iNetVu® 7710 Controller User Manual
(Includes 7720)

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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.

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1. Introduction

The iNetVu® 7710 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® 7710 Controller connects to iNetVu® platforms which are equipped with 7720 on-board module (Remote Controller). The 7710 will only work with the remote on-board 7720 controller and the same holds true for the 7720. The iNetVu® 7710 Controller is easily configurable and operated antenna controller unit which comes with the combined GPS/GLONASS Satellite Navigation System.

Fig. 1: *iNetVu® 7710 Controller*

Fig. 2: *iNetVu® 7720 Controller*

The iNetVu® 7710 Controllers are fully functional and configurable straight out of the box solution. No PC or monitor required. An I/O GLONASS/GPS Module inside the 7720 module 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 it easy to use the iNetVu® 7710 Controller by simply configuring the controller right from the front panel.

The iNetVu® 7710 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.

The 7710 (central board) with the 7720 (remote drive module) Controllers complement the iNetVu® New Generation systems allowing movement on three axis simultaneously improving satellite acquisition speed and accuracy.

2. Specifications

Dimensions:	Width: 17.1” x Depth: 11.0” Height: 1.75”
Weight:	9.9 lbs. (4.5 kg)
Operating Temperature:	-20°C to +50°C
Power Consumption (Idle):	24 VDC @ 1A
DC Input:	24 VDC @ 15A (Max.)
Universal AC Input:	100 – 240 VAC, 50/60 Hz, 4.0 – 2.0 A,
GPS Connector:	SMA
Rx Connector:	Type F RG6
PC Interface:	USB Interface
	Network Interface
	Serial Interface (DB9 Female Connector)
	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

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

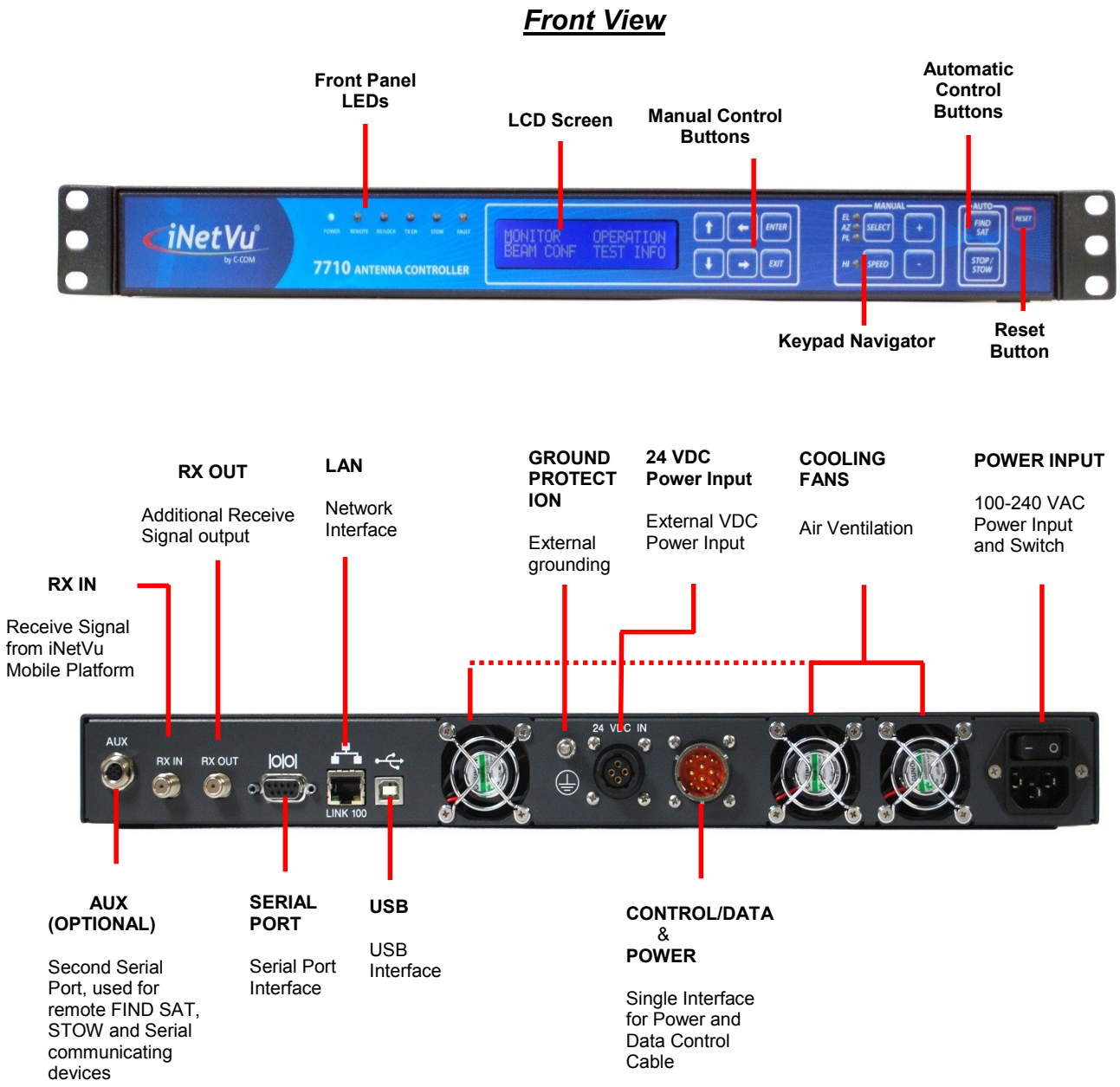


Fig. 3: *iNetVu® 7710 Series Front and Rear Panel*

Note: GPS/Glonass and Motor/Sensor connection(s) have been moved to the Remote (on-Board) 7720 Controller.

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 Power/Data cable is connected prior to powering on 7710 Controller. Do not connect or disconnect cables once controller has been powered on. It is recommended that controller is properly grounded at all times. 7720 Remote Drive Module acquires its power when the 7710 controller is powered up.

5.1. Typical Network Interface Connection

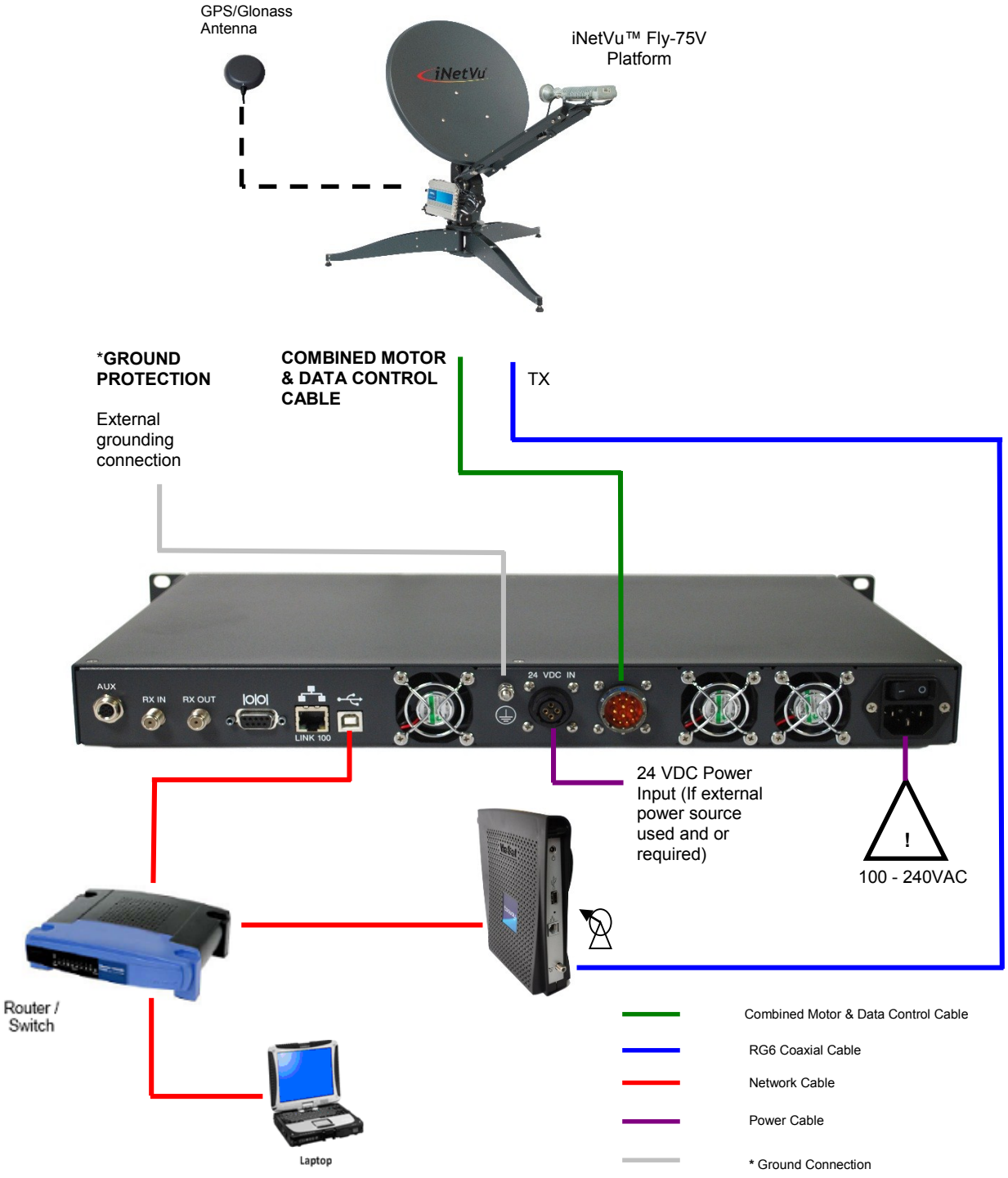


Fig. 4: *iNetVu® 7710 Controller Typical Connection Configuration*

***Recommended for proper grounding of iNetVu® systems.**

5.2. Typical USB Communication Interface

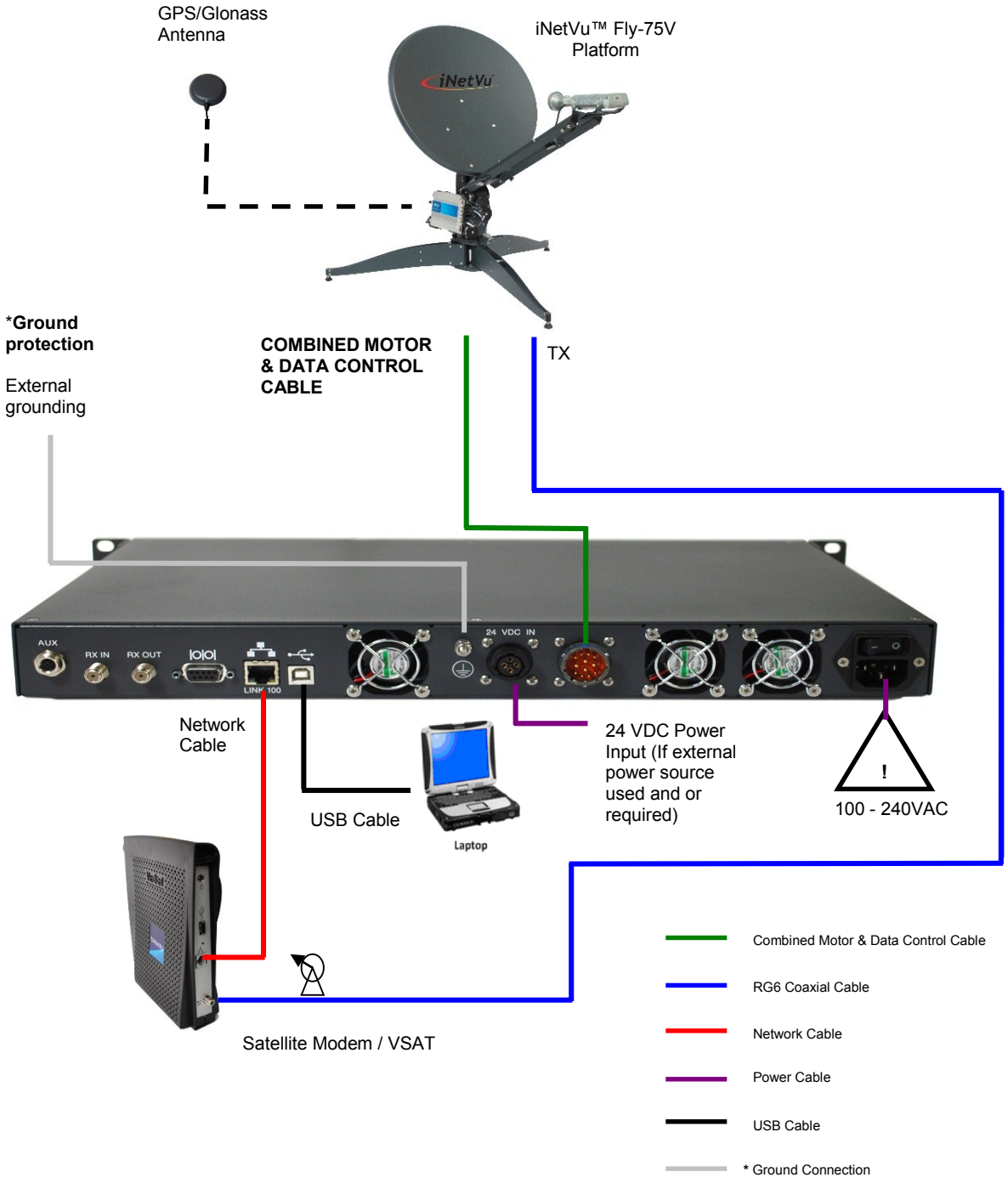


Fig. 5: *USB Configuration Interface*

***Recommended for proper grounding of iNetVu® systems.**

5.3. Typical Connection – PC Free

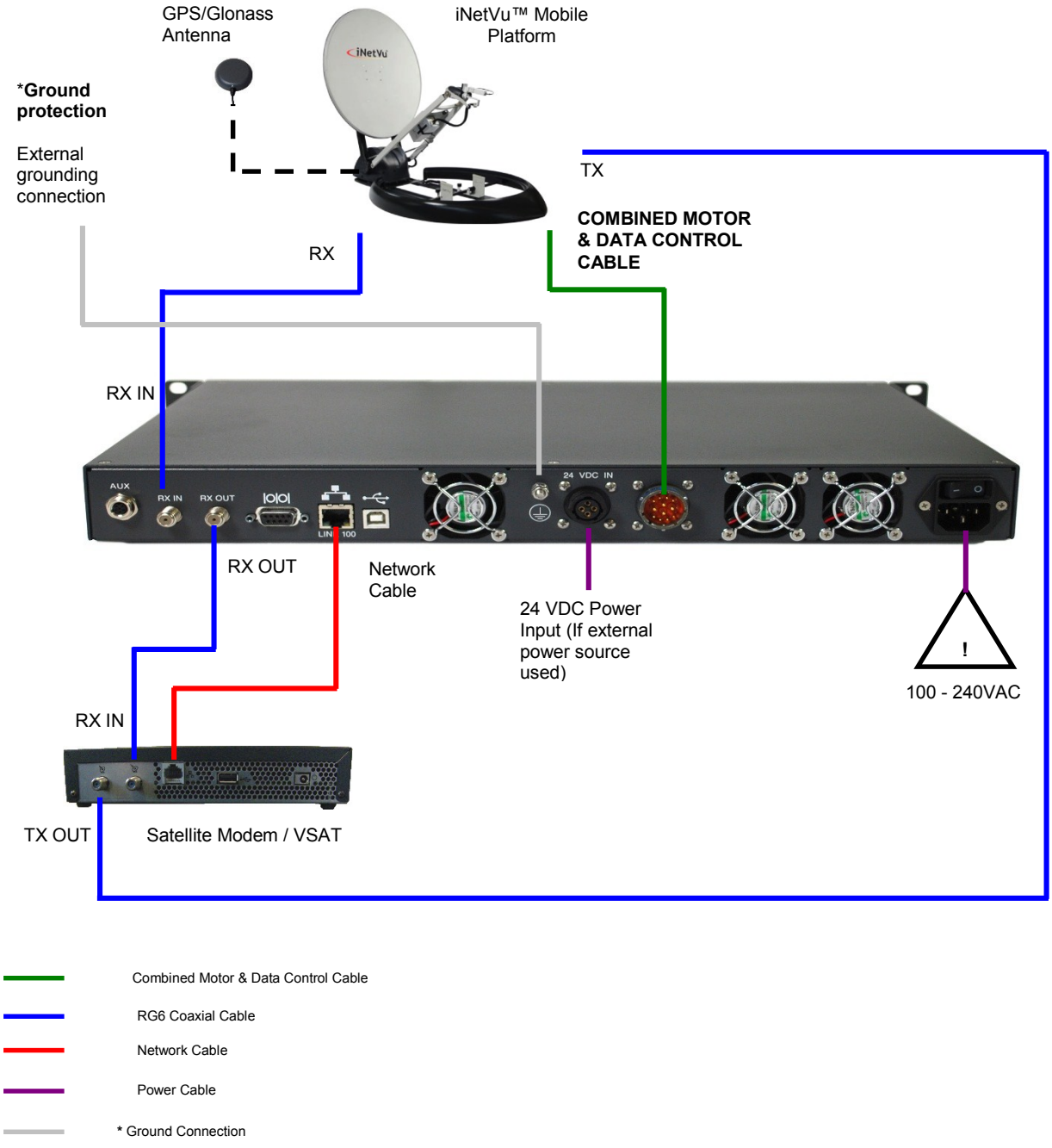


Fig. 6: *iNetVu® 7710 Series Controller PC Free Connection Configuration*

***Recommended for proper grounding of iNetVu® systems.**

Note: Setup diagram shown here represents Ku service.

6. Installation

The iNetVu® 7710 Controllers are shipped pre-configured and calibrated with the iNetVu® Mobile Platform (equipped with the 7720 Remote Drive Module) 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.

6.1. Rack Installation

The iNetVu® 7710 Controllers include attachable “ears” which make the iNetVu® 7710 Controllers configurable for rack-mounted installation.

If you are installing the iNetVu® 7710 Controller onto a rack, ensure that you use supporting rails or a shelf to support the weight of the iNetVu® 7710 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: Do not connect USB cable between controller and computer/laptop until the software with all the required drivers have been successfully installed. This will ensure the proper drivers are used once the USB connection is established.

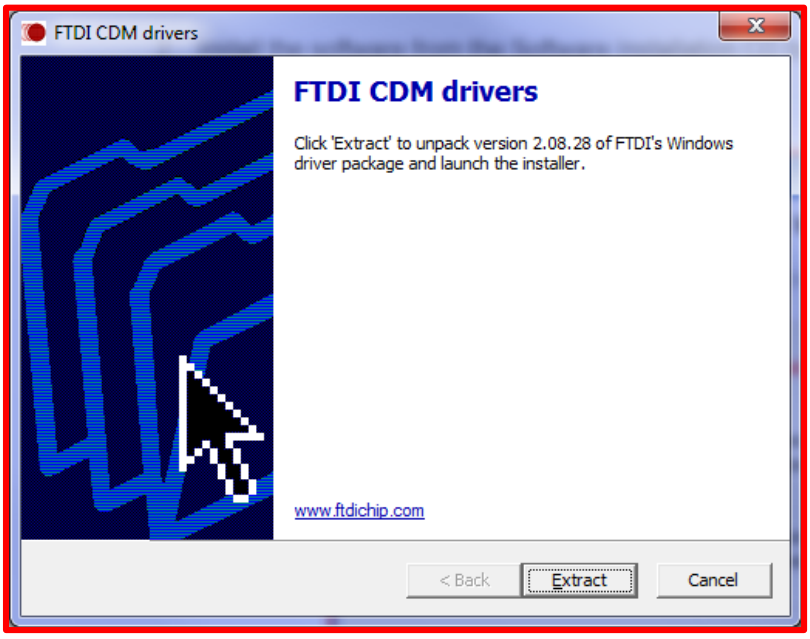
Warning!! Please make sure you have administrative rights (privileges) on the computer before you continue the installation. The setup wizard will display a warning to Contact your system administrator for additional info.

1. Windows Vista and Windows 7/8 must disable UAC (User Access Control) for proper software functionality.

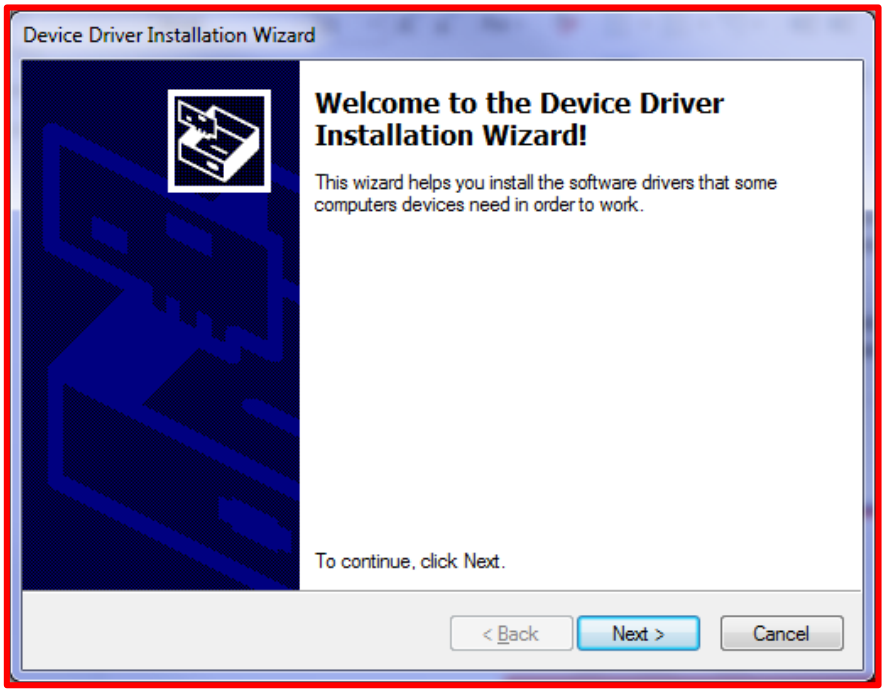
2. Install the software from the Software Installation package by double clicking on iNetVuSetup.exe and follow the installation wizard.

3. Click Ok

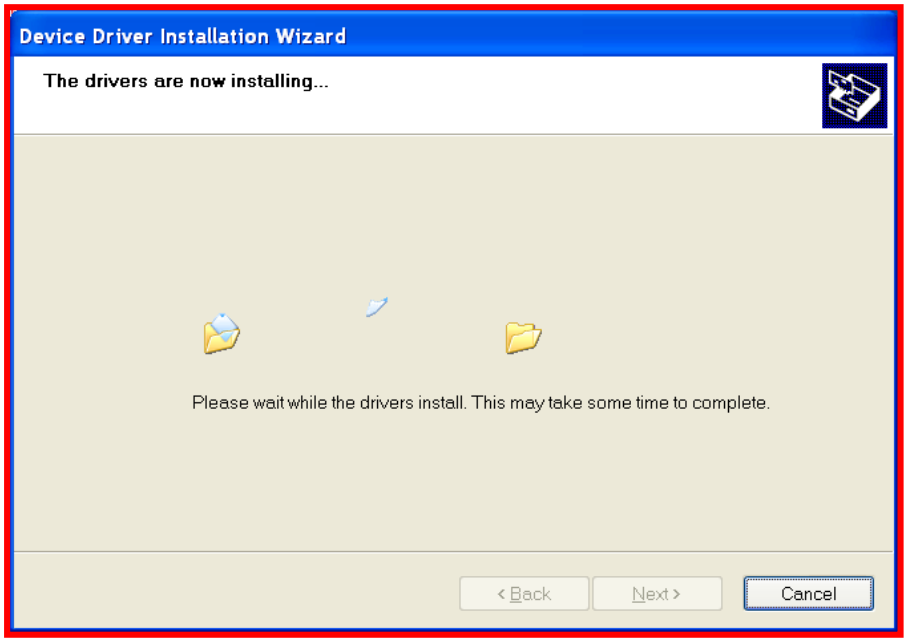
4. Click on Extract to begin FTDI driver's installation.



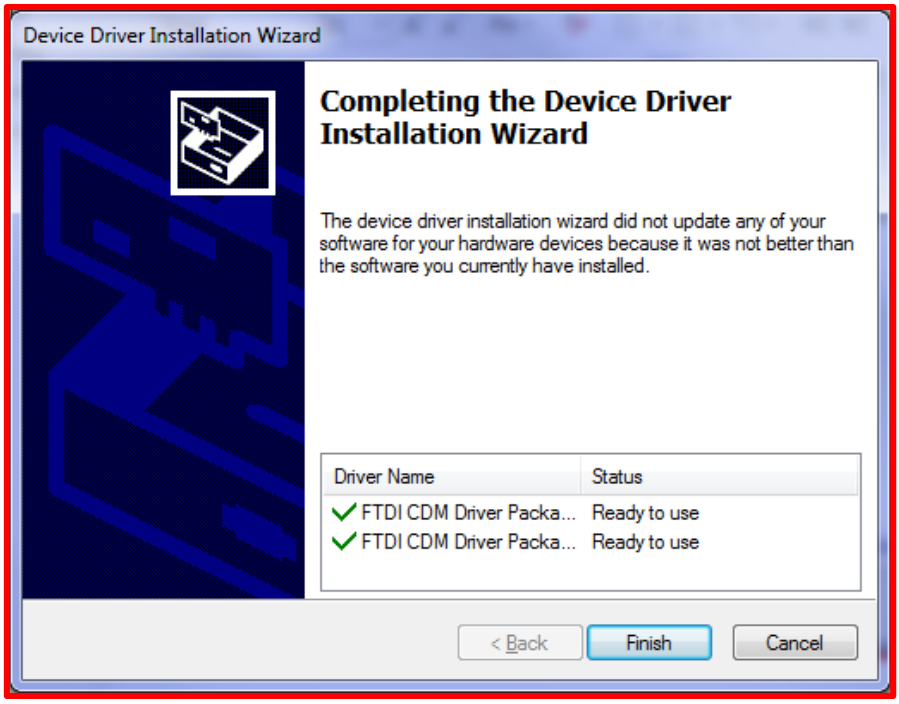
5. Click **Next**



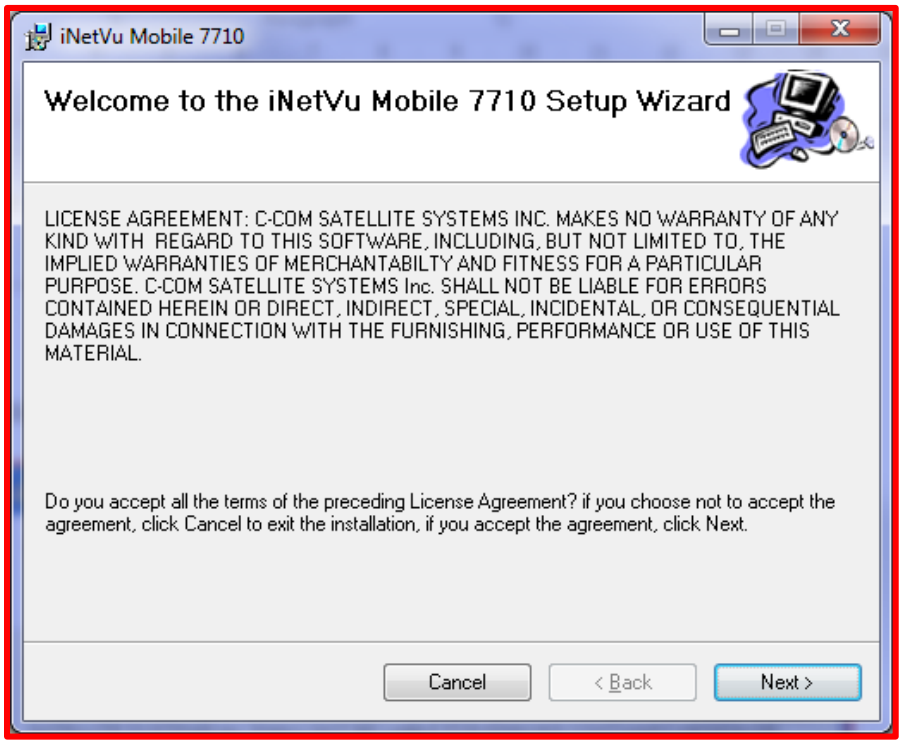
6. The driver's installation will begin.



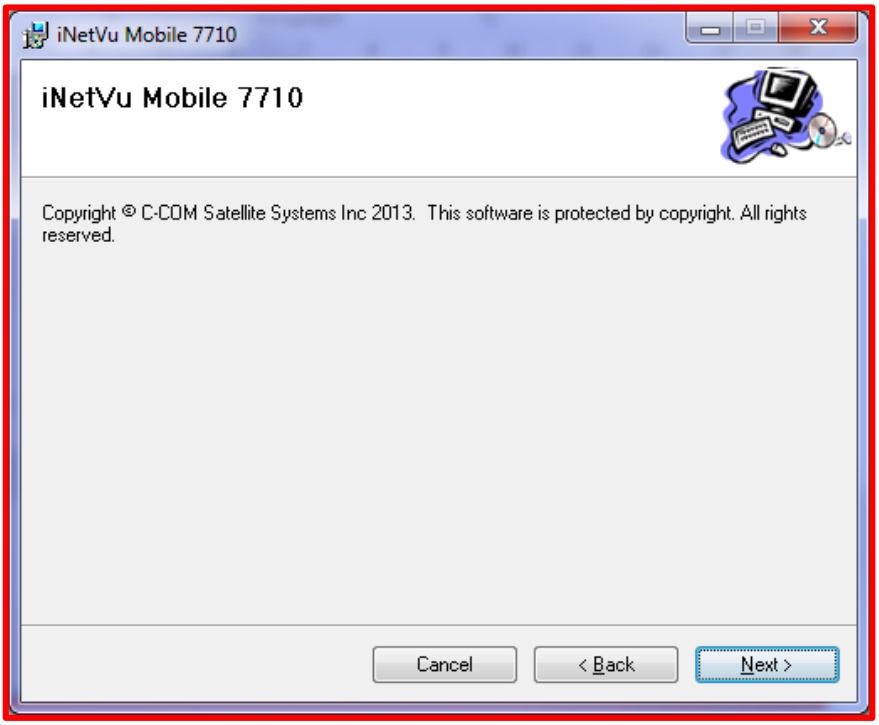
7. Click the Finish button to complete the USB driver installation, installed drivers will be displayed.



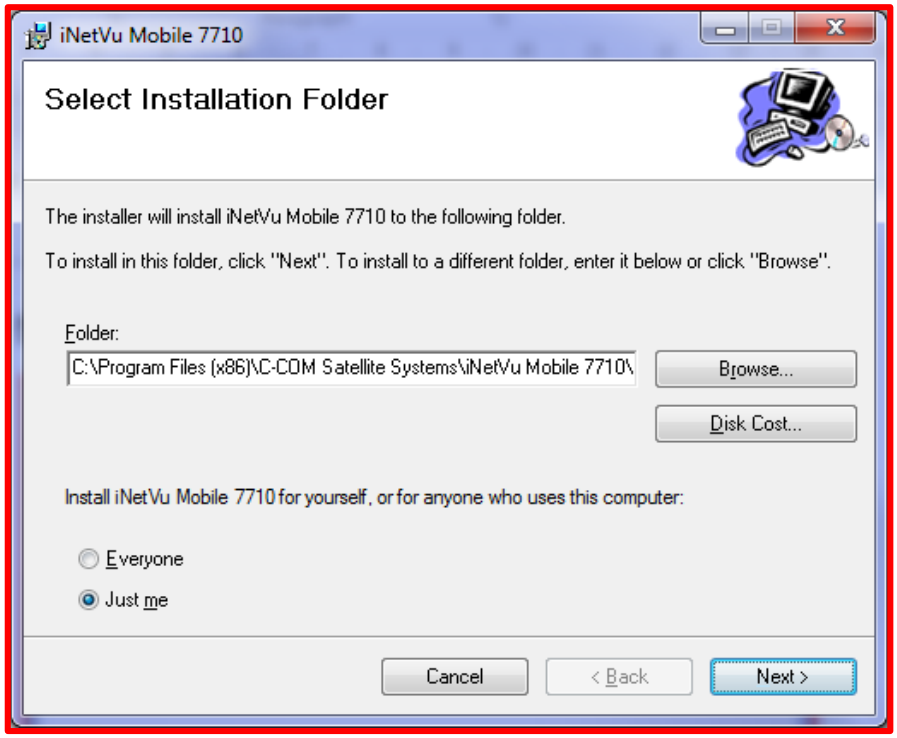
8. The iNetVu Mobile software will now begin, click on the **Next** button.



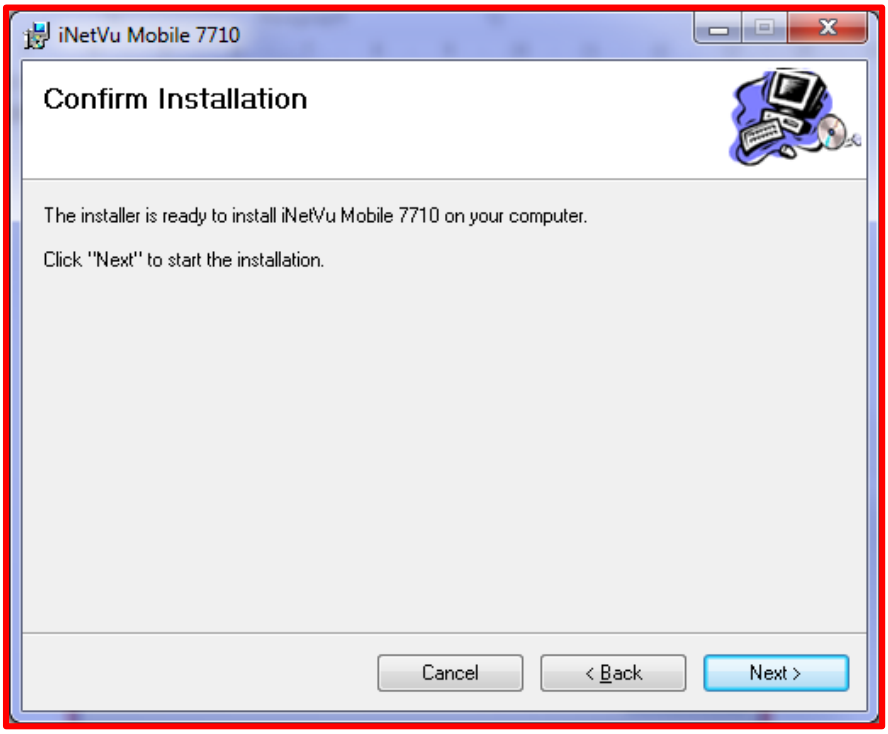
9. Click the **Next** button

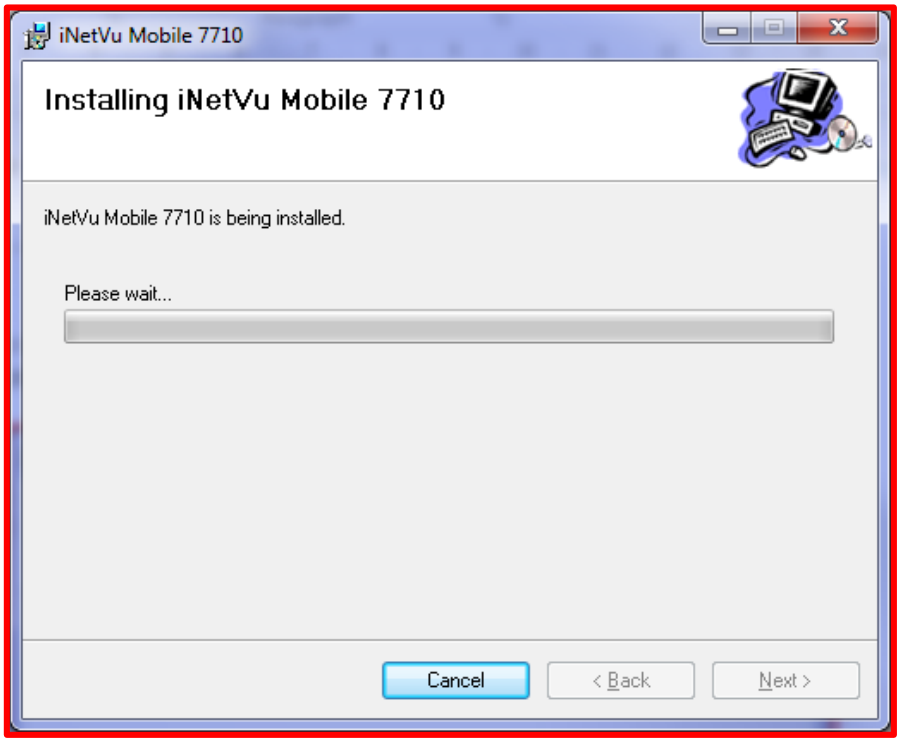


10. Click the **Next** button; leaving the default installation path as is "C:\Program Files\CCOM\iNetVu Mobile 7710\", this may be changed if desired.

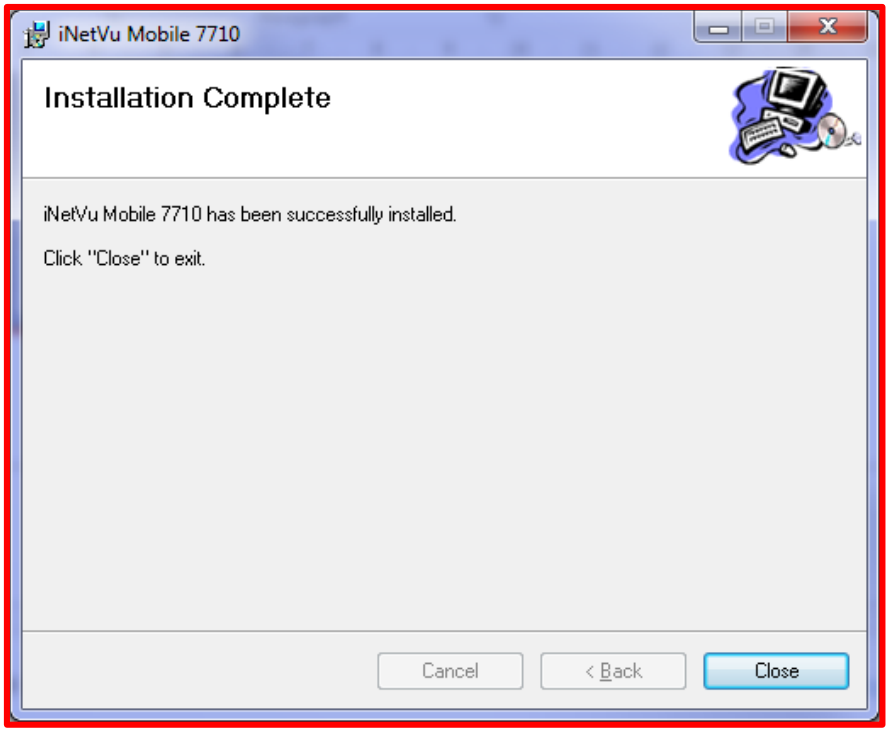


11. Continue with the software installation.





12. Click the **Close** button to complete the installation.


iNetVu Mobile 7710
Installation Complete
iNetVu Mobile 7710 has been successfully installed.
Click "Close" to exit.
Cancel
< Back
Close

6.3. Setup

1. Connect all the cables and components as depicted in the previous section illustrating the setup schematics. Select connection that is best suited for your application.

2. Power on the iNetVu® 7710 Controller.

3. Set your external PC to the same subnet as the iNetVu® 7710 Controller (Default controller IP Address of the 7710 controller is (192.168.0.2)

4. Refer to the appropriate service User Manual that will be used with your system for addition setup and configuration information.

5. Controller should be power cycled (reset/rebooted) after each and every configuration change.

7. iNetVu® 7710 Front Panel Operation

7.1. LED DEFINITIONS

Fig. 7: *iNetVu® 7710 Series Controller Front Panel LED Panel*

POWER - Solid light indicates power is ON.

REMOTE - 7720 remote controller status.

REMOTE LED will flash (Blue) every 1000ms if CANBUS and MODEM communication successful.
REMOTE LED will flash (Red) every 125ms indicating an error if no CANBUS communication exists.

RX/LOCK - RX status indication.

TX EN - Solid Light indicates transmitter has been enabled.

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

FAULT - Light indicates system fault status.

FAULT LED will flash (Red) every 125ms indicating an error if sensor error is detected.
FAULT LED will flash (Yellow) every 500ms indicating a warning if GPS is overridden or not communicating, or if COMPASS is overridden and there is no sensor error.

7.2. Manual and Automatic Controls Button Operation

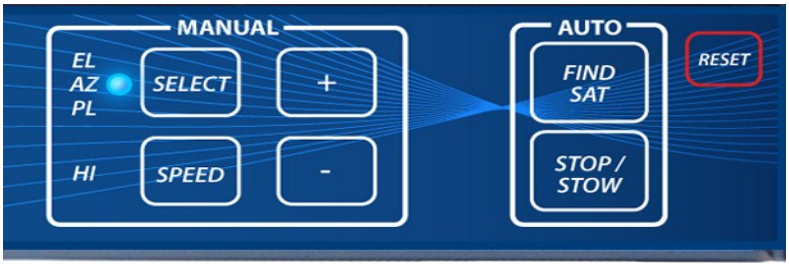


Fig. 8: *iNetVu® 7710 Series Controller Front Panel Buttons*

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 beam or last satellite beam that locked on system. Once in the satellite menu pressing the FIND SAT will search on the selected Satellite Beam. 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. In order to save time and speed up the search process GPS and RF status are ignored and movement is permitted to allow compass heading reading. If GPS and RF conditions not met after three attempts (within 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 or elevate into the stow position. On the Fly-Away the platform will elevate into position as this is the required position for packing the system into its storing/travel case.

How to Stop

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

How to Manually Move the iNetVu® 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, EL DN, AZ ST, AZ LP etc...) when using manual controls. See LCD 'Monitor' section explanation for more details.

How to Turn ON/OFF the Controller

Turn ON/OFF the power switch on the back panel of the iNetVu® 7710 Controller. The 7720 Remote Controller does not have a power button and receives its power from the 7710.

Note: powering on/off the 7710 Controller will also power off the 7720 Remote Drive Module which is located at the platform base.

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

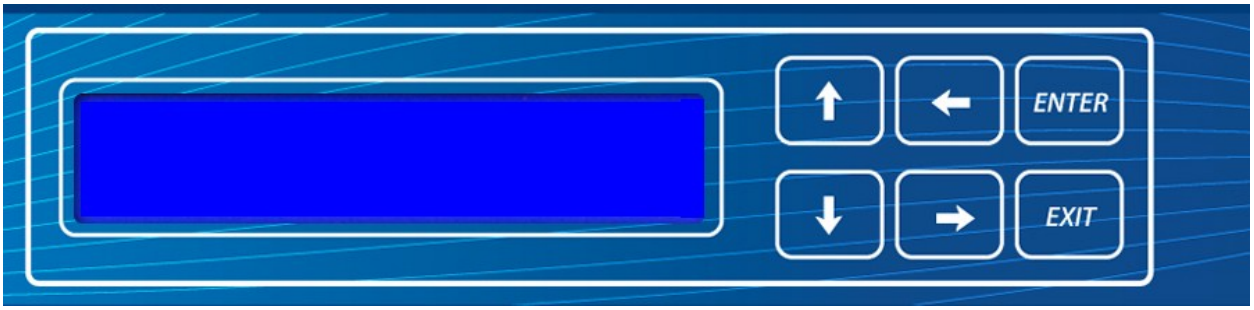


Fig. 9: *iNetVu® 7710 Controller LCD and Keypad Navigator*

↑ ← ↓ → Used to move the cursor position.

ENTER Used to select a displayed function

EXIT Used to 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.

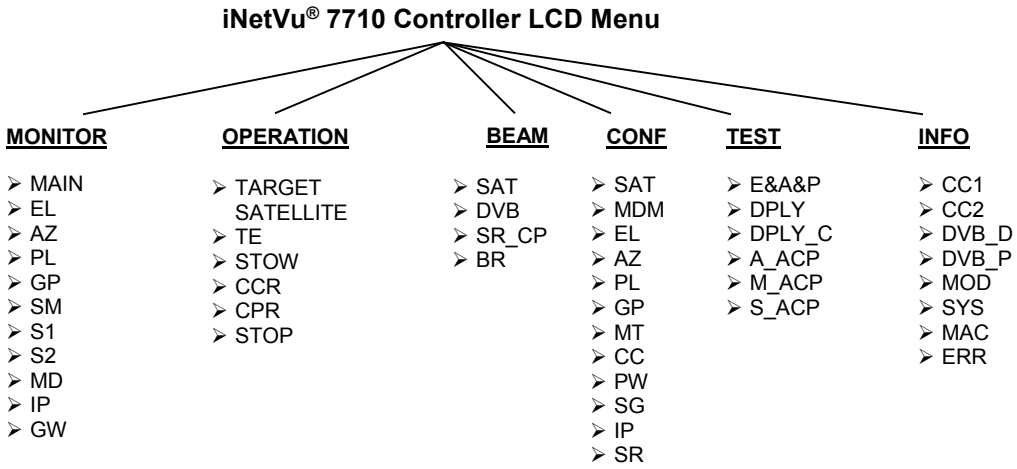


Fig. 10: *iNetVu® 7710 Series Controller LCD Menu Options*

7.5. Opening Screen

When powering the iNetVu® 7710 Controller, the LCD will display one of the following during the initial boot-up sequence.

Fig. 11: *LCD Opening Screen*

There are Six (6) Main Menu items to select from: **MONITOR**, **OPERATION, BEAM, CONF, TEST, and INFO**.

Fig. 12: *LCD Main Menu*

MONITOR	This menu branch allows the user to monitor the status of the iNetVu Fly-Away/Mobile Platform Axial Movement of EL, AZ, & PL, Target and Reference Satellites, displays information concerning the iNetVu 7710 Controller IP and the Satellite Modem / VSAT and Beacon status.
OPERATION	This menu branch allows the user to perform miscellaneous functions, such as Find Satellite on specific Beam, enable the transmitter, Restore Controller platform parameters to default, Stow, etc.
BEAM	This menu branch allows the user to configure and save Satellite parameters as well as the search mode, up to 64 Beams can be configured and saved.
CONF	This menu branch allows the user to configure and or select correct SAT beam of the iNetVu® System, including platform, modem parameters, and controller. Reset password option.
TEST	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 for selected (HNS) services.
INFO	This menu branch allows the user to verify information on the 7710 and 7720 controller/modem settings, such as software versions, hardware versions, DVB module, MAC address and error codes.

7.6. Supported Platforms

The user is capable of configuring the platform type using iNetVu LCD panel, or Application software.

A0756A - iNetVu® Fly-75V New Fly-Away 75cm (Ka - Band Circular)
A0986A - iNetVu® Fly-98G/H/V, 2 Axis New Fly-Away 98cm (Ka - Band Circular)
A0986B - iNetVu® Fly-98G/H/V, 3 Axis New Fly-Away 98cm (Ka - Band Circular)
A0986C - iNetVu® Fly-981, 3 Axis New Gen Fly-Away 98cm (Ku – Band, XPOL)
A1201A - iNetVu® 1201J, New Gen Drive-Away, 1.2m Ku Band
A1206A - iNetVu® Fly-1202 Ka, New Fly-Away 1.2m, Ka Band Viasat Tria
A1206C - iNetVu® Fly-1202 Ku, New Fly-Away 1.2m, Ku Band
A1801A - iNetVu® 1801, New Gen Drive-Away, 1.8m Ku - Band
A1810A - iNetVu® Fly-1801, 3 Axis New Fly-Away 1.8m Ku - Band

LCD Method

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

2. Advance to "MT" using the '←' and '→' arrows and press the "Enter" key on the keypad. Select, Platform Type, Platform Version and enter Serial Number where the platform description appears (i.e. A0756A for Fly-75V (.75cm flyaway)). Click on the '↑' arrow once, this action will allow you to make modifications to that section, each section is separated by a hyphen (-).

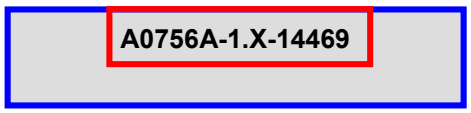


Fig. 13: *MT Screen from Configuration (CONF)*

3. Next to the platform type (i.e. A0756A, etc.), there exists a platform hardware version followed by 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® Platform ONLY the LAST 5 DIGITS need be entered for the Serial Number.

4. After this is complete, go back to the CONF Sub menu by pressing the "Exit" button to navigate backwards.

5. Navigate to the "PW" menu from the keypad. The "Exit" button on the keypad can be used to navigate back to the sub/main menu, and the "Enter" button will allow the user to enter into a menu. (default CONF menu access password "**password**") This can be changed or left as is.

6. Press "Exit" twice and when prompted if you would like to save the configuration, press the '↑' button such that 'Y' is selected for "yes", and press, "Enter".

7. Navigate to "SYS" under the INFO menu and select the "Enter" button on the keypad a screen containing, Platform Type, Platform Version and Serial Number Data as well as data record logging. This validates the configuration of the system was saved.

8. Navigate to "OPERATION" using the arrows and select the "Enter" key on the keypad. Advance to "STOW" verify that there are no obstructions that would impede a sweep and press "ENTER". System will find AZ Stow limit switch and zero itself. This is not be valid with iNetVu® Mobile Platform(s) and thus may be skipped.

That's it. You have successfully completed the installation and setup of the iNetVu® 7710 Controller and are ready to find satellite.

7.7. 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.

Fig. 14: *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.
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
MD	(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.
GW	(Gateway) Displays Subnet, and Gateway IP.

7.7.1. 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.

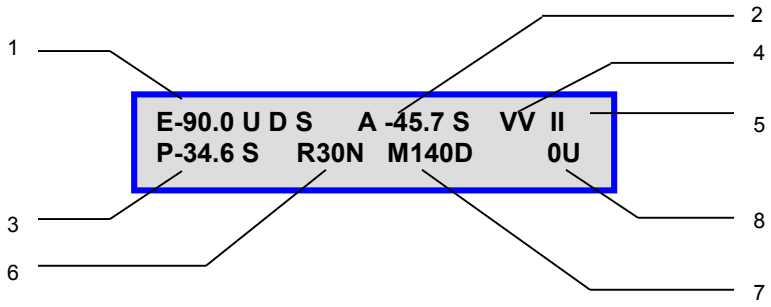


Fig. 15: *"MAIN" Display*

1 – Elevation Angle and Limit Protection Indicators

U	Elevation up Limit has been reached.	+90
D	Elevation down Limit has been reached.	+2 to -1
S	Elevation Stow Limit has been reached.	
	The Drive-Away (1201 & 1801)	-90
	The Fly-Away(s) hit the up limit when it stows	+90

2 – Azimuth Angle and Stow Limit Indicator

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

3 – Polarization Angle and Stow Limit Indicator

S Ku Band systems will have stow status enabled at all times.
DDD Ka Circular Band Signals will have the Polarization Angle disabled, and will display "**DDD**" Stow Limit will also be disabled and display **"DDD**".

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.

7.7.2. 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.

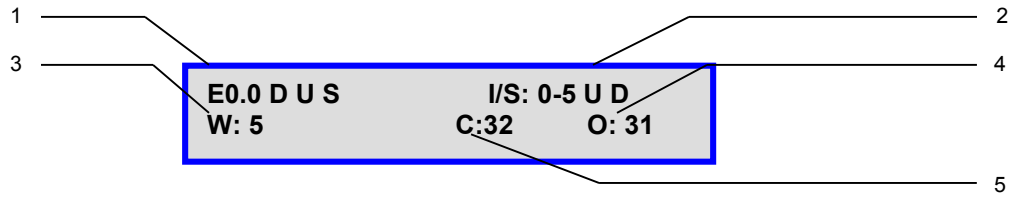


Fig. 16: *"EL" (Elevation) Display*

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. 0-5 represents current of 0 at a set speed of 5).
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. (W: 3 – implies elevation search window is 3º)

4 - 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.

5 – 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 for default values).

7.7.3. 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.

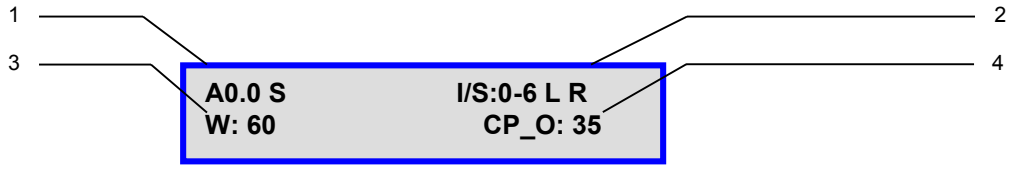


Fig. 17: *"EL" (Elevation) Display*

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, total range for this example would be 120º)

4 – Compass Offset

This value represents the compass offset value that was added to compensate for inaccuracy of the compass reading.

7.7.4. 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.

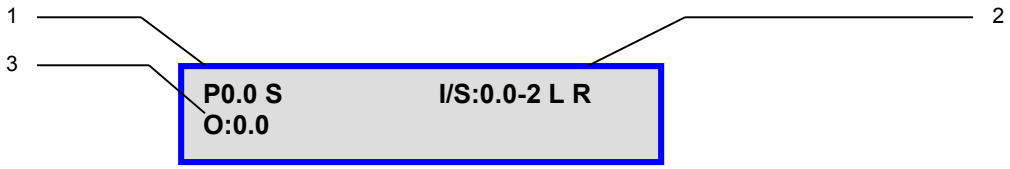


Fig. 18: *"PL" (Polarization) Display*

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. 0.0-2 represents real-time current of 0.0 and a set speed of 2).
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 for default speed and current values.

3 - Polarization Offset

This value represents the offset in the polarization angle.

7.7.5. GP

Displays GPS Status and current GPS Heading.

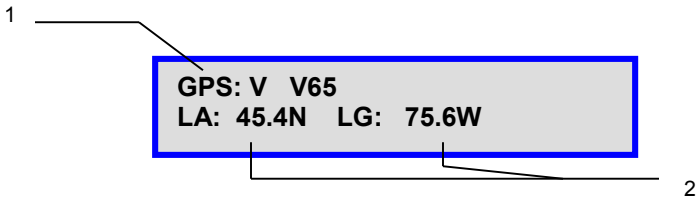


Fig. 19: *"GP" GPS Display*

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.

7.7.6. SM

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

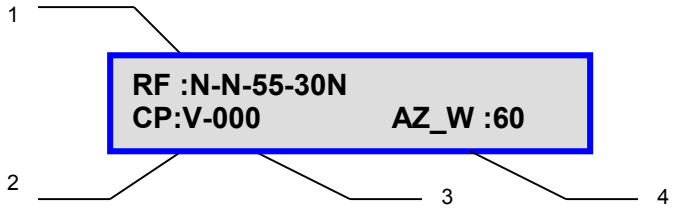


Fig. 20: *"SM" Search Mode and Compass Display*

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

Displays Compass Heading after Compass has been read.

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

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.

7.7.7. S1

This menu displays the Target Satellite Number and Longitude, Target Antenna Coordinates, DVB Transponder (Frequency, Symbol Rate, and Code Rate) and LNB Power.

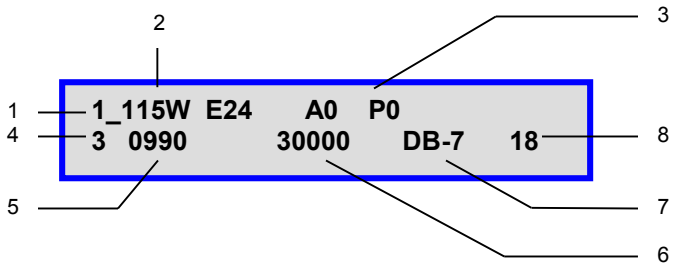


Fig. 21: *"S1" (Target Satellite) Display*

1 - Target satellite Beam 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 (KHz)

6 – Transponder Symbol Rate (sps)

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-S1 or DVB-S2A SELECTION)

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

7.7.8. 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, only the beam reference satellite will be displayed.

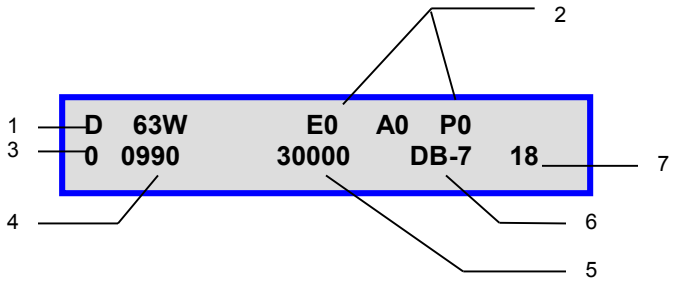


Fig. 22: *"S2" (Reference Satellite) Display*

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 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.

4 – Reference Satellite DVB Transponder Frequency (MHz)

5 – Reference Satellite Transponder Symbol Rate (Ksps)

6 – Reference Satellite Transponder Code Rate. (DVBS1 or DVBS2A requirement)

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

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

7.7.9. MD

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

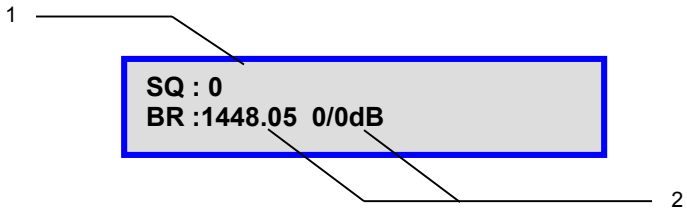


Fig. 23: *Modem and Beacon Receiver*

1 – Modem Communication Status, if the controller is still initializing communication with the modem,

SQ - will appear after modem communication is establish (Modem TX Disabled)
INIT - will appear if no modem communication.
NA - will appear if no modem selected.

2 – Beacon Receiver Frequency and Signal Strength

The Beacon Receiver is an optional unit that could be used to acquire satellite with the 7710 Controller. See “iNetVu User Manual – Beacon Receiver” for details

7.7.10. Hughes Modem Status (Only)

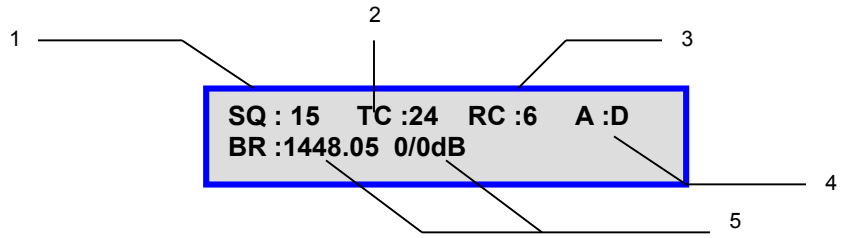


Fig. 24: *Hughes Modem and Beacon Receiver*

1 – Modem Communication Status, controller communication with the modem,

INIT will appear if still initializing or no communication
NA will appear if no modem selected.
SQ will appear with modem signal value 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 7710 Controller. See “iNetVu User Manual – Beacon Receiver” for details

7.7.11. IP

This menu displays the IP address of the user configured iNetVu® 7710 Controller and Modem. (Ensure the IP address of the modem configured is the actual IP address of the modem, and that the 7710 Controller is operating on the same network as the modem)

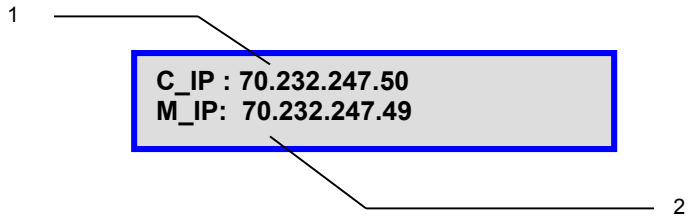
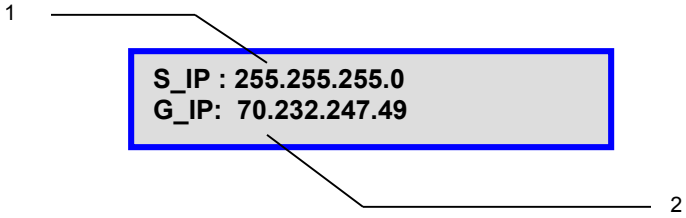


Fig. 25: *"IP" (Controller and Modem IP) Display*

1 – C_IP: iNetVu® 7710 Controller's IP Address – Default 192.168.0.2

2 – M_IP: The Modem IP configured in the 7710 Controller.

GW



1 – S_IP (iNetVu® 7710 Controller's Subnet Mask IP Address – Default 255.255.255.0)

2 – Gateway IP Address (Default: 192.168.0.32 or 192.168.100.32 depends on Modem Type/Service)

7.8. OPERATION

LCD Menu options details not available from this point onwards for the menu items to follow at this time of the release.

Fig. 26: *Default Operation Menu*

SAT	(Find Satellite) Performs automatic satellite acquisition for configured satellite beam.
STOW	Stows the antenna
TE	(Transmitter Enable) Enables the transmitter after locking onto the designated satellite. Field toggles between TE & TD, default is TE.
TD	(Transmitter Disable) Disables the transmitter after locking onto the designated satellite. Field toggles between TE & TD.
CCR	Restores controller platform values to default settings based on platform type and service type.
CPR	Restores Compass to factory calibrated state
STOP	Stops the current operation

Note: some of these menu options may not all be functional at this time and or they may not be compatible with the supported platform type.

7.9. BEAM

The LCD Configuration Interface is password protected.

Fig. 27: *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"**

Fig. 28: *Beam Configuration Menu*

SAT	Allows the user to configure and save the Beam ID, Orbital slot / Longitude of the desired Target Satellite (1-64 Satellite Beams), along with the corresponding DVB Transponder
DVB	Allows the user to configure and save the Satellite DVB parameters such as (DVB type, Frequency, symbol rate etc…), and LNB Power Requirement.
SR_CP	Allows the user to configure and save the search mode (RF Search or DVB mode), Compass, RF Threshold and AZ search window.
BR	Beacon configuration for each Satellite.

7.9.1. SAT

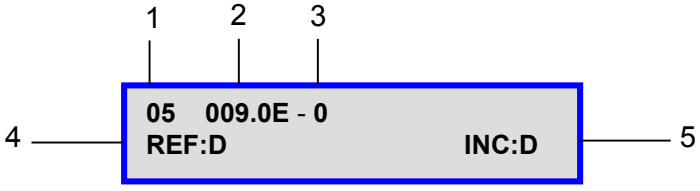


Fig. 29: *Beam and orbital Configuration*

1 – Target Satellite Beam ID

2 – Target longitude and Hemisphere

3 – Transponder number Horizontal Receive (0-2), Vertical Receive (3-5)

4 – Reference Satellite

D – The user should select “D” to disable this option.
E – If the user wishes to use the reference satellite, “E” should be selected.

5 – Inclined Operation

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 Ku/Ka services to maintain strong signal when platform shifts or swings in position. 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

7.9.2. DVB

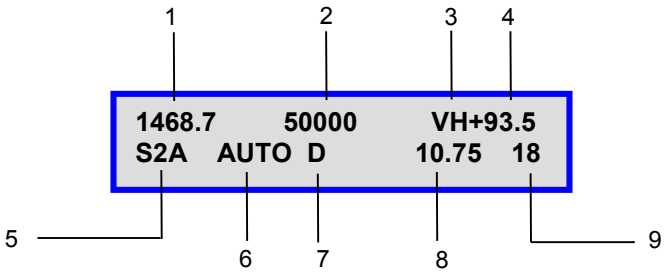


Fig. 30: *DVB Configuration Display*

1 – Transponder Frequency (MHz)

2 – Transponder Symbol Rate (Ksps)

3 – Transponder polarity (TX & RX) TX here is vertical and RX is horizontal polarity (VH)

4 – Not applicable on 2 axis platforms such as FLY-75V (A0756A) Denotes Transmit Polarity

May be altered to accommodate any offset ranged -180° to +180°. Only RX Polarity is referenced for the satellite Polarization Offset field allowing both Cross-Pol and Co-Pol to work with setting the Sat 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 Eutelsat configuration will automatically propagate the offset value.

5 – DVB Type, the user can configure the type of carrier to search for either DVB-S1 or DVB-S2ACM

6 – Transponder FEC Rate

DVB-S1 Requirement - DB-1 = 1/2
DB-2 = 2/3
DB-3 = 3/4
DB-5 = 5/6
DB-7 = 7/8
DVB-S2A - AUTO

7 – 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.

D – Disabled
E – Enabled

8 – LNB LO

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.

9 - 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.

7.9.3. SR_CP

This menu allows for the configuration and saving of the Satellite Search Modes. The 64 Beams which is the number of configurable Beams supported can be each configured with different RF Search Mode parameters.

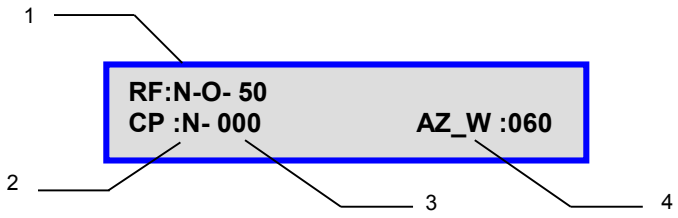


Fig. 31: *Search Mode Configuration*

1 – RF Search Mode

N RF Mode is disabled; **Y** will be displayed when enabled.
N RF override mode (second digit/letter) 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 360º search window, Fly-away systems (70 º), 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

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.

7.9.4. BR

This Menu allows the user to set the Beacon and ACQ Attenuation with different values for multiple Configurable Satellites. This option must be enabled under the CC menu (Com Console) before this feature can be configured.

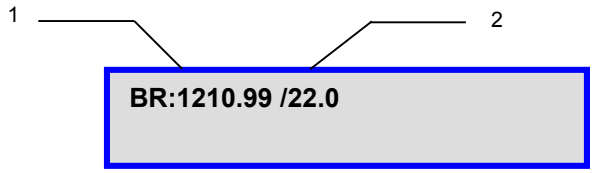


Fig. 32: *Beacon Configuration*

1 – Beacon Frequency

Each Beam can have its own Beacon Frequency configured. Since this field is configurable, the operator can change the Beacon to any desirable frequency to work with the selected Beam.

2 – ACQ Attenuation

Beacon signal peaking power level.

7.10. CONF

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 and the reference satellite(s) can be selected and set from the pre-configured list. A description of each menu and their purpose is outlined below. This section explains the different options of the configuration (CONF) 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 User Manuals. Please refer to the service manual you are using with the 7710 Controller.

********** Password must be entered before accessing CONF menu and submenus. ***********

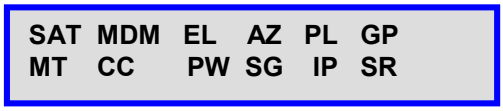


Fig. 33: *Configuration Menu*

SAT	Allows the user to configure the Target satellite, to also enable and configure the Reference satellite.
MDM	Allows the user to configure the Modem parameters such as transmit and receive polarization, as well as frequency and symbol rate (if required).
EL	(Elevation) Allows configuration of the elevation offset.
AZ	(Azimuth) Allows configuration of the compass offset.
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.
MT	Contains configuration of the platform type, platform version and serial number.
CC	Contains controller configuration feature information such, Console Port Configuration, DHCP Server, Motion Protection, Unattended Operation, Inclined Orbit etc...
PW	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.

7.10.1. SAT

This menu allows for the configuration of the target satellite(s) and the reference satellite.

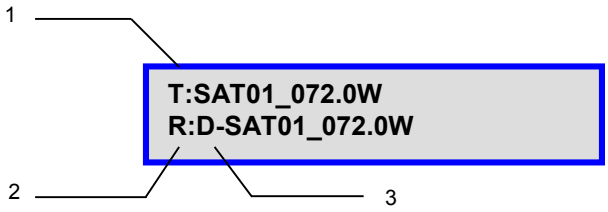


Fig. 34: *Target and Reference Satellites display*

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.

2&3 – Reference Satellite

Orbital slot / Longitude of the Reference Satellite. If the reference satellite option is enabled (3), 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. By default reference satellite is disabled (3).

D – Disabled
E – Enabled

7.10.2. MDM

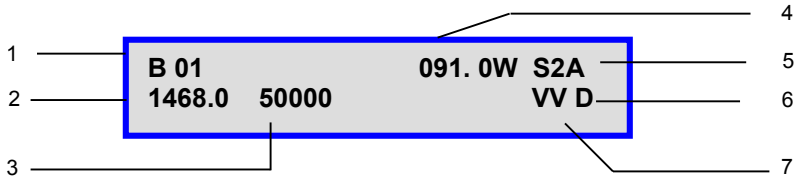


Fig. 35: *Modem Configuration*

1 – Beam ID

Configured Satellite Modem to read the Beam ID from the Controller, Modem or Beam ID Table. (HNS Only).

C – Read Modem Frequency, Symbol Rate etc… from the controller configuration.
B – Read Modem Frequency, Symbol Rate etc… from the Configuration Table.
M – Read Modem Frequency, Symbol Rate etc… from the modem.

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

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

1Msps = 1000 Ksps = 1 000 000 sps

4 – Longitude & Hemisphere (HNS Only).

Modem longitude and Hemisphere.

5 – DVB Configuration (HNS Only).

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.

6 – 22 KHz Tone (Enable/Disable) (HNS Only).

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

E – Enabled
D – Disabled

7 – Receive and Transmit Polarization.

HH – Horizontal Transmit, Horizontal Receive
HV – Horizontal Transmit, Vertical Receive
VH – Vertical Transmit, Horizontal Receive
VV – Vertical Transmit, Vertical Receive

7.10.3. EL

The EL menu allows for the Configuration of the elevation axis, only configurable option is the elevation offset.

1 – Elevation Offset

The Elevation Offset is specific to each type of platform. The user may set the offset with the range of 0º-120º, 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.

7.10.4. AZ

The AZ menu allows configuration of compass offset.

1 – 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.

7.10.5. PL

The PL menu allows for the configuration of the polarization axis.

1 - 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.

O – Indicates a PL offset is allowable and the value is displayed
N – Indicates PL is disabled or not applicable

7.10.6. GP

Allows for the Configuration of the GPS parameters and settings

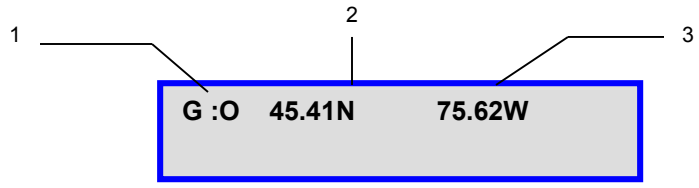


Fig. 36: *GPS Configuration*

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

7.10.7. MT

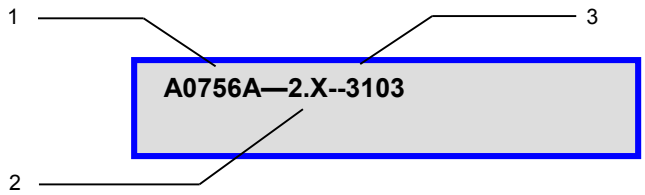


Fig. 37: *Platform Information*

1- Platform Type

The user is capable of configuring the platform type using iNetVu LCD panel.

A0756A - iNetVu® Fly-75V New Fly-Away 75cm (Ka - Band Circular)
A0986A - iNetVu® Fly-98G/H/V, 2 Axis New Fly-Away 98cm (Ka - Band Circular)
A0986B - iNetVu® Fly-98G/H/V, 3 Axis New Fly-Away 98cm (Ka - Band Circular)
A0986C - iNetVu® Fly-981, 3 Axis New Gen Fly-Away 98cm (Ku – Band, XPOL)
A1201A - iNetVu® 1201J, New Gen Drive-Away, 1.2m Ku Band
A1206A - iNetVu® Fly-1202 Ka, New Fly-Away 1.2m, Ka Band Viasat Tria
A1206C - iNetVu® Fly-1202 Ku, New Fly-Away 1.2m, Ku Band
A1801A - iNetVu® 1801, New Gen Drive-Away, 1.8m Ku - Band
A1810A - iNetVu® Fly-1801, 3 Axis New Fly-Away 1.8m Ku - Band

2 – 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 hardware and software configuration on New Generation platforms which may affect the operation.

3 - Platform Serial Number

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

7.10.8. CC

This menu allows for the configuration of the controller input settings

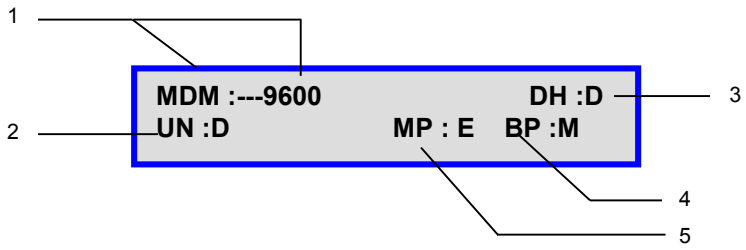


Fig. 38: *Console Port and Controller Features*

1 – Console Port Configuration

Used for the configuration of the console port on the 7710 Controller. The Console port could be used for the following:

a) 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

b) B_R (Beacon Receiver)

The Beacon Receiver is a satellite acquisition lock controller that could be used alongside the 7710 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.

c) 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 – 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.

3 –DHCP Status

The 7710 Controller 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)

4**-** 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.
E – Beep Enabled, a beeping sound will occur every.

5 – 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

7.10.9. PW

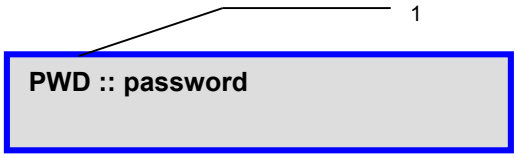


Fig. 39: *Controller and Web GUI Password*

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.

7.10.10. 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.

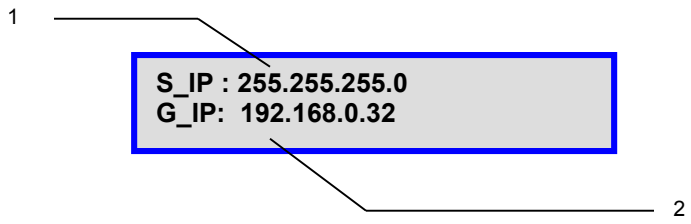


Fig. 40: *SG (Gateway) Configuration*

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

2 – Gateway IP Address (Default: 192.168.0.32) this can be changed to support the network you are on.

7.10.11. IP

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

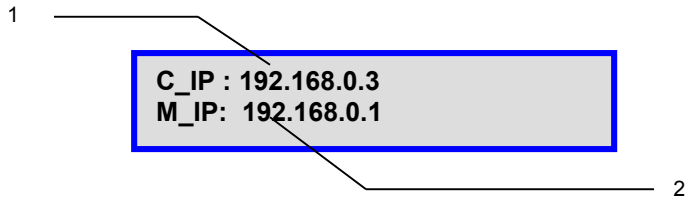


Fig. 41: *IP Configuration*

1 – iNetVu® 7000 Series Controller's IP Address

2 – Modem IP Address

7.10.12. SR

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

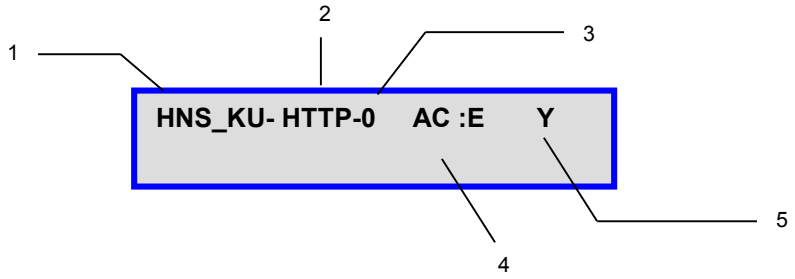


Fig. 42: *SR (Service) Configuration*

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:

iDirect – iDirect Service
Tooway – Viasat Tooway Ka Service
VA_SB2 – Viasat SurfBeam2 Ka service
HNS_KU – Hughes Ku Service
HNS_KA – Hughes Ka Service

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

COM - Console Port Interface
TCP – TCP Interface
HTTP - HTTP Interface

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 – ACP

Allows automatic cross pol to be performed. This is available for Hughes Ku service only.

D – Disable Automatic cross-pol
E – Enable Automatic cross-pol

5 – Automatic TX Disable

The controller will automatically disable the transmitter if a reset is done to the modem during transmission and communication between the controller and modem re-established.

Y – (Yes) Disable TX when power is restored after modem is reset.
N – (No) Do not disable TX after modem is reset and power is restored.

7.11. TEST

Fig. 43: *Test Menu*

E&A&P	Will allow for Demo Testing on all axes (elevation, azimuth, and polarization) for a user specified angle range.
DPLY	Deploys the antenna to a user specified azimuth, elevation, and polarization position.
DPLY_C	Will read the compass heading at a user specified elevation, azimuth, and polarization target point.
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.

7.11.1. E&A&P

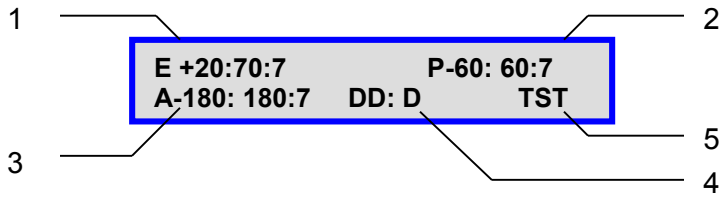


Fig. 44: *Test/Demo EL,AZ, PL Configuration*

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 or** DD: **1**).

D	Disables looping, test will only be performed once.
1	Infinitely loops with NO_DELAY interval between tests.
2	Infinitely loops with 10-seconds interval between tests.
3	Infinitely loops with 30-seconds interval between tests.
6	Infinitely loops with 1min interval between tests.
9	Infinitely loops with 3min interval between tests.

5 – Test Selection

Initiates the test on the specified axes according to the specified ranges, and speeds. Press up or down key, first letter will flash then press ENTER, the test routine will start.

7.11.2. DPLY

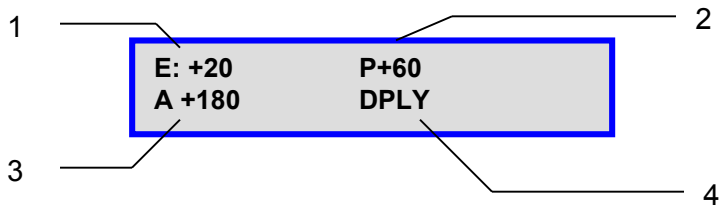


Fig. 45: *Deploy Configuration*

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.

7.11.3. DPLY_C

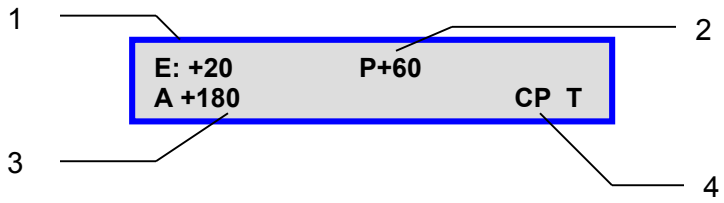


Fig. 46: *Deploy Compass Reading Angles*

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.

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.

7.11.4. A_ACP

Initiates an automatic cross-pol test.

7.11.5. M_ACP

Initiates a Manual cross-pol test.

7.11.6. S_ACP

Stops the cross-pol testing instantly.

7.12. INFO

Displays information regarding the iNetVu® 7710 Controller's firmware, software versions and MAC address information, the Mobile Platform type currently configured, and also any Error Codes detected.

Fig. 47: *"INFO" (Information) Display*

CC1	Contains information pertaining to the iNetVu ® 7710 Controller hardware version, Controller ID, firmware version, boot loader version, Signal
CC2	Contains information pertaining to the iNetVu ® 7720 Controller hardware version, Controller ID, firmware version, boot loader version, Signal
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.
SYS	Contains information pertaining to the Platform Type, Serial Number.
MAC	Threshold, MAC address and configuration ID.
ERR	Contains information pertaining to the error code if an error occurs.

7.12.1. CC1

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

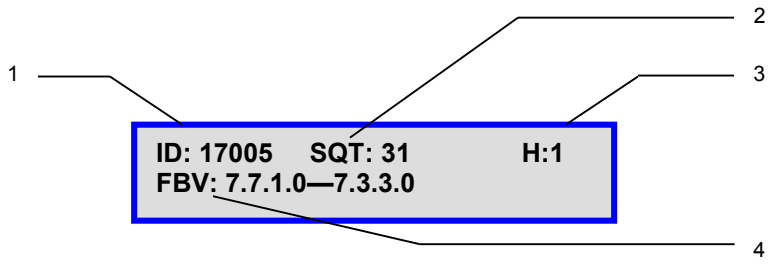


Fig. 48: *"CC1" (Controller Info) Display*

1 – Controller ID Number

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

2 – Signal Quality Threshold

Minimum SNR Value required for the iNetVu® 7700 Series Controller to validate signal.

3 – 7700 Series Central Controller Board Hardware Type Version.

4 – 7700 Series Central Controller Firmware and Boot loader version.

The firmware version is to the left of the dash (i.e. **7.7.1.0** - 7.3.3.0), and the boot loader version is to the right of the dash (i.e. 7.7.1.0 - **7.3.3.0**).

7.12.2. CC2

This branch menu displays the Remote Drive Module ID (serial number), Hardware Version, Firmware, and Boot loader Version.

.

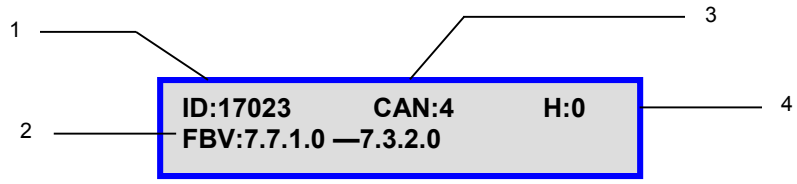


Fig. 49: *"CC2" (Remote Drive Module Info) Display*

1 – iNetVu® 7720 Remote Drive Module ID

The iNetVu® 7720 Remote Drive Module Serial Number is located on the back of the Remote Drive. The ID displays the last 5 digits of the Serial Number.

2 – iNetVu® 7720 Remote Drive Module Firmware and Boot loader version .

The firmware version is to the left of the dash (i.e. **7.7.1.0** - 7.3.2.0), and the boot loader version is to the right of the dash (i.e. 7.7.1.0 - **7.3.2.0**).

3 – Canbus address

4 – 7720 Remote Drive Module Board Hardware Type Version.

7.12.3. DVB_D

This branch menu displays the controller DVB Module Type and ID.

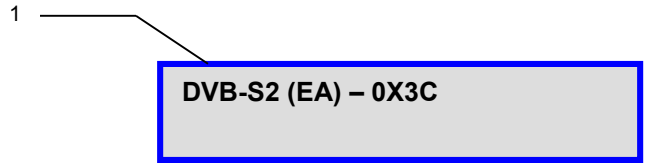


Fig. 50: *"DVB" (DVB Module) Display*

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

7.12.4. 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.

MOD

This branch menu displays the VSAT Modem information, and software version number if proper controller/modem communication is established.

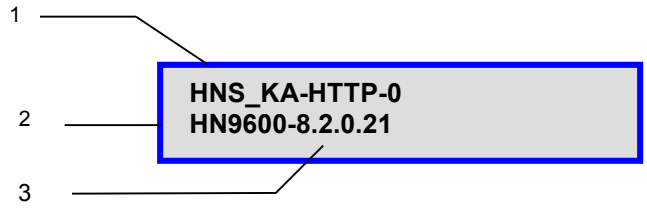


Fig. 51: *“MOD” (Modem) Display*

1 – VSAT Modem service type and interface it’s communicating on.

2 – Modem Model Type

3 – Satellite Modem’s Model and Firmware Version

7.12.5. SYS

This menu displays platform type, hardware version, serial number and data recording file size.

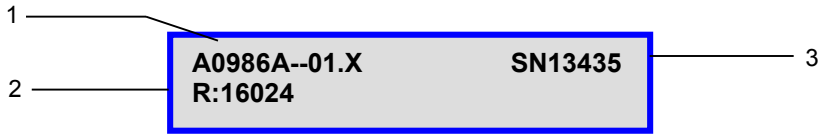


Fig. 52: *“SYS” (Platform) information Display*

1 – Indicates platform type and platform hardware version number.

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

3 – Platform serial number.

7.12.6. MAC

Displays the Remote Drive Module MAC Address

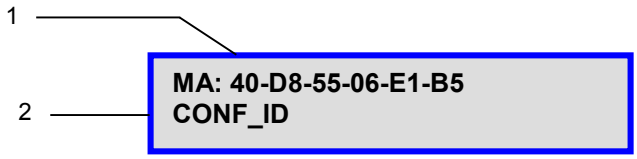


Fig. 53: *"MAC" Remote Drive Module MAC Address Info*

1 – Indicates the MAC Address that is programed into the 7720 Remote Drive Module.

2 – States the 7720 Remote Drive Module configuration id (for internal use).

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.

Fig. 54: *"ERR" (ERROR) Display*

1 – iNetVu® Error code display

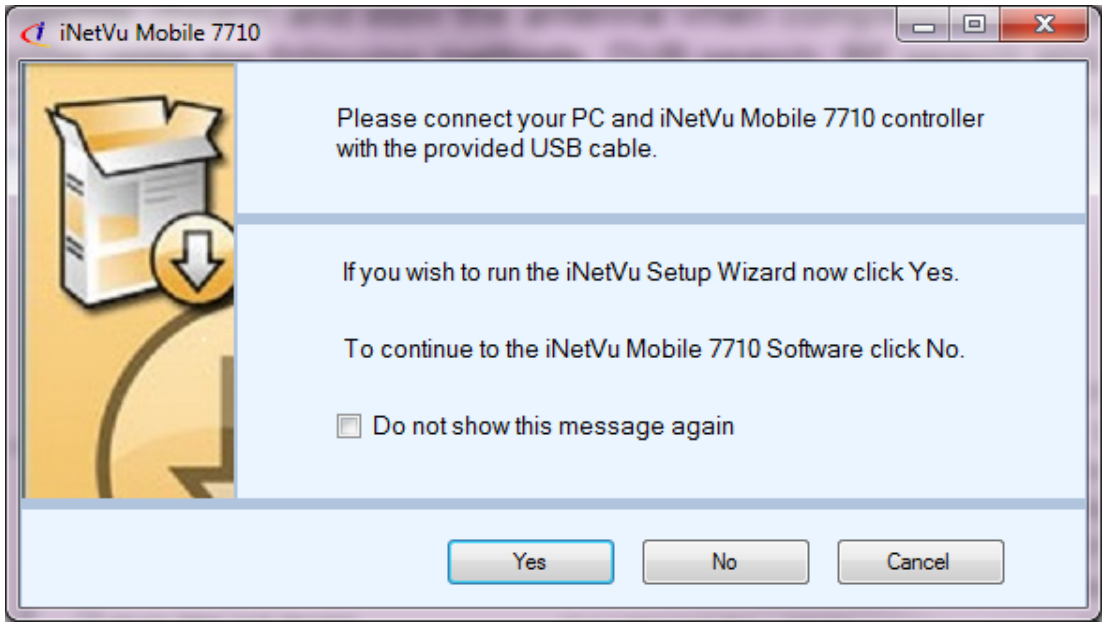
Displays the last 2 codes recorded by the 7720 controller.

8. iNetVu® 7710 Software

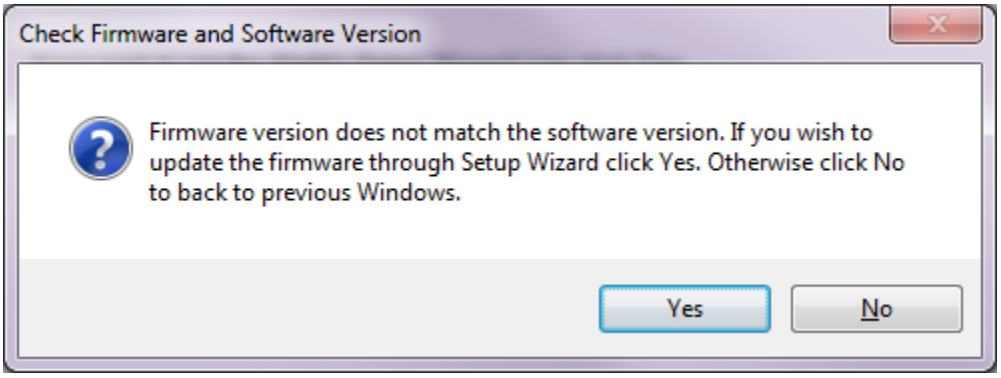
The iNetVu® Mobile Software plays an integral role in connecting the operator/user and iNetVu® Mobile System. It has the ability to communicate with the Satellite Modem, automatically find and lock onto a satellite (Beam) and stow the antenna when completed. The user has the option to search for satellite using the following methods, DVB search; RF search and Beacon receiver with the highest precision. The user can also monitor real-time system parameters such as Signal Strength, GPS/Glonass 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 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. New Setup Wizard Feature

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. The dialog window will show every time the **iNetVuMobile7710** 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. Both the 7710 Controller and the 7720 Remote Drive Module will be validated.



The wizard will automatically resume after the Firmware updates have 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.

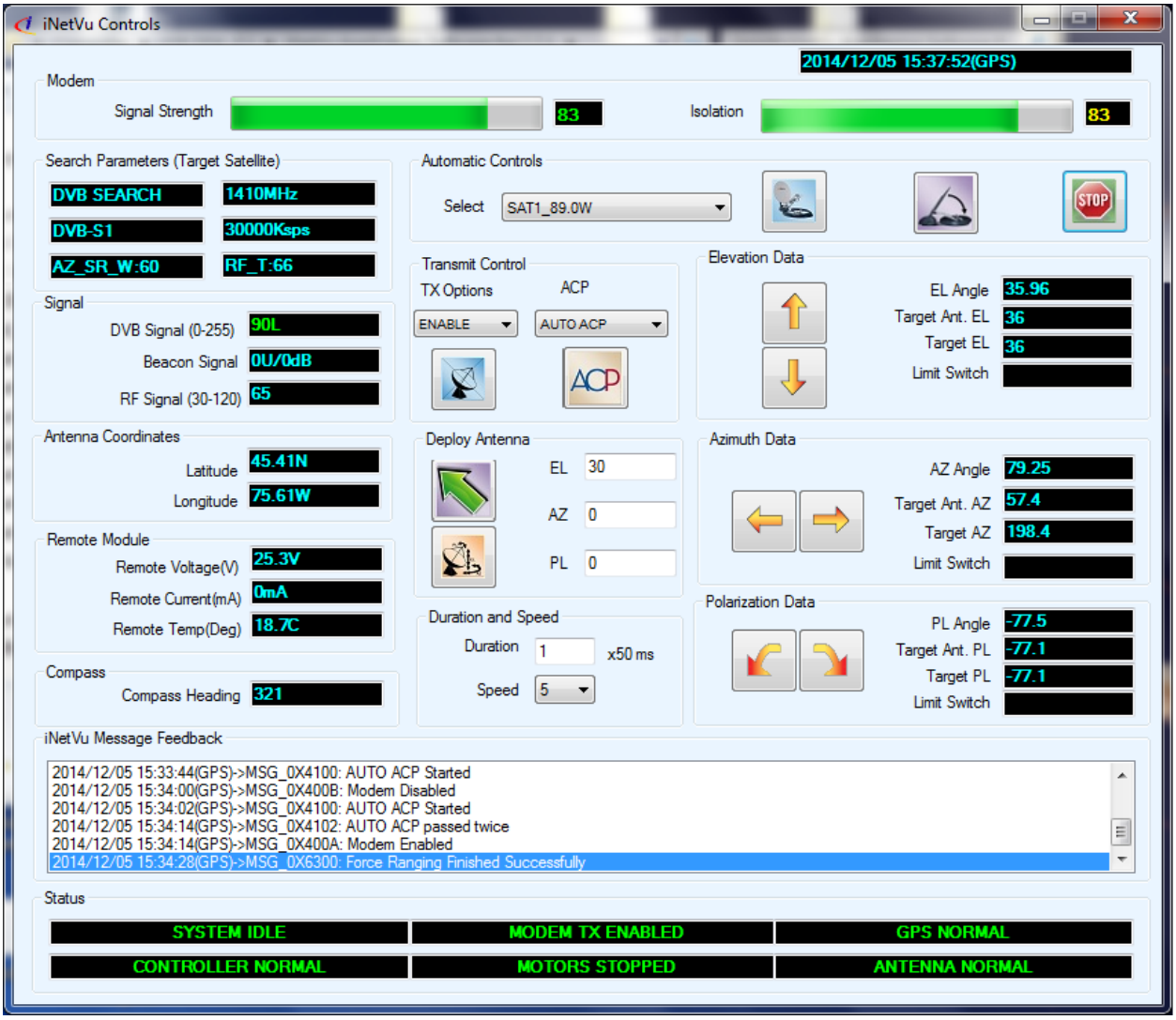


Fig. 55: *Controls Menu*

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.

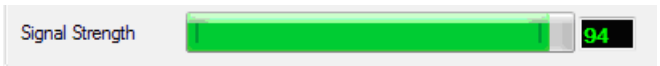


Fig. 56: *Signal Strength Display*

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.

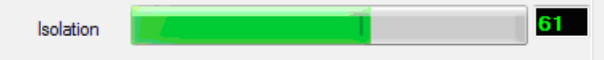


Fig. 57: *Isolation Value Display*

Date/Time

Current date and time as received from the GPS/Glonass Antenna. Should the GPS/Glonass experience any problems, the alternate source is your PC internal date and time.

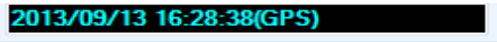


Fig. 58: *Date/Time Display*

Automatic Control

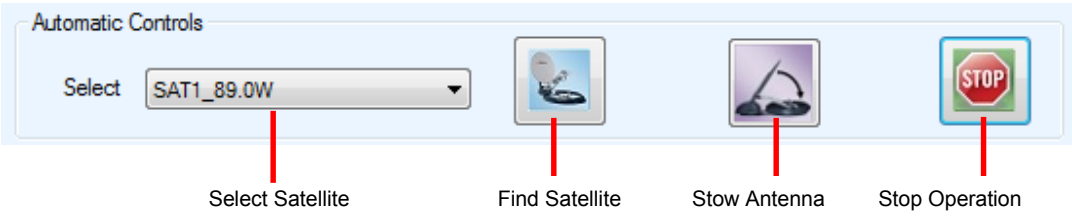
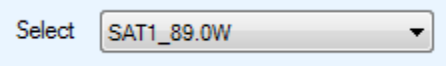


Fig. 59: *Automatic Control Buttons*

Select Satellite



Satellites that user can select from by simply clicking on the drop down arrow. Satellites 1 to 64 can be preconfigured and saved to allow user to search for desired satellite. Beam color will be displayed and will not be selectable if “Auto-select Beam color” is enabled for Tooway. Currently Only 16 can be set with the remaining to be added in future versions. Sat 1 is default satellite and will be the one searched on if no other is selected from the drop down list.

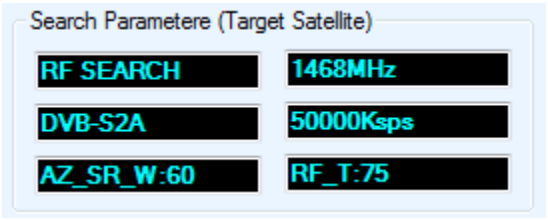
Find Satellite

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 platforms moves the Platform to a home position.

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

Configured Satellite Search Parameters
The target satellites section displays the satellite, other parameters are displayed under transponder and search parameters, and here we display just a few of the target satellite parameters.



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

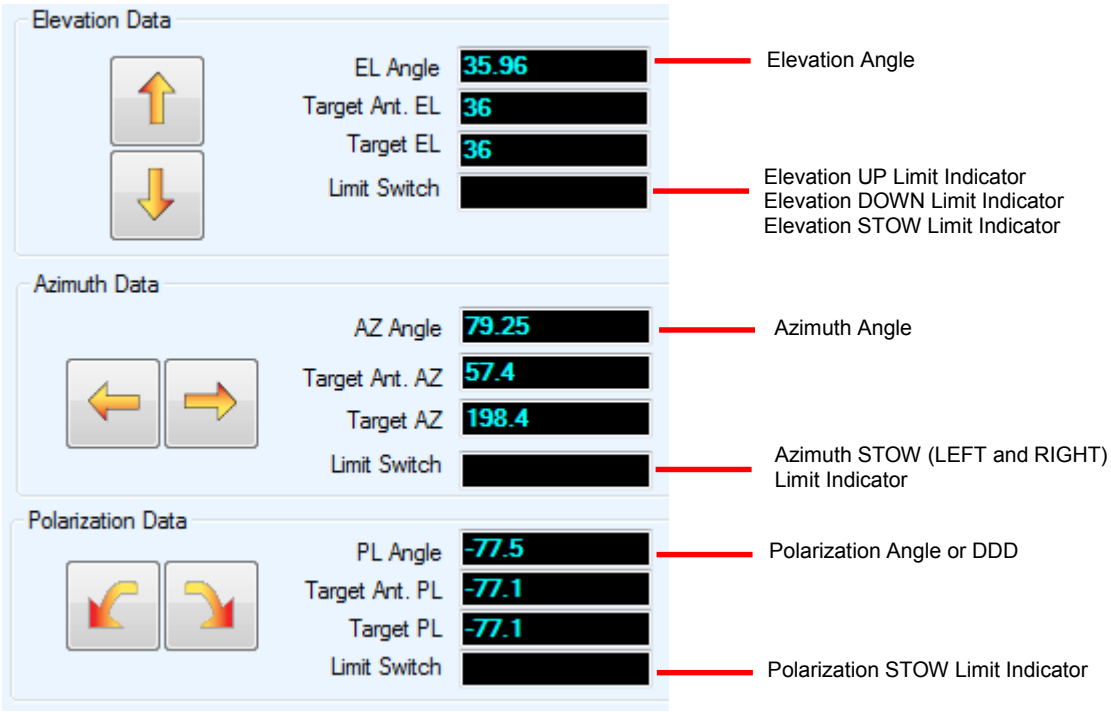


Fig. 60: *Angle and Limit Switch Indicators*

Target Angles are described in the Target Satellite parameter section.

- When the Elevation STOW Limit Indicator is ON for the Fly-75V or Fly-98G/H Fly-Away systems, it is indicated by the “UP/LP” in the EL Limit Switch field. Elevation Angle will be “+92 ±1.0” degrees, to denote that the iNetVu® Fly-away Platform is now stowed or at the home position. The mobile units stow position will remain at -90.

- The AZ Stow will be indicated by “ST/LP” in the AZ Limit Switch field with 0 degrees angle reading.

- The Fly-Away platforms will display “LL/LP” for AZ limit left, and LR/LP for AZ limit right when the AZ movement has reached its limit on the left or right side.

- Polarization section will display “DDD” for all three fields with the movement buttons greyed out for Ka service, Ku platforms will display the angles.

- A YELLOW colour “DDD” will appear if a Limit Switch has been disabled (Fly-away Ka platforms).

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.

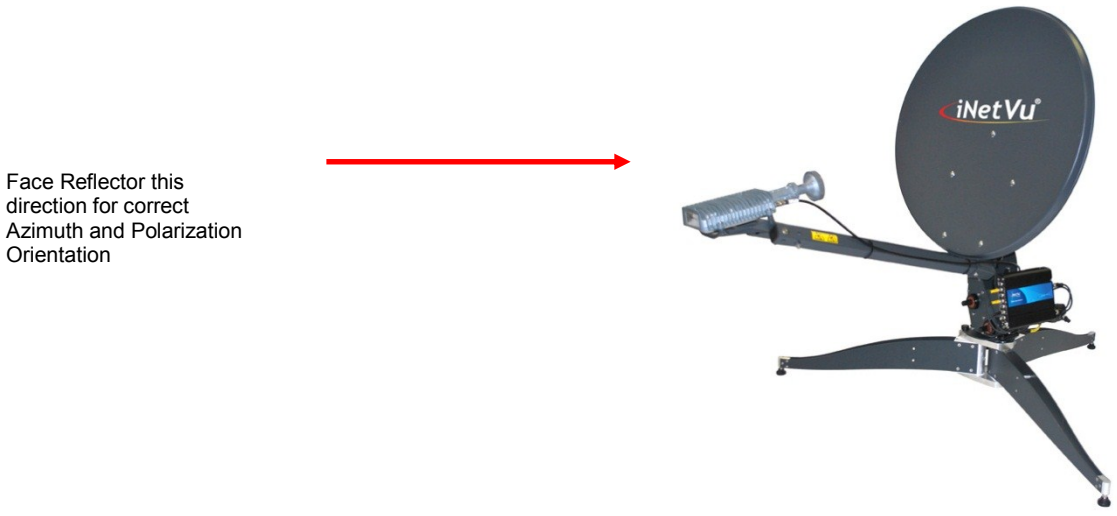


Fig. 61: *Orientation Reference for Azimuth and Polarization*

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. Drop down will only be accessible with Hughes Ku service.

Fig. 62: *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.

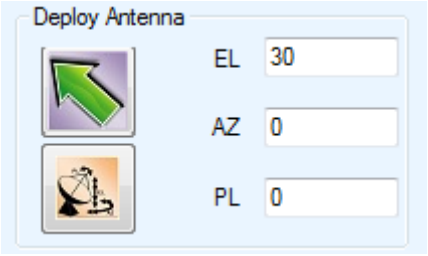


Fig. 63: *Deploy Antenna Input Values*

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

1 = Slowest, 9 = Highest

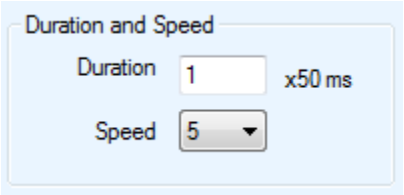
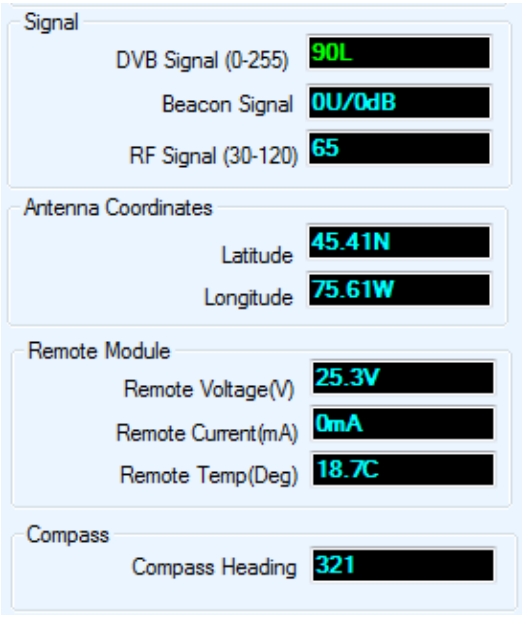


Fig. 64: *Duration and Speed Input for Manual Movements*

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 appropriately, or there is an issue with the coax cable connection.

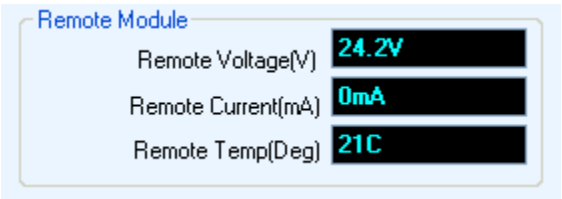


RF Threshold (30-75)
Used in RF mode search for determining proper satellite frequency. This can be configured and viewed on the Configuration screen.

Antenna Latitude/Longitude
GPS Coordinates acquired from the GPS Antenna or manually overridden values.

Remote Voltage(V)
Voltage(DC) reading on the 7720 Remote Controller

Remote Current(mA) of 7720 Controller
Displays Current drawn for Elevation and Azimuth Motor (in Milliamps mA)



Remote Temp(Deg)
Monitors and displays Remote Controller's temperature

Target Satellite parameters

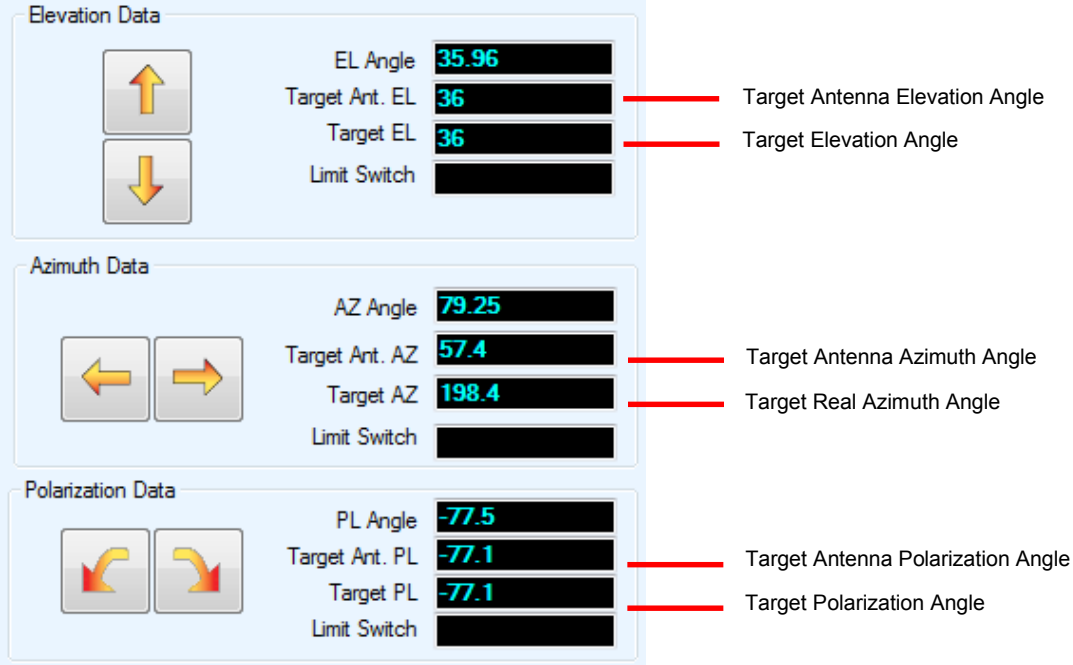


Fig. 65: *Satellite Target Angles*

Target Antenna Elevation Angle (Target Ant. EL)
The Target Ant. EL angle is a calculated value based on GPS and satellite longitude information plus the relative mount EL Offset angle.

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

Target Antenna Azimuth Angle (Target Ant. AZ)
Calculated Azimuth Angle plus compass offset if any that the Antenna must point in order to locate the desired Satellite in reference to the Mobile Platform's center position.

Target 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 Polarization Angle (Target Ant. PL)
Calculated Polarization angle including satellite polarity, OMT position; satellite offset and PL offset angle that the polarizer must be positioned.

Target Polarization (Target PL)
Calculated Polarization angle that the Antenna must be in order to find the desired Satellite. Disabled and displays "DDD" for none motorized Polarization Axis.

Compass Heading
Orientation of the Mobile Platform.

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

Fig. 66: *Compass Orientation and Approximate Values*

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

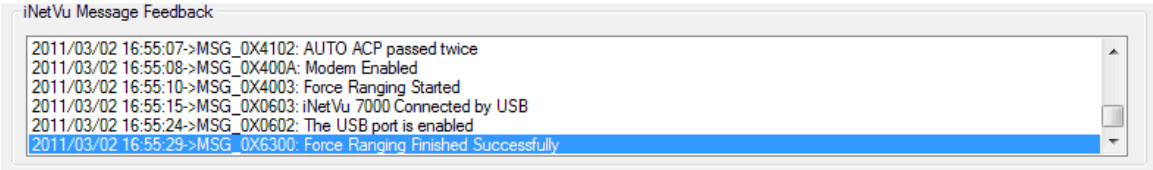


Fig. 67: *Message Panel*

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 Controls menus, and has a set of six message blocks, respectively.

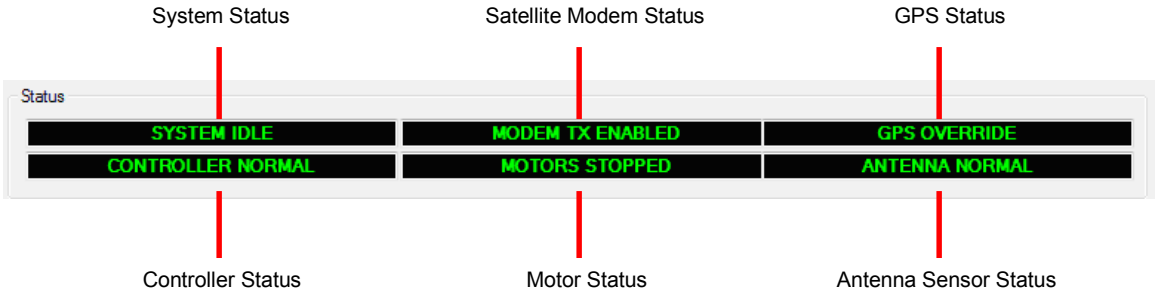


Fig. 68: *Controls - Status Panel*

The indicators notify the user of any actions taking place with a combination of color-coated 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.
- **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
- **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 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 segregate 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 and sent to the controller. Recycling 7710 Controller power will confirm settings and ensure correct values are propagated and displayed on all screens, this is important especially for Ka platforms.

Click **SEND ALL** when any modifications are made, failing to **SEND ALL** will not save the information/data to the controller and thus the configurations will be lost during controller power recycling.

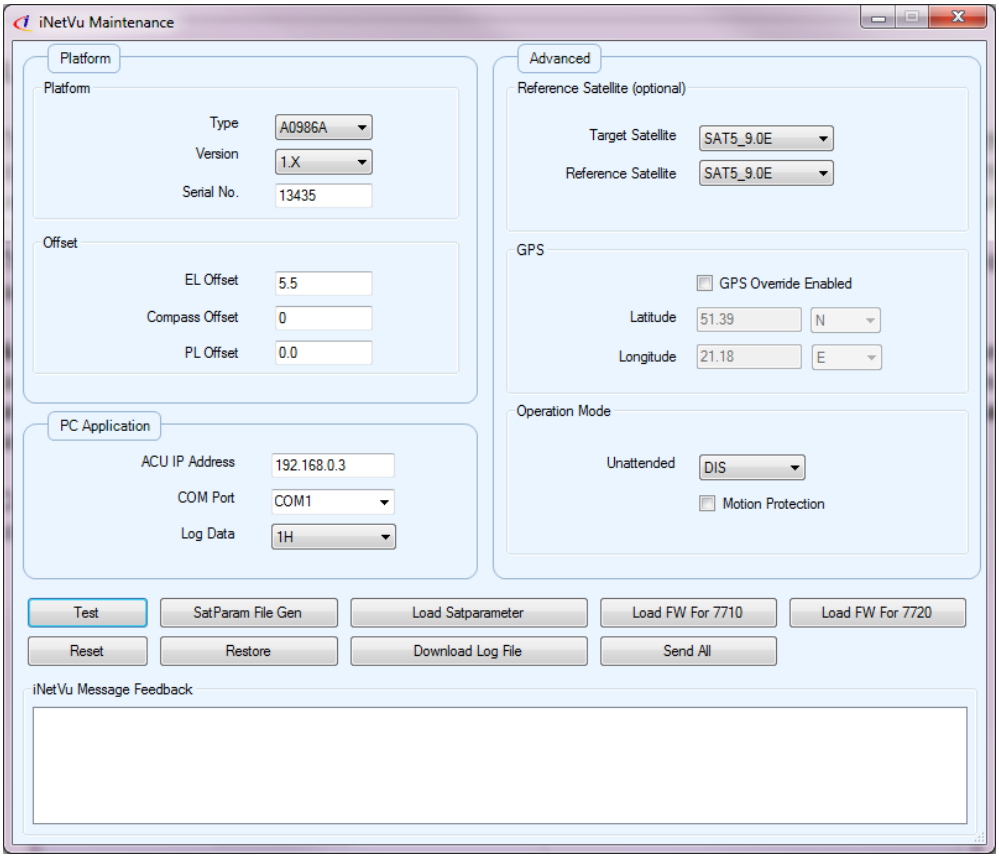


Fig. 69: *iNetVu® 7710 maintenance screen*

8.2.2.1 Platform Parameters

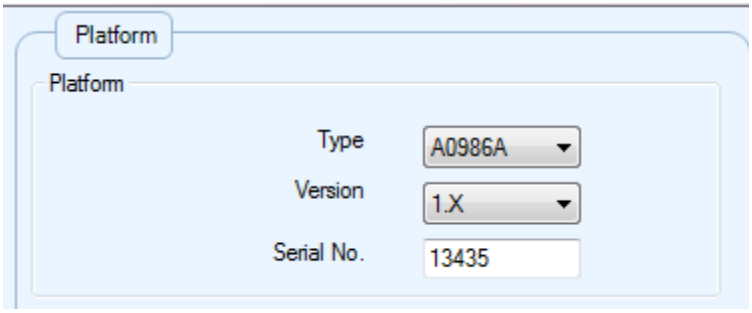


Fig. 70: *Maintenance Platform Parameters*

Type

The user is capable of configuring the platform type in use via the controller front panel or the software application.

The firmware/software application will a different name schema under platform type in the drop down than the one provided in the marketing datasheets.
Listed below are the Platform common name and its equivalent in the in the controller and software application.

A0756A - iNetVu® Fly-75V New Fly-Away 75cm (Ka - Band Circular)
A0986A - iNetVu® Fly-98G/H/V, 2 Axis New Fly-Away 98cm (Ka - Band Circular)
A0986B - iNetVu® Fly-98G/H/V, 3 Axis New Fly-Away 98cm (Ka - Band Circular)
A0986C - iNetVu® Fly-981, 3 Axis New Gen Fly-Away 98cm (Ku – Band, XPOL)
A1201A - iNetVu® 1201J, New Gen Drive-Away, 1.2m Ku Band
A1206A - iNetVu® Fly-1202 Ka, New Fly-Away 1.2m, Ka Band Viasat Tria
A1206C - iNetVu® Fly-1202 Ku, New Fly-Away 1.2m, Ku Band
A1801A - iNetVu® 1801, New Gen Drive-Away, 1.8m Ku - Band
A1810A - iNetVu® Fly-1801, 3 Axis New Fly-Away 1.8m Ku - Band

Platform Serial Number

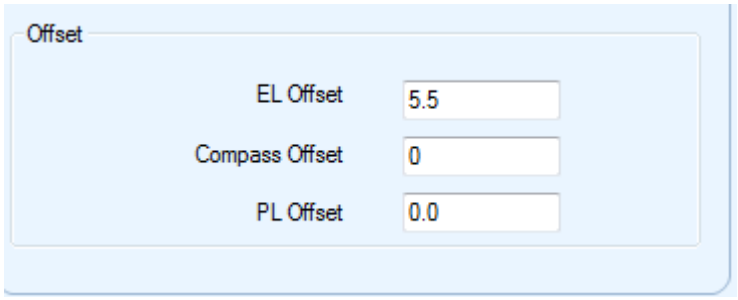
The user will be required to enter the last five-digits of the platform serial number located next to the connector plate on the iNetVu® Mobile Platform.

Fig. 71: *Platform Identification*

Platform Hardware Version

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

8.2.2.2 Offset



EL Offset

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.

Compass Offset

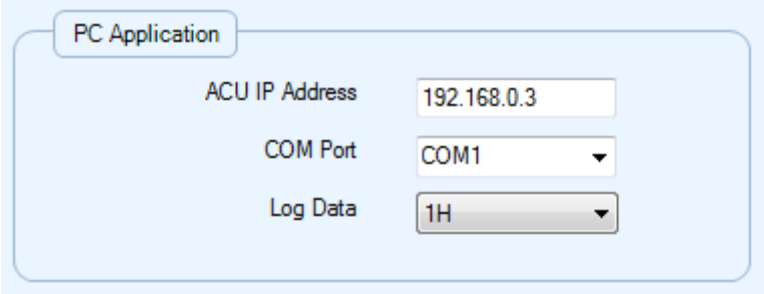
It's the required adjustment to reorient the compass heading to the actual magnetic North by taking into consideration the metal surrounding around the compass location on the Antenna platform. This value is calculated automatically by the iNetVu software once the system gets automatically pointed to the right satellite.

Polarization Offset (PL)

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.

8.2.2.3 PC Application

This sub-section contains options regarding the relevant IP address connection to the iNetVu® Series 7700 Central Controller. This section allows user to enter IP address of the desired controller that they wish to connect to over the network.



ACU (Antenna Control Unit) IP Address

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

Com Port

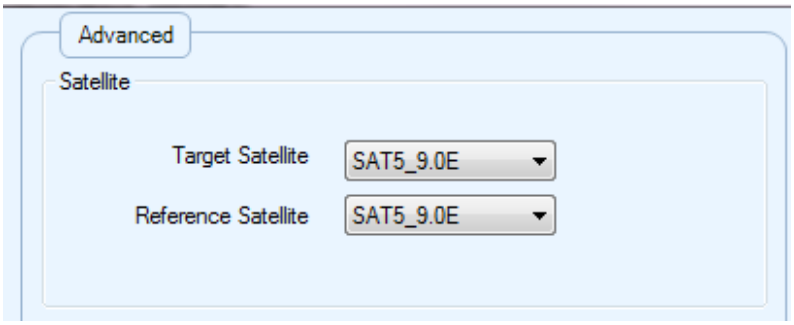
Used in conjunction with the serial port interface (Interface parameter under COM Port Configuration section) communication between the controller and pc.

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. The log file is saved in the default installation location as "**iNetVu7710Data_history**"

8.2.2.4 Satellite

The Target satellite drop down allows user to select the saved satellite from the list of saved longitudinal and orbital values, the list will currently save and display 16 target satellite (eventual will allow for 64 target satellites). 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 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 when the Reference Satellite is enabled in the Configuration interface.



8.2.2.5 GPS

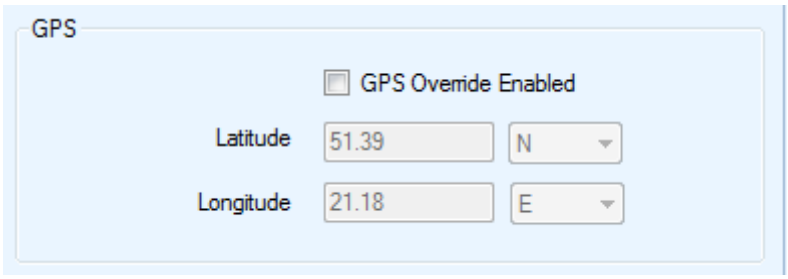


Fig. 72: *Maintenance – GPS Parameters*

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 Lat', and the 'GPS Lon' 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.

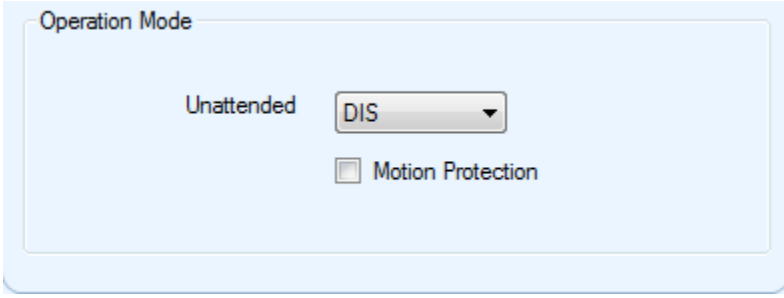
GPS Latitude

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

GPS Longitude

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

8.2.2.6 Operation Mode



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 the antenna will attempt to deploy while vehicle is moving. Please ensure this feature is disabled 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 antenna is still on signal the system will re-acquire satellite, otherwise the antenna will stow due to motion or movement, the system will automatically re-acquire satellite depending on the selected 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. If the re-acquire fails, the system will stow and wait for the next time period to try and re-acquire satellite signal.

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. On the second stow, system waits Five (5) minutes + 30 seconds before automatically re-acquiring 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 between locations and system is NOT powered off.

Motion Protection

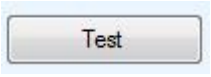
The iNetVu® Mobile Platform will automatically stow the antenna should it experience extreme motion, such as severe shaking caused by harsh weather conditions. Box selected implies Motion Protection is enabled. If the shaking/shift is in small increments the system will not stow assuming signal is not 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 is lost. This feature stows the antenna but does not attempt to re-acquire signal. This feature does not work properly if combined with the inclined operation.

Movement Protection (not a selectable option)

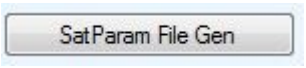
The movement protection option is always enabled and is embedded into the controller. Antenna will stow automatically when vehicle begins to drive off. The movement protection feature will not function properly if the GPS is overridden because movement protection relies on change of GPS speed (min 5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

Maintenance Menu Buttons

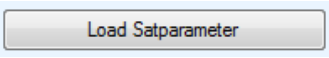
The following buttons are available in the maintenance menu for multiple purposes including, ease of use, troubleshooting, accessing data files and more.



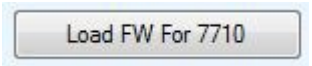
Test (DEMO)
Opens System Test and Demo menu screen



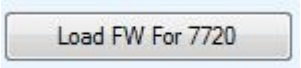
SatParam File Gen
Generates Satellite Parameter table file “iNetVu7710_SAT_PM.S19” that will be downloaded to the controller. This step is required after changes made to the satellite parameters table.



Upload SatParameter
Loads all the Satellite Transponder information located in the “iNetVu7710_SAT_PM.S19” into the 7710 Controller. The user may modify the table (iNetVu7710_PARSAT.txt with any DVB transponders settings) that he/she would like saved in the 7710 Controller. The file would then be generated and uploaded to the controller using this button. Controller must be in S file loading mode.

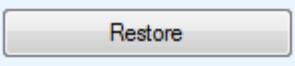


Load FW for 7710 (Main Controller Firmware)
Loads the iNetVu7710_Box_FW.S19 firmware file into iNetVu® Controller from the iNetVu program folder. The update process is displayed on screen and will notify the user when the process is complete. 7710 Controller will reset itself once the firmware updating is complete.

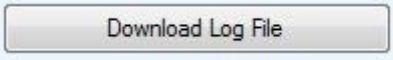


Load FW for 7720 (Remote Firmware)
Loads the iNetVu7720_RTCTL_FW.S firmware file into iNetVu® Controller.

Reset
Restarts controller.



Restore
Resets all platforms parameters settings to their default values.

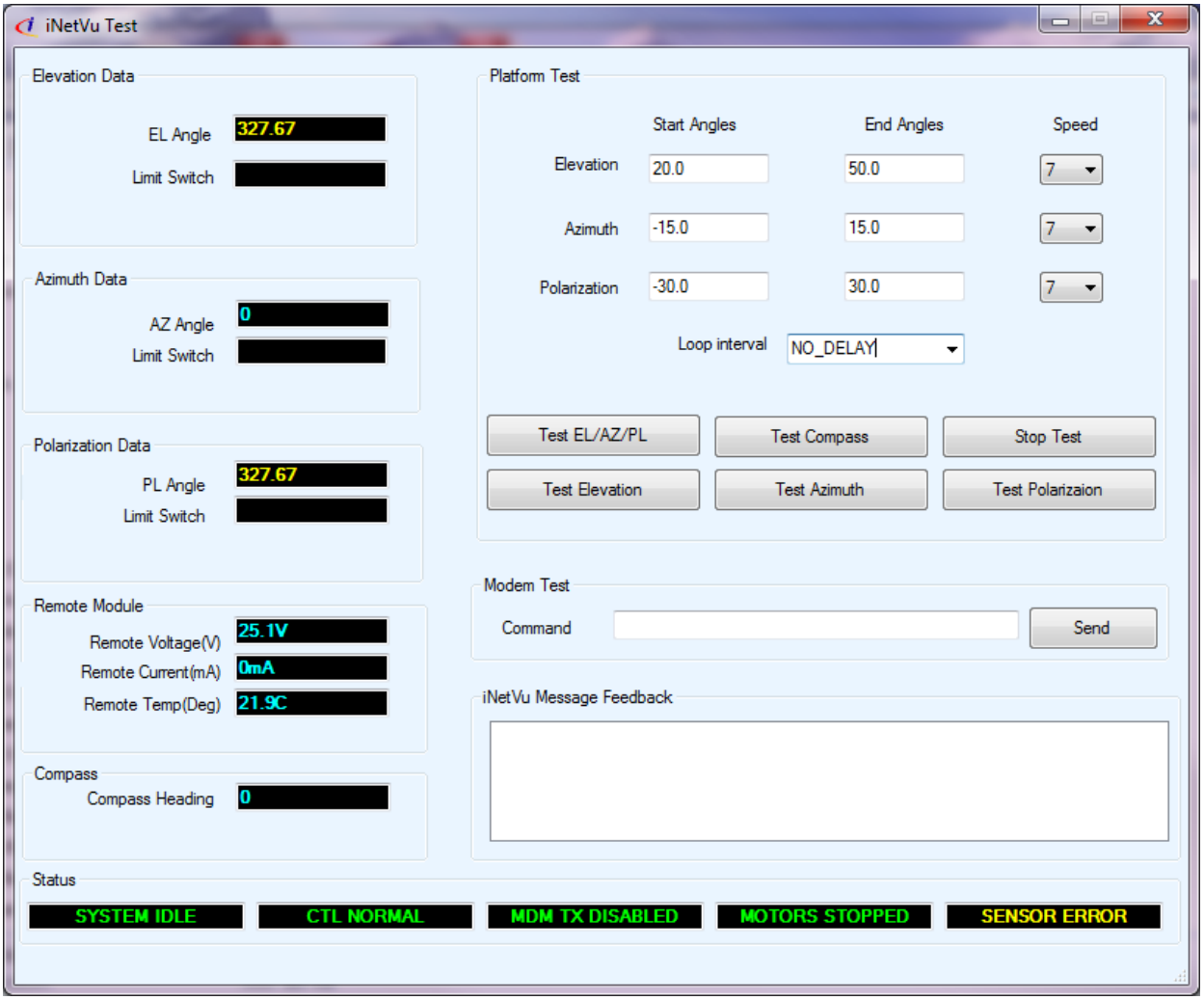


Download Log File
Downloads the log data from the 7710 Controller onto the user’s PC. The user may select how much of the log file to upload from the Controller section of this maintenance menu. The maximum data a user may upload is 12 hours.

Send All
Sends ALL parameters to the controller’s memory.

8.2.3. Maintenance Test (Demo Window)

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



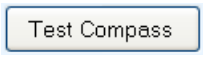
Start Angles
Initial values for the test/demo sequence.

End Angles
End values for the test/demo sequence.

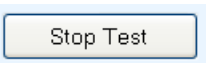
Speed
Speed of the motor during the test/demo sequence (1 – lowest, 9 – highest).

Loop Interval
Enables an infinite loop of the test/demo sequence with time between test/demo sequences.

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

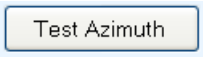


Test Compass
Positions Antenna to the set Elevation angle and updates compass heading by moving to the set End Angle values entered by the user on all three axis. Only end angles are required when testing or validating compass.



Stop Test
Halts all test/demo sequences.

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



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

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

Modem Test (Command)

(This Feature has not been fully tested with the iDirect Modem at this time of documentation)
The user may enter certain modem commands, and click send. The 7710 Controller will then read the response from the modem in the text area below the command line. Currently the commands supported are for iDirect services only:

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

8.2.4. Configuration

The Configuration menu allows users to configure the communication medium between the Satellite Modem, Controller (ACU) and iNetVu® Mobile Software, as well as various System parameters for optimal performance. Users have the ability to configure and save 64 Satellites (1-65) with their orbital slot. Each Beam can have different configurable parameter settings independent of one another, these paramters are grouped under the Beam Configuration section.

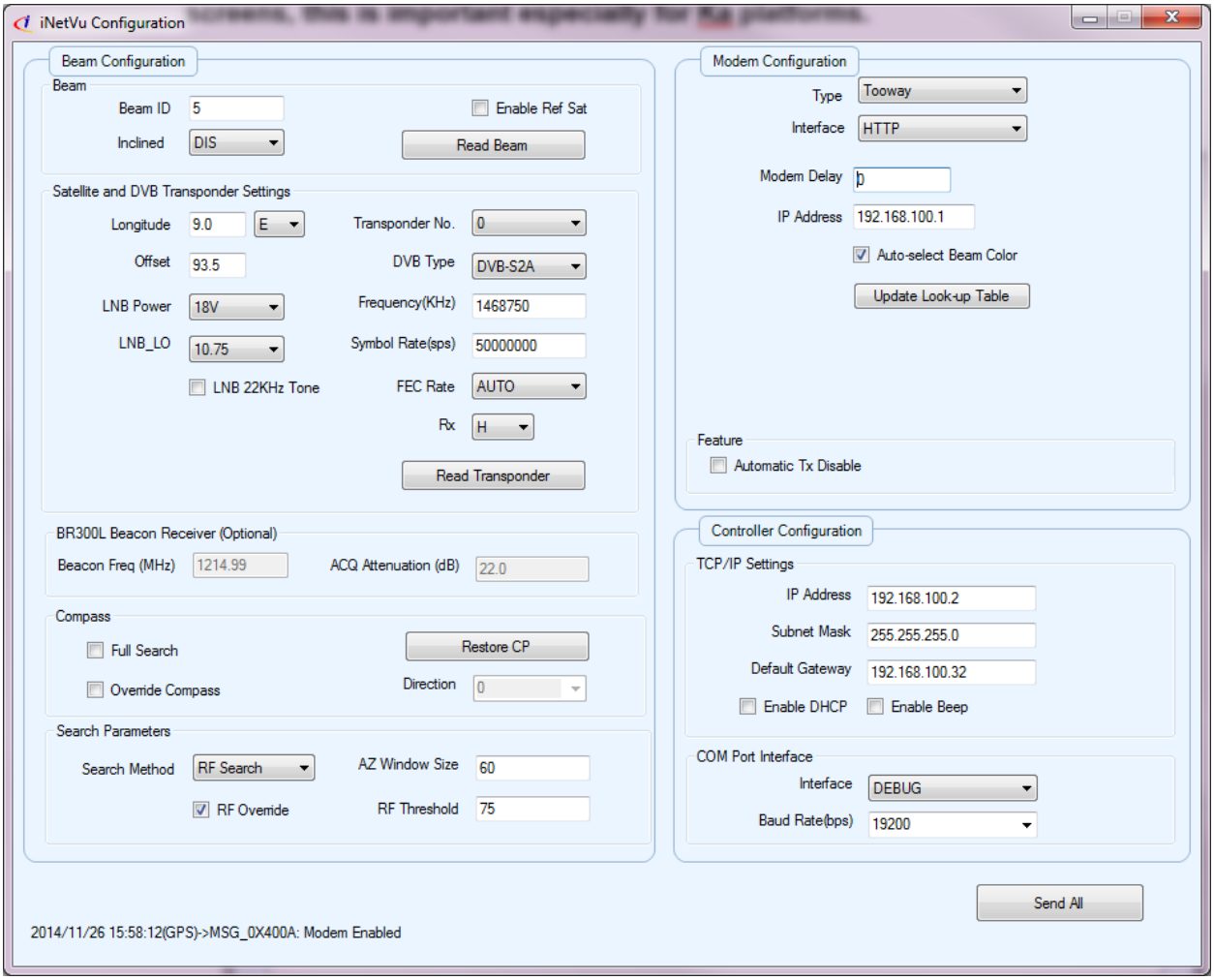


Fig. 73: *iNetVu® 7710 Configuration screen*

8.2.4.1 Beam Configuration

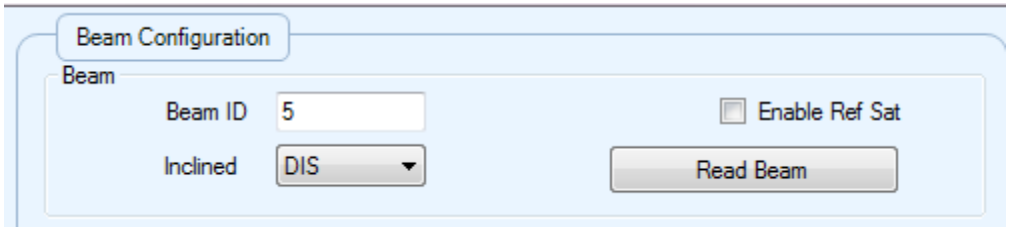


Fig. 74: *Configuration – Beam Parameters*

Beam ID.

64 different satellite Beam ID are configurable on same or different satellites allowing users to configure and save for easy access. Currently only 16 Beam ID are configurable.

Inclined

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 and Ku platforms that shift or fall off signal due to shifting ground and or environment conditions. The inclined mode routine will exit its operation once the Stop button is de-pressed leaving the configuration selection 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

Enable Ref Sat

This checkbox enables or disables Reference Satellite search, when selected the Reference Satellite Option becomes active. The choice of Reference Satellite can be selected from the available satellites in the saved dropdown list on the Maintenance interface (window). If this box is not selected, all the information for the Reference Satellite becomes irrelevant.

Read Beam

Retrieves beam related information of the selected beam in the Beam ID field, like longitude, offset, LNB power and associated DVB transponder information, you will get different information when Beam ID is changed and Read beam button is clicked.

8.2.4.2 Satellite and DVB Transponder Settings

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 -90° to +90° generally in North America and most areas around the world. Ka systems are circular band and thus do not utilize this feature.

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

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

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

eg 2) Receive is Horizontal and Transmit is Vertical (HV) – The offset enter 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.

eg 1) Longitude Satellite = 4.0 E
Manual Offset value entered = 90
Calculated Offset value = 93.5

eg 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.

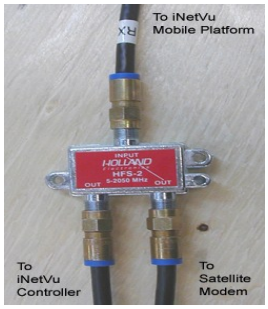


Fig. 75: *RF Cable Setup for DIS selection*

7710 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® 7710 Controller according to those power/voltage requirements.

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).

9.75
10.00
10.60
10.75
11.30

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.

TR No. (Transponder Number)

There are Six (6) Transponder values in the 7710 Controller for each satellite.

Transponder (0-2) are horizontal receive
Transponder (3-5) 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), Symbol Rate (sps) FEC Rate,

The frequencies listed are in Ku-band.

The user may select from the six (6) available transponders saved in the 7710 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:

Symbol Rate (sps)

Symbol Rate of receive signal

FEC (Code) Rate

FEC Rate of receive signal

Rx

Transponder polarity, this field will auto populate as a direct result of transponder no. selected. H for Horizontal and V for Vertical.

Read Transponder

Retrieves Transponder information like DVB type, DVB frequency for the selected transponder of the Longitude. You will get different information when transponder No is changed and you click Read Transponder button.

Modem Parameters

Configurable parameters will differ depending on the type of modem service selected under the type field. Refer to iNetVu Modem Quick Starts for detailed configuration and setup pertaining to your modem type and service.

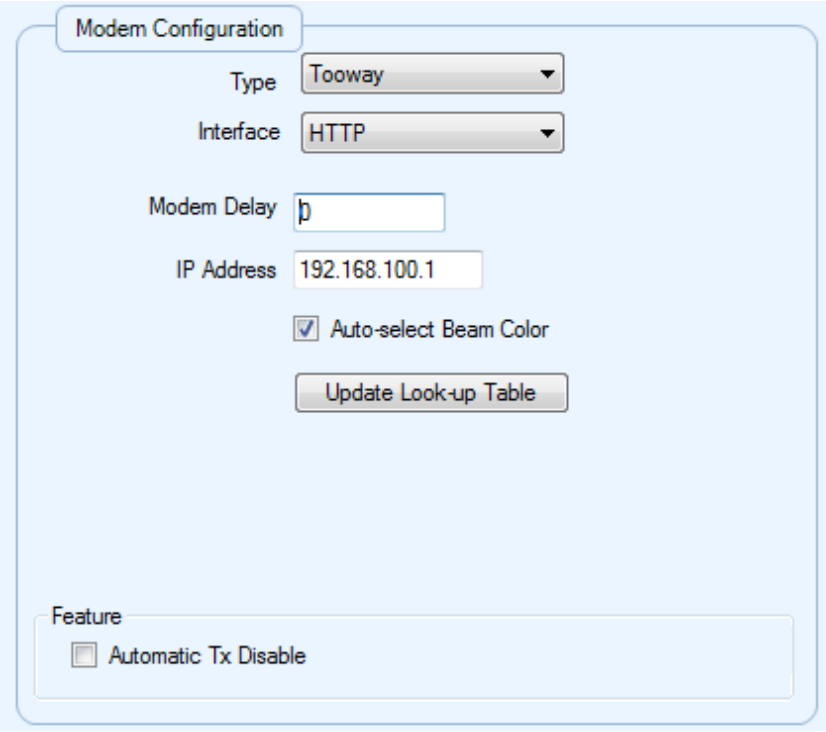


Fig. 76: *Configuration – Modem Parameters*

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
- 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.

Automatic Tx Disable (Constant Modem Feature)

This option feature will appear under all existing modem services, 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.

Tooway Modem Options:

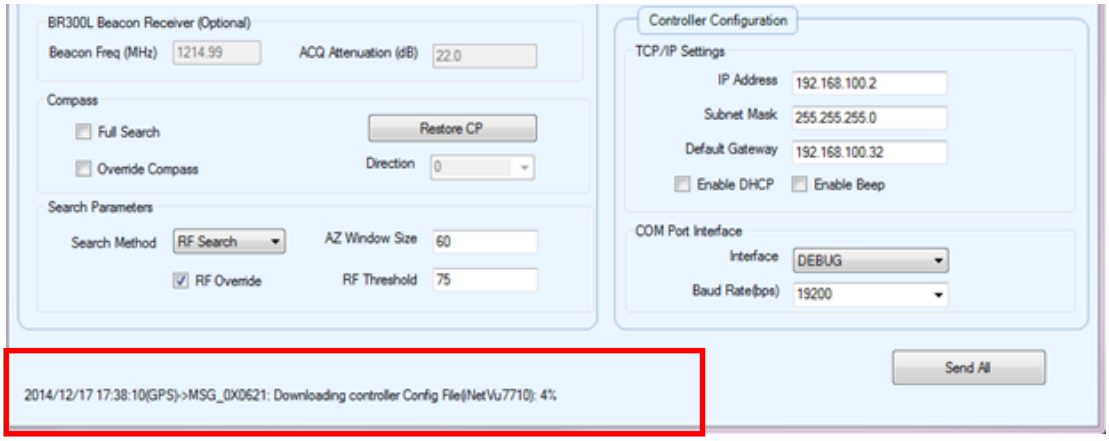
Auto-select Beam Color

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 built in lookup tables and GPS location.

Update look-up Table

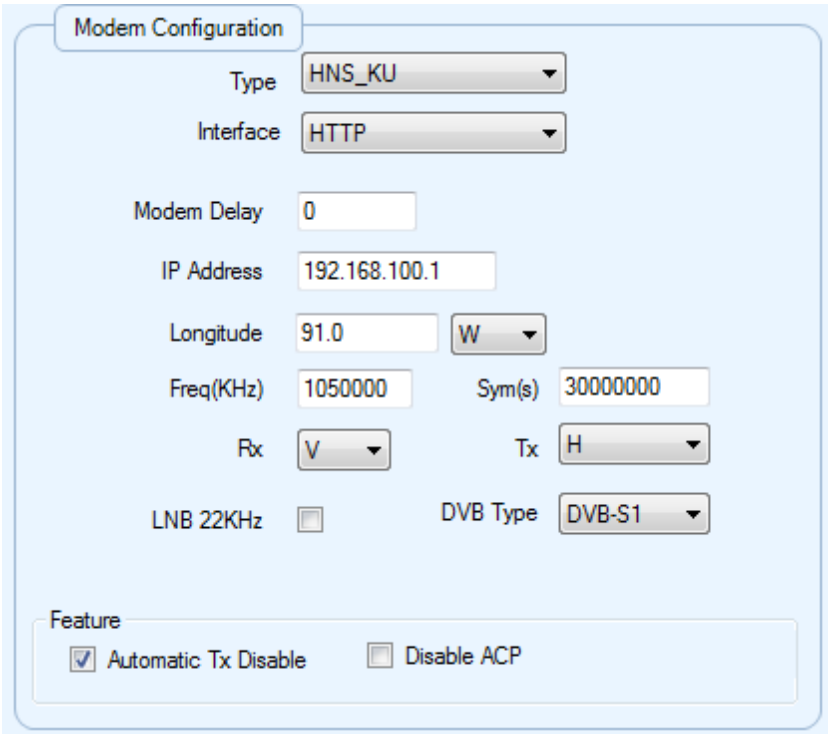
The Tooway Look-up Table must be uploaded to the Controller via the Application software this allows the beam table to be saved and used within the controller; this must be performed before it can be used directly from the Controller LCD. This process is only required once as long as no changes are made to the Beam Colors which than will require another Table Upload.
To enable this feature from the 7710 front panel do the following:

a. Put 7710 Controller into S File Downloading mode (same mode as updating Firmware)
b. Click on Update look-up Table button
c. Monitor status on bottom left hand



HNS_Ku_Modem Options:

The Hughes modems will have additional configurable fields such as frequency, symbol rate, polarization, etc… that are required on the modem side in order to find satellite. These settings must match the controller side configuration in order for the modem to successfully lock and stay connected on satellite after TX is enabled.



Freq (KHz) and Symb (s)

These two fields represent the required Frequency and Symbol Rate of the VSAT modem. This is usually applied to **Hughes Net services only**. Other services 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.

Longitude

Orbital slot / Longitude of the desired Satellite

Hemisphere

Hemisphere the modem is operating in, For instance, North American operating modems would be set to "W", representing western hemisphere.

LNB 22 KHz Tone

The option on the modem side must match the status option on the DVB Transponder side. 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.

DVB-S1/DVB-S2A

Required on Hughes Ku (HX Modem) the DVB-S type of the modem 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 DVB-S) the communication will be lost after modem goes online.

Disable ACP

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

iDirect Modem Options:

iDirect's Auto Beam Selection provides the mobile user coverage with a single modem without having to reconfigure the modem when moving between different regions that possess different satellite beams in order to have continuous coverage.

Password

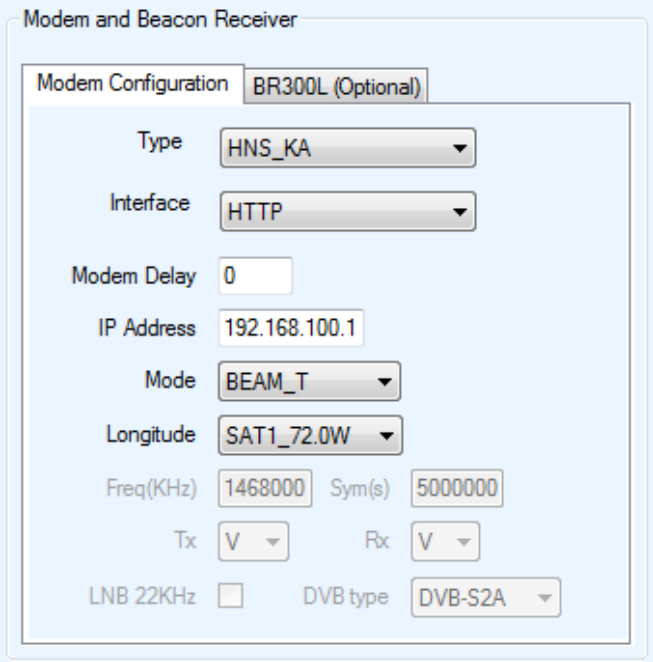
The default password is "P@55w0rd!" which is based on most iDirect modem requirements. Password must be entered to have modem controller communication.

Enable iDirect Broadcast

The Controller can be configured to broadcast with iDirect service by putting a checkmark in the box. 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 7700 Series Controller.

HNS_KA Modem options

Hughes Ka service modem will automatically propagate and fill in all the fields except the IP and longitude when **BEAM_T** mode is selected. Parameters are generally the same as the HNS_KU service type.



Mode

BEAM_T – Modem Beam parameters information are retrieved from Beam table and used for satellite search.

CONFIG – Modem parameters information is manually entered into the fields and used for satellite search.

Longitude

Orbital slot / Longitude of the desired Satellite. This value must match Longitude value on controller side.

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.

LNB 22 KHz Tone

The 22 KHz tone can be disabled or enabled for supporting modems.

DVB Type

Required on Hughes Ku (HX Modem) the DVB-S type of the modem 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 DVB-S1) the communication will be lost after modem goes online.

Beacon receiver

These fields become active after selecting “Beacon” in the COM port Interface section.

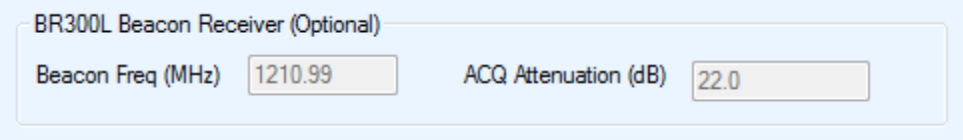


Fig. 77: *Configuration - Beacon Receiver parameters*

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. 64 configurable Beacon frequency maybe configured with 64 Beam ID, thus providing the user 64 target satellites to choose from. If the iNetVu® Beacon Receiver is not used, this field can be ignored.

ACQ Attenuation (dB)

The 7710 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.

Controller Parameters

This sub-section contains data concerning the relevant IP addresses of the iNetVu® 7710 Controller.

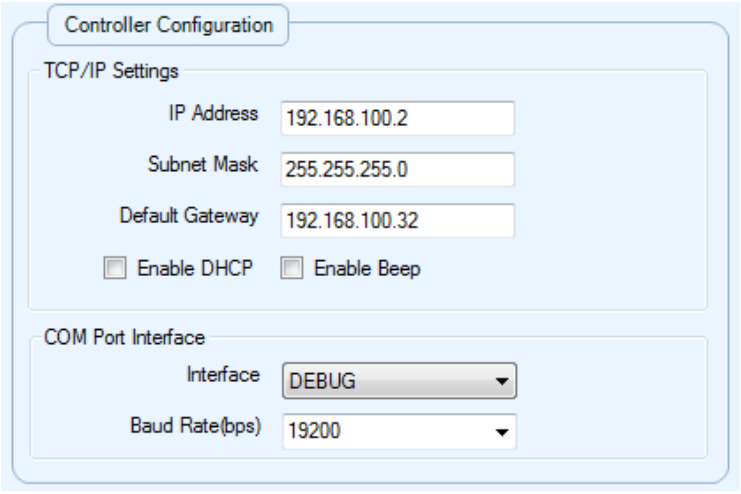


Fig. 78: *Configuration – Controller Parameters*

IP Address

The IP address assigned to the iNetVu® 7710 Controller.

Subnet Mask

The Subnet Mask IP Address used by the iNetVu® 7710 Controller for PC and modem connectivity.

Default Gateway

The Gateway IP address used by the iNetVu® 7710 Controller.

DHCP

The iNetVu® 7710 Controller could obtain a dynamic IP address from a DHCP Server (i.e. router, modem, etc.) if this option is enabled.

Enable Beep

This drop box is used to either enable or disable the beeping noise when navigating the LCD interface on the iNetVu® 7710 Controller. Selected option implies beeping sound is enabled unless D (disabled) is selected.

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.

Interface (Com Port Configuration)

This drop down Menu allows the user to define the functionality of the serial interface on the iNetVu® 7710 Controller. The following are the Interface options to select from:

- **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.

BAUD (bps)

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

Com Port

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

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)

This option is not displayed and exists in the background. The movement protection option is always enabled and is embedded into the controller. 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.

Send All
Sends ALL parameters to the controller's memory.

8.3. About

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

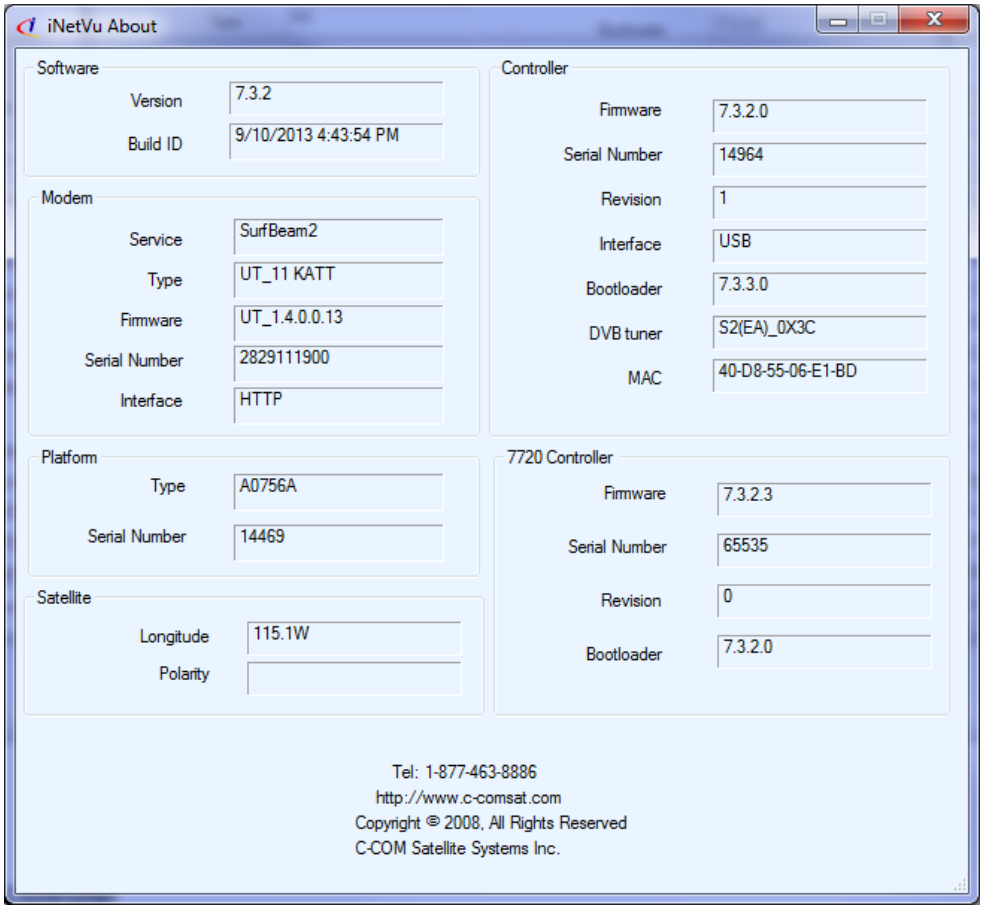


Fig. 79: *About Menu*

Software

- **Version**
  iNetVu® Mobile Software version

- **Build ID**
  Date of software release

Controller

- **Firmware**
  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.

- **Interface**
  This field represents the means of communication between the iNetVu® software, and the 7710 Controller.

- **Boot Loader**
  Bootloader version loaded in the 7710 Controller.

- **Revision**
  Indicates the revision number of the current Controller Hardware version.

- **DVB Tuner**
  Displays if a DVB Tuner is detected.

- **MAC Address**
  Displays 7710 controllers MAC Address.

Modem

- **Service**
  Type of service that modem is configured for.

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

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

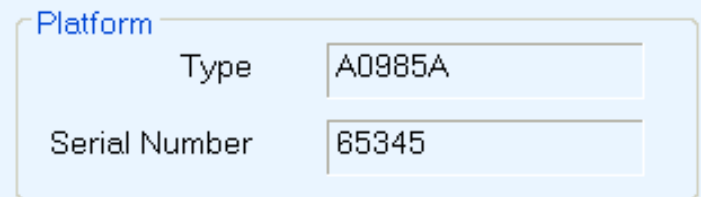
- **Serial Number**
  Satellite Modem's Hardware ID or Serial Number.

- **Interface**
  Modem Interface to the iNetVu® 7710 Controller.

Platform

- **Type**
  Mobile Platform type.

- **Serial Number(S/N)**
  Mobile Platform serial number.

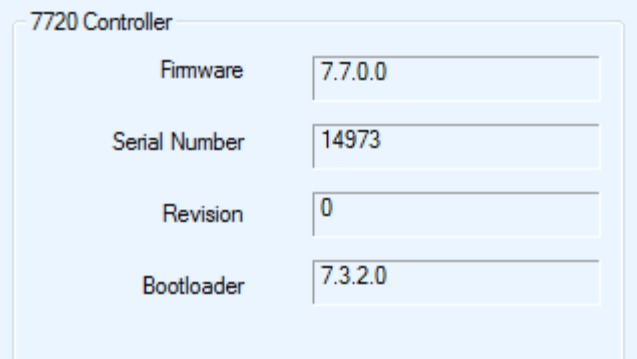


Satellite

- **Longitude**
  Orbital slot of Satellite that is currently configured and used by the Beam.

- **Polarity**
  Satellite polarity, polarization is based on receive (RX) polarity.

7720 Controller (Remote)



- **Firmware**
  iNetVu® 7720 Remote Controller's firmware version.
  For compatibility purposes, Controllers are pre-configured with the appropriate firmware for the accompanied software version. 7710 and 7720 must always update their respective firmware together and not update one without updating the other.

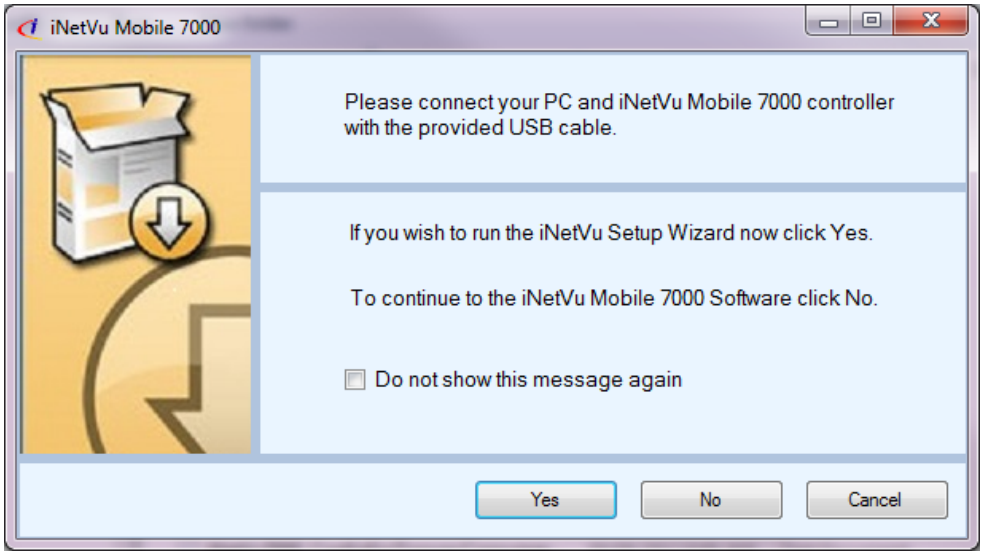
- **Serial No**
  iNetVu® Controller Serial Number.

- **Revision**
  Indicates the revision number of the current Controller Hardware version.

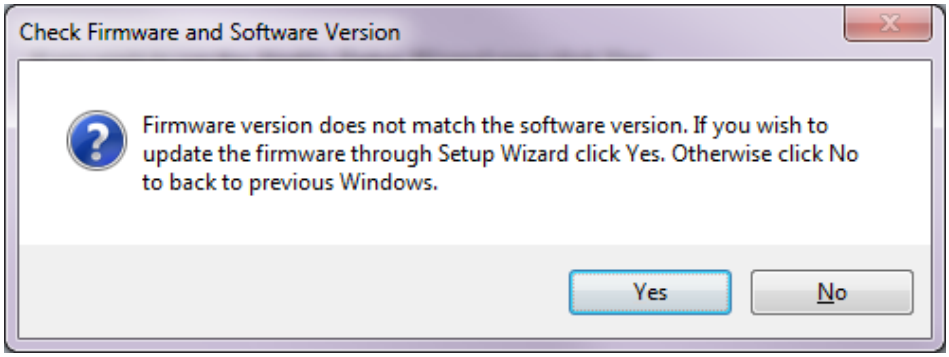
- **Boot Loader**
  Bootloader version loaded in the 7720 Controller.

8.4. 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.

8.5. Language

The multilingual feature allows the toggling between Five (5) languages and updates in real-time the selected language. Currently the available languages are English, Chinese (Simplified and Traditional), Spanish and Russian with others to come.

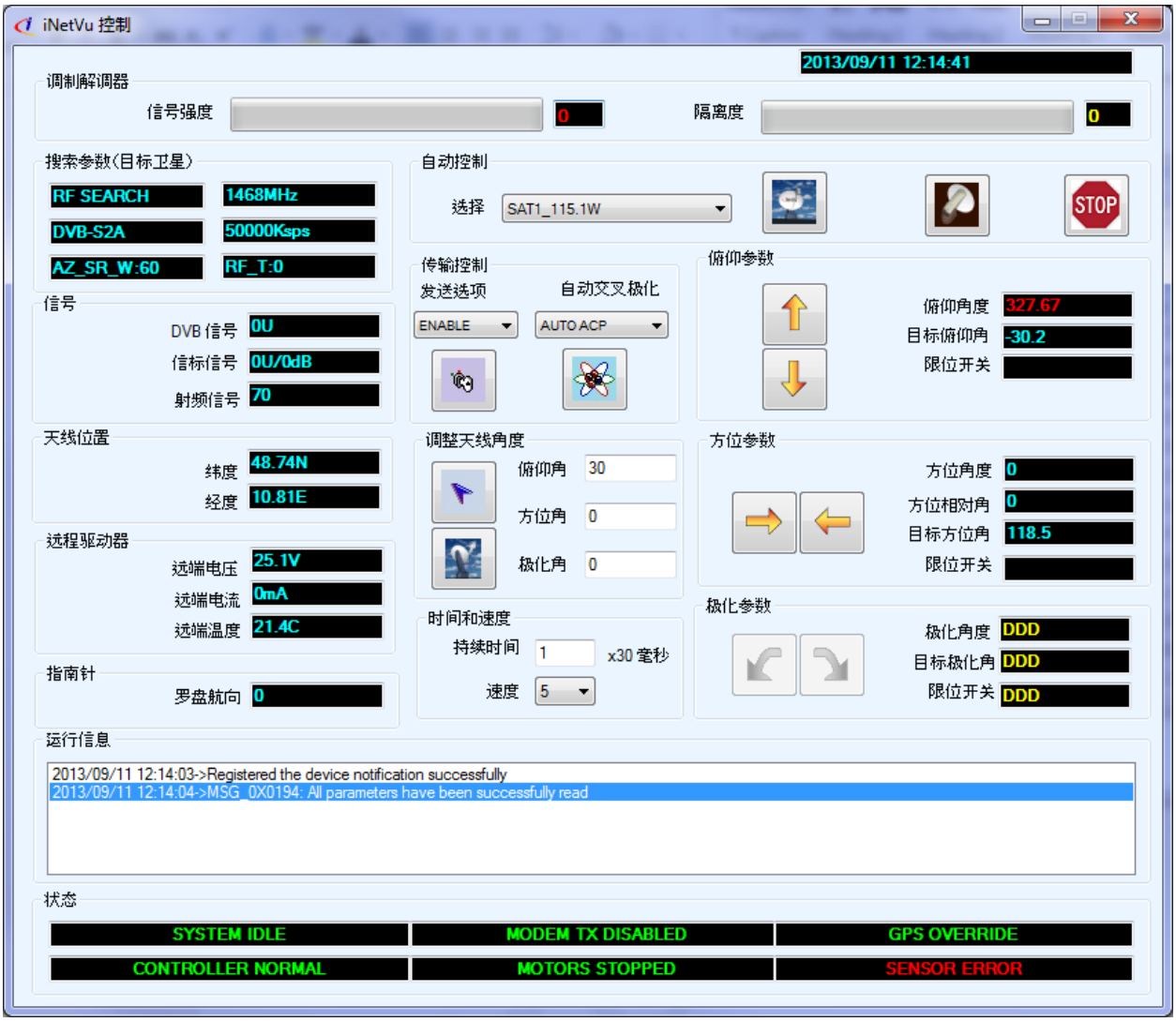


Fig. 80: *Controls Screen in Chinese*

8.6. Exit

Close the running IMS 7710 Application.

9. iNetVu® 7710 Series Controller Web Interface

Another method of communicating remotely with the 7710 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.

The **Web Interface** is similar to the 7710 Application Software, the difference being that it is accessed through a web browser by entering the controllers IP (i.e. 192.168.0.2 default) 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. Web Navigating Menus

To view the web interface, type in the IP address of the 7710 Controller in the web browser.

Note: all functions have not yet been fully tested at this stage in time and may not be functional until next release.

There are 9 options available:

- ADMIN – Login page and password reset
- CONTROLS – Provides same functionality as in the Application
- CONTROLLER – This is equivalent to the Configuration in the Application
- BEAM – Provides Beam and search parameters
- MODEM – Provides same functionality as in the Application
- PLATFORM – Provides Platform configuration and current settings
- MAINTENANCE – Currently only has Restore Compass (factory default) function
- TEST – Provides same functionality as in the Application
- ABOUT – Provides same functionality as in the Application

9.1.1. ADMIN

This is the login page (default password: “password”).

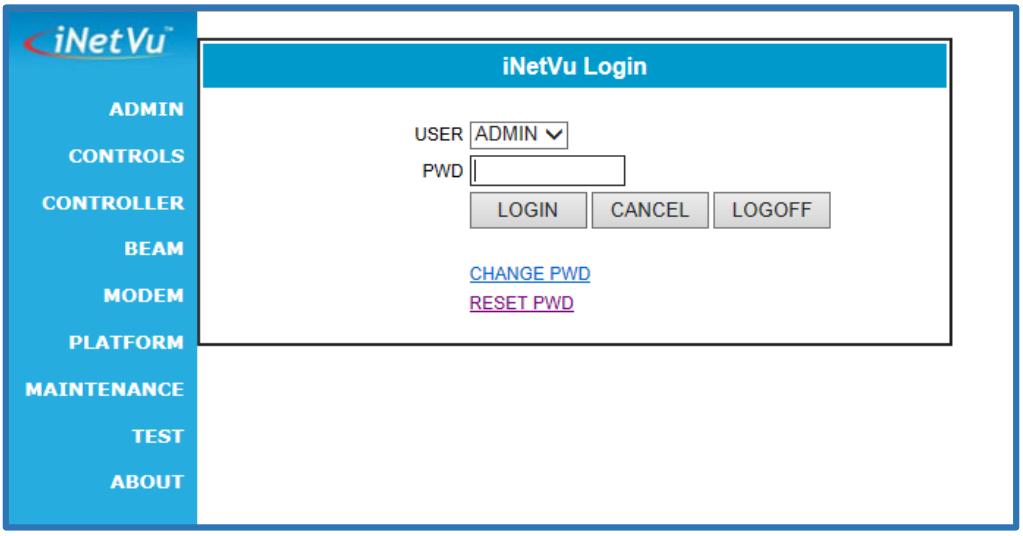


Fig. 81: *Web Interface – Login Page*

To reset the password, click on “**RESET PWD**”, and enter “123456789” for the reset ID.

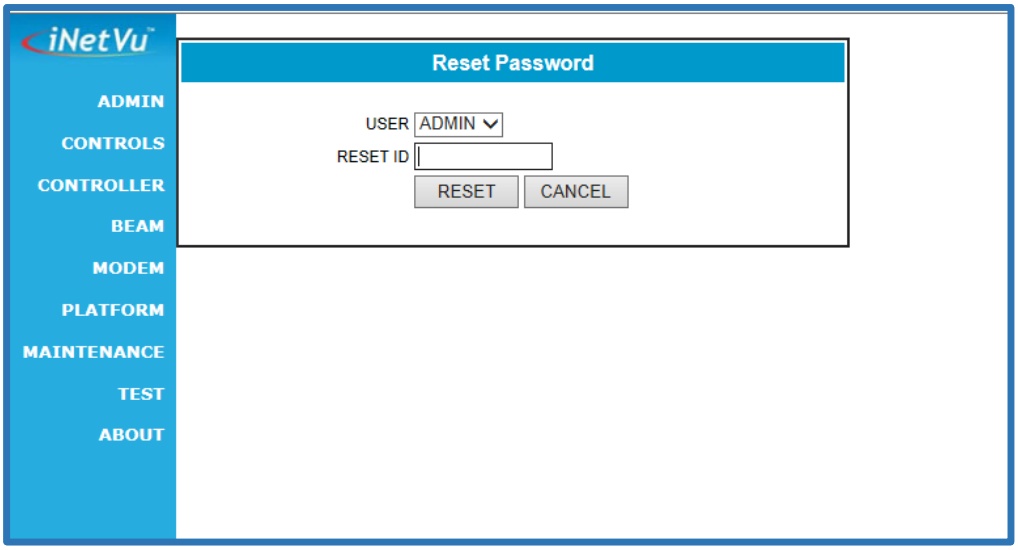


Fig. 82: *Web Interface – Login Password Reset Page*

These options are available once the controller is in upload mode (Firmware, Sat Table etc...).

- LOGIN
- CONTROLLER UPDATE
- RESET CONTROLLER

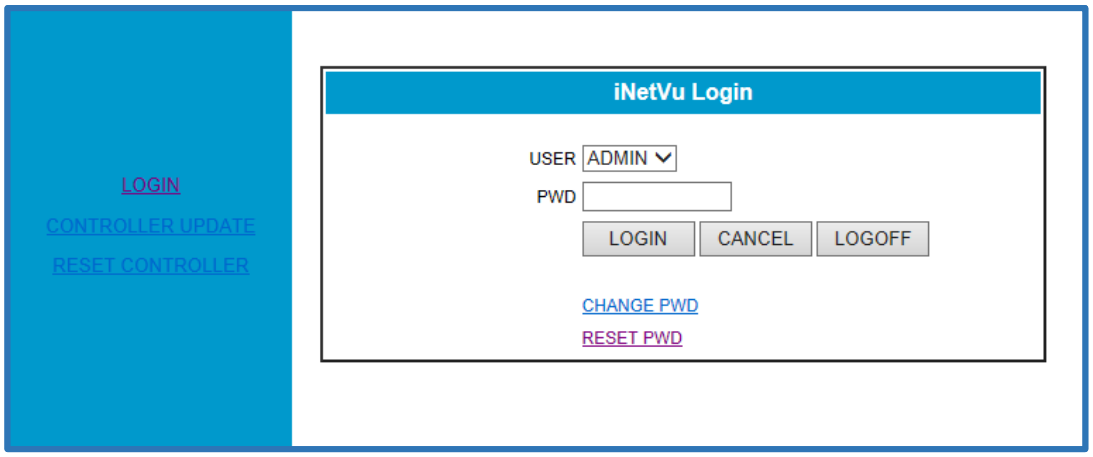


Fig. 83: *Web Interface – S File Uploading Login Screen*

Once the controller is in upload mode (reset controller and depress the up and down keys on 7710 front panel). User must login to controller first for the menu options on the left to be functional.

9.1.2. CONTROLS

Similar to the iNetVu® 7710 Software Controls Menu, the Web Interface Controls window allows the user to monitor system operations, and perform automatic as well as manual system functions.

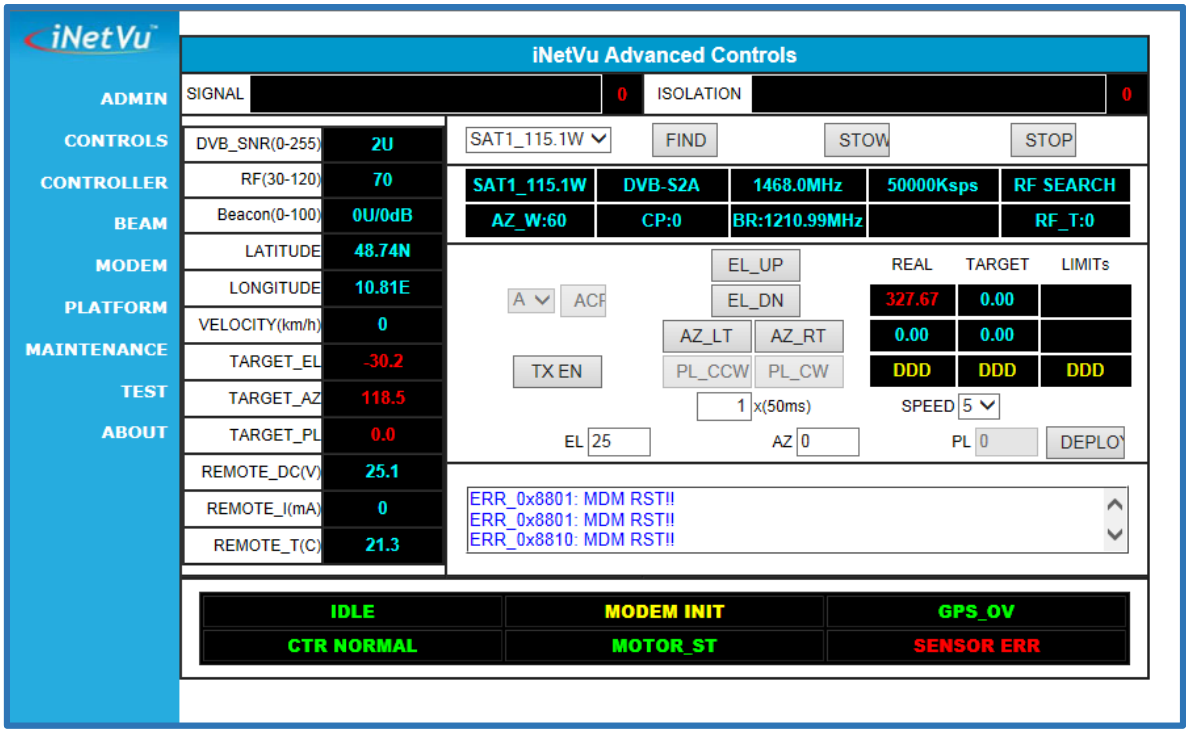


Fig. 84: *Web Interface - Controls Screen*

9.1.3. CONTROLLER

The Controller configuration allows users to configure the communication medium between the Controller and iNetVu® 7710 Web Interface, as well as various System parameters for optimal performance.

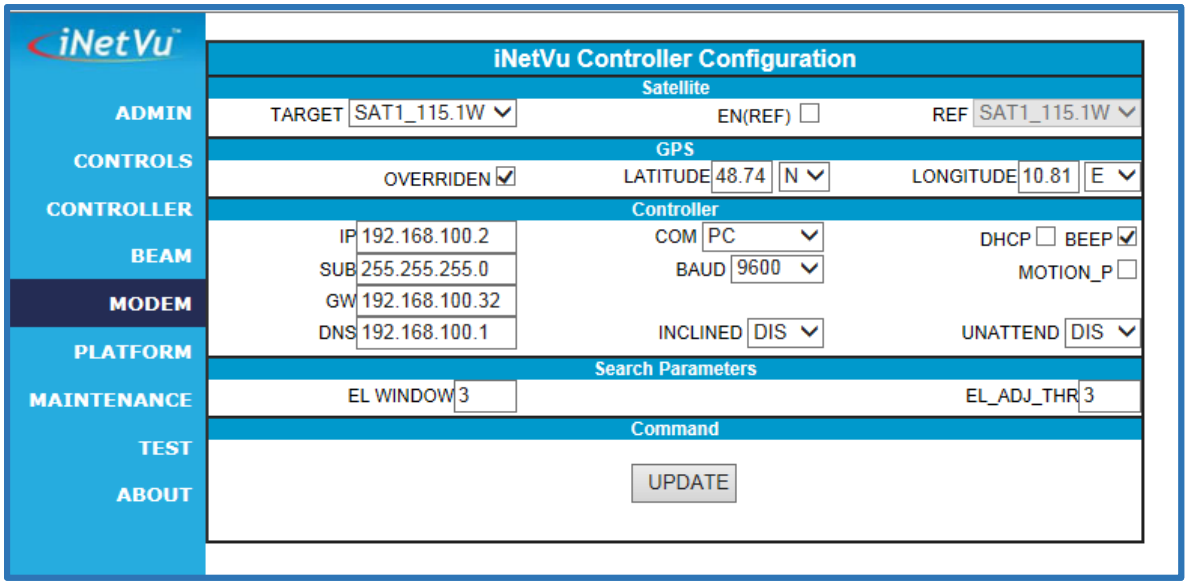


Fig. 85: *Web Interface – Controller Configuration Screen*

9.1.4. BEAM

The Configuration menu allows users to set the Beam ID, Satellite parameters, orbital slot, and override parameters.

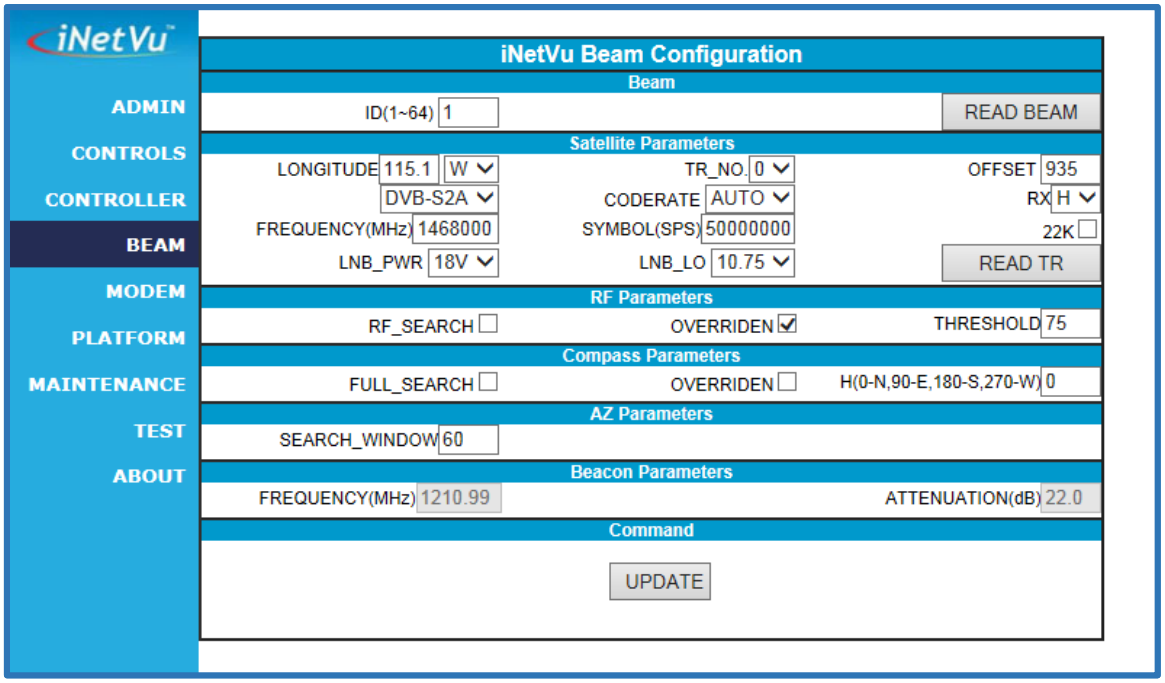


Fig. 86: *Web Interface – Beam Configuration Screen*

9.1.5. MODEM

Satellite Modem service type selection and disable/enable options for ACP, TX, BC and 22k.

9.1.6. PLATFORM

The platform type, version and serial number can be configured here. The three axis current limit settings and limit switches can be set under this menu option.

9.1.7. MAINTENANCE

Only one option exists here for now and it's RESTORE COMPASS. This option resets compass to calibrated factory default state.

9.1.8. TEST

This menu option is mainly used for Demos and testing certain components of the system, as well as for sending certain modem commands that have been integrated with the iNetVu® 7710 Controller.

The 7710 Controller Web Interface Test page is similar to the iNetVu® Software Test Window.

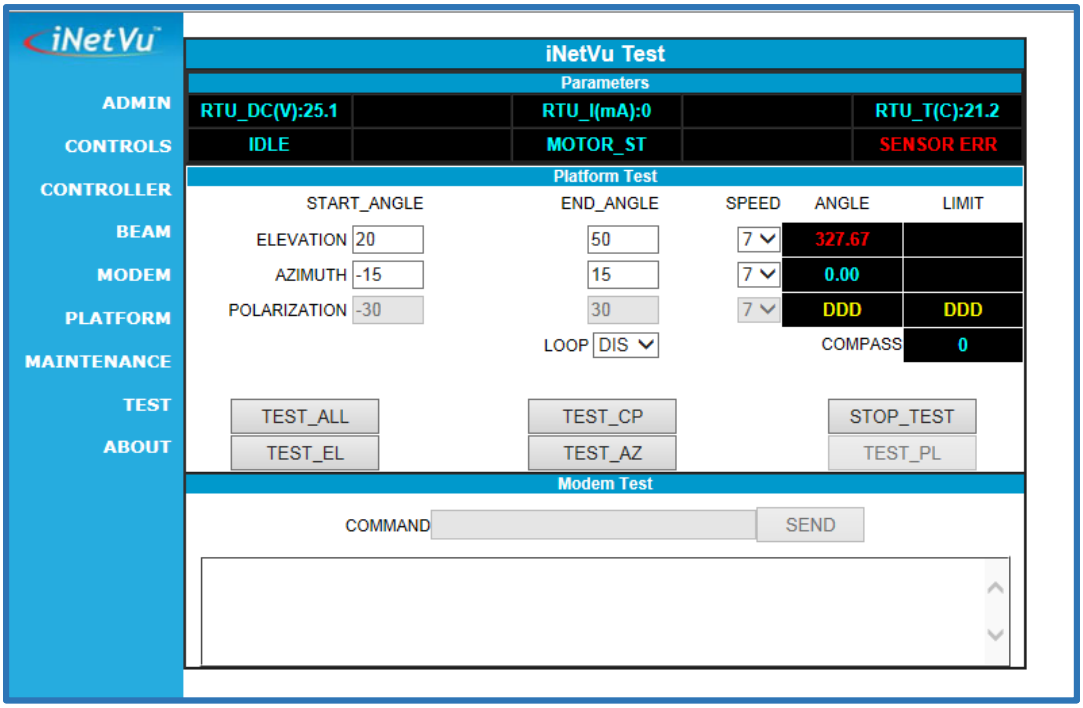


Fig. 87: *Web Interface - iNetVu Test Screen*

9.1.9. ABOUT

The “iNetVu About” web page, displays information to the user about various sub-system components for the 7710 and 7720 controllers, as well as contact information for support and feedback.

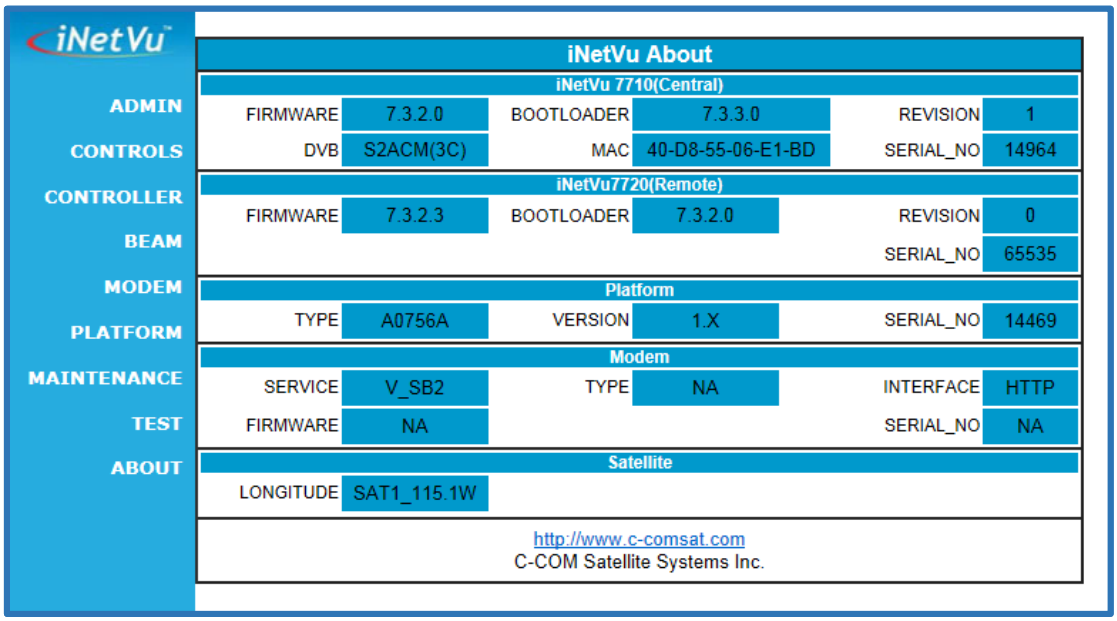


Fig. 88: *Web Interface - About Screen*

10. Appendix

10.1. Appendix 1: Default Limits and Configuration Data Tables

Compass Reading Elevation

	PLATFORM TYPES				
	Fly-75V (A0756A)	Fly-98G/H/V (A0986A/B)	Fly-981 (A0986C)	1201-J (A1201A)	Fly-1801 (A1801A)
COMPASS READING ELEVATION	32	30	30	32	NA

Table 1: Compass Reading Elevation Default Values

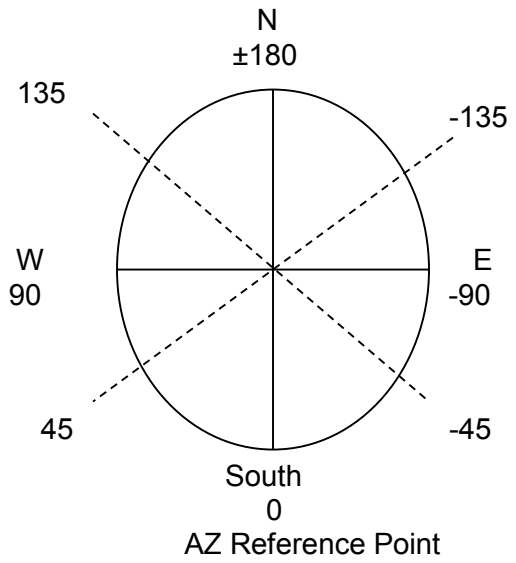
Elevation Offset

PLATFORM TYPES					
	Fly-75V (A0756A)	Fly-98G/H/V (A0986A/B)	Fly-981 (A0986C)	1201-J (A1201A)	Fly-1801 (A1801A)
EL OFFSET	4.5	5.5	5.5	23.5	29.2

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

10.2. 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



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

10.3. Appendix 3: Updating Firmware on 7710&7720 Controllers

This procedure describes the steps involved in updating firmware on 7710 and 7720 Controllers that have older versions of firmware running.

Required Materials:

- iNetVu™ 7710 Controller
- iNetVu™ 7720 Controller
- iNetVu7710_BOX_FW.S19 (file)
- iNetVu7720_RTCTL_FW.S (file)
- PC
- USB - A to B Cable

Procedure:

1. Power **ON** the PC and the 7710 Controller which will also provide power to 7720 (it is assumed that the Power&Data cable is connected to 7720 remote controller).

2. Open the iNetVu 7710 Controller Software

3. Connect the PC to the Controller through a USB interface.

4. Press the "Reset" Button on the 7710 Controller. While the controller is resetting, hold the '↑' and '↓' keypads simultaneously on the front panel. A message indicating "Updating Firmware" should appear and window will flip over to Maintenance.

5. Advance to the Maintenance button menu and click on the "Load FW For 7710" button.

Note** **DO NOT** turn the power off during Firmware upgrade as this may cause damage to the controller board(s).

6. Wait until the Loading firmware process is complete (monitor the LCD Screen to ensure flashing to memory has completed); controller will reset itself once firmware upgrade completes.

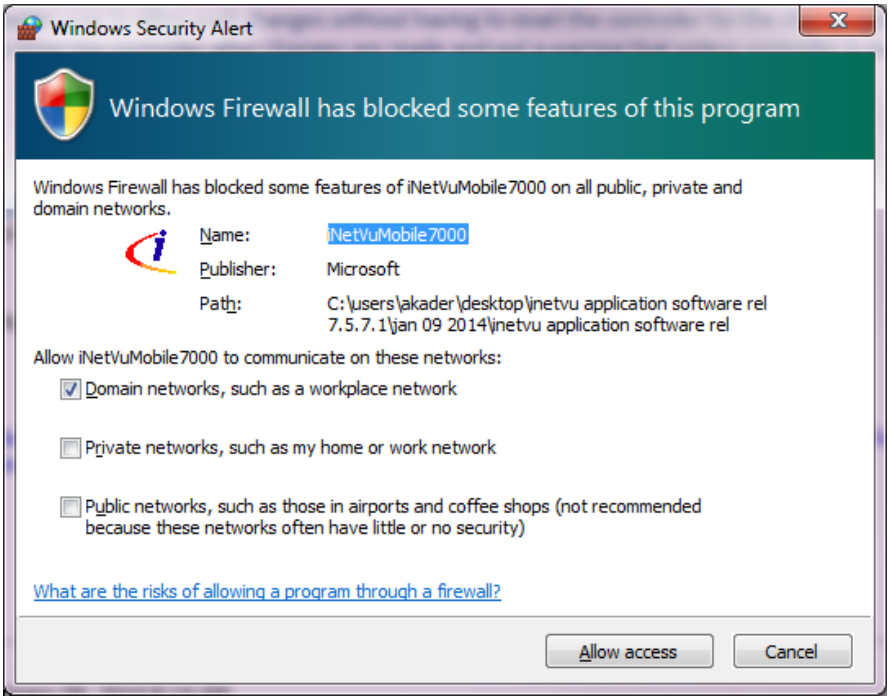
7. Repeat steps 4 to 6 to update 7720 firmware. Note step 5, click on the "Load FW For 7720" button.

8. Congratulations you have uploaded the new firmware onto your 7710 and 7720 Controllers.

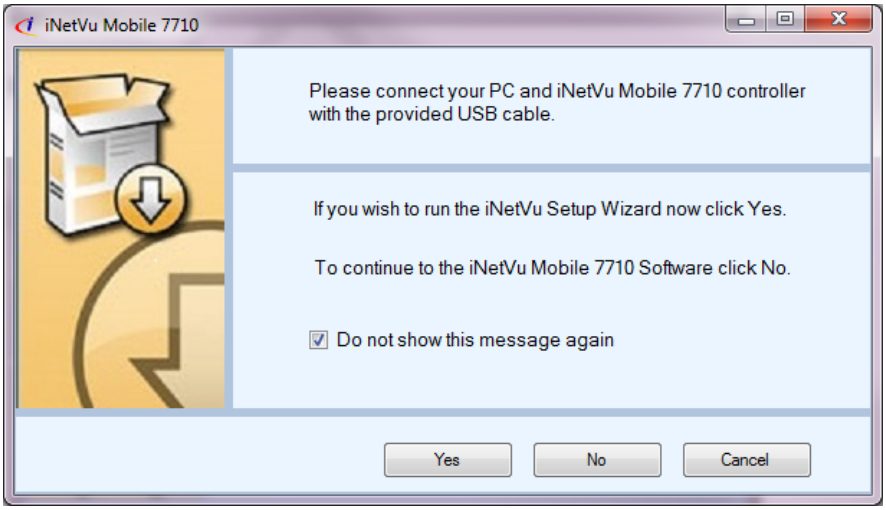
10.4. Appendix 4: System Configuration Using Setup Wizard

The Setup Wizard will launch every time the **iNetVuMobile7700** software is executed, select “Do not show this message again” to allow software to go straight to the Controls Window when the software application is launched.

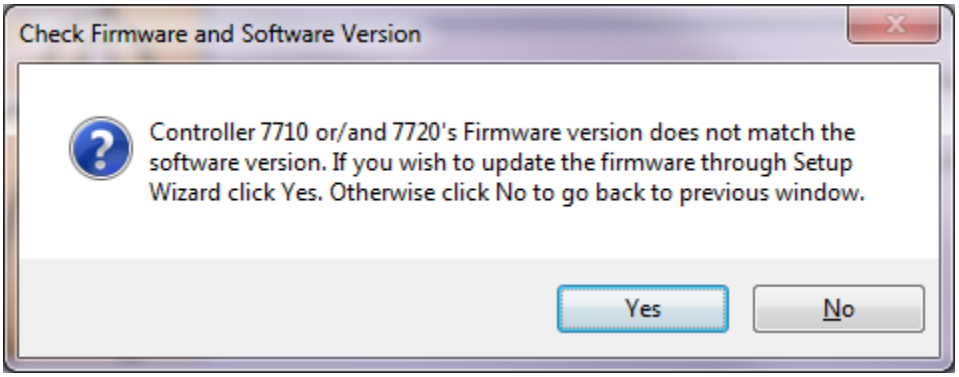
1. Click **iNetVuMobile7710** icon on desktop.
2. Click Allow access button on the Windows Firewall op-up window.



3. Put check mark in the box “Do not show this message again” and click Yes.

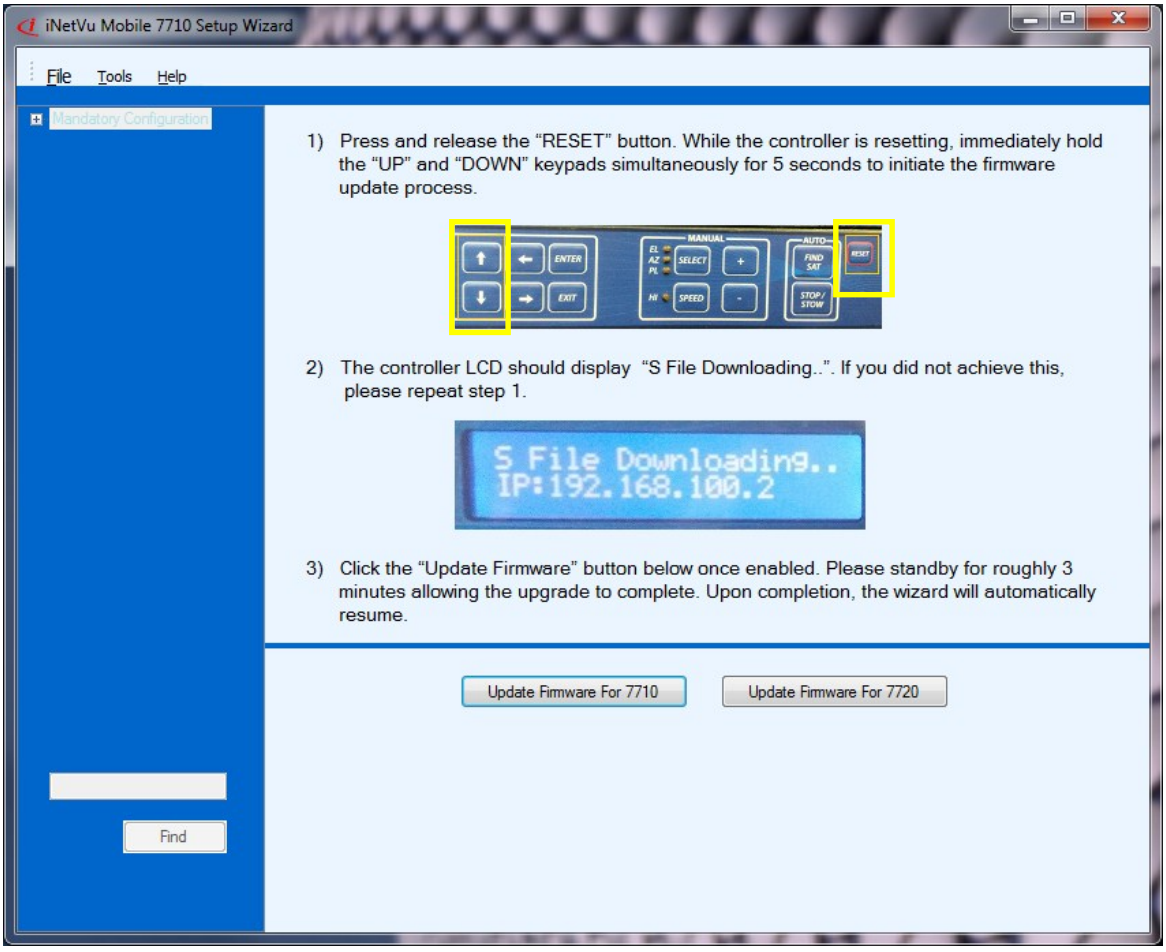


4. The Setup Wizard will check and ensure Firmware and Software versions are the same, if not the same version you will be prompted to update, select Yes.

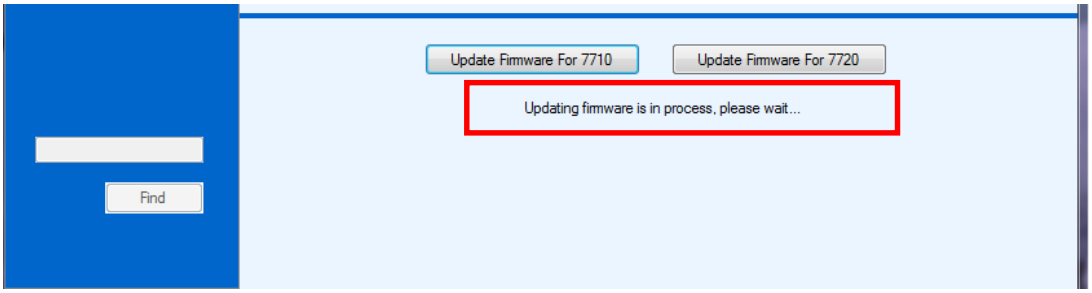


5. Put controller in firmware update mode by following instructions on the screen.

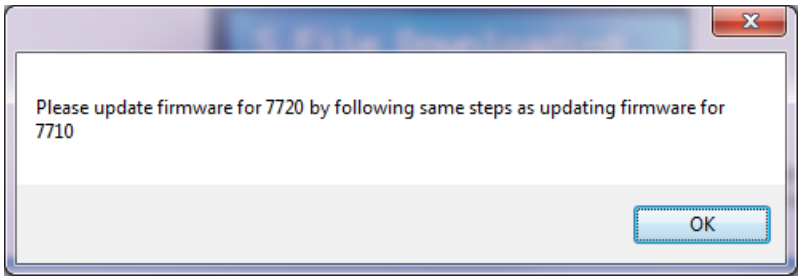
6. Click “Update Firmware for 7710” button, it may take 10 seconds for button to become clickable.

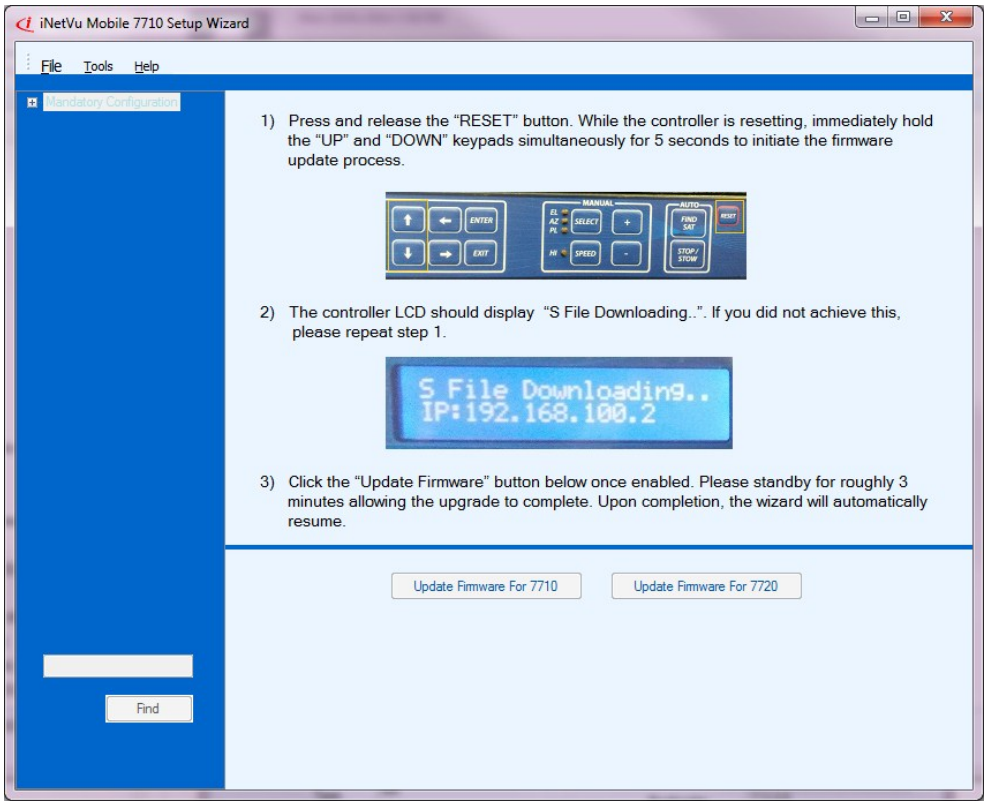


7. Firmware update status will be displayed on bottom of screen. The wizard will resume after 7710 Firmware update completes.

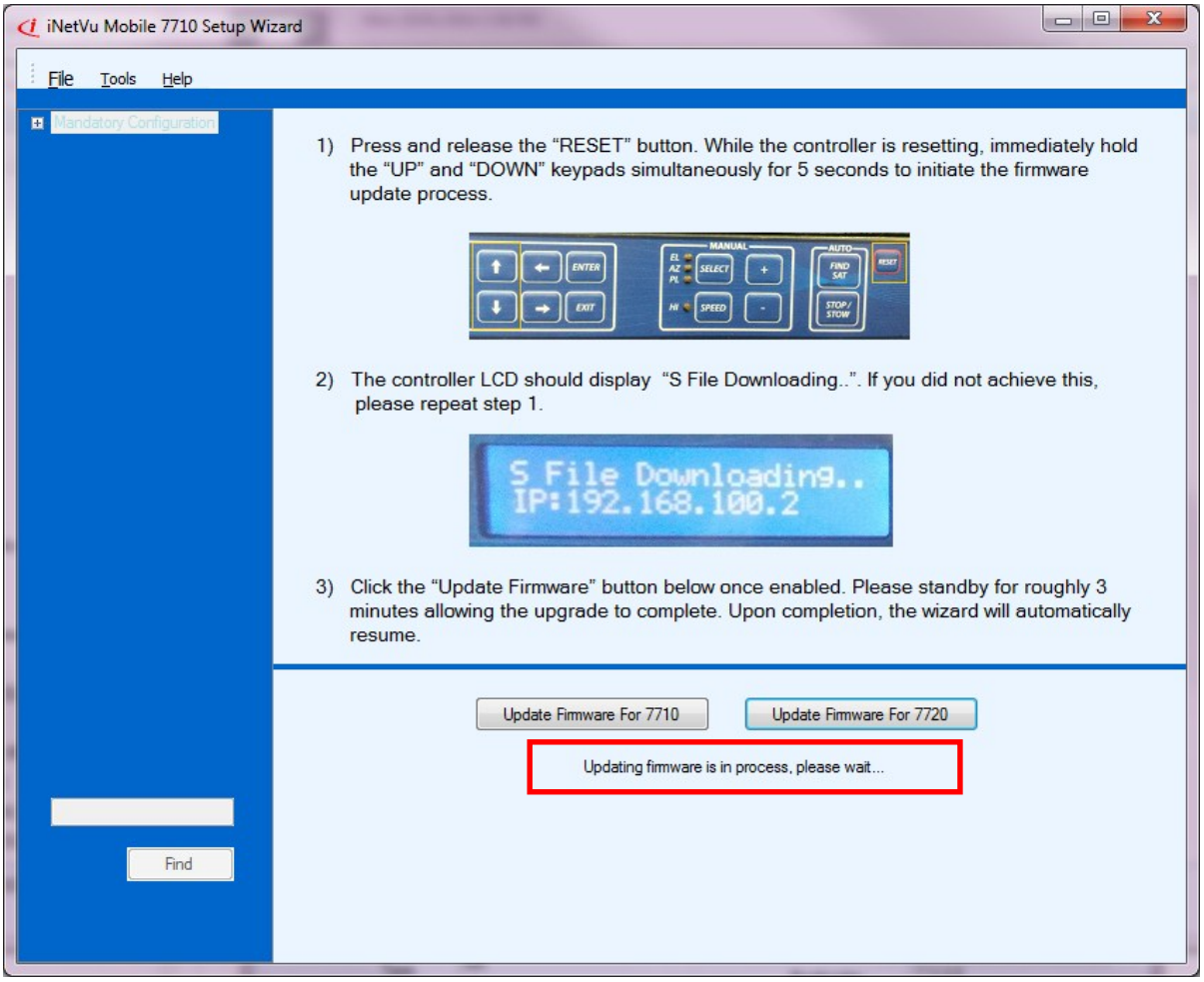


8. The wizard will prompt you to update the 7720 firmware after the 7710 firmware update finishes. Click OK and put the controller in firmware update mode.

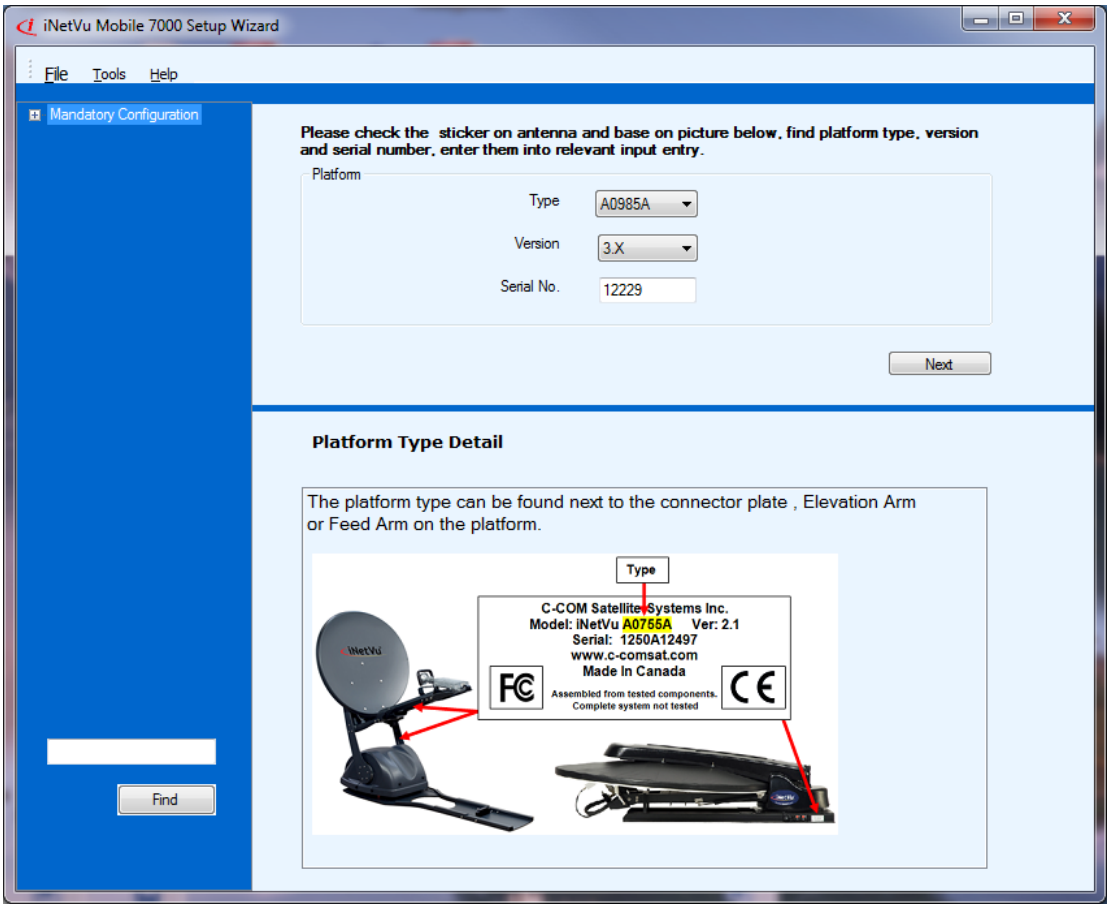




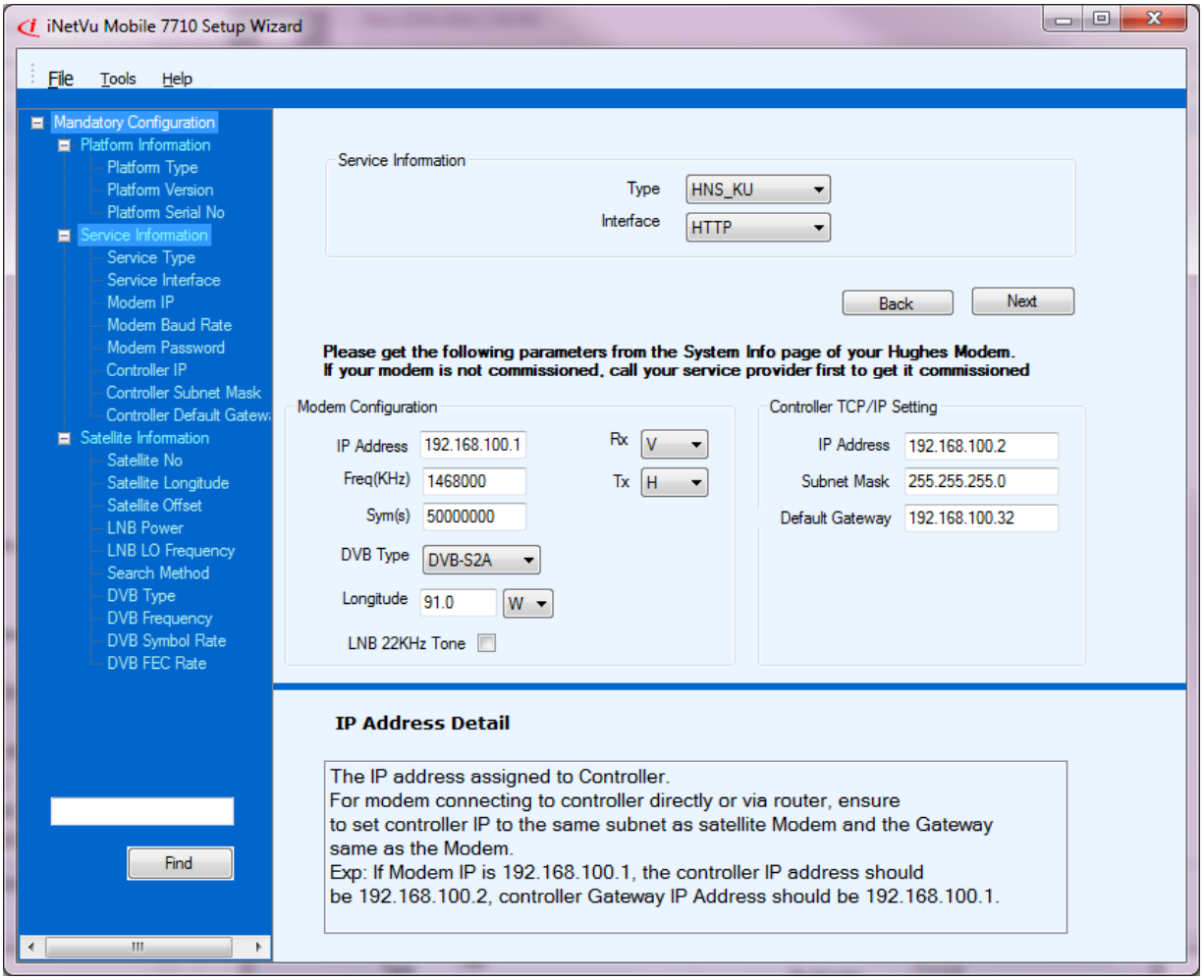
9. Click “Update Firmware for 7720” button. Controller will reset after firmware update completes and the wizard will automatically flip to the next screen.



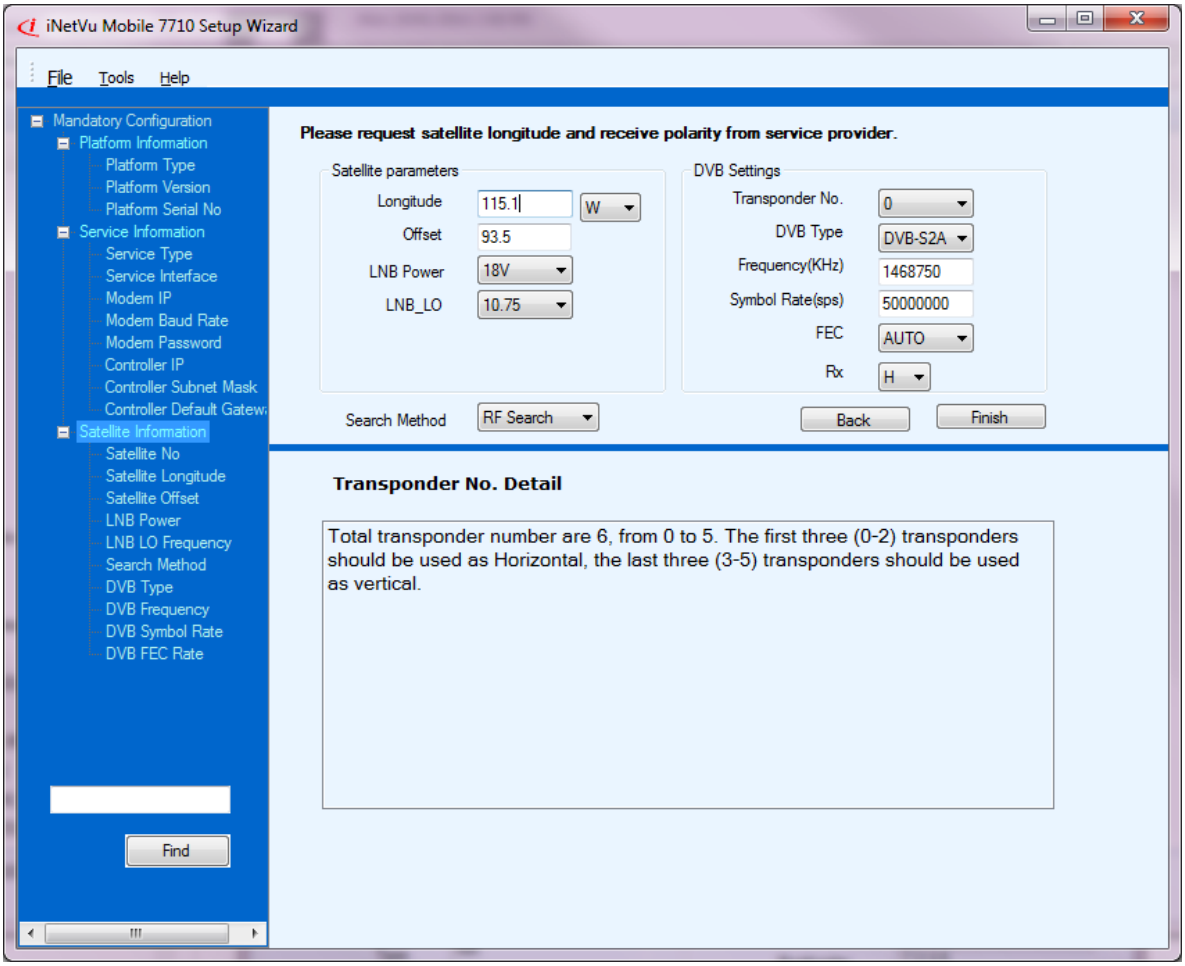
10. Select and or enter Platform type, version and Serial number and click Next.



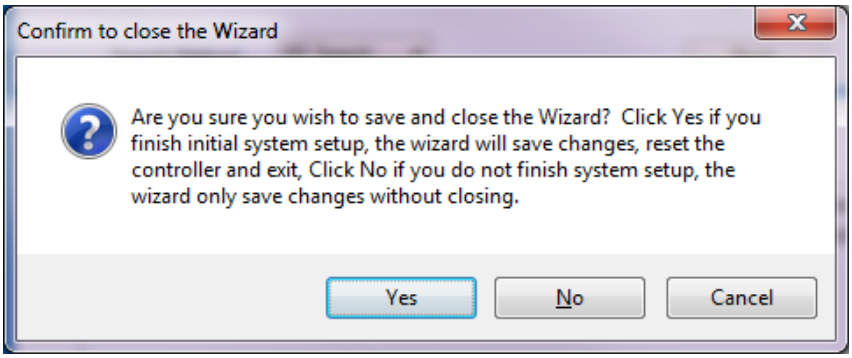
11. Select the service type (Modem service used), and interface, along with Controller and Modem information. Hover over each field to get tips, examples and clear explanation. Click Next.



12. Satellite information screen, allows user to configure Satellite, Search Method and DVB settings. Enter and select Parameters/Settings for the Satellite used with your platform. Click Finish.



13. Click Yes to save and exit.



14. Launch the Application by double clicking the **iNetVuMobile7710** icon.

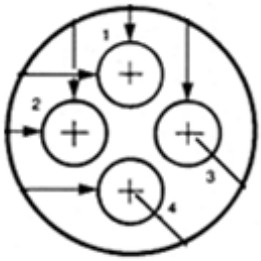
10.5. Appendix 5: DC Input Power Cable Connectivity

Controller Receptacle

J1 Panel Receptacle
4-Socket Contacts Mating View

External Cable Plug

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: The correct external power source must be used with the correct controller type. The DC cable if assembled/fabricated by end user must include INLINE FAST BLOW FUSE rated at 15A@24VDC.

Materials Required for External Cable:

Part #	Quantity	Discription
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

10.6. Appendix 6: Declaration of Conformity

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 22:2008/EN55022 2008, Class A**
CISPR 24:2010/EN55024 2010 (+A1+A2)
FCC 47 Part 15 2013 Class A
ICES 003 2012 Class A

IEC/EN 61000-3-2: 2005
IEC/EN 61000-3-3: 2008, A1 :2001+A2 :2005
IEC/EN 61000-4-2: 2008 ; IEC/EN 61000-4-3: 2010 ; IEC/EN 61000-4-4: 2012 ;
IEC/EN 61000-4-5: 2005 ; IEC/EN 61000-4-6: 2008 ; IEC/EN 61000-4-8: 2009 ;
IEC/EN 61000-4-11: 2004;
IEC/EN 60950-1: 2005, AM 1:2009 and Am 2:2013; plus European Group Differences EN60950-1/A12:2011
CAN/CSA C22.2 No. 60950-1/A1:2011
UL 60950-1/R:2011-12.;

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 7710 Controller, Model C7710A**

FCC/CE Marked 2014

Serial No. (optional) Year of Manufacture (Optional)

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**
Date **July 15, 2014**

Signature:
Full Name: **Dr.Leslie Klein, P.Eng.**
Position: **President & CEO**