

# Thru-beam sensor

## E18-LAS/EV18-LAS/25/32/76a/92

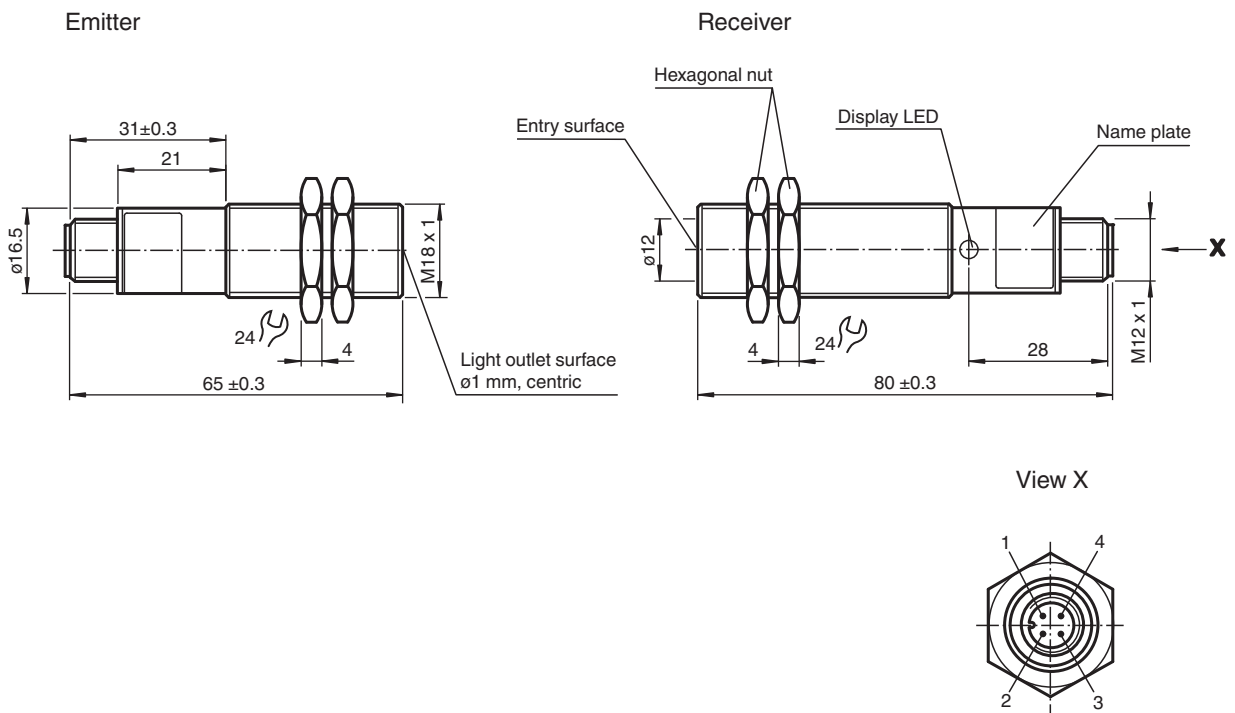


- Laser thru-beam sensor in the M18 housing
- Metal design
- Automatic threshold value adaptation
- Very high switching accuracy
- Light beam diameter < 1.5 mm
- Test input

Laser thru-beam sensor, M18 threaded housing design, metal housing, front optical face, 10 m detection range, red light, light on, DC version, PNP output, test input, M12 plug



### Dimensions



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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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## Technical Data

<b>System components</b>		
Emitter		E18-LAS/92
Receiver		EV18-LAS/32/92
<b>General specifications</b>		
Effective detection range		0 ... 10 m
Threshold detection range		18 m
Light source		laser diode
Light type		modulated visible red light
Laser nominal ratings		
Note		LASER LIGHT , DO NOT STARE INTO BEAM
Laser class		1
Wave length		650 nm
Beam divergence		1 mrad
Pulse length		15 µs
Repetition rate		10 kHz
max. pulse energy		< 10.2 nJ
Target size		1.2 mm
Light receiver		photo diode
Diameter of the light spot		approx. 2 mm at detection range 1.5 m
Opening angle		Receiver +/-2°
Optical face		frontal
Ambient light limit		
Continuous light		5000 Lux
Hysteresis	H	25 %
<b>Functional safety related parameters</b>		
MTTF <sub>d</sub>		208.3 a
Mission Time (T <sub>M</sub> )		7 a
Diagnostic Coverage (DC)		60 %
<b>Indicators/operating means</b>		
Function indicator		LED yellow, lights up when light beam is free, flashes when falling short of the operating reserve
<b>Electrical specifications</b>		
Operating voltage	U <sub>B</sub>	10 ... 30 V DC
Ripple		10 %
No-load supply current	I <sub>0</sub>	emitter ≤ 25 mA , receiver ≤ 60 mA
<b>Input</b>		
Test input		Emitter deactivation emitter on: 0 ... +3V emitter off: +5V ... +U <sub>B</sub>
<b>Output</b>		
Stability alarm output		PNP, open collector , short-circuit protected inactive: signal strength > approx. 30 % of the strength with clean optic active: signal strength < approx. 30 % of the strength with clean optic
Switching type		light-on
Signal output		1 PNP, short-circuit protected, open collector
Switching voltage		max. 30 V DC
Switching current		max. 100 mA
Switching frequency	f	1000 Hz
Response time		0.5 ms
<b>Conformity</b>		
Product standard		EN 60947-5-2
Laser safety		IEC 60825-1:2007
<b>Compliance with standards and directives</b>		
Standard conformity		
Shock and impact resistance		IEC / EN 60068, half-sine, 30 g in X, Y and Z direction

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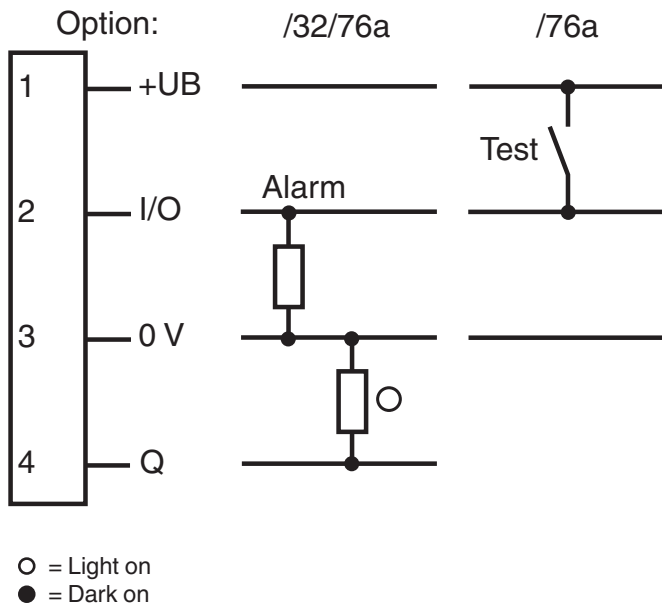
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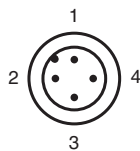
**Technical Data**

Vibration resistance	IEC / EN 60068-2-6. Sinus. 10 -150 Hz, 5 g in each X, Y and Z directions
<b>Approvals and certificates</b>	
CCC approval	CCC approval / marking not required for products rated ≤36 V
<b>Ambient conditions</b>	
Ambient temperature	0 ... 50 °C (32 ... 122 °F)
Storage temperature	-40 ... 85 °C (-40 ... 185 °F)
<b>Mechanical specifications</b>	
Degree of protection	IP65
Connection	4-pin, M12 x 1 connector
<b>Material</b>	
Housing	brass, nickel-plated
Optical face	glass
Connector	metal
Mass	per 45 g

**Connection Assignment**



**Connection Assignment**

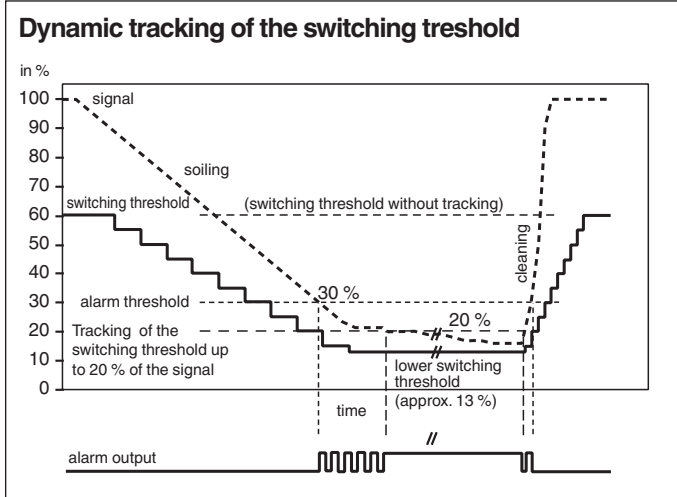
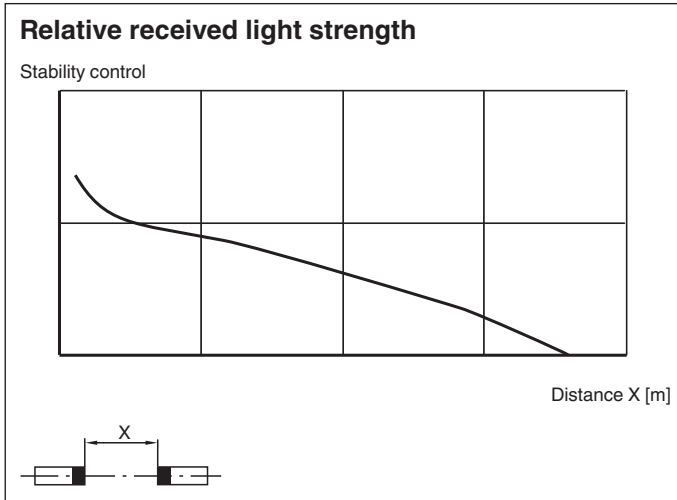
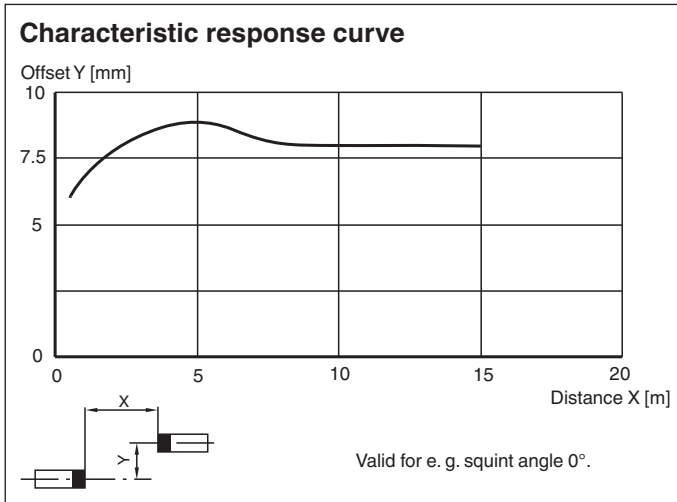


Wire colors in accordance with EN 60947-5-2

- |   |  |    |         |
|---|--|----|---------|
| 1 |  | BN | (brown) |
| 2 |  | WH | (white) |
| 3 |  | BU | (blue)  |
| 4 |  | BK | (black) |

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**Characteristic Curve**



**Safety Information**

**Laser Class 1 Information**

The irradiation can lead to irritation especially in a dark environment. Do not point at people!  
 Maintenance and repairs should only be carried out by authorized service personnel!  
 Attach the device so that the warning is clearly visible and readable.  
 The warning accompanies the device and should be attached in immediate proximity to the device.  
 Caution – Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.












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## Technical Features

The optical barrier is equipped with an automatic adjustment of the limit value with non-volatile memory to compensate for contamination by dust particles in the optical path. The adjustment of the limit value for the switching point extends to < 20 % of the signal level that is present for the unattenuated optical path

The control constant is < 3 sec for a reduction in intensity of 2 %, or < 0.6 s (typically 0.2 sec) for an increase in intensity of 2 %.

## Accessories

	<b>CPZ18B03</b>	Mounting Bracket with swivel nut
	<b>OMH-VL18</b>	Mounting Bracket with swivel nut
	<b>BF 18</b>	Mounting flange, 18 mm
	<b>BF 18-F</b>	Plastic mounting adapter, 18 mm
	<b>BF 5-30</b>	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm
	<b>V1-G-2M-PVC</b>	Female cordset single-ended M12 straight A-coded, 4-pin, PVC cable grey
	<b>V1-G-2M-PUR</b>	Female cordset single-ended M12 straight A-coded, 4-pin, PUR cable grey
	<b>V1-W-2M-PUR</b>	Female cordset single-ended M12 angled A-coded, 4-pin, PUR cable grey
	<b>V1-G-5M-PVC</b>	Female cordset single-ended M12 straight A-coded, 4-pin, PVC cable grey
	<b>V1-G-5M-PUR</b>	Female cordset single-ended M12 straight A-coded, 4-pin, PUR cable grey
	<b>V1-W-5M-PUR</b>	Female cordset single-ended M12 angled A-coded, 4-pin, PUR cable grey