

# Velodyne LiDAR<sup>®</sup>

# Puck Hi-Res<sup>™</sup>

## HIGH RESOLUTION REAL-TIME LIDAR SENSOR



### Puck Hi-Res



Velodyne LiDAR's Puck Hi-Res is a higher resolution version of the popular Puck and is used in applications that require increased resolution in the point cloud. The Puck Hi-Res has similar performance to the Puck with the key difference being a higher vertical resolution of 1.33°, with an accompanying 20° vertical field of view. The higher resolution enables detection of objects at longer distances at comparable frame sizes. As a result, the Puck Hi-Res provides more detailed views for applications such as autonomous vehicles, surveillance and 3D mapping/imaging, generating up to ~600,000 points/second.

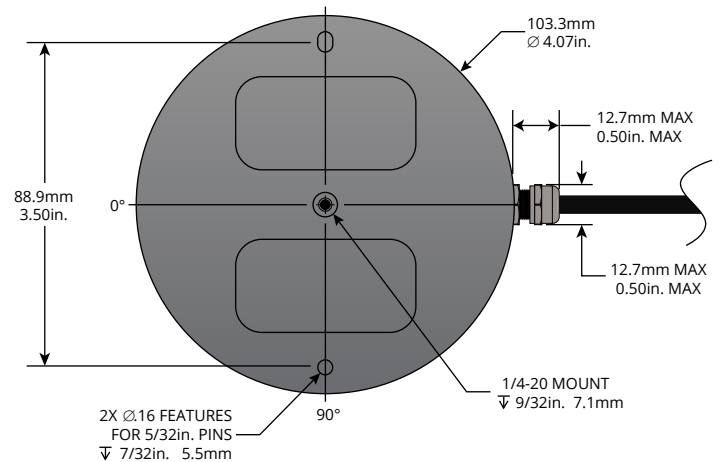
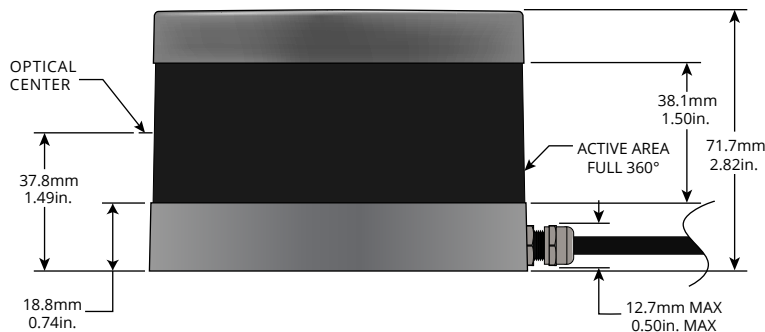
Like the Puck, the Puck Hi-Res has best-in-class power, which enables operation over a wide temperature range. It's use of off-the-shelf components enables enhanced scalability and attractive volume pricing. Like other Velodyne sensors, the Puck Hi-Res has world-class technical support available across North America, Europe & Asia from the world's leading lidar company.



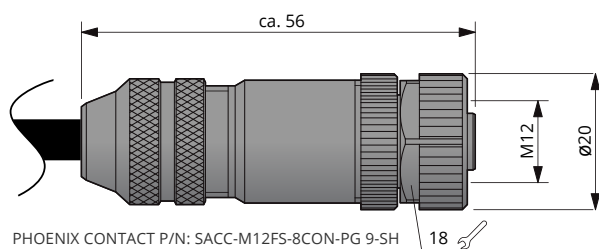
### Puck Hi-Res at a glance

- 100 m range with compact form factor
- Higher resolution option in the Puck family
- Proven, Class 1 eye-safe 905 nm technology
- Best-in-class accuracy and calibrated intensity
- Best-in-class power & temperature range
- Sensor-to-sensor interference mitigation feature
- Versatile, with attractive volume pricing

### DIMENSIONS *(Subject to change)*



### M12 CONNECTOR OPTION





## High Resolution Real-Time Lidar Sensor

The Puck Hi-Res provides high definition 3-dimensional information about the surrounding environment.

### Specifications:

#### Sensor:

- 16 Channels
- Measurement Range: 100 m
- Range Accuracy: Up to  $\pm 3$  cm (Typical)<sup>1</sup>
- Field of View (Vertical):  $+10.0^\circ$  to  $-10.0^\circ$  ( $20^\circ$ )
- Angular Resolution (Vertical):  $1.33^\circ$
- Field of View (Horizontal):  $360^\circ$
- Angular Resolution (Horizontal/Azimuth):  $0.1^\circ - 0.4^\circ$
- Rotation Rate: 5 Hz – 20 Hz
- Integrated Web Server for Easy Monitoring and Configuration

#### Laser:

- Laser Product Classification: Class 1 Eye-safe per IEC 60825-1:2007 & 2014
- Wavelength: 903 nm

#### Mechanical/ Electrical/ Operational

- Power Consumption: 8 W (Typical)<sup>2</sup>
- Operating Voltage: 9 V – 18 V (with Interface Box and Regulated Power Supply)
- Weight: ~830 g (without Cabling and Interface Box)
- Dimensions: See diagram on previous page
- Environmental Protection: IP67
- Operating Temperature:  $-10^\circ\text{C}$  to  $+60^\circ\text{C}$ <sup>3</sup>
- Storage Temperature:  $-40^\circ\text{C}$  to  $+105^\circ\text{C}$

#### Output:

- 3D Lidar Data Points Generated:
  - Single Return Mode: ~300,000 points per second
  - Dual Return Mode: ~600,000 points per second
- 100 Mbps Ethernet Connection
- UDP Packets Contain:
  - Time of Flight Distance Measurement
  - Calibrated Reflectivity Measurement
  - Rotation Angles
  - Synchronized Time Stamps ( $\mu\text{s}$  resolution)
- GPS: \$GPRMC and \$GPGGA NMEA Sentences from GPS Receiver (GPS not included)

63-9318 Rev-F VLP-16-HI-RES

1. Typical accuracy refers to ambient wall test performance across most channels and may vary based on factors including but not limited to range, temperature and target reflectivity.

2. Operating power may be affected by factors including but not limited to range, reflectivity and environmental conditions.

3. Operating temperature may be affected by factors including but not limited to air flow and sun load.



**HEXAGON**



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