



### Model Number

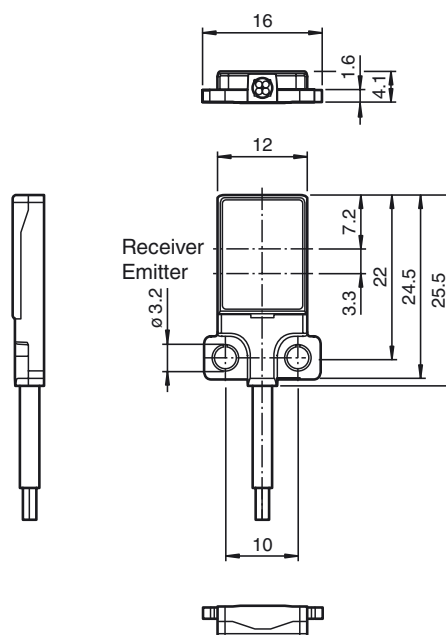
**OBR1500-R3F-E2-0,2M-V31-L**

Laser retroreflective sensor  
with 0.2 m fixed cable and M8 plug, 4-pin

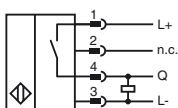
### Features

- Very flat design for direct mounting without mounting bracket
- DuraBeam Laser Sensors - durable and employable like an LED
- Glare protected with polarization filter
- 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)

**Technical data****General specifications**

Effective detection range	0 ... 1500 mm
Reflector distance	60 ... 1500 mm
Threshold detection range	1800 mm
Reference target	H40 reflector
Light source	LASER LIGHT
Light type	modulated visible red light , 680 nm
Polarization filter	yes
Laser nominal ratings	
Note	LASER LIGHT , DO NOT STARE INTO BEAM
Laser class	1
Wave length	680 nm
Beam divergence	> 5 mrad
Pulse length	approx. 3 µs
Repetition rate	approx. 16.6 kHz
max. pulse energy	8 nJ
Angle deviation	approx. 0.5 °
Object size	typ. starts from 1.5 mm
Diameter of the light spot	approx. 25 mm at a distance of 1500 mm
Angle of divergence	approx. 1 °
Optical face	frontal
Ambient light limit	EN 60947-5-2 : 30000 Lux

**Functional safety related parameters**

MTTF <sub>d</sub>	800 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>	12 ... 24 V
No-load supply current	I <sub>0</sub>	< 10 mA
Protection class		III

**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. 2 kHz
Response time		250 µs

**Conformity**

Product standard	EN 60947-5-2
Laser safety	EN 60825-1:2007

**Ambient conditions**

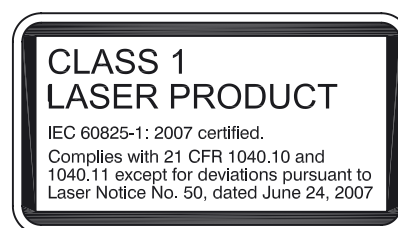
Ambient temperature	-10 ... 60 °C (14 ... 140 °F)
Storage temperature	-20 ... 70 °C (-4 ... 158 °F)

**Mechanical specifications**

Housing width	16 mm
Housing height	25.5 mm
Housing depth	4.1 mm
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
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
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

**Laserlabel****Accessories****REF-H40**

Reflector, rectangular 47.5 mm x 23.5 mm, mounting holes, fixing strap

**REF-H23**

Reflector with mounting holes

**REF-MH20**

Reflector with Micro-structure, rectangular 32 mm x 20 mm, mounting holes

**REF-MH23**

Reflector with Micro-structure, rectangular 23 mm x 13.8 mm, diagonal mounting hole

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

Female cordset single-ended, M8, 4-pin, PUR cable

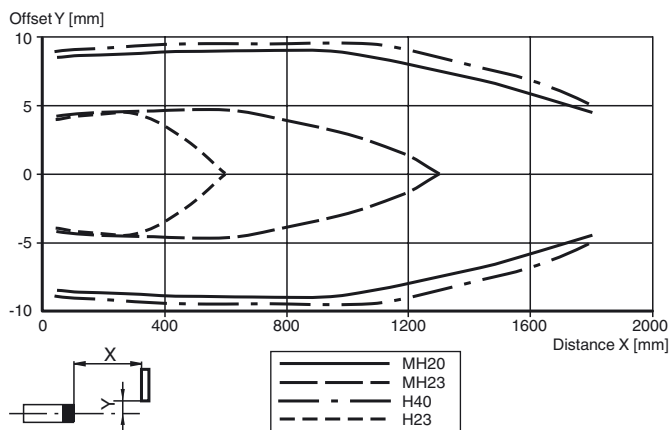
**V31-WM-2M-PUR**

Female cordset single-ended, M8, 4-pin, PUR cable

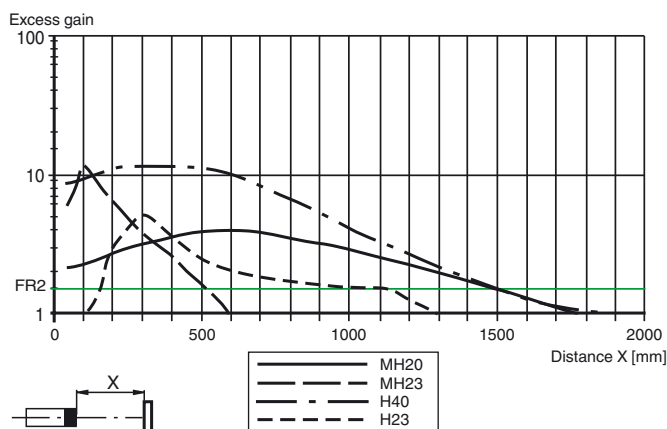
Other suitable accessories can be found at [www.pepperl-fuchs.com](http://www.pepperl-fuchs.com)

## Curves/Diagrams

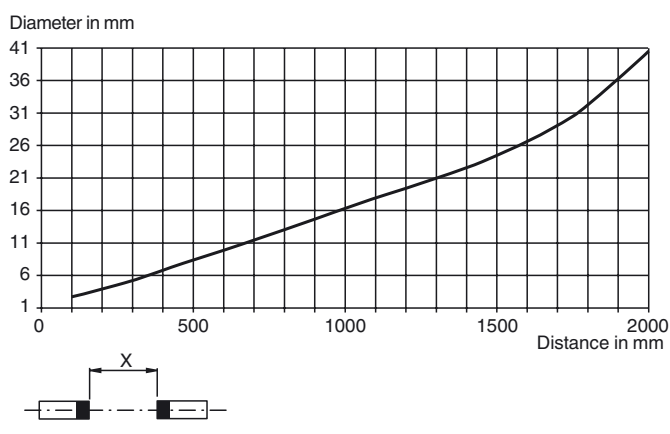
## Characteristic response curve



## Relative received light strength



## Light spot diameter



## Laser notice laser class 1

- 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.
- The warning accompanies the device and should be attached in immediate proximity to the device.
- Caution – Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.