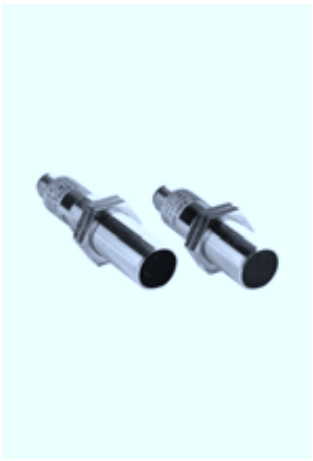


Model Number

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

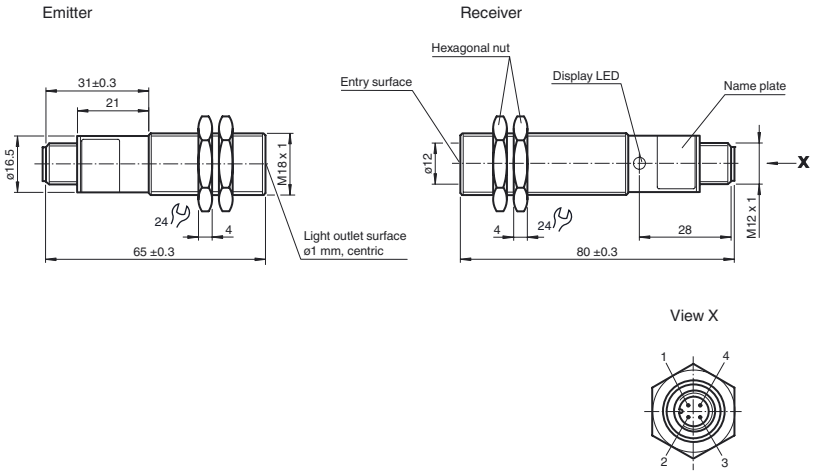
Thru-beam sensor

with 4-pin, M12 x 1 connector

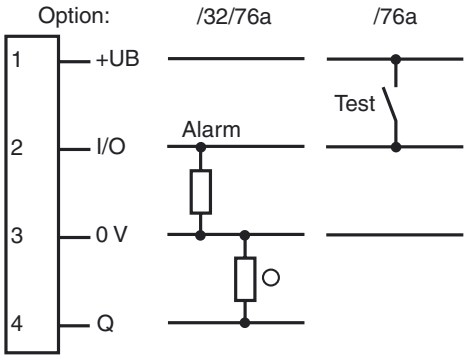
Features

- 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

Dimensions

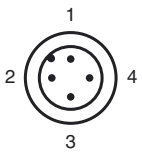


Electrical connection



○ = Light on
● = Dark on

Pinout



Release date: 2014-01-15 08:26 Date of issue: 2014-01-23 115526_eng.xml

Technical data

System components		
Emitter		E18-LAS/92
Receiver		EV18-LAS/32/92
General specifications		
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		1.5 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. 1.5 mm at detection range 1.5 m
Angle of divergence		Receiver +/-2°
Optical face		frontal
Ambient light limit		
Continuous light		5000 Lux
Hysteresis	H	25 %
Functional safety related parameters		
$MTTF_d$		208.3 a
Mission Time (T_M)		7 a
Diagnostic Coverage (DC)		60 %
Indicators/operating means		
Function indicator		LED yellow, lights up when light beam is free, flashes when falling short of the stability control
Electrical specifications		
Operating voltage	U_B	10 ... 30 V DC
Ripple		10 %
No-load supply current	I_0	emitter ≤ 25 mA , receiver ≤ 60 mA
Input		
Test input		emitter deactivation emitter on: 0 ... +3V emitter off: +5V ... +U_B
Output		
Pre-fault indication 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
Ambient conditions		
Ambient temperature		0 ... 50 °C (32 ... 122 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
Mechanical specifications		
Protection degree		IP65
Connection		4-pin, M12 x 1 connector
Material		
Housing		brass, nickel-plated
Optical face		glass
Connector		metal
Mass		Per 45 g
Compliance with standards and directives		
Directive conformity		
EMC Directive 2004/108/EC		EN 60947-5-2:2007
Standard conformity		
Product standard		EN 60947-5-2:2007 IEC 60947-5-2:2007
Shock and impact resistance		IEC / EN 60068, half-sine, 30 g in X, Y and Z direction
Vibration resistance		IEC / EN 60068-2-6. Sinus. 10 -150 Hz, 5 g in each X, Y and Z directions
Laser class		IEC 60825-1:2007 EN 60825-1:2007

Accessories

CPZ18B03
Mounting Bracket with swivel nut

OMH-VL18
Mounting Bracket with swivel nut

BF 18
Mounting flange, 18 mm

BF 18-F
Mounting flange with dead stop, 18 mm

BF 5-30
Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm

V1-G-2M-PVC
Female cordset, M12, 4-pin, PVC cable

V1-G-2M-PUR
Female cordset, M12, 4-pin, PUR cable

V1-W-2M-PVC
Female cordset, M12, 4-pin, PVC cable

V1-W-2M-PUR
Female cordset, M12, 4-pin, PUR cable

V1-G-5M-PVC
Female cordset, M12, 4-pin, PVC cable

V1-G-5M-PUR
Female cordset, M12, 4-pin, PUR cable

V1-W-5M-PVC
Female cordset, M12, 4-pin, PVC cable

V1-W-5M-PUR
Female cordset, M12, 4-pin, PUR cable

Other suitable accessories can be found at www.pepperl-fuchs.com

Release date: 2014-01-15 08:26 Date of issue: 2014-01-23 115526_eng.xml

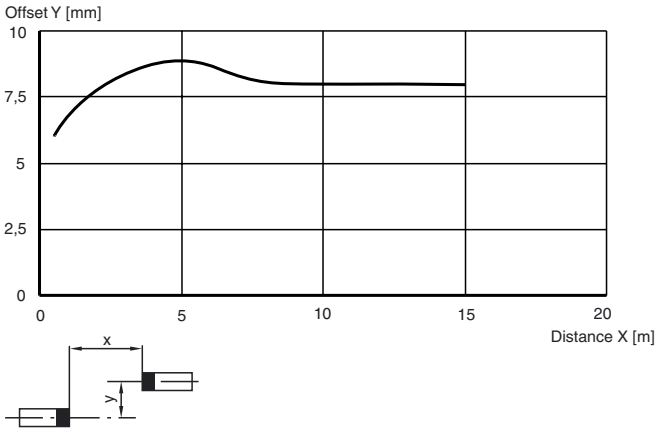
Approvals and certificates

CCC approval	CCC approval / marking not required for products rated ≤36 V

Curves/Diagrams

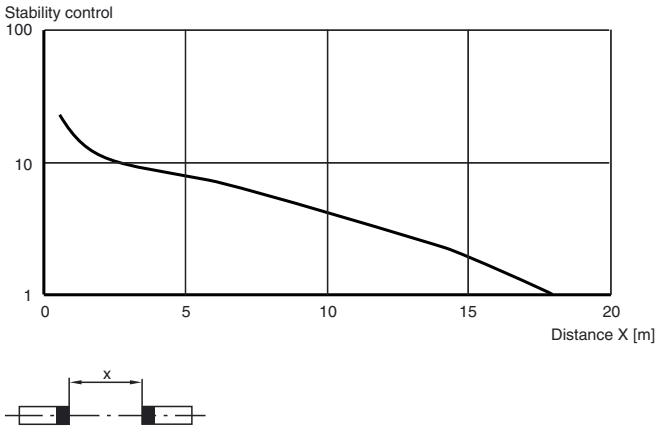
Characteristic response curve

E18LAS-EV18-LAS



Relative received light strength

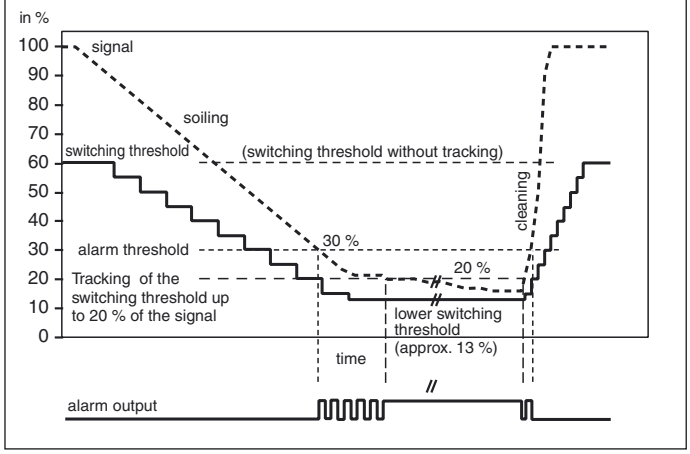
E18LAS-EV18-LAS



Curves/Diagrams

Dynamic tracking of the switching treshold

E18/EV18-LAS



Note

The E18/EV18-LAS... 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%.

Release date: 2014-01-15 08:26 Date of issue: 2014-01-23 115526_eng.xml

Laser notice laser class 1

- 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.

Release date: 2014-01-15 08:26 Date of issue: 2014-01-23 115526_eng.xml