

FIRMWARE RELEASE NOTES

Versions V3.0.17 to v3.0.29.0

Model VLP-16

LiDAR Sensor



Velodyne

For all new features and changes, refer to the documentation that accompanies the new firmware release for details on usage. To downgrade sensor firmware, please contact Velodyne for service.

V3.0.29.0 (18-December-2015)

- Resolves an internal communication error that resulted in missing laser data on 2368 data port. This fix results in slightly greater jitter in time stamps between packets relative to earlier firmware versions.

V3.0.28.0 (30-November-2015)

- The wait time it required, at startup, to generate Data Packets (Port 2368 Default) was reduced from above 50 seconds to less than 30 seconds. This behavior matches the HDL32.
- Improved Image at -10 degrees Celsius at startup.
- The Sensor's IP address can no longer be set to invalid value (example 255.255.255.255) using the Web Interface.
- Improved Firmware Update compatibility with Linux computers.
- At some angles and atmospheric conditions sun-light can affect the Sensor's Encoder Index. The Encoder Index is used to indicate zero position in the rotation of the spindle. The Sunlight shining into the sensor via a small opening can cause the encoder to detect a false Index. This is observed by jump to 24,xxx position. In extreme cases it can prevent the motor from spinning correctly and resulting in zero RPM and loss of laser UDP data (sensor stops sending data). This version guards against false Index occurrence.
- The sensor will no longer send malformed UDP Data Packets (Port 2368 Default) resulting from an internal error.
- V3.0.28.0 can only be upgraded in the field on sensors that operate on 3.0.24.x or higher. VLP-16 with firmware versions < 3.0.24.x need to be returned to the factory for upgrade to 3.0.28.x or higher

V3.0.27.0 (10-August-2015)

- FIXED: Cold Temp boot-up sequence. A few VLP16 were failing to boot-up after being exposed to cold temperatures for an extended time. This problem was traced to a low level boot-up routine that can only be corrected at the factory. V3.0.24.1 can be updated in the field but cold temperature fix will not be included.
- FIXED: Encoder values between 0 – 5 and 35995 – 35999 have been corrected. In previous versions the encoder value were being affectedly rounded to values inside that range and value 0 would not occur.
- FIXED: WebServer GUI Firmware Update has been ruggedized to avoid corrupt firmware in cases the power to the sensor was removed during firmware upgrade.
- IMPROVED: Improved short distance measurements to ensure minimal noise on short distance flat walls, removing previously visible “wave pattern”
- FIXED: When DHCP is enabled and no Server is present to assign the sensor IP address the default IP address was not being used for Data UDP Packet (default port 8308). The Sensor uses a “link local address” per RFC-3927 to determine the default IP address.
- FIXED: Object that exceeded the max distance were appearing as phantom returns closer than they were.
- CHANGED: Couple web interface field names have been changed to help clear up any misunderstanding which field is the IP address of the Sensor.
 - Configuration Page “Host IP:” changed to “Host (Destination) IP:”
 - Configuration Page “Network IP:” changed to “Network (Sensor) IP:”
 - Browser Tab icon and name changed to reflect VLP-16.
- V3.0.27.0 can only be upgraded in the field on sensors that operate on 3.0.24.x or higher. VLP-16 with firmware versions < 3.0.24.x need to be returned to the factory for upgrade to 3.0.27.x or higher.

V3.0.24.1 (11-May-2015)

- **FIXED:** Temperature induced distance shift
 - Previous versions of VLP-16 firmware were susceptible to large drifts in reported range due to temperature changes. This update significantly reduces the amount of drift.
- **FIXED:** Reduced noise on affected sensors
 - A small population of sensors experienced noise in the form of a 'ring' of false returns. This update significantly reduces the amount of noise.

V3.0.23 (30-Mar-2015)

- **ADDED:** Data packet tagging
 - Every data packet now identifies the type of sensor and return type the packet is formatted for. Future version of HDL-32E firmware will support this as well.
 - The following chart explains what the bytes mean:

Return Type	Field (37h) Address: 4DEh	Field (21h) address: 4DFh
HDL32 Strongest	37h	21h
HDL32 Last	38h	21h
HDL32 Dual	39h	21h
VLP16 Strongest	37h	22h
VLP16 Last	38h	22h
VLP16 Dual	39h	22h

- **ADDED:** Added additional factory functions to detect encoder errors.
- **CHANGED:** Updated field of view setting to use whole degree increments
 - FOV configuration was made to match HDL-32E by incrementing in whole degree increments. Range is now 0-359 instead of 0-35999.
 - **NOTE:** Any previous setting will be reset to default after firmware update. Downgrading to an older version will not update the setting to the old range.
- **CHANGED:** Updated web interface graphics
- **FIXED:** Issue with zero crossing
 - Sensor would occasionally drop a small amount of data when crossing the point of zero degrees rotation.
- **FIXED:** Snapshot filename
 - By default, the snapshot filename would be saved as all zeros, this has been corrected.
- **FIXED:** Error in NMEA sentence processing
 - Fixes incompatibility with certain GPS units that support non-zero fractional second fields in the NMEA \$GPRMC sentence. This could cause the Top of Hour Counter to be off as much as 1 second.
- **FIXED:** Bug in encoder logic
 - This bug prevented phase lock from operating correctly.

V3.0.17

- Initial commercial release. Please see documentation for included features.

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