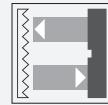




Laser retroreflective sensor

OBR2000-R3-E1-L



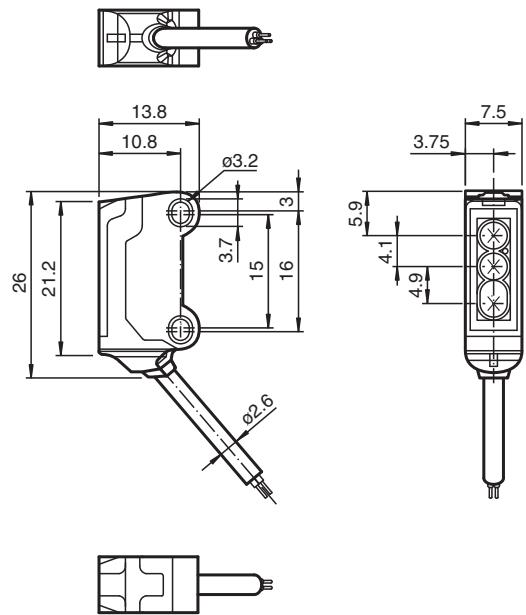
- Ultra-small housing design
- DuraBeam Laser Sensors - durable and employable like an LED
- 45° cable outlet for maximum mounting freedom under extremely tight space constraints
- Improvement in machine availability with abrasion-resistant, antistatic glass front

Laser retroreflective sensor, ultra-small design with M3 mounting, polarization filter, 2000 mm detection range, NPN output, 2 m fixed cable



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



Release date: 2022-06-03 Date of issue: 2022-06-03 Filename: 70110127_eng.pdf

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 |

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

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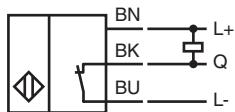
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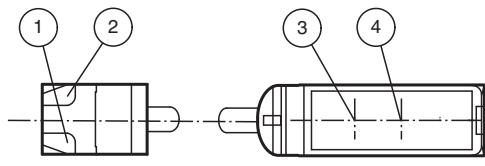
Technical Data

| | | |
|---|---|---------------|
| 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 | NC contact / light-on | |
| Signal output | 1 NPN 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 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 | 2 m fixed cable | |
| Material | | |
| Housing | PC/ABS and TPU | |
| Optical face | glass | |
| Cable | PUR | |
| Mass | approx. 20 g | |
| Cable length | 2 m | |

Connection

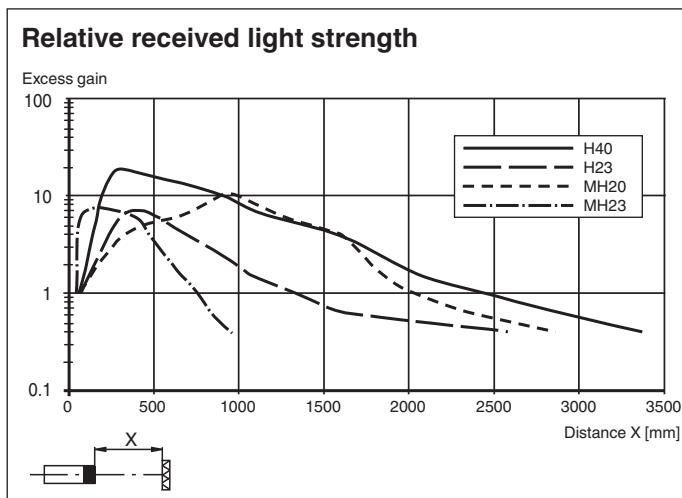


Assembly

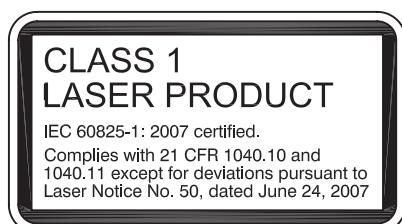


| | | |
|---|-------------------|--------|
| 1 | Operating display | green |
| 2 | Signal display | yellow |
| 3 | Emitter | |
| 4 | Receiver | |

Characteristic Curve



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 |
|  | 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 |