



## Background suppression sensor

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

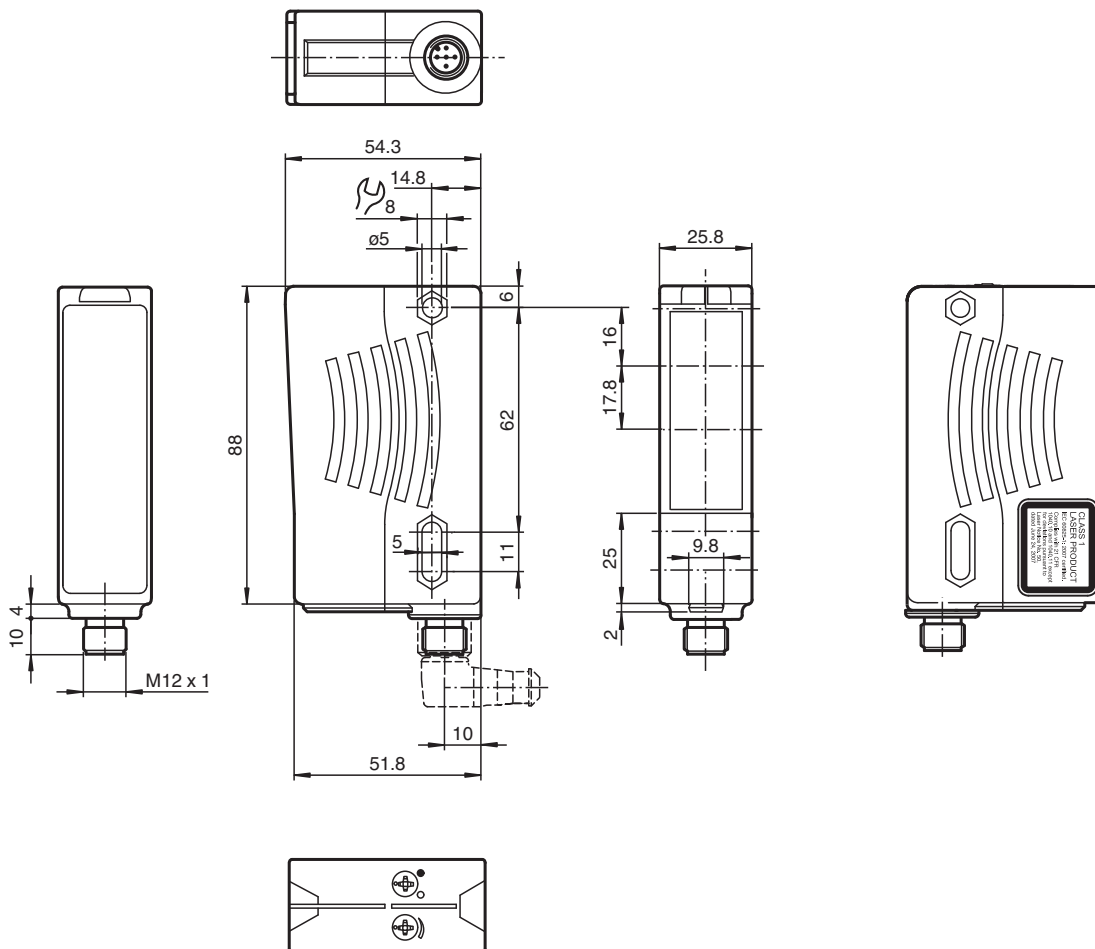


- Universal series with highly versatile fields of use
- Resistant against noise: reliable operation under all conditions
- Laser version for long ranges
- Small light beam diameter for detection of small parts

## Background suppression sensor



## Dimensions



Release date: 2025-03-31 Date of issue: 2025-03-31 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

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 $\mu$ s
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 %)		$\leq$ 40 %
Ambient light limit		50000 Lux
Functional safety related parameters		
MTTF <sub>d</sub>		590 a
Mission Time (T <sub>M</sub> )		10 a
Diagnostic Coverage (DC)		0 %
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 <sub>B</sub>	10 ... 30 V DC
Ripple		10 %
No-load supply current	I <sub>0</sub>	$\leq$ 40 mA
Protection class		II, rated insulation voltage $\leq$ 250 V AC with pollution degree 1-2 according to IEC 60664-1
Time delay before availability	t <sub>v</sub>	$\leq$ 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		IEC 60825-1:2014
Approvals and certificates		
UL approval		E87056 , cULus Listed , class 2 power supply , type rating 1
FDA approval		IEC 60825-1:2014 Complies with 21 CFR 1040.10 and 1040.11 except for conformance with IEC 60825-1 Ed. 3 as described in Laser Notice 56, dated May 8, 2019.
Ambient conditions		
Ambient temperature		-10 ... 50 °C (14 ... 122 °F)
Storage temperature		-40 ... 60 °C (-40 ... 140 °F)
Mechanical specifications		

Release date: 2025-03-31 Date of issue: 2025-03-31 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

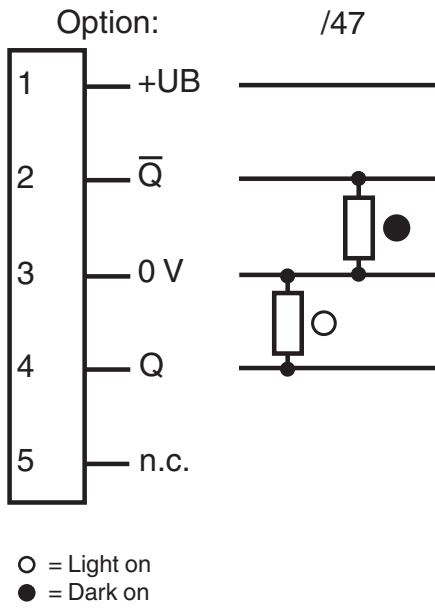
 Singapore: +65 6779 9091  
fa-info@sg.pepperl-fuchs.com

 **PEPPERL+FUCHS**

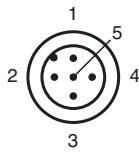
**Technical Data**

Degree of protection	IP67
Connection	5-pin, M12 x 1 plastic connector
Material	
Housing	Plastic ABS
Optical face	Plastic pane
Mass	approx. 70 g
Dimensions	
Height	88 mm
Width	25.8 mm
Depth	54.3 mm

**Connection Assignment**



**Connection Assignment**

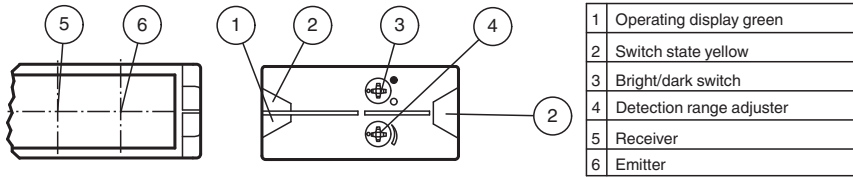


Wire colors in accordance with EN 60947-5-2

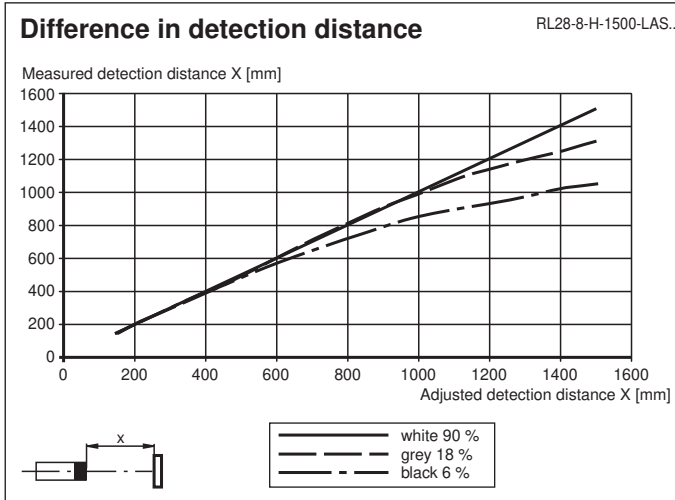
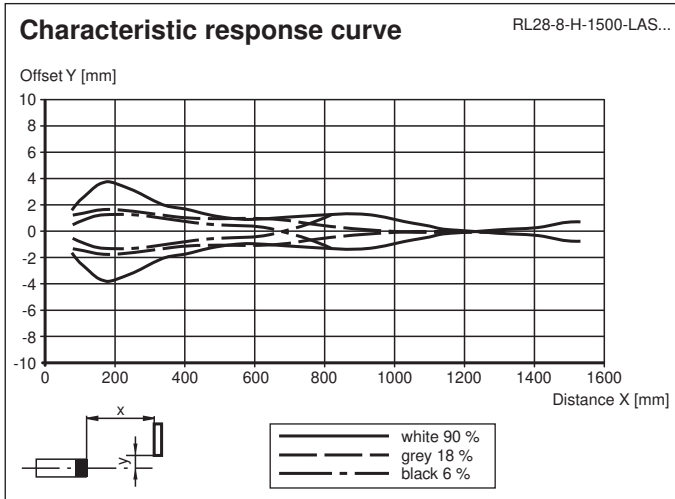
- 1 | BN (brown)
- 2 | WH (white)
- 3 | BU (blue)
- 4 | BK (black)
- 5 | GY (gray)

Release date: 2025-03-31 Date of issue: 2025-03-31 Filename: 180708\_eng.pdf

**Assembly**



**Characteristic Curve**



Release date: 2025-03-31 Date of issue: 2025-03-31 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