

WinFrog Device Group:	ROV
Device Name/Model:	PIONEER HEX
Device Manufacturer:	
Device Data String(s) Output to WinFrog:	
WinFrog Data String(s) Output to Device:	
WinFrog Data Item(s) and their RAW record:	ATTITUDE 413 HEADING 409

DEVICE DESCRIPTION:

This driver is designed to read attitude and heading data from the Pioneer Hex sensor device, an underwater gyro and inclinometer.

DEVICE CONFIGURATION INSTRUCTIONS

WINFROG I/O DEVICES > EDIT I/O:

Serial
Configurable Parameters

WINFROG I/O DEVICES > CONFIGURE DEVICE:

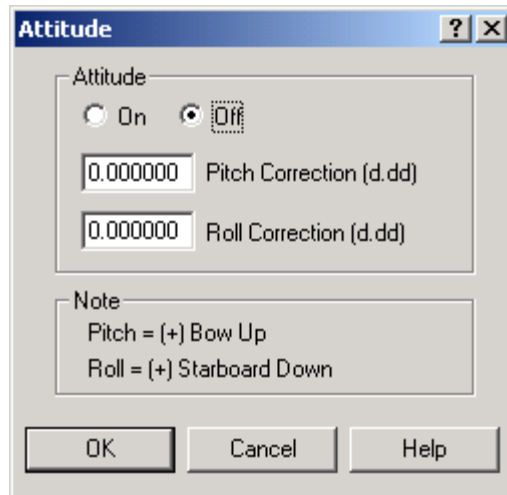
No configuration is required at the I/O Device window level.

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

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

Data item: ROV, PIONEER HEX, ATTITUDE

Highlight this data item in the vehicle's device list and click the Edit button to open the Attitude dialog box as seen below.



Attitude

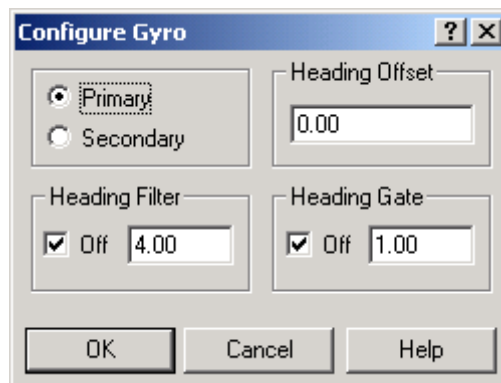
By default, the sensor mode is off, meaning that data from the Attitude device will not be used in the vehicle's calculations. Select 'On' to turn the sensor on and begin using the inclination corrections in the position output.

Correction values can also be added in this section of the dialog. The correction values (entered in units of degrees-decimal degrees) are added to the raw pitch and roll values received from the Attitude device before the data is applied to the vehicle's calculations.

Ensure that entered values adhere to the sign convention used by WinFrog. You can verify that the corrections are entered properly by viewing the pitch and roll values in the I/O Device window and the Vehicle Text window.

Data item: ROV, PIONEER HEX, HEADING

Highlight this data item in the vehicle's device list and click the Edit button to open the Configure Gyro dialog box as seen below.



Calculation (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 with heading information. However, unlike the Position data items, WinFrog does not calculate a weighted mean solution for multiple Heading data items. If more than one Heading data item is set to primary, the vessels heading, in WinFrog, will jump back and forth between the two. Devices set to Secondary are simply monitored, and are not used in the vehicle's calculations.

In the case of Primary device failure, WinFrog will not automatically use the Secondary device(s). You must manually change a Secondary device to Primary status in order for it to be used in the vehicle's calculations.

Heading Offset:

A correction value (as determined from a gyro calibration) can be input in the Heading Offset box. This value is added to the heading value from the device 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.