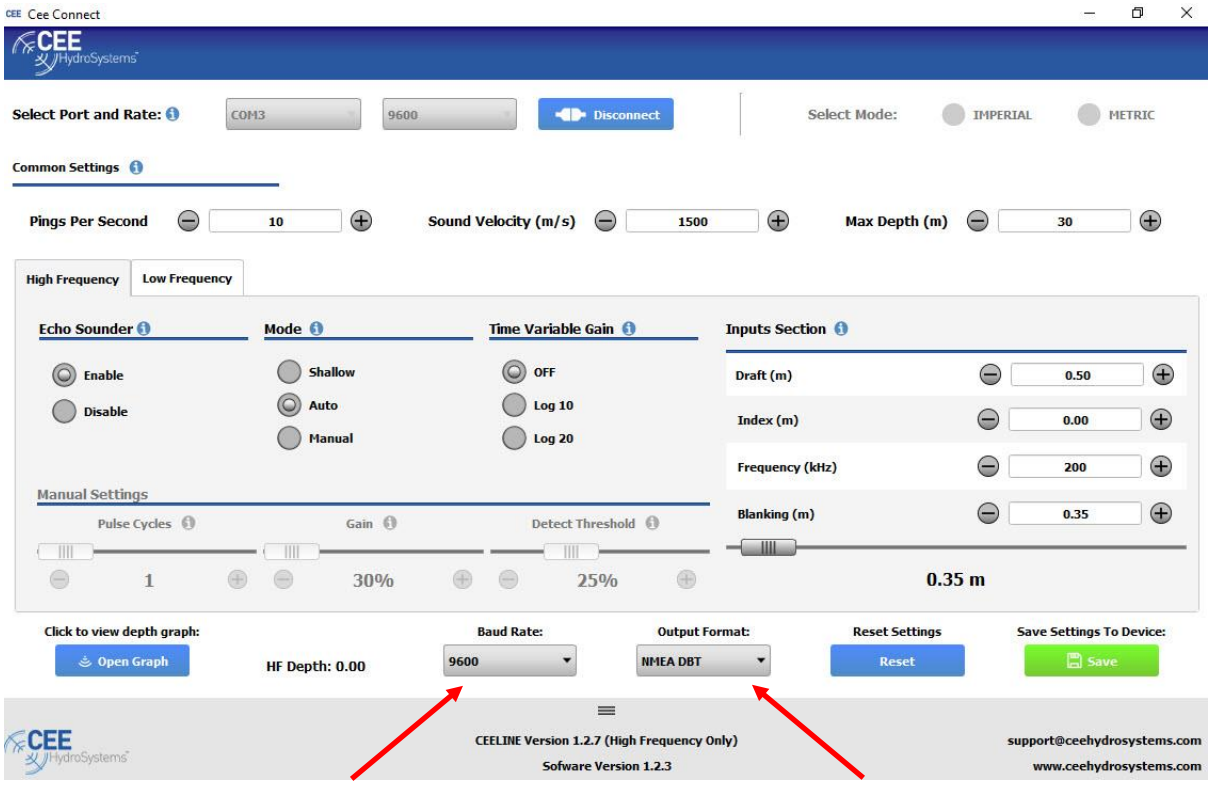
Using the CEE LINE™ Echo Sounder with Carlson SurvCE

The CEE HydroSystems CEE LINE™ echo sounder may be used as a peripheral hardware input while GNSS surveying using Carlson software. Connection of an echo sounder to a GNSS data collector represents a simple and effective method to conduct basic hydrographic surveys without the need for dedicated hydrographic acquisition software.

The first step is to configure the CEE-LINE™ to ensure the correct data output is selected. CEE-LINE Connect software is available for the purpose of configuring the echo sounder and should be installed on a PC or tablet. The software this can be downloaded at [www.ceehydrosystems.com.](http://www.ceehydrosystems.com)

After connecting to the CEE LINE using the Smart USB cable, the NMEA output message DBT or DBS should be selected. The factory default is DBT at 9600 baud. The maximum depth should also be set 50% deeper than the anticipated depth to ensure no data losses. If available, sound velocity can be entered otherwise this parameter should remain at the default setting of 1500m/s. The ping rate should remain at 10Hz. The operating mode should be “Auto” unless working in very shallow and highly reflective conditions.



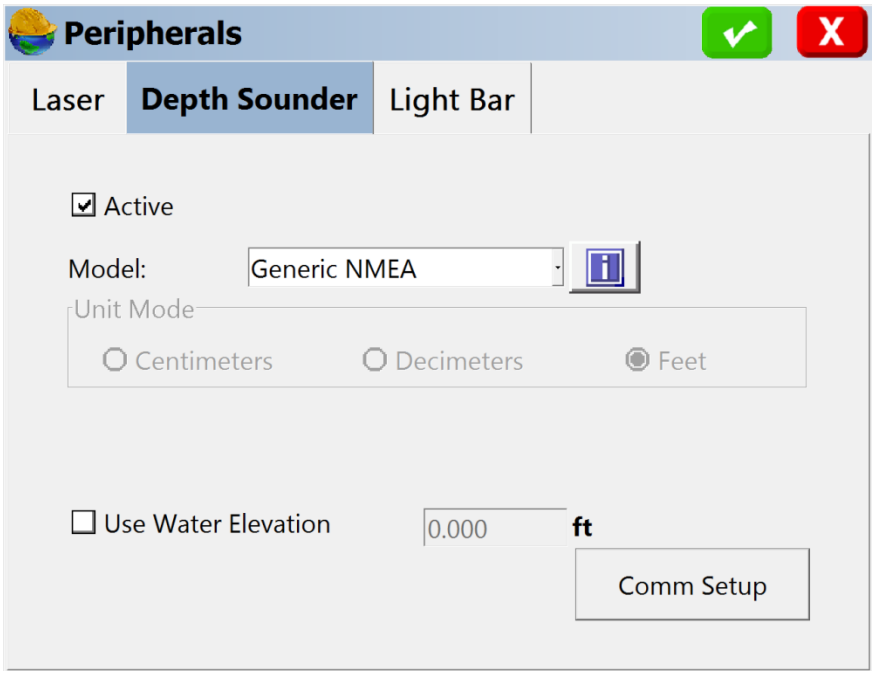
Output baud rate selected as 9600

Output format selected as NMEA DBT

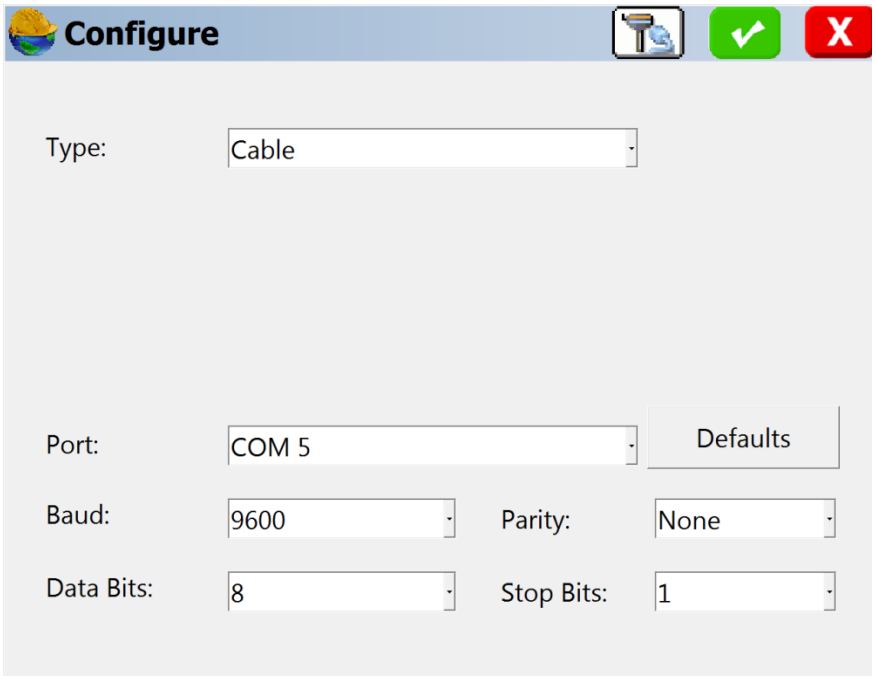
Please note the following points to assist with the CEE-LINE device interface procedure and subsequent operation:

- Output format DBS – This format is Depth Below Surface (DBS). Any draft value that is applied through the CEE-LINE configuration will be added to the measured depth and output as a single value.
- Output format DBT – This format is Depth Below Transducer (DBT). Any draft value is ignored, and the depth measured is output.
- Zero depth is treated as an error condition in Carlson. Echo sounders are designed to run in the water, not in air. Typically, a valid depth is only measured and output when the transducer is submerged in water.
- The quality of depth data will be based on the environment and the echo sounder settings. A valid depth is only output when enough signal strength is received, and the depth is under the CEE-LINE MAXIMUM DEPTH set point. The depth data should be constantly viewed to ensure data being received is of adequate consistency / repeatability.

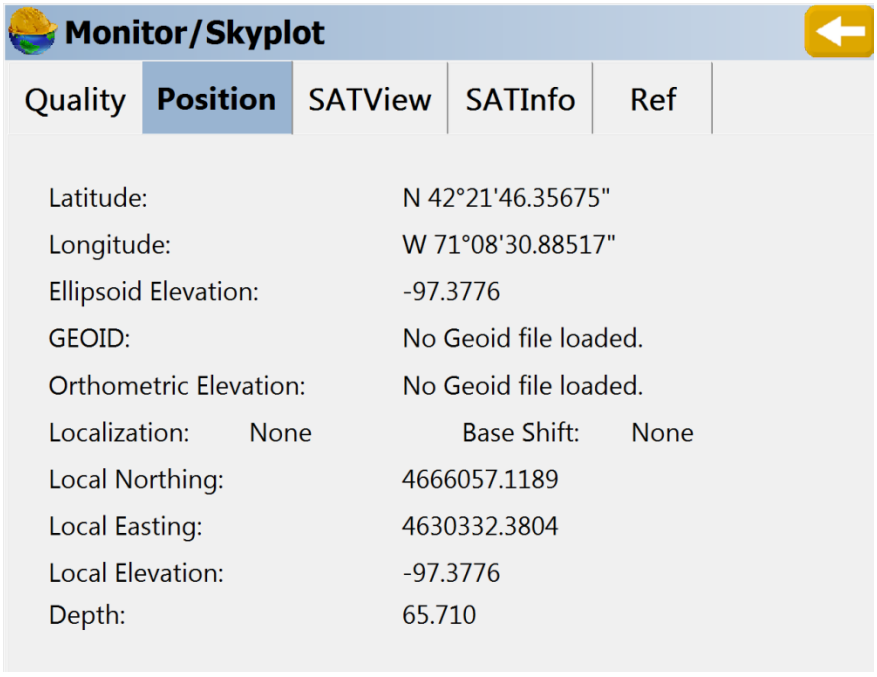
In Carlson, set up a Depth Sounder as a Peripheral Device. Use the Generic NMEA as the model option.



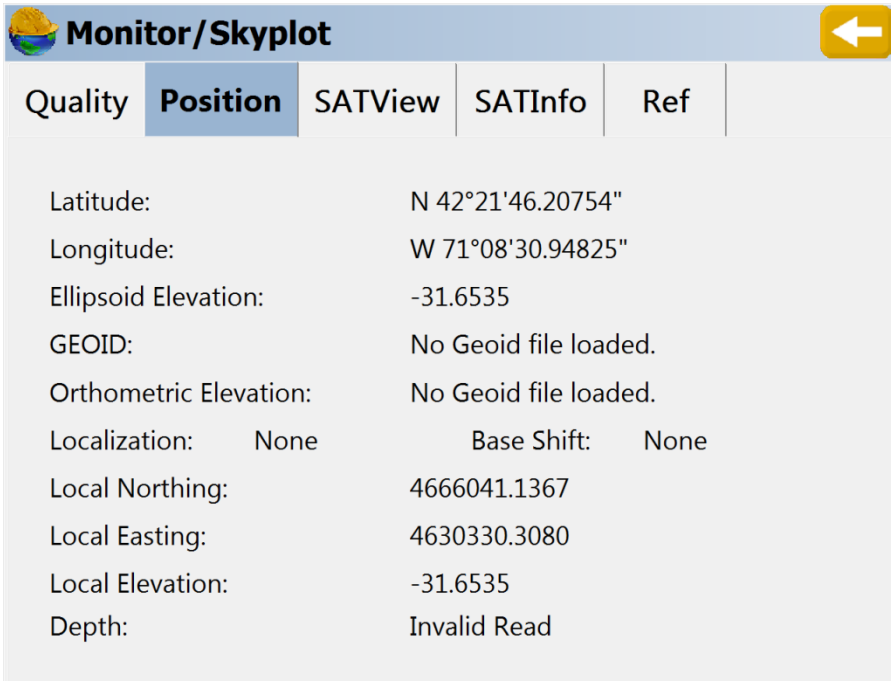
The Comm Setup should match the serial port of the Carlson device. The baud rate is 9600, Parity is None, Data Bits is 8 and Stop Bits is 1. Port 5 shown below is only for this demonstration.



Once the device is interfaced correctly enter the Store Pts window and view the device messages to display “Monitor/Skyplot”. The position window will give a depth value as supplied by the CEE-LINE. In testing the depth displayed was in feet, the position source was simulated.



The image below shows the CEE-LINE correctly interfaced but supplying a zero-depth value.



Points now may be stored with a final elevation including the CEE-LINE measured depths.

IMPORTANT – TROUBLESHOOTING NOTE:

If a valid depth is not received, for example when attempting to connect to the echo sounder with no transducer in place, Carlson may report a misleading CONNECTION ERROR that appears to indicate that the interface between the data collector and the echo sounder is not functioning. This is NOT the case, rather the software is simply not receiving valid depth data and reporting this as an error condition. Install the transducer and immerse in water to show a valid depth and then reconnect.