



## 2-D LiDAR Sensor

### OMD30M-R2000-B23-V1V1D-HD-1L



- High operating range
- High angle resolution
- Infrared light
- Measuring method PRT (Pulse Ranging Technology)
- Flexible measured data filter

R2000 HD, 2-D LiDAR sensor for precise measurement tasks and positioning, measuring range to object up to 30 m, Ethernet



### Function

Based on Pulse Ranging Technology (PRT), the sensor is powerful for measurements with a long range and a small light spot. The device scans its environment over the complete measuring angle of 360°. Due to the high scanning frequency, this sensor type is suitable for advanced applications. The device meets laser class 1 and is eye safe. Additional precautions to protect the operating personnel are not required. The interactive all-round display integrated in the optical surface can freely display individual texts and graphics. A wide range of accessories enables the sensor to be used in different applications. A PACTware device type manager (DTM) specially developed for this series offers extensive configuration and diagnostic options.

### Safety Information



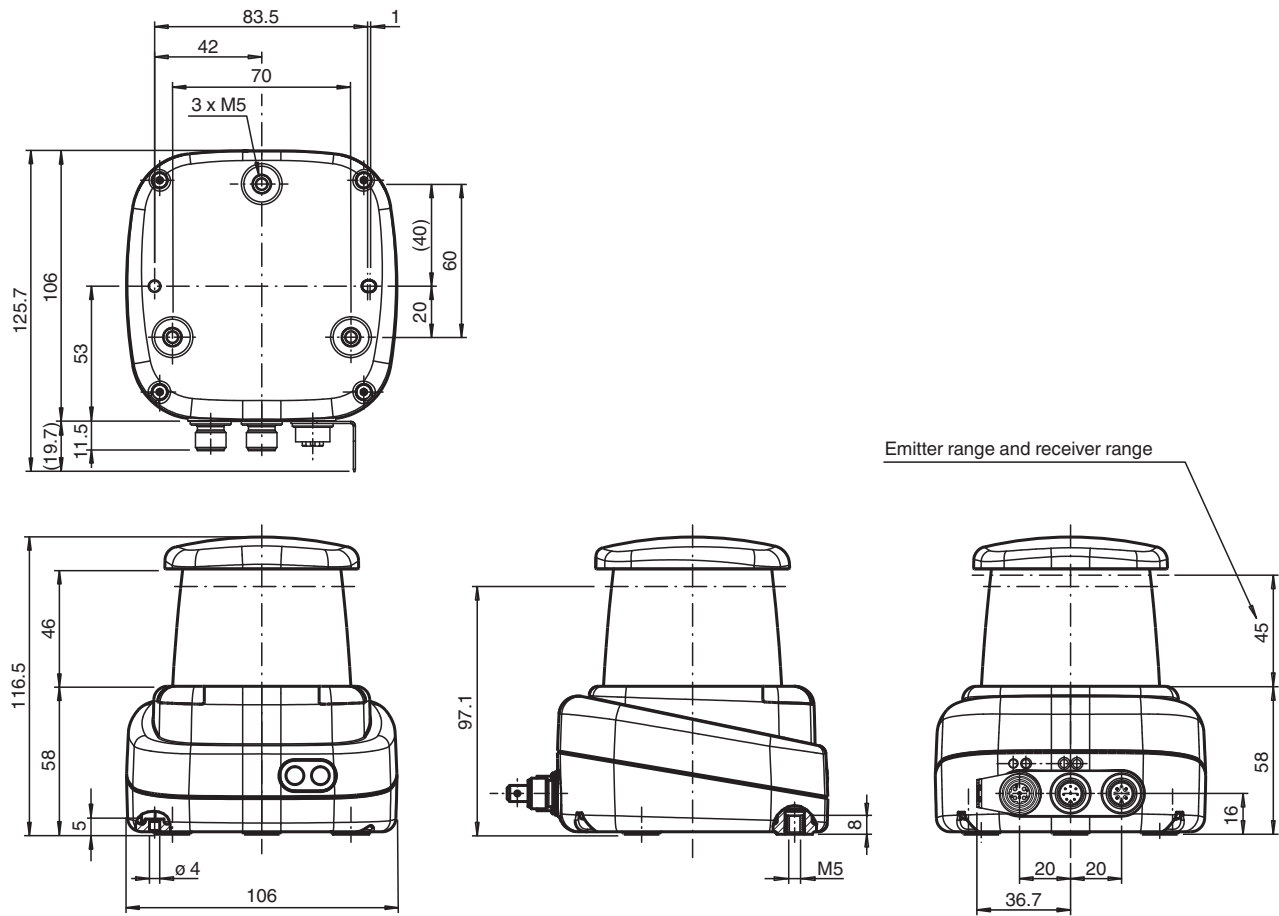
### Safety Information

#### Laser Class 1 Information

Maintenance and repairs should only be carried out by authorized service personnel!  
Attach the device so that the warning is clearly visible and readable.

Caution – Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Dimensions



Technical Data

| General specifications               |                                                                                                       |
|--------------------------------------|-------------------------------------------------------------------------------------------------------|
| Measurement range                    | 0.1 ... 10 m (bk 10%)<br>0,1 ... 30 m (wh 90 %)<br>0,1 ... 30 m (reflector)<br>Min. reflectivity 2.5% |
| Light source                         | laser diode                                                                                           |
| Light type                           | modulated infrared light                                                                              |
| Laser nominal ratings                |                                                                                                       |
| Note                                 | LASER RADIATION , DO NOT STARE INTO BEAM                                                              |
| Laser class                          | 1                                                                                                     |
| Wave length                          | 905 nm                                                                                                |
| Beam divergence                      | transversal 2 mrad , longitudinal 10 mrad                                                             |
| Pulse length                         | 5 ns                                                                                                  |
| Repetition rate                      | 84 kHz                                                                                                |
| max. pulse energy                    | < 94 nJ                                                                                               |
| Measuring method                     | Pulse Ranging Technology (PRT)                                                                        |
| Scan rate                            | 10 ... 50 s <sup>-1</sup>                                                                             |
| Scanning angle                       | 360°                                                                                                  |
| Diameter of the light spot           | 25 mm x 105 mm at 10 m                                                                                |
| Filter                               | Maximum, average, median, reflectivity                                                                |
| Ambient light limit                  | 80000 Lux                                                                                             |
| Resolution                           | 1 mm                                                                                                  |
| Functional safety related parameters |                                                                                                       |

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

## Technical Data

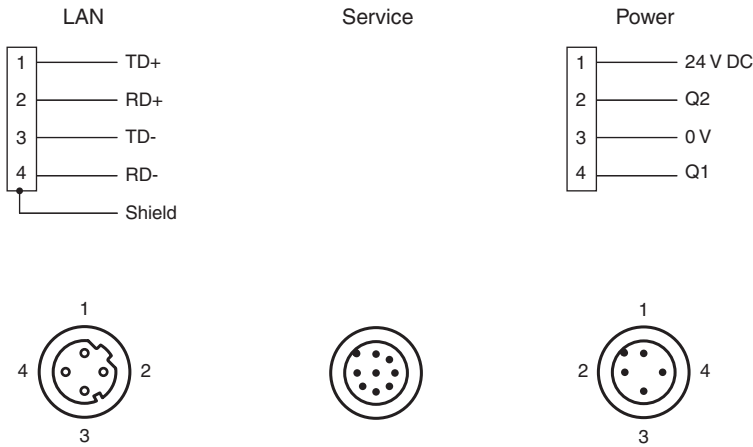
|                                                 |                |                                                                                                                                            |
|-------------------------------------------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| MTTF <sub>d</sub>                               |                | 75 a                                                                                                                                       |
| Mission Time (T <sub>M</sub> )                  |                | 20 a                                                                                                                                       |
| Diagnostic Coverage (DC)                        |                | 0 %                                                                                                                                        |
| <b>Indicators/operating means</b>               |                |                                                                                                                                            |
| Operation indicator                             |                | LED green                                                                                                                                  |
| Data flow indicator                             |                | LED yellow: active ethernet<br>LED green: Ethernet link                                                                                    |
| Function indicator                              |                | LED red: fault<br>LED yellow: Q1 + Q2                                                                                                      |
| Control elements                                |                | 2 Button                                                                                                                                   |
| Parameterization indicator                      |                | 24 x 252 pixels , red                                                                                                                      |
| <b>Electrical specifications</b>                |                |                                                                                                                                            |
| Operating voltage                               | U <sub>B</sub> | 10 ... 30 V DC                                                                                                                             |
| Ripple                                          |                | 10 % within the supply tolerance                                                                                                           |
| No-load supply current                          | I <sub>0</sub> | ≤ 400 mA / 24 V DC                                                                                                                         |
| Power consumption                               | P <sub>0</sub> | < 15 W                                                                                                                                     |
| Time delay before availability                  | t <sub>v</sub> | < 40 s                                                                                                                                     |
| <b>Interface</b>                                |                |                                                                                                                                            |
| Interface type                                  |                | Fast Ethernet, 2 switching outputs                                                                                                         |
| Protocol                                        |                | HTTP , TCP/IP and UDP/IP                                                                                                                   |
| <b>Input/Output</b>                             |                |                                                                                                                                            |
| Input/output type                               |                | 2 Outputs , Independently configurable , short circuit/reverse polarity protected                                                          |
| <b>Output</b>                                   |                |                                                                                                                                            |
| Switching threshold                             |                | low: U <sub>a</sub> < 1 V,<br>high: U <sub>a</sub> > U <sub>b</sub> - 1 V                                                                  |
| Switching current                               |                | 100 mA per output                                                                                                                          |
| <b>Conformity</b>                               |                |                                                                                                                                            |
| Laser safety                                    |                | EN 60825-1:2014                                                                                                                            |
| <b>Compliance with standards and directives</b> |                |                                                                                                                                            |
| Standard conformity                             |                |                                                                                                                                            |
| Product standard                                |                | IEC 60947-5-2                                                                                                                              |
| Shock and impact resistance                     |                | EN 60068-2-6 EN 60068-2-27                                                                                                                 |
| <b>Approvals and certificates</b>               |                |                                                                                                                                            |
| EAC conformity                                  |                | TR CU 020/2011                                                                                                                             |
| Protection class                                |                | III (operating voltage 50 V)                                                                                                               |
| UL approval                                     |                | cULus Listed, Class 2 Power Source, Type 1 enclosure                                                                                       |
| CCC approval                                    |                | CCC approval / marking not required for products rated ≤36 V                                                                               |
| Measurement accuracy                            |                |                                                                                                                                            |
| Measuring speed                                 |                | 84000 measurements per second                                                                                                              |
| Measured value noise                            |                | typ. ± 10 mm (1 sigma; max 20 mm; 0,1 m ... 8 m)<br>typ. ± 12 mm (1 sigma; max 20 mm; 8 m ... 30 m) with measured value filter deactivated |
| Angle resolution                                |                | 0.042 °                                                                                                                                    |
| Absolute accuracy                               |                | typ. ± 25 mm                                                                                                                               |
| Repeat accuracy                                 |                | < 12 mm                                                                                                                                    |
| <b>Ambient conditions</b>                       |                |                                                                                                                                            |
| Ambient temperature                             |                | -10 ... 50 °C (14 ... 122 °F)                                                                                                              |
| Storage temperature                             |                | -20 ... 70 °C (-4 ... 158 °F)                                                                                                              |
| Relative humidity                               |                | 95 % , no moisture condensation                                                                                                            |
| <b>Mechanical specifications</b>                |                |                                                                                                                                            |
| Housing width                                   |                | 106 mm                                                                                                                                     |
| Housing height                                  |                | 116.5 mm                                                                                                                                   |
| Degree of protection                            |                | IP65                                                                                                                                       |
| Connection                                      |                | 4-pin, M12x1 connector, standard (supply) ,<br>8-pin, M12x1 connector, A-coded (MultiPort) ,<br>4-pin, M12x1 socket, D-coded (LAN)         |

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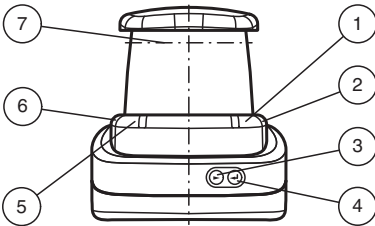
Technical Data

|              |  |                     |
|--------------|--|---------------------|
| Material     |  |                     |
| Housing      |  | ABS + PC + Aluminum |
| Optical face |  | PMMA                |
| Mass         |  | approx. 0.8 kg      |

Connection Assignment

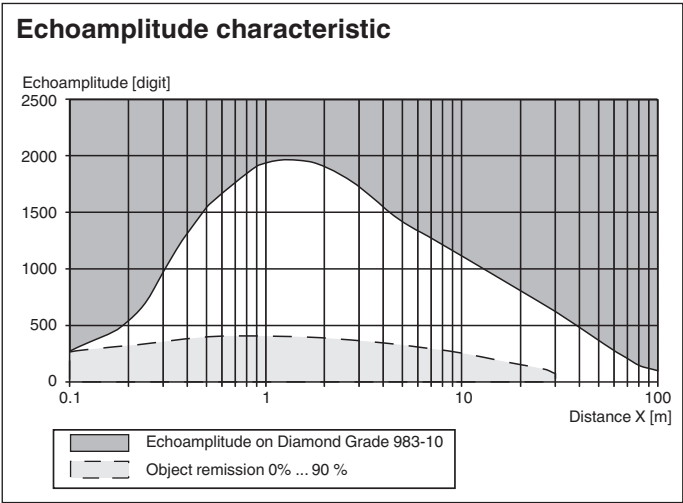


Assembly



|   |                     |        |
|---|---------------------|--------|
| 1 | Operating status    | green  |
| 2 | Fault indication    | red    |
| 3 | Menu button         |        |
| 4 | Menu button         |        |
| 5 | Q2 signal indicator | yellow |
| 6 | Q1 signal indicator | yellow |
| 7 | Laser outlet        |        |

Characteristic Curve



Accessories

|  |                                      |                                                                      |
|--|--------------------------------------|----------------------------------------------------------------------|
|  | <b>Schutzkappe LS610</b><br>Zubehoer | M12 protective cap set (connector + socket) for series LS610 / LS611 |
|--|--------------------------------------|----------------------------------------------------------------------|

## Accessories

|                                                                                   |                                                      |                                                                                                                               |
|-----------------------------------------------------------------------------------|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Funktionserdung<br/>LS610/VDM100<br/>Zubehoer</b> | Function grounding for LS610 / LS611 / VDM100 series                                                                          |
|  | <b>V1SD-G-2M-PUR-ABG-<br/>V45-G</b>                  | Connection cable, M12 to RJ-45, PUR cable 4-pin, CAT5e                                                                        |
|  | <b>V1SD-G-5M-PUR-ABG-<br/>V45-G</b>                  | Connection cable, M12 to RJ-45, PUR cable 4-pin, CAT5e                                                                        |
|  | <b>V1SD-G-ABG-PG9</b>                                | Cable connector, M12, 4-pin, D-coded, shielded, non pre-wired                                                                 |
|  | <b>V1-G-5M-PUR</b>                                   | Female cordset single-ended M12 straight A-coded, 4-pin, PUR cable grey                                                       |
|  | <b>V1-G-BK5M-PUR-U</b>                               | Female cordset single-ended M12 straight A-coded, 4-pin, PUR cable black, UL approved, drag chain suitable, torsion resistant |
|  | <b>MH-R2000</b>                                      | Mounting aid for R2000 series, Quick clamp and adjustment system                                                              |
|  | <b>PACTware 4.1</b>                                  | FDT Framework                                                                                                                 |