

## LS 92/4.8

### Through-beam Safety Light Barriers (AOPD type 2)



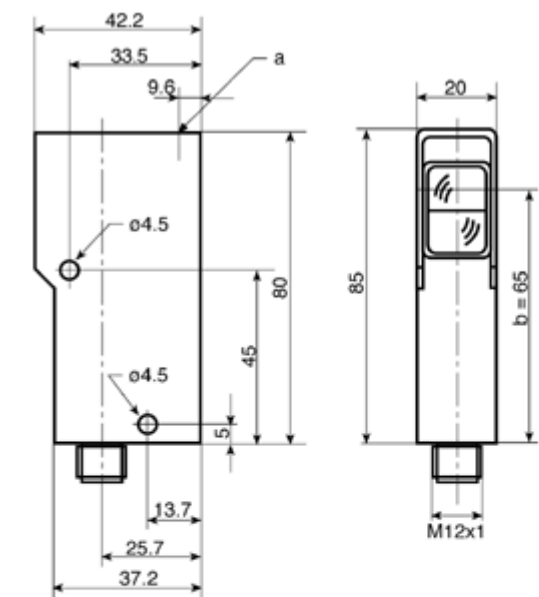
### LS 92/4.8

In conjunction with a test monitoring unit, such as for instance the TNT 35 or MSI-s/R, this opto-sensor with test input constitutes an active optoelectronic protective device of type 2.

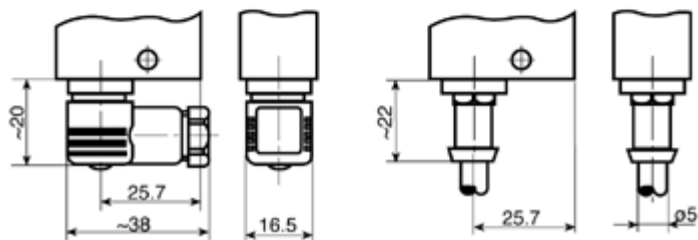
### Advantages

- Through-beam safety light barrier with high function reserve
- Activating input for testing and cross linkage of the sensor
- Compact design with sturdy housing of die casted zinc and glass optical parts for high protection against external influences
- Optional bright/dark switching via pole reversal of operating voltage
- Electrical connection with M12 circular plug-in connection, 6-pin standard plug or cable
- Continuous fastening holes for quick assembly

**LS 92/4.8**  
**Dimensional Drawings**



- a) Display diode
- b) Optical axis



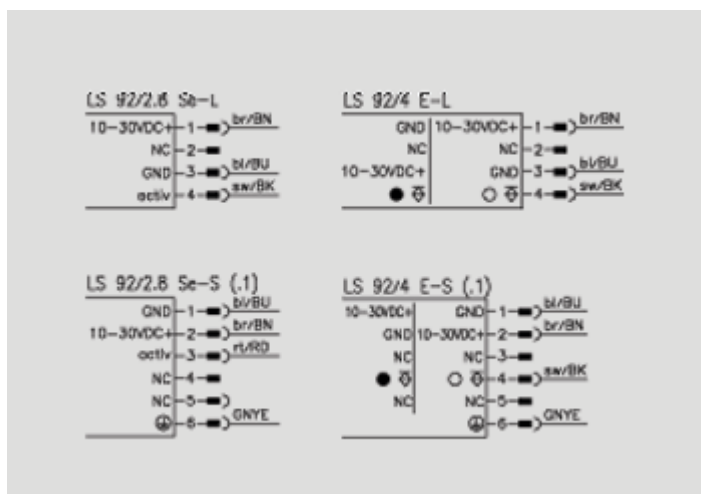
LS 92/2.8 Se-S  
 LS 92/4 E-S  
 LS 92/2 E-S  
 LS 92/4 E-S.1  
 LS 92/2.8 Se-S.1

LS 92/2.8 Se, 6000  
 LS 92/4 E, 6000

# LS 92/4.8

## Electrical Connection

Application drawing LS 92/4.8



# LS 92/4.8

## Technical Data

Safety Light Barrier	LS 92/4.8
Safety category	Type 2 according to EN-/IEC 61496-1,-2 in combination with a test monitoring unit.
Operating range <sup>1)</sup>	0 - 12 m
Limit range <sup>2)</sup>	0 - 15,6 m
Response time	2,5 ms
Stand-by delay	≤100 ms
Enclosure rating	IP 67, IP 65 for all S-types
Shock proof	Semi sine, 30 gn, 11 ms (IEC 947-5-2)
Vibration proof	10 - 55 Hz, max. 7,5 gn (IEC 947-5-2)
Electronic compatibility	prEN 50100-1
Ambient temperature (operation/storage) <sup>3)</sup>	-20 °C ... +60 °C / -30 °C ... +70 °C
External light limit	≥30 kLux (IEC 947-5-2)
VDE-Protection class	I for S-types and cable version
VDE-Protection class <sup>4)</sup>	II for L-types (M 12 circ. plug-in connection)
Protective cabling <sup>5)</sup>	2, 3
Operation voltage U <sub>B</sub>	10... 30 V DC (residual ripple included)
Residual ripple	≤15 % von U <sub>B</sub>
No-load current	≤35 mA
Switching output <sup>3)</sup>	pnp transistor output
Output current	max. 100 mA
Function	bright/dark switching (by pole reversal of U <sub>B</sub> )
Signal voltage high/low	≥(U <sub>B</sub> - 2 V) / ≤2 V
Connection	M12 circular plug-in connection - LS 92/..L, 6-pin plug - LS 92/S, cable 6 m, 3x0,25 mm <sup>2</sup> + 1x0,5 mm <sup>2</sup> - LS 92/.., 6000
Light source	LED (alternating light)
Wave length	880 nm
Switching frequency	200 Hz
Receiver LED yellow LED yellow blinkend	Light path unobstructed Light path unobstructed, no function reserve
Transmitter LED yellow	Transmitter ON
Housing	Zinc die casting
Optical parts	Glass
Weight	140 g
Transmitter activ/not aktiv	≥8 V / ≤2 V or without switches
Activation/release delay	≤1 ms
Input resistance	4,7 kΩ ± 10 %

<sup>1)</sup> Operating range: recommended Range with functional reserve

<sup>2)</sup> Limit range: max. possible range without function range

<sup>3)</sup> LS 92/2.8 S with npn transistor output (no BWS type 2)

<sup>4)</sup> Testing voltage 250 V AC

<sup>5)</sup> 2 = pole reversal protection, 3 = short circuit protection for all outputs

### Note:

The through-beam safety light barrier is an electro-sensitive protective device in connection with a safety-relevant control system where the cyclical testing of transmitter and receiver is carried out according to EN-/IEC 61496-1, -2, category 2 (testing). The supply unit operating the light barrier must intercept changes and interruption of the supply voltage according to EN-/IEC 61496-1. Minimum diameter of darkening object Ø 13 mm.