iNetVu® by C-COM Satellite Systems Inc.

iNetVu® 7000 Series Controller User Manual
With SW/FW 7.5.8.0

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NOTICE

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FCC and INDUSTRY CANADA INFORMATION TO THE USER:
The FCC and Industry Canada have imposed the following conditions when operating, installing and deploying iNetVu® Mobile Earth Stations and is mandatory for all installations made within the Continental United States and Canada as well as Hawaii, Alaska, Puerto Rico, the U.S. Virgin Islands and other U.S. Territories. The FCC requires that a certified installer perform the installation. It is also strongly recommended that a qualified professional RV dealer/installer mount the system on your vehicle. These conditions are also required by C-COM for all other installed locations.

All iNetVu® Mobile earth station installers must be C-COM Certified, and must have specifically acknowledged the requirements for iNetVu® Mobile installations, which are as follows:

1. "Installation" is the physical mounting and wiring of the Satellite provider's earth station on a vehicle or other stationary site in order to prepare for correct operation. Only Certified C-COM iNetVu installers may perform the installation and removal of an iNetVu® Mobile system.
2. "Deployment" means the raising, pointing and orienting of the earth station to the communicating satellite, every time it is raised from a stowed position for use. The deployment of an iNetVu® Mobile system must only be done by a trained installer or by a consumer using the deployment software.
3. Installers shall install the iNetVu® systems only in locations that are not readily accessible to children and in a manner that prevents human exposure to potential radiation hazards.
4. For large vehicles with roof mounts, the height of the bottom lip of the earth station when fully deployed must be at least six feet above the ground at all times, or six feet above a surrounding surface which a person may easily access.
5. If a roof access ladder or any other means of access to the roof is installed on the vehicle, then the ladder or access must be blocked by a suitable rope or other barrier while the earth station is deployed or in operation. The installer must provide this rope or barrier directly to the end user at the time of installation and advise the user to use it at all times when the earth station is deployed or in operation. Warning signs shall also be provided by the installer to the end user to be posted on the improper installation or due to the failure to provide required information to the end user.
6. Installers and end users will be deemed directly liable for any damages resulting from either of their failure to comply with the above rules. These rules are meant to ensure that extraordinary precautions and measures are used to prevent satellite interference or exposure to harmful radiation. C-COM reserves the rights to immediately **suspend without liability or previous notice** the operation of the earth station upon detection of a deviation from its installation or operational requirements until the deviation is corrected. In addition, C-COM reserves the right to suspend or cancel the Installer Certificate of any installer that has not fully complied with these installation requirements.

7. Further, the installer and end user may be directly liable for any damages resulting from any change undertaken by either of them. Including but not limited to, any modification of any part of the hardware, software, specific operational frequencies, the authorized satellite, or the size or other characteristics of the earth station supplied to them by C-COM or C-COM's authorized representatives. Warning signs shall be posted at prominent locations on the earth station informing all persons of the danger of harmful radiation from the earth station while it is deployed or while in operation.
8. The iNetVu® Mobile system may only be operated when the vehicle is stationary.
9. The installer must inform the end user that the vehicle must be stabilized during the transmission, to prevent movement of the vehicle for any reason, including movement of persons on or off the vehicle, or high winds. The installer shall advise the end user how to appropriately stabilize their vehicle.
10. Installers shall be liable for all damages if they fail to comply with the above mandatory conditions. This includes, but is not limited to damages caused by improper installation or due to the failure to provide required information to the end user.

Note 1:
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this instruction manual, may cause harmful interference with radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio / TV technician for help.

Note 2:
This Class B digital apparatus complies with Canadian ICES-003.

Table of Contents

1. Introduction

The iNetVu® 7000 Series Controller is a one-box, one-touch solution for satellite auto-acquisition. Designed to interface with a number of Satellite Modems, iNetVu® VSATs, and DVB-S/DVB-S2ACM Receivers, the iNetVu® 7000 Series Controller is an easily configurable and operated antenna controller unit which now comes with the combined GPS/GLONASS Satellite Navigation System.

Fig. 1:   *iNetVu® 7000 Series Controller*

The iNetVu® 7000 Series Controllers are fully functional and configurable straight out of the box solution. No PC or monitor required. An I/O GLONASS/GPS Module inside and the capability to connect an external GLONASS/GPS device via serial port, a DVB-S2ACM/CCM Tuner, an onboard LCD displaying real-time system status, and a Keypad Navigator, makes using the iNetVu® 7000 Series Controller extremely simple.

The iNetVu® 7000 Series Controllers along with any iNetVu® platform can work as a complete stand-alone unit. No modem or RF splitters are required for satellite acquisition. The LNB can be powered straight from the controller.

Equipped with a 32-Bit Micro-Controller, the iNetVu® 7000 Series Controllers obtain extremely precise readings from all axes resulting in quicker and more reliable satellite acquisition time.
The 7000 Series Controllers are compatible with iNetVu® legacy systems in the field. Existing users can easily upgrade to this new line of controllers.

2. Specifications

Dimensions:	Width: 17.1" x Depth: 11.0" Height: 2.0"
Weight:	9.9 lbs. (4.5 kg)
Operating Temperature:	-20°C to +50°C
Elevation Output:	12VDC, 15A (Max.)/24 VDC, 8A
Azimuth Output:	12VDC, 10A (Max.)/24 VDC, 6A
Polarization Output:	12VDC, 3A (Max.)/24 VDC, 2A
Power Consumption (Idle):	12VDC @ 1A /24 VDC @ 0.5A
Universal AC Input:	100 – 240 VAC, 2.2 – 1.1 A, 50/60 Hz
Motor Control Connector:	9 Position Circular AMP Connector
Signal Input:	Female DB26 Connector
GPS Connector:	SMA (Sub-Miniature Version A)
Rx Connector:	Type F RG6
PC Interface:	USB Interface
	Network Interface
	Serial Interface
	Web Interface
Front Panel Interface:	Automatic and Manual Control Keypad
	LCD Screen and Keypad Navigator

Tuner Specifications

RF Input Range:	950MHz to 2150MHz
Input Signal Level:	-65dBm to –25dBm
Input/Output Impedance:	75 Ω
Symbol Rate:	~1 to 45Msps

NOTE **Controller specifications include/cover model 7000B, 7000C, 7024A, 7024B and 7024C**

3. Minimum Recommended PC Requirements

Operating System	Windows XP, Vista, W7 and W8
CPU	2.0 GHZ
Memory (RAM)	1.0GB
MSN.Net Framework	3.5 installed

4. Physical

Front Panel LEDs

LCD Screen

Manual Control Buttons

Automatic Control Buttons

Keypad Navigator

Reset Button

Ground protection

External grounding connection

GPS

GPS Antenna Interface

RX OUT

Additional Receive Signal output

LAN

Network Interface

Power Input

90-264 VAC Power Input and Switch

12/24 VDC Power Input

External VDC Power Input

RX IN

Receive Signal from iNetVu Mobile Platform

Serial port

Serial Port Interface

SENSORS

26-pin Interface for Sensor Cable

USB

USB Interface

MOTOR & POWER

9-Position Interface for Motor Control Cable

COOLING FANS

Air Ventilation

Fig. 2: *iNetVu® 7000 Series Front and Rear Panel*

Note: VDC Power Input feature is available in the 7000C and 7024C Models Only. See Appendix for VDC power input external cable connectivity wiring.

5. Typical Connection Configuration

The typical connection configuration for each service will be the same regardless of the Satellite Modem / VSAT. However, the configuration parameters for Satellite Modem / VSAT Communication will differ depending on service. See iNetVu® System Manual for configuration procedures corresponding to the service used.

CAUTION

This situation or practice might result in property or equipment damage. Ensure Sensor and Motor cables are connected prior to powering on 7000 Series Controller. Do not connect or disconnect cables once controller has been powered on. It is recommended that controller is properly grounded at all times

NOTE: The 7000C/7024C controllers must use the GLONASS/GPS antenna that was shipped with the system for optimal GPS signal reception.

5.1.   Typical Network Interface Connection

7000C/7024C must use the GLONASS/GPS antenna that was shipped with the controller.

1201 iNetVu™ Mobile Platform

GPS/Glonass Antenna

*Ground protection

External grounding connection

12/24 VDC Power Input

SENSOR CABLE

MOTOR CONTROL

TX

RX

RX IN

RX IN

RX OUT

RX OUT

Laptop

Router / Switch

Satellite Modem / VSAT

TX OUT

100 - 260VAC

!

Motor Control Cable

Sensor Cable

RG6 Coaxial Cable

Network Cable

Power Cable

* Ground Connection

Fig. 3:   *iNetVu® 7000 Controller Typical Connection Configuration*

*Recommended for proper grounding of iNetVu® systems.

Note: VDC Power Input feature is available in the 7000C and 7024C Models Only. See Appendix for VDC power input external cable wiring.

5.2. Typical USB Communication Interface

7000C/7024C must use the GLONASS/GPS antenna that was shipped with the controller.

iNetVu™ Mobile Platform
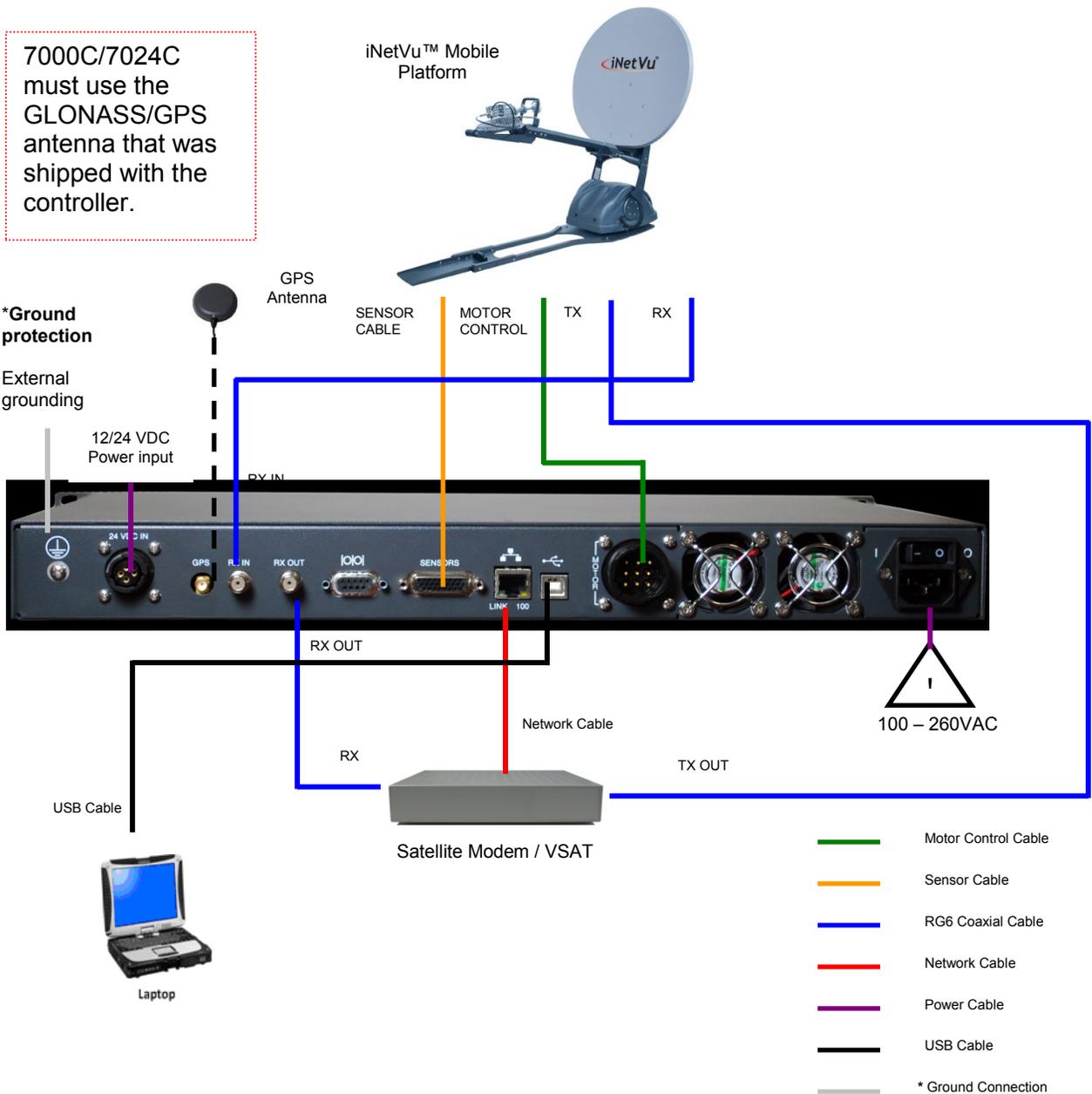
Fig. 4:   *USB Configuration Interface*

*Recommended for proper grounding of iNetVu® systems.

Note: VDC Power Input feature is available in the 7000C and 7024C Models Only. See Appendix for VDC power input external cable wiring.

5.3. Typical Serial Communication Port Interface

7000C/7024C must use the GLONASS/GPS antenna that was shipped with the controller.

iNetVu™ Mobile Platform

GPS/Glonass Antenna

*Ground protection

External grounding connection

12/24 VDC Power input

SENSOR CABLE

MOTOR CABLE

TX

RX

RX IN

24 VDC IN

GPS   RX IN   RX OUT

SENSORS

LINK   100

MOTOR

RX OUT

Network Cable

Serial Port RS232

RX IN

TX Out

!

100 - 260VAC

Satellite Modem / VSAT

Laptop

—— Motor Control Cable

—— Sensor Cable

—— RG6 Coaxial Cable

—— Network Cable

—— Power Cable

—— Serial Cable

—— * Ground Connection

Fig. 5:   *Serial RS232 Configuration Interface*

*Recommended for proper grounding of iNetVu® systems.

Note: VDC Power Input feature is available in the 7000C and 7024C Models Only. See Appendix for VDC power input external cable wiring.

5.4.   Typical Connection – PC Free

7000C/7024C must use the GLONASS/GPS antenna that was shipped with the controller.

iNetVu™ Mobile Platform

GPS/Glonass Antenna

*Ground protection

External grounding connection

RX IN

SENSOR CABLE   MOTOR CONTROL   TX   RX

24 VDC IN

RX OUT

RX IN

RX OUT

12/24 VDC Power input

Network Cable

100 - 260VAC

TX OUT

Satellite Modem / VSAT

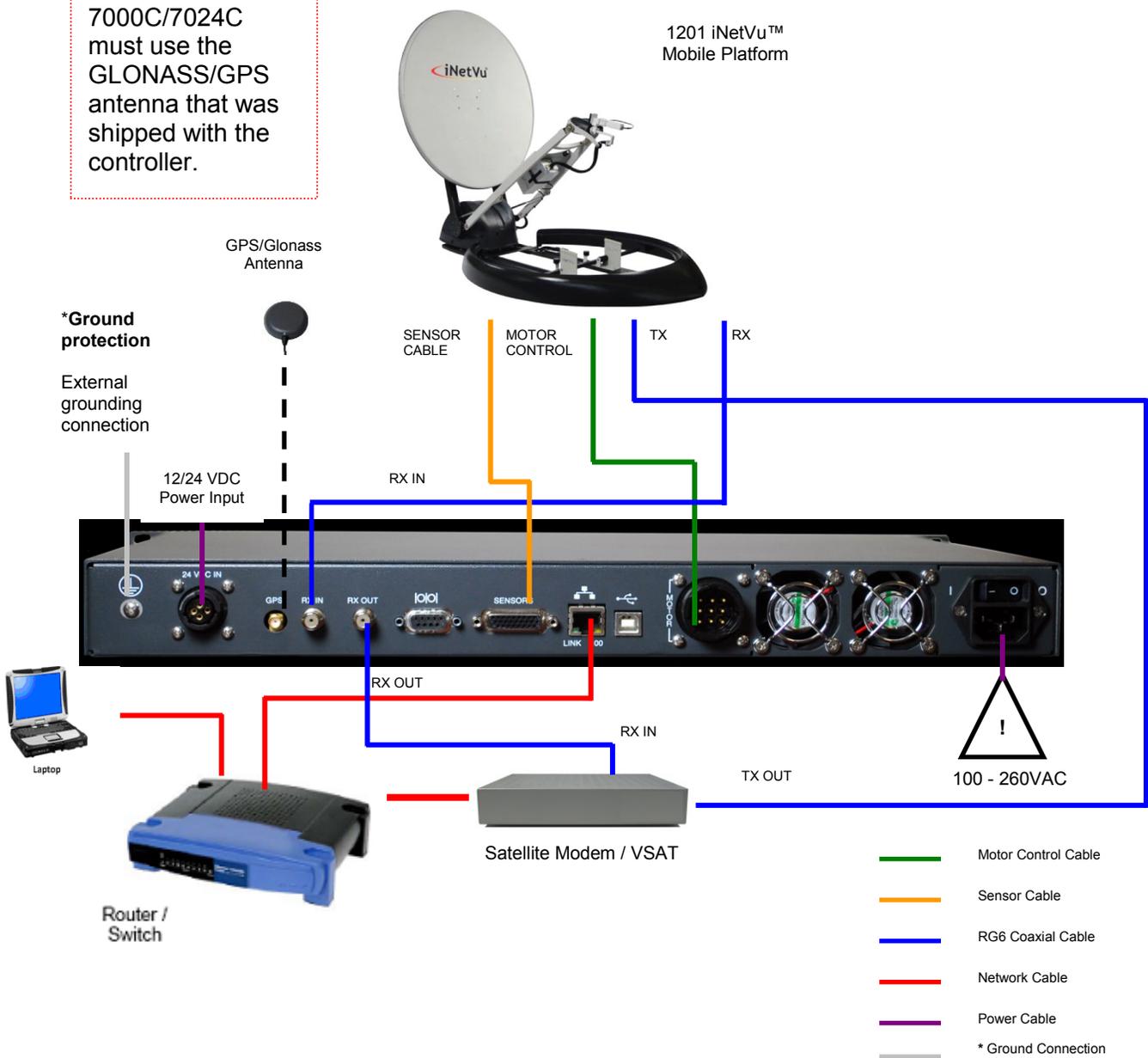|	Motor Control Cable
	Sensor Cable
	RG6 Coaxial Cable
	Network Cable
	Power Cable
	* Ground Connection

Fig. 6:   *iNetVu® 7000 Series Controller PC Free Connection Configuration*

*Recommended for proper grounding of iNetVu® systems.

Note: VDC Power Input feature is available in the 7000C and 7024C Models Only. See Appendix for VDC power input external cable wiring.

5.5.   System Diagram with Splitter

**Please Note: Using a splitter is optional. If the user does not wish to power the LNB from the Controller, a splitter must be used such that power is passed to the LNB from the VSAT Modem (or alternate power source).

7000C/7024C must use the GLONASS/GPS antenna that was shipped with the controller.

iNetVu™ Mobile Platform

**If the splitter option is used, ensure the LNB Power is disabled in the 7000 Series Controller. (See section 8.1.3.1 – "LNB Power" for more detail)

MOTOR CONTROL

TX   RX

GPS /Glonass Antenna

SENSOR CABLE

*Ground protection

External grounding connection

12/24 VDC Power input

RX IN

Laptop

Router / Switch

RX

TX OUT

Satellite Modem / VSAT

100 - 260VAC

24 VDC IN   GPS   RX IN   RX OUT   SENSORS   LINK 100   MOTOR

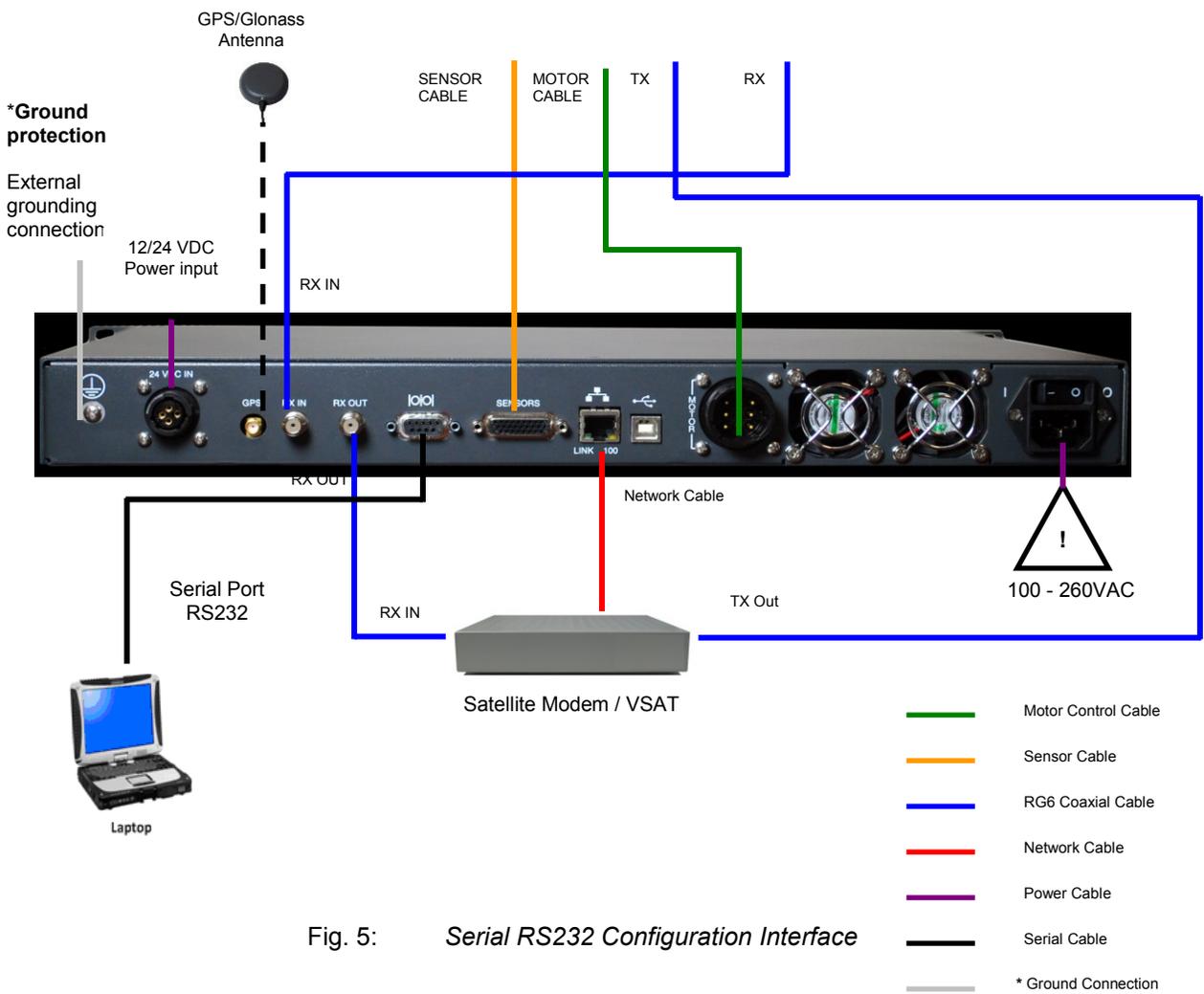| — | Motor Control Cable |
—	Sensor Cable
—	RG6 Coaxial Cable
—	Network Cable
—	Power Cable
—	* Ground Connection

Fig. 7:   *iNetVu® 7000 Series Controller with Splitter Configuration*
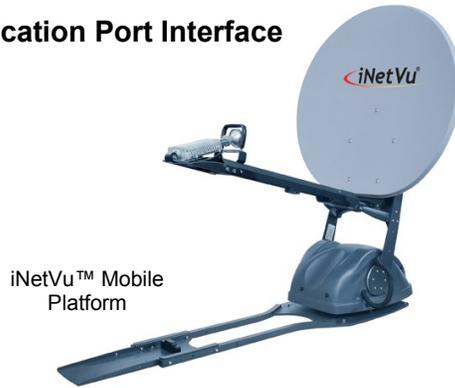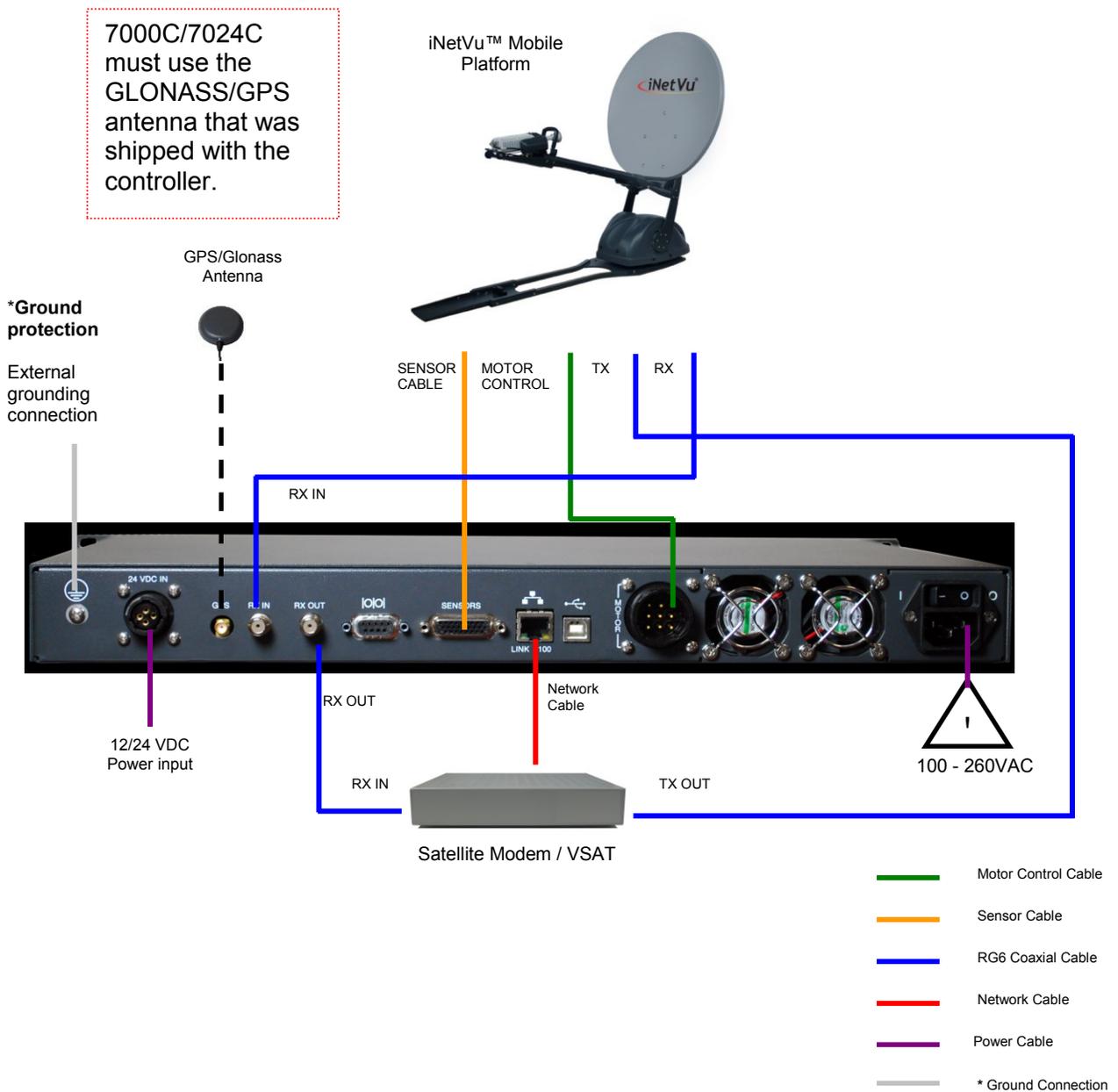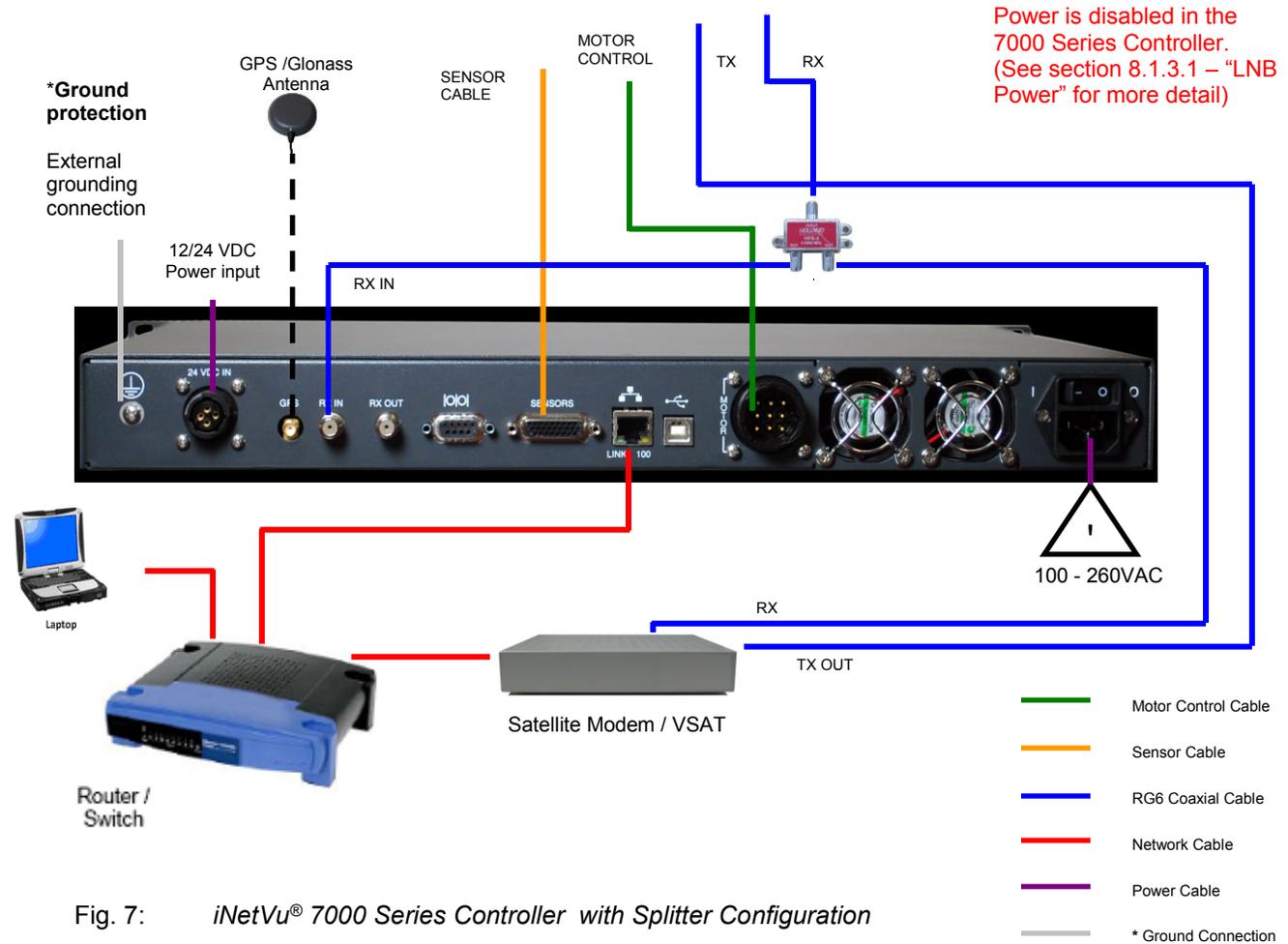
*Recommended for proper grounding of iNetVu® systems.

Note: VDC Power Input feature is available in the 7000C and 7024C Models Only. See Appendix for VDC power input external cable wiring.

6. Installation

The iNetVu® 7000 Series Controllers are shipped pre-configured and calibrated with the iNetVu® Mobile Platform and service which you plan to use. Only configuration of the Satellite Modem / VSAT Communication parameters and the satellite you wish to find is required.

***Note**: controllers may have 4 or 5 digit serial number which is required to be entered for correct default configuration values.

6.1.   Rack Installation

The iNetVu® 7000 Series Controllers include attachable "ears" which make the iNetVu® 7000 Series Controllers configurable for rack-mounted installation.

If you are installing the iNetVu® 7000 Series Controller onto a rack, ensure that you use supporting rails or a shelf to support the weight of the iNetVu® 7000 Series Controller, and use the provided "ears/brackets" to fasten the unit to the rack face.

6.2.   iNetVu® Software – Software and USB Driver Installation

 It is recommended that the previous software be uninstalled before installing latest software version if upgrading. See minimum recommended pc requirements for most favorable working system.

Note: The application will exit if controller communication is via USB and Modem Configuration Type is set to HN_KA during any power recycle or loss of communication (cable unplugged) without warning. This will <u>NOT</u> hold true if controller is in Firmware update mode. More info under Maintenance Menu Buttons section.

Please Note: Do not connect the Controller via USB until the drivers and software have been installed

1. Install the software from the Memory Stick or from a downloaded file by double clicking on iNetVuSetup.exe and follow the installation wizard.
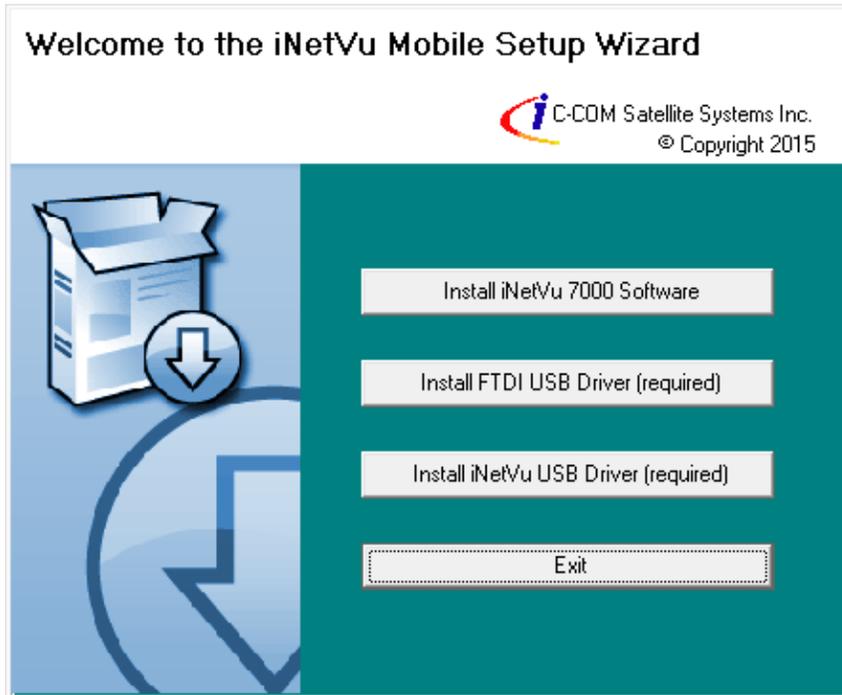
Note: The Driver installation will be done in two stages. FTDI CDM Drivers and, USB Drivers.

2. Install the iNetVu 7000 Software and close when complete.

3. Install the **FTDI USB Drivers** and **iNetVu USB Drivers**. Both are required.
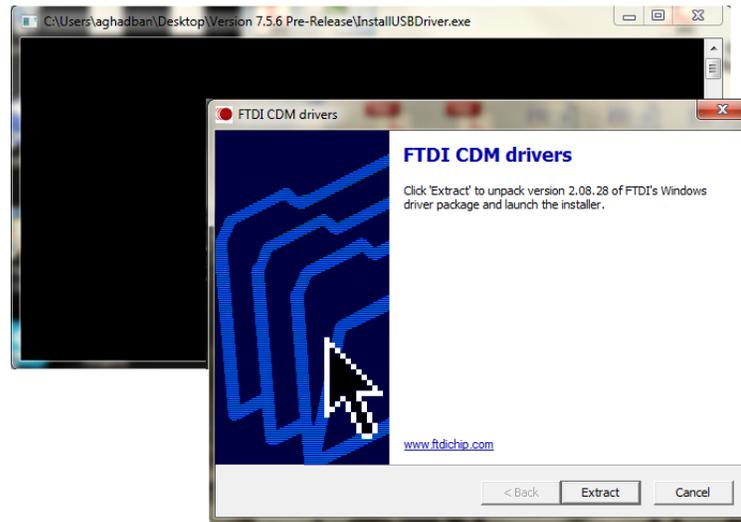
Click "Extract"

Click "Next"

Click "Finish"

4. Click <u>**Next**</u> on "Device Driver installation Wizard" window. Two windows may appear one for FTDI and one for Legacy click Next on both.

Click "Next"

Click "Finish"

5. Now that the drivers and software package has been installed, connect the iNetVu 7000 Controller via USB to your PC.

6. **Windows XP** users will have to follow the new hardware wizard and let windows automatically install the drivers.
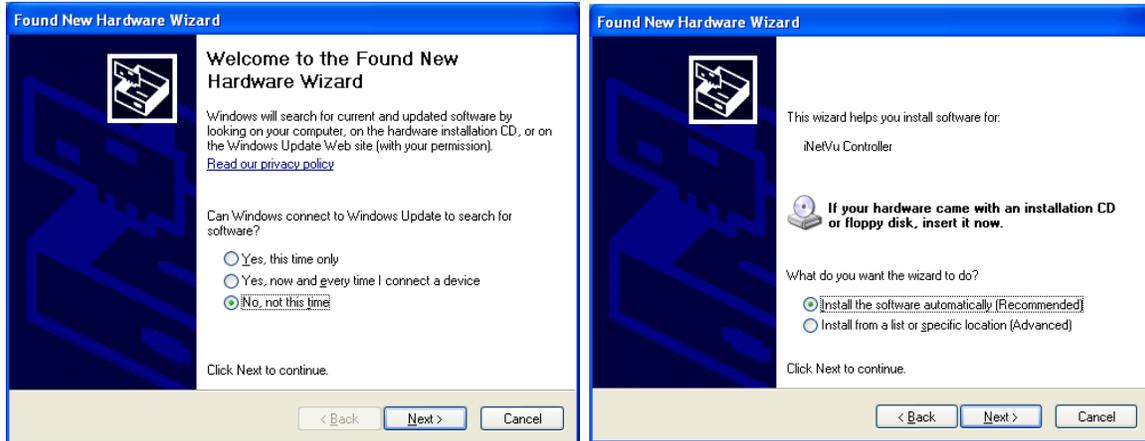
Select "No, not this time"

Select "Install the software automatically"

Click "Continue Anyway"

Click "Finish"

7. Now that the drivers and software package has been installed, connect the iNetVu 7000 Controller via USB to your PC.

8. **Windows Vista and 7** users, the drivers should install automatically without any further user action when the controller is powered up.
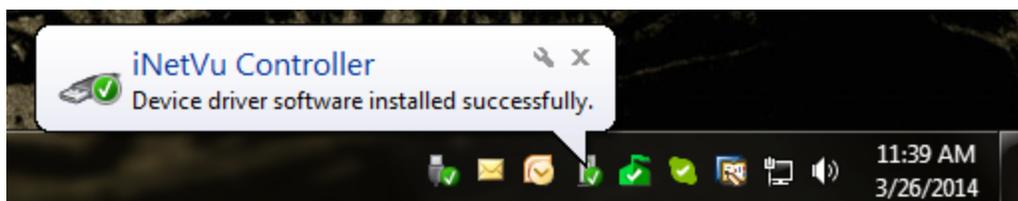
6.3.   iNetVu Setup Wizard

1.   The first screen you will see is the new iNetVu Setup Wizard. You can choose to continue using the wizard or click NO to proceed to the iNetVu Mobile 7000 software.

NOTE: It is recommended that you continue to the iNetVu Setup Wizard and confirm all required information is correct. Please select "**Do not show this message again**" so this pop-up will not appear after you have completed the initial Controller setup.
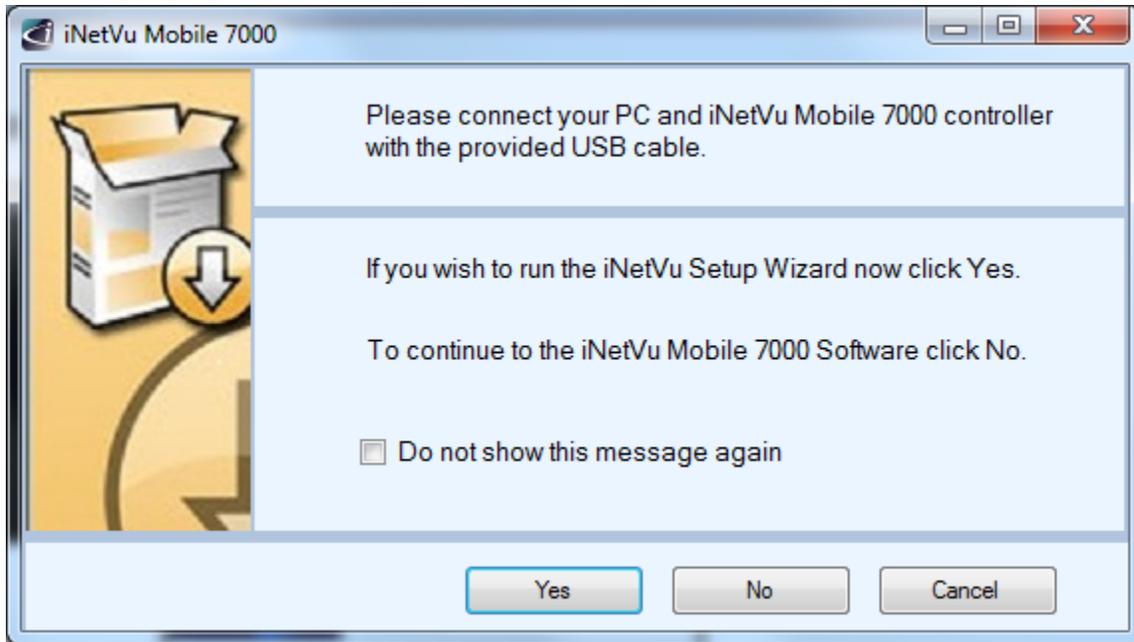
2.   If the controller firmware does not match you will be prompted to update.
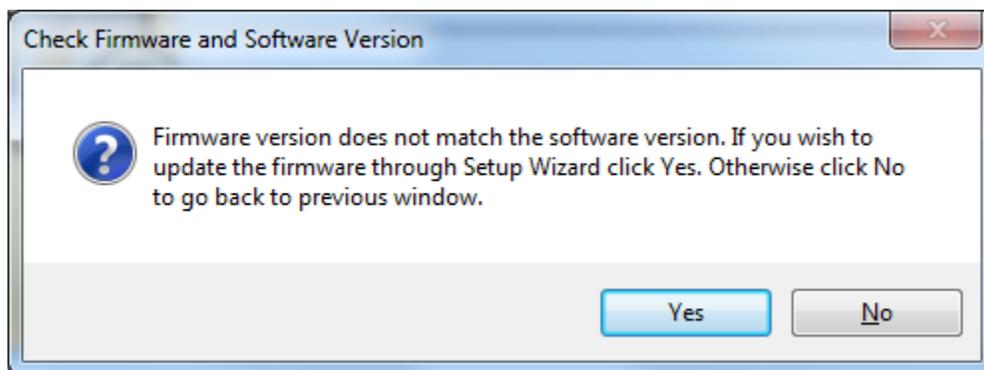
3. Follow the on screen instructions to update the controller firmware. Once complete the wizard will resume.
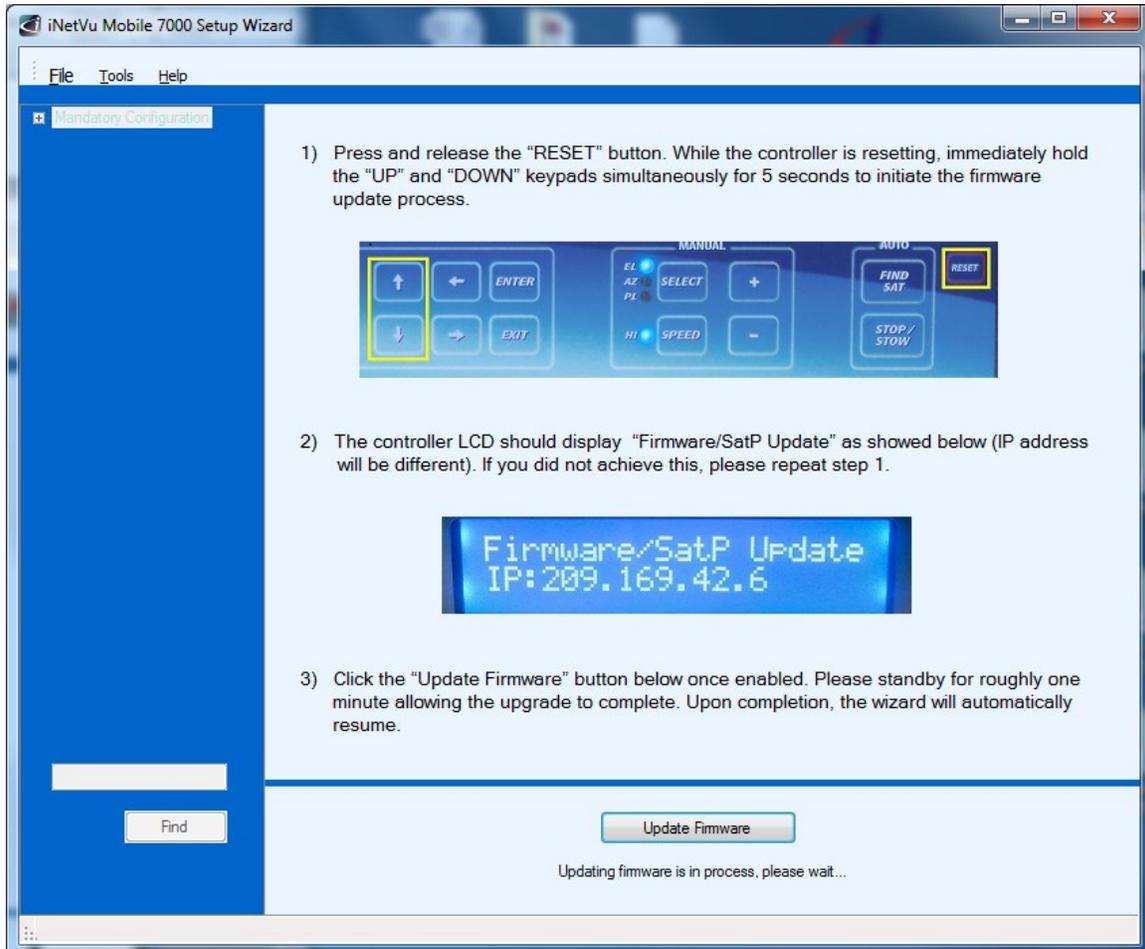
4. You may wish to continue through the wizard to complete the controller configuration or verify the settings. You can switch to the iNetVu software at any time by right clicking and selecting Controls.

6.4.   Setup

1. Connect all of the cables and components as depicted by the previous section (setup Diagrams). Select connections that are best suited for your application.

2. Power on the iNetVu® 7000 Series Controller.

3. Set your external PC IP on the same subnet as the iNetVu® 7000 Series Controller (Default controller IP Address of the 7000 is 192.168.0.2)

4. Refer to the appropriate User Manual for service based system configuration

5. Controller should be power cycled after each and every configuration change.

6.5.   Serial RS232 Setup

1. Power ON the controller and connect the RS232 cable from the PC to the Controller.

2. Refer to section 5.3 (RS232 setup diagram) before continuing with the RS232 serial port connection.

3. Set the C2 option in the controller to **PC---9600**, to do this advance to **CONF2** option on the controller key pad and depress **ENTER** button; in the password field enter the password, if this was changed from the default. If default password has not been changed press up ↑ arrow followed by the **ENTER** button.

4. Navigate to the **C2** menu option and press the **ENTER** button.

5. Using the up ↑ arrow button change the C: option to read **C: PC---9600** press **ENTER**.

```
C: PC---9600    T__O: +0.0
            N985A—2.X-12209
```
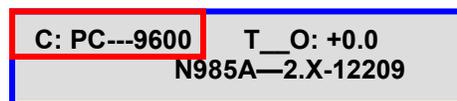
Fig. 8:   *C2 Screen from Configuration for RS232 Communication*

Press the EXIT button 2 times, you will receive a prompt to save the configuration select **Y** for yes and press **ENTER**. The setting change has been completed on the controller side which will automatically update within the software.

6. Launch the Application Software from your computer.

7. Advance to the Configuration window, browse down to the COM Port Interface section and ensure that the Interface option is set to **PC,** the **BAUD** rate is set to

9600 and the COM Port is set to **COM1 in** PC Application section On the Maintenance window.
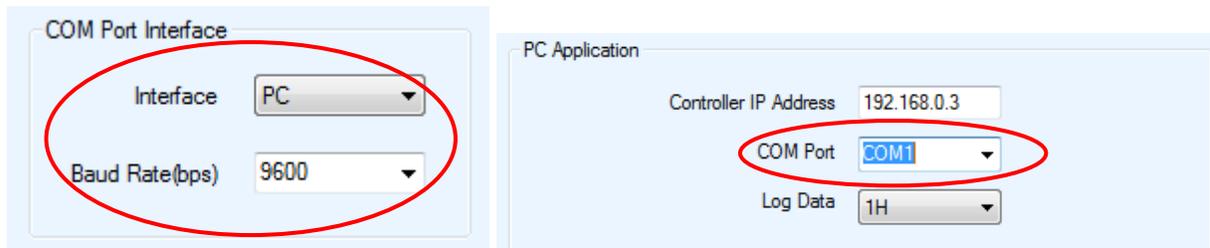
Fig. 9:   *Configuration for controller RS232 serial options*

8. The iNetVu® 7000 Series Controller is now set to communicate via RS232 serial connection.

 **Note: as a rule of thumb you should always be running the latest iNetVu Firmware version (version 7.5.8.0+ or greater) to get full functionality of the features. In some cases the latest boot loader (7.6.1.0 at time of document creation) is also required to compliment the software features.

6.6.   Existing iNetVu® Mobile Platform Installation

If you are replacing an existing iNetVu® Controller with Newer iNetVu® 7000 Series Controller, you will need to perform an Azimuth and Polarization Calibration (PL Calibration NOT required on platforms with Tilt Sensors 980/1200 version 3.0+ or 1800 version 2.0+ and all new generation platforms) and set the iNetVu® Mobile Platform Serial Number prior to searching for satellite.

LCD Method

1. Advance to the Operations menu using the '←' and '→' arrows on the keypad.

2. Advance to "AZC" using the '←' and '→' arrows and press the "Enter" key on the keypad. IMS will begin the Azimuth Calibration Function. Verify that there are no obstructions that would impede a full Azimuth sweep.

3. After this is complete, go back to the Operations menu by pressing the "Exit" button to navigate backwards.

4. Advance to "PLC" using the arrows and select the "Enter" key on the keypad. IMS will begin the Polarization Calibration Function. Verify that there are no obstructions that would impede a full Polarization sweep. "PLC" is not valid with some iNetVu® Mobile Platform and thus may be skipped.

5. After this is complete, navigate to the "Conf2" menu from the keypad. The "Exit" button on the keypad can be used to navigate back to the original menu, and the "Enter" button will allow the user to enter into a menu. (default Conf1 menu access password "**password**")

6. Navigate to "C2" in the configuration menu and select the "Enter" button on the keypad.

7. A screen containing Console Port, Platform Type, Platform Version and Serial Number Data will appear. Navigate to the far bottom right section of the screen where the platform description appears (i.e. A12B for 1.2 mobile unit), and click on the '↑' arrow once. This action will allow you to make modifications to that section.

```
C: PC---9600  T__O: +0.0
        A12B—2.X-10351
```
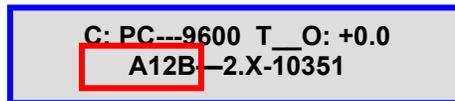
Fig. 10:   *C2 Screen from Configuration*

8. Next to the dish size (i.e. A12B, etc.), there exists a platform hardware version followed by 4/5-digit platform serial number as outlined in the figure above. Change version number and the iNetVu® Platform Serial Numbers by using the '→' to advance between digits, and the '↑' or '↓' to change the value of the digit. The iNetVu® Mobile Platform Serial Number and Hardware Version will be found on your iNetVu® Mobile Platform ONLY the LAST 5 DIGITS need be entered for the Serial No. Older systems may have ONLY 4 DIGITS.

Note: When configuring iNetVu® system you must enter serial number first then select platform type, not following this priority order may result in inaccurate values.

9. Click the "Enter" button on the keypad once the serial number has been entered, and exit the configuration menu by click the "Exit" button twice. One time to return to the configuration screen and one more time to exit the configuration screen.

10. Once prompted if you would like to save the configuration, press the '↑' button such that 'Y' is selected for "yes", and press, "Enter".

That's it. You have successfully completed the installation and setup of the iNetVu® 7000 Series Controller and are ready to find satellite.

7. iNetVu® Front Panel Operation

7.1.   LED Definition
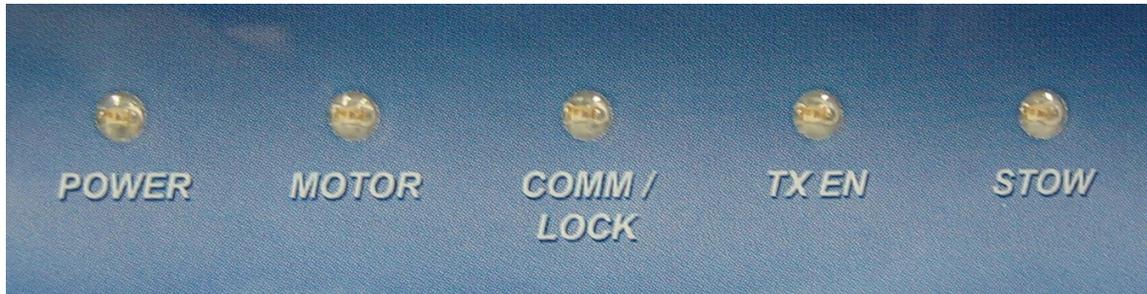
Fig. 11:   *iNetVu® 7000 Series Controller Front Panel LED Panel*

POWER

Solid light indicates power is ON.

MOTOR

Flashes when any of the three motors are instructed to move.

COMM / LOCK

Indicates Communication between Controller and Modem, it also indicates communication between GPS and controller. NA must be selected when checking GPS communication status.

Slow blinking (2 sec. intervals) indicates no communication.

Slow blinking (1 sec. intervals) indicates idle communication.

TX EN

Solid Light indicates transmitter has been enabled.

STOW

Light indicates iNetVu® Mobile Platform Elevation Axis (EL) is in the stowed position.

7.2.   Manual and Automatic Controls Button Operation
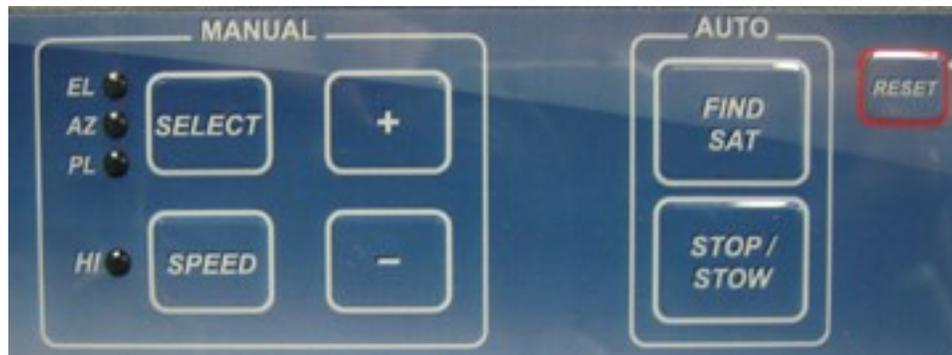
Fig. 12:   *iNetVu® 7000 Series Controller Front Panel Buttons*

How to Find Satellite

Press "FIND SAT" Button.
iNetVu® Mobile Platform will automatically attempt to locate, lock, peak and enable the system onto the configured satellite or last satellite to lock/enable system. Pressing the FIND SAT button for 1 second or less will initiate satellite searching routine (on SAT0, default) or last satellite searched. Holding down the FIND SAT for 3 seconds or more will bring up the satellite menu and display choice of 5 satellites or 4 Beam Colors to select from. Once in the satellite menu pressing the FIND SAT will search on the selected Satellite, Beam or Beam Color. The LCD keypad can also be used to maneuver to the required satellite, use the arrow keys (right or left) to move over to the required selection and press FIND SAT will launch satellite search routine on that selection.

Search routine will ignore GPS and RF status until after compass heading has been read to reduce search time. If GPS and RF conditions not met after 60 seconds the search will fail and a message will be displayed.

How to Stow the Antenna

Press "STOP/STOW" Button, and hold for 2 seconds.
iNetVu® Mobile Platform will automatically re-center itself and lower into the stow position.

How to Stop

Press "STOP/STOW" Button (do not hold). Stops all ongoing operations such as motor movements and automatic functions, like Find Satellite and Stow.

How to Manually Move the Mobile Platform

Press "SELECT" to select the axis of motion you wish to move. The LED corresponding to the axes chosen will light up. Press "SPEED H/L" to select the speed (LED ON – HI, LED OFF - LOW). Press and release "+" and "–"for short duration movement & angle readings. Press and hold "+" and "–"for long duration movement. **Warning**: User must watch antenna limit sensors (EL UP/ST, AZ ST, PL ST) when using manual controls. See LCD 'Monitor' section explanation for more details.

How to Turn ON/OFF the Controller
Turn off the AC power switch on the back panel of the iNetVu® 7000 Series Controller.
When using DC external power source, the DC input power ON/OFF is controlled by the external source.

How to Reset the Controller

Press "RESET" Button
Power-cycles the iNetVu® Controller
DOES NOT reset default values

7.3.   LCD Screen and Navigator Keypad Operation

Fig. 13:   *iNetVu® 7000 Series Controller LCD and Keypad Navigator*

Used to move the cursor position.

ENTER   Used to select a displayed function

EXIT   Used back out of a selection and return the display to the previous selection

7.4.   Front Panel Menu Navigation Tree

The following is a tree consisting of a list of the menu options available with the LCD interface.
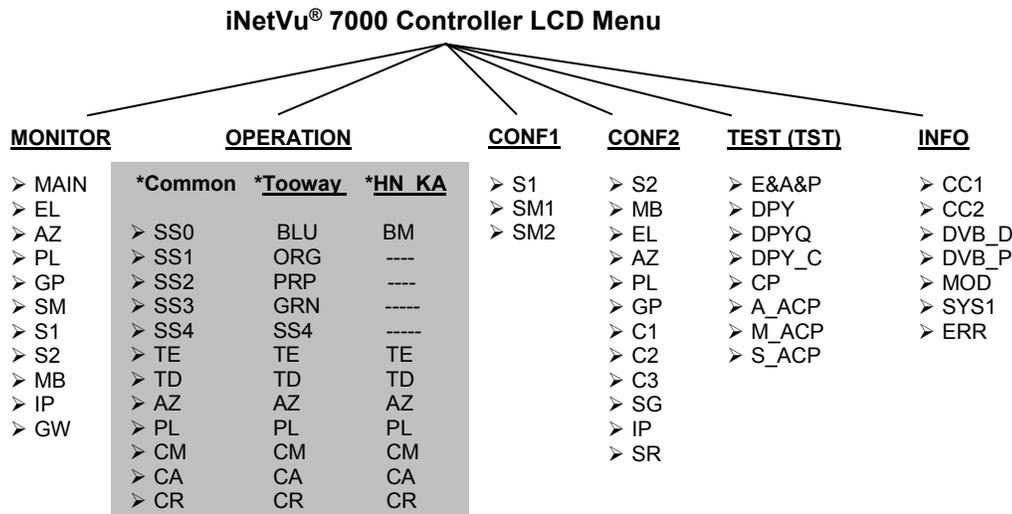
Fig. 14:   *iNetVu® 7000 Series Controller LCD Menu Options*

*Note: These are not sub-menus and do not exist under the OPERATION menu. They are merely used to identify the different sub menu options under the OPERATION menu depending on the modem service that is configured.

Note: In order for the user to make changes to configuration data in a sub-category of the "CONF1 or CONF2" menu, or apply changes to data in a sub-category of the "TEST" menu, the '↑' button on the keypad must be pressed above the data portion in the sub-category before changes can be made.

For example, if the user wishes to change the longitudinal value of the target satellite position in the S1 subcategory of the "CONF1" menu. The steps involved include:

1) Navigating to the 'CONF1' menu on the main screen using the '→' button.

2) Press the "ENTER" button once the cursor is above the 'CONF1' menu.

3) At this point, the user should be in the 'CONF1' menu after entering password and can select any of the sub-categories available. Press the "ENTER" button once the cursor is above the 'S1' sub-category.

4) To change the longitudinal coordinate of the target satellite, navigate to the area of where this information is located, and press the '↑' button once to enable modification.

5) At this point, the user can change the character values of the longitudinal coordinate by using the '↑' and '↓' buttons. The '→' and the '←' buttons can be used to navigate between characters.

6) Press the "ENTER" button once complete.

7.5. Opening Screen

When powering the iNetVu® 7000 Series Controller, the LCD will display one of the following during the initial boot-up sequence.

```
iNetVu 7000 Control
              BY C-COM
```

Fig. 15:   *LCD Opening Screen*

7.6. Main Menu

The iNetVu® controller is ready for usage when the following is displayed on the LCD.

There are Six (6) Main Menu items to select from: **MONITOR**, **OPERATION, CONF1, CONF2, TST, and INFO**.

```
MONITOR          OPERATION
CONF1   CONF2       TST  INFO
```

Fig. 16:   *LCD Main Menu*

MONITOR	This menu branch allows the user to monitor the status of the iNetVu Mobile Platform, its components, and displays information concerning the iNetVu 7000 Series Controller and the Satellite Modem / VSAT.
OPERATION	This menu branch allows the user to perform miscellaneous functions, such as enabling/disabling the transmitter, Find Satellite, Stow, and perform axes calibrations, etc.
CONF1	This menu branch allows the user to configure and save the 5 Satellite parameters with 5 Beacon settings as well as other configurable options for satellite searching.
CONF2	This menu branch allows the user to configure the iNetVu® System, including platform, modem parameters, and controller.
TST	This menu branch allows the user to run demo test on all three axes, as well as check/test compass, deploy the antenna, and ACP testing.
INFO	This menu branch allows the user to verify the 7000 Series controller / modem settings, such as software versions, hardware versions, DVB module, and error codes.

7.6.1. MONITOR

This section describes briefly what each item and menu represents. For a more detailed explanation of each menu, see the configuration section of this manual. (Section 7.6.4)

```
MAIN   EL   AZ   PL   GP   SM
S1   S2   MB              IP   GW
```

Fig. 17: *Monitor Menu*

MAIN	Displays real-time system status and receive signal.
EL	(Elevation) Displays real-time current drawn and speed settings for the elevation motor, as well as real-time elevation angle and limits, offset, window size, and Elevation adjustment gap.
AZ	(Azimuth) Displays real-time current drawn and speed settings for the azimuth motor, as well as real-time azimuth angle and limits, window size, and AZ zero.
PL	(Polarization) Displays real-time current drawn and speed settings for the polarization motor, as well as real-time polarization angle and limits, window size, and PL zero.
GP	Displays GPS Status and coordinates.
SM	(Search Mode) Displays compass status, Search Mode (RF status).
S1	(Satellite) Displays Target Satellite longitude and the antennas target coordinates. This branch also contains the DVB Carrier programmed and the LNB Power
S2	(Satellite) Displays Reference Satellite longitude and the DVB Carrier programmed for the reference satellite along with the LNB Power
MB	(Modem and Beacon Receiver) Displays Modem status as well as the Beacon Receiver frequency and signal (if a beacon receiver is used)
IP	Displays IP of iNetVu 7000 Series Ethernet Port, and the VSAT modem IP.
GW	(Gateway) Displays Subnet, and Gateway IP.

7.6.1.1.   MAIN

This branch menu displays the real-time Elevation, Azimuth, Polarization Angles, their respective limits (Up, Down, Stow), the RF Receive Signal, Signal Strength, and the System Status.
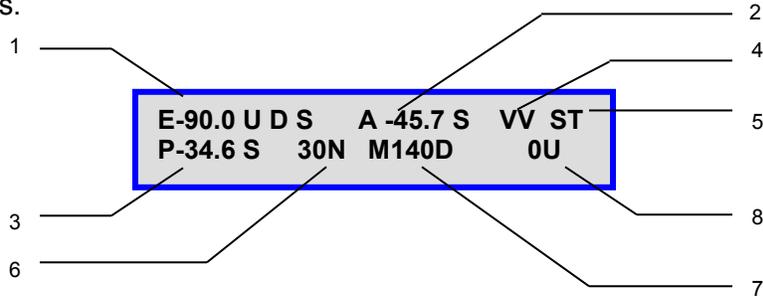
Fig. 18:   *"MAIN" (Main) Display*

1 – Elevation Angle and Limit Indicators

740/750/950/980 Mobile Platform Range:	-90° to 65°+
981/985/755 Drive-away Platform Range:	-90° to 93°+
1200/1500/1800 Mobile Platform Range:	-90° to 76°+
Flyaway Antenna (1200Q)	5° to 78°+
Airline Checkable (1210A)	9° to 99°+
1201 Drive-away	-90° to 93°+

Elevation Angle will be –90.0 when the Elevation Stow Indicator is ON for mobile/drive-away units

U   Elevation up Limit has been reached.
Typically set above 75° for 1200/1500/1800 Mobile Platforms, above 65° for 740/950/980 Mobile Platforms, and above 90° for the 1201/985/755 Drive-away Platforms. The Flyaway is set above 78°.
D   Elevation down Limit has been reached.
Typically set between 5° and 10° for 1200/1500/1800 Mobile Platforms and between 0° and 10° for 740/950/980 Mobile Platforms.
S   Elevation Stow Limit has been reached.

2 – Azimuth Angle and Stow Limit Indicator

Range:	-200° to +200°
Flyaway Range:	-180° to +180°
Airline Checkable:	-195° to +195°

S   Azimuth Stow Limit has been reached.
Mobile Platform should be physically centered on the Azimuth axis.

3 – Polarization Angle and Stow Limit Indicator

740/950/980 Mobile Platform Range: -70° to 70°
1500/1800 Mobile/Flyaway Platform Range: -90° to 90°
1200 Mobile Platform Range   -90° to 90°(ST at +65˚)
981/1201 Drive-away Platform Range: -90° to 90° (ST at +/-50˚ for 981)
Ka75/ka98 1800 Circular Band Signals will have the Polarization Angle disabled, and will display
"DDD" Stow Limit will also be disabled and display "STF".

S   Polarization Stow Limit has been reached.
             Mobile Platform should be physically centered on the Polarization axis.
             The New Gen 981 and 1201 platforms will stow at angle +/-50 (981) and angle +/-90
             (1201) based on last PL target angle.

4 – GPS Status Flag and Compass Status Flag

The first letter represents the GPS status, and the second letter represents the Compass status
(i.e. VV, FF, OO, FO, OF, OV, VO).

V   GPS/Compass Status is Valid/Normal
F   GPS/Compass Status has failed
O   GPS/Compass Coordinates have been overridden

5 – System Status (status meanings explained in the software section of this report)

AC   Azimuth Calibration
AT   ACP Testing
CC   Compass Calibration
DT   Dish Testing
II   Idle
MM   Manual Movement
PC   Polarization Calibration
PK   Peaking (PA/PE)
PS   Positioning
SR   Searching
ST   Stowed

6 – Receive RF/DVB Signal

Receive RF Signal as measured from the LNB. The letter '**N**' next to the RF Value indicates the
LNB is not being powered properly and there is an issue with the RF connection, whereas no letter
next to the RF value indicates the LNB is powered properly. When the system is not in RF search
Mode, and is searching via DVB carrier, the value represents the DVB signal, and the letter "L" next
to the value indicates a DVB signal LOCK.

7 – Modem Status

Displays the receive strength of the satellite, and the Modem/Transmitter Status.

D   Transmitter Disabled
E   Transmitter Enabled
U   Unknown (Communication with Satellite Modem / VSAT has failed)

(E.g. M140D represents modem signal strength of 140, and transmitter is disabled)

8 – Beacon Receiver Signal

This section represents the strength of the Beacon Receiver Signal (if used). The letter '**U**' next to the Beacon Signal indicates an unlocked status, whereas the letter '**L**' next to the Beacon Signal indicates a Locked on satellite status.

7.6.1.2.   EL

Displays real-time current drawn and speed settings for the elevation motor, as well as real-time elevation angle and limits, offset, window size, and Elevation adjustment gap.
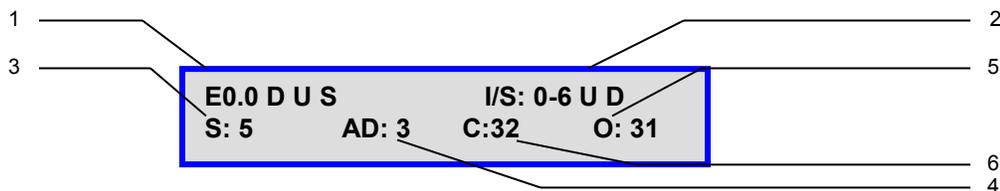

Fig. 19:   *"EL" (Elevation) Display*

1 – Real-Time Elevation Angle

E (Elevation) The number value after the "E" represents the real time elevation angle.

D   The letter "D" will appear to indicate Down Limit has been reached on the elevation axis
U   The letter "U" will appear to indicate UP Limit has been reached on the elevation axis
S   The letter S will appear to indicate the Elevation angle has reached the stow position (Antenna Stowed).

The inclinometer used to read the elevation angle will compensate for an incline up to +/-15º. For example if a user is on a 10º slope and the system is searching along the azimuth, if the elevation reading changes due to a horizontal incline, the elevation will adjust to maintain the correct elevation angle while searching along the azimuth.

2 – Current and Speed Settings

I/S   Real-Time current of the elevation motor is to the left of the dash, and speed constant of the elevation movement is to the right of the dash (i.e. 0-6 represents current of 0 at a set speed of 6).
U   The letter "U" will appear if there is an up movement on the elevation axis.
D   The letter "D" will appear if there is a down movement on the elevation axis.

3 - Search Window Elevation Limit

This value represents the amount of degrees the antenna will point above and below the calculated target elevation coordinate when searching for satellite. (S: 5 – implies elevation search window is 5º)

4 – Advanced Search Elevation Gap (El Adjustment)

When parked on an incline, azimuth movement can affect the Elevation angle. This happens because the azimuth is on a fixed plane parallel to the roof of the vehicle and the Elevation angle is relative to gravity. For example, at a very high incline, moving 20 degrees of azimuth could gradually drop (or raise) the elevation 3 degrees from the calculated target. Since this could cause you to miss the satellite, we stop the azimuth movement, re-position the Elevation to the target, then continue the azimuth sweep. The default value is 3 degrees of elevation change allowed before adjustment. Since these adjustments will increase the amount of time it takes to find the satellite, we recommend to park the vehicle on the most level surface available.

5 - Elevation Offset

The number of degrees at which the iNetVu® Mobile Software will offset the reading from the Inclinometer in order to produce an accurate (+/- 2°) Elevation Angle (e.g. O: 31 implies elevation offset of 31). These values initially default, and are set after target calibration is performed.

6 – Elevation of Compass Reading Status

Number of degrees that the Antenna requires to be elevated to ensure that the compass is level and is able to acquire an accurate compass reading (see Appendix 1 for default values).

7.6.1.3. AZ

Displays real-time current drawn and speed settings for the azimuth motor, as well as real-time azimuth angle and limits, search window size, and AZ zero.


```
1 ——————                                ——————— 2
3 ——————                                ——————— 4
         A0.0 S          I/S:0-6 L R
         W: 60           Z: 346.1
```

Fig. 20:   *"EL" (Elevation) Display*

1 – Real-Time Azimuth Angle

A	**(Azimuth) –** Real time Azimuth angle reading, down to the tenth of a decimal.
S	The letter "S" will appear to indicate the stow Limit has been reached on the azimuth axis

2 – Current and Speed Settings

I/S	Real-Time current of the azimuth motor is to the left of the dash, and speed constant of the azimuth movement is to the right of the dash (i.e. 0-6 represents current of 0 at a set speed of 6).
L	The letter "L" will appear if there is a 'left' movement on the azimuth axis.
R	The letter "R" will appear if there is a 'right' movement on the azimuth axis.
	(See Appendix for detail on default speed and current settings)

3 - Search Window Azimuth Limit

> This value represents the amount of degrees the antenna will search for satellite along the azimuth axis to the left and right of the calculated target antenna azimuth coordinate when searching for satellite. (I.e. W: 60 implies 60º search to the left and right of the target antenna azimuth angle, totally 120º)

Note: system may overshoot by 10º from the set window limits and thus the displayed value will be off 10º on either side of the target angle.

4 – Z (AZ Zero)

> AZ Zero is an A/D value from the potentiometer which physically determines where the iNetVu® Mobile Software places Azimuth Angle 0°. The AZ Zero may vary approximately +/-15% from the Default values (see Appendix).

> AZ Zero is calculated during the Azimuth Calibration process.

7.6.1.4.   PL

Displays real-time current drawn and speed settings for the polarization motor, as well as real-time polarization angle and limits, offset, and PL zero.
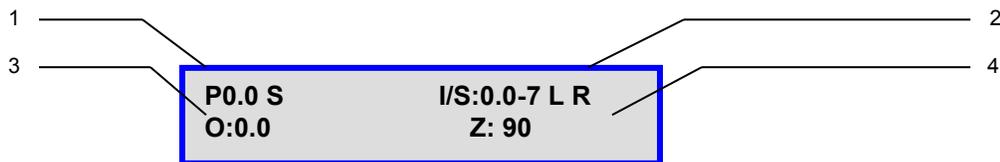
Fig. 21:   *"PL" (Polarization) Display*

1 – Real-Time Polarization Angle

> **P (Polarization) –** Indicates the real time polarization angle of the iNetVu® Antenna.
> **S**   The letter "S" will appear to indicate the stow Limit has been reached on the polarization axis

2 – Current and Speed Settings

> **I/S**   Real-Time current of the polarization motor is to the left of the dash, and speed constant of the polarization movement is to the right of the dash (i.e. 0.0-7 represents real-time current of 0.0 and a set speed of 7).
> **L**   The letter "L" will appear if there is a 'left' movement on the polarization axis.
> **R**   The letter "R" will appear if there is a 'right' movement on the polarization axis.
>   See Appendix 1 for default speed and current values.

3 - Polarization Offset

> This value represents the offset in the polarization angle.

4 – Z (PL Zero)

PL Zero is a converted A/D value from the potentiometer and or a software generated fixed value from inclinometer that physically determines where the iNetVu® Mobile Software places Polarization Angle 0°. The PL Zero may vary approximately +15% from the default values for the potentiometer (see Appendix 1) while the inclinometer will provide a more accurate reading with minimal variances. The PL Zero is used to convert the A/D calculated value during the polarization calibration process. Polarization calibration is not valid for platforms (980 and 1200 version 3.0+) and all platforms equipped with the inclinometer tilt sensor. PL Zero value is set to 90° ± 2 for all tilt sensor equipped units.

7.6.1.5.   GP

Displays GPS Status and current GPS Heading.

```
GPS: V   V0
LA: 45.4N   LG:  75.6W
```
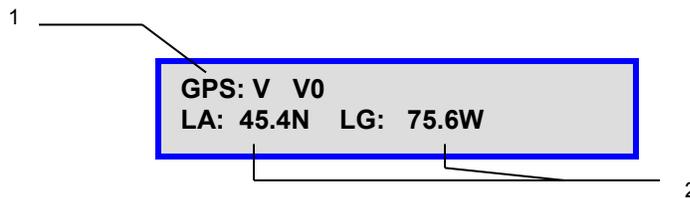
Fig. 22:   *"GP" GPS Display*

1 – GPS Status

V V	GPS Status is Valid, second V is for Velocity Status
F	GPS Status has failed
O	GPS Coordinates have been overridden

2 – GPS Coordinates

LA	Current Latitude Coordinate rounded to one decimal place in degree format.
LG	Current Longitude Coordinate rounded to one decimal place in degree format.

7.6.1.6.   SM

Displays Search Modes Status, Compass Status, Compass Heading and AZ Window.

```
RF :N-N-55-30N
CP:V-000              AZ_W :60
```

Fig. 23:   *"SM" Search Mode and Compass Display*

(See Compass Configuration section under CONF1----SM1 (CP))

1 – RF Search Mode Status

N RF Mode is disabled; **Y** will be displayed when enabled.

N RF override mode is disabled; **O** will be displayed when enabled.

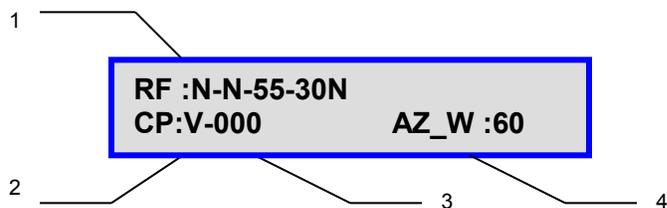**RF Threshold (55)** Value will be displayed here, this value is configurable.

RF/DVB signal value (30N) – If in RF search mode this will represent RF signal value, if in DVB Mode it will display DVB carrier signal. The letter '**N**' next to the RF Value indicates the LNB is not being powered properly. The letter "**L**" next to the value indicates a DVB signal LOCK.

2 – CP (Compass) Status

V   Valid – The compass reading is functioning properly

O   Override – the compass has been overridden, and direction entered manually considered

FS   Full Search – searches a full 360º search window.

3 – Compass Heading/ Calibrate/Check Compass Routine

Displays Compass Heading after Compass has been read.

Approximate Headings:		
	North	354°
	East	87°
	South	176°
	West	265

Antenna will rotate 90° to each of the following positions and read the compass at each: 0°, 90°, 180°, -90°, 0° and display the compass headings. Vehicle front end (windshield window) must be pointed North during these routines to achieve proper compass headings and a software pop-up will be displayed on the pc screen to ensure this Platform is properly orientated.

4 - AZ Search Window Status

The Search Window is the area of the sky which the iNetVu® Mobile System will search for the desired Satellite. It uses a rectangular window and searches for the Satellite using smaller concentric windows until the desired Satellite is found.

7.6.1.7.   S1

This menu displays the Target Satellite Number and Longitude, Target Antenna Coordinates, DVB Transponder (Frequency, Symbol Rate, and Code Rate) and LNB Power.
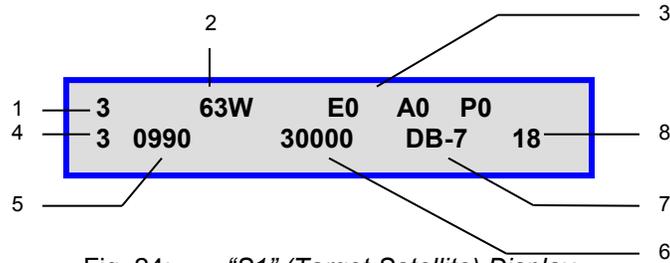
Fig. 24:   *"S1" (Target Satellite) Display*

1 - Target satellite number
2 - Target Satellite Longitude and Hemisphere

3 - Target Satellite Antenna Elevation, Azimuth (within reference to true north), and Polarization coordinates respectively.

4 - Transponder Number

There are usually six (6) transponders for each satellite stored into the controller memory, 0 – 2 are horizontal receive, and 3-5 are vertical receive, the user may overwrite the transponder data with his/her own (see configuration section).

5 - DVB Transponder Frequency (MHz)

6 – Transponder Symbol Rate (Ksps)

7 –Transponder Code Rate.

        DB-1 = 1/2
        DB-2 = 2/3
        DB-3 = 3/4
        DB-5 = 5/6
        DB-7 = 7/8
        AUTO (DVB-S2 ACM SELECTION)

8 – Power Supplied to LNB from the 7000 Series Controller for the Target Satellite

7.6.1.8.   S2

This menu displays the Reference Satellite Status, Longitude, Target Antenna Coordinates, DVB Transponder (Frequency, Symbol Rate, and Code Rate) and LNB Power. The reference satellite is another search option that could be utilized by the user. If this option is disabled, you may disregard all this information.
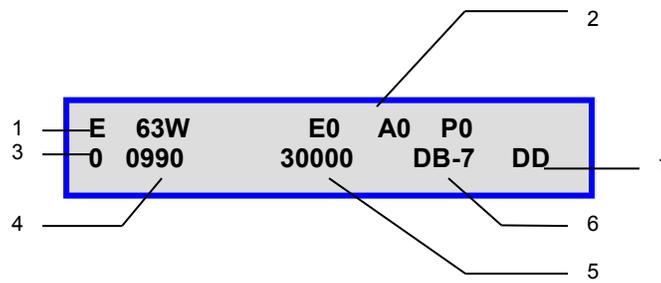

Fig. 25:   *"S2" (Reference Satellite) Display*

1 – Reference Satellite Longitude, Hemisphere, and Status

> Status "D": implies the reference satellite option is disabled
> Status "E": implies the target satellite option is enabled

2 – Reference Satellite Antenna Elevation, Azimuth, and Polarization coordinates respectively.

3 - Transponder Number (for reference satellite)

> There are six (6) transponders for each satellite stored into the controller memory) 0 – 2 are horizontal receive, and 3-5 are vertical receive. The user may overwrite the transponder data.

4 – Reference Satellite DVB Transponder Frequency (MHz)

5 – Reference Satellite Transponder Symbol Rate (Ksps)

6 – Reference Satellite Transponder Code Rate. (DVBS1 requirement)

> DB-1 = 1/2
> DB-2 = 2/3
> DB-3 = 3/4
> DB-5 = 5/6
> DB-7 = 7/8

7 – Power Supplied to LNB from the 7000 Series Controller for the Reference Satellite

7.6.1.9. MB

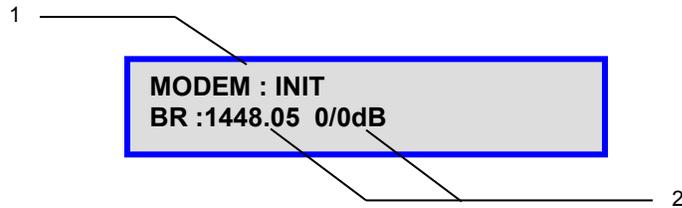This menu displays the modem status, beacon frequency and signal strength.

1 ⎯⎯⎯⎯⎯⎯

MODEM : INIT
BR :1448.05 0/0dB

2

Fig. 26:   *Modem and Beacon Receiver*

1 – Modem Communication Status

> INIT will appear if still initializing communication.
> NA will appear if no modem selected.
> SQ: with value will appear if modem is communicating with controller.

2 – Beacon Receiver Frequency and Signal Strength

The Beacon Receiver is an optional unit that could be used to acquire satellite with the 7000 Series Controller. See "iNetVu User Manual – Beacon Receiver" (7000 Controller section) for details

7.6.1.9.1 Hughes Modem Status (Only)

1 ⎯⎯⎯   2   3

SQ : 15   TC :24   RC :6   A :D
BR :1448.05 0/0dB

4

5
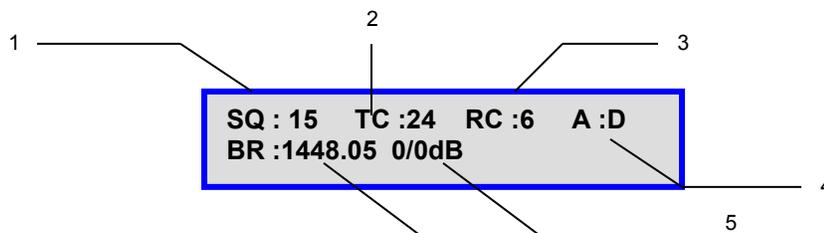
1 – Modem Communication Status.

> INIT will appear if still initializing or no communication
> NA will appear if no modem selected.
> SQ will appear with after modem communication is establish (Modem TX Disabled).

2 – Displays the status of the (TX) satellite receiver transmit state.

3 – Displays the status of the (RX) Satellite receiver receive state.

4 – ACP status enables or disables the ACP routine after locking on signal.

> D Disables the ACP after locking on signal

E enables the ACP after locking on signal in which an isolation value is displayed after successfully passing the 2 tests.

A_ST ACP has started

A_SP ACP has passed

5 – Beacon Receiver Frequency and Signal Strength

The Beacon Receiver is an optional unit that could be used to acquire satellite with the 7000 Series Controller. See "iNetVu User Manual – Beacon Receiver" (7000 Controller section) for details

7.6.1.10. IP

This menu displays the IP address of the user configured iNetVu® 7000 Series Controller and Modem. (Ensure the IP address of the modem configured is the actual IP address of the modem, and that the 7000 Controller is operating on the same network as the modem)

1

C_IP : 70.232.247.50
M_IP: 70.232.247.49

2
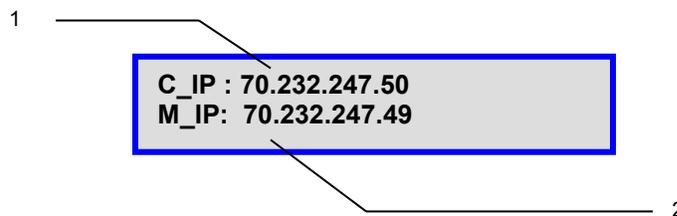
Fig. 27:   *"IP" (Controller and Modem IP) Display*

1 – C_IP: iNetVu® 7000 Series Controller's IP Address – Default 192.168.0.2

2 – M_IP: The Modem IP configured in the 7000 Series Controller.

7.6.1.11. GW

1

S_IP : 255.255.255.0
G_IP: 70.232.247.49

2
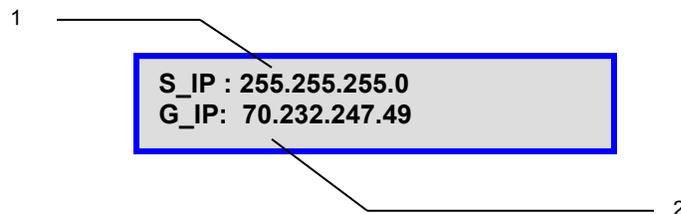
1 – S_IP (iNetVu® 7000 Series Controller's Subnet Mask IP Address – Default 255.255.255.0)

1. Gateway IP Address (Default: 192.168.0.32 or 192.168.100.1 depends on Modem Type/Service)

7.6.2. OPERATION
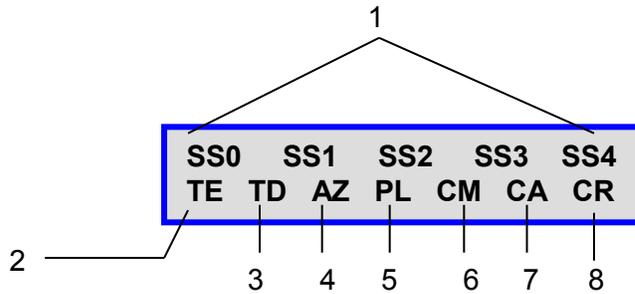
Fig. 28: *Default Operation Menu*

Note: The OPERATION sub menu items may differ for Ka services. The satellite numbers (SS0, SS2, etc...) will be replaced with GPS location Beam Colors for Tooway or Beam ID for HN_KA.
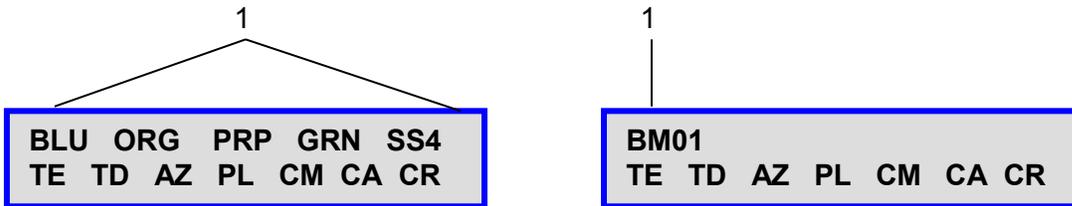
Fig. 29: *Operation Menu, Tooway service on left and HN_KA service on right*

SS0	(Find Satellite 0) Performs automatic satellite acquisition for configured satellite 0.
BLU	(Find Satellite BLU) Performs automatic satellite acquisition on the Blue Beam.
BM01	(Find Satellite BEAM ID) Performs automatic satellite acquisition on the Beam ID selected.
SS1	(Find Satellite 1) Performs automatic satellite acquisition for configured satellite 1.
ORG	(Find Satellite ORG) Performs automatic satellite acquisition on the Orange Beam.
SS2	(Find Satellite 2) Performs automatic satellite acquisition for configured satellite 2.
PRP	(Find Satellite PRP) Performs automatic satellite acquisition on the Purple Beam.
SS3	(Find Satellite 3) Performs automatic satellite acquisition for configured satellite 3.

GRN	(Find Satellite GRN) Performs automatic satellite acquisition on the Green Beam.
SS4	(Find Satellite 4) Performs automatic satellite acquisition for configured satellite 4.
TE	(Transmitter Enable) Enables the transmitter after locking onto the designated satellite.
TD	(Transmitter Disable) Disables the transmitter after locking onto the designated satellite.
AZ	(Azimuth Calibration) Performs a complete Azimuth Calibration.
PL	(Polarization Calibration) Performs a complete Polarization Calibration.
CM	Allows Manual Compass Calibration at specified angles.
CA	Performs automatic compass calibration.
CR	Restores Compass to factory calibrated defaults.

1 – Find Satellite

> Automatically finds and locks onto the satellite signal by communicating with the Satellite Modem and using the GPS coordinates, the compass heading and internal parameters of the Satellite Modem. Typically, it takes approximately 3-5 minutes to find satellite. The "Service Type" must be selected and "Update Beam Table" button applied for the correct Beam ID information to propagate when using HN_KA Modem Type.
> If the Antenna is already pointed on the satellite, clicking **Find Satellite** will re-peak or re-deploy the Antenna onto the last satellite signal found. There are 5 configurable satellites in the 7000 Series Controller (S0-S4) and each is now capable of having 5 configurable beacon settings. Press "Enter" onto the corresponding satellite, Beam Color or Beam ID to begin search.

Note: The Tooway service will display Beam Colors while the HN_KA and iDirect Dual Beam Ka service will display Beam ID number.

2–Transmitter Enable (**TE**)

> Enables the Transmitter once locked onto satellite.

3 –Transmitter Disable (**TD**)

> Disables the Transmitter once locked onto satellite.

4 –Azimuth Calibration (**AZ**)

This feature will only be available on Legacy mounts. All new generation platforms (i.e. Ka-75V, 98H/98G/98V, 1201 etc...) will have this option disabled by default.

Performs a complete Azimuth Calibration.

➢ Antenna will move CW to a set point.

➢ Antenna will move back in the opposite direction to locate Stow switch.

➢ Antenna will attempt to locate the cut-off edges of the Azimuth Stow Switch and center itself.

➢ After detecting at which angles the ST Switch turns OFF, the Azimuth zero position is calculated and the AZ Zero(Pot) is set at the zeroed A/D value.

5 – Polarization Calibration (**PL**)

Performs a complete polarization calibration. On platforms with tilt sensors the system will complete a PL Zero point calibration and set the Zero point value. Tilt sensor must be levelled prior to running the Calibrate PL routine on system with Polarization tilt sensors.

➢ Antenna will completely rotate counter-clockwise to the physical limit and temporarily record the A/D value from the Potentiometer.

➢ Antenna will completely rotate clockwise to the physical limit and temporarily record the A/D value from the Potentiometer.

➢ Based on the A/D values of the two (2) physical limits and the maximum range of motion for the Mobile Platform, the center angle is determined.

➢ Antenna will center itself and attempt to locate the cut-off edges of the Polarization Stow Switch.

➢ After detecting at which angles the ST Switch turns OFF, the Polarization zero position is calculated and the PL Zero is set at the zeroed A/D value.

6 – Manual Compass Calibration (**CM**)

Ensure platform is oriented to point North (see Fig 30. below) this compass calibration is performed manually. It is intended to calibrate the compass by moving to three angle positions (0, 90, and 180). The compass is manually calibrated at each angle and then followed by a compass check to validate the angle readings. Manual Calibration procedure may require to be performed multiple times before angle readings are acceptable.

7 – Automatic Compass Calibration (**CA**)

Ensure that there are no metallic objects that could interfere with the Compass, and that the Mobile Platform is on level surroundings.

Orient the Mobile Platform as depicted in the following figure. If Platform is vehicle mounted ensure front end (windshield window) is pointed north. It is

recommended that you use an external compass to be as accurate as possible with the orientation.

Note: The New Generation Platforms (these include and not limited to ka-75V, 98H/98G/98V and 1201A) are equipped with newer versions of the compasses which are factory calibrated and do not require calibration in the field unless performed by C-COM support authorization only. Restore CP replaces the compass calibration on systems equipped with the newer compass version, these systems are identified by platform version. Please consult with C-COM Technical support before running the compass calibration.

North - 354°
West - 265°
South - 176°
East - 87°

This end faces North
(Front of Vehicle)

This end faces South

This end faces North
(Front of Vehicle)

This end faces South

Fig. 30:   *Compass Orientation and Approximate Values*

Software will display a pop-up on the pc screen asking end user to verify correct orientation of platform after Compass Calibration is selected within software.
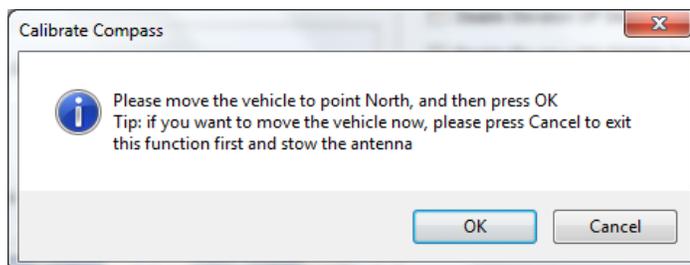
The Antenna will now rotate in 90° intervals and attempt to calibrate the compass. The LCD Screen will indicate that the Compass Calibration has been completed successfully or not.

8 – Compass Restore (**CR**)

Restores the compass to the factory calibrated default state as was shipped from the manufacturer. Use this button only after consulting with C-COM Support.

7.6.3.   CONF1

This Menu will allow the user to configure and save all 5 Satellites with 5 beacon settings as well as other configurable Search Modes of the iNetVu® System. A description of each menu and their purpose is outlined below. This section explains the different sub-menus of the configuration (CONF1) menu, and what each field parameter means.

7.6.3.1.   Password Protection

The LCD Configuration Interface is password protected.

> **PWD:: ********
> **RST :: *********

Fig. 31:   *Password screen*

The default password is **"password" (case sensitive)**.Use the "↑" or "↓" button to select the characters, and the "←" or "→" to navigate through the character fields. Press on the "ENTER" button of the front panel when the password has been completely entered.

If the password has been changed, and the user does not know the password, entering a specific reset ID in the bottom row will reset the password to the default ("password"). The Reset ID (RST) is **"123456789"**

7.6.3.2.   Configuration Menu (CONF1)

> **S1   SM1   SM2**

Fig. 32:   *CONF1 (Configuration) Menu*

S1	Allows the user to configure and save the Orbital slot / Longitude of the desired Target Satellite (0-4 satellites), along with the corresponding DVB Transponder and LNB Power Requirement. 5 satellites can be configured and saved with different search parameters
SM1	Allows the user to configure and save the search mode (RF Search or DVB mode), Compass, RF Threshold and AZ search window.
SM2	Allows Modem Beam ID configuration and Beacon configuration for each Satellite. 5 configurable Beacon settings can be configured to work with 5 satellites. Beam ID for Dual or Multiple Beam search can also be set.

7.6.3.3. S1

This menu allows for the configuration of the target satellite(s) (5 satellites maybe configured and saved) and the satellite polarization offset. If the user is using DVB as a search option, the transponder information must be entered along with the LNB power requirements.
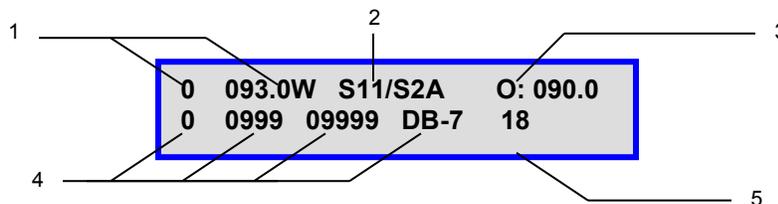

Fig. 33: *"S1" (Target Satellite) Configuration Display*

1 – Target Satellite

>   Satellite Number and Orbital slot / Longitude of the desired Satellite. The **Find Satellite** command will use this value when attempting to find and lock onto a satellite signal. The user can configure and save up to 5 satellites (0 to 4).

2 – DVB Configuration

>   The user can configure the type of carrier to search for either DVB-S1 or DVB-S2ACM. The DVB-S2 ACM carrier requires controller model 7000B Rev 1.0 or greater.

3 – Satellite Transmit Polarization Offset (range: -180 to +180)

>   In North America and not limited to the rest of the world
>   1201/1200/1800/1500/1.2 Flyaway –Horizontal Receive (Offset = 0, with feed/OMT position standing up),
>   Vertical Receive (Offset = 90, with feed/OMT position flat). Polarization is based on the Receive (RX) Polarity.
>   Vertical RX and Horizontal TX (VH) requires Pol Offset be set to 90.
>   Horizontal RX and Vertical TX (HV) requires Pol Offset be set to 0.
>   Therefore: VV requires Offset to be set to 90 and HH to 0.

Eutelsat configuration will automatically propagate the offset value after entering 0 or 90.

980/740 – Offset = 0 (considering OMT is adjusted manually).

4 – DVB Transponder Information.

0 – Transponder Number (0-2 are for Horizontal Receive, 3-5 are for Vertical Receive)

0999 – Transponder Frequency (MHz)

09999 – Transponder Symbol Rate (Ksps)

DB-7 – Transponder Code Rate (DVBS1 requirement)

> DB-1 = 1/2
> DB-2 = 2/3
> DB-3 = 3/4
> DB-5 = 5/6
> DB-7 = 7/8

5 – LNB Power (Target Satellite)

In cases where the LNB requires more power than the modem can provide, or if the user would like to power LNB from the controller, or if the user would like to find satellite without the use of a modem, this option allows for power from the controller to be supplied to the LNB through the RX IN cable from the controller to the platform itself.

DD – will disable this option, and provide power to the LNB straight from the modem. In this case, a splitter must be used for the RF connection as depicted in the figure below.
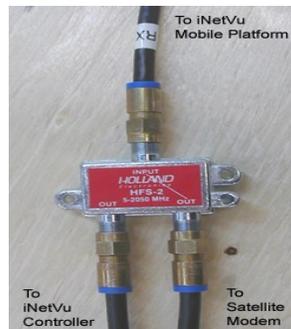

Fig. 34:   *RF Cable Setup for DIS selection*

7000 Series Controller Power Output Range Option Capabilities: **13, 14, 18, 19, V @ 500mA (max)**. If the user chooses to power the LNB from the controller, he/she should verify the power/voltage range requirements of the LNB in use, and configure the iNetVu® 7000 Series Controller according to those power/voltage requirements.

7.6.3.4. SM1

This menu allows for the configuration and saving of the Satellite Search Modes with a total of 5 different configurable satellites, each can be configured with different RF Search Mode parameters.
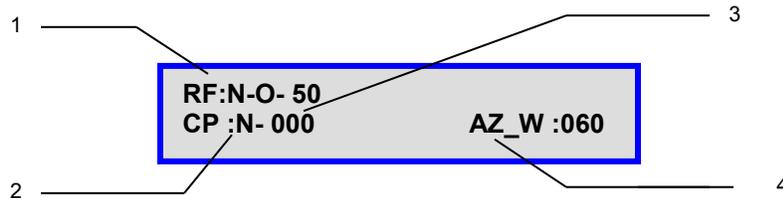

Fig. 35:   *"SM1" Search Mode Configuration Display*

1 – RF Search Mode

N RF Mode is disabled; **Y** will be displayed when enabled.
N RF override mode (second digit) is disabled; **O** will be displayed when enabled.
RF Threshold (50) Value will be displayed here, this value is configurable.

2 – CP (Compass)

V   Valid – The compass reading is functioning properly
N   Normal – Full Search NOT selected, (nor is compass overridden).
O   Override – the compass has been overridden, and direction entered manually considered
F   Full Search – searches a full 360° search window, Fly-away systems (70 °), Full search also overrides compass.

3 – Compass Heading

Compass Heading after Compass has been read.

Approximate Headings: North   354°
                         East   87°
                         South   176°
                         West   265

Calibrate/Check Compass Routine see **CPC** under **OPERATION** or **CP** under **TST**.

4 - AZ Search Window

The Search Window is the area of the sky which the iNetVu® Mobile System will search for the desired Satellite. It uses a rectangular window and searches for the Satellite using smaller concentric windows until the desired Satellite is found. The window value represents the amount of degrees the antenna will search for

satellite along the azimuth axis. Window will be expanded from 60 to 90 degrees if satellite not found during the first run.

Note: system may overshoot by 10º from the set window size limits.

7.6.3.5. SM2

This Menu allows the user to set the modem Beam ID (dual or multi beam modems) for the desired Satellite search as well as set the Beacon and ACQ Attenuation with different values for 5 Configurable Satellites. 5 different Beacon settings can be configured and saved.
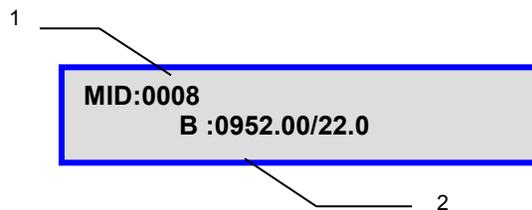


```
1 ─────────
          MID:0008
                 B :0952.00/22.0
                                        2
```

Fig. 36:   *"SM2" Modem Beam ID and Beacon Configuration Display*

1 – Modem Beam ID

Modem Beam ID number can be entered from the front panel. Used with modems that support dual or multi beam search (iDirect and HN). Beam switching will depend on the currently set Beam ID in the modem and the required ID for existing location, switching occurs and modem reboots if different beam ID is required from the current one set in the modem. Modem will remain on the last active Beam ID that locked on signal. The Multi-Sat Search option must be enabled and the different Sat No. configured with the proper Beam ID for the beam switching to toggle to the next Beam in the list.

2 – BR (Beacon Receiver Frequency and Power Level – Optional)

If the Optional Beacon Receiver is used to acquire satellite, the user may enter the beacon frequency of the satellite that he/she wishes to lock onto, also the Power level for peaking on the Beacon Signal. See "iNetVu User Manual – Beacon Receiver" (7000 Series Controller section) for details

7.6.4. CONF2

This menu will allow the user to select and set the configuration of the iNetVu® System as well as the Reference satellite option. The target satellite(s) S1 is configured in the CONF1 menu. A description of each menu and their purpose is outlined below. This section explains the different options of the configuration menu, and what each component means. **A step-by-step procedure of how to configure the system is explained in the corresponding Service Provider Based Quick Start User Manuals. Please refer to the manual based on the service you are using with the 7000 Series Controller.**

7.6.4.1. Configuration Menu (CONF2)

Password must be entered before accessing CONF2 menu and submenu.

```
S2  MB   EL  AZ     PL  GP
C1  C2   C3  SG     IP  SR
```

Fig. 37:   *CONFIG2 (Configuration) Menu*

S2	(Reference Satellite Option Use Only) Allows the user to configure the Orbital slot / Longitude of a reference satellite, along with the corresponding DVB Transponder and LNB Power Requirement.
MB	Allows the user to configure the Modem parameters such as transmit and receive polarization, as well as frequency and symbol rate (if required). New Beacon Reference search added.
EL	(Elevation) Allows configuration of the elevation current, limits, slow speed, window size, and adjustment gap.
AZ	(Azimuth) Allows configuration of the azimuth zero, stow limit, speed, search window size, and current limits.
PL	(Polarization) Allows configuration of the polarization zero, skew adjustment, stow limit, polarization offset, speed, and current limits.
GP	(GPS and Compass) Configuration of GPS coordinates and Compass parameters.
C1	Contains Multi-Sat Search option, controller configuration feature information such, Motion Protection, ES/NO, Inclined Orbit etc...
C2	Contains configuration of the platform type, serial number, and the controller console port.
C3	Contains the password information. The user may change the password in this screen.
SG	(Gateway and Subnet) Allows for the configuration of the controller subnet IP address, as well as the controller gateway IP address.
IP	Configuration screen of the controller IP address, and the VSAT modem's IP address.
SR	The user may configure the service type, as well as the interface used to establish communication between the controller and modem (telnet, console, etc.) Ka services (HN_KA) will have the ability to change Beam ID.

7.6.4.2.   S2

This menu allows for the configuration of the reference satellite parameters. If the user is using the Reference Satellite Search option, the transponder information must be entered along with the LNB power requirements of the reference satellite used. The controller will lock onto the Reference satellite DVB carrier, and will pivot to the target satellite position to peak on the modem signal. Users acquiring Satellite signal using RF Search or direct DVB search with the Target satellite **DO NOT** require this option, and should ensure that this method is disabled (as will be explained below) . Reference Satellite Search option will only work with DVB search method. The Max ES/NO is automatically disabled and reverted back to default value of 255 when Ref Sat is enabled.
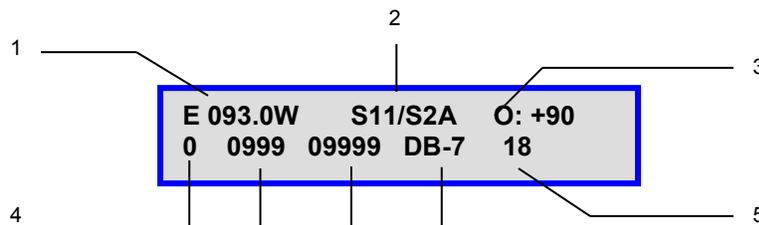

Fig. 38:   *"S2" (Reference Satellite) Configuration Display*

1 – Reference Satellite

> Orbital slot / Longitude of the Reference Satellite. If the reference satellite option is enabled, the **Find Satellite** command will use this value when attempting to find and lock onto the reference satellite signal then pivot to the target satellite position. Only works with DVB search mode.

> "D" – The user should select "D" if he/she does not wish to use this option.
> "E" – If the user wishes to use the reference satellite, "E" should be selected.

2- DVB Configuration

> The user can configure the type of carrier to search for either DVB-S1 or DVB-S2A. The DVB-S2 ACM carrier requires controller model 7000B Rev 1.0+ or greater. DVBS2 carriers are recommended.

3 – Satellite Transmit Polarization Offset (range: -180 to +180)

> In North America and not limited to the rest of the world
> 981/1201/1200/1800/1500/1.2 Flyaway – Horizontal Receive (Offset = 0) with feed/OMT standing up.
> Vertical Receive (Offset = 90) with feed/OMT position flat.
> 980/740 – Offset = 0 (considering OMT is adjusted manually)

> Only RX Polarity is referenced for the Pol Offset field allowing both Cross-Pol and Co-Pol to work with setting the Pol Offset to 90 or 0 depending on the Receive Polarity required. **Rx = V = 90 (feed/OMT position flat) and Rx = H = 0 (feed/OMT position standing up)** for Cross-Pol and Co-Pol.

4 – DVB Transponder Information for the reference satellite.

    0 – Transponder Number (0-2 are for Horizontal Receive and 3-5 are for Vertical Receive)
    0999 – Transponder Frequency (MHz)
    09999 – Transponder Symbol Rate (Ksps)
    DB-7 – Transponder Code Rate (DVBS1 requirement)
    DB-1 = 1/2
    DB-2 = 2/3
    DB-3 = 3/4
    DB-5 = 5/6
    DB-7 = 7/8

5 – LNB Power (Reference Satellite)

In cases where the LNB requires more power than the modem can provide, or if the user would like to power LNB from the controller, or if the user would like to find satellite without the use of a modem, this option allows for power from the controller to be supplied to the LNB through the RX IN cable from the controller to the platform itself.

DD – will disable this option, and provide power to the LNB straight from the modem. In this case, a splitter must be used for the RF connection as depicted in the figure below.

Fig. 39:   *RF Cable Setup for DIS selection*

7000 Series Controller Power Output Range Option Capabilities: **13, 14, 18, 19, V @ 500mA (max)**

If the user chooses to power the LNB from the controller, he/she should verify the power/voltage range requirements of the LNB in use, and configure the iNetVu® 7000 Series controller according to those power/voltage requirements.
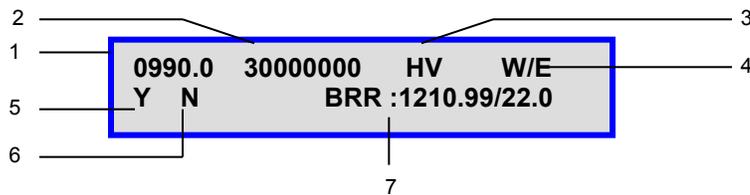
7.6.4.3.   MB

Fig. 40:   *"S2" (Reference Satellite) Configuration Display*

1 – Configured Satellite Modem Receive Frequency in MHz with no decimals. (HNS Only)

2 – Configured Satellite Modem Symbol Rate in sps. (HNS Only)

> 1Msps = 1000 Ksps = 1 000 000 sps

3 – Receive and Transmit Polarization.

> **HH** – Horizontal Receive, Horizontal Transmit
> **HV** – Horizontal Receive, Vertical Transmit
> **VH** – Vertical Receive, Horizontal Transmit
> **VV** – Vertical Receive, Vertical Transmit
>
> Receive polarity is represented by the first character, while Transmit polarity is represented by the second character

4 – Hemisphere of location of modem.

> This is typically used for the HNS modem; other service providers may not need this requirement.
>
> E – East
> W – West
>
> Modems operating in the eastern hemisphere require E to be selected, while modems operating in the western hemisphere require W to be selected.

5 – Auto Transmit Disable

> **N**: If "N" is selected, the controller will leave the modem status as is if a reset is pushed to the modem from the NOC or for any other reasons after communication between controller and modem is re-established.
>
> **Y:** If "Y" is selected, the controller will automatically disable the modem transmit if a reset occurs once communication is re-established between the controller and the modem.

6 – ACP Enable / Disable

> **N**: If "N" is selected, ACP will be enabled and the controller will try to perform ACP for HNS integrated modems after peaking on satellite and before enabling the transmitter.

Y: If "Y" is selected, ACP will be disabled and the controller will not perform ACP for HNS integrated modems after peaking on satellite, and will try to enable transmitter.

7 – Beacon Reference Search

This new feature allows operator to use the Beacon as a reference for satellite search.

7.6.4.4.   EL

The EL menu allows for the Configuration of the elevation axis. Options include configuring the elevation offset, the satellite search window, the elevation adjustment gap, the mechanical elevation limits, the slow speed, and the current limits.
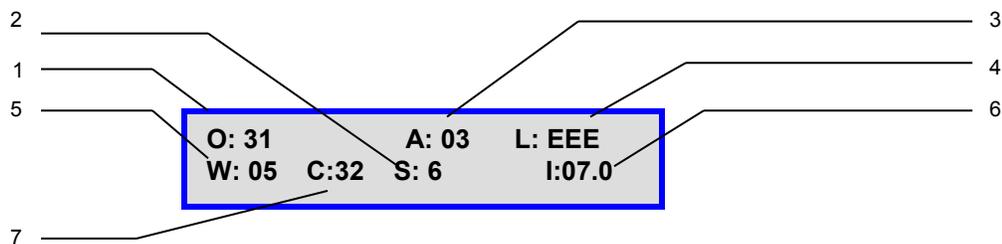

Fig. 41:   *"EL" (Elevation Configuration) Display*

1 – Elevation Offset

> The Elevation Offset is specific to each type of platform. See Appendix 1 for a list of all the elevation offset default values. It is the number of degrees at which the iNetVu® Mobile Software will offset the reading from the Inclinometer in order to produce an accurate (+/- 2°) Elevation Angle. The user may set the offset with the range of 15º-55º, although altering this number from its default value may give an inaccurate offset reading. This should not be tampered with without first consulting a C-COM Technical Support Representative.

2 –Speed Setting

> **S**   The user may configure the slow speed of the elevation movement. The slow speed is a basis for the satellite searching procedure.

3 - Advanced Search Elevation Gap (EL Adjustment)

> With a configurable range of (2º-20º) this parameter is used to determine the small incremental adjustments required for a more accurate satellite search. Decreasing this value will add accuracy to the Search Window, but will increase the search time. This value is used while searching on an inclined surface. For instance A: 03 means the elevation angle will adjust if 3º gap from the calculated angle. This value is set by default for optimum performance.

4 – Limit Switches (L: EEE)

Allows the enabling and disabling of the UP, DOWN, and STOW limits respectively.

The first character (**E**EE) represents the UP limit. The second character (E**E**E) represents the DOWN limit and the third character (EE**E**) represents the STOW limit. The user my change the limit configuration between:

D - Disable Limit

This option disables UP, DN, and ST limits for testing and troubleshooting (i.e. DEE – represents disabled up limit, and enabled down and stow limit).

E – Enable Limit

Once enabled, the up, down and stow limits will be activated whenever the up, down, and stow sensors have been triggered on the iNetVu® Mobile platform.

5 – Elevation Search Window

The Search Window is the area of the sky which the iNetVu® Mobile System will search for the desired Satellite. It uses a rectangular window and searches for the Satellite using smaller concentric windows until the desired Satellite is found. The Search Window range is pre-set by default for optimum performance; however this offset may be manually changed in the range of 2º-20º.

Fig. 42:   *Elevation Coverage of search window*

The default Elevation (Vertical) range is 3° on each side of the Target Point. Increasing the size of the Search Window will increase the ability to find the desired Satellite, although increasing the Search Window will lengthen the search time. The search window will expand from 3 to 5 if first search run fails to lock on satellite.

6 – Current Settings

A software controlled current protection for the Mobile Platform's elevation motors. When any of the Mobile Platform's motors are moving at the associated speed, the current drawn to move the motor is monitored and should it exceed the Current Limit, an error message will appear. For Motor Speeds that are not listed (Speed 1, 2, 4, 5, 7, 8), the Current Limit for those speeds is calculated using a percentage of the Current Limit above it. See Appendix 1 for the default current limits for all iNetVu® Mobile Platforms.

• Current Limit 8 – 90% of Current Limit 9

• Current Limit 7 – 80% of Current Limit 9

• Current Limit 5 – 90% of Current Limit 6

• Current Limit 4 – 80% of Current Limit 6

• Current Limit 2 – 90% of Current Limit 3

• Current Limit 1 – 80% of Current Limit 3

I - Configurable Current Limit for Slow Speed (6) which is displayed by the **S:** field (#2 speed setting) movement is set to 7.0.
(i.e. **I:07.0** and S**: 6** Represents Current Limit of 7 A @ speed 6.

7 – Elevation of Compass Reading

Number of degrees that the Antenna requires to be elevated to ensure that the compass is level and is able to acquire an accurate compass reading for finding satellite (see Appendix 1 for default values).

7.6.4.5.   AZ

The AZ menu allows configuration of the Azimuth axis, including AZ zero and stow limit, azimuth search window size, slow speed movements, and current limits at high and slow speeds.
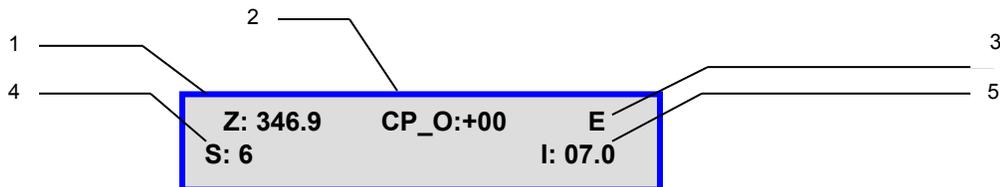

Fig. 43:   *"AZ" (Azimuth) Display*

1 – Configurable AZ Zero (Pot)

AZ Zero is an A/D value from the potentiometer calculated upon azimuth calibration which physically determines where the iNetVu® Mobile Software places Azimuth Angle 0°. The AZ Zero may vary approximately +15% from the Default values (see Appendix 1). The user may edit these values through this window; however any changes may result in failure to recognize the correct 0° angle. This parameter has a configurable range of (150-700).

2 – Compass Offset

A fixed offset could be used to adjust the compass heading. This value would be added to the calculated compass heading to compensate for any consistent inaccuracy of the compass reading.

3 - Stow Limit

Enabling this function allows for the iNetVu® system to trigger the stow limit when the mechanical stow range of the azimuth is reached. Disabling this limit, may result in failure to initiate the automatic stow command.

E – Enable Stow Limit
D – Disable Stow Limit

4 –Speed Setting

S   The user may configure the slow speed of the azimuth movement. The slow speed is a basis for the satellite searching procedure.

5 – Current Settings

A software controlled current protection for the Mobile Platform's azimuth motors. When any of the Mobile Platform's motors are moving at the associated speed, the current drawn to move the motor is monitored and should it exceed the Current Limit, an error message will appear. For Motor Speeds that are not listed (Speed 1, 2, 4, 5, 7, 8), the Current Limit for those speeds is calculated using a percentage of the Current Limit above it. See Appendix 1 for the default current limits for all iNetVu® Mobile Platforms.

   • Current Limit 8 – 90% of Current Limit 9

   • Current Limit 7 – 80% of Current Limit 9

   • Current Limit 5 – 90% of Current Limit 6

   • Current Limit 4 – 80% of Current Limit 6

   • Current Limit 2 – 90% of Current Limit 3

   • Current Limit 1 – 80% of Current Limit 3

   I - Configurable Current Limit for Slow Speed (6) movement is displayed under the **I:** while the speed under **S:**
   (i.e. I: 07.0 Represents Current Limit of 7 A @ speed 6)

7.6.4.6.   PL

The PL menu allows for the configuration of the polarization axis. Options include the setting of the PL zero, as well as the skew adjustment and stow limit functionality, the polarization offset, slow speed, and current limits for fast and slow speeds.
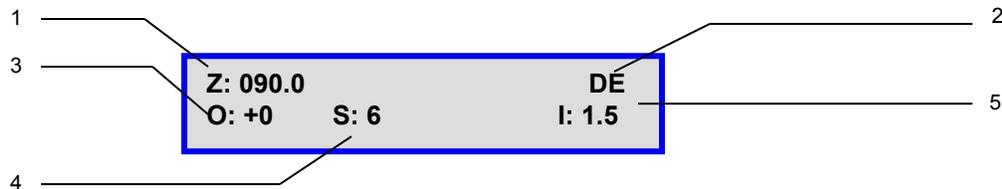

Fig. 44:   *"PL (Polarization) Configuration*

1 – PL Zero

PL Zero is used to convert the A/D value from the potentiometer that physically determines where the iNetVu® Mobile Software places Polarization Angle 0. The potentiometer PL Zero may vary approximately +15% from the default values (see Appendix 1). The PL Zero is calculated during the Polarization Calibration process. All New Generation platforms (981, 1201, 1200 Fly-Away and 1210 AC) and some legacy units are equipped with Tilt Sensors. PL Zero point calibration calculates and sets the Zero value for all platforms. The user may edit these values through this window, however any changes may result in failure to recognize the correct 0° angle. This parameter has a configurable range of (50-500).

2 – Skew Adjustment and Stow Limit Function

Allows the enabling and disabling of the skew adjustment and polarization stow limit respectively.

The first character (**E**E) represents the skew adjustment. The second character (E**E**) represents the Polarization ST limit. The user my change the limit configuration between:

> **EE** – Enable Skew Adjustment, Enable Polarization Stow limit
> **DE** – Disable Skew Adjustment, Enable Polarization Stow limit
> **ED** – Enable Skew Adjustment, Disable Polarization Stow limit
> **DD** – Disable Skew Adjustment, Disable Polarization Stow limit

For an iNetVu® 1200/1500/1800 Ku Mobile Platforms, the Polarization Stow Limit is constantly ON. The Skew Adjustment will rotate the antenna on the azimuth axis 90° on each side of the peaked signal and then re-position on signal with an adjustment to the polarization for any inclined surface.
For 2 axial (movement on El and AZ) Ka Mobile Platforms **DD** the Skew and the Polarization Stow limit will always be disabled.

3 - Polarization Offset

By default this polarization-offset value is set to +0°. If there happens to be a requirement for a polarization offset in the satellite position, the user may manually enter this value in this area. This area is also updated automatically if the skew adjustment procedure recognizes inaccuracy in the target polarization angle. Misconfiguring this field will result in undesirable results.

4 –Speed Setting

S   The user may configure the slow speed of the polarization movement. The slow speed is a basis for the satellite searching procedure. See Appendix 1 for details.

5 – Current Settings

A software controlled current protection for the Mobile Platform's polarization motors. When any of the Mobile Platform's motors are moving at the associated speed, the current drawn to move the motor is monitored and should it exceed the Current Limit, an error message will appear. For Motor Speeds that are not listed (Speed 1, 2, 4, 5, 7, 8), the Current Limit for those speeds is calculated using a percentage of the Current Limit above it. See Appendix 1 for the default current limits for all iNetVu® Mobile Platforms.

• Current Limit 8 – 90% of Current Limit 9

• Current Limit 7 – 80% of Current Limit 9

• Current Limit 5 – 90% of Current Limit 6

• Current Limit 4 – 80% of Current Limit 6

• Current Limit 2 – 90% of Current Limit 3

• Current Limit 1 – 80% of Current Limit 3

I - Configurable Current Limit for Slow Speed (6) movement is displayed under the **I:** while the speed under **S:**
(i.e. I: 1.5 Represents Current Limit of 1.5 A @ speed 6)

7.6.4.7.   GP

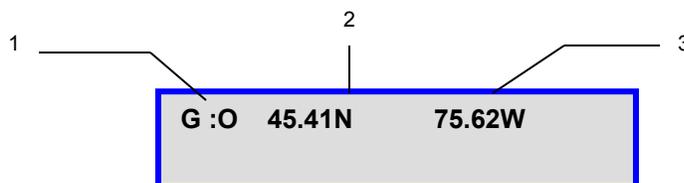Allows for the Configuration of the GPS parameters and settings,

Fig. 45:   *"GP (GPS) Configuration*

1 – GPS Status Configuration

N   Use Coordinates from GPS Antenna
O   Override GPS and use the coordinates entered (2) and (3). Enables the GPS coordinates
            to be manually overridden. This should only be enabled in the event that the GPS Antenna
            is malfunctioning and the user has a reliable, alternate source for coordinates.

CAUTION Indicates a situation or practice that might result in
             property or equipment damage.

Note 1: If you have overridden the GPS coordinates, they will have to be updated if the
Mobile Platform has moved to a new location since the overridden values will no longer be
accurate.

Note 2: Overriding the GPS will affect movement protection on all mobile platforms
preventing them from automatically stowing if vehicle movement and/or severe motion are
detected. If the vehicle drives off with the platform deployed, it will not stow as it should
because the GPS is overridden. Moving vehicle GPS speed and location must reach min
5km/h and or Elevation angle changes by 2 or more degrees in order for the movement
protection feature to trigger.

2 – GPS Latitude Coordinate

3 – GPS Longitude Coordinate

7.6.4.8.   C1

This menu allows for the configuration of the controller input settings as well as the
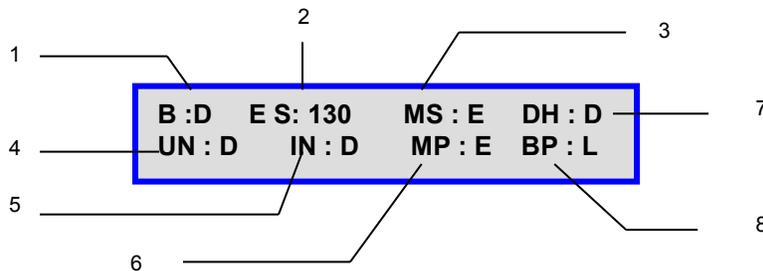platform type.

Fig. 46:   *"C1" Controller Display Screen 1*

1 – B (iDirect TX Broadcast)

The 7000 Series Controllers can be configured to broadcast with iDirect service.
This allows iDirect users with broadcast configured modems, to lock onto a DVB
carrier, and enable the transmitter in the iDirect modem automatically after
peaking through the 7000 Series Controller.

D – Disabled
E – Enabled

2 – ES

The Maximum energy to noise of a modem or SNR signal that can be configured to save time during the satellite peaking routine. If Maximum ES/NO value reached the system will stop the peaking routine otherwise routine continues with the complete peaking process. Modifying this parameter may inhibit satellite searching sequence and stop the peaking before the highest possible receiving signal is reached. Only change this value if the highest Maximum ES/NO value is known otherwise leave at default value of 255 to achieve highest MAX ES/NO signal. This option will be disabled when Ref Sat is enabled.

3 – Multiple Satellite Search

The multiple satellite search when enabled will search on the selected satellite when the "FIND SAT" (SAT0/1/2), command is triggered, if the search fails to lock on the first selected satellite, the search continues on the next and eventually onto the last; if the search fails on all three satellites a failed status will be displayed. All 3 satellite settings will default to the first configured satellite in the list, each satellite has to be manually set in the order that the operator prefers the search to begin on.

>   **D** – Disabled
>   **E** – Enabled

4 - Unattended Operation

        This option is used for remote operations where system is left unattended as the name indicates, mainly for unmanned sites. This feature must not be used when the iNetVu system is being moved around or in transport mode. In this case, the system should be powered off completely. Otherwise, there is a risk of the antenna attempting to deploy while vehicle is moving. Please ensure this feature is turned off when vehicle is in transit from one location to another.
        The user may disable, or set the unattended re-deploy delay time to 5, 10, or 15 minutes. If the system detects motion it will wait 1min, if dish still on signal the system will re-acquire satellite, otherwise the dish will stow due to motion or movement, the system will automatically re-acquire satellite depending on the user entered delay time after stow. Initial stow will only wait 30 seconds no matter what the selected delay time is set to before re-acquiring satellite.
For example, if the user selects 5 minutes from the drop down menu, and the system stows due to motion or movement while operational, on first stow it will only wait 30 seconds before re-acquiring satellite.
        The second stow, system waits Five (5) minutes + 30 seconds before automatically re-acquire the satellite signal. The routine uses the following formula: Waiting Time for re-acquire == 30S+ (retry times*selected delay time) default retry time at first stow is 0, second stow is 1, etc… until one (1) hour (3600 seconds) reached. If after (1) hour system does not find satellite it will continue to try on every hour thereafter. The retry time will be reset 0 after each time the system locks on satellite.

>   DIS: Disabled
>   1: Re-acquire Satellite in 5 minutes
>   2: Re- acquire Satellite in 10 minutes

3: Re- acquire Satellite in 15 minutes

DANGER: The system may try to deploy if this option is selected and vehicle becomes in motion. Unattended option must be disabled when vehicle is moving and system is NOT powered off.

5 – Inclined Orbit (Sat_Inc)

Enabling this option will allow the system to maintain signal with an inclined orbital satellite. The user may select the time difference between each re-peak on the inclined orbital satellite without disabling the transmitter and maximizing on the signal strength. If signal strength drops before the re-peaking time is due, the system will automatically re-peak to maintain signal strength. Feature enhanced and will be used with regular Ka services to maintain strong signal when platform shifts. This option will not work properly if Motion Protection is enabled at the same time, disable Motion Protection when inclined option is enabled.

DIS: Disabled
1: Re-peak every 10 minutes
2: Re-peak every 30 minutes
3: Re-peak every 1 hours
4: Re-peak every 2 hours
5: Re-peak every 3 hours
6: Re-peak every 4 hours
7: Re-peak every 6 hours
8: Re-peak every 8 hours
9: Re-peak every 12 hours

6 – Motion Protection

iNetVu® Platform will automatically stow if the antenna detects extreme motion, such as severe shaking caused by poor weather conditions. If the shaking/shift is in small increments the system will not stow assuming signal is not lost. If the small motion/movement count (12 small movements in 30 seconds) logged in a specific time window exceeds the set threshold the system will re-peak if signal exists or stow if signal lost. System will redeploy if stowed due to environment condition and "unattended Operation" is enabled, system will try to redeploy according to configured unattended time.

D - Disabled
E - Enabled

7 – DHCP Status

The 7000 Series Controllers can be programmed to obtain an IP address from a DHCP Server (i.e. modem, router, etc.)

D – DHCP Disabled (IP must be entered statically)
E – DHCP Enabled (Controller will dynamically obtain an IP address from the DHCP Server)

8 – Beep

This option allows for enabling and disabling the Beeping sound when navigating the LCD screen through the front panel keypad.

D – Beep Disabled, the sound will be completely removed.
L – Beep Enabled, a beeping sound will occur every 2 seconds.
M – Beep Enabled, a beeping sound will occur every 1 seconds.
H – Beep Enabled, a beeping sound will occur every 500 milliseconds.
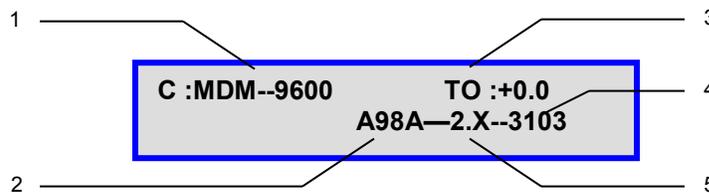
7.6.4.9.   C2

Fig. 47:   *Controller Configuration (Screen 2)*

1 – Console Port Configuration

Used for the configuration of the console port of the 7000 Series Controllers. The Console port could be used for the following:

1) MDM (Modem Communication)

If the COM port is used to establish communication between the Controller and the VSAT Modem (i.e. iDirect, Viasat, etc.), then MDM must be selected in this field, along with the Baud Rate the Modem operates on, prior to configuring the Service, and Communication Interface.

MDM--4800
MDM--9600
MDM--38400

2) B_R (Beacon Receiver)

The Beacon Receiver is a satellite acquisition lock controller that could be used alongside the 7000 Series Controller as an option. The Beacon Receiver will lock on the Beacon Frequency of a satellite based on the power density of the signal. If the optional Beacon Receiver is used, B_R must be selected for the console. The default baud rate is 2400.

3) DBUG-19200 (internal use only)

4) GLOS (GLONASS GPS)

   This option allows for external GLONASS GPS communication between the Controller and the external GPS device via COM Port. The default baud rate is 9600.

5) PC

   If COM port communication is desired between the 7000 Series Controller and the IMS software application. The default baud rate is 9600, and COM1 through COM9 can be selected.

6) GPS

   This option allows the user to communicate and output GPS readings/values from the 7000 series Controller via COM Port (RS232) connection. The default baud rate is 9600.

2- Platform Type

The user is capable of configuring the platform type using iNetVu LCD panel, as well as entering the serial number of the platform located next to the connector plate or on the elevation arm on the platform itself (only the last four or five digits need be entered). Location of serial number will differ between Legacy and New Generation platforms. Note the displayed names on the LCD will differ slightly from the names displayed in the software application.

A75A - iNetVu® A750 Mobile Platform (Ku – Band)
N755A - iNetVu® 75cm New Gen Drive-away Platform (Ka - Band Circular)
A98A - iNetVu® .98cm Mobile Platform (Ku – Band)
N981A - iNetVu® .98cm New Gen Drive-away Platform (Ku – Band)
N985A - iNetVu® .98cm New Gen Drive-away Platform (2 Axis Ka – Band Circular)
 ➢ Ka-98G (Skyware Global Feed boom)
 ➢ Ka-98H (HNS Feed boom)
 ➢ Ka-98V (Viasat Feed boom)
N985B - iNetVu® .98cm New Gen Drive-away Platform (3 Axis Ka – Band Circular)
 ➢ Ka-98G (Skyware Global Feed boom)
 ➢ Ka-98H (Spaceway Transceiver)
N987A - iNetVu® .98cm New Gen Drive-away Platform with SMC reflector ((2 Axis Ka – Band Circular)
A12B - iNetVu® 1.2m Mobile Platform (Ku – Band)
A12P - iNetVu® 1.2m Flyaway Platform (Ku – Band)
A12Q - iNetVu® 1.2m Flyaway Platform (Ku – Band)
N121A - iNetVu® 1.2m New Gen Drive-away Platform (Ku – Band)
Q12A - iNetVu® 1.2m Airline Checkable Platform (Ku – Band)
A15A - iNetVu® 1.5m Mobile Platform (Ku – Band)
A15B/E - iNetVu® 1.5m Mobile Platform (C – Band Standard Linear/INSAT)
A15C - iNetVu® 1.5m Mobile Platform (C – Band Circular)
A18A - iNetVu® 1.8m Mobile Platform (Ku – Band)
A18C - iNetVu® 1.8m Mobile Platform (C – Band Circular)
A18B/E - iNetVu® 1.8m Mobile Platform (C – Band Standard Linear/INSAT)
P18A - iNetVu® 1.8m Flyaway (KU - Band)
P18B/E - iNetVu® 1.8m Flyaway (C – Band Standard Linear/INSAT)
P18C - iNetVu® 1.8m Flyaway (C – Band Circular)
M18A - iNetVu® 1.8m Fixed Motorized (Ku – Band)
M18B/E - iNetVu® 1.8m Fixed Motorized (C – Band Standard Linear/INSAT)

M18C - iNetVu® 1.8m Fixed Motorized (C – Band circular)
M18D - iNetVu® 1.8m Fixed Motorized (X – Band circular)
M12A - iNetVu® 1.2m Fixed Motorized (Ku – Band)
M121A - iNetVu® 1.2m Fixed Motorized C-COM version (Ku – Band)
M125A - iNetVu® 1.2m Fixed Motorized C-COM version (Ka – Band)
N18A - iNetVu® 1.8m Drive-away Platform (Ku– Band)
N18B/E - iNetVu® 1.8m Drive-away (C – Band Standard Linear/INSAT)
N18C - iNetVu® 1.8m Drive-away (C – Band Circular)

3 - TO (Mechanical Offset in Polarization Assembly)

This field allows the user to place a fixed offset for the target polarization angle. This value could make up for any noticeable mechanical offsets in the polarization assembly of the iNetVu platform between -5º to +5º.

e.g. 1)   Calculated Target Polarization Angle = 10º
TX_O = +3º

The iNetVu system will position @ 7º when pointing

e.g. 2)   Calculated Target Polarization Angle = 10º
TX_O = -3º

The iNetVu system will position @ 13º when pointing

4 - Platform Serial Number

The user must enter the last four or five-digits of the platform serial number located next to the connector plate on the iNetVu® Mobile Platform. If platform and controller were purchased as a set, the number has been preconfigured for you.

Fig. 48:   *iNetVu® Platform Identification Tag*

5 – Platform Version Number

The user must select the platform version type to ensure the correct configuration parameters and settings are referenced when operating the system. The platform version when selected will differentiate the sensor and other hardware configuration on New Generation platforms which may affect the operation.
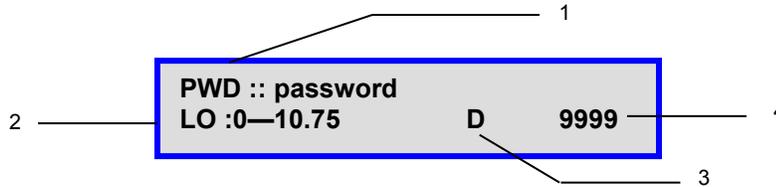
7.6.4.10. C3

Fig. 49:   *Controller C3 Configuration*

1- Current LCD and Web Interface Password

The user may change this password by using the "↓" and "↑" buttons on the front panel of the 7000 Series controller and the "→" and "←" buttons to navigate through the character fields. This password must be remembered in order for the user to re-enter the LCD screen configuration interface, or the web interface.

2- LO – (LNB)

Configurable to allow satellite accusation when frequency changes, values range from 10.75, 9.75, 10.00, 10.60 and 11.30.
The default value should be set to **10.75**, the user is not required to change this value unless necessary, otherwise select the carrier from the table or enter one if not listed.

3- 22 KHz Tone (Enable/Disable)

This feature allows users to enable/disable the 22 KHz tone for supporting LNB's.

E – Enabled
D – Disabled

4- DISABLE STOW

The system can be configured to disable the STOW by changing the ID.

8755 – Disables the STOW
8955 – Enables the STOW

7.6.4.11. SG

This menu will allow the user to configure the subnet mask IP address and the Gateway IP address of the iNetVu® 7000 Series Controller.
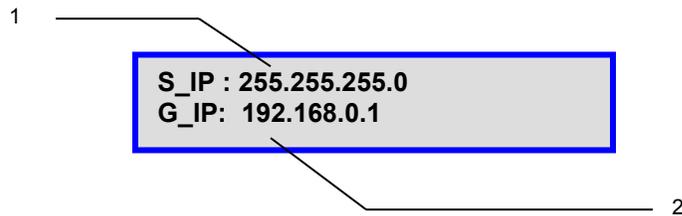
1 ⎯⎯⎯

S_IP : 255.255.255.0
G_IP: 192.168.0.1

2

Fig. 50:   *"GW" (Gateway) Configuration*

1 – S_IP (iNetVu® 7000 Series Controller's Subnet Mask IP Address – Default is (255.255.255.0)

2 – Gateway IP Address (Default: 192.168.0.1) this can be changed to support the network you are on.

7.6.4.12. IP

This menu will allow the user to configure the controller IP address, as well as the Modem IP address.

1 ⎯⎯⎯

C_IP : 192.168.0.3
M_IP: 192.168.0.1

2
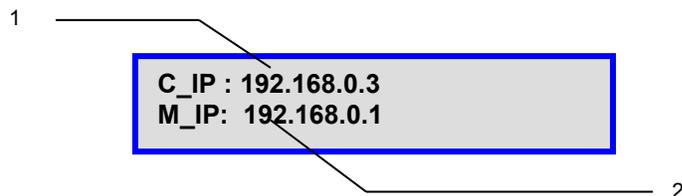
Fig. 51:   *"IP" Configuration*

1 – iNetVu® 7000 Series Controller's IP Address

2 – Modem IP Address

7.6.4.13. SR

This menu will allow the user to configure the controller to the service used (select modem type) for 2-way satellite communication.
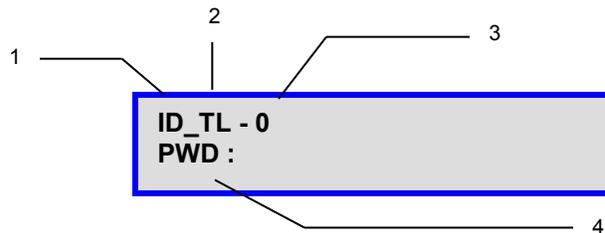

Fig. 52: *"SR" (Service) Configuration*

1 – Two-Way Mobile Service Selection

Before communication is established with the modem, the user must define the service in use. The iNetVu® 7000 Series Controller supports several services, including:

ID – iDirect Service
IS – iPSTAR Service
VA – ViaSat Service
VA – TW – Viasat Tooway Ka Service
V_SBS2 – Viasat SurfBeam2
CT – Comtech Service
RD – Radyne Service
SF – Surfbeam Service
GL – Gilat Service
TY – Tachyon Service
ST – STM Service
PD – Paradise Service
HN – Hughes Service
HN_95 – Hughes Services HN9500 Modem
HN_KA – Hughes Ka Service
ET – Romantis/Eastar Service
AV – EMS/Advent
NT – Newtec

NA - Stand Alone service - Used to locate and lock onto a manually configured satellite using the DVB receiver unit inside of the controller independent of the modem. The manual configuration requires:

- Orbital Slot of Satellite
- Receive Polarization
- DVB Type
- L-Band or Ku-Band Rx Frequency (kHz)
- Symbol Rate (ksps)
- FEC Code Rate

2 – Modem Communication Interface

TL - Telnet Interface
CM - Console Port Interface
TP – TCP Interface

HT - HTTP Interface
SN – SNMP Interface
UD – UDP Interface
NA - No modem interface applicable, this option is generally selected with the stand-alone service. Locking and peaking onto satellite is based on the DVB Signal and not on the modem SNR value.

3 – Modem Delay Time

This allows users to delay Controller communication to allow slower modems to catch up. The default setting is 0 – 1s user has option for a 10s delay.

4 – Modem Password/CD-KEY

If necessary, the user must enter the modem password into this area for communication to be properly established. The default password is "P@55w0rd!" which is based on most iDirect modem requirements. If no password is required, this area should be left blank.

CD – Key must be entered instead of the password if iPSTAR Service is selected.

7.6.5. TST

```
E&A&P   DPY   DPYQ    DPY_C
CP   A_ACP    M_ACP   S_ACP
```

Fig. 53:   *Test Menu*

E&A&P	Will allow for Demo Testing on all axes (elevation, azimuth, and polarization) for a user specified angle range.
DPY	Deploys the antenna to a user specified azimuth, elevation, and polarization position.
DPY_C	Will read the compass heading at a user specified elevation, azimuth, and polarization target point.
DPYQ	Deploys the antenna to a user specified azimuth, elevation, and polarization position without moving EL to 30˚ first, and without the extra steps that exist in DPY.
CP	Tests the compass' heading and accuracy by rotating the antenna at 90° intervals and comparing the compass readings with the actual antenna's movement.
A_ACP	Performs an automatic ACP test for Hughes service.

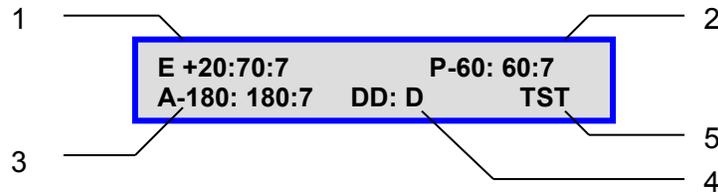| M_ACP	Performs a manual ACP test for Hughes service.
S_ACP	This operation will stop the ACP test from continuing.

7.6.5.1. E&A&P

Fig. 54:   *Test/Demo EL,AZ, PL Configuration*

1 – Elevation Range

Allows the user to set the start and stop angle of the elevation axis, as well as set the specific speed for elevation movement. (E +20:70:7 –implies from angle 20 to 70 at speed 7)

2 – Polarization Range

Allows the user to set the start and stop angle of the polarization axis, as well as set the specific speed for polarization movement. (P -60:60:7 –implies from angle -60 to 60 at speed 7)

3 – Azimuth Range

Allows the user to set the start and stop angle of the azimuth axis, as well as set the specific speed for azimuth movement. (A -180:180:7 –implies from angle -180 to 180 at speed 7)

4 – Axis Selection and looping option

The first two characters refer to the axis selection (i.e. **DD**: D).

DD   Disable Test for all axes
EL   Perform test on the Elevation axis only
AZ   Perform test on the Azimuth axis only
PL   Perform test on the Polarization axis only
AA   Perform tests on all the axes.

The third character refers to the looping intervals between tests (i.e. DD: **D**).

D   Disables looping, test will only be performed once.
1   Infinitely loops with 3-seconds interval between tests.
2   Infinitely loops with 6-seconds interval between tests.
3   Infinitely loops with 9-seconds interval between tests.
4   Infinitely loops with 12-seconds interval between tests.

5	Infinitely loops with 15-seconds interval between tests.
6	Infinitely loops with 18-seconds interval between tests.
7	Infinitely loops with 21-seconds interval between tests.
8	Infinitely loops with 24-seconds interval between tests.
9	Infinitely loops with 27-seconds interval between tests.

5 – Test Selection

Initiates the test on the specified axes according to the specified ranges, and speeds.

7.6.5.2.   DPY

Deploy antenna to the specified angles.
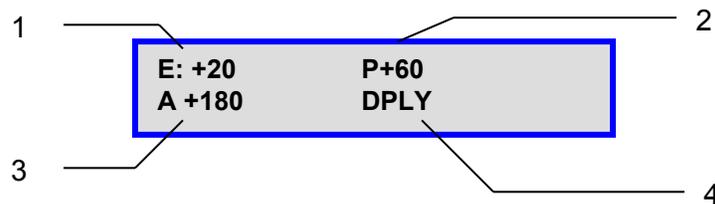
Fig. 55:   *Deploy Configuration*

1 – Elevation Movement

User-defined elevation angle of deploy.

2 – Polarization Movement

User-defined polarization angle of deploy.

3 – Azimuth Movement

User-defined azimuth angle of deploy.

4 – Deploy

Automatically moves antenna to the manually entered Elevation, Azimuth and Polarization angles.

7.6.5.3. DPYQ

DPYQ deploys to the set angles excluding the fine tuning and pre-condition movement of EL to 30˚ as a first step.
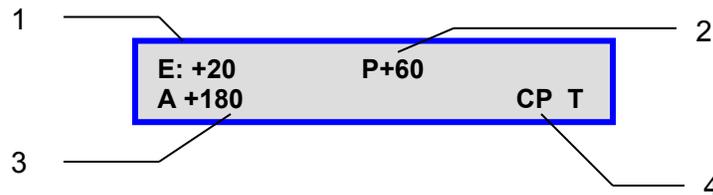Note: See DPY for parameter functions and meanings as they are identical.

```
1 ─────────────          ─────────── 2
        ┌─────────────────────────────┐
        │ E: +20        P+60          │
        │ A +180                 DPLY │
        └─────────────────────────────┘
3 ─────────────                 
                                ─────── 4
```
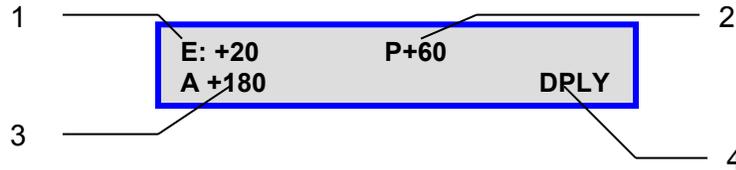
Fig. 56:   *Quick Deploy Configuration*

7.6.5.4. DPY_C

This is the compass test feature. A compass check is performed at the set angles.

```
1 ─────────────          ─────────── 2
        ┌─────────────────────────────┐
        │ E: +20        P+60          │
        │ A +180                 CP T │
        └─────────────────────────────┘
3 ─────────────                 
                                ─────── 4
```

1 – Elevation Movement

   User-defined target elevation angle offset for compass reading.

2 – Polarization Movement

   User-defined target polarization angle for compass reading.

3 – Azimuth Movement

   User-defined target azimuth angle for compass reading.

4 – Check Compass at specified target point.

   Tests the compass' heading and accuracy at the user defined Elevation, Polarization, and Azimuth angles, by rotating the antenna at 90° intervals and comparing the compass readings with the actual antenna's movement. This function is mainly used for testing purposes. Ensure proper orientation (front of vehicle is point north). Popup (see below) displayed in Software application.

Check Compass

Please move the vehicle to point North, and then press OK
Tip: if you want to move the vehicle now, please press Cancel to exit this function first and stow the antenna

[OK] [Cancel]
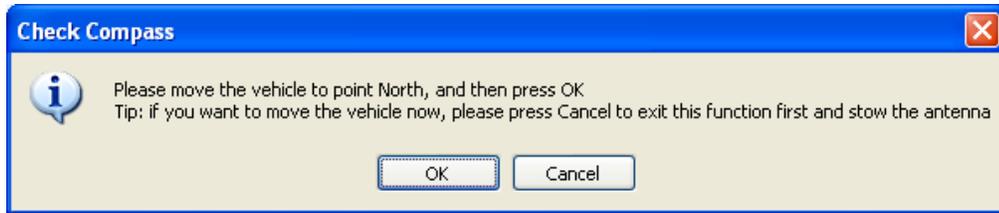
Antenna will move to the target Elevation, Polarization, and Azimuth for reading the compass heading such that the user can determine if the compass reading is accurate at that point.

7.6.5.5. CP

```
RF :N-N-55-30N
CP:V-0          AZ_W :60
```
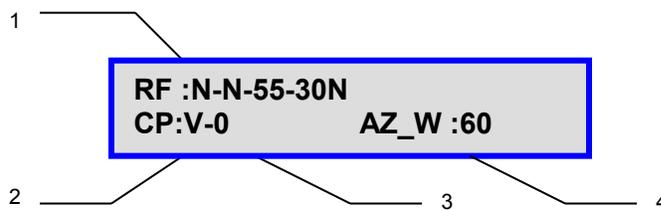
1 – RF Search Mode Status (values displayed but not used for CP tests/calibrations)

N RF Mode is disabled; **Y** will be displayed when enabled.
N RF override mode is disabled; **O** will be displayed when enabled.
RF Threshold (55) Value will be displayed here, this value is configurable.

RF/DVB signal value (30N) – If in RF search mode this will represent RF signal value, if in DVB Mode it will display DVB carrier signal. The letter '**N**' next to the RF Value indicates the LNB is not being powered properly. The letter "**L**" next to the value indicates a DVB signal LOCK.

2 – Compass Status

V – Valid
O – Override
F - Failed

3 – Compass Heading

Compass Heading after Compass has been read.

Approximate Headings: North   354°
                              East   87°
                              South   176°
                              West   265°

Compass Accuracy Readings

Tests the compass' heading and accuracy by rotating the antenna at 90° intervals and comparing the compass readings with the actual antenna's movement.

i.   Antenna will center itself; move to the proper Elevation for reading the compass, then read the compass heading.

ii.   Antenna will rotate 90° to each of the following positions and read the compass at each: 0°, 90°, 180°, -90°, and 0°.

iii.   iNetVu® Mobile Software will compare the compass heading values read at each position, and determine if they differ by approximately 90°.

iv.   The Compass Check will display a message regarding the accuracy of the compass with a "PASS" or "FAIL".

4 - AZ Search Window Status (value displayed but not used)

The Search Window is the area of the sky which the iNetVu® Mobile System will search for the desired Satellite. It uses a rectangular window and searches for the Satellite using smaller concentric windows until the desired Satellite is found.

7.6.5.6.   A_ACP

Initiates an automatic cross-pol test.

7.6.5.7.   M_ACP

Initiates a Manual cross-pol test.

7.6.5.8.   S_ACP

Stops the cross-pol testing instantly.

7.6.6.   INFO

Displays information regarding the iNetVu® 7000 Series Controller's firmware and software versions installed, the Mobile Platform it is configured to, and also any Error Codes detected.

```
CC1   CC2   DVB_D   DVB_P
MOD   SYS1          ERR
```

Fig. 57:   *"INFO" (Information) Display*

CC1	Contains information pertaining to the iNetVu ® 7000 Controller hardware version, Controller ID, firmware version, boot loader version, Signal
CC2	Threshold, MAC address and configuration ID.
DVB_D	Contains information pertaining to the type of DVB Module in use.
DVB_P	Contains information pertaining to the DVB lock status, as well as the real-time DVB data such as type, modulation, frequency, code rate, and symbol rate.

MOD	Contains information pertaining to the modem ID, serial number, and version.
SYS1	Contains information pertaining to the Platform Type, Serial Number.
ERR	Contains information pertaining to the error code if an error occurs.

7.6.6.1. CC1

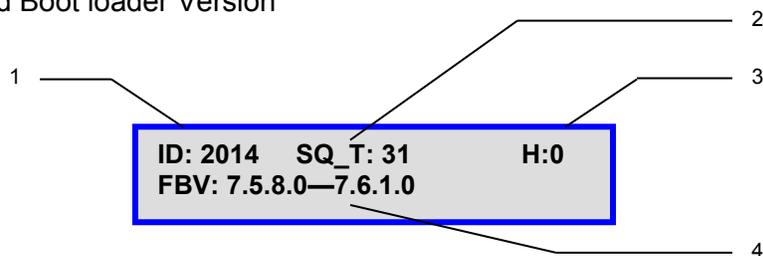This branch menu displays the controller ID (serial number), Hardware Version, Firmware, and Boot loader Version

Fig. 58:   *"CC1" (Controller Info 1) Display*

1 – Controller ID Number

> The iNetVu® Controller Serial Number is located on the base of the controller. The ID displays the last 4 or 5 digits of the Serial Number.

2 – Signal Quality Threshold

> Minimum SNR Value required for the iNetVu® 7000 Series Controller to validate signal.

3 – 7000 Series Controller Board Hardware Type Version

4 – 7000 Series Controller Firmware and Boot loader version

> The firmware version is to the left of the dash (i.e. **7.5.8.0** - 7.6.1.0), and the boot loader version is to the right of the dash (i.e. 7.5.8.0 - **7.6.1.0**).

7.6.6.2. CC2

This branch menu displays the controller MAC address and Configuration ID.
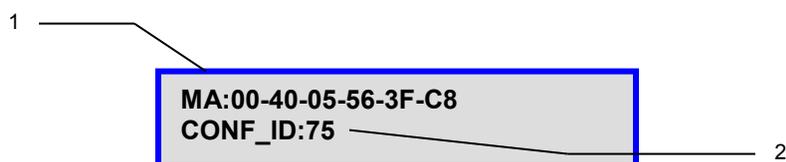
Fig. 59:   *"CC2" (Controller Info) Display*

1 – iNetVu® 7000 Series Controller MAC address

2 – iNetVu® 7000 Series Controller Configuration ID (for internal use).

7.6.6.3.   DVB_D

This branch menu displays the controller DVB Module Type and ID.
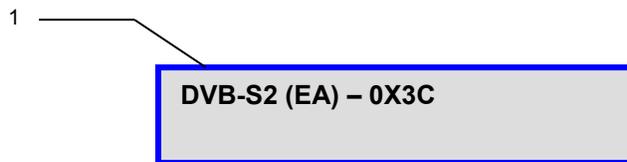
Fig. 60:   *"DVB" (DVB Module) Display*

1 – The DVB Module (Tuner) and ID currently embedded into the iNetVu® 7000 Series Controller.

7.6.6.4.   DVB_P

This menu displays the real time DVB module information. If there is no lock on DVB, it will simply indicate "No Lock", otherwise it will display real time DVB information such as DVB type, modulation, code rate (if applicable), symbol rate, and frequency.

7.6.6.5.   MOD

This branch menu displays the VSAT Modems ID, Serial Number, and software version number if proper controller/modem communication is established.
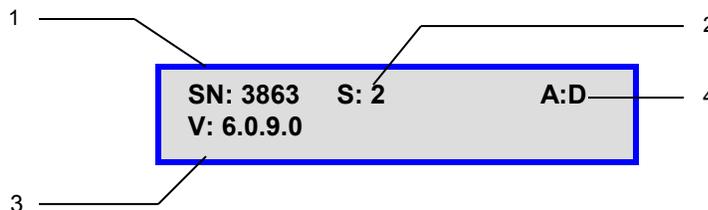
Fig. 61:   *"MOD" (Modem) Display*

1 – VSAT Modem Serial number

2 – Modem Status

> 1 - Modem Initializing Status
> 2 - Modem Normal Status
> 16 - ACP in progress

3 – Satellite Modem's Model and Firmware Version

4 – Auto ACP Status (Hughes modems only)

7.6.6.6. 1 SYS1

A12B--1234
R:15754
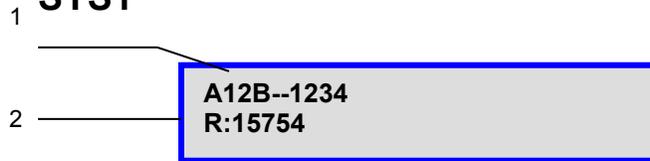
1 – Indicates platform type and serial number.

2 – Data recording information(C-COM internal use)

7.6.6.7. ERR

This branch menu displays the error code if an error occurs. The top line represents the latest error; the bottom line will represent any previous errors.

1

Error INFO

Fig. 62:   *"ERR" (ERROR) Display*

1 – iNetVu® Error code display

8. iNetVu® 7000 Series Software

The iNetVu® Mobile Software plays an integral role in connecting you and iNetVu® Mobile System. The new addition of the iNetVu Setup Wizard will guide first time users and users that are already familiar with the software application to configure the system upon first launch. This new feature allows the user to configure the system upon launching the application with guided information and tips. The iNetVu software has the ability to communicate with the satellite modem and iNetVu controller automatically finding and locking onto a satellite; stowing the antenna when use of system is completed. The user has the option to search for satellite using the following methods, DVB search; RF search and Beacon receiver with the highest precision. Existing features such as the ability to configure and save 5 satellites with 5 different Beacon settings. The user can also monitor real-time system parameters such as Signal Strength, GPS Coordinates, motor currents, as well as allowing the user the capability of manually moving the antenna and performing any maintenance tests and calibration tasks. The user has a choice of languages, currently English, Simplified Chinese & Traditional Chinese, Russian, Spanish and newly added Swedish to select from on the fly. Application windows can be resized on your screen or run in full screen mode given the user the optimized viewing.

8.1. Setup Wizard

The Setup Wizard has been implemented to aid first time users in configuring their system after the software has been installed. A Pop-up window will show at first launch allowing the user to use the Setup Wizard (select Yes) or to bypass it (select No) and use it at a later time. Selecting "Cancel" will exit the Setup Wizard. This window will show every time the **iNetVuMobile7000** software is executed, select "Do not show this message again" to allow software to go straight to the Controls Window when the software is launched. The Wizard can be launched at any time as it will be added as a menu option. See appendix for complete instructional steps on using the Setup Wizard.
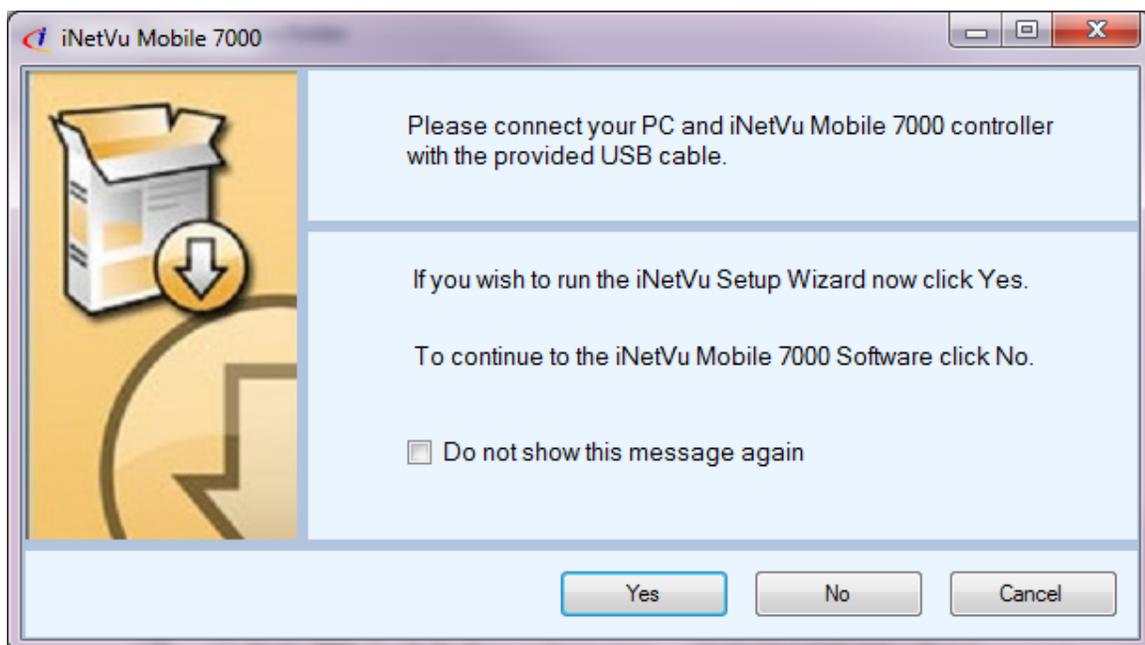
The Wizard will check Firmware and Software versions if "Yes" is selected to validate the versions are the same and prompt the user to update the Firmware if they are different.
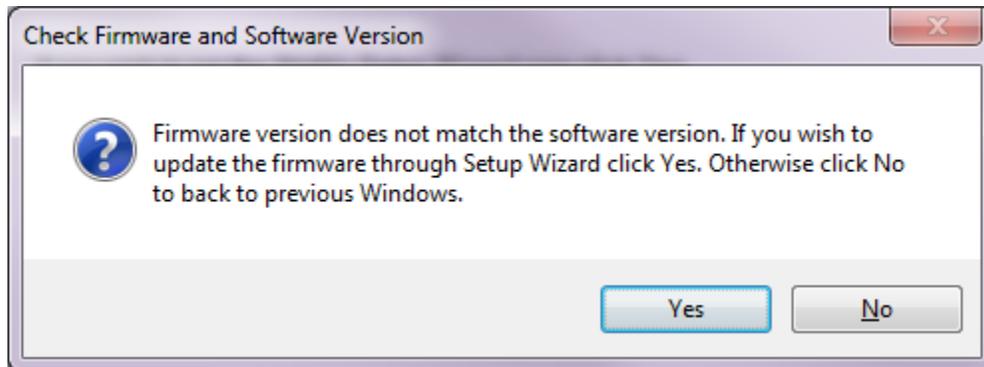
 The wizard will automatically resume after the Firmware update has completed, follow onscreen prompts. The wizard will not continue and go back to the previous window if "No" is selected.

8.2.   Navigating Menus

To navigate the iNetVu® Mobile Software, **right-click** the iNetVu® swirl icon located in the System Tray.

There are 7 options available:

- Controls
- Maintenance
- Configuration
- About
- Setup Wizard
- Language
- Exit

8.2.1.   iNetVu Controls

The Controls menu allows users to monitor system parameters and manually move the antenna, as well as conduct automatic processes and functions.

Improper use of iNetVu Controls menu can render the iNetVu® Mobile System inoperable and may be in violation of FCC regulations. The user can halt any operation at any time by clicking STOP button located in the Automatic Controls or on the Controller front panel.
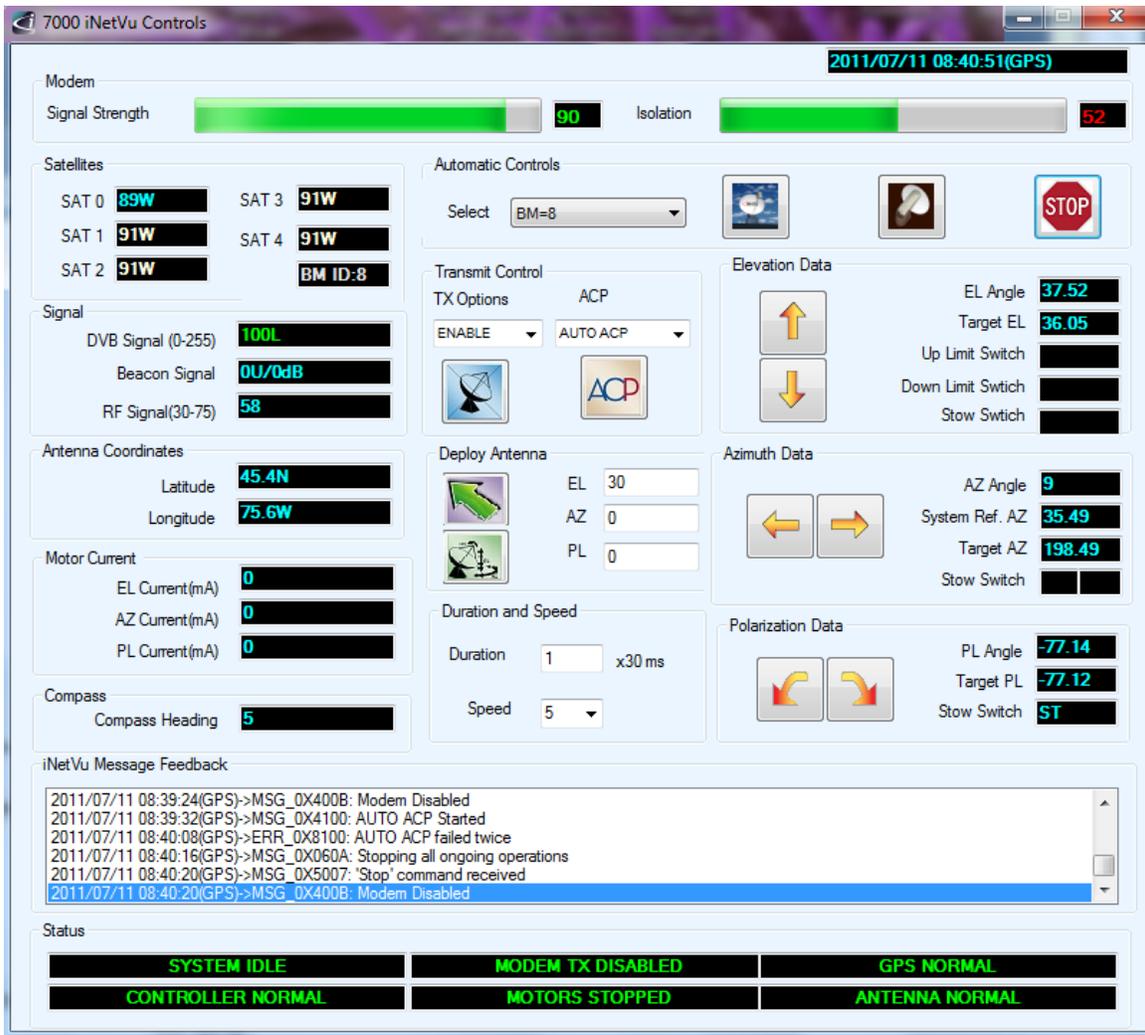
Fig. 63:   *Controls Window*

Signal Strength

A real-time Signal Quality Factor (SQF). A value obtained from the Satellite Modem when locked onto a signal. Using a red/yellow/green color-coated system, it denotes the strength of the received signal from the current satellite.

Should the Signal Strength be lower than 29 when locked on satellite, click **Find Satellite** again to re-acquire the signal.

Fig. 64:   *Signal Strength Display*

Isolation Value

Denotes isolation to the current satellite transponder. This value is not an indication of signal strength when transmitting a signal.

The Isolation Value will correspond to the transmit quality of an HNS system. Otherwise, this field is not applicable.

Fig. 65:   *Isolation Value Display*

Date/Time

Current date and time as received from the GPS Antenna. Should the GPS experience any problems, the alternate source is your PC internal date and time.
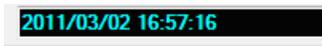
Fig. 66:   *Date/Time Display*

Automatic Control
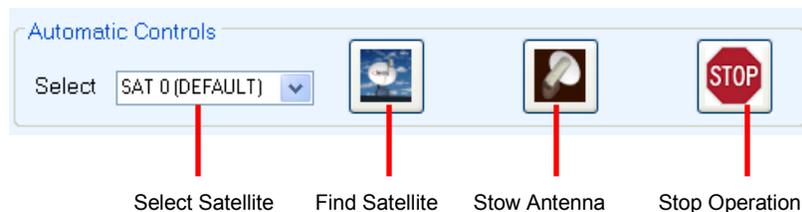
Fig. 67:   *Automatic Control Buttons*

Select Satellite

Choice of 5 Satellites that user can select from by simply clicking on the drop down arrow. Satellites 0 to 4 can be preconfigured and saved to allow user to search for desired satellite. Sat 0 is default satellite and will be the one searched on if no other is selected from the drop down list. Selected Beams will be displayed in the drop down list for some services.

Find Satellite

Automatically finds and locks onto the satellite signal by communicating with the Satellite Modem and using the GPS coordinates, the compass heading, and internal parameters of the Satellite Modem. Typically, it takes approximately 3-5 minutes to find satellite. If the Antenna is already pointed on the satellite, clicking **Find Satellite** will re-peak the Antenna onto the signal.

Search routine will ignore GPS and RF status until after compass heading has been read to reduce search time. If GPS and RF conditions not met after 60 seconds the search will fail and a message will be displayed.

Stow Antenna

Re-centers the antenna and lowers it into the stowed position.

Note: The stow command for the Fly-Away(s) moves the Platform to a home

position.

Stop Operation
Halts all motor movements and disrupts all communication between iNetVu®
Mobile System components.

Orbital Slot Location of Configured Satellites
The target and Reference satellites section displays the satellite longitude for each
configured satellite. If no satellites are configured, the default is SAT0. The Beam and or
Carrier will be displayed after the SAT 4 field.

Angle and Limit Switch Indicators
Displays real-time angles and Limit Switch status

Fig. 68:   *Angle and Limit Switch Indicators*

- When the Elevation STOW Limit Indicator is ON, the Elevation Angle will change to "–90", to denote that the iNetVu® Mobile Platform is now stowed. It will remain "-90" until the indicator turns OFF.

- For iNetVu® 1200/1500/1800 KU Mobile Platforms, the Polarization Stow Indicator will ALWAYS be ON.

- 981 and 1201 Ku systems will stow the Polarizer on the same side that the PL target angle was last positioned at. 981 will stow at ±50 degrees from the center. 1201 will stow at ±90 from the center.

- The ACFLY-1200 (Airline Checkable) will display L for AZ Left limit, R for AZ Right limit and ST for AZ Stow.

- The 981 and 1201 KU Drive-away Platforms will display "AW" at the +/-180˚ ±5 degree limits.

- A YELLOW colour "STF" will appear if a Limit Switch has been disabled in the Maintenance Menu (Ka-75V, Ka-98H, Ka-98G and Ka-98V Ka platforms).

- LHCP or RHCP will display in the PL Angle field for 3rd axis polarization to indicate right hand or left polarizer position (Ka-98G third axis).

- If the Polarization is disabled (for circular signal frequency bands such as Ka-Band or X-Band) the Polarization Stow Switch must be closed and may display "DDD".

Manual Movement

 Elevation Up / Elevation Down

 Azimuth Left/ Azimuth Right

 Polarization Counter-Clockwise / Polarization Clockwise

Using the Duration and Speed parameters, the Manual Movement Buttons allow you to move the antenna in six (6) directions. For the correct point of reference for the directional movements, you must be facing the Mobile Platform's Reflector.

Face Reflector this direction for correct Azimuth and Polarization Orientation

Fig. 69:   *Orientation Reference for Azimuth and Polarization*

Enable/Disable Transmitter
Automatically Enables or Disables the Transmission process. Background will turn grey when transmitter is disabled and green when the transmitter is enabled.

Enable/Disable ACP
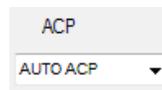Enables or Disables the ACP (Automatic Cross-Pol Testing), and Manual Cross-Pol Testing.

Fig. 70:   *ACP Option Selection*

To Enable ACP, select "AUTO" or "MANUAL" from the ACP drop down list and click on the 'Enable/Disable ACP' Button to initiate.

To Stop ACP testing, select "STOP" from the ACP drop down list, and click on the Enable/Disable ACP Button to initiate.

Deploy Antenna
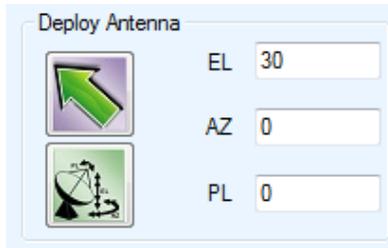Automatically moves antenna to the manually entered Elevation, Azimuth and Polarization angles.

Fig. 71:   *Deploy Antenna Input Values*

Quick Deploy
Automatically moves antenna to the manually entered Elevation, Azimuth and Polarization angles without first moving to 30˚ on Elevation. This process moves to the set angles without the extra angle tuning that occurs with the Deploy Antenna button.

Duration
Length of time of Manual Movement using increments of 30ms

Speed
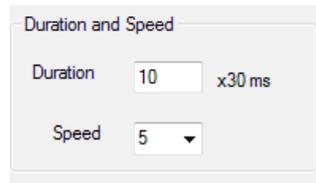Motor Speed of Manual Movement

3 = Slowest, 9 = Highest

Fig. 72:   *Duration and Speed Input for Manual Movements*

DVB Signal (0-255)
DVB Signal received from the DVB Tuner. A "U" next to the value indicates an "unlocked" status. An "L" next to the DVB value indicates locked signal.

Beacon Signal (0-100)
If the optional beacon receiver is used, the Beacon Signal will appear in this area along with the power density received from the satellite. This will only appear when a lock status occurs which is indicated by an "L" next to the beacon signal value.

RF Signal (30-120)
Displays the real time RF Signal throughout the acquisition process. A value of 30 that is flashing Red and or Yellow indicates the LNB is not being powered sufficiently, or there is an issue with the coax cable connection. Some Ka services will display 70 if threshold is overridden (i.e. Tooway & SurfBeam2).

RF Threshold (30-75)
Used in RF mode search for determining proper satellite frequency. This can be
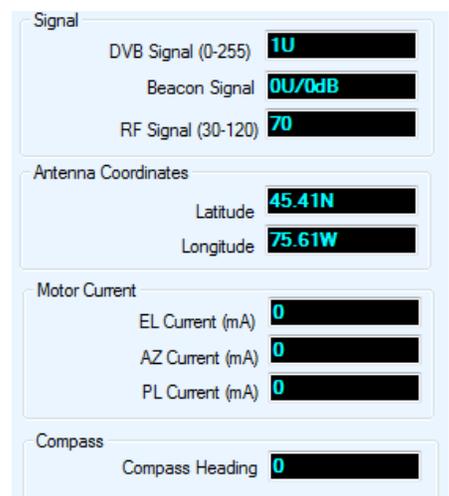
configured and viewed on the Configuration screen.

Antenna Latitude/Longitude
GPS Coordinates acquired from the GPS Antenna or manually overridden values.
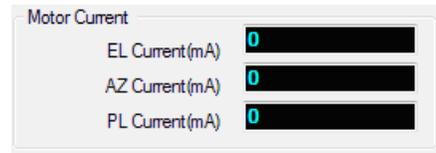
EL Motor Current
Current drawn for Elevation Motor (in Milliamps mA)

AZ Motor Current
Current drawn for Azimuth Motor (in Milliamps mA)

PL Motor Current
Current drawn for Polarization Motor (in Milliamps mA)
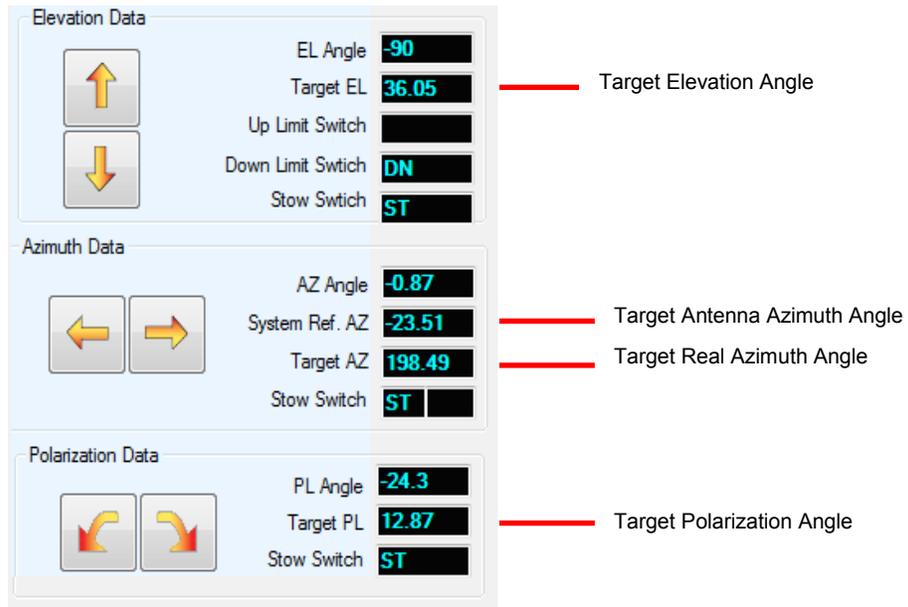
Target Satellite parameters

Fig. 73:   *Satellite Target Angles*

Target Elevation (Target EL)
Calculated Elevation Angle that the Antenna must point in order to locate the desired Satellite.

Target Real Azimuth (Target AZ)
Calculated Azimuth Angle that the Antenna must point in order to locate the desired Satellite in reference to True North.

Target Antenna Azimuth (System Ref. AZ)
Calculated Azimuth Angle that the Antenna must point in order to locate the desired Satellite in reference to the Mobile Platform's center position.

Target Polarization (Target PL)
Calculated Polarization Angle that the Antenna must be in order to find the desired Satellite.

Compass Heading
Orientation of the Mobile Platform.

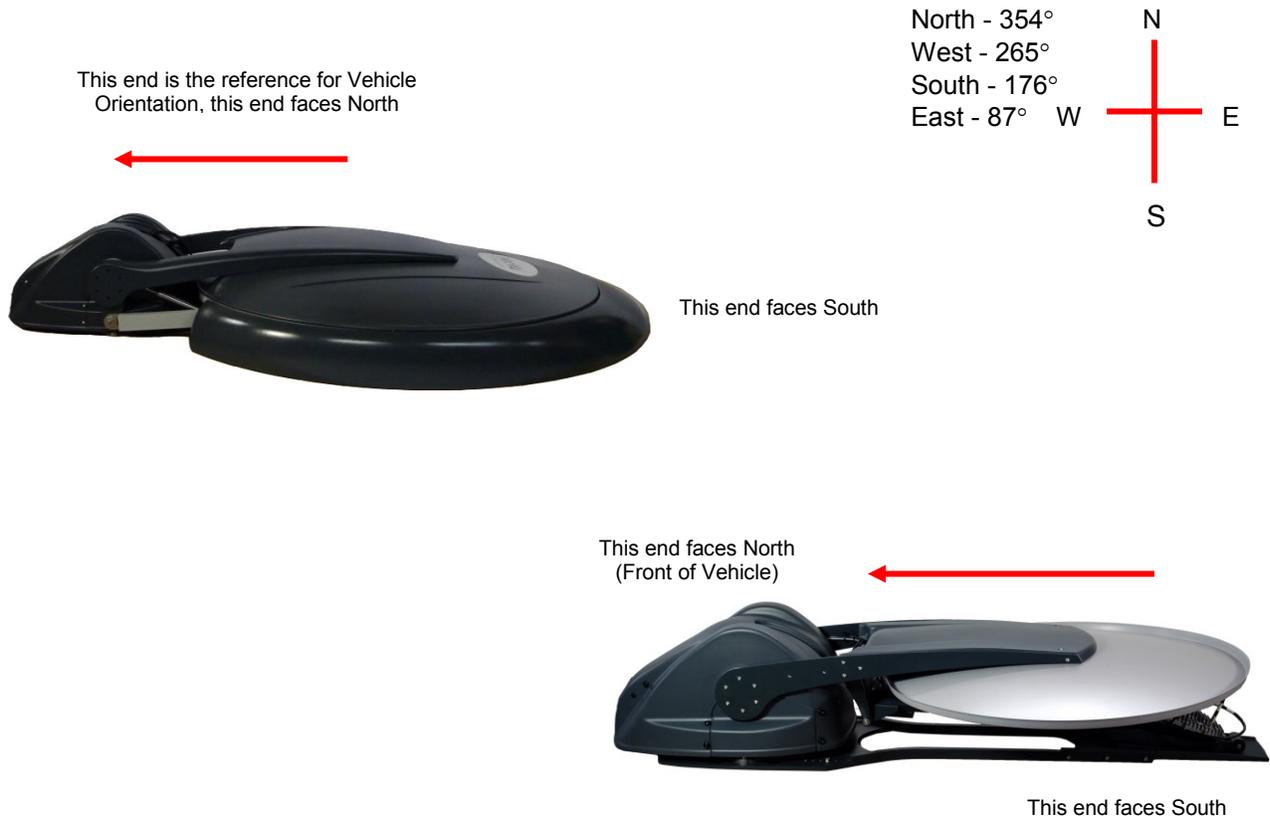This value is only read during the Find Satellite, Check Compass, and Calibrate Compass processes.

North - 354°
West - 265°
South - 176°
East - 87°

This end is the reference for Vehicle Orientation, this end faces North

This end faces South

This end faces North
(Front of Vehicle)

This end faces South

Fig. 74:   *Compass Orientation and Approximate Values*

Message Panel
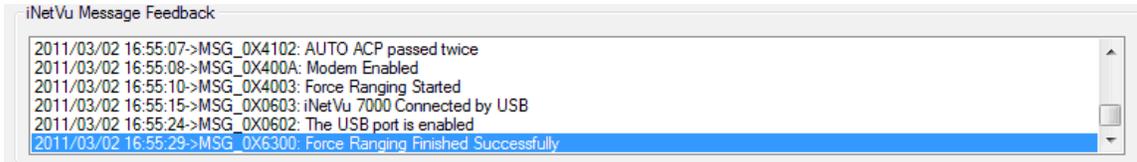Displays real-time status updates, system messages, and error codes.

iNetVu Message Feedback

2011/03/02 16:55:07->MSG_0X4102: AUTO ACP passed twice
2011/03/02 16:55:08->MSG_0X400A: Modem Enabled
2011/03/02 16:55:10->MSG_0X4003: Force Ranging Started
2011/03/02 16:55:15->MSG_0X0603: iNetVu 7000 Connected by USB
2011/03/02 16:55:24->MSG_0X0602: The USB port is enabled
2011/03/02 16:55:29->MSG_0X6300: Force Ranging Finished Successfully

Fig. 75: *Message Panel*

Status Panel
The Status Panel describes system operations that are either imminent, taking place, or the current status of that component. The Status Panel is located at the bottom of the Basic Controls and Advanced Controls menus, and has a set of four and six message blocks, respectively.
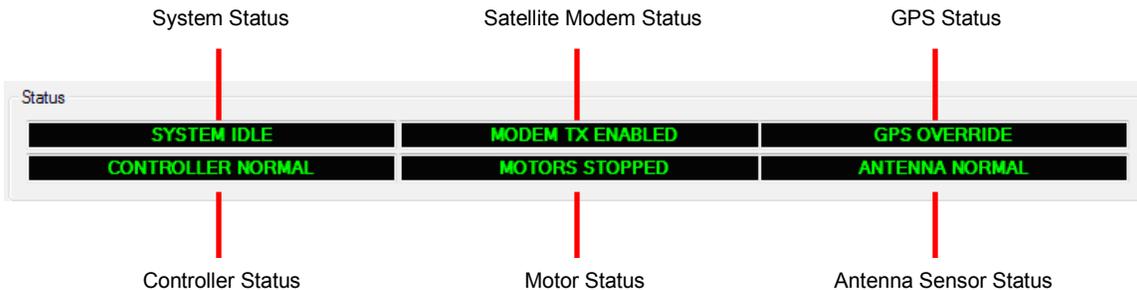

Fig. 76: *Advanced Controls - Status Panel*

The indicators notify the user of any actions taking place with a combination of color-coded messages.

- Solid "GREEN" messages indicate a stable and normal condition for that component.
- Flashing or solid "LIGHT BLUE" messages indicate a change in status occurring that the user should be aware of.
- Flashing "RED" and "YELLOW" messages indicates a problem with that component.

Should the entire Status Panel flash "RED" and or "YELLOW", a communication failure between the PC and the iNetVu® Controller has occurred. Ensure that the Controller is powered, and that all USB drivers and cables (USB, LAN or Serial) are installed properly.

System Status
Displays current system environment

- **System Idle**
  No operations are currently being performed.
- **ACP Testing**
  ACP Testing is being performed.

- **Skew Adjusting**
  Polarization adjustment to adjust the polarization axis for any vehicle inclination. The Azimuth Axis will rotate 90º on both sides of the peaked azimuth angle, then return to the satellite position, and adjust the polarization axes to compensate for any recognized mount inclination.
- **Manual Operation**
  Manually controlled movement via Controls menu has been detected.
- **Mount Testing**
  System test or demo being performed via System Test and Demo menu.
- **Peaking on Satellite**
  System makes minor adjustments in positioning in order to receive optimal Signal Strength.
- **AZ Calibration**
  Azimuth Calibration is being performed.
- **PL Calibration**
  Polarization Calibration is being performed.
- **CP Calibration**
  Compass Calibration is being performed.
- **Positioning**
  An automatic movement command has been initiated (i.e. Find Satellite or Deploy Antenna) and the antenna is moving into the designated position.
- **Searching Satellite**
  Antenna is performing a search pattern to locate the satellite.
- **Stowing Antenna**
  Antenna is being stowed.
- **Unknown Status**

Satellite Modem Communication Status
Indicates the Transmitter status and displays any issues in communication with the Satellite Modem

- **Modem TX Enabled**
  Indicates that the transmitter has been enabled.
- **Modem TX Disabled**
  Indicates that the transmitter has not been enabled.
- **No Modem Communication**
  The controller is trying to establish communication with the modem and or No power is applied to the modem.

GPS Status
Displays condition of the GPS signal
- **GPS Normal**
  GPS signal is being received from the GPS Antenna.
- **GPS Failed**
  GPS signal is not being received from the GPS Antenna.
- **GPS Override**
  GPS coordinates have been manually overridden from the Maintenance menu.

Controller Status
Displays communication status between the PC and the iNetVu® Controller

- **Controller Normal**
  Indicates normal communication status between the Controller and the PC
- **Controller Failed**
  A failure in communication between the Controller and the PC has been detected.

Motor Status
Displays the movement of the 3-axis motors: Elevation, Azimuth, and Polarization

- **EL Moving UP / DN**
  Elevation Motor is moving in the respective direction
  (UP = Up, DN = Down)
- **AZ Moving Left / Right**
  Azimuth Motor is moving in the respective direction
- **PL Moving CCW / CW**
  Polarization Motor is moving in the respective direction
  (CCW = Counter Clock-Wise, CW = Clock-Wise)
- **Motor Unknown**
  Motor Status cannot be detected.

Antenna Status
Displays any relevant information regarding the Limit Switches, Potentiometers and/or Inclinometers.

- **Antenna Normal**
  Limit Switches are ON/OFF in the correct relation to the Elevation, Azimuth and Polarization Angles.
- **Sensor Error**
  This status is an indication of problem with cabling or hardware and/or controller setup. Stop and troubleshoot before proceeding.
- **Antenna Unknown**
  Mobile Platform cannot be found. Ensure that the iNetVu® Controller is functioning and that all cables are connected should this indicator appear.

8.2.2.   Maintenance

The Maintenance menu has been re-organized to allow the configurable parameters to exist together on the same window. The Maintenance allows users to configure the communication between the controller and platform type, as well as various system parameters for optimal performance. Separate tabs have been added to isolate the 3 axis as well as GPS and Compass for easier configuration.
The Maintenance menu allows users to conduct maintenance tests/processes, override parameters, and troubleshoot.

Note: It is recommended to power cycle the controller after firmware upgrades or configuration changes have been saved. Recycling Controller power will confirm and validate settings to ensure correct values are propagated and displayed on all screens, this is important especially for Ka platforms.

Click **SAVE ALL** when any modifications are made, and before power recycling the controller to ensure data will be saved on controller side.
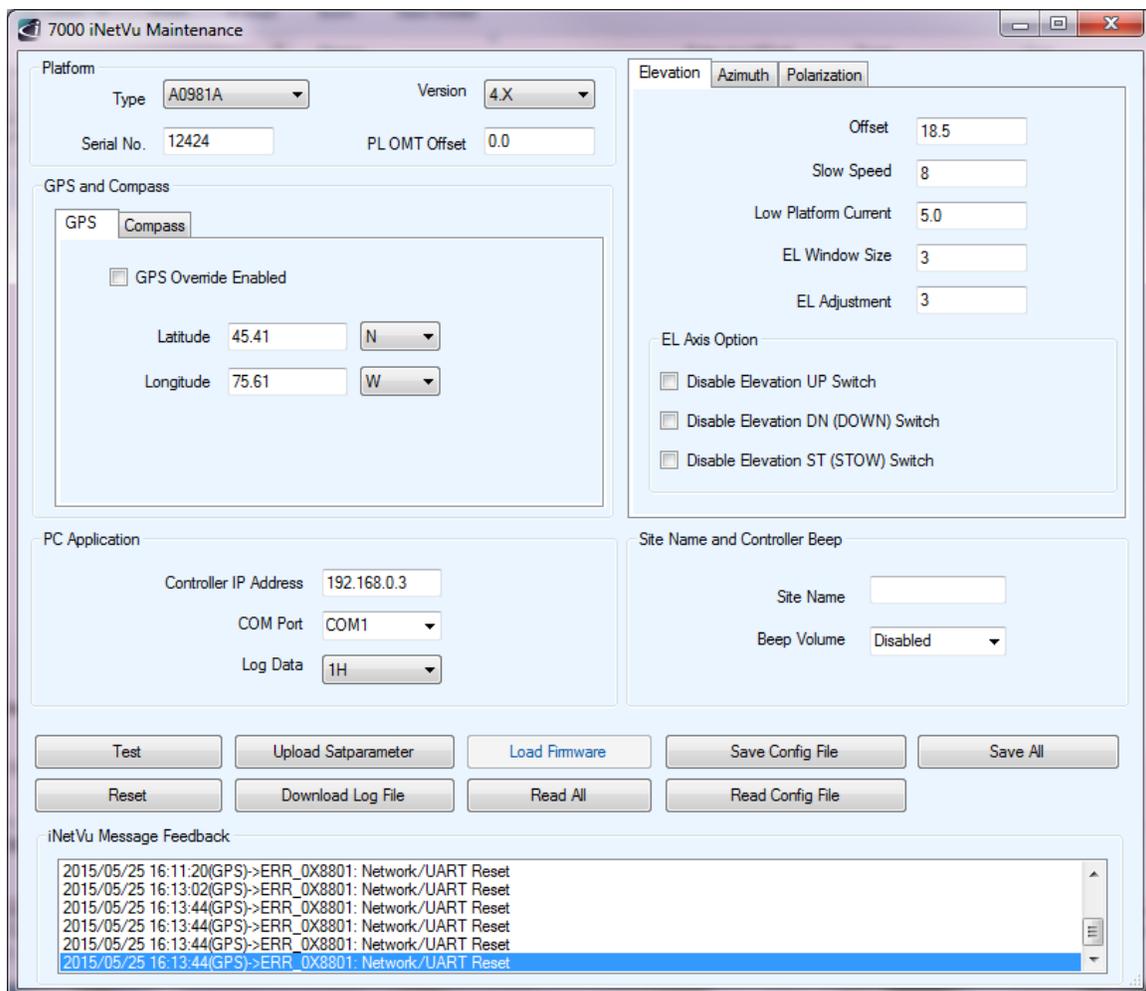

Fig. 77:   *iNetVu® 7000 Maintenance Window*

8.2.2.1. Platform Parameters

<p align="center">Fig. 78:   Maintenance Platform Parameters</p>

Type

The user is capable of configuring the platform in use.

A0750A - iNetVu® A750A (.75m) Mobile Platform (Ku Band)
A0755A - iNetVu® A0755A - New Gen Drive-Away (Ka Band circular)
A0980A - iNetVu® A980A (.98m) Mobile Platform (Ku Band)
A0981A - iNetVu® A981A (.98m) New Gen Drive-Away Platform (Ku Band)
A0985A - iNetVu® .98m New Gen Drive-Away (2 Axis Ka Band circular)
  - ➢ **Ka-98G** (Skyware Global Feed boom)
  - ➢ **Ka-98H** (HNS Feed boom)
  - ➢ **Ka-98V** (Viasat Feed boom)
A0985B - iNetVu® .98m New Gen Drive-Away (3 Axis Ka Band circular)
  - ➢ **Ka-98G** (Skyware Global Feed boom)
  - ➢ **Ka-98H** (Spaceway Transceiver)
A0987A - iNetVu® .98m New Gen Drive-Away w/SMC Reflector (2 Axis Ka Band)
A1200B/C - iNetVu® A1200B/C (1.2m) Mobile Platform (Ku Band)
A1200P - iNetVu® A1200P (1.2m) Flyaway Platform (Ku Band)
A1200Q - iNetVu® A1200Q (1.2m) Flyaway Platform (Ku Band)
A1201A - iNetVu® A1201A (1.2m) New Gen Drive-Away Platform (Ku Band)
A1210A - iNetVu® A1210A Airline Checkable Carbon Fibre Reflector (Ku Band)
A0120A - iNetVu® A0120A – 1.2 Fixed Motorized (Ku Band)
A0121A - iNetVu® A0121A – 1.2 New Gen Fixed Motorized (Ku Band)
A0125A - iNetVu® A0125A – 1.2 New Gen Fixed Motorized (Ka Band)
A1500A - iNetVu® A1500A Mobile Platform (Ku Band)
A1500B/E - iNetVu® A1500B Mobile Platform (Standard C Band Linear/INSAT)
A1500C - iNetVu® A1500C Mobile Platform (C Band Circular)
A1800A - iNetVu® A1800A Mobile Platform (Ku Band)
A1800B/E - iNetVu® A1800B Mobile Platform (C Band Standard Linear/INSAT)
A1800C - iNetVu® A1800C Mobile Platform (C Band Circular)
A0180A - iNetVu® A0180A - 1.8 Fixed Motorized (Ku Band)
A0180B/E - iNetVu® A0180B/E - 1.8 Fixed Motorized (Standard C Linear/INSAT)
A0180C - iNetVu® A0180C - 1.8 Fixed Motorized (C Band Circular)
A0180D - iNetVu® A0180D - 1.8 Fixed Motorized (X Band Circular)
A1801A - iNetVu® A1801A - 1.8 Drive-Away (Ku Band)
A1801B/E - iNetVu® A1801B - 1.8 Drive-Away (C Band Standard Linear/INSAT)
A1801C - iNetVu® A1801C - 1.8 Drive-Away (C Band Circular)
A1810A - iNetVu® A1810A - 1.8 Flyaway (Ku Band)
A1810B/E - iNetVu® A1810B/E - 1.8 Flyaway (C Band Standard Linear/INSAT)
A1810C - iNetVu® A1810C - 1.8 Flyaway (C Band Circular)

Platform Serial Number

The user will be required to enter the last four or five-digits of the platform serial number located next to the connector plate on the iNetVu® Mobile Platform.

Fig. 79: *Platform Identification*

Platform Hardware Version

This field identifies hardware changes in the New Generation platform types.

PL (Skew) Offset for OMT

This field allows the user to place a fixed offset for the target polarization angle. This value could make up for any noticeable mechanical offsets in the polarization assembly of the iNetVu platform between -5º to +5º.

e.g. 1) Calculated Target Polarization Angle = 10º
        TX_O = +3º
        The iNetVu system will position @ 7º when pointing

e.g. 2) Calculated Target Polarization Angle = 10º
        TX_O = -3º
        The iNetVu system will position @ 13º when pointing
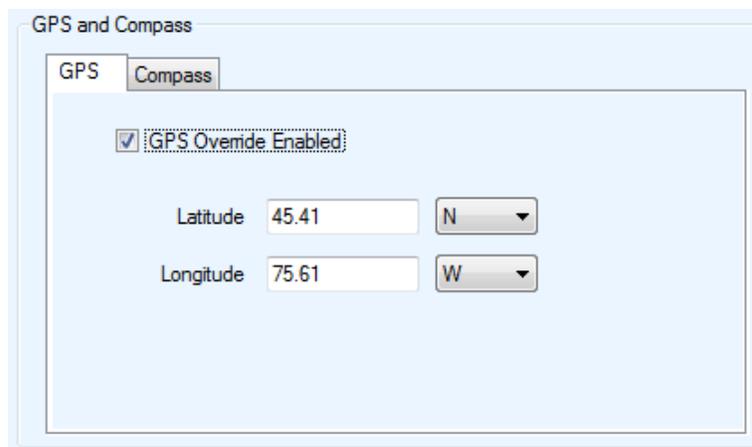
8.2.2.2. GPS and Compass

Fig. 80: *Maintenance – GPS Parameters*

GPS Override Checkbox

Enables the GPS coordinates to be manually overridden. This should only be enabled in the event that the GPS Antenna is malfunctioning and the user has a reliable, alternate source for coordinates. If this box is checked, the GPS coordinates should be manually entered in the 'GPS Latitude', and the 'GPS Longitude' fields described.

**Note: If you have overridden the GPS coordinates, they will have to be updated if the Mobile Platform has moved to a new location since the overridden values will no longer be accurate.

Warning: Overriding the GPS prevents the movement protection feature from working properly, and will not stow the antenna if vehicle drives off, as neither speed nor GPS relocation can be detected. Moving vehicle speed must reach min 5km/h plus Elevation angle change of 2 degrees or more with GPS coordinates change in order for the movement protection feature to trigger.

GPS Latitude

This field represents the Latitudinal GPS coordinates of the iNetVu® system.

GPS Longitude

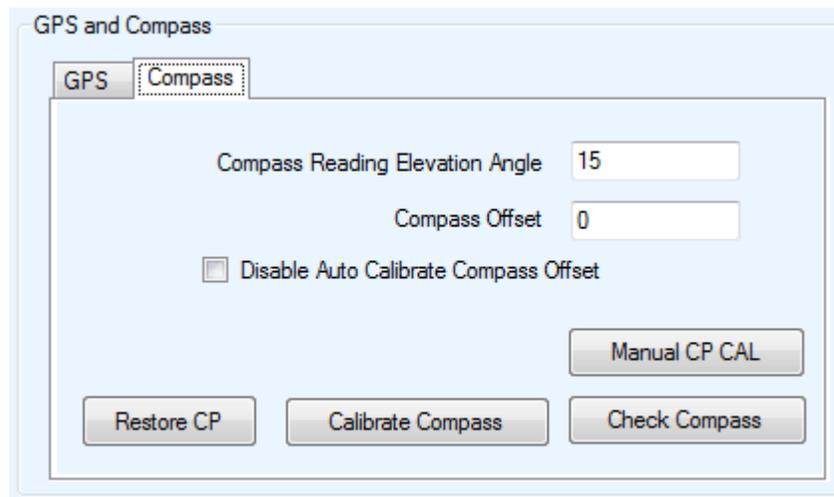This field represents the Longitudinal GPS coordinates of the iNetVu® system.

Fig. 81:   *Maintenance – Compass Parameters*

Compass Reading Elevation Angle

Number of degrees that the Antenna requires to be elevated to ensure that the compass is level and is able to acquire an accurate compass reading.

Disable Auto Calibrate Compass Offset

If this option is unchecked the following will take place. Auto Calibration on compass occurs when the angle difference of 20 degrees or more is detected between AZ angle and System AZ Ref when the system finishes the satellite search routine and locks on signal. A compass offset value is than automatically entered and is used the next time a Find Satellite command is triggered. When this option is checked, it will <u>NOT</u> Auto Calibrate the compass offset.

𝒊 Tips and Recommendations

Compass Issues?

If you are in an area where there is magnetic interference or the compass readings are incorrect, it is recommended to run "Calibrate Compass or Restore CP" function.
The routines may require to be run multiple times to achieve acceptable angle readings.
Contact C-COM SUPPORT for more information.

Manual CP CAL	**Manual Compass Calibration**

Manual Compass Calibration
Performs a three point calibration. This is a manual calibration process, where the platform will be moved to 0, 90 and 180 degrees. The Manual CP Cal button will be depressed at each angle before moving to the next position.
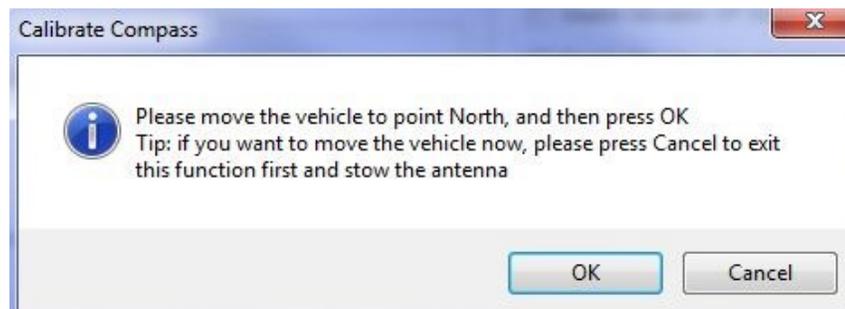
Restore Compass
Restores the compass to its factory calibrated state.

Calibrate Compass
Automatically calibrates compass.

    i. The mount and or mobile platform vehicle must be pointed North (vehicle front windshield). The software will present a pop-up to confirm this orientation prior to proceeding with the calibration. Refer to Fig.86 for orientation.
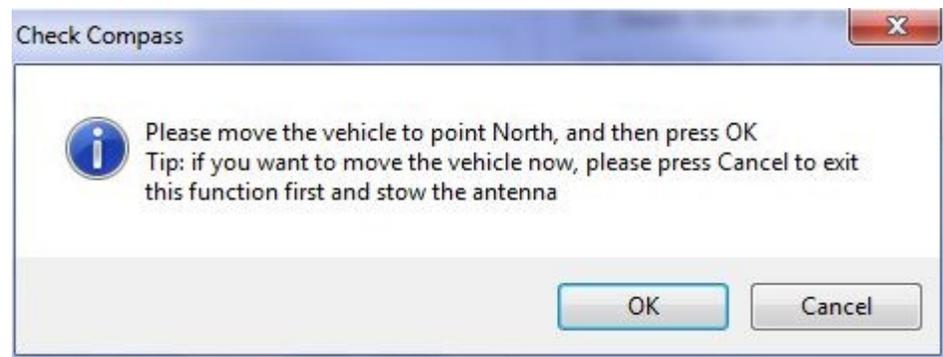

    ii. Ensure that there are no metallic objects that could interfere with the Compass, and that the Mobile Platform is on level surroundings.

iii. Orient the Mobile Platform as depicted in any of the orientation figures within this manual. It is recommended that you use an external compass to be as accurate with the orientation as possible.

iv. The Antenna will now rotate in 90° intervals and attempt to calibrate the compass.

v. A message prompt will appear to notify you whether the Compass Calibration has been completed successfully or not.

Check CP

`Check Compass`

Tests the compass' heading and accuracy by rotating the antenna at 90° intervals and comparing the compass readings with the actual antenna's movement.

i. The mount and or Mobile Platform Vehicle must be pointed North (Vehicle front windshield). The software will have a pop-up to confirm this orientation prior to proceeding with the calibration. Refer to Fig.85 for orientation.

Check Compass

Please move the vehicle to point North, and then press OK
Tip: if you want to move the vehicle now, please press Cancel to exit this function first and stow the antenna

OK   Cancel

ii. Antenna will center itself; move to the proper Elevation for reading the compass, then read the compass heading.

iii. Antenna will rotate 90° to each of the following positions and read the compass at each: 0°, 90°, 180°, -90°, 0°

iv. iNetVu® Mobile Software will compare the compass heading values read at each position, and determine if they differ by approximately 90°.

v. The Compass Check will display a message regarding the accuracy of the compass.

8.2.2.3.   Elevation Parameters

The Elevation menu allows for the configuration of the elevation axis. Options include the elevation offset, as well as the axis limit functionality, slow speed setting and current limits for slow speeds. The re-organization of the search parameters prompted some fields to be moved under the axis tabs.
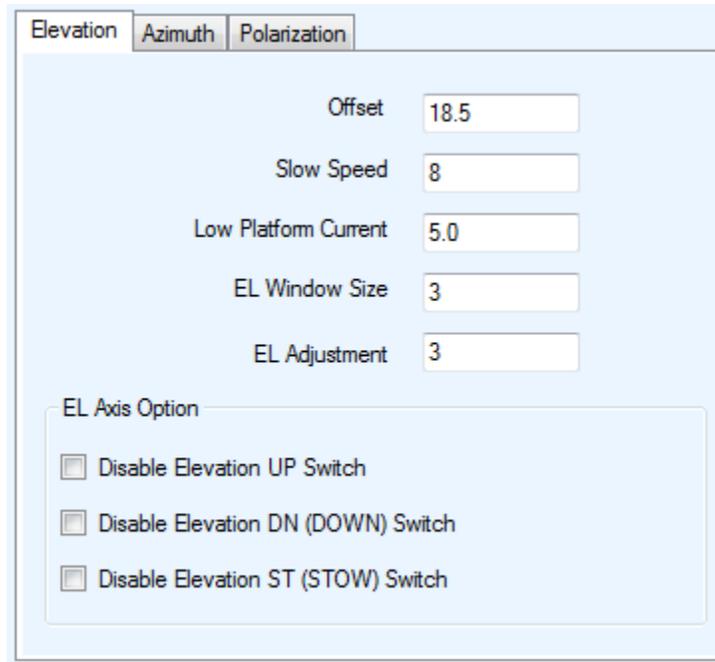
Fig. 82:   *Maintenance - Elevation Parameters*

The inclinometer used to read the elevation angle will compensate for an incline up to +/-15º. For example if a user is on a 10º slope and the system is searching along the azimuth, if the elevation reading changes due to a horizontal incline, the elevation will adjust to maintain the correct elevation angle while searching along the azimuth Offset.

The Elevation Offset is specific to each type of platform. It is the number of degrees at which the iNetVu® Mobile Software will offset the reading from the Inclinometer in order to produce an accurate (+/- 2°) Elevation Angle.

Slow Speed

The iNetVu® software basis the default elevation motor slow speed on the platform size and type. See Appendix 1 for details. The user may change this value, however changing such value could result in difficulty accessing satellite acquisition.

Low Platform Current

Low Platform Current (L_P_C) is a software controlled current protection for the Mobile Platform's elevation motors. For Motor Speeds that are not listed (Speed 1, 2, 4, 5, 7, 8), the Current Limit for those speeds is calculated using a percentage of the Current Limit @ speed 6 and 9. See Appendix 1 for the default current limits for all iNetVu® Mobile Platforms.

> • Current Limit 8 – 90% of Current Limit 9
>
> • Current Limit 7 – 80% of Current Limit 9
>
> • Current Limit 5 – 90% of Current Limit 6
>
> • Current Limit 4 – 80% of Current Limit 6

EL Window

The Search Window is the area of the sky which the iNetVu® Mobile System will search for the desired Satellite. It uses a rectangular window and searches for the Satellite using smaller concentric windows until the desired Satellite is found.
The Search Window range may be manually changed from the default settings which iNetVu® uses to find the desired satellite.
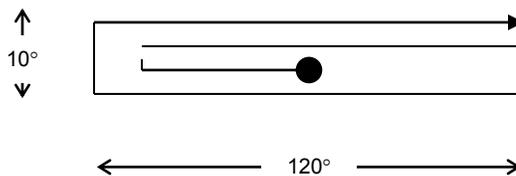

Fig. 83:   *Satellite Search Window*

The default Elevation (Vertical) range is 3° on each side of the Target Point.

Increasing the size of the Search Window will increase the ability to find the desired Satellite, although increasing the Search Window will lengthen the search time.

EL Adjustment

Parameter used to determine the small incremental adjustments required for a more accurate satellite search. Decreasing this value will add accuracy to the Search Window, but will increase the search time. The elevation angle will adjust by the specified number of degrees from the calculated angle while searching on an inclined surface.

Limit Switches (Elevation UP, Elevation DN, Elevation ST)

Allows the enabling and disabling of the UP, DOWN, and STOW limits.

A check mark in the box implies the limit has been DISABLED. By default the boxes are left unchecked. Please be advised that disabling any of these limits should be done under the direct supervision of a C-COM technical support representative.

8.2.2.4. Azimuth Parameters

The Azimuth menu allows for the configuration of the azimuth axis. Options include the setting of the Zero, and the axis limit functionality, the slow speed setting, and Platform current limits slow speeds. AZ calibration button will be grayed out on certain platform types as this process may not be applicable.
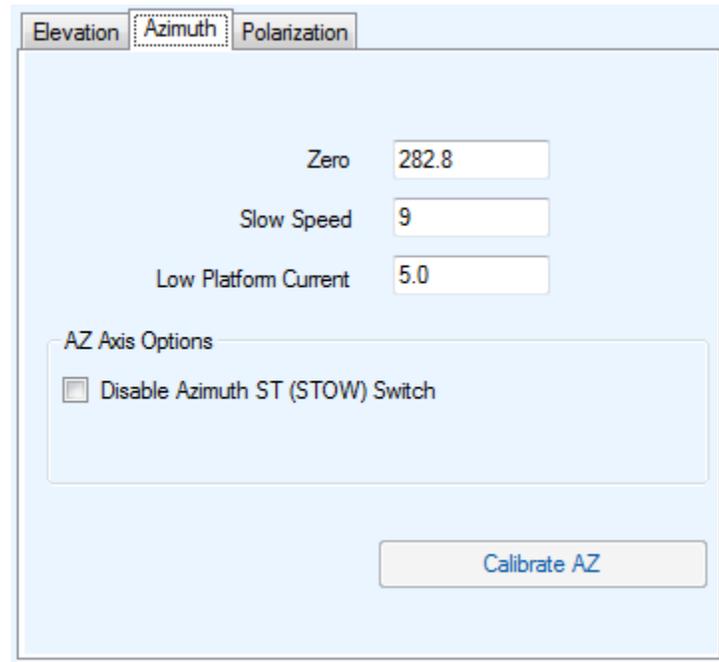
Fig. 84:   *Maintenance - Azimuth Parameters*

Zero

Azimuth Zero is an A/D converted value from the potentiometer calculated upon azimuth calibration which physically determines where the iNetVu® Mobile Software places Azimuth Angle 0°. In the new Generation systems, the potentiometer is replaced with an Encoder. The Azimuth Zero may vary approximately +15% from the default values on the potentiometer (see Appendix 1). The user may edit these values through this menu; however this is not recommended and any changes may result in failure to recognize the correct 0 angle.

Slow Speed

The iNetVu® software basis the default azimuth motor slow speed on the platform size and type. See Appendix 1 for details. The user may change this value, however changing such value may result in difficulty with satellite acquisition.

Low Platform Current

The Current Limit for the speeds is calculated using a percentage of the Current Limit @ speed 6 and 9(current limit 6 @ speed 6 is default). See Appendix 1 for the default current limits for all iNetVu® Mobile Platforms.

> • Current Limit 8 – 90% of Current Limit 9
> • Current Limit 7 – 80% of Current Limit 9
> • Current Limit 5 – 90% of Current Limit 6
> • Current Limit 4 – 80% of Current Limit 6

Azimuth Limit Switch ST (STOW)

Allows for enabling and disabling the ST (STOW) limit.

A check mark in the box implies the limit has been DISABLED. By default the boxes are left unchecked. Please be advised that disabling any of these limits should be done under the direct supervision of a C-COM Satellite Systems Inc. technical support representative.

Calibrate AZ
Performs automated Azimuth Calibration process. Not applicable on New Generation platforms i.e. Ka-75V (A0755A), Ka-98H/G/V (A0985A) ACFLY-1200 (A1210A) etc...

   i.   Antenna will move CW to a set point.
   ii.   Antenna will move back in the opposite direction to locate Stow switch.
  iii.   Antenna will attempt to locate the cut-off edges of the Azimuth Stow Switch and center itself.
  iv.   Azimuth zero position is calculated and the Zero is set at the zeroed A/D value.

8.2.2.5. Polarization Parameters

The Polarization menu allows for the configuration of the polarization axis. Options include the setting of (PL) Zero, skew adjustment and stow limit functionality, polarization offset, slow speed, and current limits for slow speeds.

Fig. 85: *Maintenance - Polarization Parameters*

Zero

PL Zero is an A/D converted value from the Potentiometer and or a calculated value acquired from the Inclinometer Tilt Sensor which exists on all New Generation platforms and newer versions of the Legacy platforms. The Tilt Sensor is replacing the Potentiometer which physically determines where the iNetVu® Mobile Software places Polarization Angle 0. The Zero value may vary approximately +/-15% from the default values for all platforms using potentiometers (see Appendix 1). The Tilt Sensor provides better accuracy than the Potentiometer. The PL Zero is calculated along with PL offset during the Polarization Calibration process on platforms with Tilt Sensors and entering a calibrated value in the Zero field. The Tilt Sensor must be levelled prior to calibration to ensure the calculated PL Zero value that gets populated in the Zero field is accurate. The Tilt Sensor calibration process is not valid on the following platform types with 2 axis (Ka-75V, Ka-98H, 98G and Ka-98V) and button will be grayed out.
The user may manually calibrate and edit these values through this window; however any changes may result in failure to recognize the correct 0 location. See Appendix 1 for Potentiometer and Tilt Sensor Zero default values.

Slow Speed

The iNetVu® software bases the default polarization motor slow speed on the platform size and type. See Appendix 1 for details. The user may change this value, however doing so could result in difficulty for satellite acquisition.

Polarization Offset

By default this polarization-offset value is set to 0°. If there happens to be a requirement for a polarization offset, the user may manually enter this value in this area. This area is also updated automatically if the skew adjustment procedure recognizes an incline which will adjust the target polarization angle.

Low Platform Current

Low Platform Current is a software controlled current protection for the Mobile Platform's polarization motors. See Appendix 1 for the default current limits for all iNetVu® Mobile Platforms.

Disable Polarization ST (STOW) Switch

Allows for enabling and disabling the ST (STOW) limit. A check mark in the box implies the limit has been DISABLED.

Skew Adjustment (**Enable Skew Adjustment**)

The Skew Adjustment will rotate the antenna on the azimuth axis 90° on each side of the peaked signal and then re-position on signal with an adjustment to the polarization for any inclined surface. This box must be checked if the user wishes to enable this feature. If left unchecked, the system will not do the skew adjustment.

Calibrate PL

Calibrate PL
Performs automated Polarization Calibration process. Platforms with Tilt Sensors must ensure the Sensor is levelled prior to running the PL Zero point calibration. Calculates and populates zero value for PL offset.

  i.   Antenna will completely rotate counter-clockwise to the physical limit and temporarily record the A/D value from the Potentiometer.
  ii.   Antenna will completely rotate clockwise to the physical limit and temporarily record the A/D value from the Potentiometer.
  iii. Based on the A/D values of the two (2) physical limits and the maximum range of motion for the Mobile Platform, the PL Stow switch location is calculated.
  iv.   Antenna will center itself and attempt to locate the cut-off edges of the Polarization Stow Switch.
  v.   After detecting at which angles the ST Switch turns OFF, the Polarization zero position is calculated and the PL Zero is set at the zeroed A/D value.

8.2.2.6. PC Application

This sub-section contains options regarding the relevant IP address connection to the iNetVu® Series 7000 Controller. This section allows user to enter IP address of the desired controller they wish to connect to over the network.
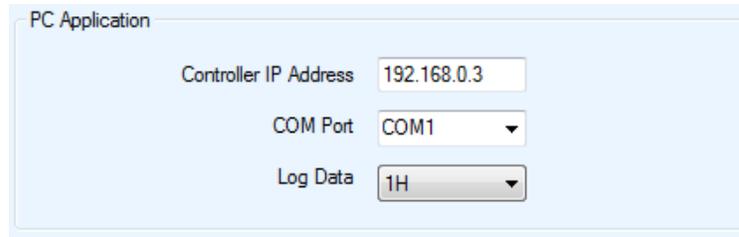
Fig. 86:   *PC Application Parameters*

Controller IP Address (For Remote Connection)

User can enter IP address of networked controller and connect to it over the Network.

Com Port

Used in conjunction with the serial port interface (Interface parameter under COM Port Configuration section) communication between the controller and pc.

Log Data

The user may choose to upload either 1 hour, 2 hours, or ALL (maximum of 12 hours) of the recorded data log information from the controller to the PC.

8.2.2.7. Site Name and Controller Beep

Site Name

Site Name in the controller that consists of combination of letters and numbers up to 30 characters. Site Name will be displayed in the browser tab when using the web interface.

BEEP

This checkbox is used to either enable or disable the beeping noise when navigating the LCD interface on the iNetVu® 7000 Series Controller. Selected option implies beeping sound is enabled unless D (disabled) is selected.

       Disabled – Beep Disabled, the sound will be completely muted.
   **Low** – Beep Enabled, a beeping sound will occur every 2 seconds.
       Medium – Beep Enabled, a beeping sound will occur every 1 seconds.
       High – Beep Enabled, a beeping sound will occur every 500 milliseconds.

8.2.2.8.   Maintenance Menu Buttons

The following buttons are available in the maintenance menu for multiple purposes including, ease of use, troubleshooting, accessing data files and more.
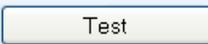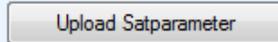
Demo / Test
Opens System Test and Demo menu screen

Reset
Restarts the controller

Upload SatParameter
Loads all the Satellite Transponder information located in the "iNetVu7000_SatParam" text file, into the 7000 Series Controller. The user may modify the table with any DVB transponders that he/she would like saved in the 7000 Series Controller, and click on this button to upload the changes to the controller.

Download Log File
Downloads the log data from the 7000 Series Controller onto the user's PC. The user may select how much of the log file to upload from the Controller section of this maintenance menu. The maximum data a user may upload is 12 hours.

Load Firmware
Loads the `iNetVu_Box.s19` firmware file into iNetVu® Controller from the iNetVu program folder. By default this option is grayed out and only available once the controller is in Boot Load mode. The update process is displayed on screen and will notify the user when the process is complete. The controller will be unavailable during this time.

Note: If loading firmware or Satellite Parameter table via USB interface connection with HN_KA modem type selected and the Application is open when controller is first put in Firmware load mode; Application will close without any warning and user must re-launch the Application to click on the <u>Load Firmware</u> button. The Application will <u>NOT</u> close once Firmware updating has finished. It is recommended to close the application prior to invoking Firmware update mode when using HN_KA modem. Application will also close if USB communication is lost.
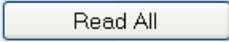
Read All
Reads <u>ALL</u> parameters from the iNetVu® Controller's EPROM memory and sets the values into the iNetVu® Mobile Software

*Save Config File
Allows the user to save all configuration parameters of the iNetVu Controller Configuration into a txt file located in the iNetVu Mobile 7000 application folder.

*Read Config File
Will populate the maintenance and Configuration screens with the configurable parameters in the saved iNetVu7000_Config.txt file located in the application folder. The user then has the option of sending and saving this data to the controller using the Send All, and Write EPROM buttons.
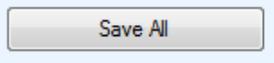
*Save All
Saves <u>ALL</u> parameters to the controller's memory.

* Indicates Menu buttons also exist on the Configuration screen.

Note: All the buttons will be grayed out once the system accepts a command and is operational, except for the command button that is currently active. Only one operation is permitted at any given time

8.2.3.   Configuration

The Configuration menu allows users to configure the communication medium between the Satellite Modem and iNetVu® Mobile Software, iNetVu® Controller and iNetVu® Mobile Software, as well as various System parameters for optimal performance. Users have the ability to configure and save 5 Satellites (0-4) with their orbital slot and 5 Beacon frequency settings. In order to accommodate the 5 configurable satellites and 5 beacon frequencies a save priority had to be implemented and must be followed when saving. If choosing from the 5 pre-configured all the fields should propagate with the saved values when toggling between the 5 satellites. Follow this order when saving:

1. Select Satellite No. and click Save All
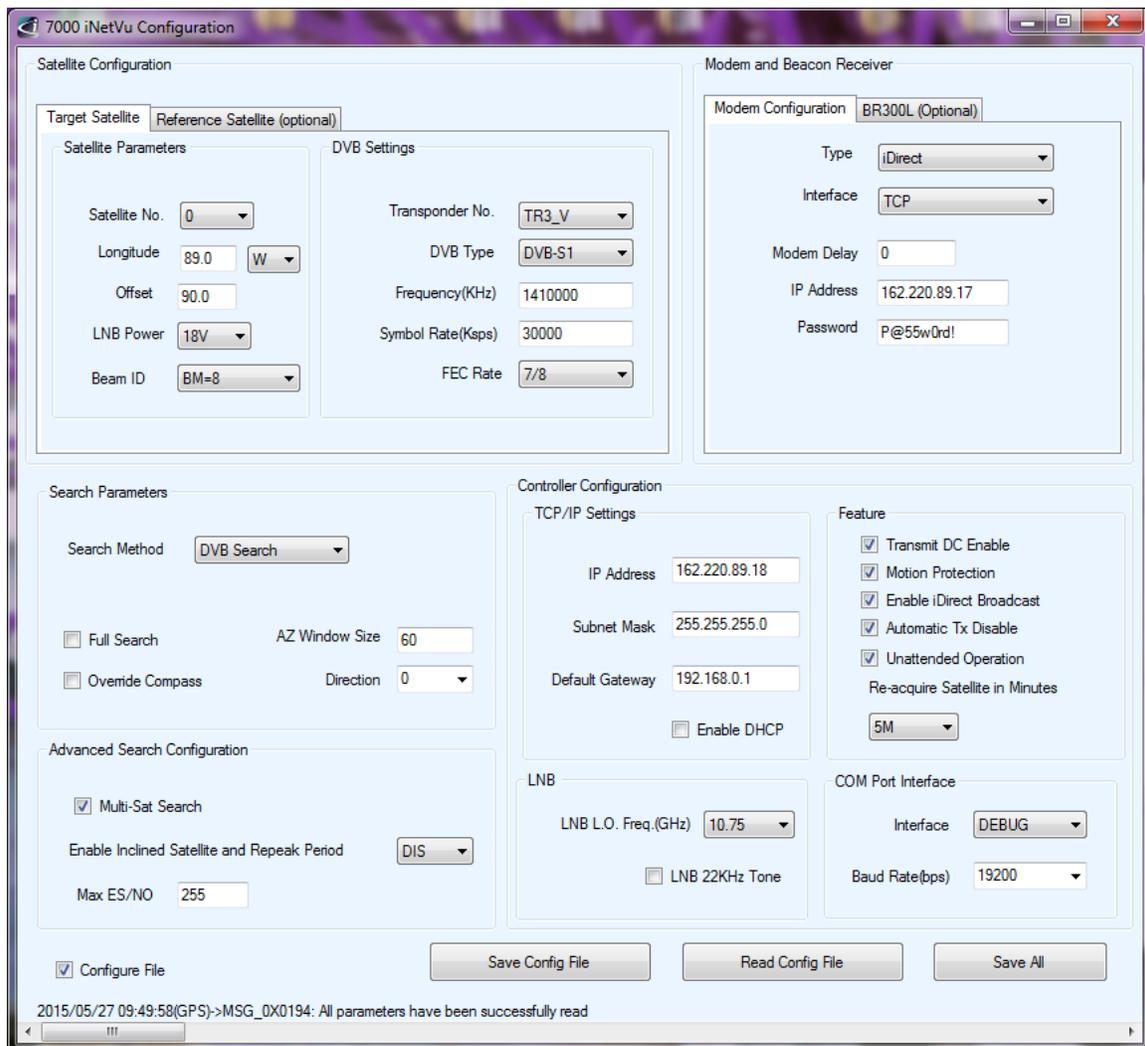2. Enter Longitude, hemisphere, Transponder No (and all DVB settings) click Save All

Fig. 87:   iNetVu® 7000 Configuration Window

8.2.3.1. Target Satellite Parameters

Fig. 88:   *Configuration – Satellite Parameters*

Satellite No.

5 different satellite parameters are configurable allowing users to configure and save for easy access. Priority order must be followed when saving, Satellite no. first and all other parameters afterwards. If "Configure File" is enabled (selected) Satellite and DVB parameters can be saved all at once.

Longitude

Orbital slot / Longitude of the desired Satellite. The **Find Satellite** command will use this value when attempting to find and lock onto a satellite signal.

(Offset) Sat Pol Offset

Denotes Transmit Polarity and may be altered to accommodate any offset ranged -180° to +180° generally in North America and most areas around the world.
Not applicable on 2 axis platforms such as Ka-75V (A0755A) and Ka-98h/G/V (A0985)

981/1201/1200/1500/1800/
1.2 Flyaway   – Horizontal Receive (Sat Pol Offset = 0) with feed/OMT position standing up, Vertical Receive (Sat Pol Offset = 90) with feed/OMT position flat.

980/740 Platforms   – Sat Pol Offset = 0 considering OMT is adjusted manually. (See Platform Setup and Maintenance Manual for instructions on how to adjust the OMT based on polarity)

Only RX Polarity is referenced for the Pol Offset field allowing both Cross-Pol and Co-Pol to work with setting the Pol Offset to 90 or 0 depending on the Receive Polarity required. **Rx = V = 90 (feed/OMT position flat) and Rx = H = 0 (feed/OMT position standing up)** for Cross-Pol and Co-Pol.

Use the following as reference for Sat pol Offset:

Receive is vertical and Transmit is vertical –   VV = 90
Receive is horizontal and Transmit is horizontal –   HH = 0

        e.g. 1) Receive is Vertical and Transmit is Horizontal (VH) - The offset entered
            should be 90, thus VH = 90.

        e.g. 2) Receive is Horizontal and Transmit is Vertical (HV) – The offset entered
            should be 0, thus HV = 0.

Depending on the service along with the Longitude selected this will automatically be filled and will not be configurable; Eutelsat Satellites polarization angle will update to the correct offset value depending on desired Skew angle. User must enter 0 or 90 depending on Vertical(Y) or Horizontal(X) polarization reference in the Offset field and click on the SEND ALL.

        e.g. 1) Longitude Satellite = 4.0 E
            Manual Offset value entered = 90
            Calculated Offset value = 93.5

        e.g. 2) Longitude Satellite = 4.0 E
            Manual Offset value entered = 0
            Calculated Offset value = 3.5

Refer to Eutelsat Polarization Skew Angle Satellite(s) document for more information.

LNB Power (V)

In cases where the LNB requires more power than the modem can provide, or if the user would like to power the LNB from the controller, or if the user would like to find satellite without the use of a modem, this option allows for power from the controller to be supplied to the LNB through the RX IN cable from the controller to the platform itself.

DIS – will disable this option, and provide power to the LNB straight from the modem. In this case, a splitter must be used for the RF connection as depicted in the figure below.

Fig. 89:   *RF Cable Setup for DIS selection*

7000 Series Controller Power Output Range Option Capabilities: **13, 14, 18, 19 V @ 500mA (max)**

If the user chooses to power the LNB from the controller, he/she should verify the power/voltage range requirements of the LNB in use, and configure the iNetVu® 7000 Series Controller according to those power/voltage requirements.

Beam ID. (IDirect Ku modem)

Allows Multiple Ku Beam switching using a single modem. The Beam ID(s) are read from the modem option file along with the Longitude and Frequency values, other information will need to be entered manually. A customized configuration file will auto fill all the required parameters for the available beams. The available Beams will then be listed under the Beam ID drop down field. Parameters can be overwritten only from the controller front panel if desired but will default back after the modem resets.

TR No. (Transponder Number)

There are Six (6) Transponder values in the 7000 Series Controller for each satellite.

> Transponder 0-2 (TR0_H – TR2_H) are horizontal receive
> Transponder 3-5 (TR3_V –TR5_V) are vertical receive.

The user may override the default values saved in the controller with his/her transponder information (frequency, symbol rate, FEC rate)

DVB Type

This drop down menu allows for the configuration of the DVB carrier to search for.
There are currently two options DVB-S1 and DVB-S2 ACM.

Frequency (KHz), Code Rate, Symbol Rate (Ksps)

The frequencies listed are in Ku-band.

The user may select from the six (6) available transponders saved in the 7000 Series Controller, which are specific to each satellite, or he/she may also enter valid transponder data manually.
DVB will base satellite acquisition on three satellite transponder parameters, them being:

Frequency 1 (KHz)
Ku-Band Receive Frequency

Symbol Rate 1 (Ksps)
Symbol Rate of receive signal

Code Rate (DVBS1 Requirement)
FEC Rate of receive signal

8.2.3.2.   Reference Satellite Parameters

The reference satellite option is useful when the user cannot find a DVB transponder on the desired target satellite. The user may select a reference Beacon Frequency or a satellite with a known DVB Transponder. The iNetVu® System will lock onto the reference satellite, and then pivot from that point to the desired target satellite, and peak on the modem signal. Does not work if search method selected is RF Search.

Fig. 90:   *Configuration – Reference Satellite Parameters*

Enable Ref Sat

If this checkbox is selected, the Reference Satellite Option becomes active. The MAX ES/NO field will be disabled and the value will be set to the default 255. If this box is not selected, all the information in this Reference Satellite Section becomes irrelevant.

Longitude

This field represents the Orbital slot / Longitude of the Reference Satellite. The **Find Satellite** command will use this satellite as a pivot point to lock onto the target satellite.

Note: Once Ref Sat is enabled and the Longitude is set, the functions of the remaining parameters and DVB settings will be identical to that of the Target satellite, See section 8.2.3.1 for more details.

BR300L (Optional)

This is a new feature which allows the use of the Beacon for the reference satellite search, works in the same manner as a Reference Satellite search would work. Enabling the Ref Sat Option and entering the parameters for the Beacon would allow the reference search to work on the Beacon Frequency.

8.2.3.3.   Modem Parameters

Configurable parameters will differ depending on the type of modem service selected under the type field.
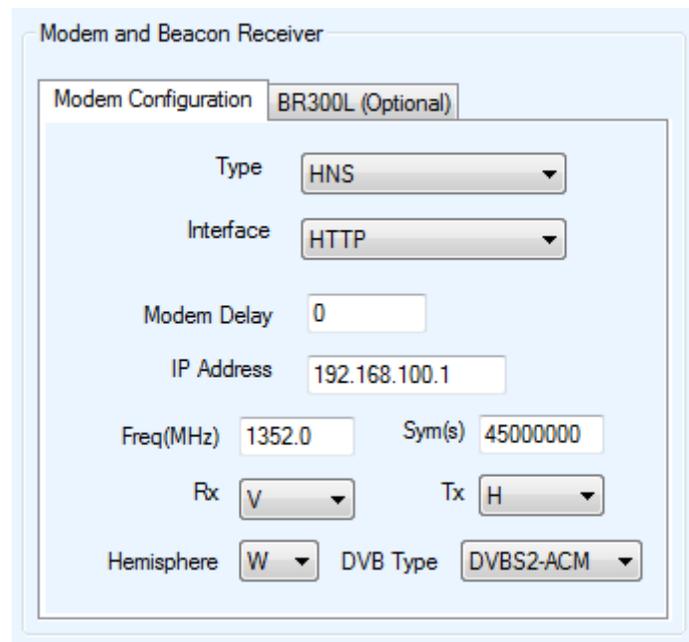
Fig. 91:   *Configuration – Modem Parameters*

Type

The user must select the service in use from this drop down menu for proper modem to controller connectivity.

Interface

The user may select the interface used for modem to controller communication establishment. There are currently 6 options:

  ➢ HTTP – Hyper Text Transfer Protocol
  ➢ TELNET – Telnet Interface
  ➢ COM – Console Port Interface
  ➢ SNMP – Simple Network Managed Protocol

> ➢ UDP – User Datagram Protocol
> ➢ NA – Used for standalone systems where only DVB or Beacon is used to lock onto a satellite without the use of a modem.

Modem Delay

The user may increase the delay time when polling for modem signal by adjusting this number. Increasing this number, will increase the time to find and lock on to satellite as it slows down controller activity and allows slower modems to catch up.

IP Address

This area is reserved for the modem IP address.

Freq (MHz) and Symb (s)

These two fields represent the required Frequency and Symbol Rate of the VSAT modem. This is usually applied to **Hughes Net service only**. Other services such as iDirect do not require the modem frequency to find satellite.

Rx-Pol

Receive Polarization set in the satellite modem, Hughes Net service only.

Tx-Pol

Transmit Polarization set in the satellite modem, Hughes Net service only.

DVB-Type

The DVB-S type of the modem on Hughes Ku (HX Modems) is required to be set to allow the modem to stay online after the TX enable command has been sent from the controller. If the DVB-S type on the modem is not set to the same as the controller (default used is DVBS2-ACM) the communication will be lost after modem goes online.

Hemisphere

Hemisphere the modem is operating in, For instance, North American operating modems would be set to "W", representing western hemisphere. This parameter is mainly used for Hughes Net service.

Note: For Hughes Net service the Modem Frequency, Symbol Rate, Receive and Transmit Polarization must match those set in the Satellite Modem.

Target ID (Com Tech Only)

Allows modem ID to be set on the same channel as the controller thus enabling modem to communicate with controller and visa-versa.

Demodulator/Carrier (RADYNE MDX Modem Only)

--- Demodulator Number (1--4)
--- Remote Number on selected demodulator (1--8)

Password/CD-KEY

Some modems require a password to access their interface. For modems that do not require a password, this field is irrelevant to the communication status between the modem and the controller and will not affect the communication establishment. For modems that have a blank password, this field should be left blank. The CD-KEY is used for the iPSTAR service ONLY.

Service Type

User has the option to choose between 7 service types, YAHSAT, Avanti (4 tables) and North America (2 tables). Once the service type is chosen, the user must click on the **Update Beam Table** button to apply the correct Beam Table for the selected Service type**.**

 This must be done before the correct Beam ID is entered otherwise it will not see it in the table.

Update Beam Table

This button will switch to the selected Service Type table and use the saved Beam data. DVB Settings will be automatically be filled with the correct values associated with the selected Beam ID. The Update Beam Table button is only required to be applied once as long as you continue to use same Service Type. This option is only available with the HN_KA modem service and must be applied before correct Beam ID values appear in drop-down.

Beam ID

This option is only available with the HN_KA modem service. Beam ID will be provided by the NOC or service provider once user provides location.

Auto-select Beam Color

This option is only available with the Tooway modem service. Select the Auto-select Beam Color to have the system automatically lock on the Beam Color by referring to the Tooway configuration file (iNetVu7000_ConfigForTooway.txt) and GPS location.

Auto RF Mode

Available with Tooway modem service. Selecting this option will automatically insert the search settings for the Tooway (consumer) modem.

Update Look-Up Table

Updates controller with new table information. This feature also allows Auto Beam searching using GPS location coordinates to lock on Beam color. The user must update

the table at least once from the application before this feature is usable from the controller front panel by using a single FIND SAT button. See Appendix 5. Or Tooway Quick Start for more details.

8.2.3.4.   Beacon receiver
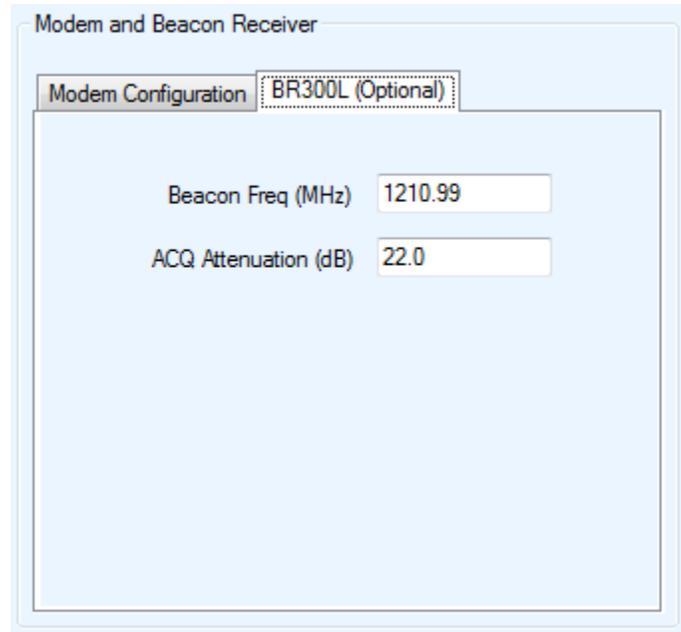
Fig. 92:   *Configuration - Beacon Receiver parameters*

Beacon Freq (MHz)

This field represents the frequency that the Optional Beacon Receiver is programmed for. The user may change this frequency to whatever Beacon is required for the target satellite. 5 configurable Beacon frequency maybe configured with 5 configurable Satellites. If the iNetVu® Beacon Receiver is not used, this field can be ignored.

ACQ Attenuation (dB)

The 7000 Series controller software interfaces give the user flexibility to set the power level of the signal when searching using the beacon receiver. This field is only related to the optional iNetVu Beacon Receiver.

8.2.3.5. Controller Parameters

This sub-section contains data concerning the relevant IP addresses of the iNetVu®
Series 7000 Controller.

Fig. 93: *Configuration – Controller Parameters*

IP Address

The IP address assigned to the iNetVu® 7000 Series Controller.

Subnet Mask

The Subnet Mask IP Address used by the iNetVu® 7000 Series Controller for PC and
modem connectivity.

Default Gateway

The Gateway IP address used by the iNetVu® 7000 Series Controller.

DHCP

The iNetVu® 7000 Series Controller could obtain a dynamic IP address from a DHCP
Server (i.e. router, modem, etc.) if this option is enabled.

8.2.3.6.   Search Parameters

Fig. 94:   *Configuration – DVB & RF Search Mode Parameters*

Search Method

DVB or RF search are selectable from the drop down window. DVB will search directly on DVB-S1 or DVB-S2 carrier and lock on it. DVB is the option of choice to use when searching for satellite. RF option will allow the user to base satellite searching and peaking strictly on RF instead of DVB. This method of searching could be used when the user is having a hard time finding the transponder data for a specific satellite, or if no transponder data exists. The controller will then peak on the modem signal when the satellite is found. RF search should be used as a last resort after DVB and or DVB with reference satellite.

Full Search

Performs a full 360º Azimuth search for the desired Satellite. This process may take up to 30 minutes to find and lock onto Satellite. Selecting **Full Search** will auto select **Override Compass** and set the AZ Window to 180 or any other value (60 and above) depending on the Platform type. This value can be overridden to a more desirable range. **Override Compass** can be selected without selecting **Full Search** but this does not hold true for the vice-versa.

Override Compass Checkbox

The Compass is pre-calibrated by a professional installer at the time of system installation or come pre-calibrated from the compass manufacturer.
A number of factors can contribute to the iNetVu® compass to produce an incorrect reading such as being parked in close proximity to a large metallic object. Should the compass heading be inaccurate by more than 20 degrees, you may need to re-calibrate or Restore it (Mount Dependent), or select "Override Compass" option. Ensure that you are using a reliable alternate source to acquire the correct direction if such device is to be used, otherwise overriding compass will suffice for incorrect compass reading.

After enabling Override, you may enter the vehicle's direction as indicated on your alternate compass. Keep in mind that the base of the iNetVu® Mobile Platform is oriented to the front of your vehicle (back of reflector and front of vehicle face the same direction) refer to orientation figures in this document. When taking the direction using the alternate compass, take the direction of your reading while facing the front of the vehicle, and use this orientation for the **Vehicle Direction** field.

Tips and Recommendations

Compass Issues?

If you are in an area where there is magnetic interference or the compass readings are incorrect, it is recommended to select Full Search which will also override the compass.

❖ Full Search == Override Compass

Selecting **Full Search option** will auto select **Override Compass** feature.

AZ Window Size

The default Azimuth (Horizontal) range is 60° on each side of the Target Point and the default Elevation (Vertical) range is 3° on each side of the Target Point.

Increasing the size of the Search Window will increase the ability to find the desired Satellite, although increasing the Search Window will lengthen the search time.

Caution: **system may overshoot by 10° (on AZ Window) from the set window limits.**

Direction

The direction the front of the Mobile Platform is rotated in reference to True North. In order to override the compass, the user must know where true north is located to enter the direction the platform is facing.

Restricting a section of the Antenna search

Sometimes certain limitations are presented and the user must restrict or confine the search to a certain circumference area. This can be accomplished by the following:

I.   Select **override compass** and **Save All.**
II. Set AZ window to 180 or the full range of the selected platform type but this value can be adjusted.
III. Select the virtual **Direction** that you would like in order to set the search starting point (AZ Ref on Controls screen). See Appendix for Direction to AZ Ref point.

IV. Select Full Search, this will hide override Compass and Direction, click on **Save
   All**
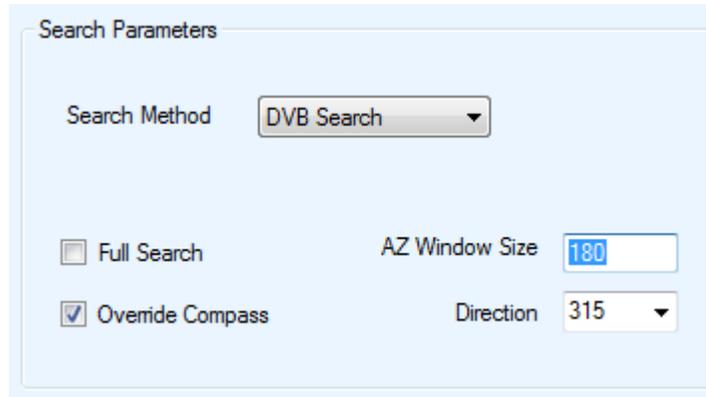
Fig. 95:   *Compass Full Search Configuration Parameters*

North - 354°
West - 265°
South -176°
East - 87°

This end is the reference for Vehicle
Orientation, this end faces North

This end faces South

Fig. 96:   *Compass Orientation and Approximate Values*

Using the image below as guidance example provided for reference.

North (180˚)

Front of Vehicle   Location 1

West (90˚)   East (-90˚)

(+)   (-)

South (0˚)
Facing Antenna Reference
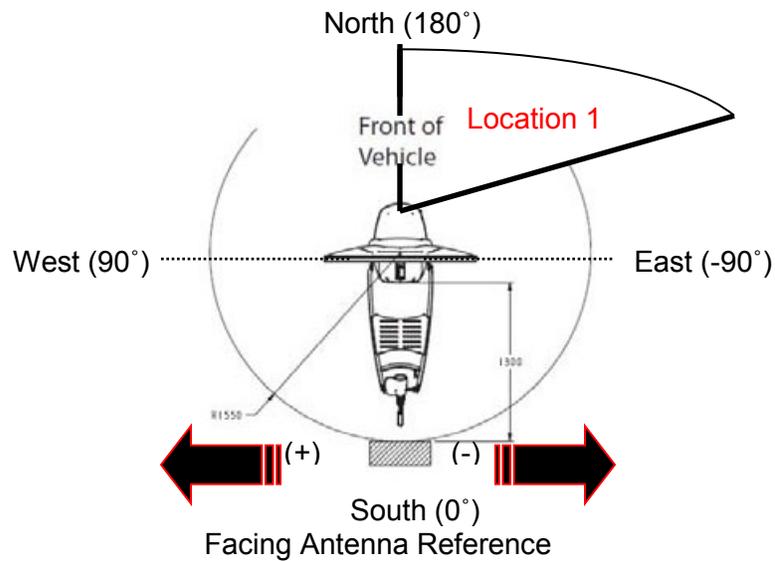
Example 1. There is an object at location 1 and we want to avoid this area.

      a.) Select direction to be NW (315˚) which will set System AZ Ref to 45˚ this will be your window starting point.

      b.) Set AZ Window Size to 170, if 45 is the starting point or center of the search window. The antenna will add 170 to 45 = 215 ˚ (Antenna will only rotate to a max ±180 on either side) and subtract 170 from 45 = -125

      c.) The total area that will be searched is shown below.

North (180˚)

Location 1

Front of Vehicle

West (90˚)   East (-90˚)

45˚ Search Starts here

South (0˚)
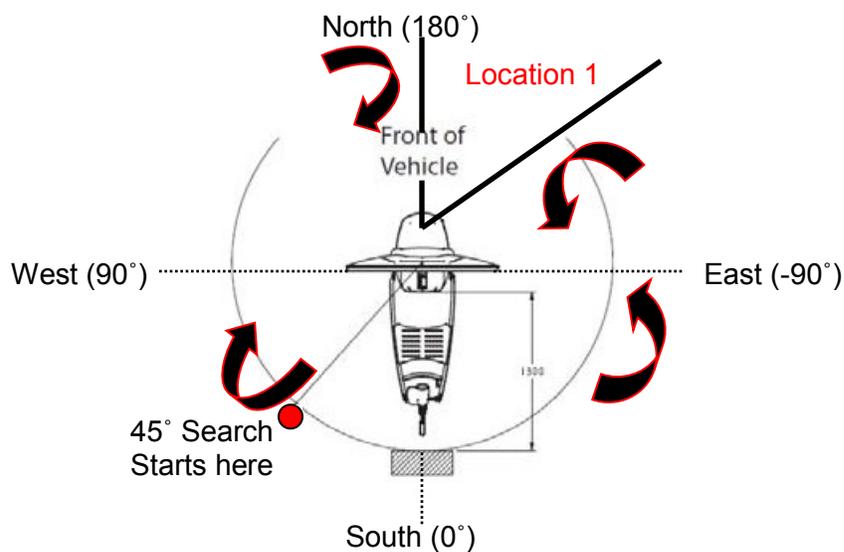
Note: See Appendix for Direction and System Ref. AZ table.

RF Override

Enable to use the value that is entered in the RF Threshold field, otherwise the default real time RF value from the tuner will be used.

RF Threshold

Used by the iNetVu® Mobile Software to begin a signal optimization process for peaking on a Satellite signal after initially locating it. This field should only be used if the RF threshold is to be overridden. Ka Band systems with single TRIA cable will have the RF threshold set to 75 by default (service dependent), this allows the RF Signal to be in operation range (RF Signal==70 on iNetVu Controls window) thus allowing the search process to begin. The RF Threshold can also be manually set to any value ranging from 40 to 60 which will display the true value of RF Signal on the iNetVu Controls window. Setting the RF Threshold to 30 will put the search into a step-through-search moving the AZ axis in small incremental steps, this method increases the search time.

8.2.3.7.   Controller Feature

These features are modem dependant and different features will display depending on the type of modem selected in the modem configuration interface.

Transmit DC Enable (iDirect only)

Allows user to disable the DC power supplied by the modem to the BUC after TX enable is sent to modem. This allows power to be supplied by an external power source and hence bypassing the modem. Transmit DC Enable is checked by default and by unchecking it would disable DC supply from modem and allow the user to control DC power supply to the BUC.

Enable iDirect Broadcast (iDirect only)

The 7000 Series Controllers can be configured to broadcast with iDirect service. This allows iDirect users with broadcast configured modems, to lock onto a DVB carrier, and enable the transmitter in the iDirect modem automatically after peaking through the 7000 Series Controller. This happens when reference satellite is used and system deploys to the target but no signal lock is achieved, the controller will than use the last position and perform a blind search.

Motion Protection

The iNetVu® Mobile Platform will automatically stow the antenna should it experience extreme motion, such as severe shaking caused by harsh weather conditions. Box selected implies Motion Protection is enabled.

Movement Protection (not a selectable option)

The movement protection option is always enabled and is embedded into the controller. System will stow automatically when vehicle begins to drive off. The movement protection feature will not function properly if the GPS is overridden because movement protection relies on change of GPS speed (min 5 km/h) plus a change of 2 degrees or more on Elevation. Overriding GPS will omit this feature and antenna stowing due to movement will not occur.

Disable ACP (Hughes Ku Only)

This checkbox allows the user to enable or disable the ACP process for the HNS supported modems. If this box is selected, the modem will not perform ACP and will try to enable the transmitter automatically after peaking. If this box is NOT selected, the controller will attempt to perform an ACP after peaking on satellite and before enabling the transmitter.

Automatic TX Disable

if this option is selected (by default its checked), the controller will automatically disable the transmitter (TX) after the communication between the modem and controller is re-established due to controller or modem communication lose during transmission as a result of one or both devices rebooting, power outage or any other cause of communication drop. TX will be disabled only after communication is re-established. To Leave the TX enabled after communication is re-established uncheck this option.

Unattended Operation

This drop down menu represents the Unattended Operation Functionality for remote or stationary unmanned setup. Unattended Operation should **NOT** be configured on units that will be mobile between different locations, as the system will attempt to deploy as per set delay time. The user may disable (deselect), or enable (select) and set the unattended operation to 5, 10, or 15 minutes. If the dish is stowed due to motion the system will automatically re-acquire satellite depending on the user's entered delay time after a motion stow. Initial stow wait time is 30 seconds, than the selected times become valid from the second stow onwards. For example, if the user selects 5M from the drop down menu, and the system stows due to motion, Five (5) minutes plus 30 seconds after automatically stowing, the system will try to re-acquire the satellite signal. The routine uses the following formula: Waiting Time for re-acquire == 30S+ (retry times*selected delay time) default retry time at first stow is 0, second stow is 1, etc… until one (1) hour (3600 seconds) is reached. If after (1) hour system does not find satellite it will continue to try on every hour thereafter. The retry time will be reset 0 after each time the system locks on satellite.

DANGER: The system may try to deploy if this option is selected and vehicle becomes in motion. Unattended option must be disabled when vehicle is moving and system is NOT powered off.

8.2.3.8.   Advanced Search Configuration
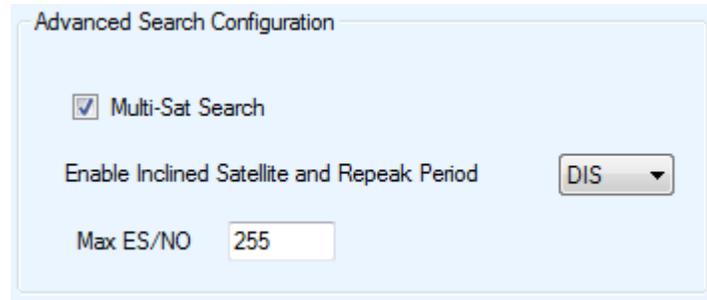
Fig. 97:   *Advanced Satellite Search Configuration options*

Multi-Sat Search

Multiple satellite search allows the user to configure multiple satellites and search continuously on the configured satellites (SAT0, SAT1 or SAT2) if search on the first selected satellite fails, search will automatically start on the second configured satellite in the list. If search on all three fail a message will be displayed informing the operator of the search status. This feature must also be enabled if using a modem with dual beam search such as iDirect.

Enable Inclined Satellite Orbit (Re-peak Time)

Enabling this option will allow the system to maintain signal with an inclined orbital satellite. The user may select the time difference between each re-peak on the inclined orbital satellite without disabling the transmitter and maximizing on the signal strength. This feature has been modified to support Ka platforms' that shift off signal due to shifting ground and or environment conditions. The inclined mode routine will exit its operation once the Stop button is depressed leaving the configuration selection enabled. This option will not work properly if Motion Protection is enabled at the same time, disable Motion Protection when inclined option is enabled.

> DIS: Disabled
> 1: Re-peak every 10 minutes
> 2: Re-peak every 30 minutes
> 3: Re-peak every 1 hours
> 4: Re-peak every 2 hours
> 5: Re-peak every 3 hours
> 6: Re-peak every 4 hours
> 7: Re-peak every 6 hours
> 8: Re-peak every 8 hours
> 9: Re-peak every 12 hours

Max ES/NO

The Satellite peaking routine will stop at the set value of the SNR signal thus reducing the peaking time after reaching the highest set value. Modifying and or misconfiguring this parameter may inhibit satellite searching sequence and stop the peaking before reaching the highest possible signal. Only change this value if the highest Maximum ES/NO value is known to the user otherwise leave at default value of 255 to ensure peaking is performed at the highest signal. This field is grayed out when Reference Satellite is enabled and default value set to 255.

8.2.3.9.   LNB LO & 22KHz Tone
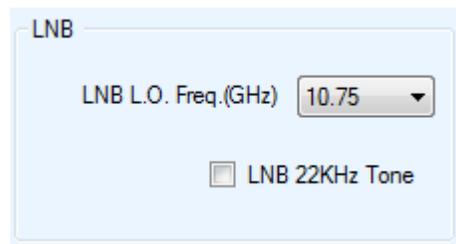
Fig. 98:   *LNB_LO and Tone section*

LNB_LO

This drop down menu allows the user to change the LNB frequency settings to relock back onto satellite signal. The Normal operation setting is 10.75 and the controller default setting will reflect this; users should use the default setting at all times with carriers from table list or a carrier can be manually entered. If required to change LNB LO, than DVB frequency will also change as per the following equation: DVB tuner==IF frequency + (10.75-LO), where LO = the selected LO from the menu, IF Frequency is the selected/entered Frequency from menu (or Satparam database table).

0 – 10.75
1 – 9.75
2 – 10.00
5 – 10.60
4 – 11.30

Note: Values 0-4 represent controller side value settings.

LNB 22 KHz Tone

The 22 KHz tone can be disabled or enabled for supporting modems that allow for acquisition with LNBs that switch frequency ranges by adjusting the 22 KHz tone. This option is disabled by default.

8.2.3.10. COM Port Interface

This drop down menu allows the user to define the functionality of the serial interface on the iNetVu® 7000 Series Controller. The following are the Interface options to select from:

- **DEBUG**   - Used for internal debugging purposes.
- **MODEM**   - Used as a communication medium if the specified modem supports serial interface communication. To communicate with a Modem via Console, "MODEM" must be selected from the COM drop down menu, and the proper baud rate of the modem must be entered as well from the BAUD drop down menu.
- **GPS_Out**   - Used for GPS output data gathering.
- **BEACON**   - Used to establish communication with the iNetVu BR300L Beacon Receiver.
- **GLONASS**   - Used for External Glonass GPS option.
- **PC**   - Used for COM serial port communication between the PC and Controller.

BAUD (bps)

The user may define the bit rate of the serial communication interface.

8.2.3.11. Configuration Menu Buttons
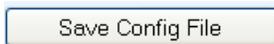
| Save Config File | **Save Config File ***
Refer to section 8.1.2.7 for button description and function |

Save Config File *
 Refer to section 8.1.2.7 for button description and function

Read CONF *
Refer to section 8.1.2.7 for button description and function
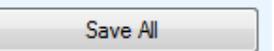
Save All *
Refer to section 8.1.2.7 for button description and function
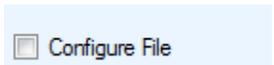
Configure File
When this option is unchecked (disabled), data will be read from Controller. When this option is checked (enabled) multiple changes will be saved immediately without acting on the parameter priority.

 * indicates buttons also exist on the Maintenance screen

8.2.3.12. Maintenance Test

Used for system tests, trouble-shooting, and for demonstrating the iNetVu® Mobile System. This feature is accessible from the Maintenance Window **Test** button.
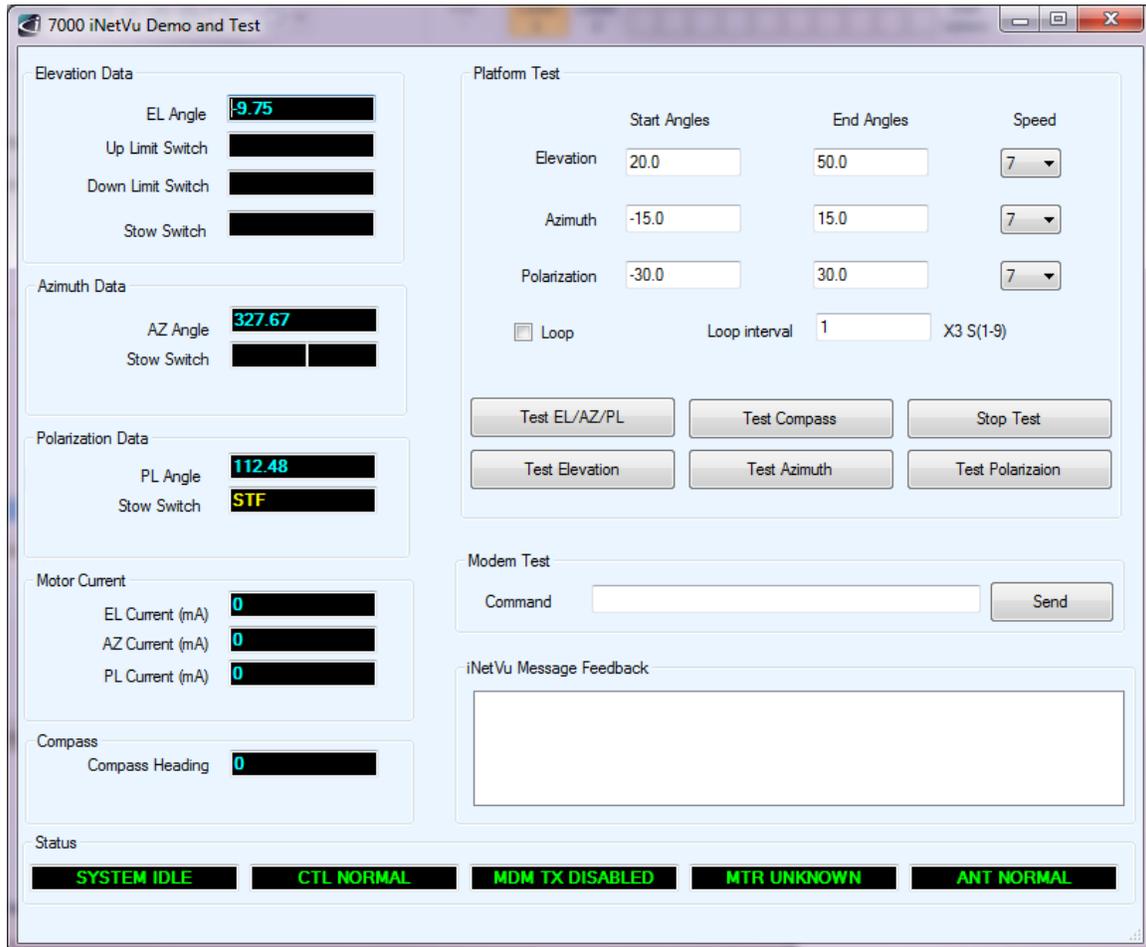
Fig. 99:   *Demo and Test Window*

Start/Demo Angles
Initial values for the test/demo sequence

End/Demo Angles
End values for the test/demo sequence

Speed
Speed of the motor during the test/demo sequence (4 – lowest, 9 – highest)

Loop the Test/Demo
Enables an infinite loop of the test/demo sequence

Loop Interval
Time between test/demo sequences

Test EL/AZ/PL   **Test EL/AZ/PL**
Moves and rotates to the values set in the Start Angle and End/Demo Angle fields

Test Compass   **Test Compass**
Positions Antenna to the set Elevation angle and updates compass heading by moving to the set End Angle values entered by the user on all three axis.

Stop Test   **Stop Test**
Halts all test/demo sequences

Test Elevation   **Test Elevation**
Moves dish to the values set in the Start Angle and End/Demo Angle fields

Test Azimuth   **Test Azimuth**
Moves dish to the values set in the Start Angle and End/Demo Angle fields

Test Polarizaion   **Test Polarization**
Rotates dish to the values set in the Start Angle and End/Demo Angle fields

Modem Test (Command)

The user may enter certain modem commands, and click send. The 7000 Series Controller will then read the response from the modem in the text area below the command line. Currently the commands supported are for iDirect service:

- laninfo
- tx power
- tx freq
- tx symrate
- tx cw
- rx power
- rx freq
- rx symrate
- latlon

8.2.4. About

Displays information to the user about various sub-system components, as well as contact information for support and feedback.

Fig. 100:   *About Window*

Software

- **Version**
  iNetVu® Mobile Software version

- **Build Date**
  Date of software release

Controller
- **Firmware Version**
  iNetVu® Controller's firmware version.

  For compatibility purposes, Controllers are pre-configured with the appropriate firmware for the accompanied software version.

- **Serial Number**
  iNetVu® Controller Serial Number ID.
  This field is supported for iNetVu® Controller Firmware 4.2 and higher.

- **Interface**

  This field represents the means of communication between the iNetVu® software, and the 7000 Controller.

- **Bootloader**

  Bootloader version loaded in the 7000 Series Controller

- **Revision**

  Indicates the revision number of the current Controller Hardware version

- **DVB Tuner**

  Displays if a DVB Tuner is detected

- **MAC Address**

  Displays controllers MAC Address

Platform

- **Type**
  Mobile Platform type

- **Serial Number(S/N)***
  Mobile Platform serial number
* S/N may have 4 or 5 digits (newer controllers)

- **Version**
  Platform Mechanical Version

Fig. 101:   *Platform Type and Serial Number*

Modem

- **Service**
  Type of service modem corresponds to.

- **Type**
  Type of modem currently communicating with the controller

- **Firmware**
  Satellite Modem's firmware version.

- **Serial Number**
  Satellite Modem's Hardware ID or Serial Number.

- **Interface**
  Modem Interface to the iNetVu® 7000 Series Controller.

Satellite

- **Longitude**
  Modem target longitude value and hemisphere.

- **RX Polarity**
  Modem Receive Polarity

8.2.5.   Language

The multilingual feature allows the toggling between Four (6) languages and updates in real-time the selected language. Currently the available languages are English, Chinese (Simplified and Traditional), Spanish, Russian and Swedish with more to come.
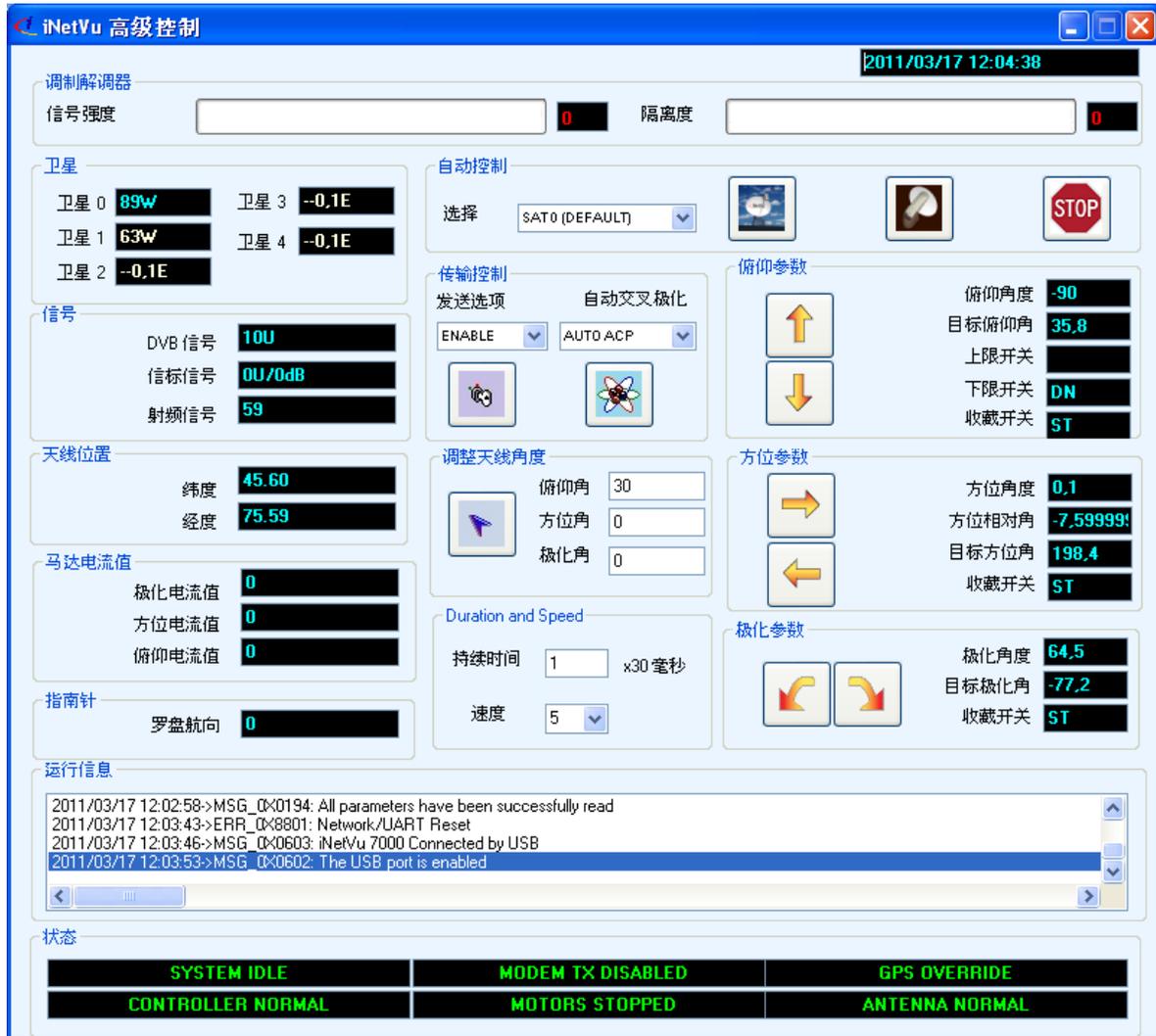
Fig. 102:   *iNetVu Controls Window in Chinese*

8.2.6.   Exit

Close the running IMS 7000 Application.

9. iNetVu® 7000 Series Controller Web Interface

Another method of communicating remotely with the 7000 Controller is through the web interface. It has the ability to communicate with the Satellite Modem, automatically find and lock onto a satellite and stow the antenna when completed. The user can also monitor real-time system parameters such as Signal Strength, GPS Coordinates, motor currents, as well as allowing the user the capability of manually moving the antenna and performing any maintenance tests and calibration tasks. Controller Firmware upgrade and reset (power cycle) is now possible without touching controller front panel (via the web interface (must be running minimum bootloader 7.5.3.0+ version for reset feature). The site name of the controller will appear in the browser tab if one is entered.

The **Web Interface** is similar to the 7000 Software, the difference being that it is accessed through a web browser by entering the controllers IP (i.e. 192.168.0.2) address in the URL address bar once a network connection has been established between the controller and the PC. Note some function(s) may not be available in Web interface i.e. Download Log File.

9.1. Navigating Menus

To view the web interface, type in the IP address of the 7000 Series Controller in the web browser.

There are 5 options available:

- Login (default password: "password")
- Controls
- Configurations
- System Test
- About

To reset the password, click on "**RESET PWD**", and enter "123456789" for the reset ID. These options are available once the controller is in upload mode:

- Login
- Firmware Update
- Sat Table Update
- Reset Controller
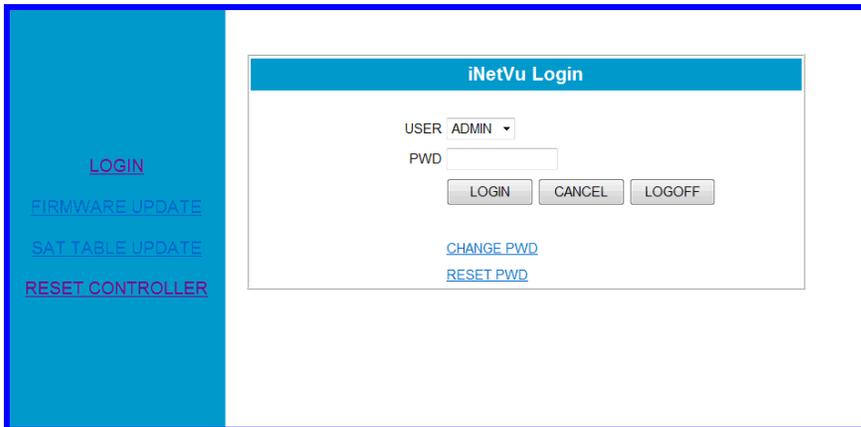
Fig. 103:　　*Web Interface – Upload Login Window*

There are 2 ways to get the controller in the upload status; first method is from the controller front panel, the second is from within the web GUI by clicking on the FW_U button. Updating the Firmware or the SatParam Table or Resetting the Controller; all of these can be accomplished by clicking the FW_U from the CONFIGURATION screen.
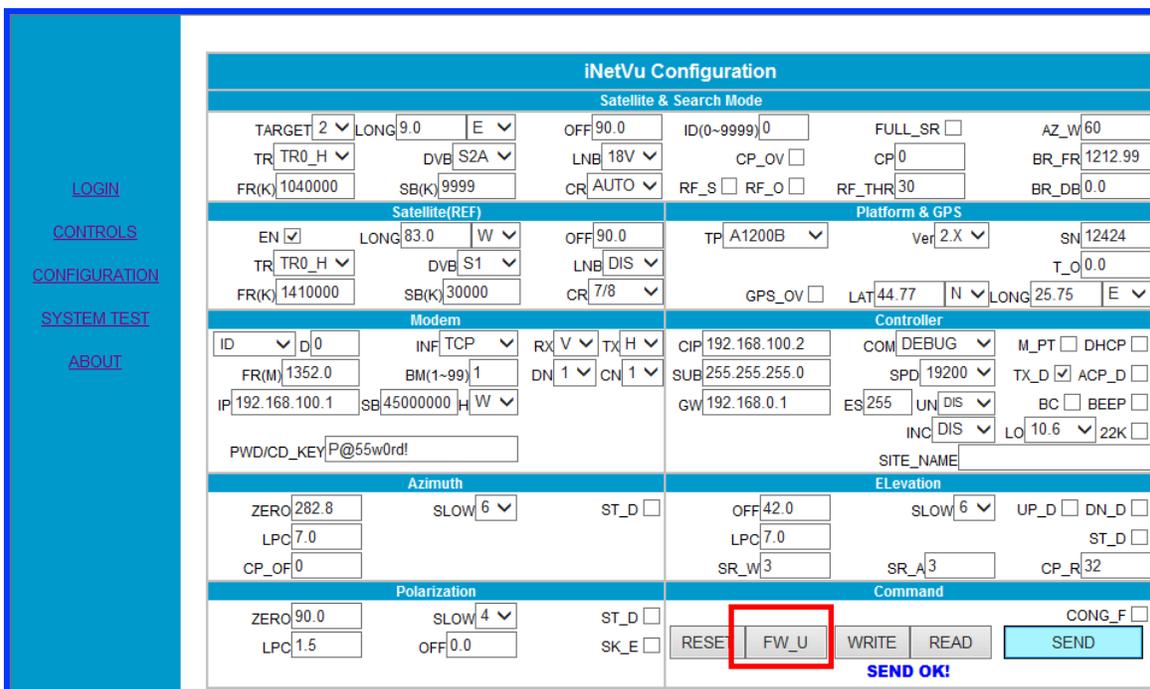
Fig. 104:　　　　*Web Interface – Firmware Update Button*

9.2. Controls

Similar to the iNetVu® 7000 Software Controls Menu, the Web Interface Controls Screen allows the user to monitor system operations, and perform automatic as well as manual system functions. The main difference between the web interface and iNetVu Application is that the Compass Calibration (CP CAL), Compass Test (CP TEST), Azimuth Calibration (AZ CAL), and Polarization Calibration (PL CAL) are all in the iNetVu Controls web page, rather than the Maintenance menu.

Fig. 105: *Web Interface - Controls Screen*

9.3.   Configuration

The Configuration menu allows users to configure the communication medium between the Satellite Modem and iNetVu® 7000 Series Web Interface, iNetVu® Controller and iNetVu® Web Interface, as well as various System parameters for optimal performance. A new button (RESET) has been added which allows the user to reset the controller from within the Configuration window.

The Configuration menu allows users to set the Satellite's name and orbital slot, and override parameters as well as putting the controller in updating mode.

The 7000 Series Controller Web Interface is similar to the iNetVu® Software Configuration Menu (See Software Configuration Menu Section for More Details)

Click **SEND if** any modifications are made.

Fig. 106:   *7000 Web Interface - Configuration Window*

9.4. System Test

This screen is mainly used for Demos, testing certain components of the system, and for sending certain modem commands that have been integrated with the iNetVu® 7000 Series Controller.

The 7000 Series Controller Web Interface System Test web page is similar to the iNetVu® Software Test Screen
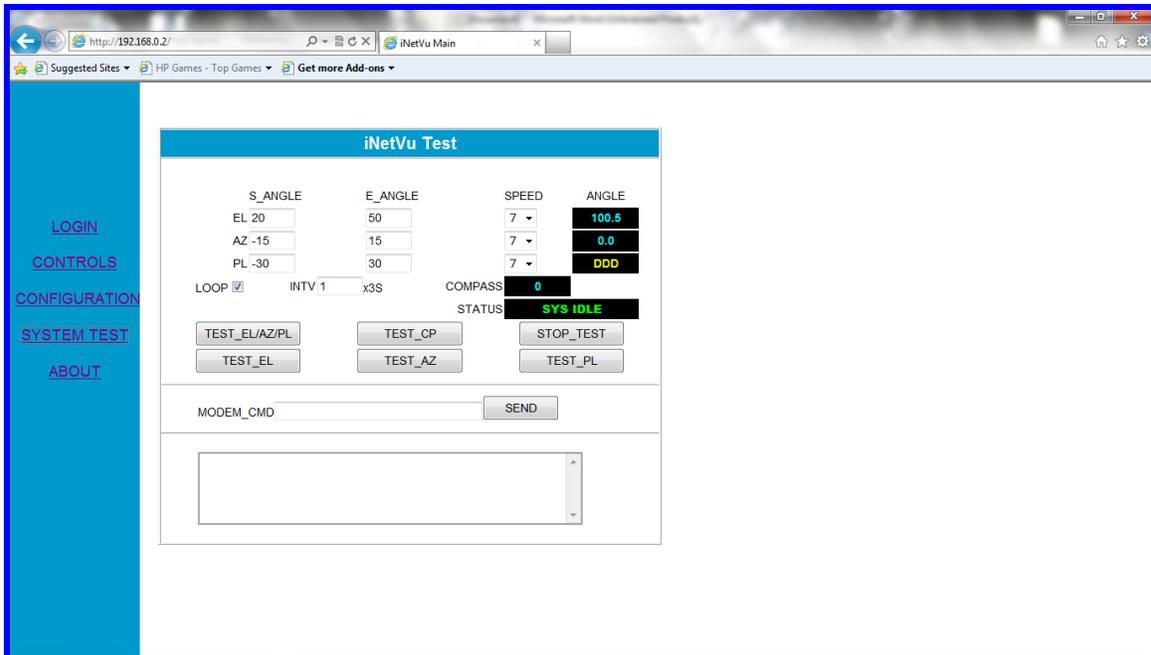
Fig. 107: *Web Interface - Test Window*

9.5. About

The "iNetVu About" web page, displays information to the user about various sub-system components, as well as contact information for support and feedback.

iNetVu About	
Controller	**Modem**

Controller		Modem	
SN	14905	SR ID	
FW	7.5.8.8	TY	
BL	7.6.1.0	FW	
REV	2	INF TP	
DVB	S2(EA)_3C	SN	
MAC	40-D8-55-06-E1-50		

Platform		Satellite	
Type	A12B	LONG	89.0W(SAT0)
Ver	4.X		
SN	12424	http://www.c-comsat.com C-COM Satellite Systems Inc.	

Fig. 108: *Web Interface - About Screen*

9.6. Firmware/Satellite Table Update

To access the firmware update, and satellite table update screen, perform the following steps:

1. Login to web interface and click on the FW_U button in the Configuration screen.

2. Refresh/restart the WEB interface.

3. After refreshing the WEB interface the controller is now in the upload mode and this is evident from the menu options that are now displayed in the left pane.
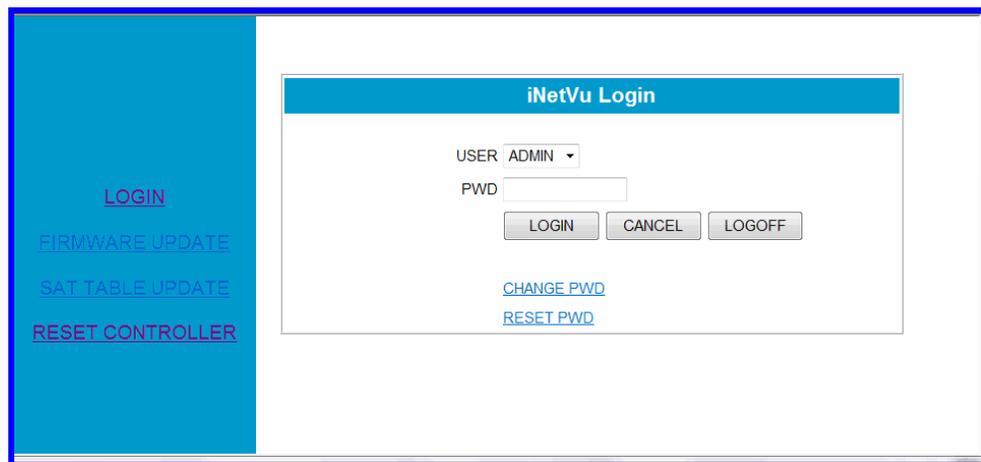
Fig. 109: *Firmware/Satellite Param Table update screen*

4. Login by entering password. You will receive a "Login Successfully!" display.

5. The options are now enabled and you may proceed and select the preferred task.

6. This can also be accomplished from the front panel. After establishing a proper network connection between the controller and the PC, press the "reset" button on the 7000 Series Controller, and hold the "↑" and "↓" buttons on the front panel at the same time until you read "Firmware/Sat update" on the LCD screen.

7. Open up a web browser, and type the 7000 Series Controller IP address into the URL address field. Type in "password" in the Password field.

9.6.1. Firmware Update

To update the controller firmware click on the "FIRMWARE UPDATE" link on the left panel. The following screen should appear:
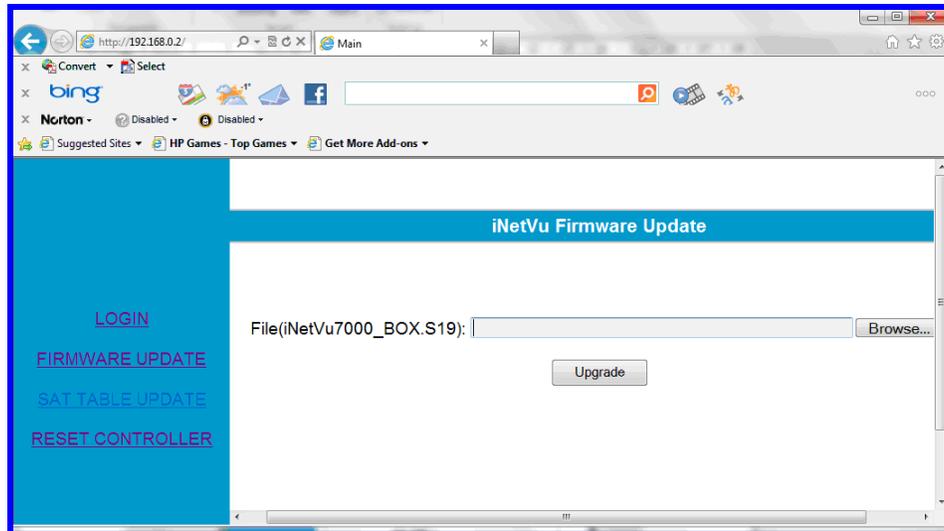
Fig. 110:   *Firmware Update Window*

To update the firmware via web page:

1. Browse to firmware (.s19) file and select it.
2. Click on the "Upgrade" button.
3. The status bar will appear, and the Controller firmware should be updated within a minute.
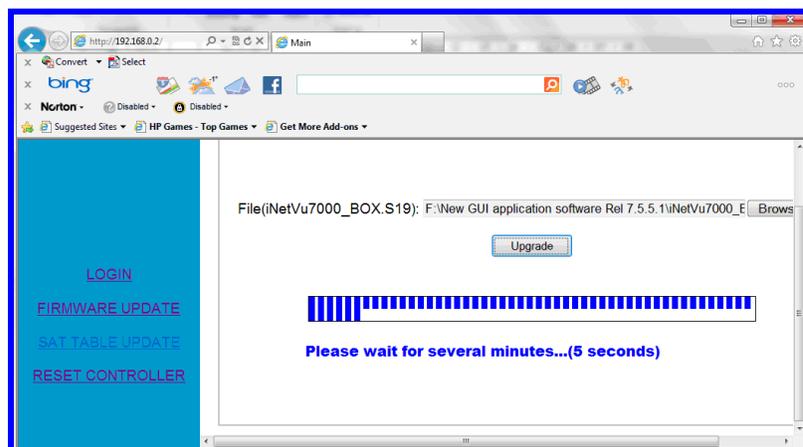
Fig. 111:   *Firmware Update – Progress bar*

9.6.2.   Satellite Table Update

In order to update the table containing the satellite transponder data, the iNetVu7000_SatParam.txt file must be manually changed. For example,

If a user wishes to add a transponder to satellite 91W, he/she would locate satellite 91W in the table, and replace one of the transponders with the new transponder data. Save the file once the changes have been made.

To upload the changed table to the controller:

1. Select "Sat Table Update" from the left panel of the web page after putting Controller in upload mode (Follow previous steps in section 9.6).
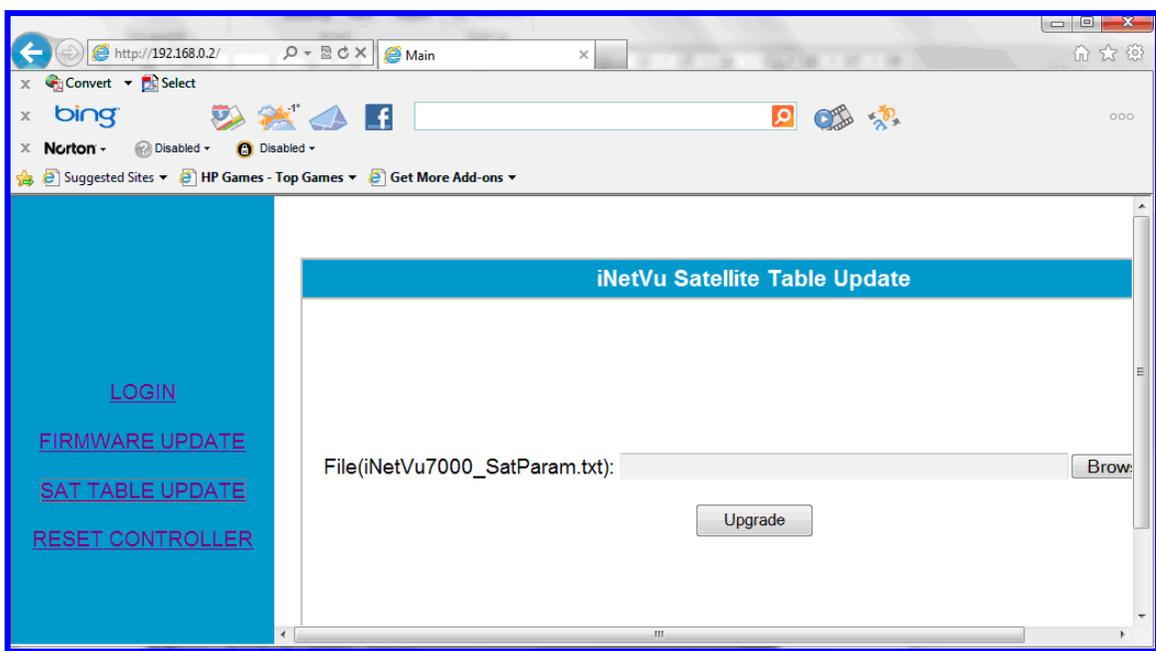
Fig. 112:   *Satellite Parameter Table Update*

2. Browse for the modified "iNetVu7000_SatParam.txt", and click on the "Upgrade" button. The controller should be updated within a few seconds.

*Note: Any of the upgrade processes can be cancelled by clicking the RESET CONTROLLER link (forces the controller to power cycle) before starting the procedure. Controller must be loaded with Bootloader 7.5.3.0+ for this option to be available.

*Note: The Firmware and SatParam table can also be updated using the latest IMS running on a pc/laptop and connected via USB or Serial RS232 cable connection. Recommended methods are USB or Network (LAN Connection).

10. Controller Connectivity

In order to interface directly with the iNetVu® 7000 Series Controller, a Network Interface and a Web Interface are available.

The Network/Web Interface allows the user to operate the automatic functions such as Finding Satellite, Stowing the Antenna, and Stopping Operations, as well as monitoring System Status, real-time Motor Currents, and Signal Strength.

In order to access the **Network Interface**, simply install the iNetVu® 7000 Software on your PC and place your PC on the same network as the 7000 Series Controller.

In order to access the **Web Interface**, place your PC on the same network as the 7000 Series Controller, and simply type in the IP address of the 7000 Controller into your web browser.

iNetVu® 7000 Network Configurations:

Default IP Address: 192.168.0.2
Default Subnet Mask: 255.255.255.0
Default Gateway IP: 192.168.0.1

Network Cable /
USB Cable

Computer

Set IP to the same subnet as the iNetVu 7000 Controller and the Gateway as the iNetVu 7000 Controller.
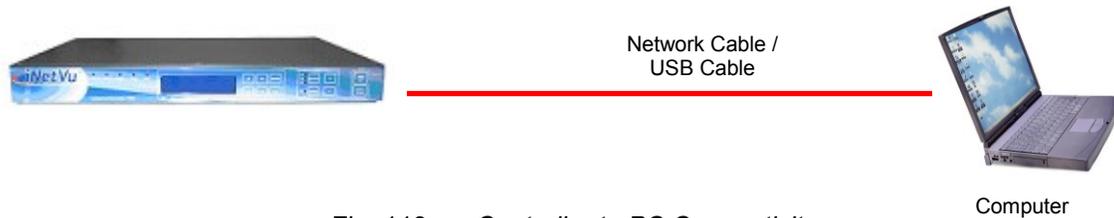
Fig. 113:   *Controller to PC Connectivity*

Straight Network Cable

Router / Switch

Straight Network Cable

iNetVu 7000 Series Controller

Set IP to the same subnet as the Satellite Modem / VSAT and the Gateway as the Satellite Modem / VSAT.

Satellite Modem / VSAT

Computer

Set IP to the same subnet as the iNetVu 7000 Controller and the Gateway as the Router/Switch.
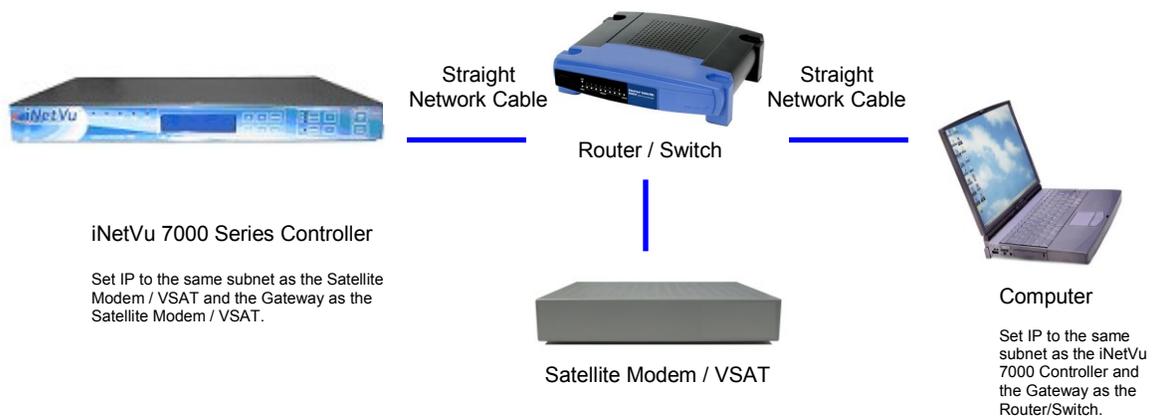
Fig. 114:   *Controller to PC and Modem Connectivity via Network Interface*

10.1. Network Configuration Example

Direct Connection to PC:

Straight / Crossover
Network Cable

iNetVu 7000 Series Controller
IP Address: 192.168.0.2
Subnet Mask: 255.255.255.0
Gateway: 192.168.0.1

Computer
IP Address: 192.168.0.3
Subnet Mask: 255.255.255.0
Gateway: 192.168.0.2
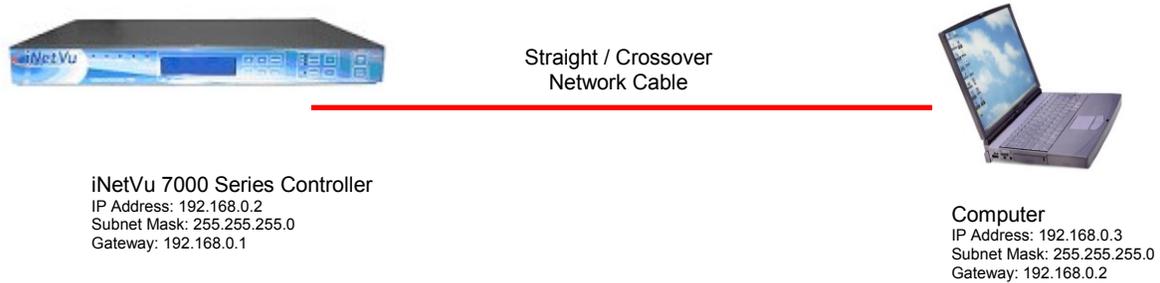
Fig. 115:   *IP Setup for Controller to PC Connectivity*

Direct Connection to Satellite Modem/VSAT:
Satellite Modem / VSAT – Fixed IP Address

Straight / Crossover
Network Cable
(Manufacturer Dependent)

IP Address: 10.211.9.74
Subnet Mask: 255.255.255.0
Gateway: 10.211.9.73

Modem IP: 10.211.9.73

Satellite Modem / VSAT
IP Address: 10.211.9.73
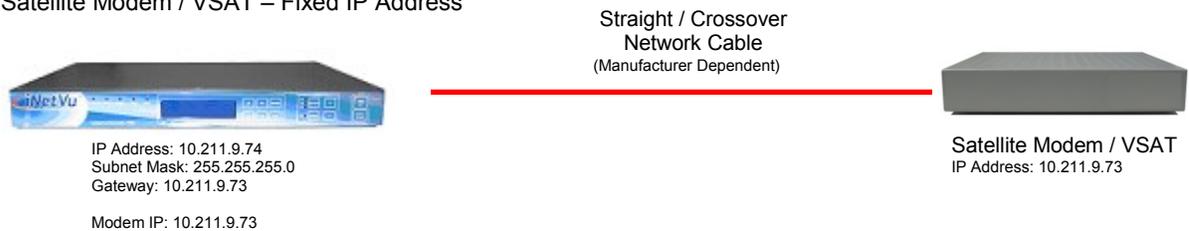
Fig. 116:   *Controller to Modem Network Setup*

** Once the IP Address is assigned to the iNetVu® 7000 Controller by the Satellite Modem / VSAT, you may check the LCD Menu to view the assigned IP Address.

Connection via Router/Switch:
Satellite Modem / VSAT – Fixed IP Address

Straight
Network Cable

Switch

Straight
Network Cable

IP Address: 10.211.9.74
Subnet Mask: 255.255.255.0
Gateway: 10.211.9.73

Modem IP: 10.211.9.73

Satellite Modem / VSAT
IP Address: 10.211.9.73

Straight / Crossover
Network Cable
(Manufacturer Dependent)

Computer
IP Address: 10.211.9.75
Subnet Mask: 255.255.255.0
Gateway: 10.211.9.73
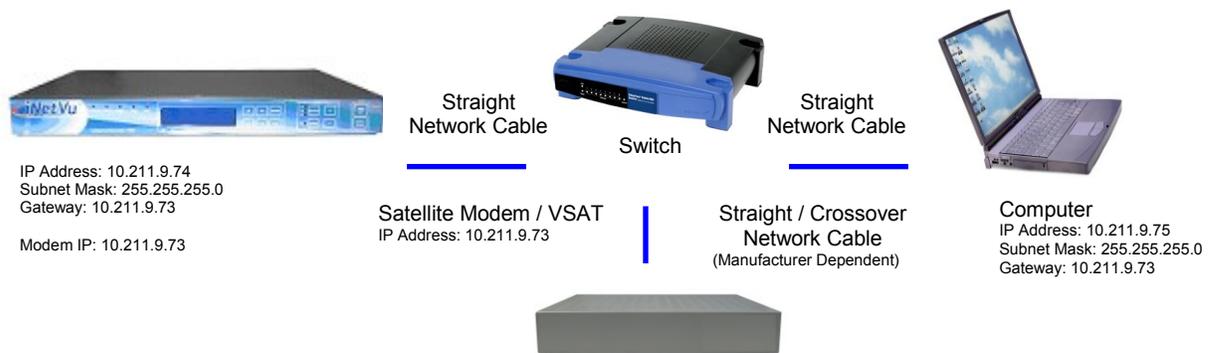
Fig. 117:   *Controller to Modem and PC network setup*

10.2. How to Set Network Configurations on your PC
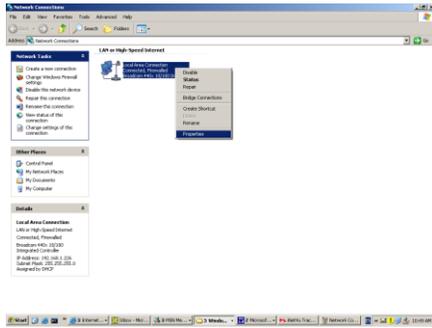
1. Open **Network Connections**, right-click your network card, and select **Properties**.
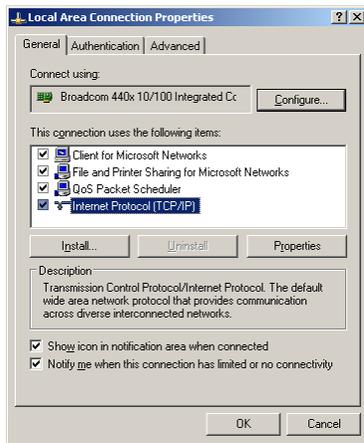
2. Select **Internet Protocol (TCP/IP)** and click **Properties**.
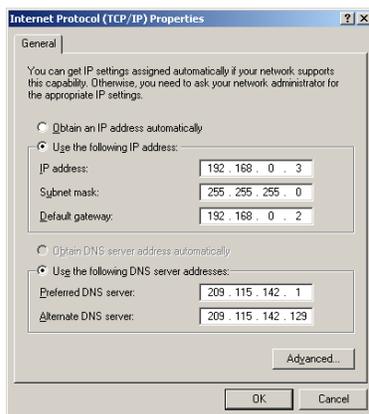
3. Direct Network Connection:

   Set your PC to the same subnet as the iNetVu® 7000 Series Controller, and the Default Gateway to the iNetVu® 7000 Series Controller.

   The screenshot depicts this configuration.

   Network Connection via Router/Switch:

   Dependent on Network Configuration (See previous section)

11. Integrations and Compatibility Features

11.1. GLONASS Navigation System

The GLONASS Navigation System is now fully compatible with the 7000 series controller using the NAVIS Receiver Module, P/N: NV08C-EVK-CSM. To date this is the only module that has been successfully tested and thus only this device (P/N: NV08C-EVK-CSM) will be supported. This option can be selected in the IMS 7000 software or within the controller using the keypad functions. This option currently supports an external GLONASS receiver which is attached to controller via serial port interface. The 7000C and 7024C controllers have NV08C- CSM chip onboard and use the GLONASS/GPS Antenna that is shipped with these units.

11.2. Uplogix Remote Management

The iNetVu Controller has been fully integrated with Uplogix Remote Management appliances. This feature allows for out-of-band and in-band remote access to the iNetVu Antenna Systems with capability to remotely monitor parameters on the iNetVu controller and issue commands to enable, reconfigure, retarget and stow the antenna(s). This functionality allows the operators to remotely manage and control the iNetVu antenna, as if they were onsite. Refer to the Uplogix Feature Guide for operational/setup information.

12. APPENDICES

12.1.   Appendix 1: Default Limits and Configuration Data Tables

Compass Reading Elevation

	PLATFORM TYPES					
	A1800A /B/C/E	A1500A/ B/C/E	A1200	A0980	A0740	A0660
COMPASS READING ELEVATION	32	37	32	35	25	25

	PLATFORM TYPES					
	A1810A /B/C/E	A1801A /B/C/E	A0180A	A1210A	A1201A	A1200Q
COMPASS READING ELEVATION	32	32	32	32	32	32

	PLATFORM TYPES					
	A0985A	A0985B	A0981A	A0755A	A0121	A0125A
COMPASS READING ELEVATION	24	24	24	24	NA	NA

Table 1:   Compass Reading Elevation Default Values

Elevation Offset

PLATFORM TYPES					
	A1800A/ B/C/E	A1200B/ A1500A/ B/C/E	A0980	A0740	A0660
EL OFFSET	45.00	42.00	31.00	31.00	35.00

PLATFORM TYPES					
	A1210A	A1201A	1200Q	A0121A	A0125A	
EL OFFSET	60.5	17	11	15.5	15.5	

	A0985A	A0985B	A0981A	A0755A		
EL OFFSET	18.5	18.5	18.5	20.5		

Table 2:   Default Elevation Offsets. All values are $\pm$ 2° after Target Calibration.

AZ Potentiometer/Encoder

	PLATFORM TYPES				
	A1800A/B/C/E	A1200B/A1500A/B/C/E	A0980	A0740	A0660
AZ ZERO	280.7808	282.88	342.17	342.17	342.17
	PLATFORM TYPES				
	A1210A	A1201A	A1200Q	A0981A	A0755A
AZ ZERO	278	282.8	210.9	282.8	282.8
	A0985A/B	A0121A	A0125A		
AZ ZERO	282.8	282.8	282.8		

Table 3:   Azimuth Potentiometer Default Values

PL Potentiometer

	PLATFORM TYPES						
	A1800A/C	A1800B/E	A1200	A0980	A0740	A0660	A1500A/B/C/E
PL ZERO	205.4144	159.2832	197.22	131.79	131.79	131.79	212.4

Table 4:   Polarization Potentiometer Default Values

** Note**: The A980A and A1200A Revision 3.0 Platforms as well as all New Gen platforms, have replaced the PL Potentiometer with a PL Inclinometer (Tilt Sensor); 755A and 985A do not have movement on the PL axis thus the above table is not valid for these units, See Table 5 for Tilt Sensor default values.

PL Inclinometer (Tilt Sensor)

	PLATFORM TYPES						
	A1201	A1200	A0120A	A0985A/B	A0981A	A0980A	A0755A
PL ZERO	90.0	90.0	90.0	90.0	90.0	90.0	90.0
	PLATFORM TYPES						
	A0121A	A0125A	A1200Q	A1210A			
PL ZERO	90.0	90.0	90.0	90.0			

Table 5:   Polarization Inclinometer Default Values

Default Platform Speeds and Limits

	PLATFORM TYPES				
	A1800A/ B/C/E	A1200B/ C/A1500 A/B/C/E	A0980	A0740	A0660
EL SLOW	6	6	4	4	4
EL CURRENT6	7.00A	7.00	7.00	7.00	7.00
EL CURRENT9	12.00A	12.00	12.00	12.00	12.00
AZ SLOW	6	6	4	4	4
AZ CURRENT6	7.00	7.00	7.00	7.00	7.00
AZ CURRENT9	10.00	10.00	10.00	10.00	10.00
PL SLOW	6	4	7	7	7
PL CURRENT6	1.5	1.5	1.5	1.5	1.5
PL CURRENT9	2.0	2.0	2.0	2.0	2.0

	PLATFORM TYPES						
	A1810A B/C/E	A1801A B/C/E	A1210A	A1201A Ver.2.0	1201A Ver.3.0	A0985A /A0755A	A0981A
EL SLOW	NA	NA	6	8	3	3	3
EL CURRENT6	NA	NA	2.0A	3.5A	7.5A	7.0A	7.0A
EL CURRENT9	NA	NA	2.5A	5.0A	10.0A	10.0A	10.0A
AZ SLOW	NA	NA	6	9	3	9	9
AZ CURRENT6	NA	NA	1.0A	1.8A	5.0A	5.0A	5.0A
AZ CURRENT9	NA	NA	1.5A	2.0A	7.5A	7.0A	7.0A
PL SLOW	NA	NA	4	2	2	NA	2
PL CURRENT6	NA	NA	0.7A	0.3A	0.3A	NA	0.3A
PL CURRENT9	NA	NA	1.0A	0.5A	0.5A	NA	0.5A

	PLATFORM TYPES					
	A0121A	A0125A	A0985B	1200Q		
EL SLOW	5	5	3	4		
EL CURRENT6	4.5A	4.5A	7.0A	3.5A		
EL CURRENT9	4.5A	4.5A	10.0A	4.5A		
AZ SLOW	3.0	3.0	5	2		
AZ CURRENT6	1.5A	1.5A	1.7A	1.7A		
AZ CURRENT9	1.5A	1.5A	2.0A	2.5A		
PL SLOW	6	6	NA	2		
PL CURRENT6	0.8	0.8	NA	.3A		
PL CURRENT9	0.8	0.8	NA	.5A		

Table 6:   Default values for speed and current limits

12.2.   Appendix 2: Compass Direction and System Ref. AZ Table

Direction	System Ref. AZ	Search Window Starting Angle
North (N) = 0	0	0
North West (NW) = 45	-45	-45
East (E) = 90	-90	-90
South East (SE) = 135	-135	-135
South (S) = 180	-180	-180
South West (SW) = 225	135	135
West (W) = 270	90	90
North West (NW) = 315	45	45

N
±180

135

-135

W
90

E
-90

45

-45

South
0
AZ Reference Point
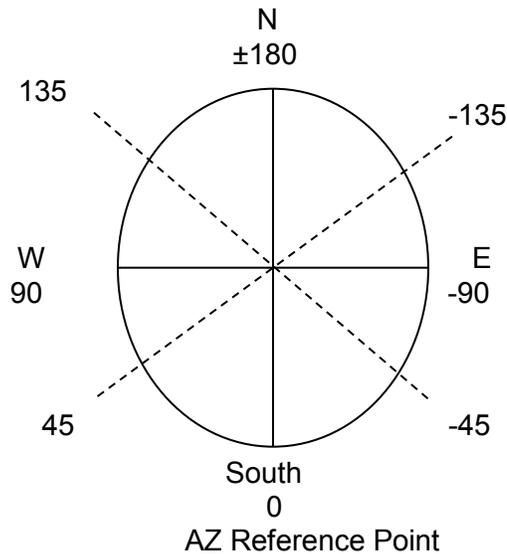
Note: Antenna reference point is 0° which means the reflector is pointing south with reference to the back facing North. The search window reference starting point will be the System Ref. AZ value, use above table and diagram to figure out which way the Antenna must be pointed (System Ref. AZ starting point) in order to set the AZ Window Size if an area is required to be excluded or blocked off from the search.

12.3.   Appendix 3: LCD Table Summary

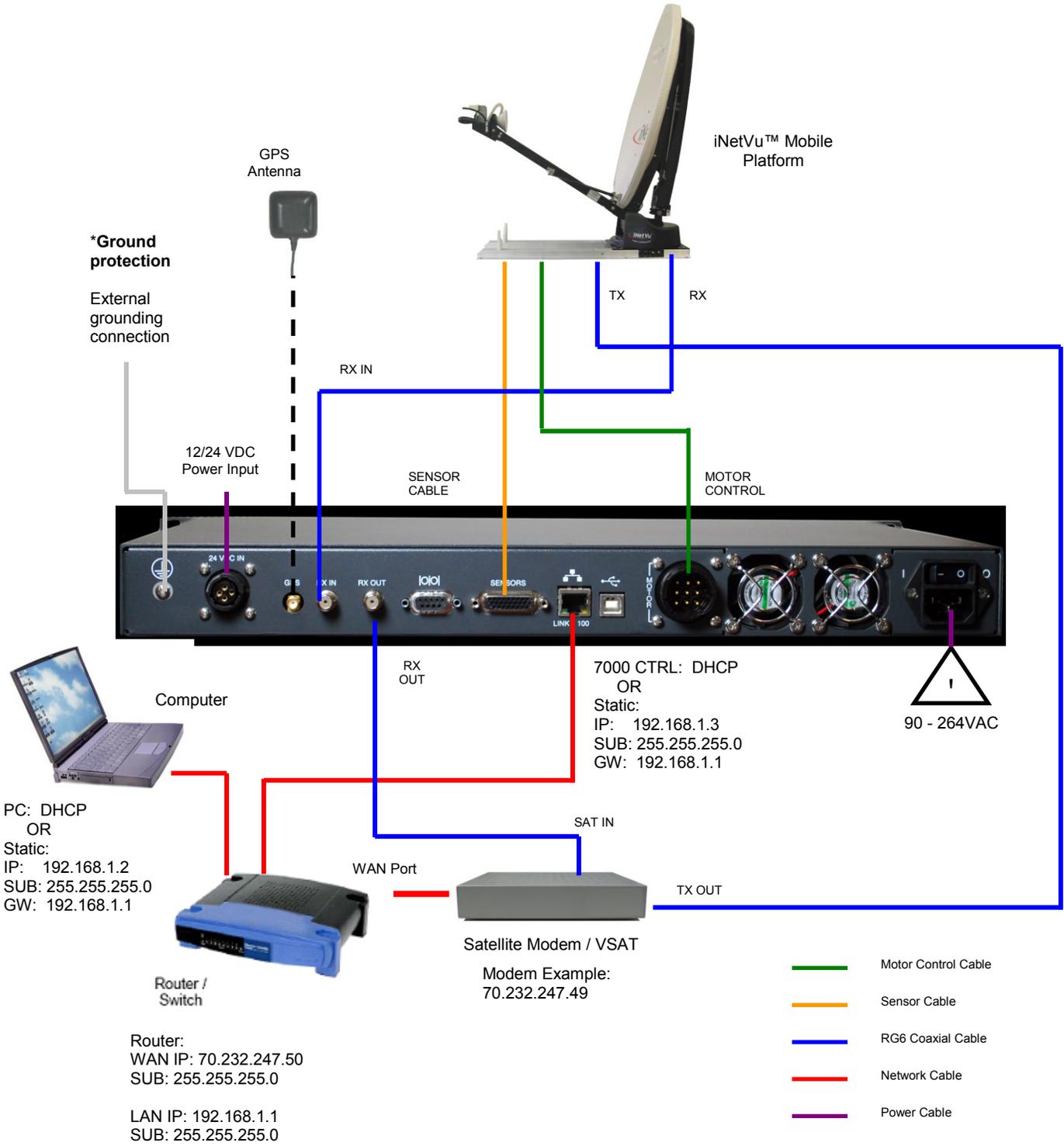| Menu	Field	Explanation
MONITOR		
MAIN	E (Angle)	Elevation Angle and Limit Indicators
	A (Angle)	Azimuth Angle and Stow Limit Indicator
	P (Angle)	P (Angle) – Polarization Angle and Stow Limit Indicator
	GPS and CMPS	GPS Status Flag and Compass Status Flag (OO, OV, VO, FF)
	ST	System Status (II, ST, PK, etc.)
	RF/DVB (Value)	RF/DVB (U/L) – Receive RF/DVB Signal Value and Lock/Unlock Status
	M (SNR) D/E	Modem Signal and Transmitter Status
	Beacon Signal	Beacon Signal value, and locked or unlocked status of BR300L Receiver(optional)
EL	E (Angle)	Real Time Elevation Angle and Status
	I/S	Real Time Current being drawn from the elevation motor @ the set speed
	S (Value)	Elevation search window limit
	Ad (Value)	Advanced Search Elevation Gap
	C (Value)	Elevation angle at which the compass reading is taken
	O (Value)	Elevation Offset used to obtain an accurate elevation reading
AZ	A (Angle)	Real Time Azimuth Angle and Status
	I/S	Real Time Current drawn from the Azimuth motor @ the set speed
	W (Value)	Azimuth search window limit
	Z	AZ Zero AZ Axis
PL	P (Angle)	Real Time Polarization Angle and Status
	I/S	Real Time Current drawn from the Polarization motor @ the set speed
	O (Value)	Polarization offset
	Z	PL Zero PL axis
GP	GPS (Status)	GPS Status (i.e. Normal, Overridden, or Failure)
	LAT and LONG	Latitudinal and Longitudinal GPS Coordinates
	V (Value)	GPS Velocity – indication of moving vehicle
	H (Value)	GPS Heading
SM	RF Search Mode	RF mode status disabled or enabled (N or Y) – first field
	RF Override	RF override status disabled or enabled (N or O) – second field
	RF Threshold	RF Threshold value
	RF/DVB (status)	RF or DVB value with LNB and Signal (N or L)
	CP (Status)	Compass Status (i.e. Normal, Overridden, or Failure)
	CP (Value)	Compass Heading taken after compass has been checked
	AZ_W	Azimuth search window
S1	Sat No	Target Satellite (Sat0 to Sat 4)
	Sat Long + Hems.	Target Satellite Locations Longitudinal Value and Hemisphere
	E (EL)	Target Antenna Elevation Value for Satellite acquisition
	A (AZ)	Target Antenna Azimuth Value for Satellite acquisition with reference to True North
	P (PL)	Target Antenna Polarization Value for Satellite acquisition
	TP NUMBER	T0-T2 (Horizontal Receive) and T3-T5 (Vertical Receive) DVB Transponders
	FREQUENCY	Satellite Transponder Frequency that DVB searches
	SYMBOL RATE	Satellite Transponder Symbol Rate that DVB searches
	CODE RATE	Satellite Transponder FEC (Code) Rate that DVB searches
	LNB Power	LNB Power supplied to the LNB when searching for target satellite
S2 (Optional)	Ref. Sat Long + Hems.	Reference Satellite Status, Locations Longitudinal Value and Hemisphere
	E (EL)	Target Antenna Elevation Value for Satellite acquisition
	A (AZ)	Target Antenna Azimuth Value for Satellite acquisition with reference to True North
	P (PL)	Target Antenna Polarization Value for Satellite acquisition

	TP NUMBER	T0-T2 (Horizontal Receive) and T3-T5 (Vertical Receive) DVB Transponders
	FREQUENCY	Satellite Transponder Frequency that DVB searches for ref. Satellite
	SYMBOL RATE	Satellite Transponder Symbol Rate that DVB searches for ref. Satellite
	CODE RATE	Satellite Transponder FEC (Code) Rate that DVB searches for ref. Satellite
	LNB_P	LNB Power supplied to the LNB when searching for reference Satellite
MB	Modem (Status)	Status of communication between controller and modem (i.e. initializing, normal, etc.)
	A (ACP Status)	Real Time ACP Status from the NOC
	BR (Freq : status))	Status and Frequency of the Beacon Receiver
IP	C_IP (Address)	Controller IP Address
	M_IP (Address)	Modem IP Address
GW	S_IP (Address)	Controller Subnet IP Address
	G_IP (Address)	Controller Gateway IP Address
OPERATION		
S0/BLU/BM	Find Sat 0	Automatically Find and Lock on to configured satellite 0 or Blue Beam or Beam ID
S1/ORG	Find Sat 1	Automatically Find and Lock on to configured satellite 1 or Orange Beam
S2/PRP	Find Sat 2	Automatically Find and Lock on to configured satellite 2 or Purple Beam
S3/GRN	Find Sat 3	Automatically Find and Lock on to configured satellite 3 or Green Beam
S4	Find Sat 4	Automatically Find and Lock on to configured satellite 4, S4 returns system back to auto mode when using front panel with Tooway modem.
TE	Enable Tx	Enable the Transmitter
TD	Disable Tx	Disable the Transmitter
AZC	Calibrate AZ	Calibrate the Azimuth Axis
PLC	Calibrate PL	Calibrate the Polarization Axis
CPC	Calibrate CP	Calibrate the Compass
CR	Restore Compass	Automatically Restores Compass to Factory Calibrated state
CONF1		
S1	Sat Number	Satellite number selected for configuration (0-4)
	Sat Longitude	Target Satellite Locations Longitudinal Value and Hemisphere
	S11/S2A	DVB Carrier Type for target satellite
	O (Offset)	Target Satellite Offset
	TP Number	Transponder Number in Controller (T0-T2) Horizontal Receive (T3-T5) Vertical Receive
	FREQUENCY	Satellite Transponder Frequency that DVB searches
	SYMBOL RATE	Satellite Transponder Symbol Rate that DVB searches
	CODE RATE	Satellite Transponder FEC (Code) Rate that DVB searches
	LNB Power	LNB Power supplied to the LNB when searching for target satellite
SM1	RF Status	RF Search Mode Status, Threshold override status and RF Threshold value
	CP	Compass Status (i.e. Normal, Overridden, or Failure)
	CP Heading	Compass Angle reading
	AZ_W	Azimuth Search Window Limit for satellite acquisition
SM2	Modem ID	Modem Beam ID number
	BR Frequency	Beacon Receiver programmable frequency/Initial Acquisition Gain.
CONF2		
S2	Sat Longitude	Reference Satellite Locations Longitudinal Value, and Enable/Disable option
	O (Offset)	Reference Satellite Offset
	TP Number	Transponder Number in Controller (T0-T2) Horizontal Receive (T3-T5) Vertical Receive
	FREQUENCY	Satellite Transponder Frequency that DVB searches
	S11/S2A	DVB Carrier Type for reference satellite (
	SYMBOL RATE	Satellite Transponder Symbol Rate that DVB searches
	CODE RATE	Satellite Transponder FEC (Code) Rate that DVB searches
	LNB Power	LNB Power supplied to the LNB when searching for reference satellite
MB	MOD FREQ	Frequency modem is configured for (HNS ONLY) (MHz)
	MOD sym. Rate	Symbol Rate modem is configured for (HNS ONLY) Sps
	Rx/Tx Polarity	Modem configured receive and transmit polarity respectively.
	Hem.	Hemisphere of operation
	T (N/Y)	Auto Disable Tx when modem is reset while system is online (N=keep modem status)
	ACP DIS (Y/N)	Y = Disable ACP N = Enable ACP
	22 KHz (E/D)	E = Enable/ D= Disable 22 KHz Tone for HNS Modem
EL	O (Value)	Elevation Offset for proper elevation angle readings
	W (Value)	Elevation Window Limit for satellite searching
	A (Value)	A (Value) – Elevation Adjustment Gap for inclined surfaces

	L (UDS)	Up, Down, and Stow Limits enabling (E) or disabling (D) on the Elevation Axis
	C (EL Value)	Compass Reading Elevation Angle
	S (Value)	Slow Speed Settings for Elevation Angle Operation
	I (Limits)	Current Limits on EL Axis @ Speed 9 and @ Speed 6
AZ	Z (Value)	AZ Pot Zero for converting A/D value for physical determination of AZ zero angle
	Stow Limit	Stow Limit Enabling (E) or Disabling (D)
	CP_O (Value)	Compass Offset
	S (Value)	Slow Speed Setting for Azimuth Axis.
	I (Limits)	Current Limits on AZ Axis @ Speed 9 and @ Speed 6
PL	Z (Value)	PL Pot Zero for converting A/D value for physical determination of PL zero angle
	Skew/Stow Limit	Skew Adjustment and Stow Limit Enabling (E) or Disabling (D)
	O (Offset)	Polarization Offset
	S (Value)	Slow Speed Setting for Polarization Axis.
	I (Limits)	Current Limits on PL Axis @ Speed 9 and @ Speed 6
GP	G (Mode)	GPS Setting (Override, Normal)
	GPS Long	GPS Longitudinal Value
	GPS Lat	GPS Latitudinal Value
C1	BC	TX Broadcast Enable/Disable
	ES_NO	Maximum ES/NO value that will stop peaking process once reached
	DH (DHCP)	Enables or Disables DHCP in the controller
	UN (Time)	Unattended Operation
	MP	Enables or Disables Motion Protection
	IN	Inclined Satellite Enable (# -> time between re-peak)
	BP	Beep upon Movement of Cursor via LCD
C2	C (Console Use)	Console Interface Configuration (modem, Beacon Receiver, dBUG, GPS, Glonass, PC) and Baud Rate
	Platform Type	Platform Type, Version and Serial Number Configuration
	TX_O	Polarization offset adjustment upon positioning due to mechanical misalignment of mount
C3	PASSWORD	Web Interface, and LCD Configuration Screen Access Password
	LO	
	22KHz Tone	Enable or Disable 22KHz tone
SG	S_IP (Address)	7000 Controller Subnet IP Address
	G_IP (Address)	7000 Controller Gateway IP Address
IP	C_IP (Address)	Controller IP Address
	M_IP (Address)	Modem IP Address
SR	Service	Service In Use (iDirect, Hughes, Etc.)
	Interface	Modem Communication Interface (i.e. Telnet, HTTP, Console, etc.)
	Password/CD-KEY	Modem Password/CD-KEY if necessary
TEST		
E&A&P	E (Range)	Range and speed of start angle to end angle of elevation movement
	P (Range)	Range and speed of start angle to end angle of polarization movement
	A (Range)	Range and speed of start angle to end angle of azimuth movement
	Axis Selection	Selection for Axis to be tested, and test looping option setting
	TST	Initiates the testing on the specified axis and range.
CP	CP	Performs a Check Compass Operation
DPY	E (Angle)	The target elevation angle for antenna deployment
	P (Angle)	The target polarization angle for antenna deployment
	A (Angle)	The target azimuth angle for antenna deployment
	DPLY	Initiates the deploy command to the specified antenna deployment angles
DPYQ	E (Angle)	The target elevation angle for antenna Quick deployment
	P (Angle)	The target polarization angle for antenna Quick deployment
	A (Angle)	The target azimuth angle for antenna deployment
	DPLY	Initiates the Quick deploy command to the specified antenna deployment angles
DPY_C	E (Angle)	The target elevation angle for antenna deployment and compass reading
	P (Angle)	The target polarization angle for antenna deployment and compass reading
	A (Angle)	The target azimuth angle for antenna deployment and compass reading
	DPLY	DPLY – initiates a compass reading at the specified antenna deployment angles
A_ACP	A_ACP	Initiates an Automatic Cross Pol Test
M_ACP	M_ACP	Initiates a Manual Cross Pol Test

S_ACP	S_ACP	Stops any Cross Pol testing in progress
INFO		
CC1	ID (Value)	States the Controller ID
	HW (Value)	States the Controller Board Hardware Type
	SQ_T (Value)	Signal Quality Threshold for proper Controller SNR Reading
	FBV (FW – BL)	States the Firmware and Boot loader version respectively
CC2	MA (Address)	States the Controller MAC Address
	CONF_ID(Value)	States the Controller Configuration ID (for internal use)
DVB_D	DVB	States the DVB Mode in Use
DVB_P	DVB	DVB Status information
MOD	SN (Value)	States the modem Serial Number
	S (Status)	States the status of the modem
	V (Version)	States the Modem Firmware Version
SYS1	Platform Type	Platform Type and Serial Number
ERR	Error (Code)	Displays error codes if applicable

12.4. Appendix 4: Router Configuration Example

GPS Antenna

iNetVu™ Mobile Platform

*Ground protection

External grounding connection

TX   RX

RX IN

12/24 VDC Power Input

SENSOR CABLE

MOTOR CONTROL

RX OUT

7000 CTRL: DHCP
       OR
Static:
IP: 192.168.1.3
SUB: 255.255.255.0
GW: 192.168.1.1

90 - 264VAC

Computer

PC: DHCP
     OR
Static:
IP: 192.168.1.2
SUB: 255.255.255.0
GW: 192.168.1.1

SAT IN

WAN Port

TX OUT

Satellite Modem / VSAT

Modem Example:
70.232.247.49

Router / Switch

Router:
WAN IP: 70.232.247.50
SUB: 255.255.255.0

LAN IP: 192.168.1.1
SUB: 255.255.255.0

Motor Control Cable

Sensor Cable

RG6 Coaxial Cable

Network Cable

Power Cable

Note: VDC Power Input feature is available in the 7000C and 7024C Models Only. See Appendix for VDC power input external cable wiring.

12.5. Appendix 5: Tooway Look-up Table

### Configuring Tooway Auto Beam Color Search on Controller LCD

The following procedure will only work on Controllers with Hardware ID >= (greater or equal to) 1, this can be confirmed in the software "About" window.
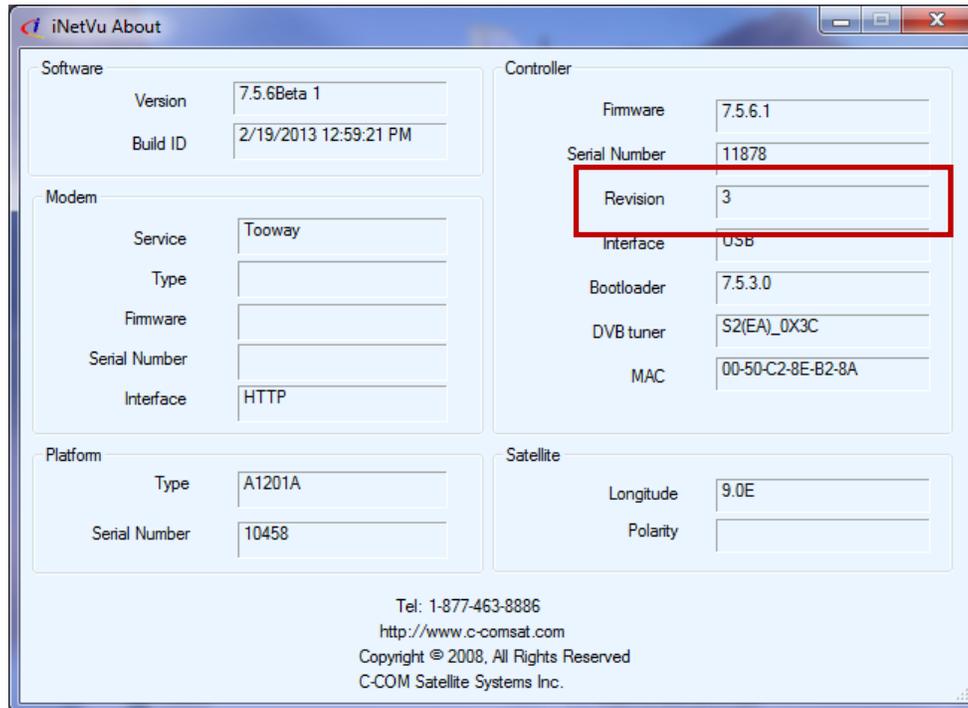
1. Upload to Latest iNetVu FW.

2. Launch iNetVu Mobile 7000 Software.

3. Configure Application to use desired Platform i.e **A0755A** or **A0985A** (In **Maintenance** Window) and Modem type (In **Configuration** Window).

4. Click **Send ALL** followed by **Write EPROM**.

5. Reset (recycle power) on Controller.

Note* The Tooway Look-up Table must be uploaded to the Controller via the Application software before it can be used directly from the Controller LCD. This process is only required once as long as no changes are made to the Beam Colors which than will require another Table Upload.
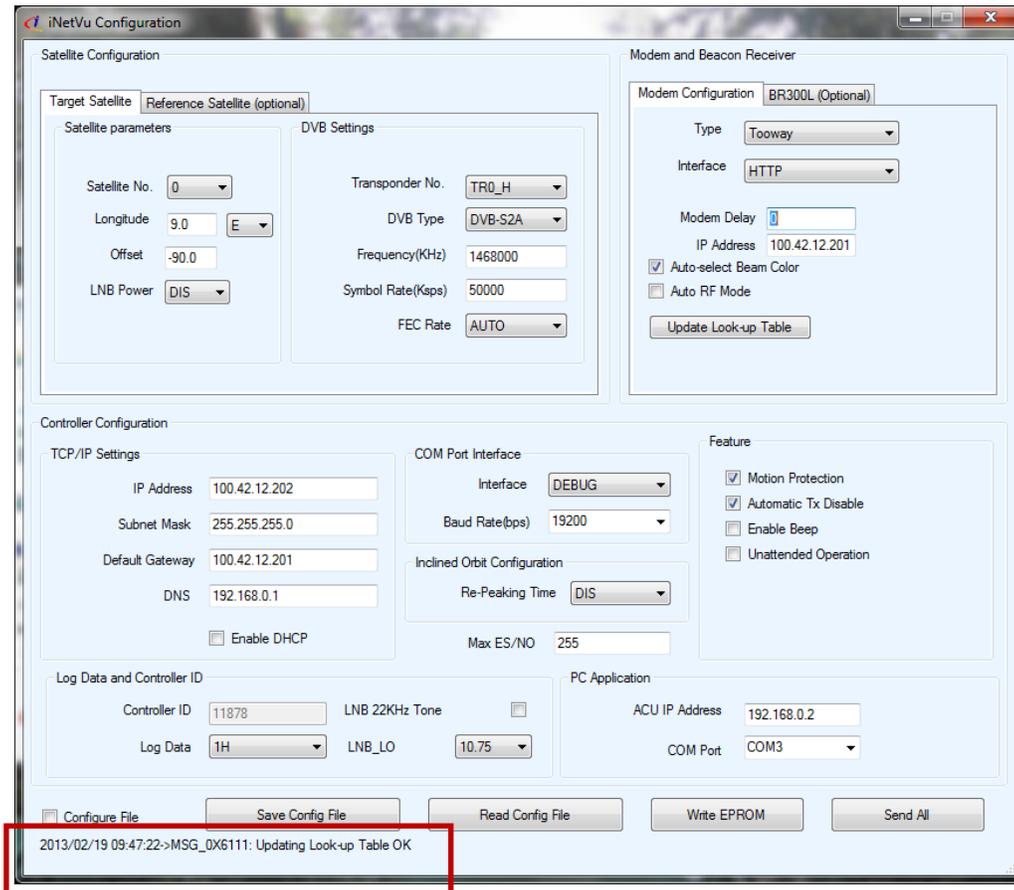
6. In the **Configuration** Window, click on **Update Look-up Table**

7. This process will take approximately 6-10min depending on your system. Status will be displayed on the bottom of the **Configuration** window.
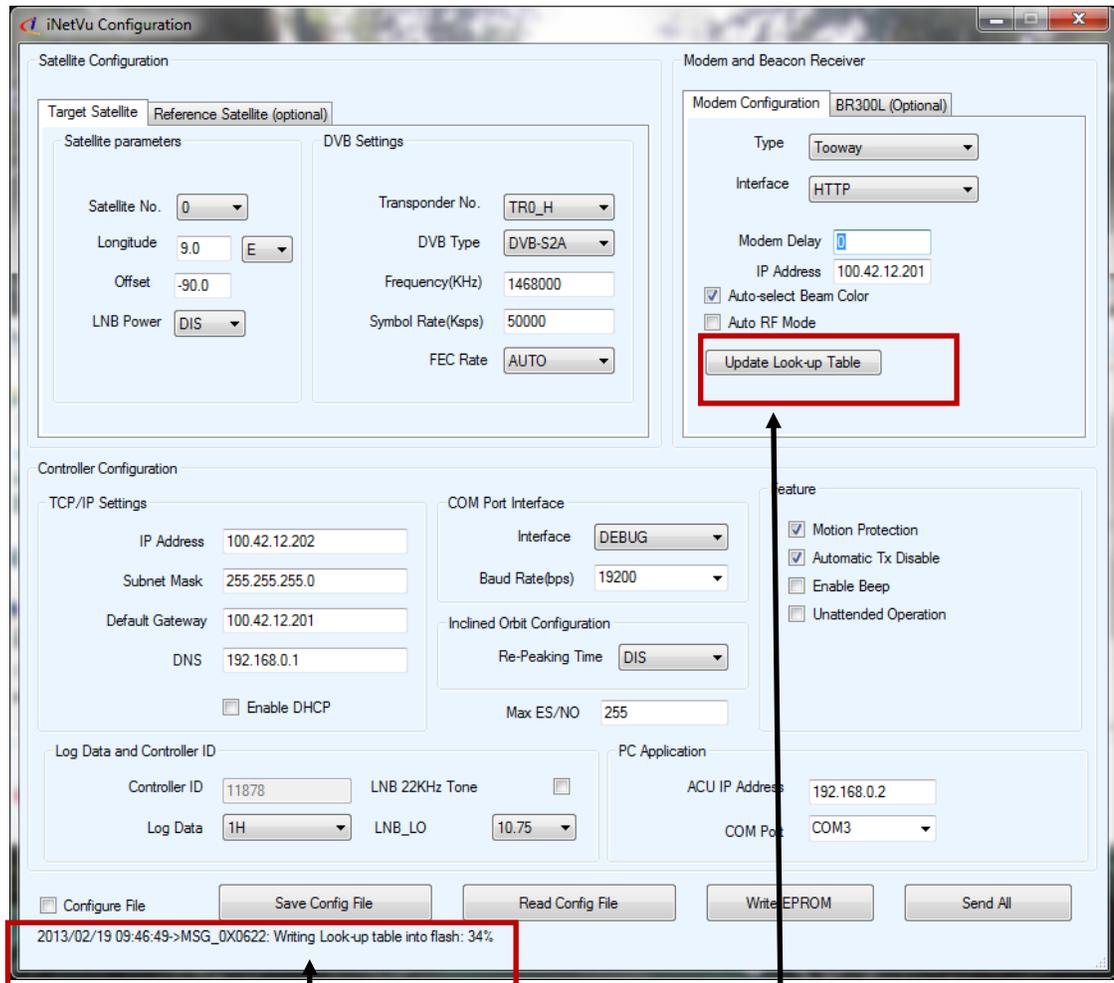
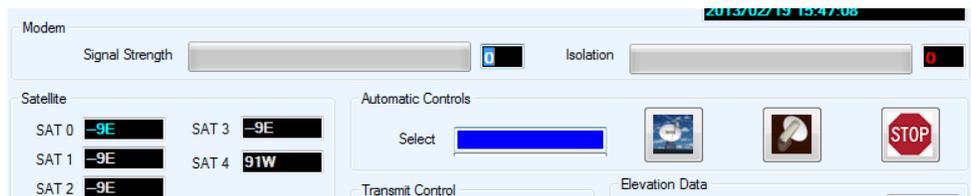**Look-up Table Upload**   **Look-up Table Upload**

8. The Upload status will be confirmed with an OK once it finishes.

9. Ensure **Auto-select Beam Color** option is selected on the Application side in order to see which Beam color the auto selection is searching on.

10. The Controller is now ready to do Auto Beam selection.
11. Press **FIND SAT,** the system will begin the Auto Beam search

12. Hold down the **FIND SAT** button for 3 seconds then let go, Tooway menu will display, which will allow the user to manually select the Beam Color they desire.
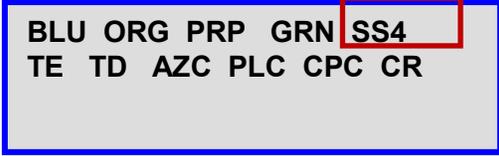
```
BLU  ORG  PRP  GRN  SS4
TE  TD  AZC  PLC  CPC  CR
```

13. Selecting **SS4** will put system back into Auto Beam search mode.

12.6. Appendix 6: DC Input Power Cable Connectivity

Note: DC Input connector exists in 7000C and 7024C controllers ONLY, older versions do not have the DC Input connector.

<u>**Controller Receptacle**</u>   <u>**External Cable Plug**</u>

J1 Panel Receptacle
4-Socket Contacts Mating View

P1 Straight Plug
4-Pin Contact Mating View
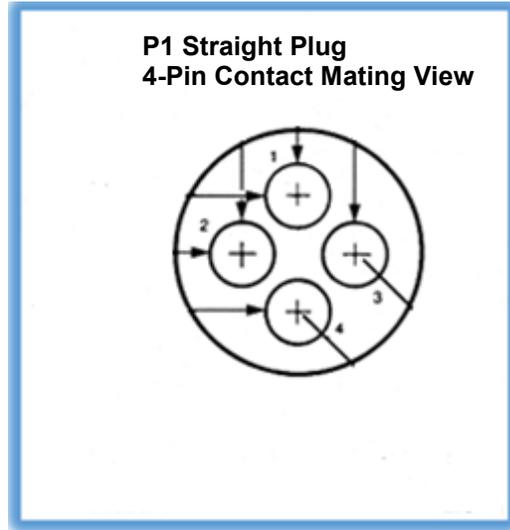
P1 External Cable Plug Pin List (4-CONTACTS)

RECEPTACLE PIN	SIGNAL	Notes
P1-1	DC + In 2	Must have an Inline Fast Blow Fuse – 15A@24VDC
P1-2	DC - In 2	
P1-3	CHASSIS GND	
P1-4	NOT USED	

Note: VDC Power Input feature is available in the 7000C and 7024C Models Only. The correct external power source should be used with the correct controller type, (7000C-12VDC/7024C-24VDC input). The DC cable if assembled by end user must include INLINE FAST BLOW FUSE rated at 15A@24VDC.

Materials Required for External Cable:

Part #	Quantity	Description
206429-1	1	TEConnectivity AMP CPC Plug Assembly, Shell Size 11, Reverse Sex, 4-Pin Contacts, Series 1
206358-5	1	TEConnectivity AMP CPC Cable Clamp, Size 11
66361-4	4	TEConnectivity AMP CPC Pin Contact, Series 1, Wire 18-14 AWG
------------	1	Heatshrink, Adhesive, 25mm Dia X 60mm Lg
------------	X	External cable used should be a 3-wire, 14 AWG.
------------	1	inline fast blow fuse at 15A@24VDC

12.7. Appendix 7: Declaration of Conformity

Application of Council Directive   **EMC Directive** 89/336/EEC

                                                Low Voltage Directive 73/23/EEC

Standards to which Conformity is Declared:

> **EN55022 1998, Class B / ICES 003**
> **FCC Part 15 Class B**
> **EN 61000-6-3: 2001 Emission Class B**
> **EN 61000-6-1: 2001 Immunity**
> **EN 61000-4-4: Fast Transient Burst**
> **EN 61000-4-2: Static Discharge**
> **EN 60950: 1992 Safety of Information Technology Equipment**


Manufacturers Name   **C-COM Satellite Systems Inc.**

Manufacturers Address   **2574 Sheffield Road, Ottawa, Canada, K1B 3V7**

Importers Name   **(optional)**

Importers Address   **(optional)**

Type of Equipment   **Satellite Antenna Controller**

Model Number   **iNetVu Mobile System**

CE Marked   2005

Serial No. (Optional)   Year of Manufacture (Optional) 2004

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directives and Standards.

Signed on behalf of the Manufacturer and Importer

Place   **Ottawa, Canada**   Signature
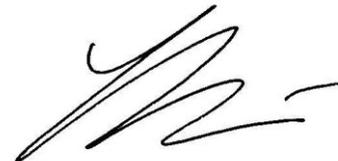
Date   **April 4, 2005**   Full Name: **Dr. Leslie Klein, P.Eng.**
                                       Position: **President and CEO**

Declaration of Conformity

Application of Council Directive   **EMC Directive** 2004/108/EC

                         Low Voltage Directive 2006/95/EC

Standards to which Conformity is Declared   **CISPR 22:2006/EN55022 2006, Class B**
                                     CISPR 24:1997/EN55024 1998 (+A1+A2)
                                     FCC 47 Part 15 Class B
                                     ICES 003 2004 Class B

         EN 61000-3-2: 2006
         EN 61000-3-3: 1995, A1 2001
         EN 61000-4-2: 2006 ; EN 61000-4-3: 2006 ; EN 61000-4-4: 2006 ;
         EN 61000-4-5: 2006 ; EN 61000-4-6: 2006 ; EN 61000-4-11: 2006 ;
         EN 60950-1: 2006, A11:2009 and A12:2011;

         VCCI:2012/ CISPR22:2008 Class A

Manufacturers Name   **C-COM Satellite Systems Inc.**

Manufacturers Address   **2574 Sheffield Road, Ottawa, Canada, K1B 3V7**

Importers Name   (optional)
Importers Address   (optional)

Type of Equipment   **iNetVu Satellite Antenna**

Model Number   **iNetVu 7000 Controller, Model C7024C**

CE Marked   2012;   VCCI Tested 2013

Serial No. (optional)   Year of Manufacture (Optional) 2012

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directives and Standards.

Signed on behalf of the Manufacturer and Importer

Place   **Ottawa, Canada**   Signature:

Date   **Sept. 19, 2013**   Full Name: **Dr.Leslie Klein, P.Eng.**
                                         Position: **President and CEO**