

WinFrog Device Group:	GPS
Device Name/Model:	NOVATEL TELEMETRY
Device Manufacturer:	NOVATEL INC. 1120 - 68th Avenue N.E. Calgary, Alberta, Canada, T2E 8S5 Tel: U.S. & Canada: 1-800-NovAtel Fax: (403) 295-4501 E-mail: gps@NovAtel.ca
Device Data String(s) Output to WinFrog:	Pseudorange Data
WINFROG DATA STRING(S) Output to Device:	Polling Command. Remotes interrogated sequentially by ID. Almanac and Ephemeris requested after several good RINGA records (to set # of SV's).
WinFrog .raw Data Record Type(s):	303,PR-NOVATELE1

DEVICE DESCRIPTION:

The NovAtel TELEMETRY device is a single unit that combines a GPS receiver with a UHF transmitter. This device is typically installed on an unmanned vehicle (such as a tail buoy) or a vehicle for which a dedicated WinFrog system is not required, such as an anchor tug. The NovAtel TELEMETRY device receives and in turn transmits GPS pseudorange information to a master WinFrog system. WinFrog receives the transmitted pseudoranges, then combines them with ephemeris and (optionally) RTCM pseudorange corrections to calculate the remote antenna position.

The NovAtel TELEMETRY device is similar to the Fugro Pelagos' GPS POD device with the exception of the GPS receiver used. (GPS Pods use the Ashtech Sensor II GPS card).

DEVICE CONFIGURATION INSTRUCTIONS:

Baud Rate: 9600

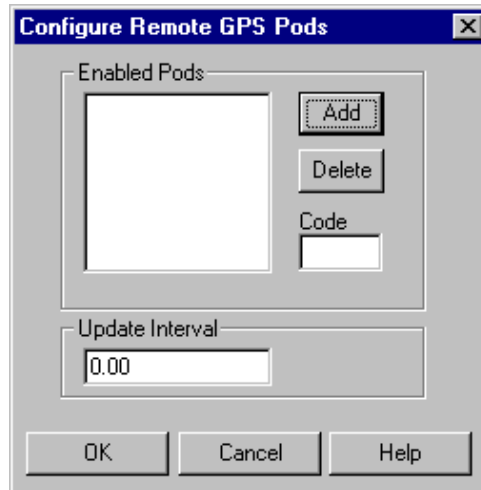
Data Bits: 8

Stop Bits: 1

Parity: none

WINFROG I/O DEVICES > CONFIG OPTIONS:

The NovAtel TELEMETRY device is added to WinFrog from the GPS device category. This device must be configured at this level. Highlight the NOVATELE1 device then right-click and select the Configure Device option. The Configure Remote GPS Pods window will appear as seen below.



Enable Pods:

Each NovAtel Telemetry device to be tracked requires unique Remote and Code numbers. The Remote and Code values are added as follows: click the *Add* button, enter the corresponding Code in the Code entry window, and then click on the line associated with the associated Remote in the Enabled Pods entry window. The Code of the associated Remote will change to the code number specified. The Remote numbers are automatically incremented for each remote unit added. The Remote unit's Code value is designated when the telemetry unit is programmed. The above steps must be performed for each NovAtel Telemetry device added, with unique Codes entered for each Remote. Note that Code 0 cannot be assigned to a Remote. This code value is reserved for the master unit.

Remotes can be deleted by highlighting the desired remote and clicking the Delete button.

Update Interval:

An update interval must be assigned in the Update Interval Box. The update value to be entered depends on the number of remotes included in the network. A value of 4.5 seconds is suggested as a starting point.

WINFROG VEHICLE > CONFIGURE VEHICLE DEVICES > EDIT OPTIONS:

Adding the NovAtel TELEMETRY device to WinFrog creates the GPS, NOVATELE, PSEUDORANGE data item. This Pseudorange data item must be added to the appropriate (remote) vehicle's device list, then edited to suit that particular installation/application. Highlight the Pseudorange device in the vehicle's device list, then select the Edit button. The Pseudorange Calculation dialog box appears as seen below, allowing you to define, among other things, antenna offsets and DGPS mode.

See the GPS Pods device documentation for further information on the configuration of this window.

Note: This vehicle's device list must also include an Ephemeris device. Another GPS receiver interfaced to the WinFrog computer must provide this information. If the remote's GPS position is to be differentially corrected (i.e. DGPS), you must also add the RTCM device to this remote vehicle's device list.

CONFIGURATION DETAILS:

The NovAtel GPS card must be programmed to output the required Pseudorange information. For GPS card configuration details, refer to the NovAtel manual.

Radio Configuration:

Teledesign brand radio transmitters are typically used by Fugro Pelagos, although other types such as Magnavox can be used. For a network system to work correctly, the radios should be of the same type.

To configure a Teledesign 9600 radio you must set the code as well as the transmit and receive frequencies. The code is controlled by dipswitches found on the radio. To set the radio to code 1, set switch 8 to the "on" position and all other switches to "off". To set code 2, switch 7 and 8 "on", all others "off". To set code 3, set switch 6 on, and switch 7 and 8 "off".

The radio's transmit and receive frequencies are set by sending specific program messages to the radio. Before you begin programming, you must set the radio to program mode by switching the small switch found on the top of the radio.

Programming a TSI 9600 radio modem is best accomplished by using the HyperTerminal program. HyperTerminal is found on all WINNT systems under the Start> Programs> Accessories menu. Type in a name for your radio programming session, which you will probably want to save, and press enter. Select the correct communications port (according to the one that you are currently interfaced to) with the appropriate settings, as follows:

Baud rate: 9600 in bits per sec

Data Bits: 8

Stop Bits: 1

Parity: none

Flow control: none

Click OK.

Click File.

Click Properties.

Click Settings.

Click ASCII set up.

Turn on Echo typed characters locally.

Click OK.

Click OK.

On your keyboard, set caps lock.

The programming control string is: +TSC01RXXX.XXXXTXXX.XXXX
(where X= the frequency expressed in MHz).

The frequency can be anything between 450.0000 and 470.0000 MHz.

Be sure you include the decimal point, type all four decimal places, set "caps lock" on. If and when you have sent a successful program command, when you type in the last digit, the radio will flash three times. Note that all radios in the network must have the same transmit and receive frequencies.

Note: The radio modem does not recognize backspace, delete, spacebar, lower case characters, or any other keyboard functions, so be certain you type everything exactly as listed above. After a successful program, switch the Program/Operate switch back to the operate position.