

<b>WinFrog Device Group:</b>	<b>USBL</b>
<b>Device Name/Model:</b>	<b>MHI Precise ROV POS</b>
<b>Device Manufacturer:</b>	
<b>Device Data String(s) Output to WinFrog:</b>	The message is binary containing a 539 ASCII data block. WinFrog decodes the message to: latitude, longitude and depth. For the format see <a href="#">Appendix 2 PrecisionPositionSystemFormat_4FEB11.pdf</a>
<b>WinFrog Data String(s) Output to Device:</b>	None
<b>WinFrog .raw Data Record Type(s):</b>	POSITION 303

**DEVICE DESCRIPTION:**

The device supports the Precision Positioning System message for positioning underwater vehicles.

***DEVICE CONFIGURATION INSTRUCTIONS***

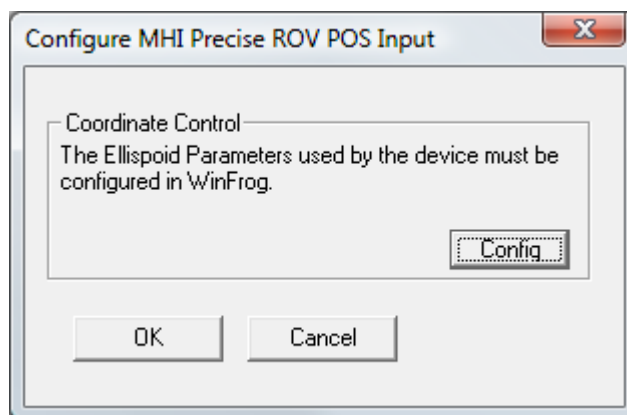
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**WINFROG I/O DEVICES > EDIT I/O:**

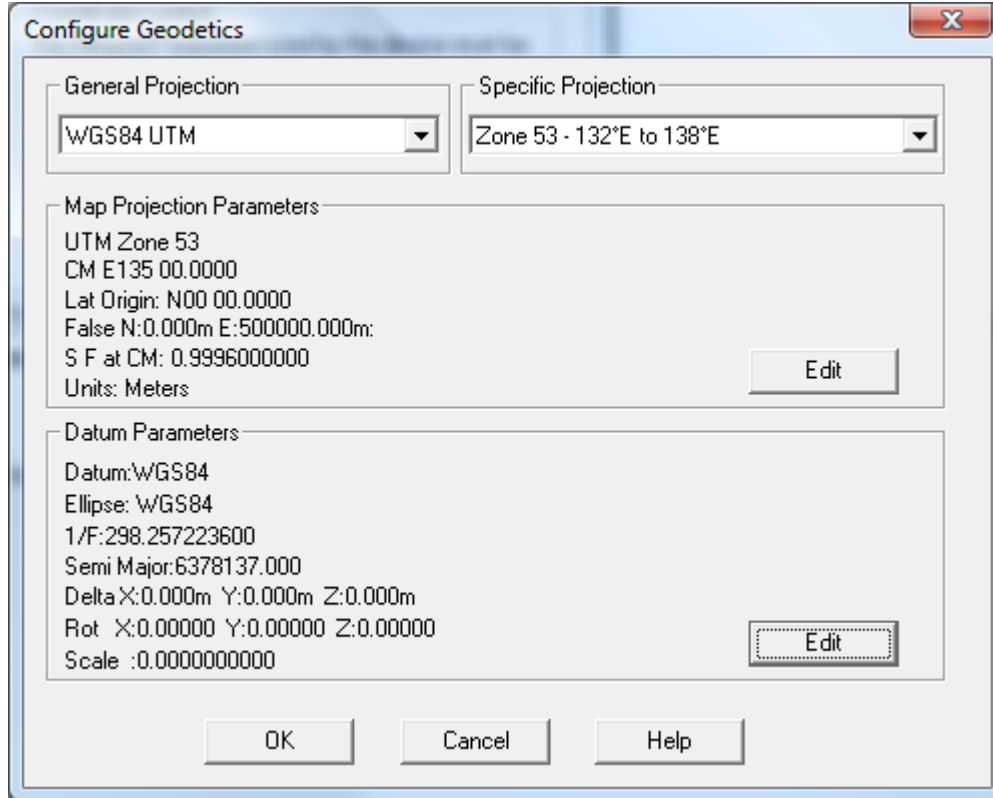
Serial  
Configurable Parameters

**WINFROG I/O DEVICES > CONFIGURE DEVICE:**

This device must be configured at the I/O Device window level. In the I/O Devices window, click the device name to select it, then right-click and select Configure Device. The Configure MHI Precise ROV POS Input dialog box appears, as seen below.



Click the Config button to open the Configure Geodetics dialog as show below.



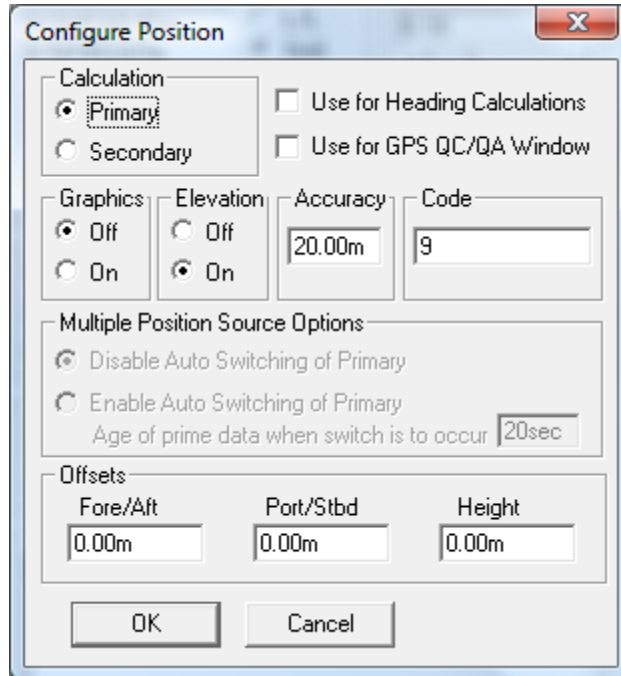
From the **General Projection** dropdown select the datum of the position that is in the telegram. Next, select the zone. If in doubt, select the same items that are used for WinFrog itself found under menu item Configuration>Geodetics.

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

Adding the MHI Precise ROV POS device creates one data item: POSITION. Once the data item has been added to the correct vehicle, it must be edited to suit the application.

#### **Data item: USBL, MHI Precise ROV POS, POSITION**

Highlight the data item in the vehicle's device list and click the Edit button. The Configure Position dialog box appears as seen below.



**Calculation:**

Set the Calculation selection to Primary or Secondary. Devices set to Primary calculation are used to provide a vehicle position. Note that more than one Primary positioning device can be added to a vehicle’s device list; data from these devices will be combined in a weighted mean solution. (See the paragraph on Accuracy below for more on the weighting of Primary calculation device data).

If the Calculation type is set to Secondary, WinFrog will simply monitor the device’s data. WinFrog will not use the data from a secondary device in the final solution of the vehicle’s position.

**Use For Heading Calculations:**

Select this checkbox if the device is to be used in conjunction with another POSITION device for determination of the heading of the vessel. This is unlikely for an underwater vehicle.

**Graphics:**

If On is selected, a labeled square will show the raw (offset but unfiltered) location of the GPS antenna in the Graphics and Bird’s Eye windows. This provides a means of comparing raw device and filtered vehicle positions.

**Elevation:**

Set this on. This is necessary to apply the depth to the vehicle.

**Accuracy:**

The Accuracy value entered provides WinFrog with the expected accuracy of the position from this device. This value is used in the weighting of this device compared to other positioning devices that may be added to the vehicle’s device list. The

smaller the value entered, the more accurate it is considered to be, and hence the more weight that will be applied to the device's data.

The Accuracy parameter can be changed from the suggested values. Changes should be made with caution, however, as they will affect the final filtered position of the vehicle.

**Code:**

Enter the type number from the telegram that is associated with this vehicle. The telegram description document indicates four numbers 2, 7, 8, 9 for ROV, Transponder 1, Transponder 2, and Transponder 3. However WinFrog supports 1, 3, 4, 5 and 6 as well. An invalid code is 0. Note: right-click in the decoded data window to display a list of those types being received. Select one for display.

**Multiple Position Source Options:**

Disable the auto switching for this device.

**Offsets:**

Offsets are required to associate the transponder position with the vessel's Common Reference Point (CRP). The offsets are applied *from* CRP (of the vehicle) *to* the transponder.

Forward Offsets are entered as positive values.

Aft Offsets are entered as negative values.

Starboard Offsets are entered as positive values.

Port Offsets are entered as negative values.

Height Offsets are positive upwards.

## TELEGRAM SPECIFICATION:

Sent from the device to WinFrog. Also see the document [Appendix 2 PrecisionPositionSystemFormat\\_4FEB11.pdf](#)

Field	Data
Operational status	1 if effectively, 0 if invalidity
Date	YYYYMMDD
Time	hhmmss
Status	0 (invalidity), 1 (effectively) or 2 (non-detection).
Target type	0 = invalidity, 2 = ROV 7 = transponder 1, 8 = transponder 2, 9 = transponder 3.
Measurement system	0 = invalidity, 2 = SSBL (Super Short Base Line).
X	range -99999.9 ~ +99999.9 meters ('+' is north)
Y	range -99999.9 ~ +99999.9 meters ('+' is east)
Z	range 00000.0 ~ 99999.9 meters (lower direction is '+')
Azimuth	range: 000.0 ~ 359.9 degrees
Slant range	range 00000.0 ~ 99999.9 meters
Signal to Noise Ratio	range 00.0 ~ 99.9 dB
Latitude	-90 <= latitude <= 90 degrees
Longitude	-180 <= latitude <= 180 degrees
Depth	00000.0 – 99999.9 meters
Hydrophone Rising Status	0 if the rising is complete, 0 if not
Hydrophone Decent Status	0 if the decent is complete, 0 if not
Roll angle	range: -30.0 ~ 30.0
Pitch angle	range: -30.0 ~ 30.0
Hydrophone Depth	range: 00.0 ~ 99.9, the lower direction is +
Hydrophone Water Temperature	range: 0.0 ~ 99.9 Celsius