

<b>WinFrog Device Group:</b>	<b>USBL</b>
<b>Device Name/Model:</b>	<b>GAPS STD</b>
<b>Device Manufacturer:</b>	<b>IXSEA</b> http://www.ixsea.com
<b>Device Data String(s) Output to WinFrog:</b>	See Telegram Specification section below.
<b>WinFrog Data String(s) Output to Device:</b>	NONE
<b>WinFrog Data Item(s) and their RAW record:</b>	POSITION            303 The GAP's position validity is placed in the 303's status field.

**DEVICE DESCRIPTION:**

The GAPS (Global Acoustic Positioning System) USBL (Ultra Short Base Line) system is portable with integrated INS (Inertial Navigation System) and GPS. The GAPS system can be used for mobile and fixed installations.

WinFrog uses only the PTSAG telegram and assumes the coordinates are WGS84.

See the GAPS manual, MU\_GAPS\_AN\_003\_h.pdf, for details.

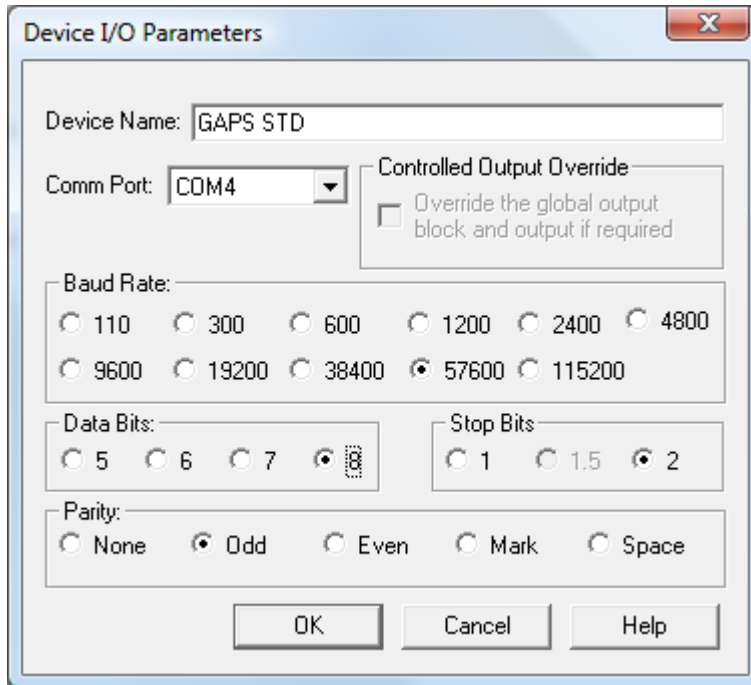
***DEVICE CONFIGURATION INSTRUCTIONS***

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

Data communication for this device is transferred via a serial connection to WinFrog. In order for the GAPS device to communicate with WinFrog, the GAPS device must be serially connected to the WinFrog computer.

When the device is added to WinFrog, the Device I/O Parameters dialog box appears, as seen below. (To access this dialog again, in the I/O Devices window, click the device name to select it, then right-click and select Edit I/O.)



Enter the correct parameters used by the GAPS device. The device name can also be changed from this dialog.

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

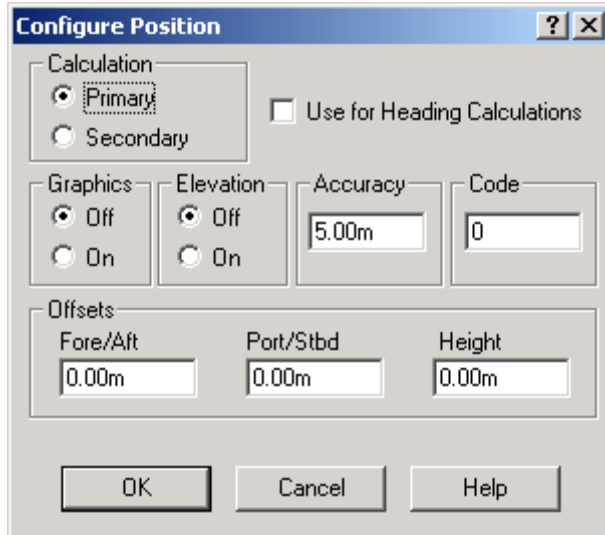
No configuration is required at the I/O Device window level.

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

Adding the GAPS STD device creates the POSITION data item.

#### **Data item: USBL, GAPS STD, POSITION**

The Position data item must be edited once it is added to a vehicle's device list. Highlight the POSITION 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 vessel position. Note that more than one Primary positioning device can be added to a vehicle's device list and 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 position data from the device in the final solution of the vehicle's position.

Note: In the case of Primary device failure, WinFrog will not automatically use the Secondary devices for the vessel's position computation. Instead, the vehicle's positioning will go to dead reckoning (if dead reckoning is turned on). You must manually change a Secondary device to Primary in order for the data to be utilized.

**Use For Heading Calculations:**

This option does not apply to this device.

**Graphics:**

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

**Elevation:**

You must set this to **On** for the depth to be applied 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, however, changes should be made with caution as they will affect the final filtered position of the vehicle.

**Code:**

You must set the Code to match the code or ID of the beacon being used. This code is included in the USBL data telegram from the GAPS system. Valid transponder (beacon) codes are 1 to 128. Another valid code is 0, which is the ship.

**Offsets:**

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

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:**

Field	Data
1	\$PTSAG
2	Reference frame number
3	Time
4	Day
5	Month
6	Year
7	Code
8	Latitude
9	Latitude Hemisphere
10	Longitude
11	Longitude Hemisphere
12	Position validity. Validity of the four channels, one bit per channel, 1=OK (0 to F hex). This value is placed in the 303's status field.
13	Calculated depth
14	Depth validity 0=None; 1=calculated; 2=sensor
15	Sensor depth