

# Velodyne LiDAR<sup>®</sup>

# Puck<sup>™</sup>

## REAL-TIME 3D LiDAR SENSOR



VLP-16



### Velodyne LiDAR PUCK<sup>™</sup>

Velodyne's Puck (VLP-16) is the smallest, cost-optimized product in Velodyne's 3D LiDAR product range. Developed with mass production in mind, the Puck is far more cost-effective than comparable sensors, and it retains the key features of Velodyne's breakthroughs in LiDAR: Real-time, 360°, 3D distance and calibrated reflectivity measurements.

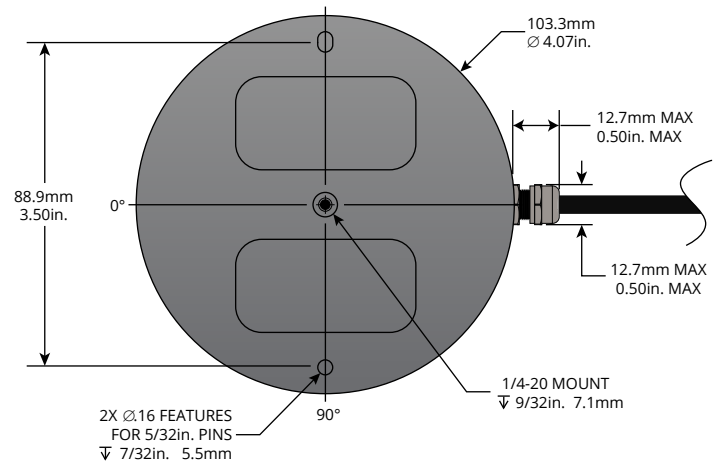
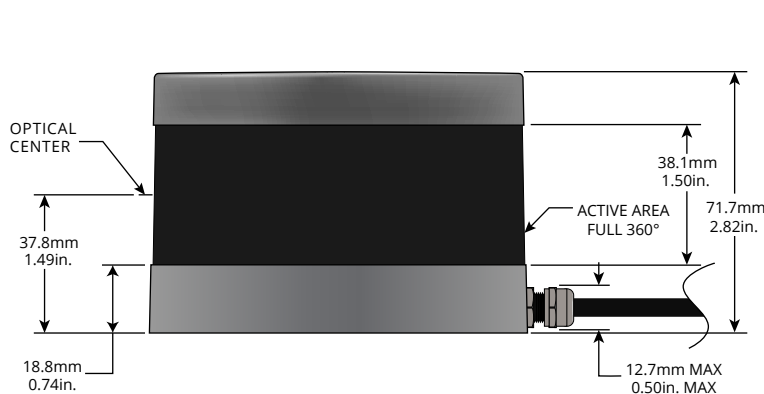
### Real-Time 3D LiDAR

The VLP-16 has a range of 100 m, and the sensor's low power consumption, light weight, compact footprint and dual return capability make it ideal not only for autonomous vehicles but also for robotics, terrestrial 3D mapping and many other applications.

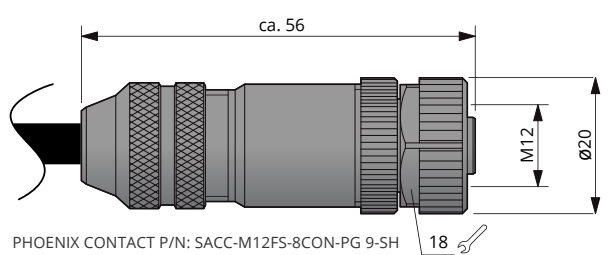
Velodyne's LiDAR Puck supports 16 channels, ~300,000 points/second, 360° horizontal field of view and a 30° vertical field of view, with ±15° up and down. The Puck does not have visible rotating parts, and is highly resilient in challenging environments while operating over a wide temperature range.



### DIMENSIONS *(Subject to change)*



### M12 CONNECTOR OPTION



For other connector options contact  
**Velodyne Sales (sales@velodyne.com)**



## Real-Time 3D LiDAR Sensor

The VLP-16 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):  $+15.0^\circ$  to  $-15.0^\circ$  ( $30^\circ$ )
- Angular Resolution (Vertical):  $2.0^\circ$
- 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)

63-9229 Rev-H

For more details and ordering information, contact Velodyne Sales ([sales@velodyne.com](mailto:sales@velodyne.com))

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.



CLASS 1 LASER PRODUCT

Copyright ©2018 Velodyne LiDAR, Inc. Specifications are subject to change. Other trademarks or registered trademarks are property of their respective owners.