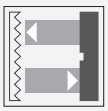


Retroreflective Sensor

OBR2000-R2-E2-0,2M-V31-P-L



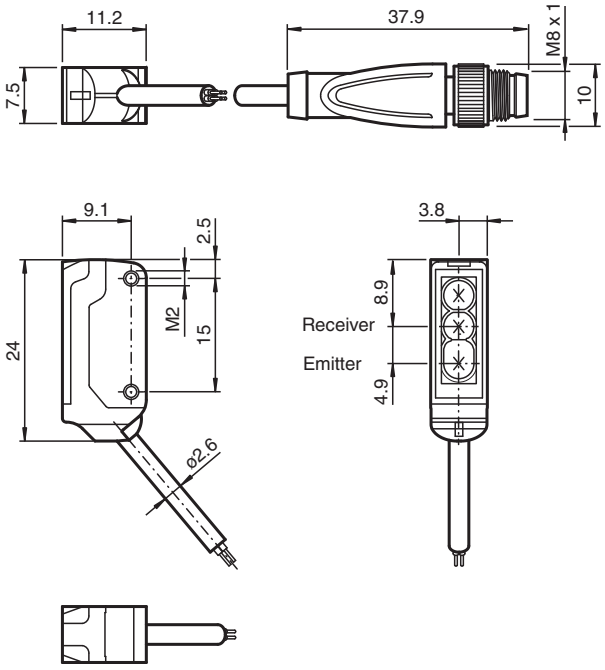
- Ultra-small housing design
- DuraBeam Laser Sensors - durable and employable like an LED
- 45° cable outlet for maximum mounting freedom under extremely tight space constraints

Laser retroreflective sensor, ultra-small design with M2 mounting, polarization filter, 2000 mm detection range, dark on, PNP output, 200 mm fixed cable with plug M8, 4-pin

Function

The nano sensor has been developed for a broad range of applications. It offers excellent durability and is exceptionally easy to install. The housing is compact and, with its 45° cable outlet, can be installed in the smallest spaces. New functional principles and functionality open up a range of new options.

Dimensions



Technical Data

General specifications	
Effective detection range	0 ... 2 m
Reflector distance	40 ... 2000 mm
Threshold detection range	2.3 m
Reference target	H40 reflector

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Technical Data

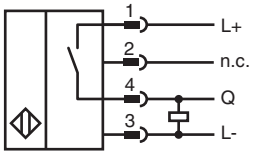
Light source		laser diode
Light type		modulated visible red light , 680 nm
Polarization filter		yes
Laser nominal ratings		
Note		LASER LIGHT , DO NOT STARE INTO BEAM
Laser class		1
Wave length		680 nm
Beam divergence		> 5 mrad
Pulse length		approx. 3 µs
Repetition rate		approx. 16.6 kHz
max. pulse energy		8 nJ
Diameter of the light spot		approx. 35 mm at a distance of 2000 mm
Opening angle		approx. 0.5 °
Optical face		frontal
Ambient light limit		EN 60947-5-2 : 30000 Lux
Functional safety related parameters		
$MTTF_d$		800 a
Mission Time (T_M)		10 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		LED yellow: lights up when receiving the light beam ; flashes when falling short of the operating reserve; OFF when light beam is interrupted
Electrical specifications		
Operating voltage	U_B	12 ... 24 V DC , class 2
No-load supply current	I_0	< 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_d	≤ 1.5 V DC
Switching frequency	f	approx. 2 kHz
Response time		250 µs
Conformity		
Product standard		EN 60947-5-2
Laser safety		IEC 60825-1:2014
Approvals and certificates		
UL approval		E87056 , cULus Recognized, Class 2 Power Source Further UL information see section "Additional Information"
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		-20 ... 60 °C (-4 ... 140 °F)
Storage temperature		-30 ... 70 °C (-22 ... 158 °F)
Mechanical specifications		
Degree of protection		IP67
Connection		200 mm fixed cable with 4-pin, M8x1 connector
Material		
Housing		PC/ABS and TPU
Optical face		PMMA
Cable		PUR

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Technical Data

Installation		Fixing screws , 2 x M2 allen head screws included with delivery
Mass		approx. 10 g
Dimensions		
Height		24 mm
Width		7.5 mm
Depth		11.2 mm
Cable length		200 mm

Connection Assignment



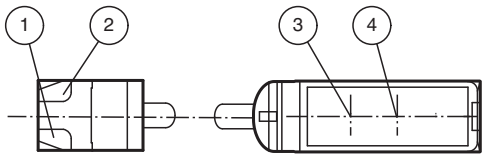
Connection Assignment



Wire colors in accordance with EN 60947-5-2

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

Assembly

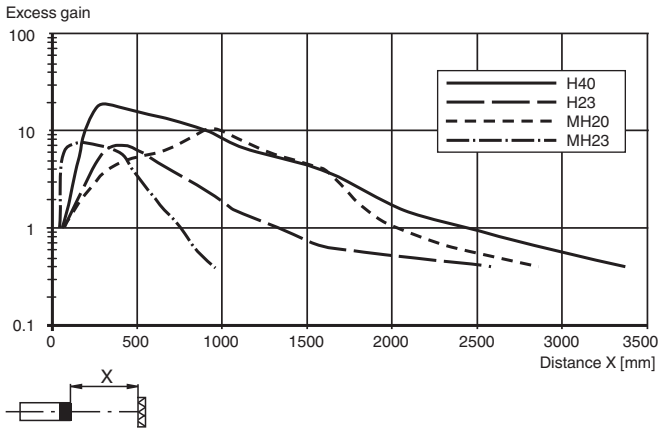


1	Operating display	green
2	Signal display	yellow
3	Emitter	
4	Receiver	

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Characteristic Curve

Relative received light strength



Additional Information

Additional UL Information
Conditions of Acceptability:
These devices should be mounted within a suitable ultimate enclosure with proper end products spacings.
These devices shall be used within their recognized electrical ratings.
These devices are intended for factory wiring only. The suitability of the power cord and strain relief should be determined in the end use application.
These proximity switches are intended to be powered by Listed Class 2 power supply or are located in a limited voltage / limited current circuit.

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