PocketMAX PC

Reference Manual

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Preface

Customer Service

If you encounter problems during the operation of this software, or cannot find the information you need, please contact your dealer, or CSI Wireless Customer Service. The contact numbers and e-mail address for CSI Wireless Customer Service are:

Telephone number:	+1-403-259-3311
Fax number:	+1-403-259-8866
E-mail address:	techsupport@csi-wireless.com

Technical Support is available from 8:00 AM to 5:00 PM Mountain Time, Monday to Friday.

World Wide Web Site

CSI Wireless maintains a World Wide Web home page at the following address:

www.csi-wireless.com

A corporate profile, product information, application news, GPS and DGPS literature, beacon coverage information, and software are available at this site.

Document Conventions

Bold is used to emphasize certain points.

Notes and Cautions

Notes and Cautions stress important information regarding the configuration and operation of the PocketMAX PC program.

Note - Notes outline important information of a general nature.

Cautions - Cautions inform of possible sources of difficulty or situations that may cause damage to the product.

1. PocketMAX PC Utility

PocketMAX PC is a freely available Windows PC (2000, ME and XP versions) utility designed for use with CSI Wireless SLX and SX-1 based products, including the MiniMAX, DGPS MAX, Vector (PRO/Lite/Sensor) and the PowerMAX. As this utility was not designed specifically for any one product alone, it supports features not offered by every product, however, the interface may be used for all I/O operations.

This software offers you the following flexibility:

- Tune your beacon, WAAS and OmniSTAR receivers and monitor reception
- Configure GPS message output and port settings
- Configure and monitor Vector related settings
- Record various types of data

PocketMAX PC runs on any PC or laptop computer with the operating systems Windows 200, Windows ME or Windows XP. The most current version of PocketMAX PC can be downloaded from the CSI Wireless website, or it can be made available to you by contacting CSI Wireless Inc.

Once you have saved the PocketMAX PC executable to your computer, the program can be started by clicking on the file name or icon. The following figure is an example screen capture from this utility.

Caution – It is important to note that when you are using PocketMAX PC, the program is doing many operations behind the scenes. This includes modifying the data output from the serial port as the program requires, which is screen dependant. When you close PocketMAX PC, it will confirm if you want to save any configuration changes. Once you have the settings configured properly for you, it is imperative to let the program close completely on its own before you disconnect or power down the receiver. This may take up to 10 seconds. If this is not performed, the receiver will not be configured as you feel it should, and can output a mixture of binary and NMEA data.

Figure 1-1 PocketMAX PC Splash Screen

1.1 Connecting to PocketMAX PC

1.1.1 Serial Communication

First power on the receiver and connect it to your computer's com port. A configuration screen, Figure 1-2 below, will appear and you will be prompted to choose the COM port and baud rate of the receiver. You also have the option of allowing the program to cycle through all baud rates if you don't know your current communication settings (the Auto-Baud feature). Another option you have at this point is to use the "Demo Mode" button. If you tap this button instead of the "Search" button, PocketMAX PC will allow you to view all the different screens without being connected to a receiver. This mode may be useful to get comfortable with the program, or to demonstrate the software if you don't have a receiver nearby.

You can also monitor your connection status through the icon at the lower right of the screen. If the two cables are shown as connected, then your computer still has a valid connection with the receiver.

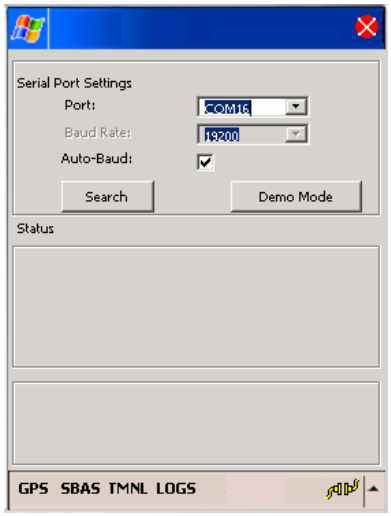

Figure 1-2 Serial Port Settings Screen

If you are properly connected, the Status window will display a 'Receiver Found' message as shown in Figure 1-3. You will then be prompted to choose your receiver type. There are three receiver types to choose from. The MiniMAX and DGPS MAX are classified as "CSI GPS" products. If you have a COM port to Bluetooth™ or USB to Bluetooth™ adaptor in conjunction with either a PowerMAX or BlueMAX the receiver type will be classified as a "CSI Bluetooth" product and the Vector family is classified as "CSI Vector". You can also choose the check box to "Generate Report". This option brings up a summary of the receiver's settings (Figure 1-4) and then gives you the option of closing the program or continuing on if you would like more information or if you'd like to change the settings.

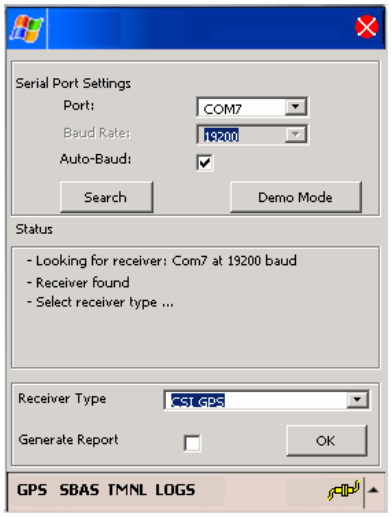

Figure 1-3 Connection Established Screen

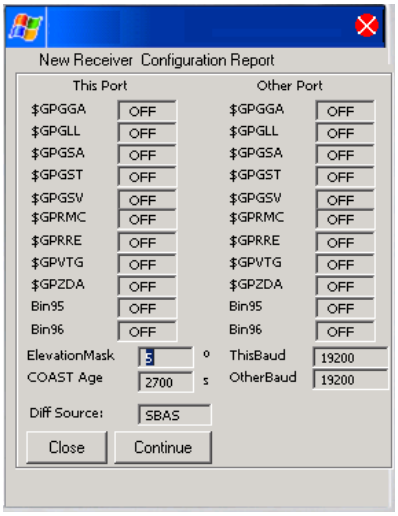

Figure 1-4 Configuration Report Screen

If you get a message “Receiver not found…”, check your connections, your com port and your baud rate and try again.

1.2 Using PocketMAX PC

Once you have successfully connected PocketMAX PC to your receiver, the screen will look similar to Figure 1-5 below.

The buttons along the bottom of the window are the main menus and are used to switch screens within PocketMAX PC. The primary menu buttons along the bottom are as follows: GPS (Global Positioning System), SBAS (Space Based Augmentation System, which includes WAAS and EGNOS) **or** BEAC (Beacon) **or** LBAND (OmniSTAR), TMNL (Terminal), LOGS and HDG (Heading – only appears when you select a Vector receiver type).

Within each of these menu buttons, there are tabs along the top, as shown in the figure below. These tabs allow you to navigate within the menu and vary in number and name depending on which main menu you are currently in.

There are three indicator lights along the bottom of the screen, just above the menu buttons (four if you are using a Vector product). The first indicator light is either grey or green and indicates either your communications or your position fix status. The second light is either grey or yellow and indicates whether or not you are tracking GPS signals. The third light is either grey or yellow and it indicates whether or not you are successfully tracking your differential source. If you are using a Vector product, then there will be a fourth light named Heading which will be either grey or blue to indicate whether or not you have a valid heading.

1.2.1 GPS Menu

Within the GPS menu button, the tabs are: Pos'n (Position), Sats (Satellites), Setup, Precision, Plot and About.

The Position tab contains all the main position information, including latitude, longitude, altitude, speed and precision, all with configurable formats. There is also other information in this tab, including the differential source.

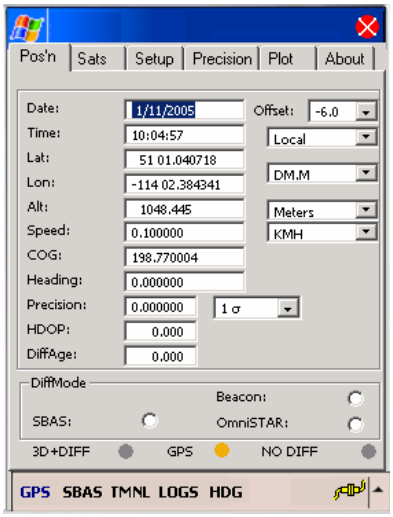

Figure 1-5 GPS Position Screen

Note: When the receiver is receiving GPS information from satellites, the fields Lat, Lon, Date and Time in the GPS Position screen will all report current information. If these fields stop updating every few seconds, then you likely have a GPS or antenna problem.

The Satellite tab has a sky plot of viewable satellites, how many satellites the receiver is tracking, the PRN numbers of which satellites are being tracked and the bit error rate of the differential source. The receiver should be tracking at least 4 GPS satellites in order to compute a position, and ideally between 5 and 12 for best performance.

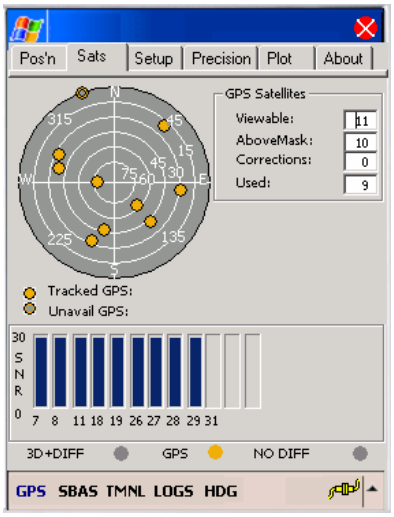

Figure 1-6 GPS Satellites Screen

The Setup tab allows you to change the configuration of the receiver including turning on and off NMEA messages, the elevation mask, the maximum COAST™ age and the baud rates.

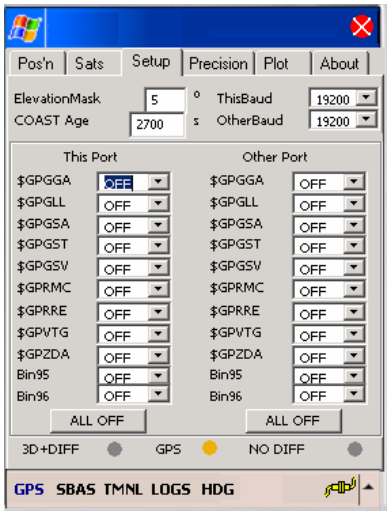

Figure 1-7 GPS Setup Screen

The Precision tab gives a graphical representation of horizontal accuracy in the form of an error ellipse. It also displays numerical precision in northing, easting, and altitude components in configurable formats.

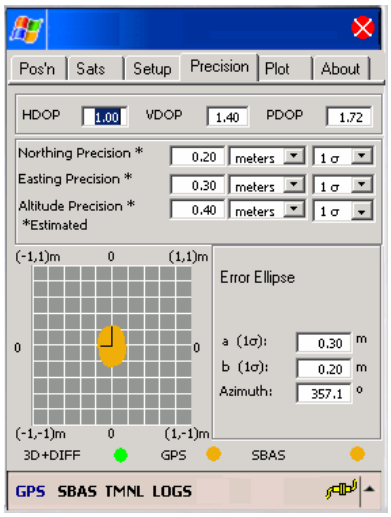

Figure 1-8 GPS Precision Screen

The Plot tab plots the northing or easting error over time and allows you to adjust your scale and timeline as required. This plot allows you to monitor performance over a time period with respect to either a known coordinate or an arbitrary one.

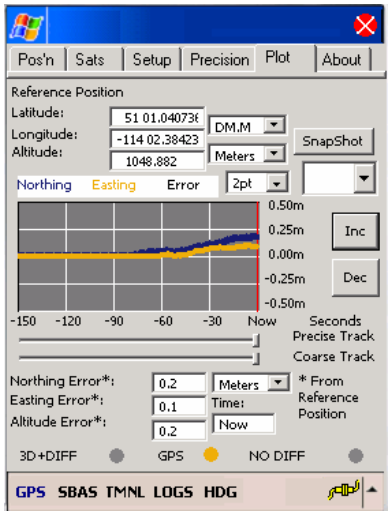

Figure 1-9 GPS Plot Screen

The About tab allows you to capture the current firmware version of the receiver.

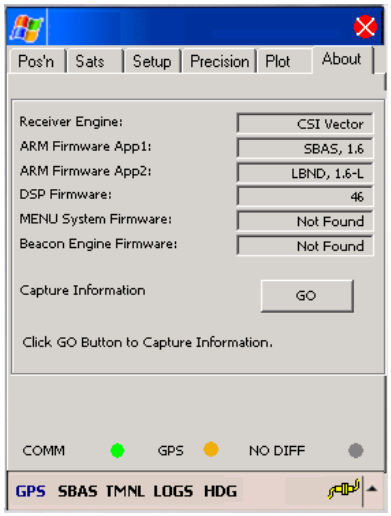

Figure 1-10 GPS About Screen

1.2.2 Differential Source

Within the GPS menu button, in the Pos'n tab, the box at the bottom of the screen labeled DiffMode is where you can change differential sources. The other place you can change the differential mode is in the menu for the differential source (either SBAS/BEAC/LBAND), in the Status tab. In either of these, you can switch between SBAS (WAAS/EGNOS) and Beacon (or OmniSTAR if applicable) just by tapping the circle beside the desired differential source. By switching the differential source, the menu along the bottom of the screen will automatically update to reflect the current configuration

1.2.3 SBAS Menu

Within the main SBAS menu button, the tabs are: Status and Plot.

The Status tab provides details of the satellites being used in the SBAS differential system, which covers both WAAS and EGNOS. The PRNs, longitude, elevation and azimuth, and the bit error rate of the satellites that are being tracked are also displayed. The SBAS Bit Error Rate shows the quality of the SBAS data received from the satellite(s). This number(s) should stay below 150 to maintain differential lock. Ideally, this value will remain between 0 and 50.

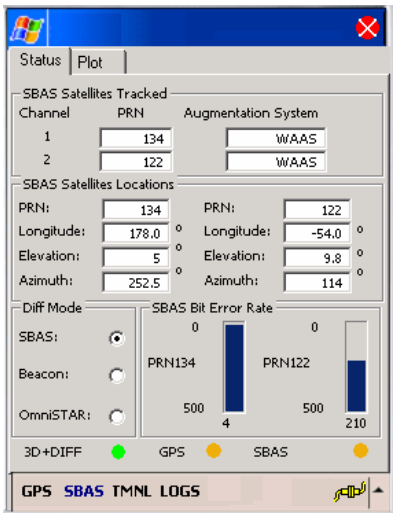

Figure 1-11 SBAS Status Screen

The Plot tab charts and gives a bar graph of the bit error rate (BER) of up to two SBAS satellites being tracked, however only one satellite is required to provide corrections.

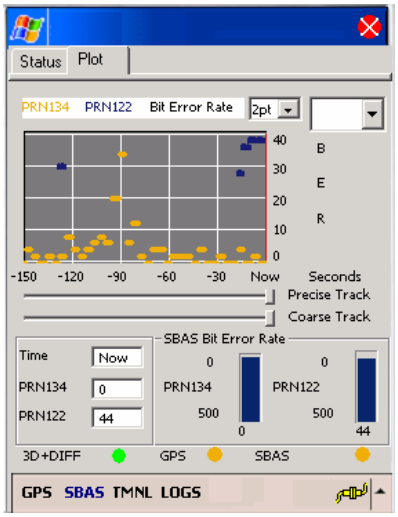

Figure 1-12 SBAS Plot Screen

1.2.4 BEAC Menu

The tabs within the beacon menu button are Status, Tune and Plot.

The Status tab provides details of the beacon station providing corrections, including the name (if available), the frequency and the MSK rate, as well as the signal strength (SS) and signal-to-noise ratio (SNR) values.

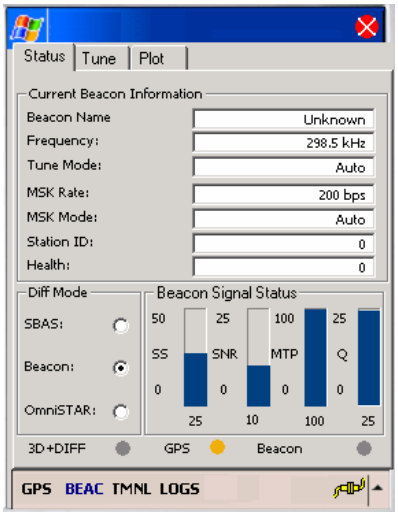

Figure 1-13 Beacon Status Screen

The Tune tab gives you the option of automatically tuning to the strongest signal, specifying a specific frequency or MSK bit rate, or selecting a station by region. Once you have made your selections, you must press the adjacent 'Tune' button for the settings to take place.

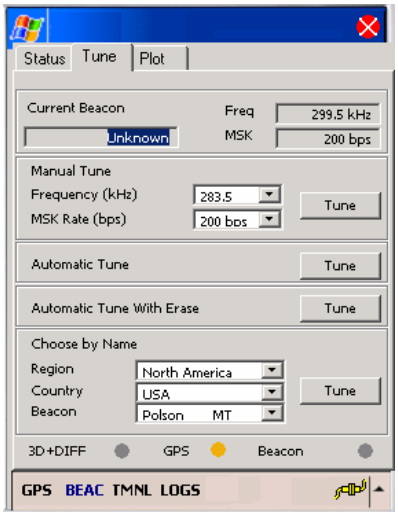

Figure 1-14 Beacon Tune Screen

The Plot tab charts the signal strength, the signal to noise ratio (SNR) or the frequency of the beacon signal.

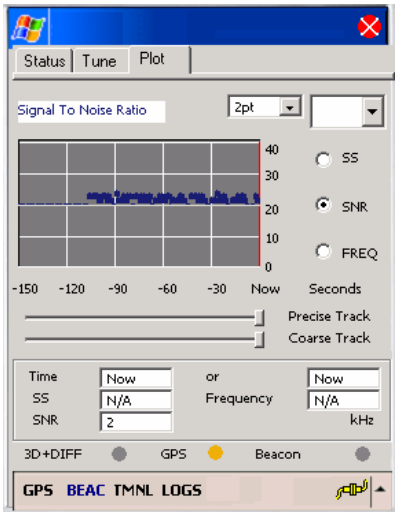

Figure 1-15 Beacon Plot Screen

1.2.5 LBAND Menu

The tabs within the L-Band (OmniSTAR) menu button are Status, Tune, Subscription and Plot.

The Status tab gives the name (if available), the frequency and the data rate of the L-Band satellite that is currently being used. It also gives the bit error rate, the satellite location and the status information.

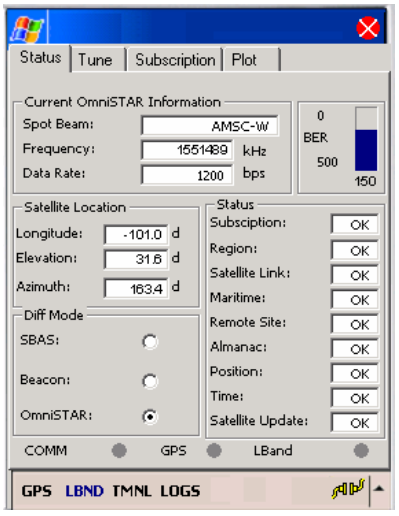

Figure 1-16 L-Band Status Screen

The Tune tab gives the name (if available), the frequency and the data rate of the L-Band satellite that is currently being used. It also gives the option of tuning manually by frequency and data rate, automatically or by the name of the satellite.

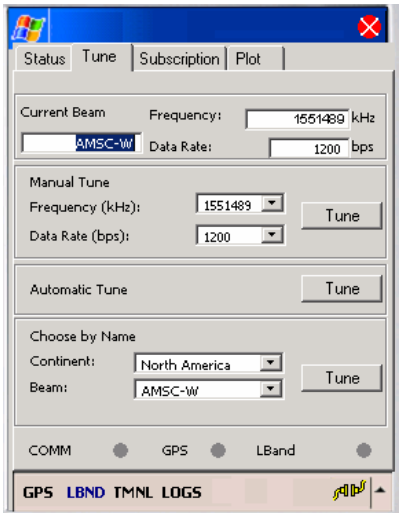

Figure 1-17 L-Band Tune Screen

The Subscription tab provides the begin and expiry dates of the subscription as well as the serial number of the unit and the countdown timer which gives you the amount of time you have left in your subscription.

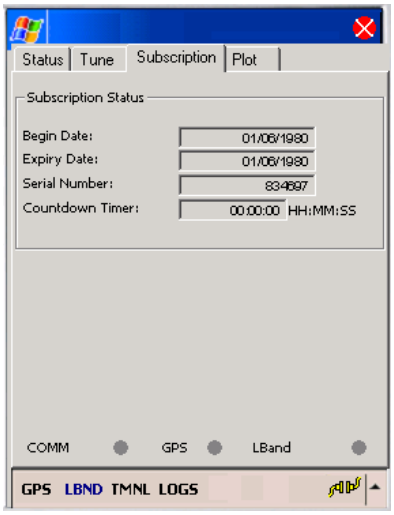

Figure 1-18 L-Band Subscription Screen

The Plot tab plots and gives a bar graph of the bit error rate (BER) of the L-Band satellite being tracked.

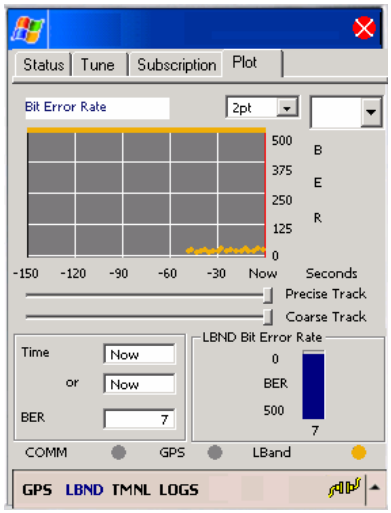

Figure 1-19 L-Band Plot Screen

1.2.6 The TMNL Menu Button

The tabs within the terminal menu button are Terminal and Hot Keys.

The Terminal tab gives you direct terminal access to the receiver for issuing commands and observing their response. The commands to communicate with the receiver are available in the Programming Manual. Once you have typed in the command, press Send, and the response will appear in the window above. If you wish to re-enter a command you have previously entered, you may also select it from the dropdown menu.

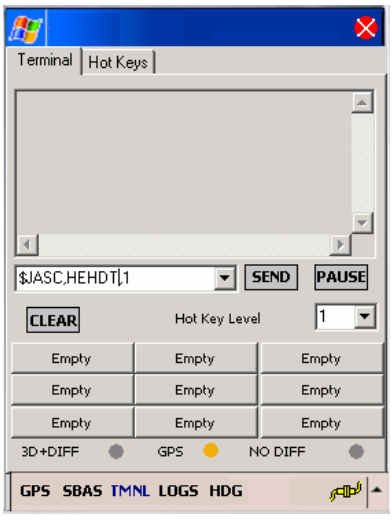

Figure 1-20 Terminal Screen

The Hot Keys tab allows you to set up frequently used commands, and assign them to the buttons displayed in the Terminal tab. The name of the key is entered in the left column, while the command is in the right column. There are 4 levels of hot keys, with 9 buttons each, for a total of 36 available buttons for programming.

The Hot Keys tab allows you to set up frequently used commands, and assign them to the buttons displayed in the Terminal tab. The name of the key is entered in the left column, while the command is in the right column. There are 4 levels of hot keys, with 9 buttons each, for a total of 36 available buttons for programming.

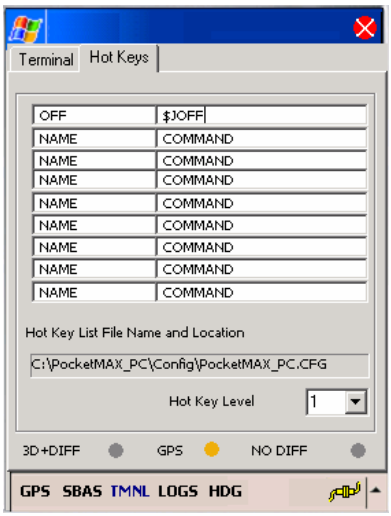

Figure 1-21 Terminal Hot Keys Screen

1.2.7 The LOGS Menu Button

The tabs within the LOGS menu button are NMEA, Raw Data and Binary. For more information on each particular type of message that can be recorded, please refer to your receiver's manual.

When logging data you will have three options: to Append to Existing File, Overwrite Existing File or to Create New File. When appending to or overwriting an existing file, you must select Browse to choose the appropriate file to modify. If writing a new file, the default file name of DYYMMDDx.txt is generated, specifying YY(year), MM(month), DD(day), x (numbers new files to differentiate between multiple files created on the same day). This may be overwritten with whatever name you wish to assign the file.

The NMEA tab allows you to setup NMEA messages to be logged. You can then browse for the location of the file and start recording data. When you have collected all of the data, press Stop to end recording.

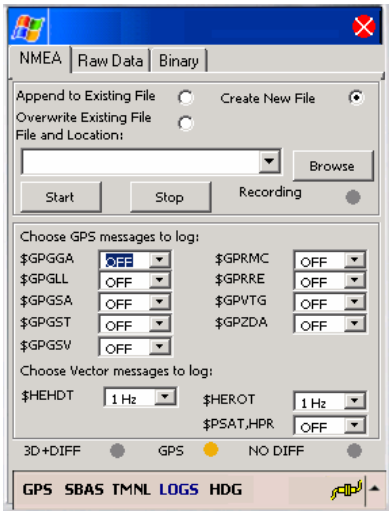

Figure 1-22 Logs NMEA Screen

The Raw Data tab allows you to log the raw binary 95 and 96 messages for post-processing.

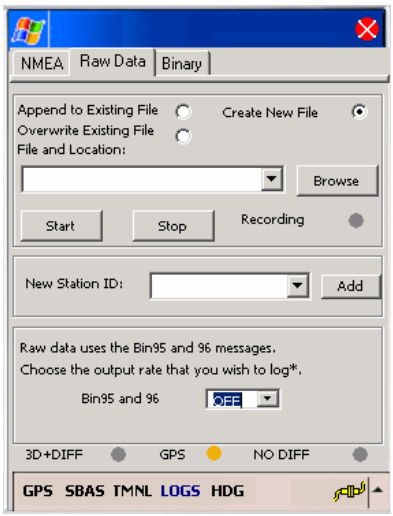

Figure 1-23 Logs Raw Data Screen

The Binary tab allows you to log a variety of binary messages.

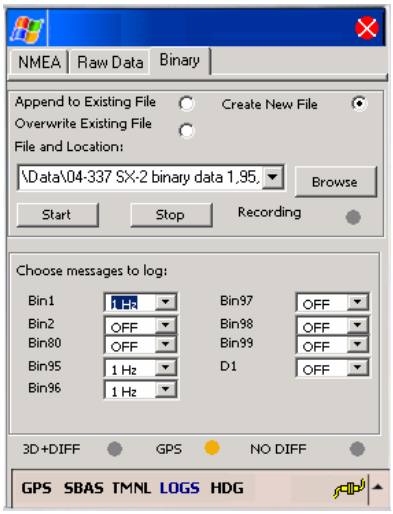

Figure 1-24 Logs Binary Screen

1.2.8 The HDG Menu Button

The tabs within the HDG (heading) menu button are Status, Setup and Plot.

The Status tab gives you a graphical representation and numerical values for heading, rate of turn (ROT), course over ground (COG) and speed. By pressing GO, this is equivalent to issuing the $JSEARCH command, and causes the receiver to reject its current RTK solution and re-compute heading.

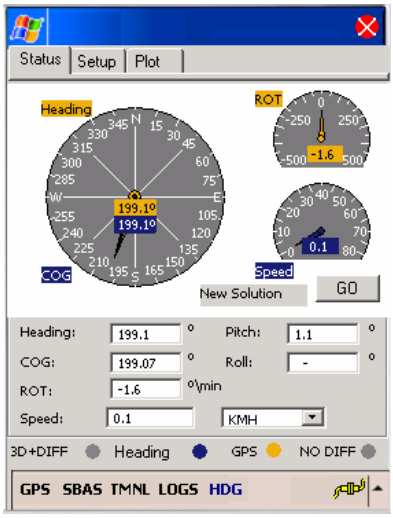

Figure 1-25 Heading Status Screen

The Setup tab shows you the current configuration that is unique to the Vector products and allows you to change this configuration.

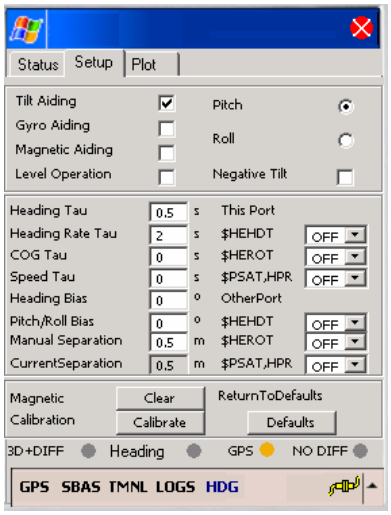

Figure 1-26 Heading Setup Screen

The Plot tab plots the current heading and also displays the current rate of turn.

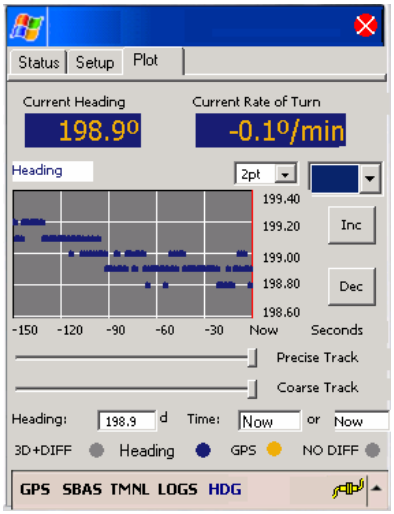

Figure 1-27 Heading Plot Screen

1.3 Closing PocketMAX PC

The process of closing PocketMAX PC is critical in the proper configuration of your receiver. It is very important to let PocketMAX PC fully close in order to allow it to first configure your receiver and secondly display a report of the new configuration before exit. When you tap on the 'X' in the upper right hand corner of the program to exit, the following screen will appear.

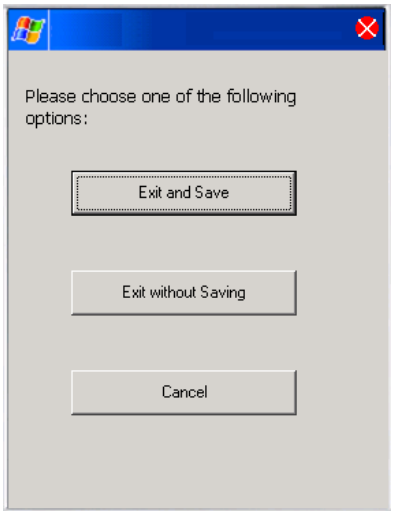

Figure 1-28 Exit Screen

Exit and Save will close the program and save any configuration changes you have made. If you do not wish to save your modifications, then Exit Without Saving. Otherwise, if you wish to return to using PocketMAX PC, press Cancel. If you have selected to save the changes, the screen below will be seen. It is imperative to let the program complete all of the steps to close and save the configurations properly.

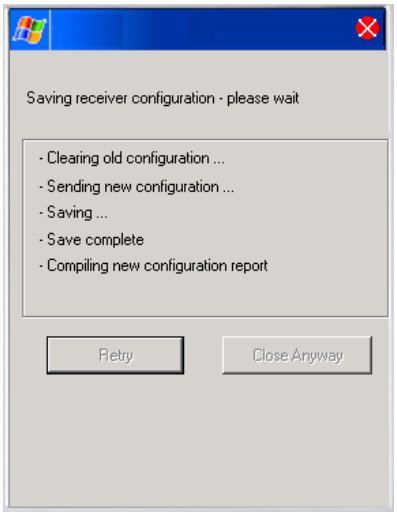

Figure 1-29 Closing Screen

PocketMAX PC will automatically jump to the configuration report so that you can verify that all the settings are correct for your application. See the configuration report in the figure below.

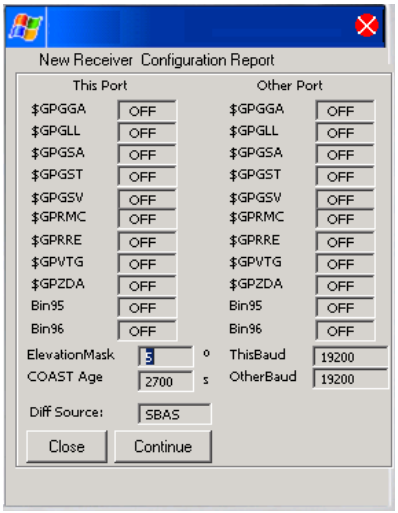

Figure 1-30 Configuration Report Screen

From this screen you have the option of going back into PocketMAX PC to change the configuration and then closing again. Or, if you are happy with the current configuration, clicking the Close button will close the program and save all the settings to the receiver. It is vital to allow PocketMAX PC to close and to not disconnect your receiver from the PC until the close is complete. Otherwise, you risk saving the wrong settings.

Caution – You may lose settings that you have configured using PocketMAX PC if you disconnect or power down your receiver while PocketMAX PC is still running. Be sure to let it close completely.