

# **Model Number**

## OBR2000-R3-E2-0,2M-V31-L

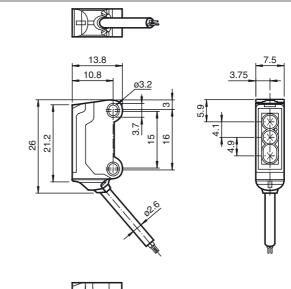
Laser retroreflective sensor with fixed cable and 4-pin, M8 connector

#### **Features**

- Ultra-small housing design ٠
- DuraBeam Laser Sensors durable ٠ and employable like an LED
- 45° cable outlet for maximum ٠ mounting freedom under extremely tight space constraints
- Improvement in machine availability ٠ with abrasion-resistant, antistatic glass front

#### **Product information**

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  $45^\circ$ cable outlet, can be installed in the smallest spaces. New functional principles and functionality open up a range of new options. The abrasion-resistant lens allows long operating times close to the moving object.





### **Electrical connection**



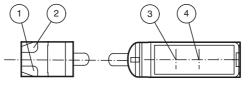
**Dimensions** 

#### **Pinout**



in accordance with EN 60947-5-2 BN WH BU BK (brown (brown) (white) (blue) (black)

### Indicators/operating means



3

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

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Germany: +49 621 776 1111 fa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com <sup>5</sup> PEPPERL+FUCHS 1

| Elector definition      0 - 2 m        Relator definition      4 - 200 nm        Treaded decidio range      2.3 m        Relator definition      40 relators        Light numer      Issue diale        Definition      900        Definition      900        Light numer      1 - 2 mm        Definition      900        Definition      900        Definition      900        Definition      900        Definition      900        Definition      900        Definition      1 - 2 mm  | Technical data             |         |   | Laserlabel   |  |
|--|----------------------------|---------|---|--|--|
| Reflection distance      402000 nm        Reflection range      2.3 m        Reflection range      2.8 m        Reflection range      2.8 m        Reflection range      2.8 m        Reflection range      2.8 m        Reflection range      3.8 m        Reflection range      3.8 m        Reflection range      3.8 m        Reflection range      0.0 m        Reflection range      0.  | General specifications     |         |   |  |  |
| Threaded detection range      2.3 m        Reference target      3.0 m        Reference target      How Indextor        Data starting      Market in the indextor        Polarization Transfor      Market indextor        Polarization Transfor      Market indextor        Polarization Transfor      Market indextor        Polarization Transfor      Market indextor        Polarization and market indextor      Market indextor        Reperition and market indextor      Market indextor        Applied of Market indextor      Market indextor        Concenting indextor      Market indextor        Constraints indextor      Market indextor        Sequint indextor      Market indextor        Sequint indextor      Market indextor        Corearings voltage      Market indextor        Sequint indextor      Market indextor        Sequint indextor      Market indextor        Sequint indextor      Market indextor  | •                          |         | 0 2 m   |  |  |
| Index conception      Hold methods        Light source      modelland vieles net light, 600 nm      Modelland      Modelland        Laser controls attrings      Modelland      Modelland      Modelland      Modelland        Laser controls attrings      ASER LIGHT, DO NOT STATE INTO BEAM      CLASS S 1      CLASS S 1        Laser controls attrings      ASER LIGHT, DO NOT STATE INTO BEAM      CLASS S 1      CLASS S 1        Deard control stiple sport      A propertion to the filth sport      A propertion to the filth sport      A propertion to the filth sport      Modelland      CLASS S 1  | Reflector distance         |         | 40 2000 mm  |  |  |
| Independence      Head Association        Legen source      max asker does        Legen source      max asker does        Legen source      max asker does        Legen source      LASE PLAFT, DO NOT STARE INTO BEAM        Leser control intigon      LASE PLAFT, DO NOT STARE INTO BEAM        Leser control intigon      LASE PLAFT, DO NOT STARE INTO BEAM        Leser control intigon      Source of the start of t   | •                          |         |   |  |  |
| Light pipe modulated validle rol light . 880 nm<br>Pediaration file<br>Laser class LASER LIGHT, DO NOT STARE INTO BEAM<br>Laser class 1<br>Laser class 1<br>Laser class 1<br>Laser class 1<br>Laser class 1<br>Laser class 1<br>Dates in the pipe . S at a<br>pipe in graph . S at a<br>pipe in grap   | Reference target           |         |   | PRODUCT  |  |
| Polestanting<br>Polestanting<br>Network (Polestanting)<br>Network (Polestanting)<br>Network (Polestanting)<br>Network (Polestanting)<br>Parabies length<br>Parabies length<br>P | -                          |         |   |  |  |
| Later normal along between the second   |                            |         |   |  |  |
| Note<br>Baser class      LASER LIGHT, DO NOT STARE INTO BEAM        Wase insigh      Editer of the singh      BO        Wase insigh      BO      BO        Beam divergence      > 5 mad      BO        Pute length      approx. 55 lb Hz      BO        Triance of the light spot      approx. 55 -      Inclustone        Optical face      frontal      BO        Answering (DC)      0 %      BO        Dander of the light spot      approx. 55 -      Inclustone        Incluston indicator      EX BORDARS-22: 30000 LLX      Inclustone        Massen Time (Tg)      20 a      Doming voltage spots      Inclustone        Darginatic Colomage (DC)      0 %      Set      Doming voltage spots      Inclustone        Charles on the light spot      0 works on the light spot      Doming voltage spots      Doming voltage spots      Doming voltage spots        Charles on the light spot      0 works on the light spot      Doming voltage spots      Doming voltage spots      Doming voltage spots        Charles on the light spot      0 works on the light spot      Doming voltage spot      Doming voltage spots      Doming voltage spots      Doming voltage spots  |                            |         | yes   |  |  |
| Later cales    1      Beam divergence    - 5 mmd      Beam divergence    - 5 mmd      Public length    approx. 31 is      Repetition rate    approx. 35 mm at adstance of 2000 mm      Applie of divergence    - 6 mmd      Applie of divergence    - 10 mA      Profection indicator    - 10 mA      Profection divergence    - 10 mA   | Ū.                         |         |   |  |  |
| Lader datas    1    Sort mit      Baser development    5 mm      Baser development    5 mm      Baser development    6 Mit      Angle of development    9 Mit      Angle of development    No datas      Angle of development    No datas      MITFR <sub>g</sub> 800 a      Massen Time (T <sub>b</sub> )    20 a      Degressite Coverage (DC)    0 %      Mittradent (Mitter)    120 genes, statically it Power on . short-circuit : LED green finatical development      Mittradent (Mitter)    120 genes, statically it Power on . short-circuit : LED green finatical development      Mittradent (Mitter)    120 mit      Mittradent (Mitter)    120 mit      Mittradent (Mitter)    120 mit      Switching yord    No contact   |                            |         |   | CLASS 1  |  |
| Beam divergence      - 9 mm d        Pate length      approx. 3 is in approx. 3 is   |                            |         |   |  |  |
| Public Rengin      approx. 30 ar        Poperition indicator      8 r.J.        Ambient light limit      EN 6047-5-2: 30000 Lux        MITFR <sub>0</sub> 600 a        Misseon Time (T <sub>0</sub> )      20 a        Diagnostic Coverage (DC)      0 5        Michael Seperation indicator      LED gene, statically it Power on, short-circuit : LED gene listical work in diversity control. OFF when light beam interrupted        Recircal specifications      LED years, statically it Power on, short-circuit : LED gene listical years in the statical years   | Ū                          |         |   | Complies with 21 CFR<br>1040.10 and 1040.11 except<br>for deviations pursuant to |  |
| Industry      Separation rates        Dependence      Separation relation        Dependence      Separation relation        Operating of dependence      Separation        Ambent light inter      EN 6007-6-2: 30000 Lux        Ambent light inter      EN 6007-6-2: 30000 Lux        Ambent light inter      EN 6007-6-2: 30000 Lux        Ambent light inter      ED generalisation intercence        Operating voltage means      ED generalisation intercence        Operating voltage means      ED generalisation intercence        Operating voltage      II        No-load apoph collector      ED generalisation intercence        Operating voltage      III        No-load apoph collector      ED generalisation intercence        Soliching yob      NO contact        Signal odopt      I PNP couput, short-forcing protected, severse polarity protected, severalise intercence        Soliching yob (Soliching in the stability optic (Soliching in the stability control, Soliching i  | e e                        |         |   |  |  |
| marker of the play point  8 min.  a distance of 2000 mm    Argle of divergence  approx. 55 *    Opchal face  the Diverse of the Standard Sta  |                            |         |   |  |  |
| Dameter of the light spat      spprox. 35 mm at a distance of 2000 mm        Angle of divergence      sprox. 65 mm        Angle of divergence      sprox. 65 mm        Angle of divergence      sprox. 65 mm        Angle of divergence      formal        Angle of divergence      sprox. 65 mm        Signal output      1 PPP output, short-focut protection, sport-focut is angle or divergence        Switching requere      sprox. 65 mm, sensitive liked        Product standard      EN 6087-5-2        Stare is angle output      1 PPP output, short-focut protection, sem, mounting bracket        Miching requere      sprox. 65 mm        Housing dight      75 mm        Housing dight      26 mm        Optical fines  |                            |         |   |  |  |
| Angle of divergence    approx. 0.5 *      Optical face    frontal      Ambent light limit    EN 60847-52: 30000 Lux      Turchonal safety related parameters    800 a      MITEry    800 a      Masson Time (Ty)    20 a      Dependito influence (Complex with a CER Network 4P)    Economic (Complex with a CER Network 4P)      Function indicator    LED yealow: lights up when receiving the light beam: flashing (provide)      Protection indicator    UP values: lights up when receiving the light beam: flashing (provide)      Operating voltage    Up      Switching voltage    Up      Switching voltage    No      Housing laight    20 60 °C (4 140 °F)      Strefer    No   |                            |         |   |  |  |
| Opical face    Frontal      Ambend tight limit    EN 00947-562: 3000 Lux      Marchand safety related parameters    B00.4      Mission Time (Typ.)    20.8      Deparation Conceptrating means    Class 20.00 Lux      Operation indicator    LED yreen, statically it Power on, short-circuit : LED green, training short of the stability control; OFF when light beam i, flashes when rafaling short of the stability control; OFF when light beam i, flashes when rafaling short of the stability control; OFF when light beam i, flashes when rafaling short of the stability control; OFF when light beam i, flashes when rafaling short of the stability control; OFF when light beam i, flashes when rafaling short of the stability control; OFF when light beam i, flashes when rafaling short of the stability control; OFF when light beam i, flashes when rafaling short of the stability control; OFF when light beam i, flashes when rafaling short of the stability control; OFF when light beam i, flashes when rafaling short of the stability control; OFF when light beam i, flashes when rafaling short of the stability control; OFF when light beam i, flashes when rafaling short of the stability control; OFF when light beam i, flashes when rafaling short of the stability control; OFF when light beam i, flashes when rafaling short of the stability control; OFF when light beam i, flashes when rafaling short of the stability control; OFF when light beam i, flashes when rafaling short of the stability control; OFF when light beam i, flashes when rafaling short of the stability control; OFF when light beam i, flashes when rafaling short of the stability control; OFF when light beam i, flashes when rafaling short of the stability control; OFF when light beam i, flashes when rafaling short of the stability con   |                            |         |   |  |  |
| Ambient light limit      EN 60047-52 : 30000 Lux        MITER - methods parameters      Biologic and the second parameters        MITER - methods parameters      Biologic and the second parameters        MITER - methods parameters      Disposed parameters        Miter Time (Ty)      20 a        Destance indicator      LED green deficient of the stability control: OFF when light beam is interrupted      Disposed parameters        Operation indicator      LED yealow: lights up when receiving the light beam: flashes, diverse parameters      MITER - methods and the second parameters        Operation indicator      LED yealow: lights up when receiving the light beam: flashes, diverse parameters      MITER - methods and the second parameters        Operation indicator      LED yealow: lights up when receiving the light beam: flashes, diverse parameters      MITER - methods        Solucity up to the stability control: OFF when light beam is interrupted      MITER - methods      MITER - methods        Solucity up to the stability control: OFF when light beam is interrupted      MITER - methods      MITER - methods        Solucity up to the stability control: OFF when light beam is interrupted      MITER - methods      MITER - methods        Solucity up to the stability control: OFF when light beam is interrupted      MITER - methods      MITER - methods      Solucity methods      MITE  |                            |         |   |  |  |
| Superior state  |                            |         |   |  |  |
| MTTF <sub>d</sub> B00 a        Mission Time (T <sub>d</sub> )      20 a        Diagnostic Coverage (DC)      0 %        Operation indicator      IEED green, statically if Power on, short-circuit : LED green<br>ittering greenses      Coveralise statically if Power on, short-circuit : LED green<br>ittering the power on short-circuit : LED green<br>ittering the other of the stability control; OFF when light beam : flashes<br>when failing when of the stability control; OFF when light beam : flashes<br>when failing when of the stability control; OFF when light beam : flashes<br>when failing when of the stability control; OFF when light beam : flashes<br>when failing when of the stability control; OFF when light beam : flashes<br>when failing when of the stability control; OFF when light beam : flashes<br>when failing when of the stability control; OFF when light beam : flashes<br>when failing when of the stability control; OFF when light beam : flashes<br>when failing when of the stability control; OFF when light beam : flashes<br>when failing when of the stability control; OFF when light beam :<br>statically particles      Accessories        Storage temperature      4 0 MA      MH-R3-01      Mounting alf for sensors from the R3<br>series, mounting bracket        When standard      EN 60825-12007      MH-R3-03      Mounting alf for sensors from the R3<br>series, mounting backet        Notating alf for sensors from the R3<br>series mounting balost      So m Accessories      MH-R3-04        Mounting alf for sensors from the R3<br>series, mounting backet      MH-R3-03      Mounting alf for sensors from the R3<br>series, mounting backet        Notati  |                            |         | EN 60947-5-2 : 30000 Lux  |  |  |
| Mission Time (T <sub>k1</sub> )  20 a    Dignositic Coverage (DC)  0 %    IndicatorSoperating means  ED green, statically if Power on , short-circuit : ED green , statically if Power on , short-circuit : ED green , statically if Power on , short-circuit : ED green , statically if Power on , short-circuit : ED green , statically if Power on , short-circuit : ED green , statically if Power on , short-circuit : ED green , statically if Power on , short-circuit : ED green , statically if Power on , short-circuit : ED green , statically if Power on , short-circuit : ED green , statically if Power on , short-circuit : ED green , statically if Power on , short-circuit : ED green , statically if Power on , short-circuit : ED green , statically if Power on , short-circuit : ED green , statically if Power on , short-circuit : ED green , statically if Power on , short-circuit : ED green , statically if Power on , short-circuit : ED green , statically if Power on , short-circuit : ED green , statically if Power on , short-circuit protected , reverse polarity protected , series , mounting bracket    Switching treguency  10 a AD contact    Switching treguency  1 approx. 2 kHz    Response time  250 µs    Dordormity  -    Product standard  EN 6047-5-2    Laser safety  AD 602 (-4 140 °F)    Anbient conditions  -    Anbient temperature  -20 60 °C (-4 140 °F)    Storage temperature  -20 60 °C (-4 140 °F)    Housing height  280 mn    Housing height  280 mn    Housing height  280 mn <td>, ,</td> <td>ameters</td> <td></td> <td></td>   | , ,                        | ameters |   |  |  |
| Diagnostic Coverage (DC)    0 %      Operation indicator    ED green, statically if Power on , short-circuit : LED green<br>thashing (approx.4 Hz)      Function indicator    ED green, statically if Power on , short-circuit : LED green<br>thashing (approx.4 Hz)      Function indicator    ED green, statically if Power on , short-circuit : LED green<br>thashing (approx.4 Hz)      Structure    ED yealow: sights up when receiving the light beam: fisable<br>when failing instructure.      Operation indicator    U      Operation indicator    k      Vibrit System    Voltage beam of the stability control: OFF when light beam<br>interrupted      Structure    V      Structure    response      Structure    VO contact      Structure    Protection class      Switching type    NO contact      Switching voltage    max. SO MA, resistive load      Voltage drop    U      Switching requere    aprice. 2 kHz      Response time    250 µs      Configure    aprice. 2 kHz      Response time    250 µs      Configure    - 30 ··· 70 °C (42 ··· 140 °F)      Storage temperature    - 30 ··· 70 °C (42 ··· 140 °F)      Storage temperature    - 30 ··· 70 °C (42 ··· 140 °F) </td <td>-</td> <td></td> <td></td> <td></td>  | -                          |         |   |  |  |
| Dagostic Coverage (CO)      0 %        Operation indicator      LED green, statically if Power on , short-circuit : LED green<br>thashing (approx. 4 Hz)        Function indicator      LED yellow: lights up when neeving the light beam; filashees<br>when failing short of the stability control; OFF when light beam;<br>interrupted        Electrical specifications      Image: Short of the stability control; OFF when light beam;<br>interrupted        Operation indicator      LED yellow: lights up when neeving the light beam;<br>interrupted        Switching voltage      Up      1.2  | ( 14)                      |         |   |  |  |
| Idea of specifications      LED green, statically lit Power on , short-circuit : LED green indicator      LED green, statically lit Power on , short-circuit : LED green indicator      LED green, statically lit Power on , short-circuit : LED green indicator      Convection indicator      Departing means      Convection indicator      Noticed supply current    Accessories      Minime 2.2.24 V      Noticed supply current    Accessories      Minime 2.2.24 V      Noticed supply current    Accessories      Switching uppe    NO contact      Switching uppe    NO contact      Switching uppe    Mining ad for sensors from the R3 series, mounting bracket      Mining uppe    Mining ad for sensors from the R3 series, mounting bracket      Mining uppe    Mining uppe      Switching uppe    NO contact      Switching uppe    Mining uppe      Convection    EF -Ma0      Switching uppe <td>Diagnostic Coverage (DC)</td> <td></td> <td>0 %</td> <td></td>   | Diagnostic Coverage (DC)   |         | 0 %   |  |  |
| Operating voltage    Use years of the stability control; OFF when light beams is taken the fulling short of the stability control; OFF when light beams is taken the fulling short of the stability control; OFF when light beams is taken the fulling short of the stability control; OFF when light beams is taken the fulling short of the stability control; OFF when light beams is taken the fulling short of the stability control; OFF when light beams is taken the fulling short of the stability control; OFF when light beams is taken the fulling short of the stability control; OFF when light beams is taken to the fulling short of the stability control; OFF when light beams is taken the fulling short of the stability control; OFF when light beams is taken to the fulling short of the stability control; OFF when light beams is taken to the fulling short of the stability control; OFF when light beams is taken to the fulling short of the stability control; OFF when light beams is taken to the fulling short of the stability control; OFF when light beams is taken to the fulling short of the stability control; OFF when light beams is taken to the fulling short of the stability control; OFF when light beams is taken to the fulling short of the stability control; OFF when light beams is taken to the fulling short of the stability control; OFF when light beams is taken to the fulling short of the stability control; OFF when light beams is taken to the fulling short of the stability control; OFF when light beams is taken to the fulling short of the stability control; OFF when light beams is taken to the fulling short of the stability control; OFF when light beams is taken to the fulling short of the stability control; OFF when light beams is taken to the fulling short of the fulling short of the fulling short of the fulling short of the stability control; OFF when light products and the fulling short of the  | Indicators/operating means |         |   | 1040.11 except for deviations pursuant to  |  |
| where falling short of the stability control; OFF when light beams<br>interrupted      Accessories        Electrical specifications      U      2  |                            |         | flashing (approx. 4 Hz)   | Laser Notice No. 50, dated June 24, 2007   |  |
| Electrications      Accessories        Operating voltage      U <sub>g</sub> 12 24 V        Nocload supply current      U <sub>g</sub> 12 0 mA        Protection class      III        Switching type      NO contact      Mounting aid for sensors from the R3 series, mounting bracket        Switching output      1 NPN couput, short-circuit protected, reverse polarity reversed, reverse polarity protected, reverse polarity protect   | Function indicator         |         | when falling short of the stability control; OFF when light beam is |  |  |
| Operating voltage    Up    1224 V    MH-R3-01      No-load supply current    Up    <10 mA  | Electrical specifications  |         | interrupted   | Accessories  |  |
| No-load supply current    0    <10 mA  | -                          | 11-     | 12 24 V   | MH D2 01   |  |
| Protection class    III      Dutput    Image: Solution of the transmitted in the transmit in the tra   |                            | -       |   |  |  |
| Dutput      Series, mounting bracket        Switching type      ND contact      MH-R3-02        Signal output      1 PNP output, short-circuit protected, reverse polarity protected, reverse polarity protected, reverse polarity protected, sperse polarity protected, reverse polarity protected,   |                            | 10      |   | U U  |  |
| Switching typeNO contactMH-R3-02Signal output1 PNP output, short-circuit protected, reverse polarity protected,<br>open collectorMounting aid for sensors from the R3<br>series, mounting bracketSwitching urentmax. 30 V DCMH-R3-03Woltage dropU<br>d<br>a sprox. 2.kHzMH-R3-03Switching frequencyf<br>a paprox. 2.kHzMH-R3-04Response time250 usMH-R3-04ConformityFN60047-5-2Mounting aid for sensors from the R3<br>series, mounting bracketProduct standardEN 60947-5-2MH-R3-04Laser safetyEN 60947-5-2Mounting aid for sensors from the R3<br>series, mounting bracketAmbient temperature-30 70 °C (-22 158 °F)MenanceHousing with7.5 mmRef-H40Housing with25 mmRef-H40Housing with26 mmRef-H40Housing depth13.8 mmReflector vith mounting holesDegree of protectionIP67Reflector with mounting holesConnection200 mm fixed cable with 4-pin, MBx1 connectorReflector with Micro-structure,<br>rectangular 32 mm x 20 mm, mounting<br>holesMaterial   |                            |         |   | series, mounting bracket   |  |
| Signal output    1 PNP output, short-circuit protected, reverse polarity protected, open collector    Mounting aid for sensors from the R3 series, mounting bracket      Switching current    max. 50 mA, resistive load    MH-R3-03      Voltage drop    U <sub>0</sub> ≤ 1.5 V DC    Mounting aid for sensors from the R3 series, mounting bracket      Switching requency    f    approx. 2 kHz    Series, mounting bracket      Response time    250 µs    Mounting aid for sensors from the R3 series, mounting bracket      Ambient conditions    EN 60927-5-2    Mounting aid for sensors from the R3 series, mounting bracket      Ambient temperature    -20 60 °C (4 140 °F)    MH-R3-04      Storage temperature    -30 70 °C (22 158 °F)    Mounting holes, fixing strap      Housing height    26 mm    REF-H40      Housing height    26 mm    Reflector with mounting holes, fixing strap      Housing height    26 mm    Reflector with Micro-structure, rectangular 32 mm x 20 mm, mounting holes      Connection    200 mm fixed cable with 4-pin, M8x1 connector    Reflector with Micro-structure, rectangular 32 mm x 13.8 mm, diagonal mounting holes      Dusing depth    13.8 mm    Reflector with Micro-structure, rectangular 32 mm x 13.8 mm, diagonal mounting holes      Cable length    20 mm    Reflec  |                            |         | NO contest  | MH-B3-02   |  |
| switching outgene max. 30 V DC series, mounting bracket series, mounting bracket max. 30 V DC series, mounting bracket max. 30 V DC series, mounting bracket mounting bracket max. 50 mA, resistive load mounting aid for sensors from the R3 series, mounting bracket mounting bracket methods are series, mounting bracket methods are series are series are series are series are series a   |                            |         |   |  |  |
| Switching current  max. 50 mA, resistive load  MH-R3-03    Voltage drop  U_g  <1.5 V DC  |                            |         | open collector  | _  |  |
| Voltage drop    Ud    ≤ 1.5 V DC      Switching frequency    f    approx.2 kHz      Response time    250 µs      Conformity    FN 60947-5-2      Product standard    EN 60947-5-2      Laser safety    EN 60947-5-2      Caser safety    EN 60947-5-2      Storage temperature    -20 60 °C (-4140 °F)      Storage temperature    -20   |                            |         |   | MH-D2-03   |  |
| Switching frequency    f    approx. 2 kHz    series, mounting bracket      Response time    250 µs    series, mounting bracket      Product standard    EN 60947-5-2    series, mounting bracket      Laser safety    EN 60925-1:2007    Mounting aid for sensors from the R3 series, mounting bracket      Ambient conditions    Ambient emperature    -30 70 °C (-22 158 °F)      Mechanical specifications    F      Housing width    7.5 mm      Housing width    7.5 mm      Housing width    26 mm      Housing width    26 mm      Housing depth    13.8 mm      Degree of protection    IP67      Connection    200 mm fixed cable with 4-pin, M8x1 connector      Material    F      Housing    PC/ABS and TPU      Optical face    glass      Cable    PUR      Mass    approx.10 g      Cable length    287056, cULus Recognized, Class 2 Power Source      UL approval    E87056, cULus Recognized, Class 2 Power Source      UL approval    E87056, cULus Recognized, Class 2 Power Source      VIEC 60825-1:2007 Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser No   |                            |         |   |  |  |
| Response time    250 μs      Donformity    250 μs      Product standard    EN 60947-5-2      Laser safety    EN 60825-1:2007      Ambient conditions    Reflector, rectangular 47.5 mm x 23.5 mm, mounting bracket      Housing width    7.5 mm      Housing height    26 mm      Housing depth    13.8 mm      Degree of protection    IP67      Connection    200 mm fixed cable with 4-pin, M8x1 connector      Material    -      Housing    PC/ABS and TPU      Optical face    glass      Cable    PUR      Mass    approx. 10 g      CCC approval    ECF 687056, cULus Recognized, Class 2 Power Source      UL approval    E87056, cULus Recognized, Class 2 Power Source      CCC approval    CCC approval/ marking not required for products rated s36 V      FDA approval    IEC 60825-1:2007 Complies with 21 CFR 1040.10 and 1040,11 except for deviations purs   |                            | -       |   | Ū.   |  |
| ConformityIMH-R3-04Product standardEN 60927-52Mounting aid for sensors from the R3Laser safetyEN 60825-1:2007series, mounting bracketAmbient conditions-20 60 °C (-4 140 °F)Reflector, rectangular 47.5 mm x 23.5Michanical specificationsReF-H40Reflector, rectangular 47.5 mm x 23.5Housing width7.5 mmReflector, rectangular 47.5 mm x 23.5Housing height26 mmReflector, rectangular 47.5 mm x 23.5Housing depth13.8 mmReflector with mounting holesDegree of protectionIP67Reflector with Micro-structure,<br>rectangular 32 mm x 20 mm, mounting holesMaterial  | • • •                      |         |   | series, mounting bracket   |  |
| Droduct standardEN 60947-5-2Mounting aid for sensors from the R3<br>series, mounting bracketAmbient enditions-2060 °C (-4140 °F)Storage temperature-3070 °C (-22158 °F)Ref-H40Ambient enditions-2060 °C (-4140 °F)Reflector, rectangular 47.5 mm x 23.5<br>mm, mounting holes, fixing strapHousing width7.5 mmReflector, rectangular 47.5 mm x 23.5Housing depth13.8 mmReflector with mounting holesDegree of protectionIP67Reflector with mounting holesConnection200 mm fixed cable with 4-pin, M8x1 connectorReflector with Micro-structure,<br>rectangular 32 mm x 20 mm, mounting<br>holesMass<br>CableglassReflector with Micro-structure,<br>rectangular 32 mm x 13.8 mm, diagonal<br>mounting holesApprovals and certificatesUL approvalE87056, oULus Recognized, Class 2 Power Source<br>UL approvalV31-QM-PUR<br>Female cordset single-ended, M8, 4-pin<br>PUR cableFDA approvalIEC 60825-1:2007 Complies with 21 CFR 1040.10 and<br>1040.11 except for deviations pursuant to Laser Notice No.<br>50, dated June 24, 2007V31-WM-2M-PUR<br>Female cordset single-ended, M8, 4-pin<br>PUR cable   |                            |         | 200 μο  | MH-B3-04   |  |
| Laser safety    EN 60825-1:2007    series, mounting bracket      Ambient conditions    -20 60 °C (-4 140 °F)    series, mounting bracket      Ambient temperature    -30 70 °C (-22 158 °F)    Reflector, rectangular 47.5 mm x 23.5 mm, mounting holes, fixing strap      Housing width    7.5 mm    Reflector, rectangular 47.5 mm x 23.5 mm, mounting holes, fixing strap      Housing height    26 mm    Reflector with mounting holes      Housing depth    13.8 mm    Reflector with mounting holes      Degree of protection    IP67    Reflector with Micro-structure, rectangular 32 mm x 20 mm, mounting holes      Housing    PC/ABS and TPU    Reflector with Micro-structure, rectangular 23 mm x 20 mm, mounting holes      Optical face    glass    Reflector with Micro-structure, rectangular 23 mm x 13.8 mm, diagonal mounting holes      Mass    approx. 10 g    Reflector with Micro-structure, rectangular 23 mm x 13.8 mm, diagonal mounting hole      UL approval    E87056, cULus Recognized, Class 2 Power Source    V31-GM-2M-PUR      CCC approval    CCC approval / marking not required for products rated ≤36 V    Female cordset single-ended, M8, 4-pin PUR cable      V31-WM-2M-PUR    Female cordset single-ended, M8, 4-pin PUR cable    V31-WM-2M-PUR      Female cordset single-ended, M8, 4-pin PUR cable   | •                          |         | EN 60047 E 2  |  |  |
| Ambient conditionsREF-H40Ambient temperature-20 60 °C (-4 140 °F)Storage temperature-30 70 °C (-22 158 °F)Mechanical specificationsmHousing width7.5 mmHousing height26 mmHousing depth13.8 mmDegree of protectionIP67Connection200 mm fixed cable with 4-pin, M8x1 connectorMaterialPC/ABS and TPUHousingPC/ABS and TPUOptical faceglassCablePURAmsesapprox. 10 gCable length200 mmApprovalE87056, cULus Recognized, Class 2 Power SourceCCC approvalCCC approval / marking not required for products rated sdoVFDA approvalIEC 60825-1:2007 Complies with 21 CFR 1040.10 and<br>1040.11 uscept for deviations pursuant to Laser Notice No.<br>50, dated June 24, 2007WaterialUL approvalLD approvalIEC 60825-1:2007 complies with 21 CFR 1040.10 and<br>1040.11 uscept for deviations pursuant to Laser Notice No.<br>50, dated June 24, 2007Vall-WM-2MI-PUR<br>Female cordset single-ended, M8, 4-pin<br>PUR cableVall-WM-2MI-PUR<br>Female co  |                            |         |   |  |  |
| Ambient temperature-20 60 °C (-4 140 °F)REF-H40Storage temperature-30 70 °C (-22 158 °F)Reflector, rectangular 47.5 mm x 23.5Mechanical specificationsTo mmReflector, rectangular 47.5 mm x 23.5Housing width7.5 mmReflector, rectangular 47.5 mm x 23.5Housing depth13.8 mmReflector with mounting holesDegree of protectionIP67Reflector with mounting holesConnection200 mm fixed cable with 4-pin, M8x1 connectorReflector with Micro-structure,<br>rectangular 32 mm x 20 mm, mounting<br>holesHousingPC/ABS and TPUReflector with Micro-structure,<br>rectangular 32 mm x 20 mm, mounting<br>holesOptical faceglassReflector with Micro-structure,<br>rectangular 23 mm x 13.8 mm, diagonal<br>mounting holeApprovals and certificatesE87056, cULus Recognized, Class 2 Power SourceV31-GM-2M-PUR<br>Female cordset single-ended, M8, 4-pin<br>PUR cableUL approvalE87056, cULus Recognized, Class 2 Power Source<br>CCC approvalV31-GM-2M-PUR<br>Female cordset single-ended, M8, 4-pin<br>PUR cableFDA approvalIEC 60825-1:2007 Complies with 21 CFR 1040.10 and<br>1040.11 wacept for deviations pursuant to Laser Notice No.<br>50, dated June 24, 2007V31-WM-2M-PUR<br>Female cordset single-ended, M8, 4-pin<br>PUR cableV1-WUR cableOther suitable accessories can be foundOther suitable accessories can be found  |                            |         | EN 60625-1.2007   | series, mounting bracket   |  |
| Storage temperature    -30 70 °C (-22 158 °F)    Reflector, rectangular 47.5 mm x 23.5 mm, mounting holes, fixing strap      Housing width    7.5 mm    REF-H23      Housing depth    13.8 mm    Reflector with mounting holes      Degree of protection    IP67    REF-MH20      Connection    200 mm fixed cable with 4-pin, M8x1 connector    Reflector with Micro-structure, rectangular 32 mm x 20 mm, mounting holes      Material   |                            |         |   | REF-H40  |  |
| Housing width    7.5 mm    mm, mounting holes, fixing strap      Housing width    7.5 mm    REF-H23      Housing depth    13.8 mm    Reflector with mounting holes      Housing depth    13.8 mm    Reflector with mounting holes      Degree of protection    IP67    Reflector with Micro-structure, rectangular 32 mm x 20 mm, mounting holes      Connection    200 mm fixed cable with 4-pin, M8x1 connector    Reflector with Micro-structure, rectangular 32 mm x 20 mm, mounting holes      Material   | 1                          |         | · · · · · · · · · · · · · · · · · · ·                               | -  |  |
| Housing width    7.5 mm      Housing width    7.5 mm      Housing depth    13.8 mm      Degree of protection    IP67      Connection    200 mm fixed cable with 4-pin, M8x1 connector      Material    REF-MH20      Housing    PC/ABS and TPU      Optical face    glass      Cable    PUR      Mass    approx. 10 g      Cable length    200 mm      Approvals and certificates    200 mm      UL approval    E87056, cULus Recognized, Class 2 Power Source      CC approval    CCC approval / marking not required for products rated ≤36 V      FDA approval    IEC 60825-1:2007 Comples with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007      V31-WM-2M-PUR    Female cordset single-ended, M8, 4-pin PUR cable      V31-WM-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 to the su   |                            |         | -30 70 °C (-22 158 °F)  |  |  |
| Housing height    26 mm    HEF-H23      Housing depth    13.8 mm    Reflector with mounting holes      Degree of protection    IP67    Reflector with Micro-structure, rectangular 32 mm x 20 mm, mounting holes      Connection    200 mm fixed cable with 4-pin, M8x1 connector    Reflector with Micro-structure, rectangular 32 mm x 20 mm, mounting holes      Material    Housing    PC/ABS and TPU    PUR      Optical face    glass    Reflector with Micro-structure, rectangular 32 mm x 20 mm, mounting holes      Mass    approx. 10 g    Reflector with Micro-structure, rectangular 23 mm x 13.8 mm, diagonal mounting hole      Approvals and certificates    200 mm    Reflector with Micro-structure, rectangular 23 mm x 13.8 mm, diagonal mounting hole      UL approval    E87056 , cULus Recognized, Class 2 Power Source    V31-GM-2M-PUR      CCC approval    CCC approval / marking not required for products rated ≤36 V    Female cordset single-ended, M8, 4-pin PUR cable      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    V31-WM-2M-PUR      Female cordset single-ended, M8, 4-pin PUR cable    Other suitable accessories can be found to the su  | •                          |         |   | min, mounting noies, nxing strap   |  |
| Housing depth    13.8 mm      Degree of protection    IP67      Connection    200 mm fixed cable with 4-pin, M8x1 connector      Material  | -                          |         |   | REF-H23  |  |
| Housing depth    13.8 mm      Degree of protection    IP67      Connection    200 mm fixed cable with 4-pin, M8x1 connector      Material    rectangular 32 mm x 20 mm, mounting holes      Housing    PC/ABS and TPU      Optical face    glass      Cable    PUR      Mass    approx. 10 g      Cable length    200 mm      Approvals and certificates    200 mm      UL approval    E87056 , cULus Recognized, Class 2 Power Source      CC 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      V31-WM-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    Other suitable accessories can be found  |                            |         |   | Reflector with mounting holes  |  |
| Connection    200 mm fixed cable with 4-pin, M8x1 connector    Reflector with Micro-structure, rectangular 32 mm x 20 mm, mounting holes      Material    POP    Reflector with Micro-structure, rectangular 32 mm x 20 mm, mounting holes      Optical face    glass    Reflector with Micro-structure, rectangular 32 mm x 10 g      Mass    approx. 10 g    Reflector with Micro-structure, rectangular 23 mm x 13.8 mm, diagonal mounting hole      Approvals and certificates    UL approval    E87056 , cULus Recognized, Class 2 Power Source      UL approval    CCC approval / marking not required for products rated ≤36 V    Female cordset single-ended, M8, 4-pin PUR      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    V31-WM-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 to the suitable a   |                            |         |   | -  |  |
| Material    Helefcol with Micro-structure, rectangular 32 mm x 20 mm, mounting holes      Optical face    glass      Cable    PUR      Mass    approx. 10 g      Cable length    200 mm      Approvals and certificates    E87056 , cULus Recognized, Class 2 Power Source      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      V31-WM-2M-PUR      Female cordset single-ended, M8, 4-pin PUR cable      Value able      Other suitable accessories can be found at the suitable accessories can b   | •                          |         |   | REF-MH20   |  |
| Material    PC/ABS and TPU    rectangular 32 mm x 20 mm, mounting holes      Optical face    glass    rectangular 32 mm x 20 mm, mounting holes      Cable    PUR    REF-MH23      Mass    approx. 10 g    Reflector with Micro-structure, rectangular 23 mm x 13.8 mm, diagonal mounting hole      Approvals and certificates    UL approval    E87056, cULus Recognized, Class 2 Power Source    V31-GM-2M-PUR      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    V31-WM-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 the s  |                            |         | 200 mm fixed cable with 4-pin, M8x1 connector                       | Reflector with Micro-structure.  |  |
| Housing    PC/ABS and TPU      Optical face    glass      Cable    PUR      Mass    approx. 10 g      Cable length    200 mm      Approvals and certificates    200 mm      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      V31-WM-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 the suitable accesories can be found at the suitable accessories can be found at th  |                            |         |   | rectangular 32 mm x 20 mm, mounting  |  |
| Optical face    glass      Cable    PUR      Mass    approx. 10 g      Cable length    200 mm      Approvals and certificates    Reflector with Micro-structure, rectangular 23 mm x 13.8 mm, diagonal mounting hole      UL approval    E87056, cULus Recognized, Class 2 Power Source    V31-GM-2M-PUR      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    V31-WM-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 the second set single cordset single cord  | U U                        |         |   |  |  |
| 1040.11 except for deviations pursuant to Laser Notice No.<br>50, dated June 24, 2007<br>V31-WM-2M-PUR<br>Female cordset single-ended, M8, 4-pin<br>PUR cable<br>Other suitable accessories can be found a   |                            |         | -   |  |  |
| 1040.11 except for deviations pursuant to Laser Notice No.<br>50, dated June 24, 2007<br>V31-WM-2M-PUR<br>Female cordset single-ended, M8, 4-pin<br>PUR cable<br>Other suitable accessories can be found a   |                            |         |   | REF-MH23   |  |
| 1040.11 except for deviations pursuant to Laser Notice No.<br>50, dated June 24, 2007<br>V31-WM-2M-PUR<br>Female cordset single-ended, M8, 4-pin<br>PUR cable<br>Other suitable accessories can be found a   |                            |         |   | Reflector with Micro-structure,<br>rectangular 23 mm x 13.8 mm, diagonal         |  |
| 1040.11 except for deviations pursuant to Laser Notice No.<br>50, dated June 24, 2007<br>V31-WM-2M-PUR<br>Female cordset single-ended, M8, 4-pin<br>PUR cable<br>Other suitable accessories can be found a   | Cable length               |         | 200 mm  |  |  |
| 1040.11 except for deviations pursuant to Laser Notice No.<br>50, dated June 24, 2007<br>V31-WM-2M-PUR<br>Female cordset single-ended, M8, 4-pin<br>PUR cable<br>Other suitable accessories can be found a   | Annual and a the           |         |   | mounting hole  |  |
| 1040.11 except for deviations pursuant to Laser Notice No.<br>50, dated June 24, 2007<br>V31-WM-2M-PUR<br>Female cordset single-ended, M8, 4-pin<br>PUR cable<br>Other suitable accessories can be found a   |                            |         |   |  |  |
| 1040.11 except for deviations pursuant to Laser Notice No.<br>50, dated June 24, 2007<br>V31-WM-2M-PUR<br>Female cordset single-ended, M8, 4-pin<br>PUR cable<br>Other suitable accessories can be found a   |                            |         |   | V31-GM-2M-PUR  |  |
| 1040.11 except for deviations pursuant to Laser Notice No.<br>50, dated June 24, 2007<br>V31-WM-2M-PUR<br>Female cordset single-ended, M8, 4-pin<br>PUR cable<br>Other suitable accessories can be found a   |                            |         |   | Female cordset single-ended, M8, 4-pin.  |  |
| V31-WM-2M-PUR<br>Female cordset single-ended, M8, 4-pin<br>PUR cable<br>Other suitable accessories can be found  | FDA approval               |         |   | PUR cable  |  |
| V31-WM-2M-PUR      Female cordset single-ended, M8, 4-pin      PUR cable      Other suitable accessories can be found  |                            |         | 1040.11 except for deviations pursuant to Laser Notice No.          |  |  |
| PUR cable<br>Other suitable accessories can be found   |                            |         | 50, ualeu June 24, 2007   | V31-WM-2M-PUR  |  |
| PUR cable<br>Other suitable accessories can be found   |                            |         |   | Female cordset single-ended. M8, 4-pin   |  |
| Other suitable accessories can be found  |                            |         |   |  |  |
|  |                            |         |   |  |  |
|  |                            |         |   | Other suitable accessories can be found a  |  |
|  |                            |         |   | www.pepperl-fuchs.com  |  |

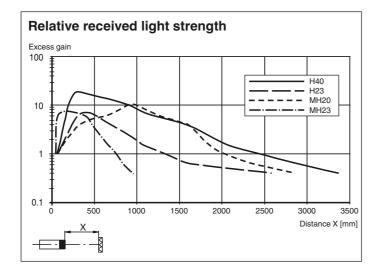
Refer to "General Notes Relating to Pepperl+Fuchs Product Information"

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# **EPPPERL+FUCHS**

2



#### 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. ٠
- The warning accompanies the device and should be attached in immediate proximity to the device. ٠
- Caution - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

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