



## Background suppression sensor

RL28-8-H-1500-LAS/47/105



- Universal series with highly versatile fields of use
- Resistant against noise: reliable operation under all conditions
- Laser version for long ranges
- Small light beam diameter for detection of small parts

Background suppression sensor



### Safety Information

**CLASS 1  
LASER PRODUCT**  
IEC 60825-1: 2007 certified.  
Complies with 21 CFR  
1040.10 and 1040.11 except  
for deviations pursuant to  
Laser Notice No. 50,  
dated June 24, 2007

### 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.

Release date: 2021-11-11 Date of issue: 2021-11-11 Filename: 180708\_eng.pdf

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

Pepperl+Fuchs Group  
www.pepperl-fuchs.com

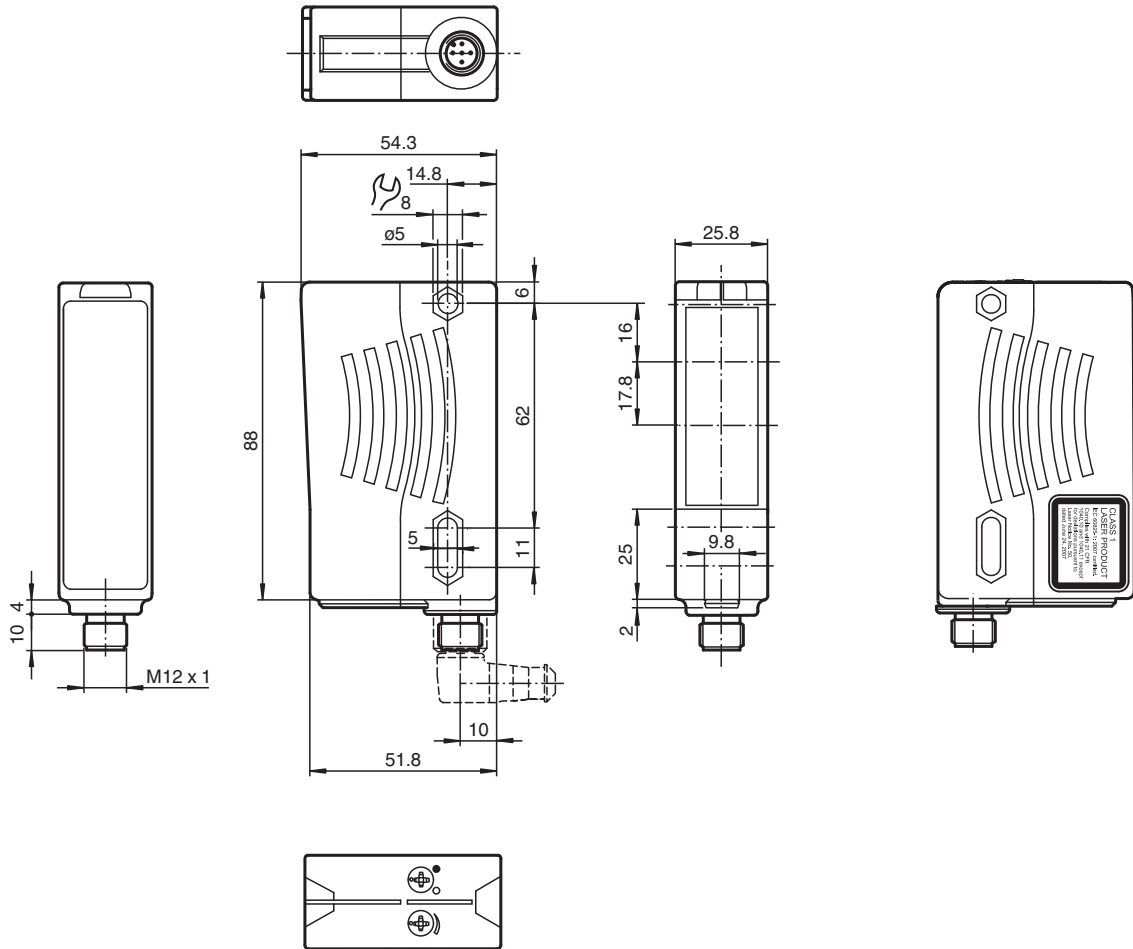
USA: +1 330 486 0001  
fa-info@us.pepperl-fuchs.com

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

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

 **PEPPERL+FUCHS**

## Dimensions



## Technical Data

### General specifications

Detection range	100 ... 1500 mm
Detection range min.	50 ... 200 mm
Detection range max.	100 ... 1500 mm
Background suppression	max. + 10 % of the upper limit of the detection range
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	4.5 μs
Repetition rate	approx. 1.5 kHz
max. pulse energy	17 nJ
Light spot representation	max. 1.5 mm x 4 mm , light spot perpendicular to housing
Black-white difference (6 %/90 %)	≤ 40 %
Ambient light limit	50000 Lux

### Functional safety related parameters

MTTF <sub>d</sub>	590 a
Mission Time (T <sub>M</sub> )	20 a
Diagnostic Coverage (DC)	0 %

Release date: 2021-11-11 Date of issue: 2021-11-11 Filename: 180708\_eng.pdf

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

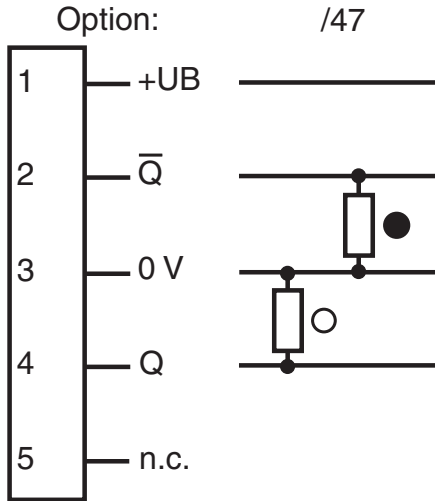
Singapore: +65 6779 9091  
fa-info@sg.pepperl-fuchs.com

**PF** PEPPERL+FUCHS

## Technical Data

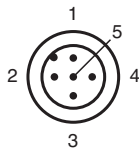
Indicators/operating means		
Operation indicator		LED green
Function indicator		2 LEDs yellow ON: object inside the scanning range OFF: object outside the scanning range
Control elements		Sensing range adjuster , Light-on/dark-on changeover switch
Electrical specifications		
Operating voltage	$U_B$	10 ... 30 V DC
Ripple		10 %
No-load supply current	$I_0$	≤ 40 mA
Protection class		II, rated insulation voltage ≤ 250 V AC with pollution degree 1-2 according to IEC 60664-1
Time delay before availability	$t_v$	≤ 2 s
Output		
Switching type		light/dark on, switchable
Signal output		2 PNP outputs, complementary, short-circuit protected, reverse polarity protected, open collector
Switching voltage		max. 30 V DC
Switching current		max. 200 mA
Switching frequency	$f$	140 Hz
Response time		3.5 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
Ambient conditions		
Ambient temperature		-10 ... 50 °C (14 ... 122 °F)
Storage temperature		-25 ... 75 °C (-13 ... 167 °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		approx. 70 g

**Connection Assignment**



○ = Light on  
 ● = Dark on

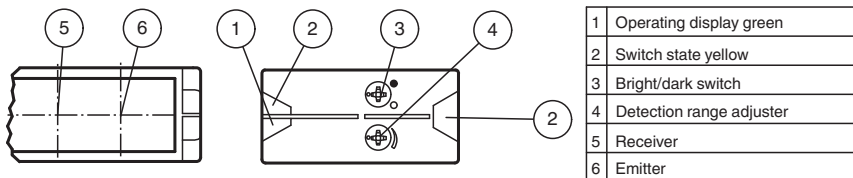
**Connection Assignment**



Wire colors in accordance with EN 60947-5-2

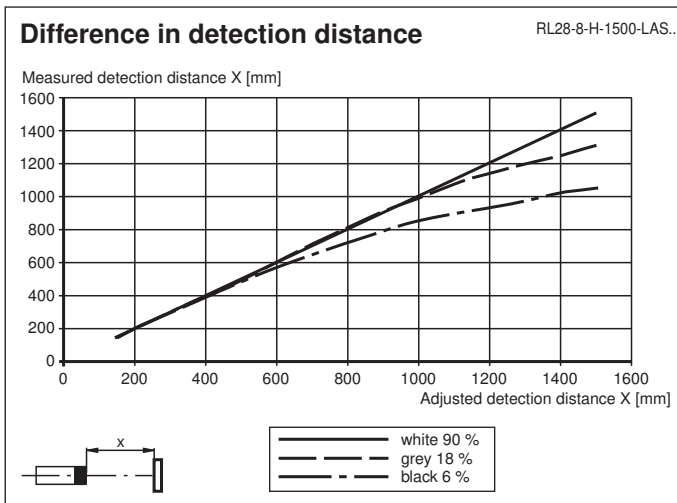
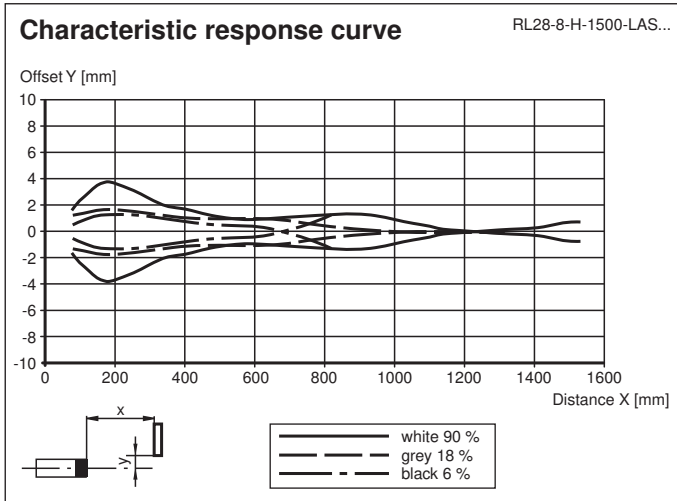
- 1 | BN (brown)
- 2 | WH (white)
- 3 | BU (blue)
- 4 | BK (black)
- 5 | GY (gray)

**Assembly**



Release date: 2021-11-11 Date of issue: 2021-11-11 Filename: 180708\_eng.pdf



**Characteristic Curve**



**Application**






**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

Release date: 2021-11-11 Date of issue: 2021-11-11 Filename: 180708\_eng.pdf

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

**Accessories**

	<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