

HDL-32E & VLP-16 Interface Box

Caution!

Using the HDL-32E Sensor with the Interface Box

There is no internal polarity nor over voltage production in the HDL-32E sensor; Therefore it is imperative that the Interface Box and/or protective circuitry is incorporated in every installation.

The interface box contains circuitry to protect against:

1. Over Voltage:

The Interface Box accepts 9-32VDC input voltage. The over voltage protection will kick in at 34V until the 3A fuse blows.

2. Reverse Voltage:

The reverse voltage protection kicks in at 0.6V until the 3A fuse blows or the TVS diode burns out.

Important!

When shortening the interface cable, take care to ensure terminal block is correctly wired. Reversing the power and ground at the terminal block may result in irreparable damage to the HDL32E sensor.

Using the HDL-32E sensor in hardwired applications.

The HDL-32E sensor may be integrated into a custom system by removing the Interface Box and cutting the interface cable to the desired length. When integrated into a custom system, adequate circuit protection – similar to that provided by the interface box - must be included to safeguard against damaging the HDL-32E sensor.

Failing to provide adequate circuit protection may result in irreparable damage to the HDL32E sensor.

The schematic of Velodyne's interface circuit is contained in the following pages.

Time Synchronization with an External GPS/INS System

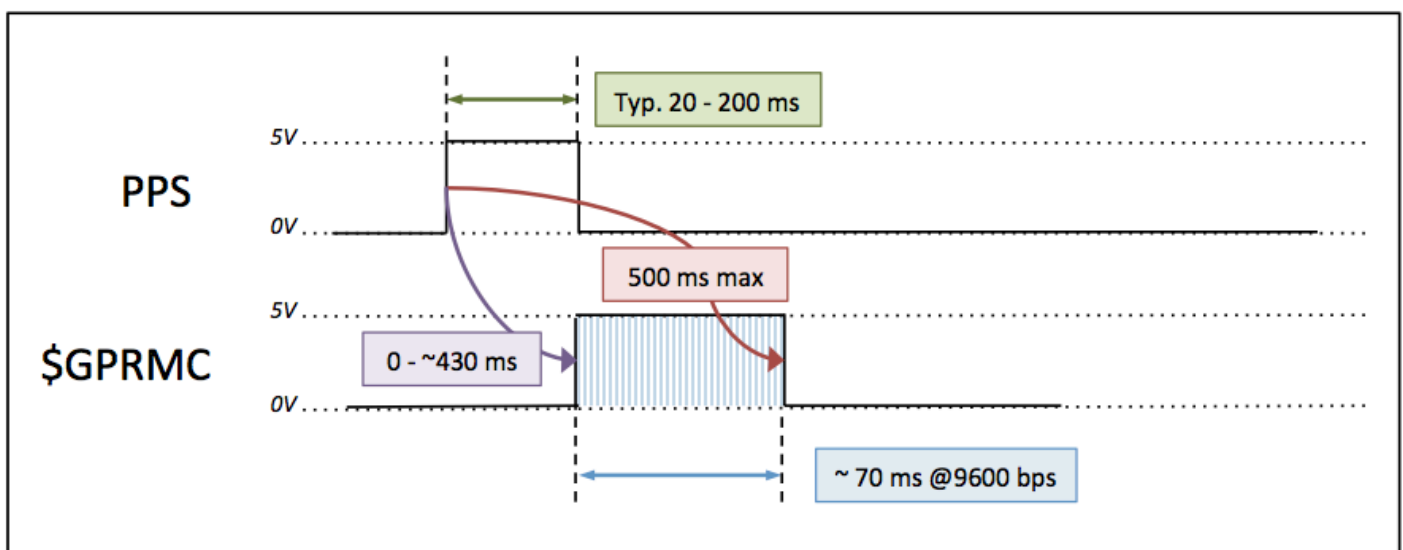
The HDL-32E can synchronize its data with precision GPS-supplied time pulses. Synchronizing to the GPS pulse-per-second (PPS) signal provides users the ability to compute the exact firing time of each data point.

To utilize these features the user must configure their GPS/INS device to issue a once-per-second synchronization pulse in conjunction with a once-per-second NMEA \$GPRMC sentence. No other NMEA message will be accepted by the HDL32. Other NMEA sentences might be misinterpreted by the HDL-32E.

For additional information, please refer to the tables and diagrams in the following section “Interface Cable Signal Description.”

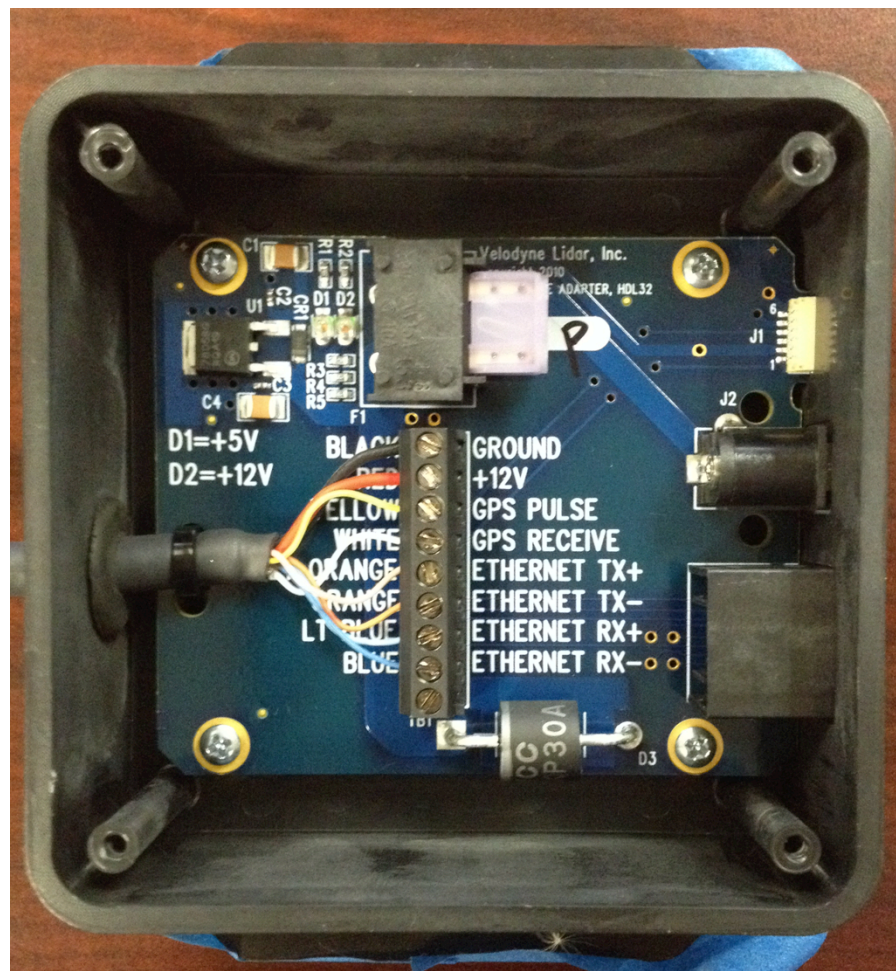
- The serial data output from the GPS receiver should be connected to the HDL-32E Interface Box via the screw terminal labeled: “GPS RECEIVE.”
- The PPS output from the GPS/INS should be connected to the HDL-32E Interface Box via the screw terminal labeled: “GPS PULSE.”
- The ground signal(s) from the GPS/INS should be connected to the HDL-32E Interface Box via the screw terminal labeled: “GROUND.”
- Serial configuration for the NMEA Message should be 9600 baud, 8N1.

The PPS synchronization pulse and \$GPRMC message may be issued concurrently or sequentially. The PPS synchronization pulse length is not critical (typical lengths are between 20ms and 200ms), but reception the \$GPRMC sentence must conclude less than 500ms after the rising edge of the synchronization pulse.

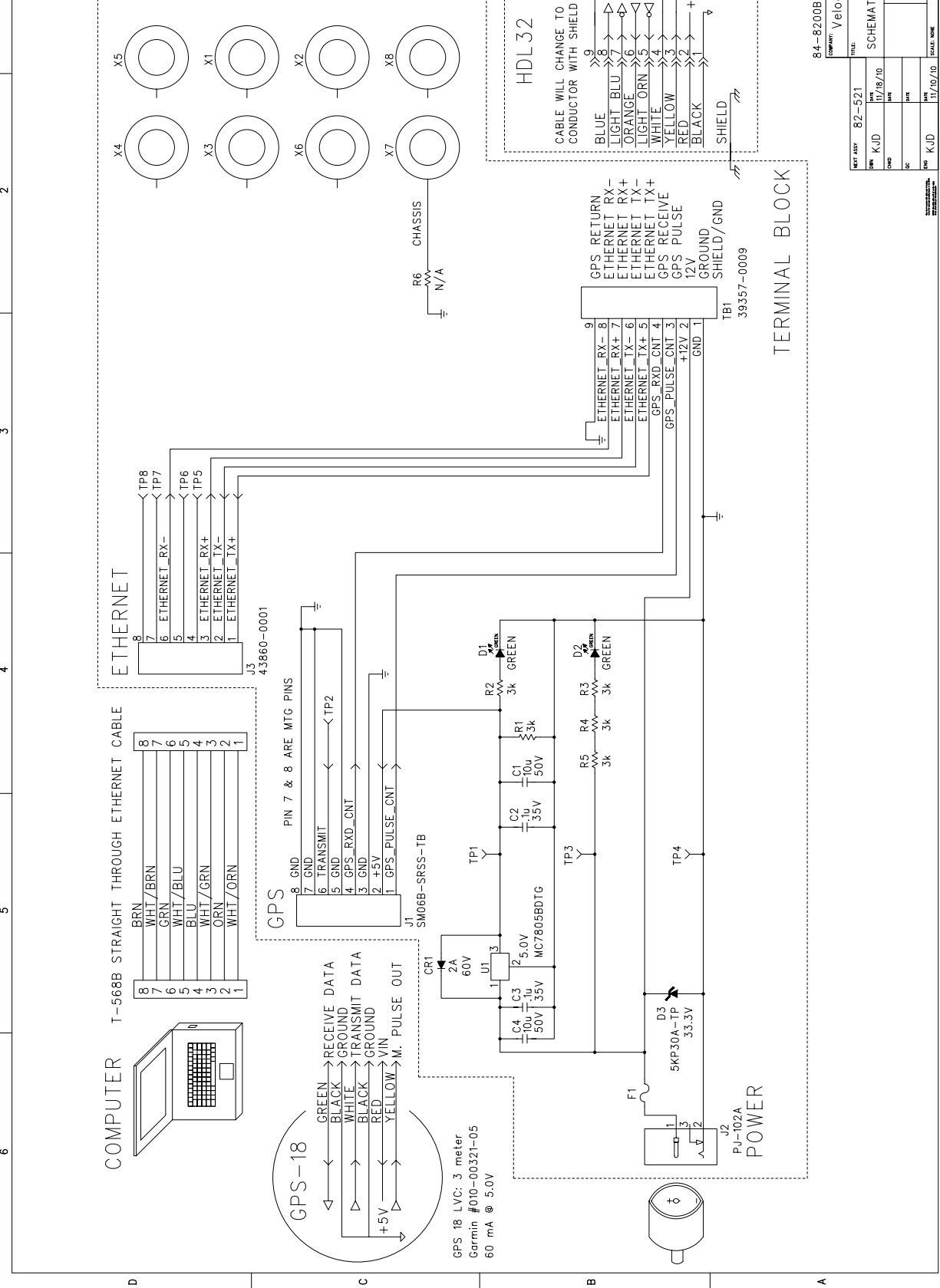


Interface Cable Signal Description

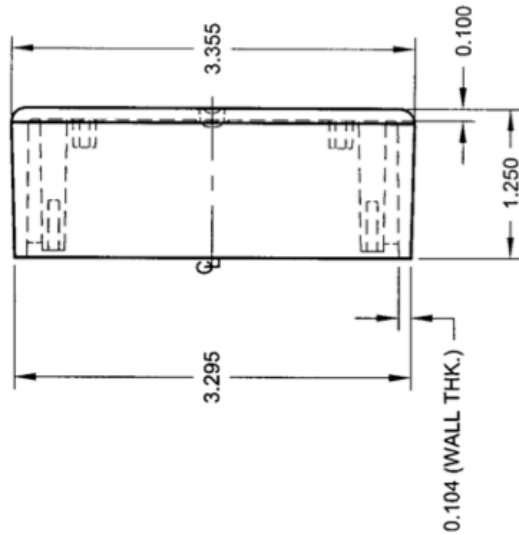
Wire	Signal	Input/Output	Specifications
Black	Ground	Input	System Ground
Red	Power	Input	9-15V DC / 12W
Yellow	GPS Sync Pulse	Input	TTL
White	GPS Serial Receive	Input	TTL
Light Orange	Ethernet TX+	Output	Differential
Orange	Ethernet TX-	Output	Differential
Light Blue	Ethernet RX+	Input	Differential
Blue	Ethernet RX-	Input	Differential



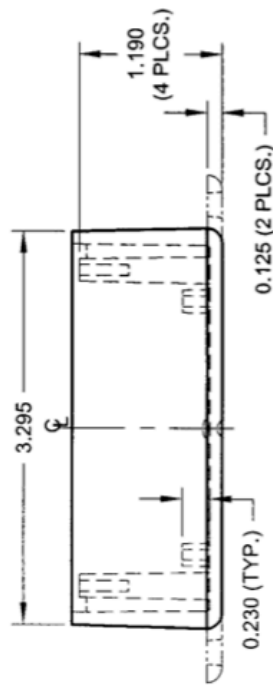
REVISION RECORD			
REV	DESC	DATE	
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2	DESIGNED	11/18/10	KL
3	ASSEMBLED	11/18/10	KL



84-8200BLSCH			
Velodyne Lidar, Inc.			
REV	82-521	DATE	11/18/10
DESIGNED	KJD	DATE	11/18/10
ASSEMBLED		DATE	
TESTED		DATE	
DATE	KJD	DATE	11/18/10
SCHEMATIC, HDL CABLE ADAPTER			
B Sm-8200 B			
SHEET 1 of 1			



NOTES:
1.) PC BOARD BOSSES WILL ACCEPT A #4 X 1/4" THREAD FORMING SCREW (SCREWS AVAILABLE FROM POLYCASE)

[illegible]

