




Safety Information

Please read these instructions carefully before trying to install, operate, service or maintain the High Speed Data Module on ZDR. The following special notes may appear throughout the user guide (or on the equipment labels) to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure for users.

Symbol	Description
	The addition of either symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.
	This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.
	This symbol notes that Electrostatic discharge (ESD) events can harm electronic components inside this product. Protect against ESD and discharge static electricity from your body before you interact with this product.

Installation & Safety Notes

- EpiSensor equipment should be installed, operated, serviced and maintained only by qualified personnel. EpiSensor does not assume any responsibility for any consequences arising out of the use of this equipment.
- CAUTION: Disconnect ZDR from mains power source in accordance with product-specific safety information before opening the enclosure.

Document Ref: EPI-131-03

Related Documents

Related installation and configuration documents are listed in the following table:

Document	Reference No.
EpiSensor ZDR User Guide	EPI-078-02
EpiSensor ZDR Datasheet	EPI-066-00
Install Sheet for ZDR	EPI-065-00
Gateway API User Guide	ESE-009-08
Bootloading on a live Gateway	EPI-064-00
Configuring the High Speed Data Module on ZDR	EPI-131-02
Application Note - Demand Response Event Data	EPI-124-01

Selecting an Antenna

Most active GPS/GNSS antennas should work with ZDR-15/ZDR-16, however the specific model below has been tested by EpiSensor and is recommended.



Hercules Active GPS/GALILEO Permanent Mount Antenna with 10m of coax and SMA(M)

Gain: Three Stage 40dB 1575MHz
Dimensions: H:29mm, Ø:49mm
Waterproof IP67 & IP69K rated

Note: wall mounting bracket not included.

Click [here](#) for more info

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The high speed data module in the ZDR uses a uBlox NEO-6T GPS receiver and will inject a voltage to provide power to an amplifier at the GPS antenna. For more information, contact support@episensor.com

Connecting the GPS antenna to the ZDR

The photo below shows a U.FL to SMA pigtail connected to the GPS receiver on the high speed data module on the ZDR. The GPS antenna cable should be connected to the SMA connector mounted on the outside of the ZDR enclosure. On more recent versions of the ZDR-16, the SMA connector for the high speed module is located at the top of the ZDR enclosure.



Removing the high speed data module

Before opening the ZDR enclosure, ensure that mains power has been disconnected from the ZDR, and verify this with a test tool before proceeding. First, disconnect the antenna pigtail from the U.FL connector on the GPS module, then remove the module taking care not to bend the pins on the header.

Warning



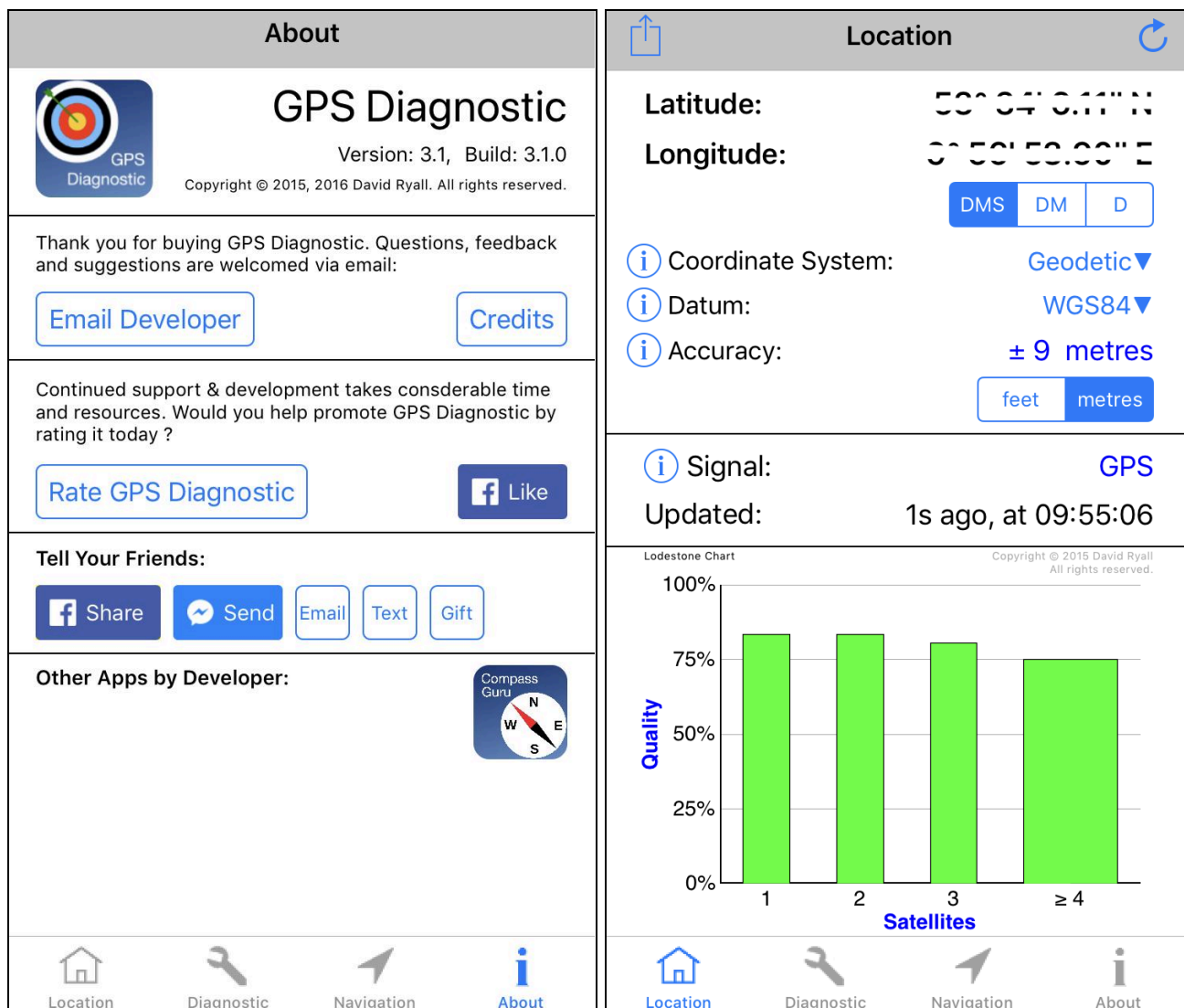
After removing the module, the antenna pigtail should be fastened to the adhesive pad on the bottom surface of the ZDR enclosure using a cable tie to prevent it from making contact with high voltages in the ZDR power supply or main board.

Checking GPS Signal Strength at the Antenna

In future ZDR software versions, it will be possible to monitor the satellite lock status and other health parameters remotely from the web interface on the Gateway. In the interim, signal strength should be checked at the GPS antenna with a mobile phone app, and then verified at the ZDR with the LED flash sequence.

GPS Diagnostic App

A mobile phone app like “GPS Diagnostic” should be used to verify that there is a GPS signal at the antenna. iOS App Store Link: <https://apps.apple.com/us/app/gps-diagnostic-satellite-test/id1020967894>




LED Flash Sequence on ZDR

The operation of ZDR will change if the high speed data module is present. ZDR won't initialise until it has (a) a GPS satellite lock and (b) established communications with the 3-phase metering chip. This is done in sequence, so other functions in the ZDR won't be enabled until the GPS has a satellite lock.

Configuring the High Speed Data Module on ZDR

Document Ref: EPI-131-03

After powering on the ZDR (assuming the GPS antenna is connected and there is a good GPS signal) the satellite lock sequence can take up to 30 seconds. During this time, the front panel (if present) will have the following status:

Amber LED	Red LED	Description	Diagram
ON	ON	Immediately after startup, if all 3 indicator LED's are lit (assuming the high speed data module is present), the ZDR is trying to establish a satellite lock. Under normal operation, this would mean that ZDR has triggered either an Event Response and/or Demand Response.	

There is also a blue LED on the high speed data module, inside the enclosure of the ZDR, with the following flash sequences:

Flash Sequence	Description	Diagram
Heartbeat	The high speed module has locked to a GPS satellite signal and has initialised with the Electricity Monitoring chip.	