
Velodyne® LiDAR

Field Technical Bulletin



HDL-32 New ADC Calibration Feature

Firmware Release 2.2.23.0

Safety Notices

IMPORTANT SAFETY INSTRUCTIONS



Caution

To reduce the risk of electric shock and to avoid violating the warranty, do not remove cover (or back). Refer servicing to qualified service personnel.

The lightning flash with arrowhead symbol is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

1. **Read Instructions** — All safety and operating instructions should be read before the product is operated.
2. **Retain Instructions** — Retained these instructions for future reference.
3. **Heed Warnings** — All warnings on the product and in the operating instructions should be adhered to.
4. **Follow Instructions** — All operating and use instructions should be followed.
5. **Servicing** — The user should not attempt to service the product beyond what is described in these instructions. All other servicing should be referred to Velodyne.

OVERVIEW

HDL-32E firmware release 2.2.23.0 implements a new function to stabilize the distance and reflectivity data output from the sensor. An ADC Calibration function has been added and associated rules to when the ADC Calibration function is run. During the function run, the data stream is briefly interrupted where the ADC is unavailable to convert data.

DETAIL

Firmware release 2.2.23.0 enables the sensor control system to monitor the temperature of the ADC circuitry. When the temperature change exceeds a predetermined limit or a predetermined time interval, an ADC calibration will be performed. The purpose of this function is to maintain the accuracy of the sensor ADC output over the specified operating temperature range.

There are three rules to trigger an ADC Calibration:

1. At sensor startup. This ensures the ADC is in to a known state, the action is performed approximately 30 seconds after power up and start of data transmission.
2. After an elapsed time period since last calibration is exceeded. At 3 hours and 12 minutes since last calibration, an ADC calibration is performed. This maintains the ADC calibration in a known good state.
3. If there is a temperature difference of +/- 2 degrees Centigrade, an ADC calibration will be performed. The ADC circuitry is temperature sensitive and requires recalibration if its operating temperature is different than the last calibration temperature.

During the ADC Calibration process, the ADC briefly is unavailable to convert analog values to digital values. This results in a brief interruption in the UDP data transmission stream of 4 sequential UDP datagrams. When the ADC calibration functions exits, the data stream returns to continuous UDP datagram transmission.



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