



Model Number

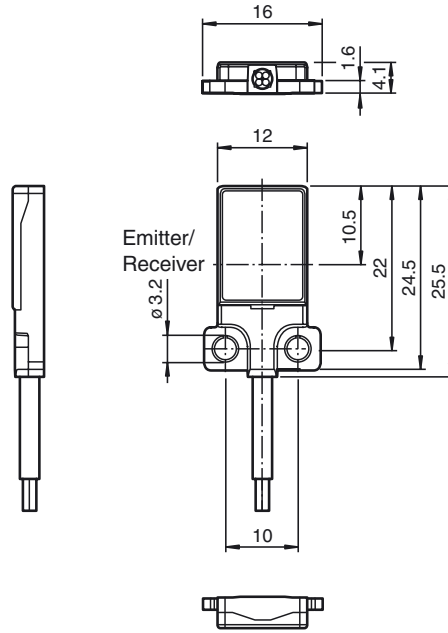
OBE500-R3F-SE2-0,2MV31-Y263494

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

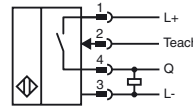
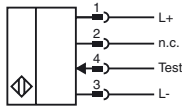
Features

- Very flat design for direct mounting without mounting bracket
- 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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Technical data**System components**

Emitter	OBE500-R3F-S-0,2M-V31
Receiver	OBE500-R3F-E2-0,2M-V31-Y814592

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 _d	806 a
Mission Time (T _M)	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 _B	10 ... 30 V DC
No-load supply current	I ₀	Emitter: ≤ 11 mA Receiver: ≤ 8 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 _d	≤ 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	-25 ... 60 °C (-13 ... 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	1 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**

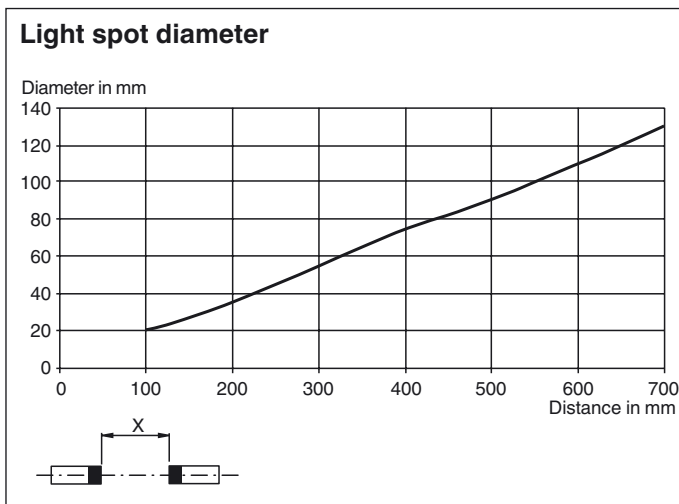
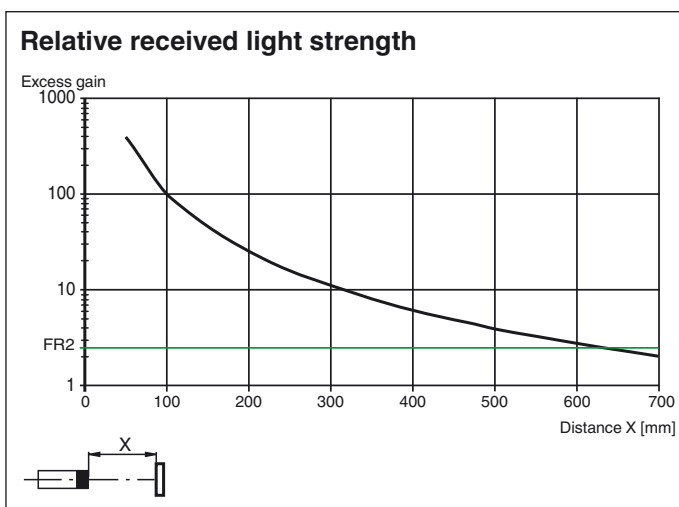
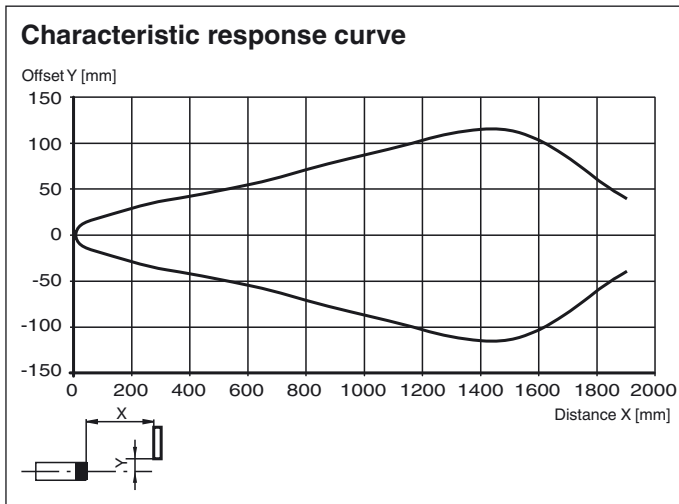
Female cordset, M8, 4-pin, PUR cable

V31-WM-2M-PUR

Female cordset, M8, 4-pin, PUR cable

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

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:

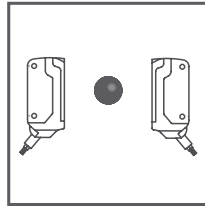
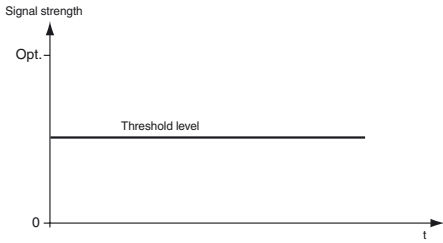
Position Teach

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



Recommended application:

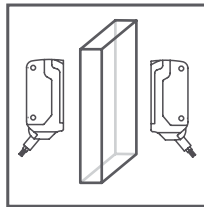
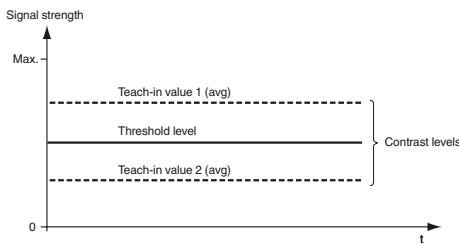
This method enables minuscule particles in the beam path to be detected, and provides exceptional positioning accuracy. Make sure that there are no objects in the beam path and that the sensor is connected to the power supply.

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

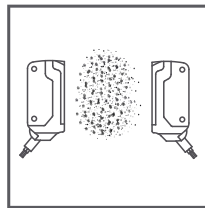
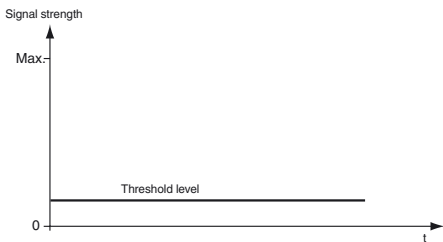


1. Make sure that there are no objects in the beam path and that the sensor is connected to the power supply.
2. Connect the white cable on the receiver (WH/IN) to the blue cable (BU/0 V) on the receiver. The green and yellow LED indicators flash simultaneously at 2.5 Hz
3. Position the object in the 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.