Real-Time 3D LiDAR

The HDL-64E S3 is Velodyne's high resolution and performance LiDAR sensor product that supports single or dual returns. Similar to its predecessor, the S2, it captures high definition, real-time 3D information about the surrounding environment. It is ideal for applications such as autonomous vehicle navigation, 3D mapping and surveying plus industrial automation.

Wide Field of View and High Frame Rate

The HDL-64E S3 provides both unprecedented and unmatched resolution and field of views to generate a wealth of data about the surrounding environment. It utilizes 64 LiDAR channels aligned from +2.0° to -24.9° for a vertical field of view of 26.9° and similar to the S2 model it delivers a real-time 360° horizontal field of view with its patented rotating head design. The rotation rate is user-selectable from 5 Hz to 20 Hz to enable the user to determine the density of data points generated by the LiDAR sensor. The HDL-64E S3 generates a point cloud of up to 2,200,000 points per second with a range of up to 120 m and a typical accuracy of ±2 cm. The HDL-64E S3 is designed to operate over a wide temperature range (-10°C to +60°C) and challenging environments to support diverse operating conditions and applications.

DIMENSIONS

SIX M10-1.5x13 mm MIN MOUNTING HOLES

FOUR Ø.42 THRU MOUNTING HOLES

223 mm Ø8.80 in.

283 mm 11.15 in.

168 mm 6.62 in.

67 mm 2.65 in.

177.8 mm 7 in.

152.4 mm 6 in.

203 mm 8 in.

www.velodynelidar.com
High Definition LiDAR Sensor

The HDL-64E S3 provides high definition 3 dimensional information about the surrounding environment.

Specifications:

Sensor:
- Time of Flight Distance Measurement with Intensity
- 64 channels
- Measurement Range: Up to 120 m
- Accuracy: ±2.0 cm (Typical)
- Single or Dual Returns
- Field of View (Vertical): +2.0° to -24.9° (26.9°)
- Angular Resolution (Vertical): 0.4°
- Field of View (Horizontal): 360°
- Angular Resolution (Horizontal/Azimuth): 0.08° – 0.35°
- Rotation Rate: 5 Hz – 20 Hz

Laser:
- Laser Product Classification: Class 1 Eye-safe
- Wavelength: 903 nm
- Beam Size:
  - Upper Block: 20.0 mm x 10.0 mm
  - Lower Block: 15.0 mm x 10.0 mm
- Dynamic Laser Power Selection for Larger Dynamic Range

Mechanical/Electrical/Operational
- Power Consumption: 60 W (Typical)
- Operating Voltage: 12 V – 32 V
- Weight: 28 lbs. (12.7 Kg) (without cabling)
- Dimensions: 215 mm Diameter x 283 mm Height (Base: 203 mm x 203 mm)
- Operating Temperature: -10°C to +60°C
- Storage Temperature: -40°C to +85°C

Output:
- 3D LiDAR Data Points Generated:
  - Single Return Mode: ~1,300,000 points per second
  - Dual Return Mode: ~2,200,000 points per second
- 100 Mbps Ethernet Connection
- UDP Packets Contain:
  - Time of Flight Distance Measurement
  - Intensity Measurement
  - Rotation Angles
  - Synchronized Time Stamps (µs resolution)
- GPS: $GPRMC NMEA Sentence from GPS Receiver (GPS not included)

Product Ordering Information:

<table>
<thead>
<tr>
<th>Product Name</th>
<th>SKU Ordering Number</th>
<th>Connector Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDL-64E S3 Dual Return Mode</td>
<td>80-HDL64E S3D</td>
<td>Rj45 + RS232</td>
</tr>
<tr>
<td>HDL-64E S3 Single Return Mode</td>
<td>80-HDL64E S3S</td>
<td>Rj45 + RS232</td>
</tr>
</tbody>
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CLASS 1 LASER PRODUCT