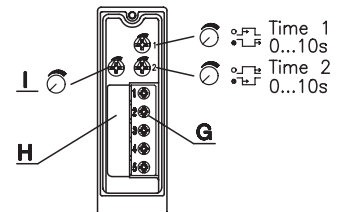
(available separately)

- 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

Dimensioned drawing

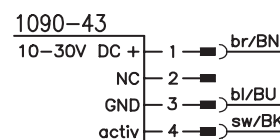
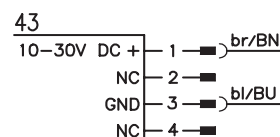
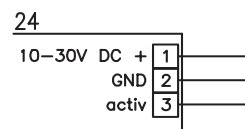


- A Indicator diode green
- B Indicator diode yellow
- C Optical axis
- D Device plug M12x1
- E Screwed cable gland M16x1.5 for Ø 5 ... 10mm
- F Countersinking for SK nut M5, 4.2 deep
- G Connection terminals
- H Cable entry
- I Sensitivity adjustment

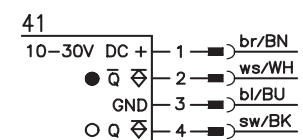
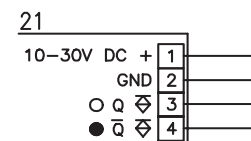
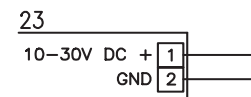


Electrical connection

Transmitter



Receiver



Specifications

Optical data

Typ. operating range limit ¹⁾
 Operating range ²⁾
 Light source
 Wavelength

Infrared light

0 ... 150m
 0 ... 120m
 LED (modulated light)
 880nm

Timing

Switching frequency
 Response time
 Delay before start-up

500Hz
 1 ms
 ≤ 200ms

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
 ≤ 50mA, ≤ 130mA with optional optics heating
 PNP transistor
 light/dark switching
 ≥ ($U_B - 2V$) / ≤ 2V (PNP)
 max. 100mA
 adjustable

Indicators

LED green
 LED yellow
 LED yellow flashing

ready
 light path free
 light path free, no performance reserve

Mechanical data

Housing
 Optics cover
 Weight
 Connection type

Metal housing

diecast zinc
 glass
 380g
 terminals, M12 connector

Environmental data

Ambient temp. (operation/storage)
 Protective circuit ³⁾
 VDE safety class ⁴⁾
 Protection class
 LED class
 Standards applied

-20°C ... +60°C / -40°C ... +70°C
 1, 2, 3
 II, all-insulated
 IP 67, IP 69K ⁵⁾
 1 (acc. to EN 60825-1)
 IEC 60947-5-2

Options

Activation input activ
 Transmitter active/not active
 Activation/disable delay
 Input resistance
Warning output autoControl warn
Optics heating
Low temperature
Switching delay (slow oper./release)

≥ 8V / ≤ 2V (≥ 2V / ≤ 2V) ⁶⁾
 ≤ 0.5ms
 47KΩ ± 10%
 PNP transistor, 100mA, counting principle
 for temperature changes, prevents fogging
 to -35°C
 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 →			
Equipment ↓		LS 96M/P-3010-2 Part No. 500 25225 (Tr) Part No. 500 34128 (Re)	LS 96M/P-3010-4 Part No. 500 25228 (Tr) Part No. 500 34128 (Re)	LS 96M/P-3012-2 Part No. 500 25223 (Tr) Part No. 500 33328 (Re)	LS 96M/P-3012-4 Part No. 501 03290 (Tr) Part No. 501 03291 (Re)
Housing	metal	●	●	●	●
Light source	infrared light (120m)	●	●	●	●
Connection	terminals	●		●	
	M12 connector		●		●
Features	optics heating/low temp.			●	●
	activation input			● 6)	● 6)

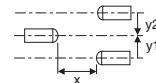
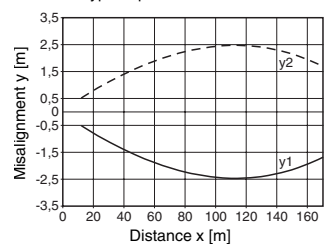
Tables

0	120	150
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□ Operating range [m]
 □ Typ. operating range limit [m]

Diagrams

Typ. response behaviour



Remarks

LS = Pair consisting of
 LSS = Transmitter
 LSE = Receiver

LS 96M/P-3010-2
 LSS 96M-1070-23
 LSE 96M/P-3010-21

LS 96M/P-3010-4
 LSS 96M-1070-43
 LSE 96M/P-3010-41

LS 96M/P-3012-2
 LSS 96M-1090-24
 LSE 96M/P-3012-21

LS 96M/P-3012-4
 LSS 96M-1090-43
 LSE 96M/P-3012-41