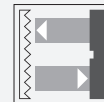




Laser retroreflective sensor OBR2000-R3-E2-0,2M-V3-L



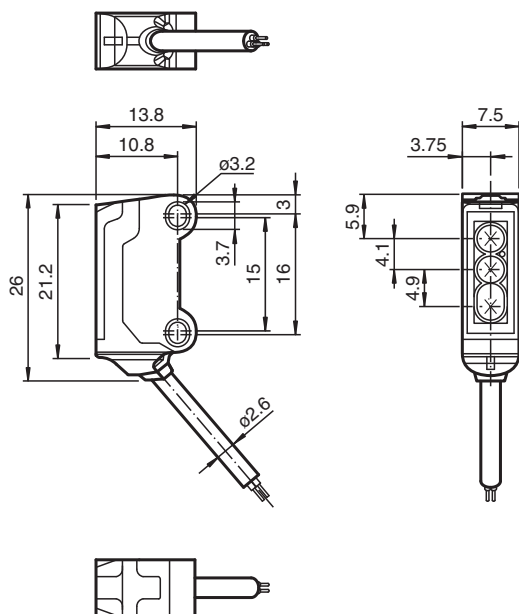
- Ultra-small housing design
- DuraBeam Laser Sensors - durable and employable like an LED
- 45° cable outlet for maximum mounting freedom under extremely tight space constraints
- Improvement in machine availability with abrasion-resistant, antistatic glass front

Laser retroreflective sensor, ultra-small design with M3 mounting, polarization filter, 2000 mm detection range, PNP output, 200 mm fixed cable with plug M8, 3-pin



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

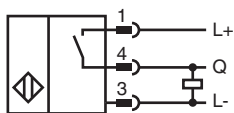
Effective detection range	0 ... 2 m
Reflector distance	40 ... 2000 mm
Threshold detection range	2.3 m
Reference target	H40 reflector
Light source	laser diode
Light type	modulated visible red light , 680 nm
Polarization filter	yes
Laser nominal ratings	
Note	LASER LIGHT , DO NOT STARE INTO BEAM
Laser class	1

Technical Data

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)		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		LED yellow: lights up when receiving the light beam ; flashes when falling short of the stability control; OFF when light beam is interrupted
Electrical specifications		
Operating voltage	U _B	12 ... 24 V
No-load supply current	I ₀	< 10 mA
Protection class		III
Output		
Switching type		NO contact
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	EN 60825-1:2007	
Approvals and certificates		
EAC conformity	TR CU 020/2011	
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
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Storage temperature	-30 ... 70 °C (-22 ... 158 °F)	
Mechanical specifications		
Housing width	7.5 mm	
Housing height		26 mm
Housing depth	13.8 mm	
Degree of protection		IP67
Connection	200 mm fixed cable with 3-pin, M8 x 1 connector	
Material		
Housing	PC/ABS and TPU	
Optical face		glass
Cable	PUR	
Mass		approx. 10 g
Cable length	200 mm	

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Connection



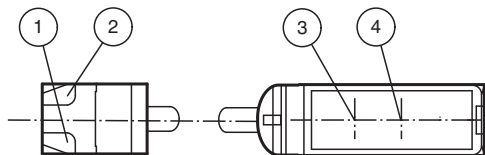
Connection Assignment



Wire colors in accordance with EN 60947-5-2

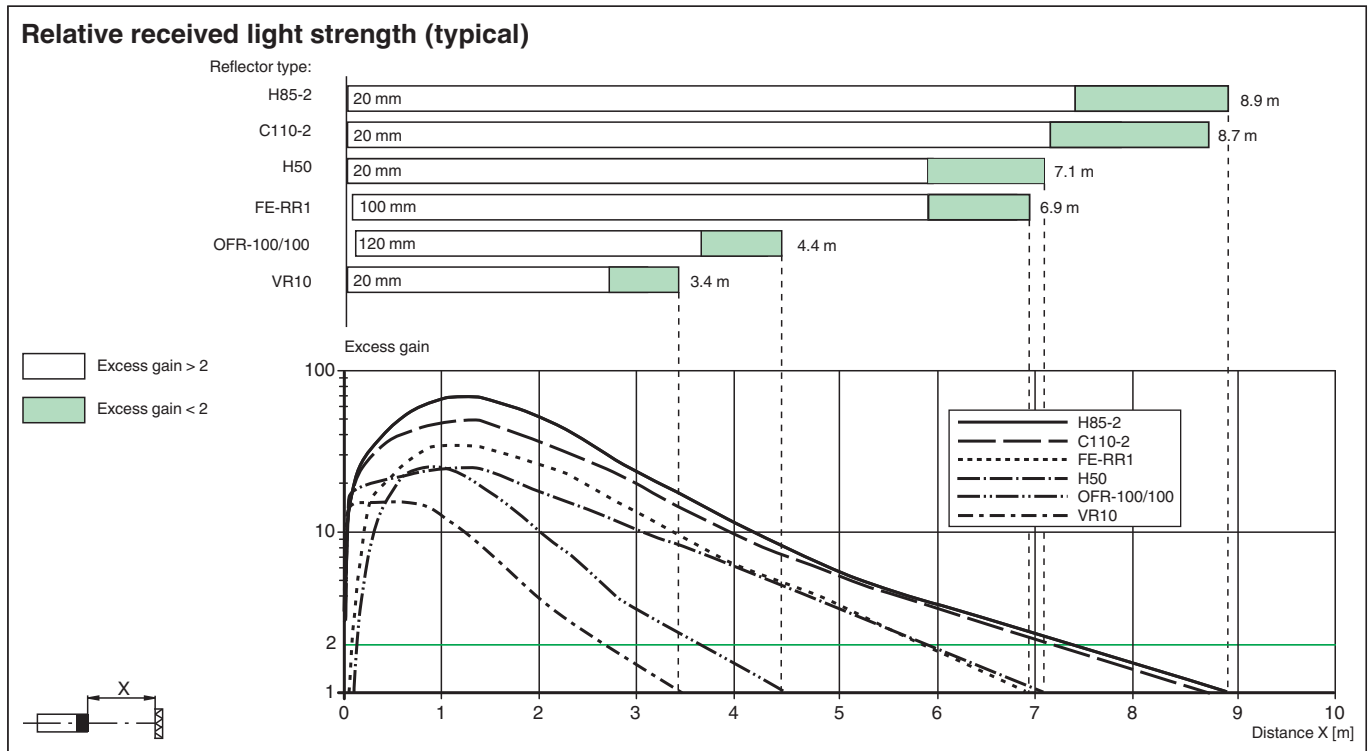
1	BN	(brown)
3	BU	(blue)
4	BK	(black)

Assembly

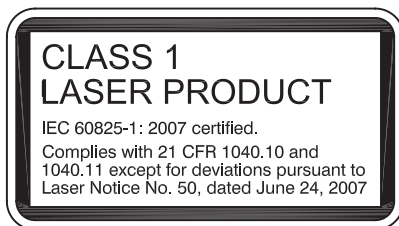


1	Operating display	green
2	Signal display	yellow
3	Emitter	
4	Receiver	

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Safety Information



Accessories



MH-R3-01

Mounting aid for sensors from the R3 series, mounting bracket



MH-R3-02

Mounting aid for sensors from the R3 series, mounting bracket

Accessories

	MH-R3-03	Mounting aid for sensors from the R3 series, mounting bracket
	MH-R3-04	Mounting aid for sensors from the R3 series, mounting bracket
	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
	V3-GM-2M-PUR	Female cordset single-ended M8 straight A-coded, 3-pin, PUR cable grey
	V3-WM-2M-PUR	Female cordset single-ended M8 angled A-coded, 3-pin, PUR cable grey