



**Model Number**

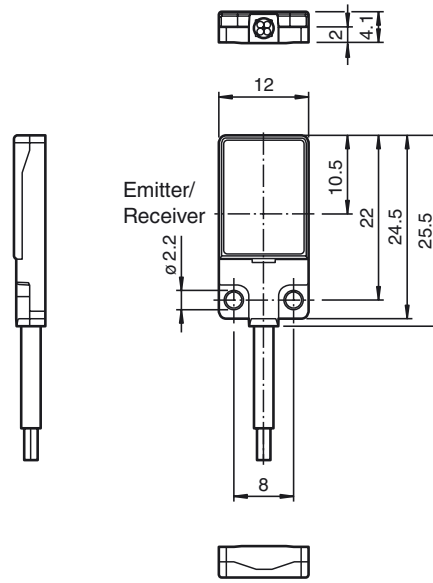
**OBE500-R2F-SE2-0,2MV31-Y263382**

Thru-beam sensor (pair)  
with 0.2 m fixed cable and M8 plug, 4-pin

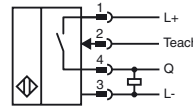
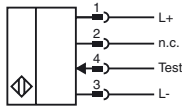
**Features**

- Very flat design for direct mounting without mounting bracket
- TEACH-IN
- Detection of partially transparent objects by teach-in
- Very bright, highly visible light spot

**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)

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

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**Technical data****System components**

Emitter	OBE500-R2F-S-0,2M-V31
Receiver	OBE500-R2F-E2-0,2M-V31-Y814590

**General specifications**

Effective detection range	0 ... 500 mm
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Threshold detection range	700 mm
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Light source	LED
Light type	modulated visible red light , 630 nm
LED risk group labelling	exempt group
Angle deviation	approx. 2 °
Object size	typ. starts from 1.5 mm
Diameter of the light spot	approx. 60 mm at a distance of 500 mm
Angle of divergence	approx. 5 °
Optical face	frontal
Ambient light limit	EN 60947-5-2 : 25000 Lux

**Functional safety related parameters**

MTTF <sub>d</sub>	806 a
Mission Time (T <sub>M</sub> )	20 a
Diagnostic Coverage (DC)	0 %

**Indicators/operating means**

Operation indicator	LED green, statically lit Power on , short-circuit : LED green flashing (approx. 4 Hz)
Function indicator	Receiver: LED yellow, lights up when light beam is free, flashes when falling short of the stability control ; OFF when light beam is interrupted

**Electrical specifications**

Operating voltage	U <sub>B</sub>	10 ... 30 V DC
No-load supply current	I <sub>0</sub>	< 10 mA
Protection class		III

**Input**

Test input	Test of switching function at 0 V
Switching threshold	Teach-In input

**Output**

Switching type	NO contact / dark on	
Signal output	1 PNP output, short-circuit protected, reverse polarity protected, open collector	
Switching voltage	max. 30 V DC	
Switching current	max. 50 mA , resistive load	
Voltage drop	U <sub>d</sub>	≤ 1.5 V DC
Switching frequency	f	approx. 1 kHz
Response time		500 μs

**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 EN 60947-5-2/A1:2012 EN 62471:2008 UL 60947-5-2: 2014
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**Ambient conditions**

Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
Storage temperature	-20 ... 70 °C (-4 ... 158 °F)

**Mechanical specifications**

Degree of protection	IP67
Connection	200 mm fixed cable with 4-pin, M8x1 connector
Material	
Housing	PC (Polycarbonate) and Stainless steel
Optical face	PMMA
Cable	PUR
Mass	approx. 10 g Per sensor
Tightening torque, fastening screws	0.25 Nm
Cable length	200 mm

**Approvals and certificates**

UL approval	E87056 , cULus Recognized, Class 2 Power Source
CCC approval	CCC approval / marking not required for products rated ≤36 V

**Accessories****V31-GM-2M-PUR**

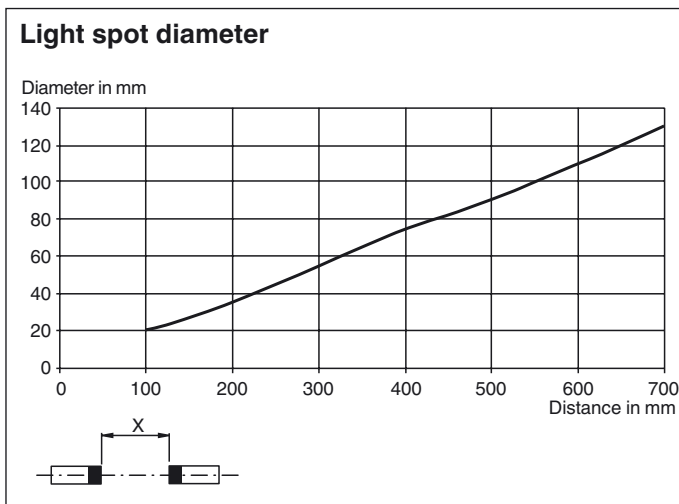
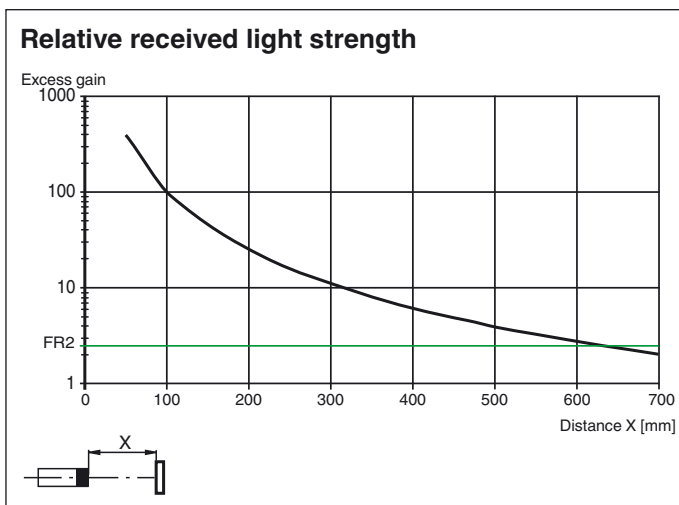
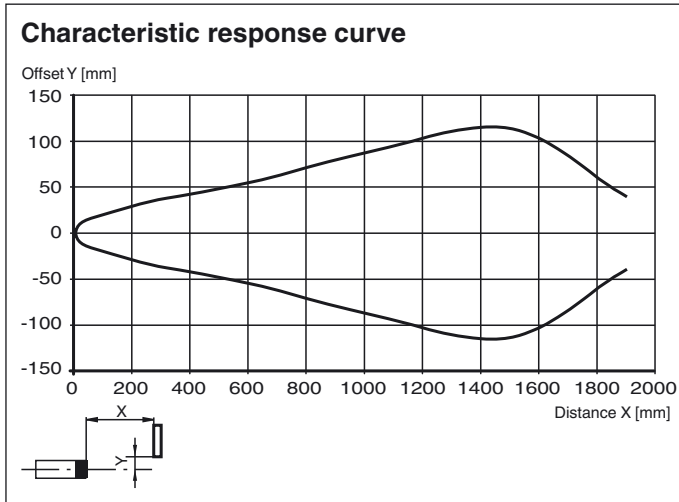
Female cordset, M8, 4-pin, PUR cable

**V31-WM-2M-PUR**

Female cordset, M8, 4-pin, PUR cable

Other suitable accessories can be found at [www.pepperl-fuchs.com](http://www.pepperl-fuchs.com)

Curves/Diagrams



Teach-In Methods

The thru-beam sensor enables the switching points to be taught in for optimum adaptation to specific applications. This eliminates the need for additional components such as apertures.

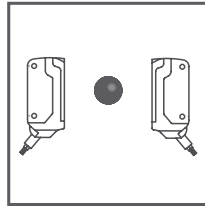
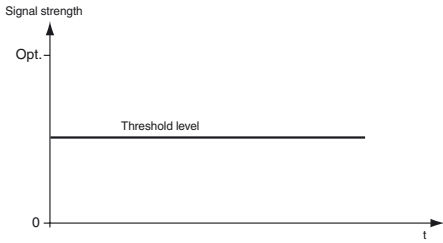
The sensitivity of the thru-beam sensor can be adjusted using three Teach-in methods:

**Position Teach**

When using this Teach-in method, the following settings are made on the thru-beam sensor:

- The gain is set to an optimum value
- The signal threshold is set to a minimum

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**Recommended application:**

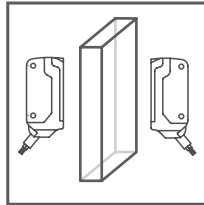
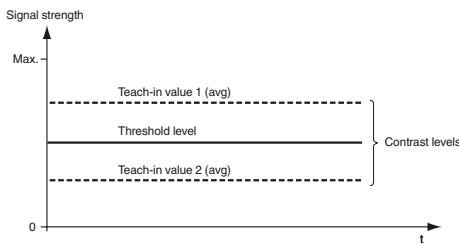
This method enables minuscule particles in the beam path to be detected, and provides exceptional positioning accuracy. Make sure that there are no objects in the beam path and that the sensor is connected to the power supply.

1. Connect the white cable on the receiver (WH/IN) to the blue cable (BU/0 V) on the receiver. The green and yellow LED indicators flash simultaneously at 2.5 Hz
2. Disconnect the white cable on the receiver (WH/IN) from the blue cable (BU/0 V) on the receiver. The green and yellow LED indicators flash alternately at 2.5 Hz
3. The end of the Teach-in process is indicated when the green LED indicator lights up solid and yellow LED blinks.

**Two-Point Teach-In**

When using this Teach-in method, the following settings are made on the thru-beam sensor:

- The gain is set to an optimum value
- The signal threshold is set in the center between the two taught signal values

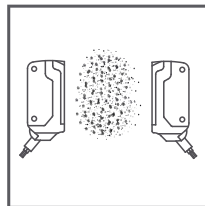
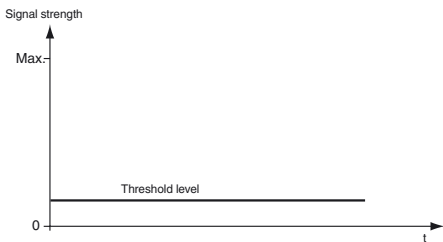


1. Make sure that there are no objects in the beam path and that the sensor is connected to the power supply.
2. Connect the white cable on the receiver (WH/IN) to the blue cable (BU/0 V) on the receiver. The green and yellow LED indicators flash simultaneously at 2.5 Hz
3. Position the object in the beam path.
4. Disconnect the white cable on the receiver (WH/IN) from the blue cable (BU/0 V) on the receiver. The green and yellow LED indicators flash alternately at 2.5 Hz
5. The end of the Teach-in process is indicated when the green LED indicator lights up solid.

**Maximum Teach-In**

When using this Teach-in method, the following settings are made on the thru-beam sensor:

- The gain is set to a maximum
- The signal threshold is set to a minimum



**Recommended application:**

Enables an object to be detected with a high excess gain. This can be useful if there is severe environmental contamination or to achieve long operating times.

Make sure that there are no objects in the beam path and that the sensor is connected to the power supply.

6. Cover the receiver or transmitter.
7. Connect the white cable on the receiver (WH/IN) to the blue cable (BU/0 V) on the receiver. The green and yellow LED indicators flash simultaneously at 2.5 Hz
8. Disconnect the white cable on the receiver (WH/IN) from the blue cable (BU/0 V) on the receiver. The green and yellow LED indicators flash alternately at 2.5 Hz
9. The end of the Teach-in process is indicated when the green LED indicator lights up solid.

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