WinFrog Device Group:	**ELEVATION**
Device Name/Model:	**OCEANTOOLS VO-1C Heading and Depth Sensor (HEDE)**
Device Manufacturer:	OceanTools Ltd Unit 11 The Technology Centre Aberdeen Offshore Technology park Aberdeen Scotland AB23 8GD UK 44 1224 709606 44 7989 536850 24 hr support www.oceantools.eu
Device Data String(s) Output to WinFrog:	See below
WinFrog Data String(s) Output to Device:	None
WinFrog Data Item(s) and their RAW record:	ELEVATION 372 HEADING 408 and 410, or 409

DEVICE DESCRIPTION:

WARNING: Prior to using this device read its manual. This device is available with analogue or different serial outputs. Also be sure to verify the polarity and colours of the power wires before connecting.

This device driver will provide depth and heading to WinFrog using serial or TCP/IP.

DEVICE CONFIGURATION INSTRUCTIONS

WINFROG I/O DEVICES > EDIT I/O:

WinFrog supports interfacing to the unit using either serial or TCP/IP sockets.

Serial

Configurable to match the sensor.

TCP/IP

Configurable. Note that the serial to IP converter used must be configured to match the sensor. In addition, when configured for TCP Client, a Timeout for outgoing connections can be configured. If WinFrog detects that the connection has been idle with respect to received data for this period, it will check the connection by attempting to write to it. If this check fails, the connection will automatically disconnect and revert to attempting to connect.

WINFROG I/O DEVICES > CONFIGURE DEVICE:

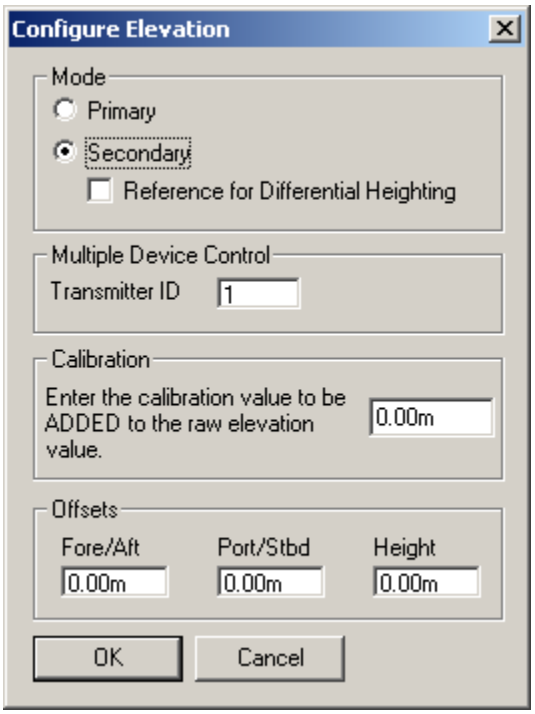
No configuration is required at the I/O Device window level.

WINFROG VEHICLE > CONFIGURE VEHICLE DEVICES > DEVICE DATA ITEM > EDIT:

Adding the OceanTools HEDE device creates two data items: ELEVATION and HEADING. Once the data items have been added to the vehicle, they must be edited to suit the application.

Data item: ELEV, OceanTools, ELEVATION

Add the ELEVATION data item to the vehicle that the device is physically on. Edit the data item to get the following dialog:



Mode

Set the mode to primary if this device is to determine the vehicle's depth. The default is secondary. Other devices that can also determine depth need to be set to primary or secondary depending upon which you want to use to determine the depth.

Reference for Differential Heighting

Leave this unchecked as it applies to long baseline (LBL) acoustics only.

Multiple Device Control

Leave Transmitter ID set to 1. This device only supports the output of one depth.

Calibration

Enter a calibration value if one is available. This can be used to account for atmospheric pressure or other instrument errors if it is not zeroed out of the device. See the device manual for information to zero out the sensor. This value is added to the observed value. Note: elevation is used as the terminology and as a result, if the point is below sea level the elevation is negative. Depth is considered positive below sea level and this device is measuring depth. An elevation calibration value will be combined to an observed depth as described below:

Elevation = -(observed depth value) + calibration value
And
Vehicle depth = -elevation
Both these values can be displayed in the Vehicle Text window.

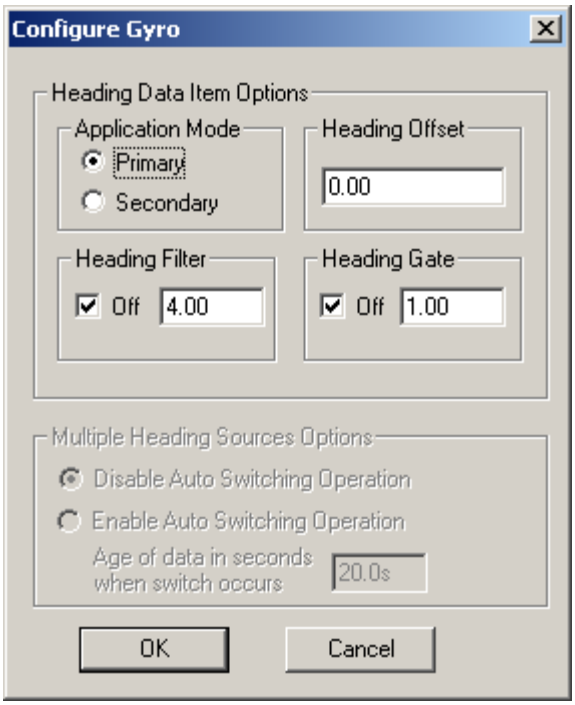
To zero out atmospheric pressure you would enter it as a positive number. For example, say at sea level the sensor read a depth of 10 metres. Enter 10m in the dialog, then if the sensor was at depth of 1 metre it would read 11 and the result would be:
Elevation = -(11) + 10 = -1
Vehicle depth = -elevation = 1

Offsets

Offsets can also be entered to relate the depth (pressure) sensor of the sensor to the CRP of the vehicle. If an attitude sensor is available, the data from it will be used to correct the offsets.

Data item: ELEV, OceanTools, HEADING

Add the HEADING data item to the vehicle that the device is physically on. Edit the data item to get the following dialog:



Heading Data Item Options:

Application Mode(Primary/Secondary):

Set the type of calculation to Primary or Secondary by selecting the appropriate radio button. Devices set to Primary are used to provide the vehicle heading information. Devices set to Secondary are not used in the vehicle's calculations.

Note that WinFrog supports automatic switching from a designated Primary to a Secondary in the event that data from the Primary fails (see Multiple Heading Sources Options below).

Heading Offset:

A correction value (as determined say from a gyro calibration) can be input in the Heading Offset box. This value is added to the heading value from the sensor to provide a corrected heading for the vehicle. Note that positive or negative values can be entered.

Heading Filter/Heading Gate:

The Heading Filter is used to "smooth" heading values used by the vehicle. The value entered in the Heading Filter indicates the number of headings that will be used to predict the next heading value. The larger the value entered, the "heavier" the filter will be – i.e. the slower the vehicle's heading will respond to changes.

The Heading Gate defines a tolerance value to limit the use of anomalies in gyro readings. If the next observed gyro value received falls outside the specified range of predicted values (i.e. plus or minus the entered value), the value will not be used.

Multiple Heading Sources Options:
WinFrog supports automatic switching from a designated Primary source to an alternate Secondary source in the event that the Primary fails. The first Secondary source to receive data after the Primary has failed becomes the alternate Primary providing the heading for the vehicle. When the designated Primary is detected as active again, the alternate Primary source reverts to Secondary and the designated Primary provides the heading data to the vehicle.

If an alternate Secondary fails and there are additional Secondary sources, it in turn is detected by the first of the remaining operational Secondary sources to receive data after the failure, at which time this Secondary becomes the alternate Primary.

Note that this option is only available if more than one HEADING source is associated with the respective vehicle. Changes made to the Auto Switching options for any one of the HEADING data items are automatically assigned to the others upon exiting this dialog with OK. If the Auto Switching option is enabled and the respective HEADING source has been set to Primary, all others are automatically set to Secondary. The exception to this is when configuring a WinFrog Controlled Remote (WinFrog with a Remote module) from a Controller. In this case, changes made to one HEADING source are not automatically made to other HEADING sources. The operator must explicitly make them for each HEADING source.

This option is not available in the WinFrog Remote package.

Disable/Enable Auto Switching Operation:
Select the mode you wish to operate WinFrog.

Age of data in seconds when switch occurs:
Enter the age of data that is permitted before the source is considered to have failed.

TELGRAM SPECIFICATION:

Compass and depth message. ASCII characters
HhhhDddd.d<CR>

H	Heading header
hhh	Heading in degrees
D	Depth header
ddd.d	Depth in metres