



# Retroreflective sensor

## RL28-55-LAS/47/82b/105

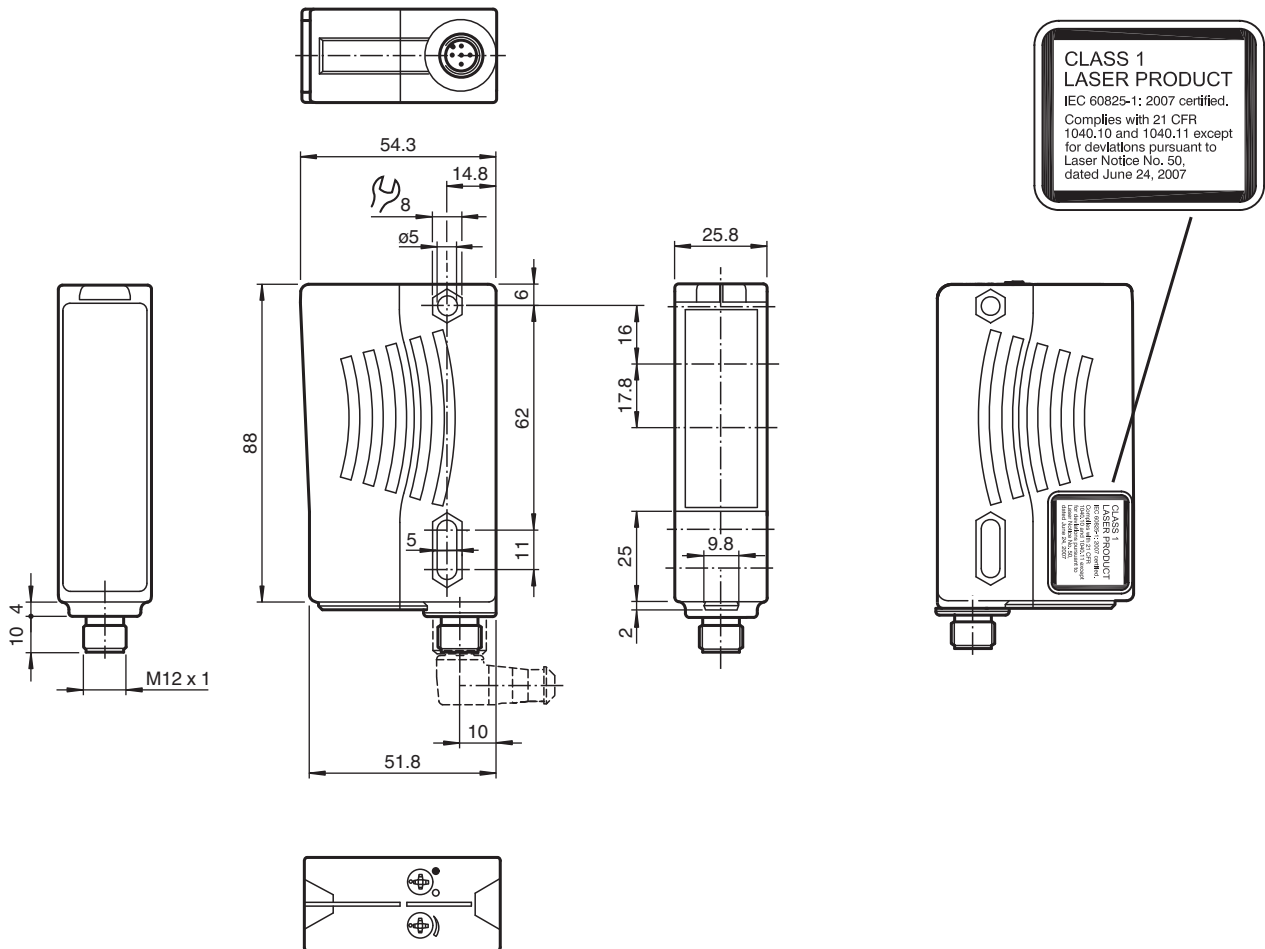


- Visible red light, pulsed LASER light
- Ultra bright LEDs for power on, weak signal indication and switching state
- Not sensitive to ambient light, even with switched energy saving lamps
- Protection class II
- Waterproof, degree of protection IP67

Retroreflective sensor with polarization filter



### Dimensions



Release date: 2022-10-25 Date of issue: 2022-10-25 Filename: 123760\_eng.pdf

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

Pepperl+Fuchs Group  
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## Technical Data

General specifications		
Effective detection range		0 ... 30 m
Reflector distance		0.3 ... 30 m
Threshold detection range		42 m
Reference target		MH82 reflector
Light source		laser diode
Light type		modulated visible red light
Polarization filter		yes
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		approx. 4.5 $\mu$ s
Repetition rate		approx. 6 kHz ... 20 kHz
max. pulse energy		4 nJ
Diameter of the light spot		approx. 45 mm at 30 m
Opening angle		Emitter: < 0.1 ° Receiver: < 2 °
Ambient light limit		50000 Lux
Functional safety related parameters		
MTTF <sub>d</sub>		560 a
Mission Time (T <sub>M</sub> )		20 a
Diagnostic Coverage (DC)		0 %
Indicators/operating means		
Operation indicator		LED green
Function indicator		2 LEDs yellow, light up when light beam is free, flash when falling short of the stability control, off when light beam is interrupted
Control elements		sensitivity adjustment (Adjustment to < 25% of the effective operating range) , Light-on/dark-on changeover switch
Electrical specifications		
Operating voltage	U <sub>B</sub>	10 ... 30 V DC
Ripple		max. 10 %
No-load supply current	I <sub>0</sub>	≤ 35 mA
Protection class		II, rated insulation voltage ≤ 250 V AC with pollution degree 1-2 according to IEC 60664-1
Output		
Stability alarm output		1 PNP, inactive when falling short of the stability control for 10;s immediately inactive if 4 light beam interruptions take place
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
Voltage drop	U <sub>d</sub>	≤ 2.5 V DC
Switching frequency	f	1000 Hz
Response time		0.5 ms
Conformity		
Product standard		EN 60947-5-2
Laser safety		EN 60825-1
Approvals and certificates		
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		E87056 , cULus Listed , class 2 power supply , type rating 1
FDA approval		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

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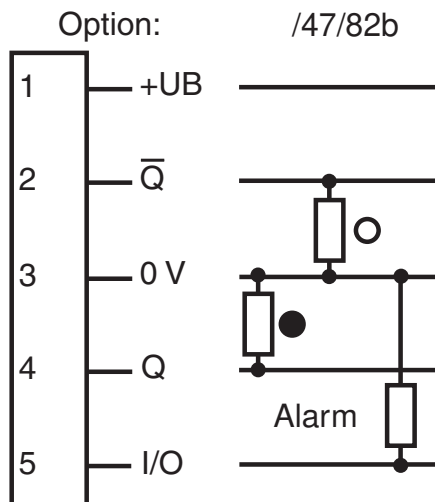
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## Technical Data

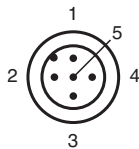
Ambient conditions	
Ambient temperature	-10 ... 50 °C (14 ... 122 °F)
Storage temperature	-40 ... 60 °C (-40 ... 140 °F)
Mechanical specifications	
Housing width	25.8 mm
Housing height	88 mm
Housing depth	54.3 mm
Degree of protection	IP67
Connection	5-pin, M12 x 1 plastic connector
Material	
Housing	Plastic ABS
Optical face	Plastic pane
Mass	80 g

## Connection Assignment



- = Light on
- = Dark on

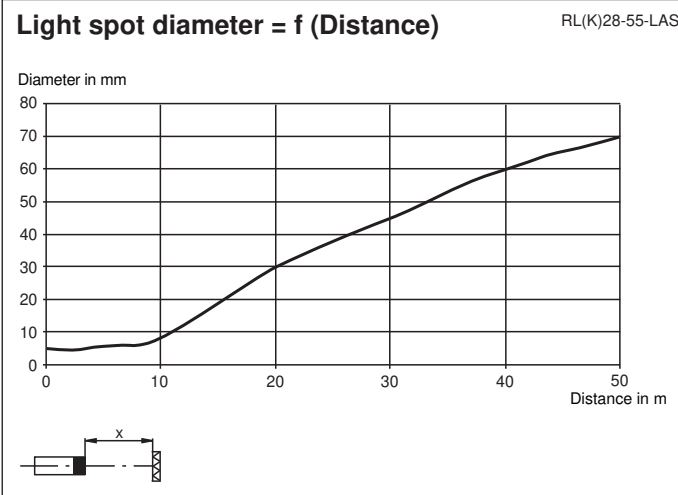
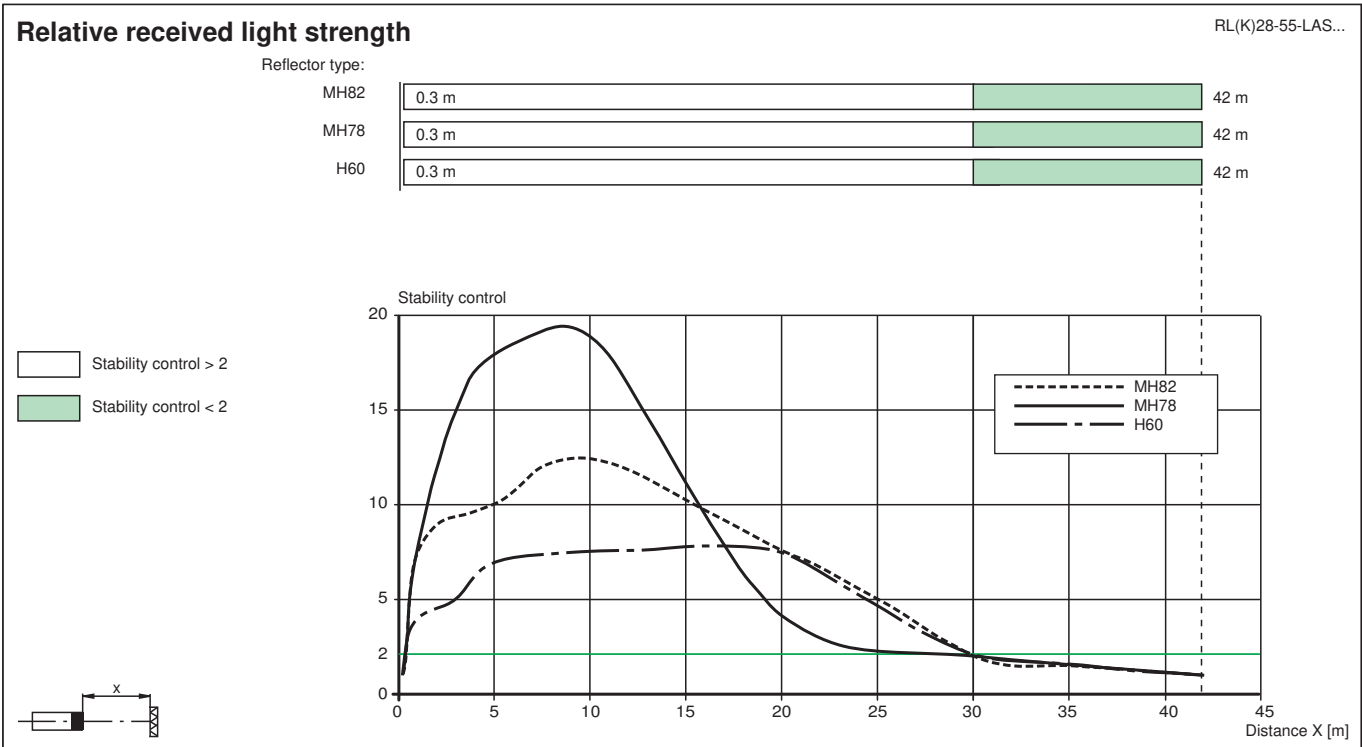
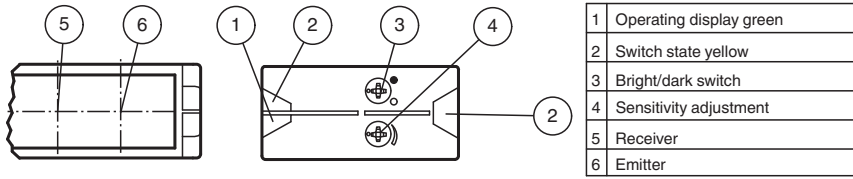
## Connection Assignment



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)
5	GY	(gray)

**Assembly**









**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.  
 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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## 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
	<b>REF-MH82</b>	Reflector with Micro-structure, rectangular 82 mm x 60 mm, mounting holes