SYMEO
RADAR NEXT LEVEL




## Robust Millimeter Wave Distance Measurement Sensor for Industrial Applications

# LPR®-1DHP-291

The LPR®-1DHP-291 radar system performs 1D distance measurements for short, medium and long ranges with highest accuracy. By means of primary, secondary and diversity radar measurements, the LPR®-1DHP-291 detects the position and speed (for example, of cranes and rail-bound transport systems) in real time and makes the data available via built-in interfaces.

The sensors are easy to install and put into operation with the aid of a web-based interface. A directional antenna is integrated into the robust housing. The LPR®-1DHP-291 radar system is a successor to the LPR®-1DHP with improved accuracy and a higher measurement rate at equal fit and form factor compared to the previous version. The device features the latest mmWave technology, allowing it to perform high-precision measurements with accuracy in the millimeter range.

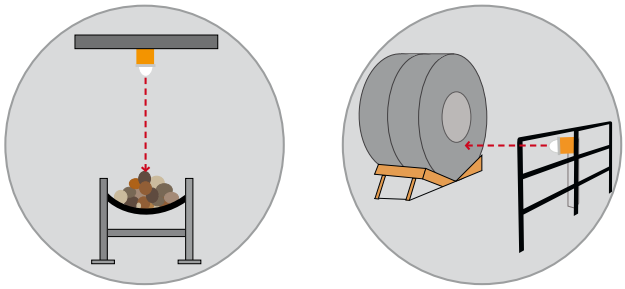
The sensor can be optimally configured for the required accuracy and range by selecting individual measurement modes. Even under the harshest weather and environmental conditions such as rain, fog, snow, dust, smoke or vibrations, the maintenance- and wear-and-tear-free wireless technology operates reliably with a high degree of availability – indoors and outdoors.

- **Contactless distance measurements via radio waves**
- **Millimeter wave technology for measurements with mm accuracy**
- **With bidirectional measurement, the measured values are available on both sides of the measurement path**
- **Compact and robust housing**
- **Impervious to dirt, harsh weather and vibrations**
- **Ideal for semi-automatic and fully automated crane systems**
- **Maintenance- and wear-free**
- **Easy installation**

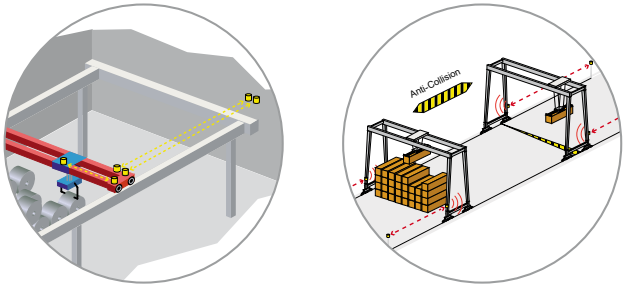
## Typical Applications LPR®-1DHP-291

- Crane positioning
- Collision avoidance
- Goods tracking
- Process monitoring
- Process control
- Process automation
- Presence check
- Level probing
- Object detection
- Radar barriers

**Primary Radar Mode**



**Secondary and Diversity Radar Mode**




## Technical Data: LPR®-1DHP-291

| | |
|---|---|
| Model number | BSW200291 |
| Radar measuring mode | Primary, secondary, diversity radar |
| Frequency range | 57.0 - 64.0 GHz |
| Measuring range[1) 2)] | 0.5 m to 500 m |
| Measurement accuracy[2)] | up to ± 5 mm |
| Measurement rate | Primary radar mode: up to 350 Hz<br>Secondary and diversity radar mode: up to 110 Hz<br>Secondary and diversity radar mode with bidirectional measurement: up to 40 Hz |
| Supply voltage | 11 - 36 V DC |
| Power consumption | 6 W |
| Ambient temperature | -40°C to +75°C |
| Protection class housing | IP67 |
| Vibration | 20 cycles, each 4:25 h, x-y-z, 5 g, 5 Hz - 500 Hz, 15 mm<br>(acc. to DIN EN 60068-2-6:2008) |
| Shock | 200 cycles, x-y-z, 40 g, 6 ms (acc. to DIN EN 60068-2-27:2010) |
| Housing dimensions (LxWxH); weight | 95 x 110 x 150 mm; 940 g |
| Transmission power (EIRP) | Up to 20 dBm EIRP |
| Interfaces | Ethernet (TCP / IP, Profinet) |
| Response time | < 20 ms[3)] |
| MTBF | 367 469 h / 41.9 a |
| External connector | Ethernet (M12 D-coded), supply voltage (M12 T-coded) |
| Antenna | Integrated, field of view = ± 2.5° |
| Compliance | CE, FCC, KCC, Argentina, Australia, Canada, Egypt, India,<br>Japan, Mexico, South Africa, South Korea (others on request) |

*1) Depending on the environment, the selected bandwidth mode, and the target's backscatter characteristics.*
*2) Error under consistent ambient conditions, depending on the measurement distance and the measuring mode.*
*3) Preliminary value*

*Multiple bandwidth modes can be selected in the device settings. The selection is limited by regional radio regulations.*

SYMEO GmbH | Prof.-Messerschmitt-Straße 3 a | 85579 Neubiberg/Munich | Germany
P: +49 89 6607796-222 | E-Mail: sales@symeo.com | **www.symeo.com**

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