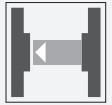




## Thru-beam sensor

LD28/LV28-F1-3974/47/82b/112

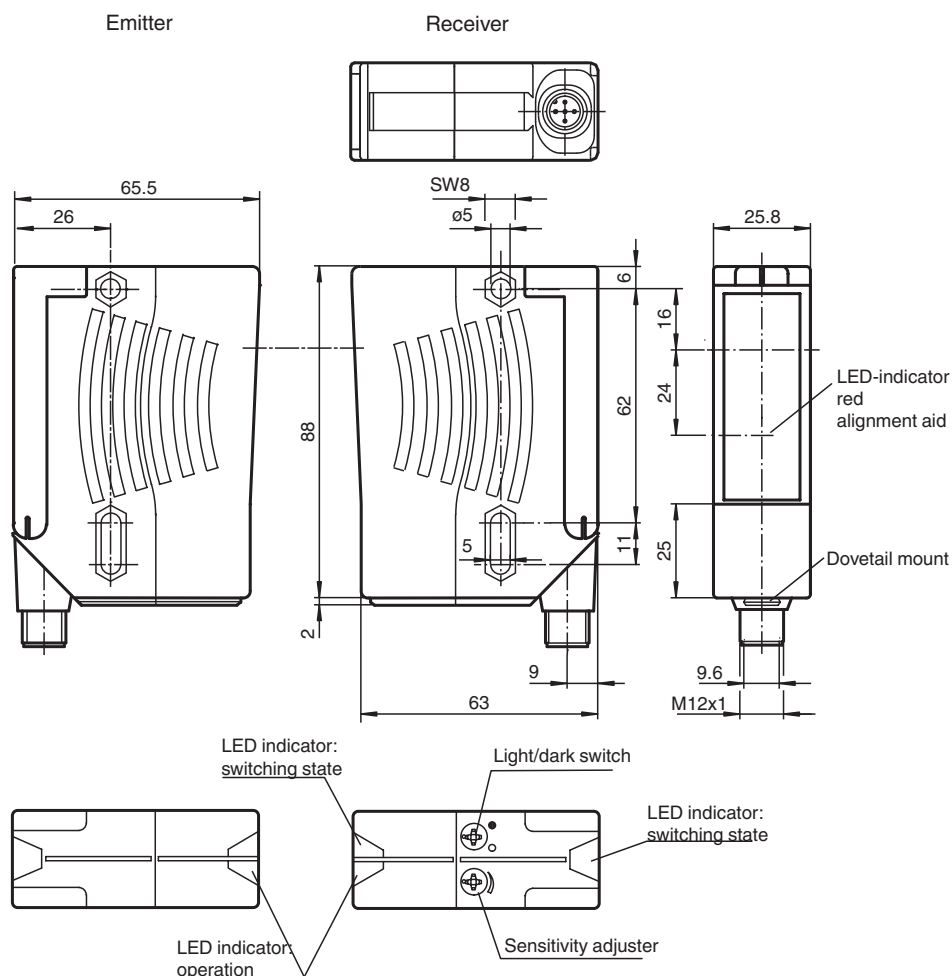


- Ultra bright LEDs for power on, weak signal indication and switching state
- Highly visible LED as alignment aid in receiver optics
- Emitter deactivation
- Not sensitive to ambient light, even with switched energy saving lamps
- Extra vibration proof version
- Waterproof, degree of protection IP67

Universal thru-beam sensor, large housing design, 30 m detection range, red light, 25 kHz transmission frequency, light/dark on, DC version, 2 PNP outputs, test input, pre-fault output, M12 plug



### Dimensions



### Technical Data

#### System components

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

Pepperl+Fuchs Group  
www.pepperl-fuchs.com

USA: +1 330 486 0001  
fa-info@us.pepperl-fuchs.com

Germany: +49 621 776 1111  
fa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091  
fa-info@sg.pepperl-fuchs.com

**PEPPERL+FUCHS**

## Technical Data

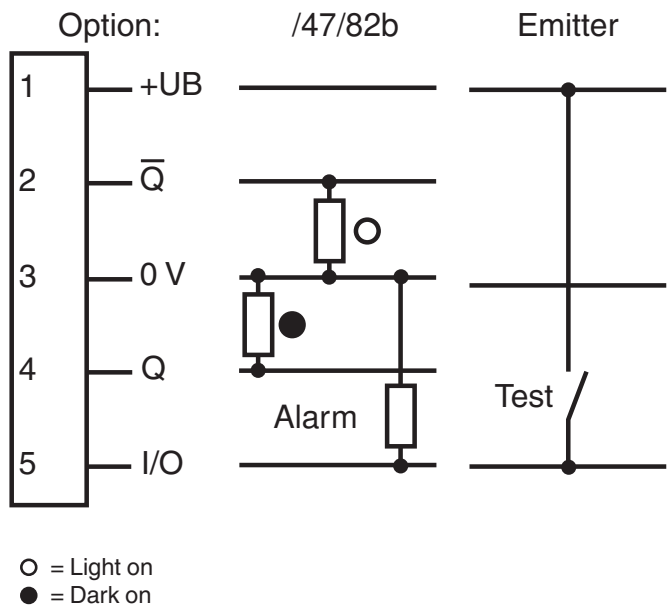
Emitter	LD28-F1-3974/76a/112	
Receiver		LV28-F1-3974/47/82b/112
<b>General specifications</b>		
Effective detection range		0 ... 30 m
Threshold detection range		40 m
Light source		LED
Light type		modulated visible red light , 660 nm
Alignment aid		LED red (in receiver lens) illuminated constantly: beam is interrupted, flashes: reaching switching point, off: sufficient stability control
Transmitter frequency		F1 = 25 kHz
Diameter of the light spot		approx. 0.6 m at 30 m
Opening angle		Emitter 1.2° , Receiver 5°
Ambient light limit		50000 Lux
<b>Functional safety related parameters</b>		
MTTF <sub>d</sub>		620 a
Mission Time (T <sub>M</sub> )		20 a
Diagnostic Coverage (DC)		90 %
<b>Indicators/operating means</b>		
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-on/dark-on changeover switch
<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: ≤ 50 mA Receiver: ≤ 35 mA
<b>Input</b>		
Test input		emitter deactivation at +U <sub>B</sub> (I <sub>max</sub> < 3 mA at 30 V DC)
<b>Output</b>		
Stability alarm output		1 PNP transistor, short-circuit protected, protected from reverse polarity, open collector, U <sub>max</sub> = 30 V DC, I <sub>max</sub> = 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
<b>Conformity</b>		
Product standard		EN 60947-5-2
<b>Approvals and certificates</b>		
UL approval		cULus
CCC approval		CCC approval / marking not required for products rated ≤36 V
<b>Ambient conditions</b>		
Ambient temperature		-40 ... 60 °C (-40 ... 140 °F)
Storage temperature		-40 ... 75 °C (-40 ... 167 °F)
<b>Mechanical specifications</b>		
Degree of protection		IP67

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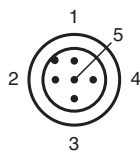
Technical Data

Connection	Metal connector, M12, 5-pin, 90° rotatable	
Material		
Housing	Plastic ABS	
Optical face	Plastic pane	
Mass	140 g (emitter and receiver)	
Dimensions		
Height	88 mm	
Width	25.8 mm	
Depth	65.5 mm	

Connection Assignment

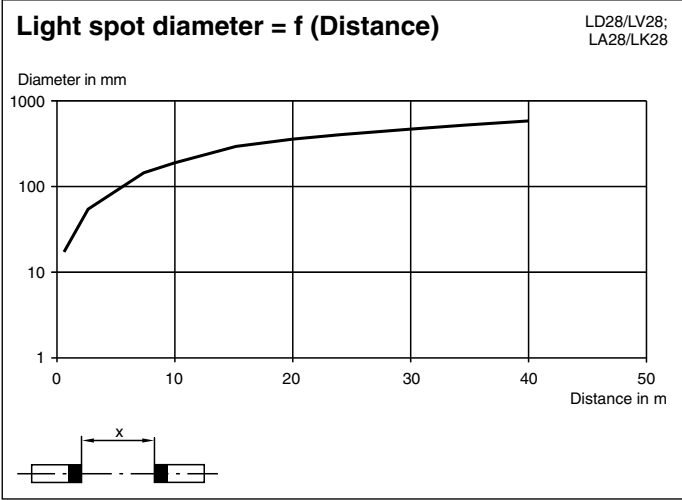
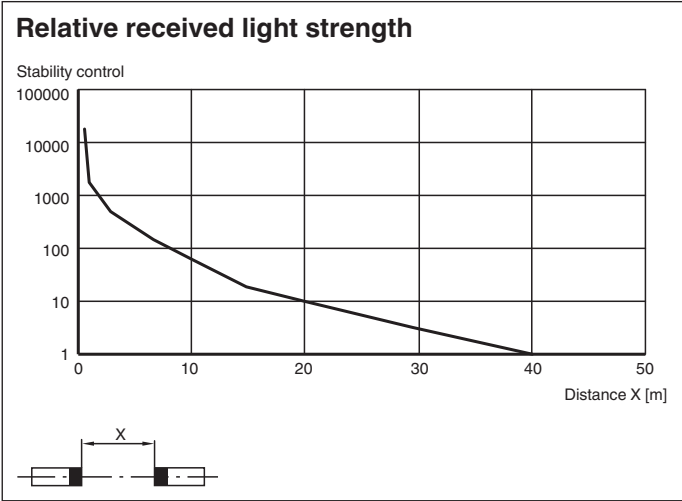
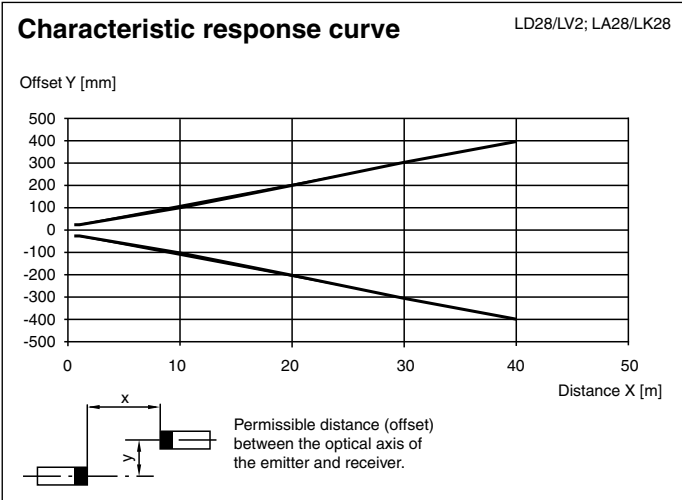


Connection Assignment



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Characteristic Curve



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