



Model Number

OBR50M-R300-2P1-V1

Retroreflective sensor

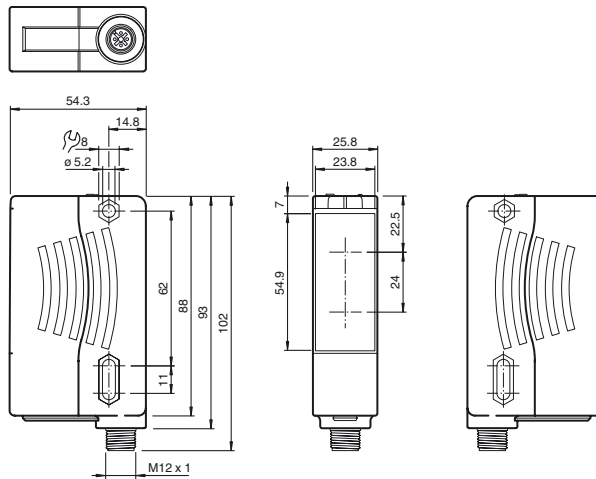
Features

- Pulse Ranging Technology (PRT)
- Optimized for use with fixed reflectors
- Good alignability due to red transmission LED
- Reliable detection of reflecting metall objects
- Simple operation with only one TEACH-IN button

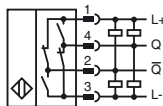
Product information

The sensors in the R300 series represent a versatile product line and adopt various functional principles. All sensors operate using proven Pulse Ranging Technology (PRT) and are characterized by high sensing ranges and detection ranges. Contained within the compact housing of the 28 series of light barriers, the R300 offers all of the properties of PRT such as maximum reliability when detecting objects and immunity against ambient light and cross-talk. To achieve this, the sensors in the R300 series make use of a number of different kinds of measurement data. What's more, the sensors are equipped with red light that is safe for the human eye as standard, making it easier to align the devices, even across expansive work areas. These features, combined with an innovative and intuitive operating concept, provide solutions for conventional automation tasks delivering the highest level of performance.

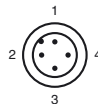
Dimensions



Electrical connection



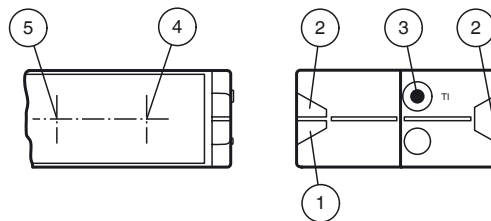
Pinout



Wire colors in accordance with EN 60947-5-2

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

Indicators/operating means



1	Operating indicator	Green
2	Signal indicator	Yellow
3	Teach-in button	
4	Transmitter	
5	Receiver	

Release date: 2019-02-01 14:17 Date of issue: 2019-02-01 293048_eng.xml

Technical data**General specifications**

Effective detection range	0 ... 50 m
Reflector distance	0.2 ... 50 m
Reference target	3 x REF-H100
Light source	LED
Light type	modulated visible red light
LED risk group labelling	exempt group
Angle deviation	max. $\pm 2^\circ$
Measuring method	Pulse Ranging Technology (PRT)
Diameter of the light spot	approx. 16 cm x 18 cm at a distance of 10 m
Ambient light limit	50000 Lux
Window width	100 mm

Functional safety related parameters

MTTF _d	100 a
Mission Time (T _M)	10 a
Diagnostic Coverage (DC)	0 %

Indicators/operating means

Operation indicator	LED green
Function indicator	2 LEDs yellow for switching state
Control elements	Teach-In key

Electrical specifications

Operating voltage	U _B	10 ... 30 V DC
Ripple		10 % within the supply tolerance
No-load supply current	I ₀	≤ 80 mA / 24 V DC
Time delay before availability	t _v	< 0.7 s , for temperatures < -30°C compliance of the specification 5 mins after power on

Output

Switching type	Q - Pin4: NPN normally closed / light-on, PNP normally open / dark-on /Q - Pin2: NPN normally open / dark-on, PNP normally closed / light-on	
Signal output	2 push-pull (4 in 1) outputs, short-circuit protected, reverse polarity protected	
Switching voltage	max. 30 V DC	
Switching current	max. 100 mA	
Switching frequency	f	50 Hz
Response time		5 ms

Directive conformity

Electromagnetic compatibility	
Directive 2014/30/EU	EN 60947-5-2:2007 EN 60947-5-2/A1:2012

Standard conformity

Standards	EN 60947-5-2:2007+A1:2012 IEC 60947-5-2:2007 + A1:2012 EN 60825-1:2007 UL 60947-5-2: 2014
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Ambient conditions

Ambient temperature	-40 ... 55 °C (-40 ... 131 °F)
Storage temperature	-40 ... 70 °C (-40 ... 158 °F)

Mechanical specifications

Housing width	25.8 mm
Housing height	88 mm
Housing depth	54.3 mm
Degree of protection	IP67
Connection	4-pin, M12 x 1 connector
Material	
Housing	Plastic ABS
Optical face	PMMA
Mass	90 g

Approvals and certificates

UL approval	E87056 , cULus Listed , class 2 power supply , type rating 1
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Accessories**OMH-05**

Mounting aid for round steel \varnothing 12 mm or sheet 1.5 mm ... 3 mm

OMH-07-01

Mounting aid for round steel \varnothing 12 mm or sheet 1.5 mm ... 3 mm

OMH-21

Mounting bracket

OMH-22

Mounting bracket

OMH-VDM28-01

Metal enclosure for inserting protective panes or apertures

OMH-VDM28-02

Mounting and fine adjustment device for sensors from the 28 series

OMH-RLK29-HW

Mounting bracket for rear wall mounting

OMH-K01

dove tail mounting clamp

OMH-K03

dove tail mounting clamp

V1-W-2M-PUR

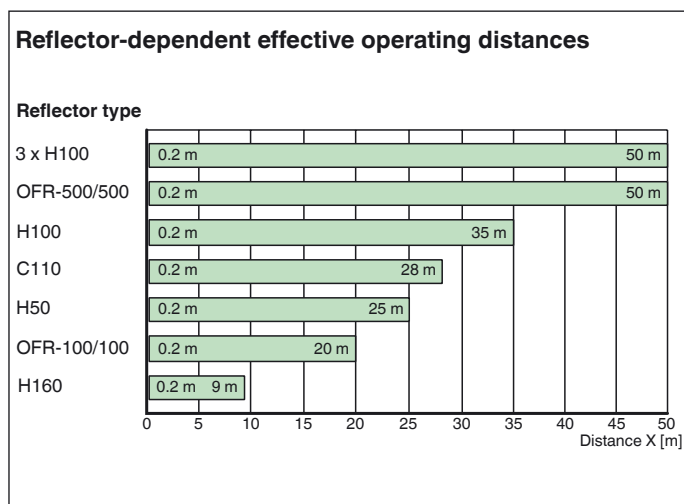
Female cordset, M12, 4-pin, PUR cable

V1-G-2M-PUR

Female cordset, M12, 4-pin, PUR cable

Other suitable accessories can be found at www.pepperl-fuchs.com

Curves/Diagrams



Intended Use

Mounting instructions:

The sensor can be mounted directly by means of thru-holes or by using a fixing bracket or mounting clamp (not included in the scope of delivery). Ensure that the surface is level in order to prevent the housing from becoming distorted when the fittings are tightened. It is advisable to secure the nuts and screws to prevent the sensor from being misaligned.

Connection:

Connect the device as set out in the connection diagram.

Adjustment:

The green LED lights up when the operating voltage is applied.
Adjust the sensor so that the light spot is on the center of the reflector.
The yellow sensor LEDs light up.

Installation Note

A pressure equalization membrane is fitted on the sensor nameplate.
When mounting, make sure that the pressure equalization membrane is not sealed off.

Operating Concept

Teach-in:

To ensure reliable functionality, save the position of the reflector by using the Teach-in procedure.
Press the "TI" button (for approx. 2 s) until the yellow and green LEDs flash in phase.
Teach-in begins once the "TI" button is released.

Successful Teach-in: Yellow and green LEDs flash alternately (2.5 Hz). After successful Teach-in, the output and LED change their status.

Unsuccessful Teach-in: Yellow and green LEDs flash alternately very quickly (8 Hz). After an unsuccessful Teach-in, the sensor continues to operate with the previous valid setting after the relevant visual fault signal is issued.

Every taught-in reflector position can be retaught (overwritten) by pressing the "TI" button again.

Deleting the Taught-in Reflector Position:

To delete a taught-in reflector position, press and hold the "TI" button for > 4 s until the yellow and green LEDs go out. Release the "TI" button. The saved reflector position is deleted. The yellow and green lights will flash alternately (2.5 Hz) to confirm that the deletion has occurred.