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Zima USBL information sheet

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Compatibility Requirements for Heading and Positioning Systems

1. General information

The Zima USBL system allows you to revise the coordinates of responder beacons from the local polar coordinate system in geographic time.

This software requires data on the geographical position of Zima-B antennas and its orientation relative to cardinal points.

Two options are possible:

- Data on the geographical position of the antenna and its orientation are generated using the GNSS compass. This option is most preferred;
- GNSS data on the geographical position of the antenna are generated by the GNSS receiver, and data on its orientation relative to the cardinal points - using a magnetic compass;

2. Protocol requirements

ZHost software can connect two additional sources of navigation data (using the serial ports AUX1 and AUX2 in the "Settings" window).
The physical connection of devices is carried out either using physical serial ports (COM, or PC) or using the RS-232/422/485 <-> USB interface converters.

Zhost software supports the NMEA 0183 protocol, and in particular, the following message types:

HDG - Orientation data relative to cardinal points (magnetic compass)
HDT - Orientation data relative to cardinal points (GNSS compass)
RMC - Geographic Location Data (GNSS Receiver)

For correct operation, either a pair of **RMC + HDT** messages (providing a GNSS compass) or **RMC + HDG** (GNSS receiver and magnetic compass) is required.

If both types of angular orientation message data (HDG and HDT) appear in the software, only data from HDT messages will be used.

3. Accuracy and refresh rate requirements

The accuracy of the GNSS receiver should be no worse than 2.5 m (2DRMS), the frequency of updating the data on the geographic location should be at least 1 time per second.

Recommended accuracy of indications of orientation relative to cardinal points: 1 ° (DRMS), with a refresh rate of 5 Hz.

It is possible to use navigation data with lower accuracy, but it must be borne in mind that, when calculating the absolute location of responders, errors of the angles of arrival estimation and errors of the antenna orientation estimation using a magnetic or GNSS compass are summed.