Model Number

LD28/LV28-LAS-F2/47/76a/82b/105

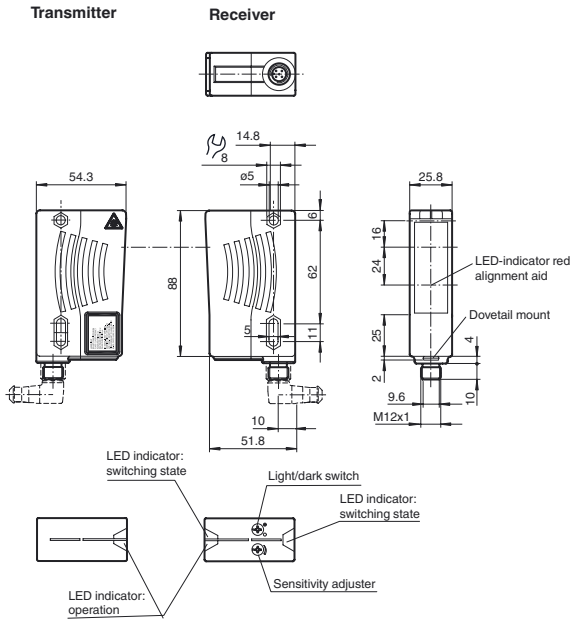
Thru-beam sensor

with 5-pin, M12 x 1 connector

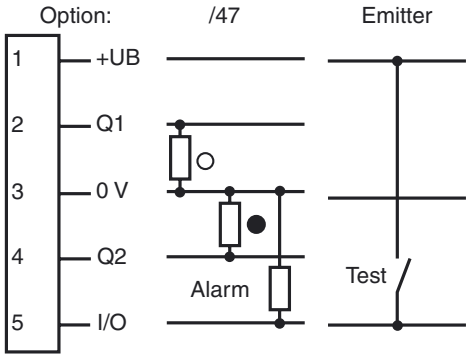
Features

- Universal series with highly versatile fields of use
- Resistant against noise: reliable operation under all conditions
- Highly visible LED as alignment aid in receiver optics
- Emitter with test input
- Laser version for long ranges

Dimensions

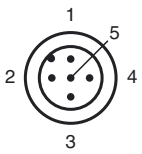


Electrical connection



○ = Light on
● = Dark on

Pinout



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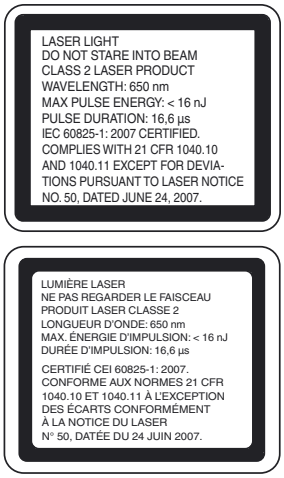
Technical data

System components		
Emitter		LD28-LAS-F2/76a/105
Receiver		LV28-LAS-F2/47/82b/105
General specifications		
Effective detection range		0 ... 300 m
Threshold detection range		400 m
Light source		laser diode
Light type		modulated visible red light
Laser nominal ratings		
Note		LASER LIGHT , DO NOT STARE INTO BEAM
Laser class		2
Wave length		650 nm
Beam divergence		< 1.5 mrad
Pulse length		16.6 µs
Repetition rate		30 kHz
max. pulse energy		16 nJ
Alignment aid		LED red (in receiver lens) illuminated constantly: beam is interrupted, flashes: reaching switching point, off: sufficient stability control
Transmitter frequency		F2 = 30 kHz
Diameter of the light spot		approx. 6 mm at 5 m, approx. 75 x 300 mm at 300 m vertical to housing axis
Angle of divergence		Emitter: 0.06 ° Receiver: 5 °
Ambient light limit		50000 Lux
Functional safety related parameters		
$MTTF_d$		540 a
Mission Time (T_M)		20 a
Diagnostic Coverage (DC)		90 %
Indicators/operating means		
Operation indicator		LED green
Function indicator		LED yellow: 1. LED lit constantly: signal > 2 x switching point (function reserve) 2. LED flashes: signal between 1 x switching point and 2 x switching point 3. LED off: signal < switching point
Control elements		sensitivity adjustment (Adjustment to < 25% of the effective operating range) , Light/Dark switch
Electrical specifications		
Operating voltage	U_B	10 ... 30 V DC
Ripple		10 %
No-load supply current	I_0	Emitter: ≤ 55 mA Receiver: ≤ 35 mA
Input		
Test input		emitter deactivation at $+U_B$
Output		
Pre-fault indication output		1 PNP transistor, short-circuit protected, protected from reverse polarity, open collector, Umax = 30 V DC, Imax = 0.2 A The output becomes inactive if the signal level has fallen below the function reserve for approx. 10 s (yellow and red LEDs flash). If the light beam is interrupted four times during this period, the output immediately becomes inactive.
Switching type		light/dark on, switchable
Signal output		2 PNP, complementary, short-circuit protected, reverse polarity protected , open collectors
Switching voltage		max. 30 V DC
Switching current		max. 200 mA
Switching frequency	f	1000 Hz
Response time		0.5 ms
Ambient conditions		
Ambient temperature		-10 ... 50 °C (14 ... 122 °F)
Storage temperature		-20 ... 75 °C (-4 ... 167 °F)
Mechanical specifications		
Degree of protection		IP67
Connection		5-pin, M12 x 1 plastic connector
Material		
Housing		Plastic ABS
Optical face		Plastic pane
Mass		140 g (emitter and receiver)
Compliance with standards and directives		
Directive conformity		
EMC Directive 2004/108/EC		EN 60947-5-2:2007
Standard conformity		

Laserlabel



Accessories

OMH-05
Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm

OMH-07
Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm

OMH-21
Mounting bracket

OMH-22
Mounting bracket

OMH-MLV11-K
dove tail mounting clamp

OMH-RLK29-HW
Mounting bracket for rear wall mounting

OMH-RL28-C
Weld slag cover model

V15-W-2M-PUR
Female cordset, M12, 5-pin, PUR cable

V15-G-2M-PUR
Female cordset, M12, 5-pin, PUR cable

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

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Product standard	EN 60947-5-2:2007 IEC 60947-5-2:2007
Laser class	IEC 60825-1:2007 Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007

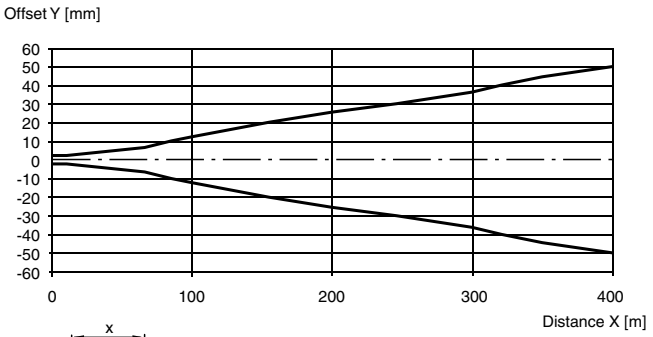
Approvals and certificates

Protection class	II, rated voltage ≤ 250 V AC with pollution degree 1-2 according to IEC 60664-1
UL approval	cULus Listed , Class 2 power source
CCC approval	CCC approval / marking not required for products rated ≤36 V

Curves/Diagrams

Characteristic response curve

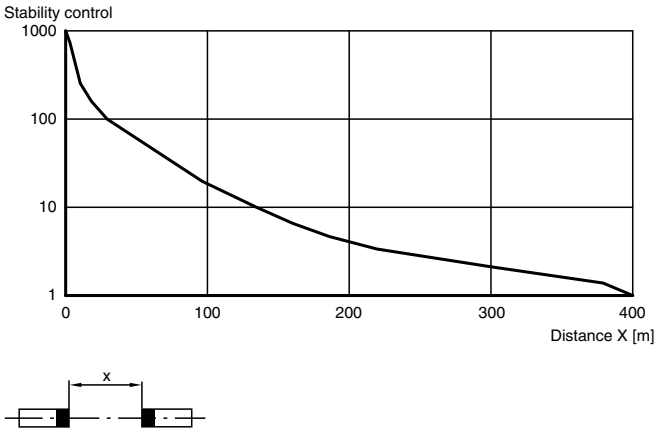
LD28/LV28-LAS;
LA28/LK28-LAS



Permissible distance (offset) between the optical axis of the emitter and receiver.

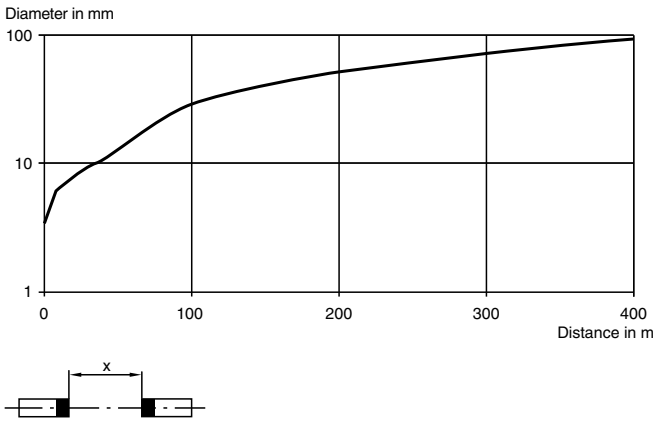
Relative received light strength

LD28/LV28-LAS;
LA28/LK28-LAS



Light spot diameter = f (Distance)

LD28/LV28-LAS;
LA28/LK28-LAS



Laser notice laser class 2

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- The irradiation can lead to irritation especially in a dark environment. Do not point at people!
- Caution: Do not look into the beam!
- Maintenance and repairs should only be carried out by authorized service personnel!
- Attach the device so that the warning is clearly visible and readable.
- 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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