

Velodyne LiDAR[®] Puck Hi-Res[™]

HIGH RESOLUTION REAL-TIME 3D LiDAR SENSOR



Puck Hi-Res



Velodyne LiDAR's Puck Hi-Res is a higher resolution version of the Puck and used in applications that requires greater resolution in the captured 3D image. The Puck Hi-Res has identical performance to VLP-16 with the only differences in the vertical field of view (FoV) which is 20° instead of 30° and therefore a tighter channel distribution where it is 1.33° instead of 2.00° between channels. No other changes have been made to Puck Hi-Res as it retains its patented 360° surround view to capture real-time 3D LiDAR data that includes distance and calibrated reflectivity measurements.

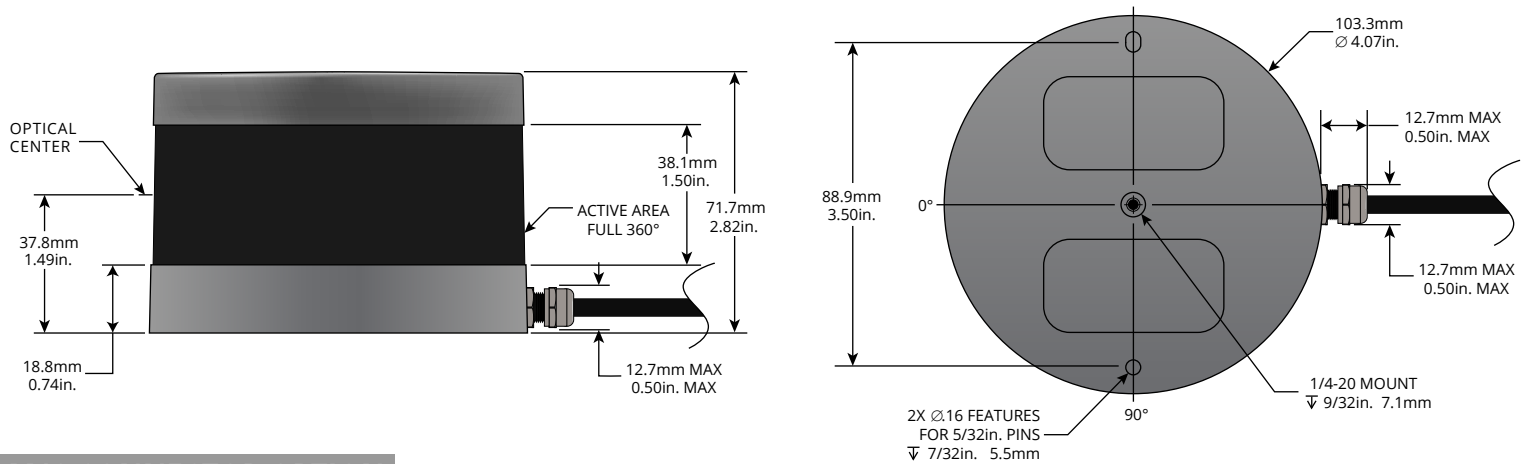
Higher Resolution at Longer Distances while Maintaining High Point Density

The Puck Hi-Res has a range of 100 m with dual return mode to capture greater detail in the 3D image at longer ranges at a low power consumption. A compact footprint with closer spacing between channels to enable greater resolution of 3D images, the Puck Hi-Res provides more detailed views in applications such as autonomous vehicles, surveillance and 3D mapping/imaging.

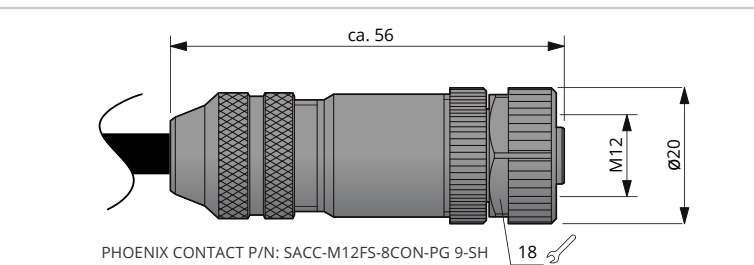
It supports 16 channels and generates 300,000 points/second from a 360° horizontal field of view and a 20° vertical field of view with ±10° from the horizon. The Puck Hi-Res has no visible rotating parts and is encapsulated in a package that allows it to operate over a wide temperature range and environmental conditions.

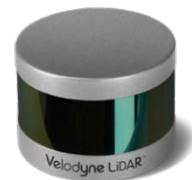


DIMENSIONS *(Subject to change)*



M12 CONNECTOR OPTION





High Resolution Real-Time 3D 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 ± 3 cm (Typical)¹
- Field of View (Vertical): $+10.0^\circ$ to -10.0° (20°)
- Angular Resolution (Vertical): 1.33°
- Field of View (Horizontal): 360°
- 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)²
- 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°C to $+60^\circ\text{C}$ ³
- Storage Temperature: -40°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 (μs resolution)
- GPS: \$GPRMC and \$GPGGA NMEA Sentences from GPS Receiver (GPS not included)

63-9318 Rev-E

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.