



# Thru-beam sensor

## LD28/LV28-F1/47/76a/82b/115

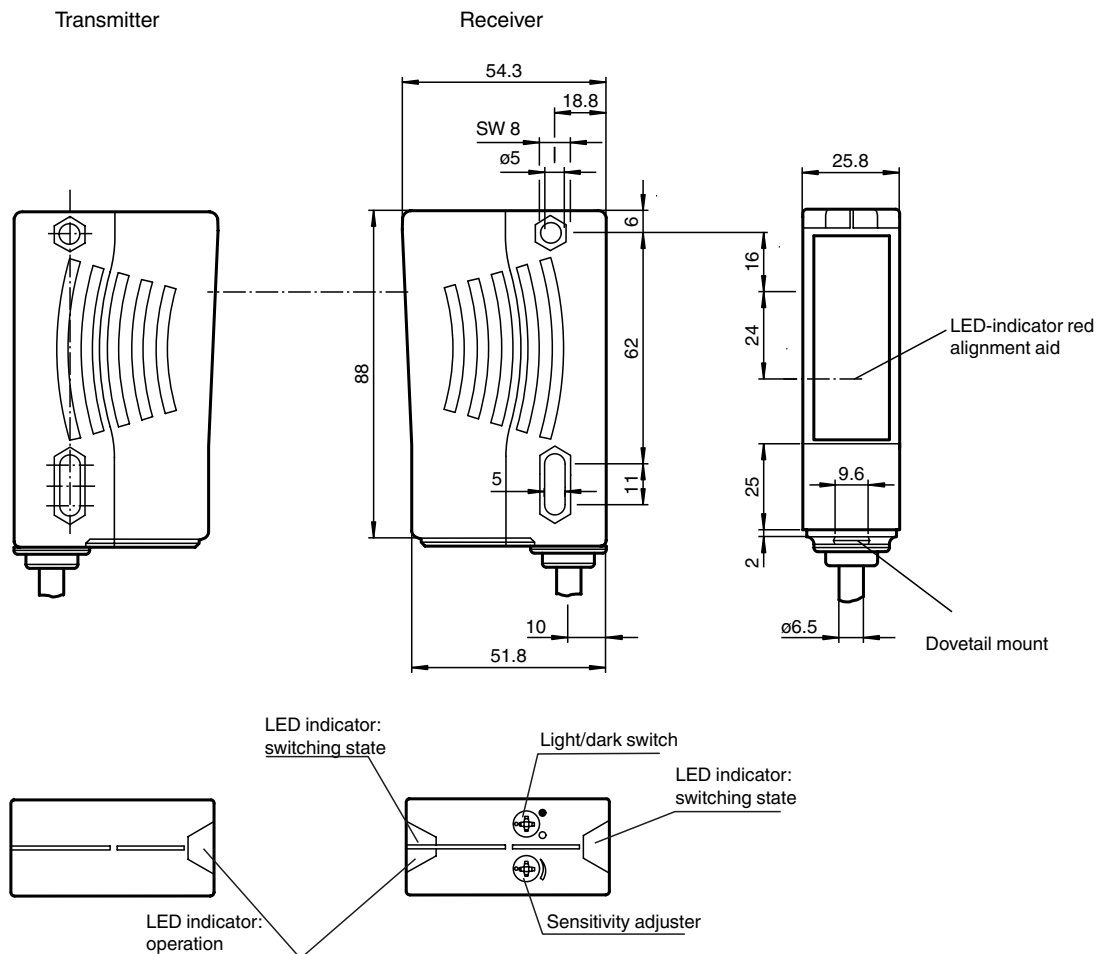


- Universal series with highly versatile fields of use
- Resistant against noise: reliable operation under all conditions
- Highly visible LED as alignment aid in receiver optics
- Emitter with test input
- Version with red light

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, fixed cable



### Dimensions



Release date: 2021-11-11 Date of issue: 2021-11-11 Filename: 116601\_eng.pdf

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

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## Technical Data

<b>System components</b>			
Emitter			LD28-F1/76a/115
Receiver			LV28-F1/47/82b/115
<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
Angle of divergence			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>			
Pre-fault indication 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>			
EAC conformity			TR CU 020/2011
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
<b>Ambient conditions</b>			
Ambient temperature			-40 ... 60 °C (-40 ... 140 °F)

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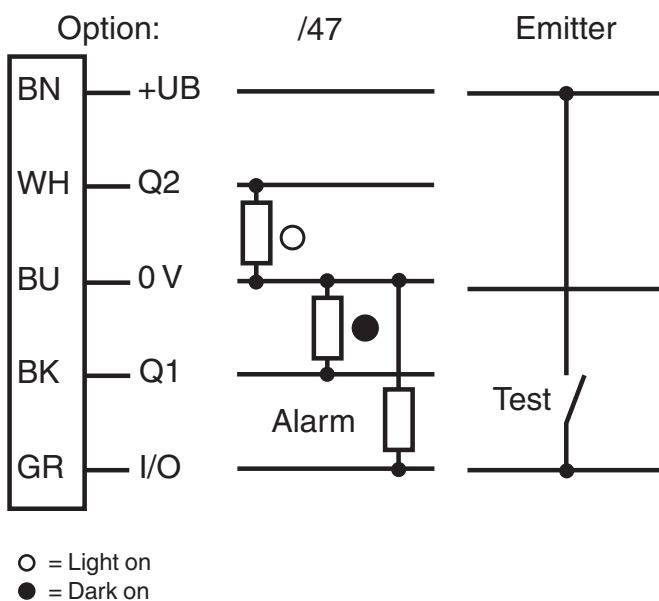
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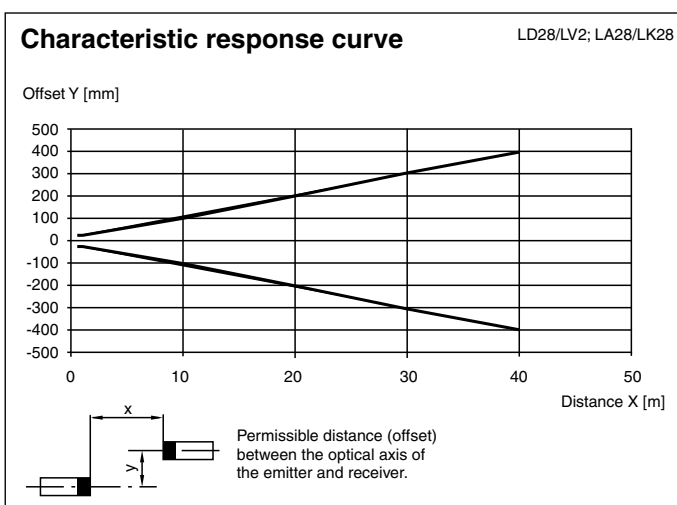
### Technical Data

Storage temperature	-40 ... 75 °C (-40 ... 167 °F)
<b>Mechanical specifications</b>	
Housing width	25.8 mm
Housing height	88 mm
Housing depth	54.3 mm
Degree of protection	IP67
Connection	2.5 m, 5-wire, fixed cable, Euronorm
<b>Material</b>	
Housing	Plastic ABS
Optical face	Plastic pane
Mass	140 g (emitter and receiver)

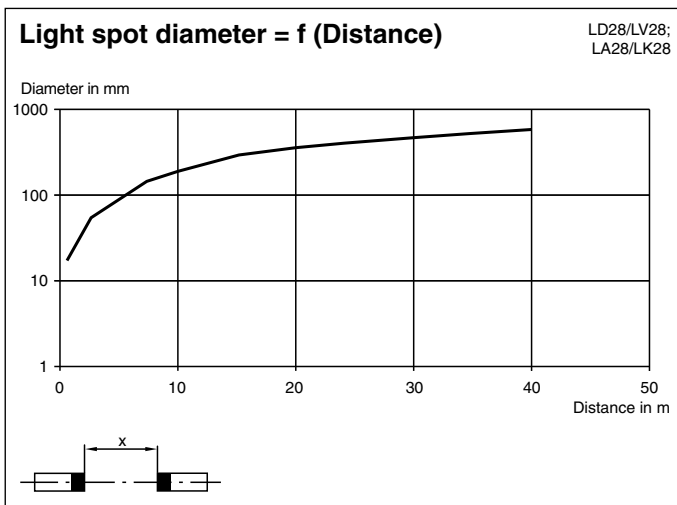
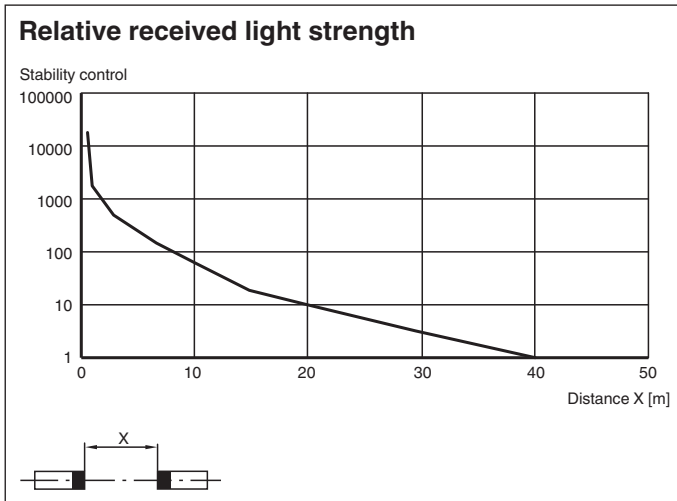
### Connection Assignment








### Characteristic Curve



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## Accessories

	<b>OMH-05</b>	Mounting aid for round steel $\varnothing$ 12 mm or sheet 1.5 mm ... 3 mm
	<b>OMH-21</b>	Mounting bracket: mounting aid for sensors in the RL* series
	<b>OMH-22</b>	Mounting aid for RL* series
	<b>OMH-RLK29-HW</b>	Mounting bracket for rear wall mounting
	<b>OMH-RL28-C</b>	Weld slag cover model

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