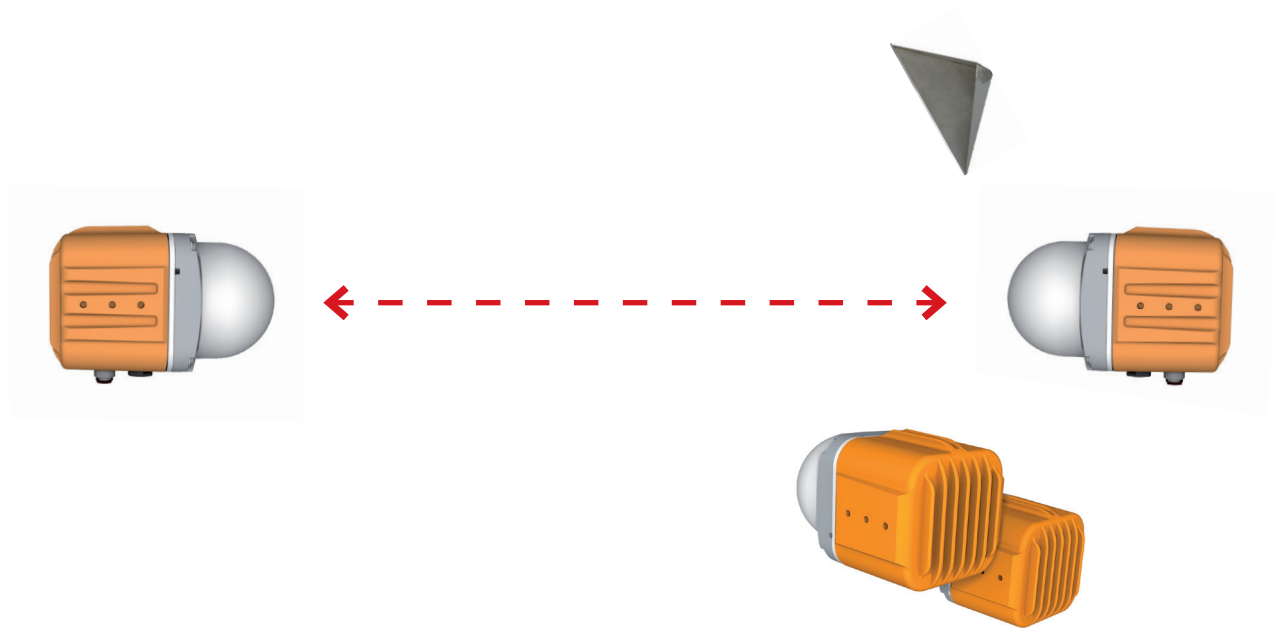


PRODUCT DATA SHEET



LPR[®]-1DHP-290

Robust mmWave Distance Measurement Sensor for Industrial Applications

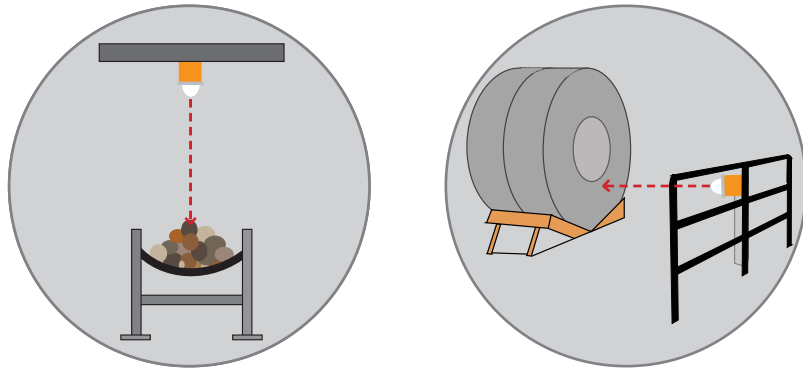
- Contactless distance measurements via radio waves
- mmWave technology for measurements with mm accuracy
- Compact and robust housing
- Impervious to dirt, harsh weather and vibrations
- Ideal for semi- and full-automated crane systems
- Maintenance- and wear-free
- Simple installation

The LPR[®]-1DHP-290 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-290 can detect the position and speed - for example of cranes and railbound transport systems - in real-time and make the data available via the device interfaces. The sensors are simple to install and easy to put into operation with the aid of a web interface. A directional antenna is integrated into the robust housing. The LPR[®]-1DHP-290 radar system is a successor to the LPR[®]-1DHP and features an even higher accuracy and measurement rate in a more compact design. The device features the latest mmWave technology, allowing it to achieve highly-precise measurements with mm accuracy. The sensor can be optimally configured for the required accuracy and range by selecting individual measurement modes. Even under the harshest conditions and weather environments such as rain, fog, snow, dust, smoke or vibrations, the maintenance- and wear-and-tear-free wireless technology operates reliably and with a high degree of availability - indoors and outdoors.

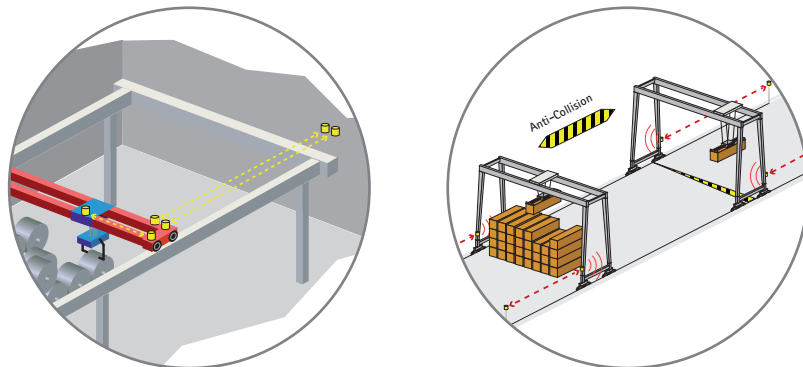
Typical Applications LPR®-1DHP-290

- 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

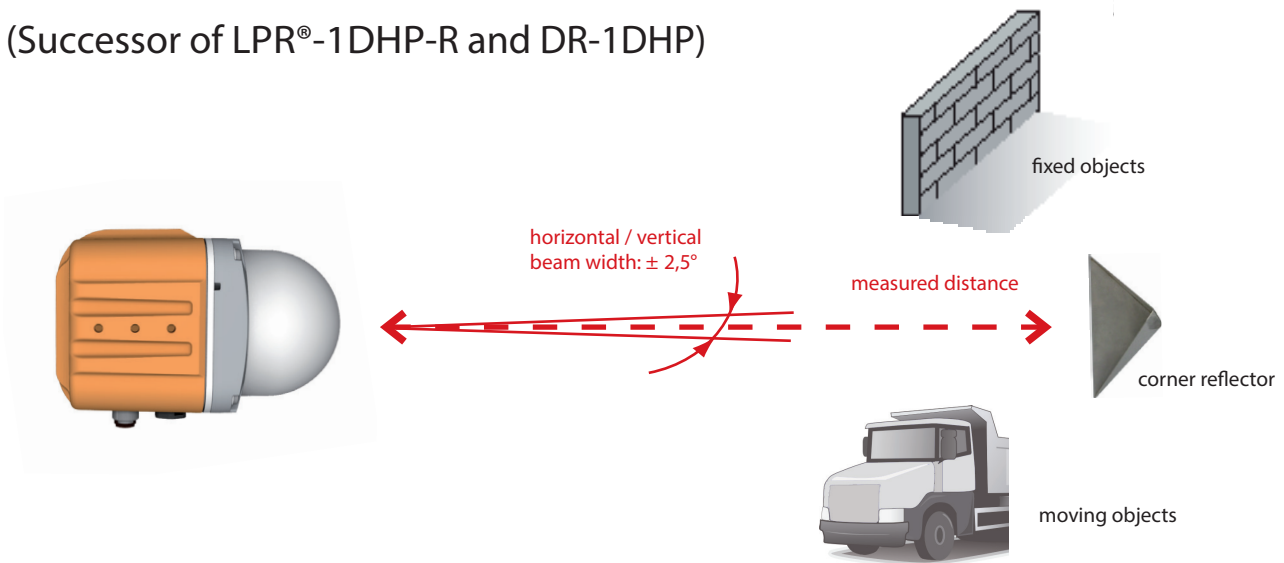


General Technical Data LPR®-1DHP-290

LPR®-1DHP-290	
Radar measuring mode	Primary, secondary, diversity radar
Frequency range	57,0 - 64,0 GHz
Supply voltage	11 - 36 V DC
Power consumption	7 W
Ambient temperature	-40 °C to +70 °C
Protection class housing	IP65
Housing dimensions (LxWxH); weight	95 x 110 x 150 mm; 940 g
Interfaces	Ethernet (TCP / IP, Profinet)
Response time	<11 ms
MTBF	42.2 a
External connector	Ethernet (M12), supply voltage (M12)
Antenna	integrated, beam width = $\pm 2,5^\circ$
Compliance	CE, FCC, IC (others on request)

Primary Radar Mode

(Successor of LPR[®]-1DHP-R and DR-1DHP)



In primary radar mode a single LPR[®]-1DHP-290 measures the distance and speed to a reflective object, typically a metal corner reflector. The range is typically 50 m but depends on the radar cross section (RCS) of the used target. The primary radar mode features very high update rates and enables a cost effective installation. Typical applications are positioning of cranes and heavy machinery, presence check, level probing and detection of objects.

General Technical Data

Bandwidth Mode ¹⁾	0,5 GHz	2 GHz
Measurement accuracy ²⁾	up to ± 10 mm	up to ± 5 mm
Repeatability ²⁾	up to ± 6 mm	up to ± 3 mm
Measurement rate	up to 350 Hz	up to 350 Hz

ETSI Specific Technical Data

Bandwidth Mode ¹⁾	0,5 GHz	2 GHz
Measuring range ³⁾	2 m to 50 m	1 m to 50 m

FCC Specific Technical Data

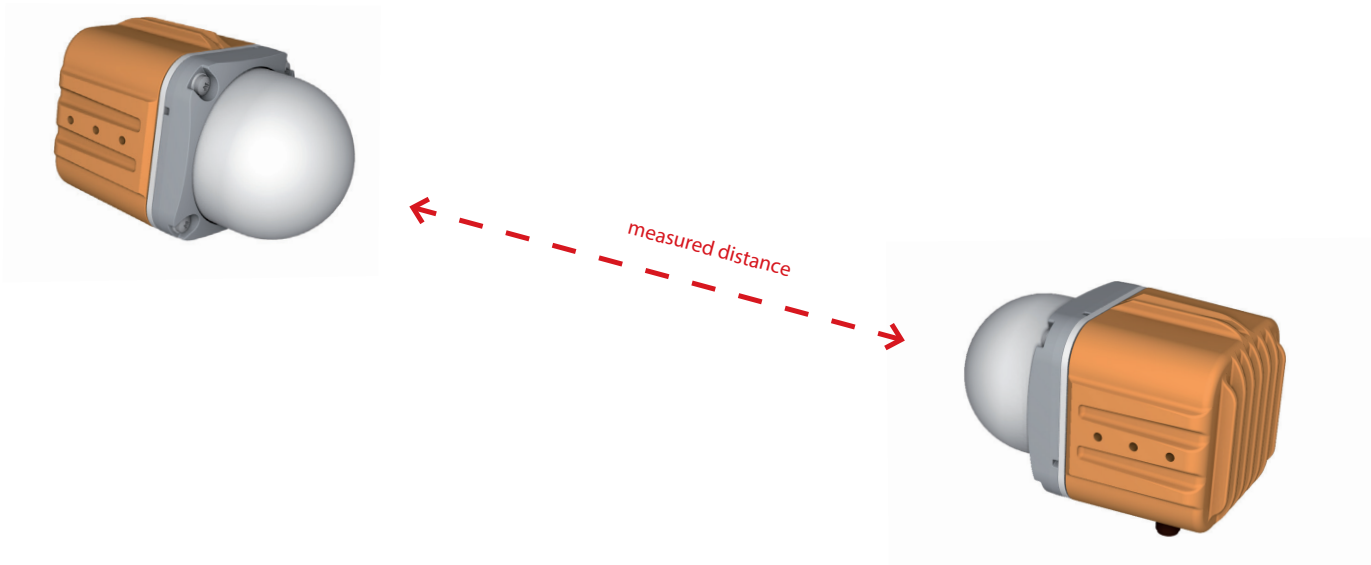
Bandwidth Mode ¹⁾	0,5 GHz	2 GHz
Measuring range ³⁾	2 m to 50 m	1 m to 20 m

¹⁾ Multiple bandwidth modes can be selected in the device settings. The selection is limited by regional radio regulations.

²⁾ Error under consistent ambient conditions. Depending on the measurement distance.

³⁾ Depending on the environment, the selected bandwidth mode and the backscatter quality of the target.

Secondary Radar Mode



In secondary radar mode two LPR®-1DHP-290 measure the distance and speed between each other. The secondary radar mode features high ranges of up to 300 m and high update rates and ensures that the measurement is taken only to the partner unit. Typical applications are positioning of cranes and heavy machinery, process automation and collision avoidance.

General Technical Data

Bandwidth Mode ¹⁾	0,5 GHz	2 GHz
Measurement accuracy ²⁾	up to ± 10 mm	up to ± 5 mm
Repeatability ²⁾	up to ± 6 mm	up to ± 3 mm
Measurement rate	up to 110 Hz	up to 110 Hz

ETSI Specific Technical Data

Bandwidth Mode ¹⁾	0,5 GHz	2 GHz
Measuring range ³⁾	2 m to 300 m	0,5 m to 300 m

FCC Specific Technical Data

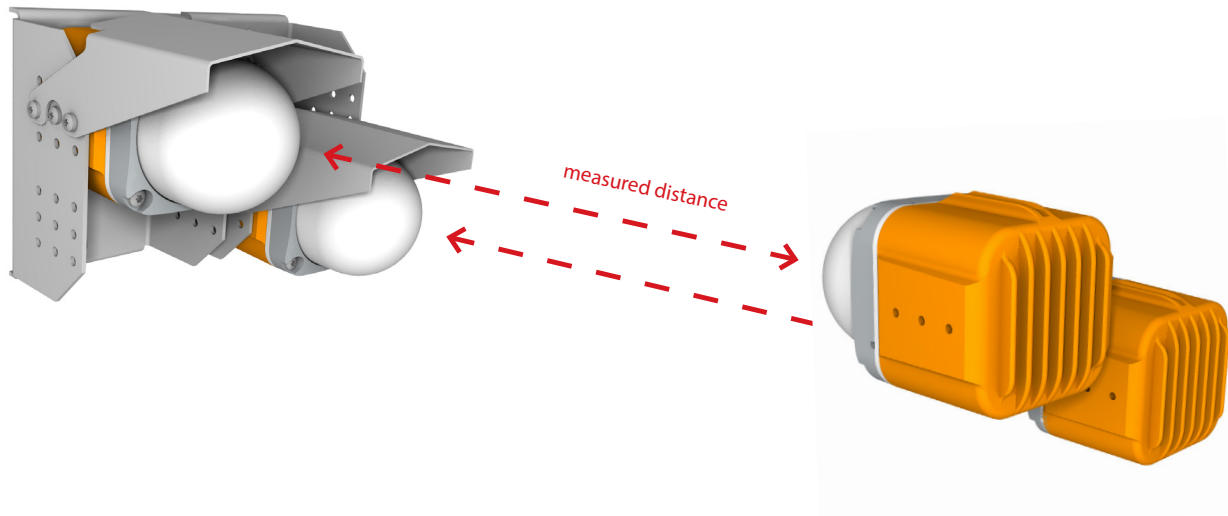
Bandwidth Mode ¹⁾	0,5 GHz	2 GHz
Measuring range ³⁾	2 m to 300 m	0,5 m to 225 m

¹⁾ Multiple bandwidth modes can be selected in the device settings. The selection is limited by regional radio regulations.

²⁾ Error under consistent ambient conditions.

³⁾ Depending on the environment and the selected bandwidth mode.

Diversity Radar Mode



In diversity radar mode four LPR®-1DHP-290 are grouped into two measurement pairs mounted side by side. The diversity radar mode features very high ranges of up to 500 m, high update rates and enables operation with highest reliability under harshest conditions.

General Technical Data

Bandwidth Mode ¹⁾	0,5 GHz	2 GHz
Measurement accuracy ²⁾	up to ± 10 mm	up to ± 5 mm
Repeatability ²⁾	up to ± 6 mm	up to ± 3 mm
Measurement rate	up to 110 Hz	up to 110 Hz

ETSI Specific Technical Data

Bandwidth Mode ¹⁾	0,5 GHz	2 GHz
Measuring range ³⁾	2 m to 500 m	0,5 m to 500 m

FCC Specific Technical Data

Bandwidth Mode ¹⁾	0,5 GHz	2 GHz
Measuring range ³⁾	2 m to 500 m	0,5 m to 225 m

¹⁾ Multiple bandwidth modes can be selected in the device settings. The selection is limited by regional radio regulations.

²⁾ Error under consistent ambient conditions.

³⁾ Depending on the environment and the selected bandwidth mode.