iNetVu™

iNetVu™ 9000 Controller User Manual

1-877-iNetVu6
www.c-comsat.com
Revision 1.0.8
August 31, 2007

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 rope or other barrier warning all persons not to attempt to access the roof of the vehicle while the earth station is deployed or in operation.
6. 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.
7. The iNetVu™ Mobile system may only be operated when the vehicle is stationary.
8. 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.
9. 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.

10. 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.

11. 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.

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

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

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

Table of Contents

Revision Notes

The table below records the current version status of this document and any changes from the previous versions.

Rev.	Date	Edited By	Description
1.0.1	02-15-2006	J. Kwan	Document Creation
1.0.2	03-07-2006	J. Kwan	Updated Product Images
1.0.3	05-24-2006	J. Kwan	Appended Login Page Added A1800A and A980A Default Values
1.0.4	07-10-2006	J. Kwan	Updated to IMS 5.2.1 & FW 5.2
1.0.5	09-22-2006	J. Kwan	Added Image Recovery Notes
1.0.6	11-08-2006	J. Kwan	Added DVB Tuner Operation Section
1.0.7	11-24-2006	J. Kwan	Added Appendix 2
1.0.8	08-31-2007	A. Cheikhali	Added 1200C and 980 Limit Specifications Added software 6.2.1 version Released with Software 6.2.1

Introduction

Fig. 1:   iNetVu™ 9000 Controller

The iNetVu™ 9000 Controller is a one-box, one-touch solution for satellite auto-acquisition. Designed to interface with a growing number of Satellite Modems, VSATs, and DVB-RCS Receivers, the iNetVu™ 9000 Controller is an easily configurable and operated unit.

The iNetVu™ 9000 Controller does not require the user to install any software application to their own PC, and is fully functionally straight of the box.

It features Automatic Operations such as Find Satellite and Stow Antenna, as well as the ability to manually move the Antenna for cross-pol testing, demonstrations, or installations.

An onboard LCD displays real-time system status, and the Keypad Navigator makes using the iNetVu™ 9000 Controller extremely simple.

The iNetVu™ DVB-S Tuner Kit is an optional kit addition to the iNetVu™ 9000 Controller. Easily installed, the iNetVu™ DVB-S Tuner will speed up satellite acquisitions to less than 2 minutes. Once an integrated part of the iNetVu 9000 Controller, the iNetVu™ DVB-S Tuner works on all iNetVu antennas.

This high performance addition to the iNetVu™ 9000 Controller is programmable to any DVB-S Satellite and also features a list of pre-configured satellites for the user to select from.

The iNetVu™ DVB-S Tuner Kit can be used as a stand-alone receiver or as an integral component of existing service / modem integrations.

Specifications

Dimensions:	17.5" x 13.0" x 1.75" (44.5 cm x 33 cm x 4.5 cm)
Weight:	15 lbs (6.8kg)
Operating Temperature:	32°F to 122°F (0°C to 50°C)
Elevation Output:	12VDC, 12 A (Max.)
Azimuth Output:	12VDC, 8 A (Max.)
Polarization Output:	12VDC, 2 A (Max.)
Fuse Type:	Blade-type Automotive, Fast-acting (15 A, 10 A, 5 A)
Power Input:	100 – 240 VAC, 3 –6 A, 50 – 60 Hz
Motor Control Connector:	9 Position Circular AMP Connector
Signal Input:	Female DB26 Connector
GPS Connector:	SMA (Sub-Miniature Version A)
Rx Connector:	Type F RG6
PC Interface:	Web Interface (RJ45)
	Direct KVM Interface
Front Panel Interface:	Automatic and Manual Control Keypad
	LCD Screen and Keypad Navigator

Tuner Specifications

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

Item		Specification				Condition
		Min	**Typ**	**Max**	**Unit**	
Frequency		950		2150	MHz	
Return Loss		6	10		dB	950MHz to 2150MHz
Noise Figure			6	10	dB	Maximum Gain
Loop Through Gain		-2.0		4.0	dB	
Input Dynamic Range		-75		-25	dBm	
IMD3		40			dBc	Desired & undesired input Level are -25dBm
Local Leakage			-80	-70	dB	950MHz to 2150MHz
Phase Noise	10KHz		-84		dBc/Hz	
	100KHz		-105		dBc/Hz	

Physical

Manual Control Buttons

Automatic Control Buttons

LCD Screen

Power Button

Front Panel LEDs

Keypad Navigator

Reset Button

LAN

Network Interface

RX OUT

Additional Receive Signal output

RX IN

Receive Signal from iNetVu Mobile Platform

RX AUX

RF Detector Input

Power Input

110-240 VAC Power Input and Switch

KVM Output

Removable faceplate for Keyboard, Mouse, and Monitor connection.

USB

USB Interface

GPS

GPS Antenna Interface

MOTOR

9-Position Interface for Motor Control Cable

SENSORS

26-pin Interface for Sensor Cable

Fig. 2:   iNetVu™ 9000 Front and Rear Panel

Internal

40GB HD   LCD Display   PC Board

KVM Output   PC   DVB-S Tuner   Rear Panel   ITX PSU
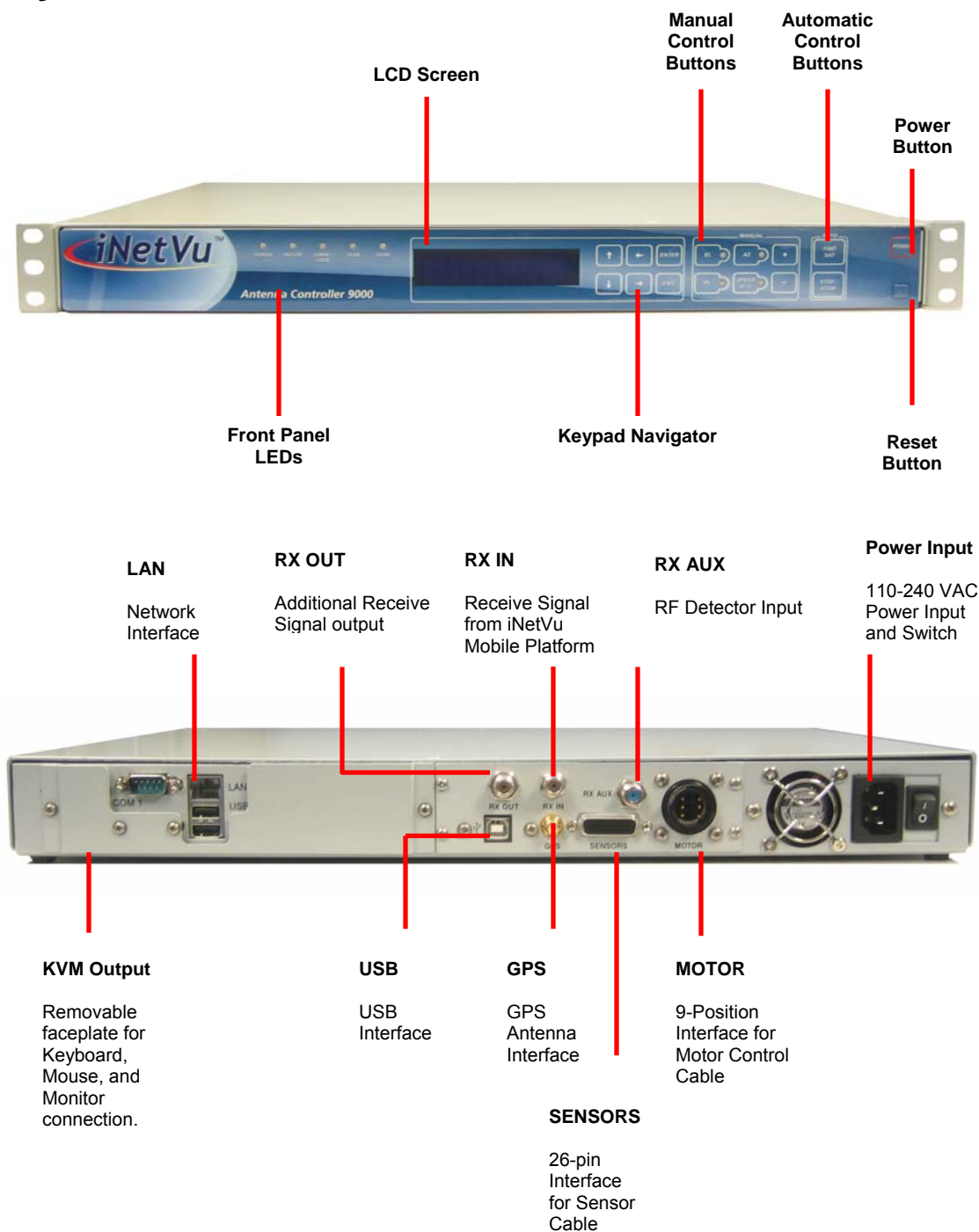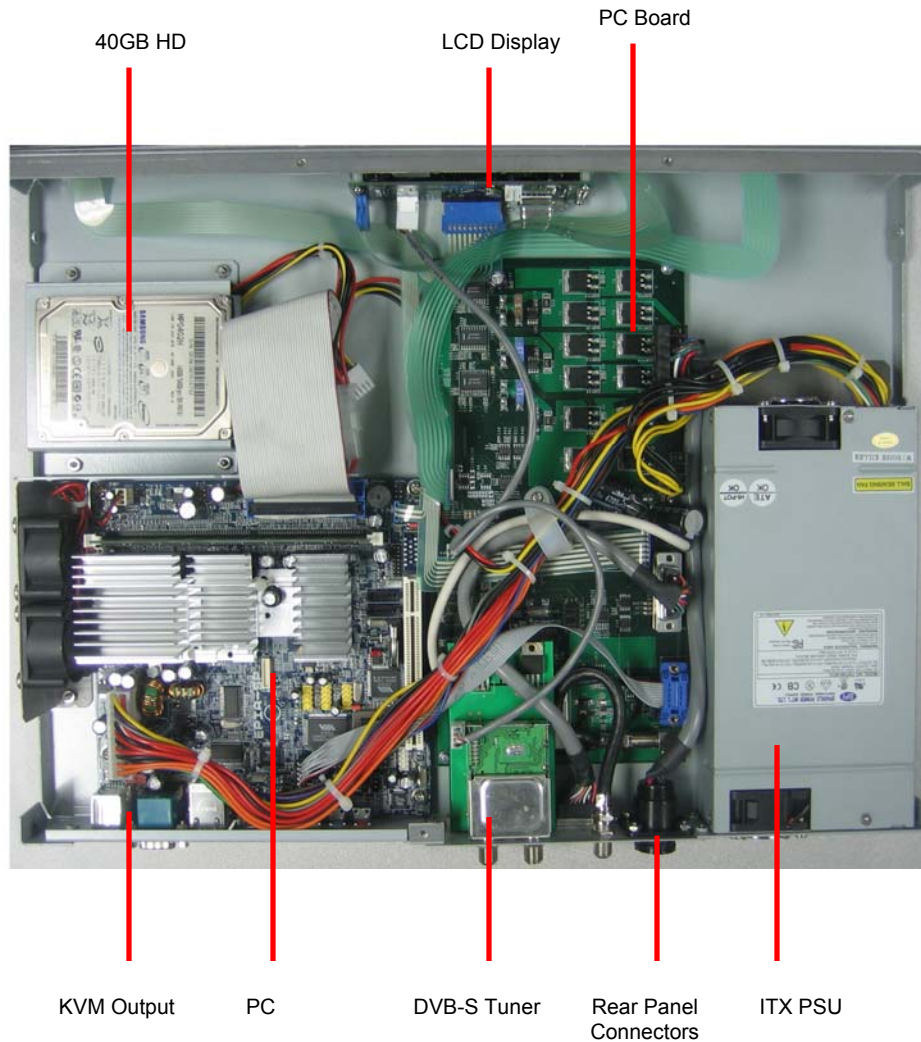   Connectors

Fig. 3:   iNetVu™ 9000 Controller (Internal)

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. Please consult the iNetVu™ System Manual for the service which you are using to determine how to set this up.

 WARNING   Be sure that you do not have any PCs or devices connected to the USB Port on the iNetVu™ 9000 Controller, as this will interrupt the normal boot-up sequence.
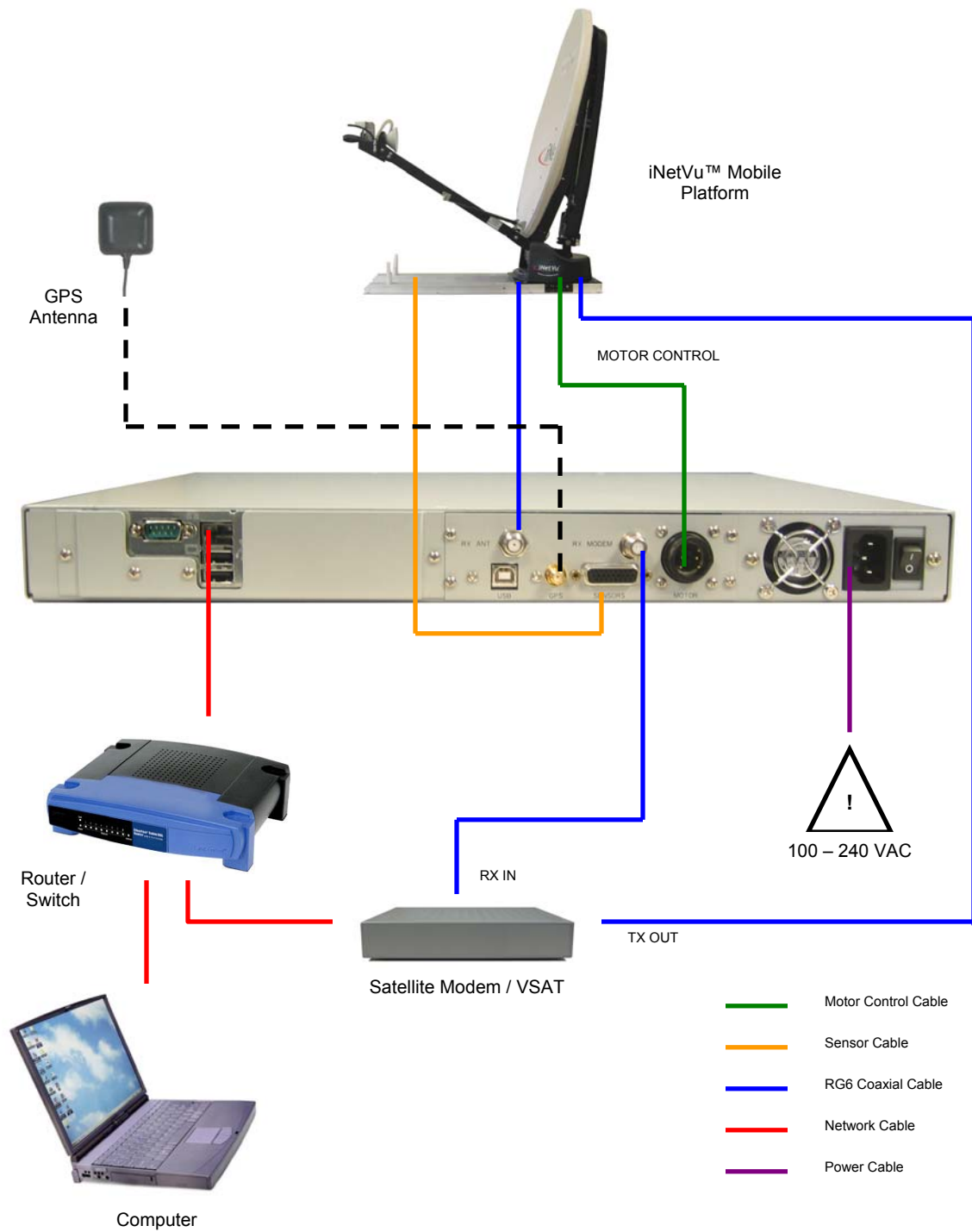
Without Tuner Installed

iNetVu™ Mobile Platform

GPS Antenna

MOTOR CONTROL

Router / Switch

RX IN

TX OUT

100 – 240 VAC

Satellite Modem / VSAT

Computer

Motor Control Cable

Sensor Cable

RG6 Coaxial Cable

Network Cable

Power Cable

Fig. 4:   iNetVu™ 9000 Controller Typical Connection Configuration (No DVB Tuner Installed)
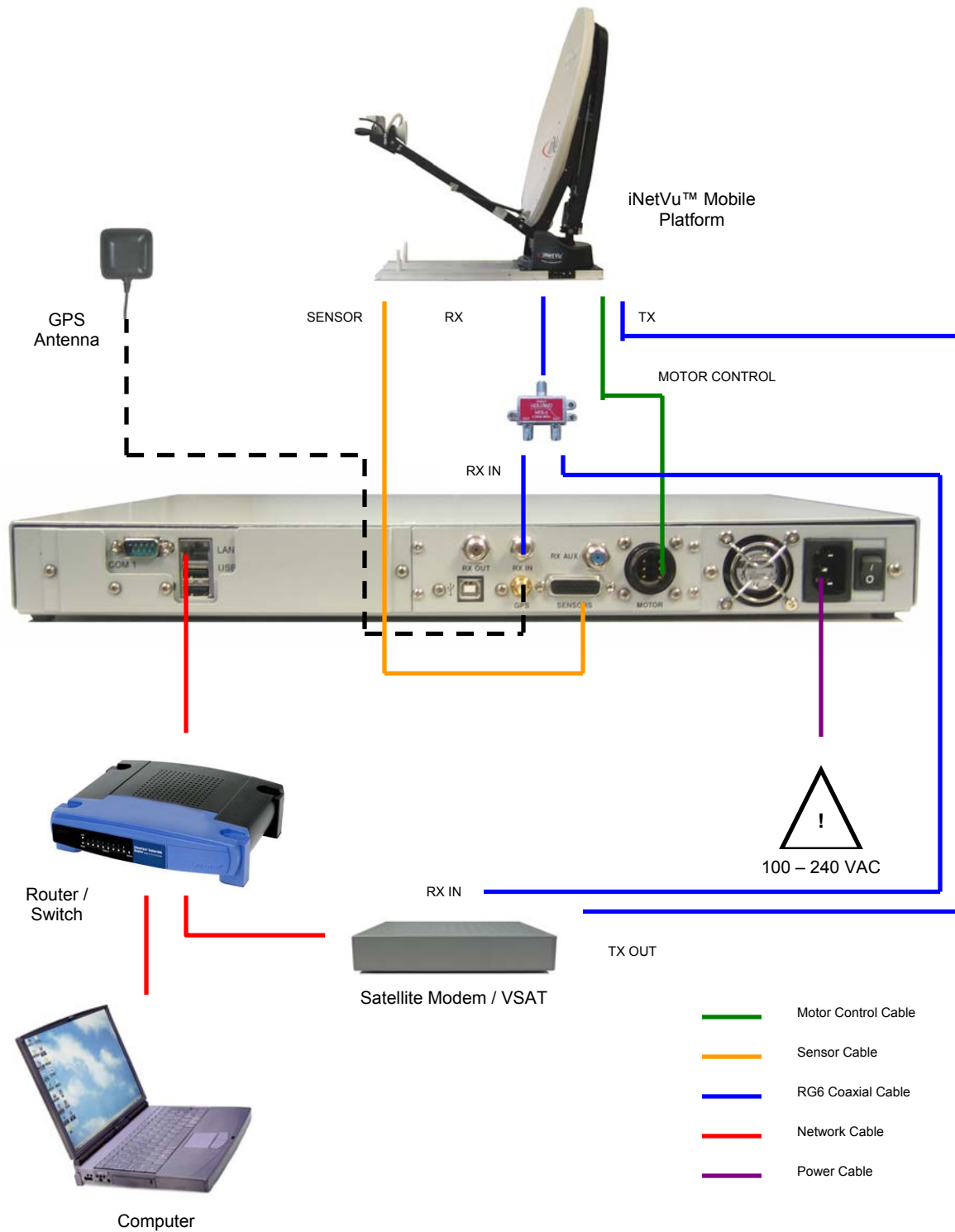
Tuner Installed

Fig. 5:   iNetVu™ 9000 Controller Typical Connection Configuration (DVB Tuner Installed)

Installation

The iNetVu™ 9000 Controller is shipped pre-configured for the iNetVu™ Mobile Platform and service which you plan to use, and only configuration of Satellite Modem / VSAT Communication parameters and the satellite you wish to find.

Rack Installation

The iNetVu™ 9000 Controller includes attachable "ears" which make the iNetVu™ 9000 Controller configurable for rack-mounted installation.

If you are installing the iNetVu™ 9000 Controller onto a rack, ensure that you use supporting rails or a shelf to support the weight of the iNetVu™ 9000 Controller, and use the provided "ears" to fasten the unit to the rack face.

Setup

1. Connect all of the cables and components as depicted by the previous section.

2. Power on the iNetVu™ 9000 Controller.

3. Set your external PC to the same subnet as the iNetVu™ 9000 Controller (Default IP Address of the 9000 is 192.168.0.2)

4. Access the iNetVu™ 9000 Controller's Web Interface via an external PC using the LAN Connection by entering the 9000's IP Address in your browser.

5. Logon using the "Installer" username. See "Login" Section of this document for the password.

6. After logging in, go to the Controls Screen and ensure that all the status panel indicators are green.

7. To configure the Satellite Modem / VSAT Communication Parameters, go to the Configuration Screen and configure as required for the type of service you are using, and click save. Refer to the iNetVu™ Mobile System User Manual Installation section to determine the proper parameters. This will be specific to the service which you are using.

8. To configure the Target Satellite, go to the Maintenance Screen, and enter the Satellite Name, Longitude, and Tx Polarity (Sat Pol Offset: 0 – Vertical, 90 – Horizontal), and click save.

9. If you need to reconfigure the 9000's Network Configuration (Dependant on the Satellite Modem / VSAT you are using. Refer to the iNetVu™ Mobile System User Manual Installation section to determine the proper parameters), go to the Network Screen and make the appropriate changes.

10. Go to Controls Section, and ensure that ALL System Status Panel Indicators are green.

11. That's it. You have successfully completed the installation and setup of the iNetVu™ 9000 Controller and are ready to find satellite.

Existing iNetVu™ Mobile Platform Installation

If you are replacing an existing iNetVu™ Series Controller with an iNetVu™ 9000 Controller, you will need to perform an Azimuth and Polarization Calibration and set the iNetVu™ Mobile Platform ID prior to searching for satellite.

1. Once you have completed the above procedure, access the iNetVu™ 9000's Web Interface.

2. Login using the "Installer" Login Name.

3. Navigate to the Maintenance Screen.

4. Click Calibrate AZ, and IMS will begin the Azimuth Calibration Function. Verify that there are no obstructions that would impede a full Azimuth sweep.

5. After this is complete, navigate back to the Maintenance Screen.

6. Click Calibrate PL, and IMS will begin the Polarization Calibration Function. Verify that there are no obstructions that would impede a full Polarization sweep.

7. After this is complete, navigate back to the Maintenance Screen.

8. Enter your iNetVu™ Mobile Platform Serial Number into the "Platform SN" field and click "Save". The iNetVu™ Mobile Platform Serial Number will be found on your iNetVu™ Mobile Platform and ONLY THE LAST 4 DIGITS should be entered.

9. IMS will now reboot itself and will require you to login again into the Web Interface.

10. Verify that your iNetVu™ Mobile Platform Serial Number has been saved by navigating to the About Screen.

11. That's it. You have successfully completed the installation and setup of the iNetVu™ 9000 Controller and are ready to find satellite.

LED Definition

Fig. 6:   iNetVu™ 9000 Controller Front Panel LED Panel

POWER

Solid light indicates power is ON.

MOTOR

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

COMM / LOCK

Indicates Communication between Controller's internal Board and internal PC.

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

Fast blinking (1/4 sec. intervals) indicates that command is being executed

Solid Light indicates lock on Satellite.

TX EN

Solid Light indicates transmitter has been enabled.

STOW

Solid Light indicates iNetVu™ Mobile Platform is in the stowed position.

Manual and Automatic Controls Button Operation

Fig. 7:   iNetVu™ 9000 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.

How to Stow the Antenna

Press "STOW" Button.
iNetVu™ Mobile Platform will automatically re-center itself and lower into the stow position.

How to Stop

Press "STOW" Button.
Stops all ongoing operations such as motor movements and automatic functions like Find Satellite and Stow.

How to Manually Move the Mobile Platform

Press "EL / AZ / PL" to select the axis of motion you wish to move
LED will turn on to indicate which motor you are set to move
Press "SPEED H/L" to select the speed (LED ON – HI, LED OFF - LOW)
Press and release "+" and "–" for short duration movement
Press and hold "+" and "–" for long duration movement

How to Turn ON/OFF the Controller

Press "POWER" Button
Message will display on LCD Screen indicating power up/down status

How to Reset the Controller

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

DVB Receiver Operation

The iNetVu™ DVB Receiver must be used in conjunction with IMS 6.1.1 and Firmware 6.1 at a minimum - any previous version of IMS or controller firmware ARE NOT compatible with the iNetVu™ DVB Receiver.

The iNetVu™ DVB Receiver can be used as for either:

- A stand-alone DVB Receiver

    o Used to locate and lock onto either a manually-configured or preset satellite

    o Manual Configuration requires:

        - Orbital Slot of Satellite
        - Receive Polarization
        - L-Band Rx Frequency (kHz)
        - Symbol Rate (kSps)
        - FEC Code Rate

- Integrated component of a modem / VSAT that the iNetVu™ Mobile System is compatible with.

    o Uses the DVB Receiver to locate and lock onto a preset satellite

    o Uses existing integration and communication with modem / VSAT to automatically enable/disable the transmitter, initiate ACP testing (if applicable), and all other modem / VSAT specific actions.

Note: Switching between services no longer requires the need for a Switch ID. A unique code previously used with older versions of IMS (5.2.1 and below).

A pre-indexed file (`satparam.txt`) contains a listing of transponders for many of the well-used and known satellites being operated with.

The target satellite entered by the user will always initially searched through this database, and should the satellite longitude match that of an entry in the database, IMS will use the preset transponders associated to the user-entered receive polarity.

If the satellite longitude entered does not appear in the database, ERR3091 will appear in the message panel notifying the user. At this time, the user is asked to manually enter the transponder parameters in the Advanced Maintenance section of IMS.

Stand-alone Receiver

IMS service must be set to 'iReceiver'.

Existing Modem Integration

IMS service must be set to that of the existing service/modem.

(For example, if you are using an iDirect modem, the IMS service must be set to 'iDirect')

Setting Target Satellite

Using the Maintenance screen (either in Windows Interface or Web Interface), the user can set the Satellite Name, Longitude and the Receive/Transmit Polarity.

Note: Sat Pol Offset; Vertical Rx = 90; Horizontal Rx = 0 (For CONFIG Mode and Web Interface only)

Fig. 8:   Satellite Parameters for USER and CONFIG Mode


Fig. 9:   Satellite Parameters for Web Interface

Disabling DVB Receiver

Should the user decide not to use the DVB Receiver for satellite acquisition, and prefers to use the standard integration method using the RF Detector, please follow the steps below.

1. Remove the rack tabs and top cover using a #1 and a #2 Phillips Screwdrivers.

2. Locate the DVB Receiver.

3. Remove the cable connected to the DVB Receiver (as shown in the figure below) and use a tie-wrap to secure it to the rest of the Internal Wiring Harness. Ensure that you leave the other two (2) ends connected to the PCB and LCD.
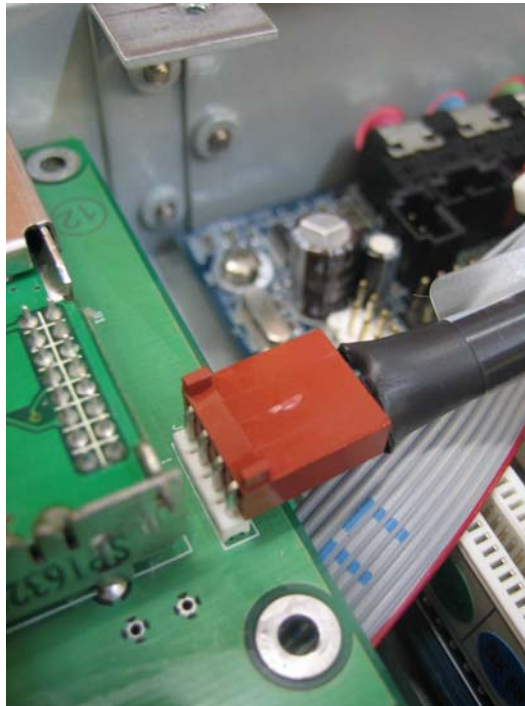
Fig. 10:   Remove Power Cable from DVB Receiver

4. Re-attach the top cover and rack tabs using a #1 and a #2 Phillips Screwdrivers.

5. Re-connect the 'Rx' RG6 Coaxial Cable from the 'Rx In' port to the 'Rx Aux' port.

6. That's it! IMS will now detect that the DVB Receiver has been disabled after you power-cycle the iNetVu™ 9000 Controller.
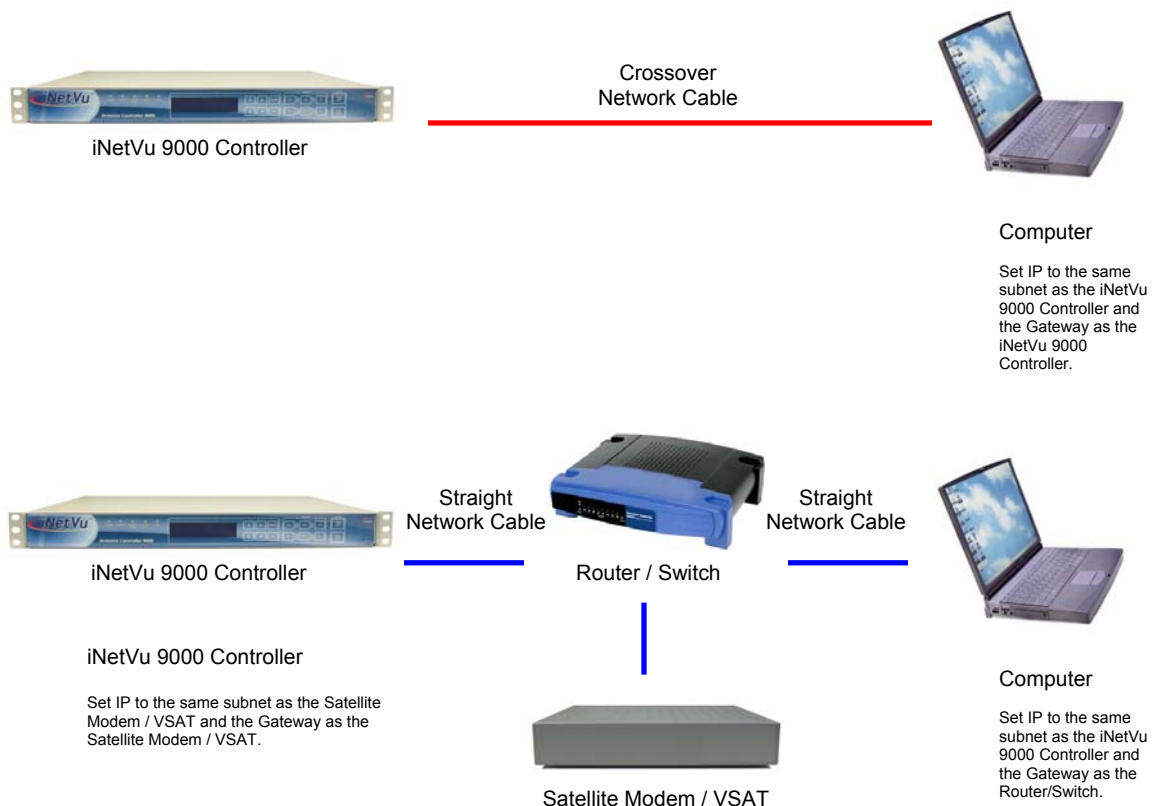
Web Interface

In order to interface directly with the iNetVu™ 9000 Controller, a simple to use Web Interface is available.

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

In order to access the Web Interface, simply enter the IP Address (Default 192.168.0.2) of the iNetVu™ 9000 Controller into your web browser.
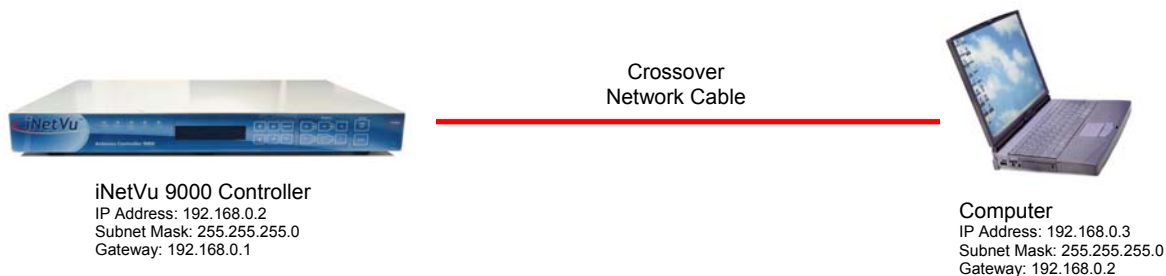
iNetVu™ 9000 Network Configurations:

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

iNetVu 9000 Controller

Crossover
Network Cable

Computer

Set IP to the same subnet as the iNetVu 9000 Controller and the Gateway as the iNetVu 9000 Controller.

iNetVu 9000 Controller

Straight
Network Cable

Router / Switch

Straight
Network Cable

Computer

iNetVu 9000 Controller

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

Set IP to the same subnet as the iNetVu 9000 Controller and the Gateway as the Router/Switch.

Satellite Modem / VSAT

Network Configuration Example

Direct Connection to PC:

iNetVu 9000 Controller
IP Address: 192.168.0.2
Subnet Mask: 255.255.255.0
Gateway: 192.168.0.1

Crossover
Network Cable

Computer
IP Address: 192.168.0.3
Subnet Mask: 255.255.255.0
Gateway: 192.168.0.2

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

iNetVu 9000 Controller

IP Address: 10.211.9.74
Subnet Mask: 255.255.255.0
Gateway: 10.211.9.73

Modem IP: 10.211.9.73

Straight / Crossover
Network Cable
(Manufacturer Dependent)

Satellite Modem / VSAT
IP Address: 10.211.9.73

Direct Connection to Satellite Modem/VSAT:
Satellite Modem / VSAT – Dynamic IP Address (DHCP)

iNetVu 9000 Controller

Set to Automatically configured Network
Connection.

Straight / Crossover
Network Cable
(Manufacturer Dependent)
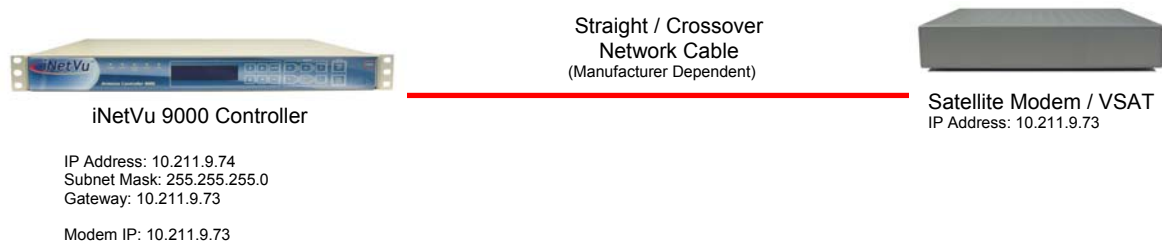
Satellite Modem / VSAT
DHCP Assigned IP Address
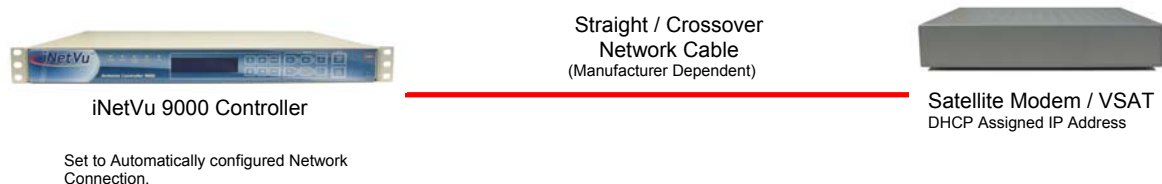
** Once the IP Address is assigned to the iNetVu™ 9000 Controller by the Satellite Modem / VSAT, you may check the LCD Menu to view the assigned IP Address.

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


Straight
Network Cable

Straight
Network Cable

Router / Switch

iNetVu 9000 Controller

IP Address: 10.211.9.74
Subnet Mask: 255.255.255.0
Gateway: 10.211.9.73

Modem IP: 10.211.9.73

Straight / Crossover
Network Cable
(Manufacturer Dependent)

Computer
IP Address: 10.211.9.75
Subnet Mask: 255.255.255.0
Gateway: 10.211.9.73

Satellite Modem / VSAT
IP Address: 10.211.9.73

Connection via Router/Switch:
Satellite Modem / VSAT – Dynamic IP Address (DHCP)

Straight
Network Cable

Straight
Network Cable

Router / Switch

iNetVu 9000 Controller

Set to Automatically configured Network
Connection.

Computer

Satellite Modem / VSAT
DHCP Assigned IP Address

* The Satellite Modem/VSAT should be the ONLY DHCP Server in the network. Ensure that all other DHCP Servers are disabled

** Once the IP Address is assigned to the iNetVu™ 9000 Controller by the Satellite Modem / VSAT, you may check the LCD Menu to view the assigned IP Address.

Fig. 11:   Example Network Connection Configuration

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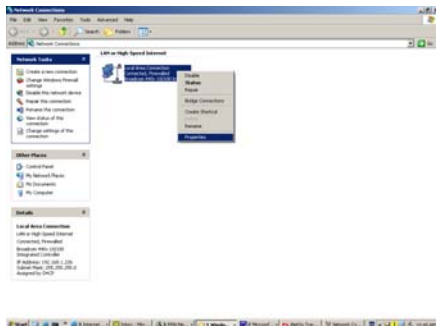
1. Open **Network Connections**, right-click your network card, and select **Properties**.
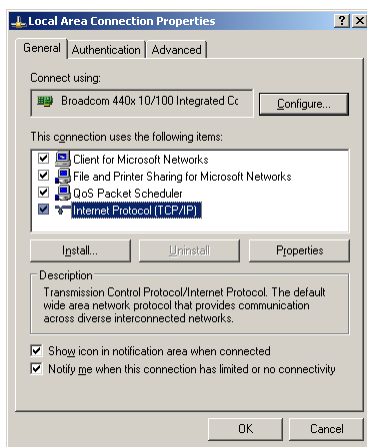
2. Select **Internet Protocol (TCP/IP)** and click **Properties**.
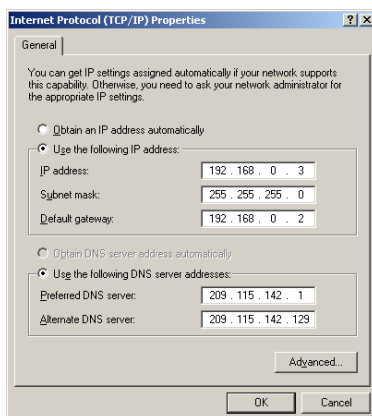
3. Direct Network Connection:

   Set your PC to the same subnet as the iNetVu™ 9000 Controller, and the Default Gateway to the iNetVu™ 9000 Controller.

   The screenshot depicts this configuration.

   Network Connection via Router/Switch:

   Dependent on Network Configuration (See previous section)

Navigation

Login — Links to system login screen.

Controls — Links to controls screen where you can automatically and manually operate the system.

Configuration — Links to 9000's configuration screen.

Maintenance — Links to 9000's maintenance screen

Network — Links to 9000's network screen where you can enable DHCP or manually set the 9000's Network parameters.

About — Links to system information screen.

Fig. 12:   Web Interface Navigation Bar

Login
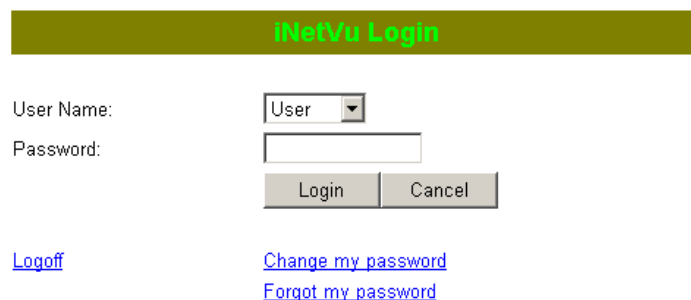
The Login Screen allows the user to login using three (3) user names.

- User
- Installer
- Admin

Each User Name provides the user with increasingly more access and abilities to modify system parameters.

Most users will never require using any other login other than "User".

Note: The "Admin" login is only used by C-Com Satellite Systems Technical Support and does not require to be accessed for standard maintenance or monitoring.

Fig. 13:   Web Interface Login Screen

User Name	Default Password	Privileges
User	iNetVu	Basic Functions and Abilities
Installer	C-COM	Basic Functions and Abilities Ability to calibrate Mobile Platform Ability to change Network Config.
Admin	---	---

*** Passwords are case-sensitive

Controls

The Controls screen allows the user to monitor system parameters, manually move the Mobile Platform, as well as conduct automatic processes like "Find Satellite", "Stow Antenna", and "Stop Operation".

From this screen, users can operate the iNetVu™ Mobile Platform while monitoring the real-time status and message updates from the system with the click of a mouse.

Fig. 14:   Web Interface Controls Screen

Note:

In order to make any changes to the input fields, the user must click "Stop Refresh" to stop the automatic refresh.

Once the change has been made and any button has been clicked, automatic refresh will resume.

Fig. 15:   Stop Refresh / Start Refresh Buttons

Improper use of 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 the STOP OPERATION button.

It is recommended that only trained installers or users under the direct consultation of C-COM Satellite Systems Technical Support staff use this menu.
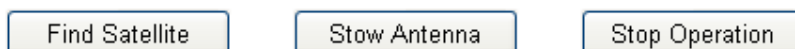
Automatic Operation

Fig. 16:   Automatic Operation Buttons

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.

Stow Antenna

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

Stop Operation

Halts all motor movements and disrupts all communication between iNetVu™ Mobile System components.
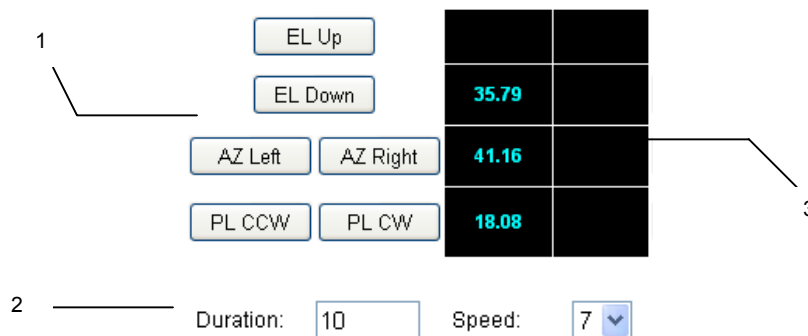
Fig. 17:   Manual Movement and Angle Display

1 – Manual Movement Buttons

        Elevation Up / Elevation Down
        Azimuth Left/ Azimuth Right
        Polarization Counter-Clockwise / Polarization Clockwise

2 – Duration and Speed

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

Face this direction for correct orientation
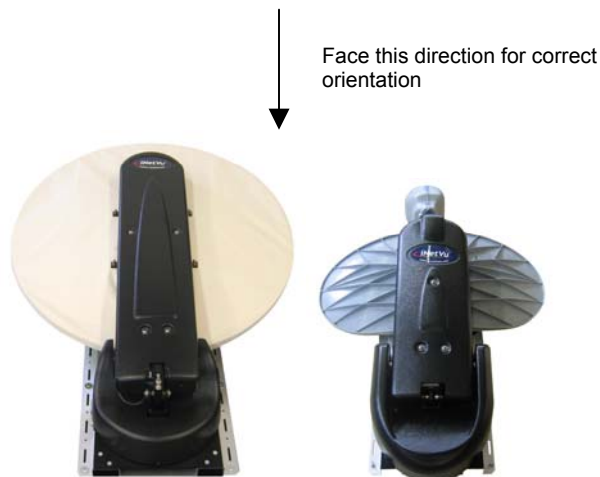
Fig. 18:   Movement Orientation

3 – Angle and Limit Switch Indicators

Displays real-time angles and Limit Switch status.

Below is a table that depicts the direction of movement and the relative angle change that is displayed.

Direction	Angle Change
Elevation Up	+
Elevation Down	-
Azimuth Left	+
Azimuth Right	-
Polarization Left	+
Polarization Right	-

Signal Strength	119
Isolation Value	100
DVB Signal (0-300)	119
DVB Power (dBm)	-32
Antenna Latitude (deg.)	45.41N
Antenna Longitude (deg.)	75.61W
Antenna Altitude (m)	47.20
Velocity (km/h)	0.00
GPS Heading (deg.)	0.00
Satellite Longitude (deg.)	91.0W
Target Elevation (deg.)	35.53
Target Azimuth (deg.)	201.14
Target Antenna AZ (deg.)	27.42
Target Polarization (deg.)	14.67
Real Azimuth (deg.)	236.04
Compass Heading (deg.)	353.72
EL Motor Current (A)	0.00
AZ Motor Current (A)	0.00
PL Motor Current (A)	0.00

Signal Strength
Stand-alone Receiver - Displays signal received from DVB Tuner.
Existing Modem Integration – Displays receive signal received from Modem/VSAT
Green – Locked, Red – Not locked, Yellow – On Wrong Network

Isolation Value
Displays isolation to the current Satellite Transponder
Displays 100 upon enabling Transmitter for non-DW Services

DVB Signal (800-3000)
Displays signal received from DVB Tuner

DVB Power (dBm)
Displays received power in dBm

Antenna Latitude (deg.)
Latitude of the Mobile Platform as read from the GPS Antenna Coordinates

Antenna Longitude (deg.)
Longitude of the Mobile Platform as read from the GPS Antenna Coordinates

Antenna Altitude (deg.)
Altitude of Mobile Platform above sea level based on the GPS Antenna.

Velocity (km/h)
The current velocity of the antenna is determined based on any changes in the GPS Coordinates.

Should the GPS Coordinates change, the iNetVu™ Mobile Software will calculate the velocity.

GPS Heading (deg.)
When in the Mobile Platform is moving laterally, the GPS Coordinates change in real-time. Based on the changing GPS Coordinates, the directional heading is calculated.

Satellite Longitude (deg.)
Longitude of the Satellite which the iNetVu™ Mobile Software has been configured to.

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

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

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

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

Real Azimuth (deg.)
Azimuth Angle in reference to True North.

Compass Heading (deg.)
Orientation of the Mobile Platform.

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

EL Motor Current (A)
Current drawn for Elevation Motor (in Amperes)

AZ Motor Current (A)
Current drawn for Azimuth Motor (in Amperes)

PL Motor Current (A)
Current drawn for Polarization Motor (in Amperes)

Fig. 19:   Controls Screen Buttons

1 – Target Calibrate

Updates the Elevation, Polarization, and Compass offsets in the registry and iNetVu™ Controller's EPROM.

This function is automatically performed after finding satellite, and if IMS detects that the Elevation, Polarization, and Compass offsets require updating to fir the current environment which the iNetVu™ Mobile Platform is situated.

Target Calibration is typically not required as this procedure is done prior to the system being shipped. Only under the instruction of a certified C-Com technician should calibration be performed again.

2 – Polarization Adjustment

Conducts a manual 3dB Polarization adjustment.

The Adjust button may be replaced with the following (depending on the service):

- ACP (Automatic Cross-pol)
- Enable (Enable / Disable Transmitter)

3 – Deploy Antenna

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

Elevation: 35.81   Azimuth: 41.08   Polarization: 18.05

4 – Record Data

Enables and disables an "always-on" data recording process.

With iNetVu™ Mobile Software versions 4.0 and higher, parameters are continuously recorded while the platform is searching for the satellite. It automatically stops once the satellite is locked and confirmed. Messages are always recorded in the Message Panel.

Data Log File Name: iNetVuData5000.txt
Data Log Backup Name: iNetVuData5000.bak

5 – Network Test

To confirm network connectivity, iNetVu™ Mobile Software will attempt to connect to the iNetVu™ Server via the Internet.

6 – Point Satellite

Automatically points antenna to the manually entered Satellite Longitude, but <u>does not</u> attempt to lock onto the signal, and/or enable the transmitter.

This function is recommended for Satellite TV subscribers for finding their desired Satellite.

Fig. 20:   Point Satellite Field

Message Panel

Displays real-time status updates, system messages, and error codes.
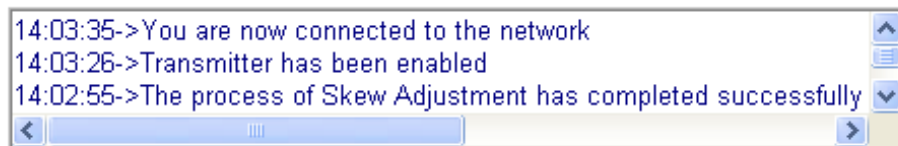
Fig. 21:   Message Panel

Test Mode
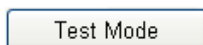
In order to perform a manual cross-pol test, the user must go into Test Mode (or Carrier Wave Mode). While in Test Mode, the user can manually move the Antenna in small increments with the transmitter still enabled.

After locking onto the correct satellite and with the transmitter enabled, click **Test Mode**.

The user will now be able to move the Antenna using the Manual Movement Buttons. The Duration and Speed parameters do not need to be adjusted because while in Test Mode, a pre-set duration and speed is used.

Status Panel

The Status Panel describes system operations that are either imminent, taking place, or the current status of that component.
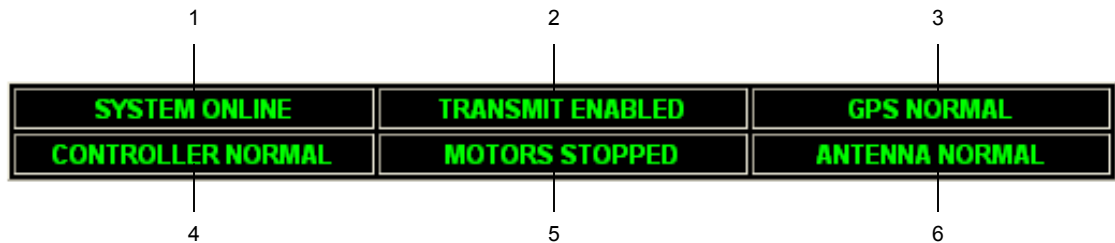
Fig. 22:   Status Panel

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

- Solid "GREEN" messages indicates a stable and normal condition for that component.
- Flashing or solid "LIGHT BLUE" messages indicates 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 "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 or Serial) are installed properly.

1 – System Status

Displays current system environment

- **System Running**
  Software is currently booting.
- **System Idle**
  No operations are currently being performed.
- **System Online**
  iNetVu™ system has found and locked onto the satellite, and is now ready for surfing the Internet.
- **ACP Testing**
  ACP Testing is being performed.
- **Skew Adjusting**
  Polarization adjustment for receiving the optimal Signal Strength. Polarization will rotate in both directions to locate the 3dB drop in Signal Strength, and then re-center itself using the best possible Polarization Angle.
- **Manual Operation**
  Manually controlled movement via Advanced Controls menu has been detected.
- **Mount Testing**
  System test or demo being performed via System Test and Demo menu.
- **Peaking on Satellite**
  System makes minor adjustments in positioning in order to receive optimal Signal Strength.
- **AZ Calibration**
  Azimuth Calibration is being performed.
- **PL Calibration**
  Polarization Calibration is being performed.
- **EL Calibration**
  Elevation Calibration is being performed.
- **CP Calibration**
  Compass Calibration is being performed.
- **Going to Position**
  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.
- **Antenna Stowed**
  Antenna is currently stowed.
- **Unknown Status**

2 – Satellite Modem / VSAT / Tuner Communication Status

Indicates the Transmitter status and displays any issues in communication with the Satellite Modem / VSAT.

- **Checking Modem**
  Verifying Satellite Modem's current status
- **Transmitter Enabled**
  Indicates that the transmitter has been enabled.
- **Transmitter Disabled**
  Indicates that the transmitter has not been enabled.
- **Transmitter Standby**
  Transmitter becomes idle during the ACP Test.
- **Modem Failed**
  A communication failure with the Satellite Modem has been detected.
- **Tuner Normal**
  Communication with the DVB Tuner has been detected and is active.
- **Tuner Failed**
  A communication failure with the DVB Tuner has been detected.

3 – 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 Searching**
  iNetVu™ Mobile Software attempts to detect a GPS signal from the GPS Antenna for 2 minutes.
- **GPS Override**
  GPS coordinates have been manually overridden from the Maintenance menu.

4 – 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.

5 – Motor Status

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

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

6 – Antenna Status / DVB Signal Status

Displays any relevant information regarding the Limit Switches and Potentiometers and/or Inclinometer.

- **Antenna Normal**
  Sensors are calibrated
- **Antenna Failed**
  Sensors are not calibrated
- **Antenna Unknown**
  Mobile Platform cannot be found. Ensure that the iNetVu™ Controller is functioning and that all cables are connected should this indicator appear.

If the DVB Tuner is installed, this field will display the DVB Signal Status.
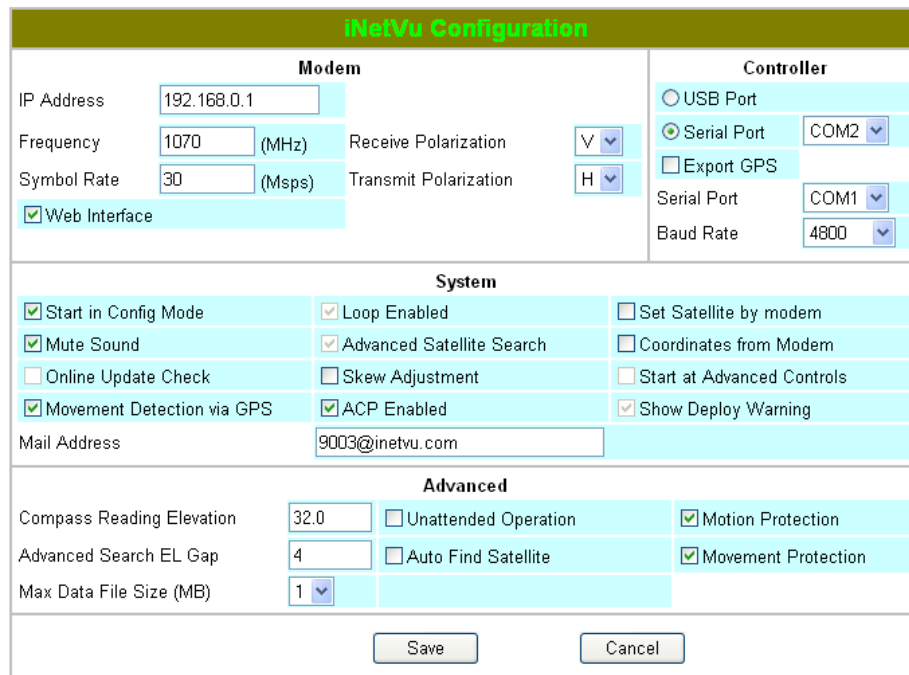
- **DVB-S LOCKED**
  Tuner has received a positive lock status on the target signal
- **DVB-S UNLOCKED**
  Tuner is not locked onto the target signal

Configuration

The Configuration Screen allows the user the ability to modify communication parameters between the iNetVu™ 9000 Controller with the Satellite Modem / VSAT, as well as enable and disable various system parameters and options.

This Section will break the Configuration Screen down into four (4) parts to describe in detail the parameters and options found in each part.

Fig. 23:   Web Interface Configuration Screen

*** Any changes made on the Configuration Screen require the user to click **Save**.

*** Saving will the cause the iNetVu™ 9000 Controller's software to temporarily re-boot, and will require the user to log in again to the Web Interface.

Modem

Communication settings between iNetVu™ Mobile Software and the Satellite Modem.

Dependant on the type of Satellite Modem / VSAT which you would like to integrate with, this section may be slightly varied. Consult your Installation Guide to determine how to properly configure the Modem Communication parameters.
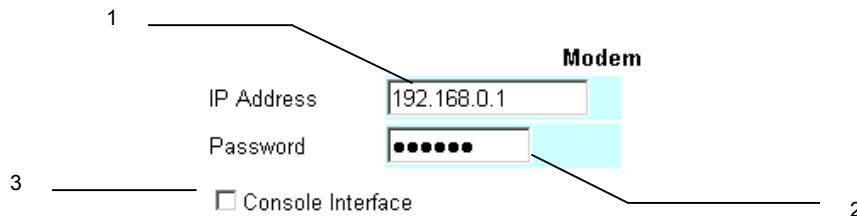
Fig. 24:   Configuration Screen - Modem

1 – IP Address

> IP Network Address of the Satellite Modem / VSAT.

2 – Password

> Password required to access the Satellite Modem

3 – Secondary Interface

> The iNetVu™ 9000 Controller may have a secondary interface with the Satellite Modem / VSAT and will be displayed here.
>
> Enabling the any of the following will attempt to use the COM Port located on the Rear Panel of the iNetVu™ 9000 Controller.
>
> o Console Interface
> o Serial Port Interface
>
> Once you have selected the secondary interface, you must save the changes. At this time, the system will reboot and require the user to login again. Re-enter the Configuration Screen and confirm the Serial Port (COM1 is the Serial Port on the Rear Panel labeled COM) and baud rate.
>
> Note 1: By default, HNS Users will have HTTP Interface enabled.

Controller

Fig. 25:   Configuration Screen - Controller

1 – Controller Communication Interface

By Default, Controller communication for the iNetVu™ 9000 Controller is set to Serial Port (COM 2).

This setting should <u>only</u> be changed if a 5000 Series Controller is to be used externally.

2 – Export GPS

Exports NEMA (Industry Standard) GPS Data stream to the external Serial Port (COM 1). Baud Rate must be set to 4800.

This function can be used for any external application that requires GPS information such as the iNetVu™ Navigator Application, or a Satellite Modem / VSAT that requires GPS input.

System

Fig. 26:   Configuration Screen - System

1 – Start in Config Mode

Enables the application to start in **CONFIG** Mode. Recommended for advanced users and installers for trouble-shooting purposes. When trouble-shooting issue is resolved, it is recommended that this option be disabled, and that the iNetVu™ Mobile Software be changed back the **USER** mode.

** Only applicable when using Windows Interface (KVM Required for iNetVu™ 9000 Controller)

2 – Mute Sound

Mutes all iNetVu™ Mobile Software sound effects.

3 – Online Update Check

Enables an automatic check to the iNetVu™ Server when system is online for any released updates for the iNetVu™ Mobile Software, iNetVu™ Controller Firmware, and iNetVu™ Navigator.

4 – Movement Detection via GPS

Enables antenna to automatically stow in the event that the Mobile Platform moves while the antenna is deployed and is not in the stowed position.

5 – Loop Enabled

Enables IMS to continue to Find Satellite if it is unsuccessful (Max. 30 minutes)

6 – Advanced Satellite Search

Enabled by default, this feature enables a smart "Find Satellite" algorithm should your Mobile Platform be in an uneven surface.

7 - Start at Advanced Controls

Enables the iNetVu™ Mobile Software to startup in the Advanced Controls menu.

** Only applicable when using Windows Interface (KVM Required for iNetVu™ 9000 Controller)

8 – Show Deploy Warning

Enables an automatic message prompt that notifies the user whenever the antenna is about to move.

9 – Email Address

Enables an automatic message prompt that notifies the user whenever the antenna is about to move.

Advanced

Fig. 27:   Configuration Screen - Advanced

1 – Compass Reading Elevation

>   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.

	PLATFORM TYPES						
	MF1200	ME1200	A1200B/A1200C	A0980B	MF950	ME950	A0950B
COMPASS READING ELEVATION	35	32	32	35	37	35	35

	PLATFORM TYPES				
	MF740	ME740	A0740B	A1800A	A0660A
COMPASS READING ELEVATION	40	40	40	32	24.5

2 – Advanced Search EL Gap

>   Parameter used to determine the small incremental adjustments required for a more accurate
>   satellite search. Decreasing this value will add accuracy to the Search Window, but will increase
>   the search time.

3 – Max Data File Size (MB)

>   Maximum size of the Data Log file

>   Data Log File Filename: iNetVuData5000.txt
>   Data Log File Backup Filename: iNetVuData5000.bak

4 – Unattended Operation

>   Automatically finds satellite should the Mobile Platform be forced to stow by external forces such
>   extreme movement due to weather.

5 – Auto Find Satellite

>   Enables an automatic **Find Satellite** command when iNetVu™ Mobile Software is started.

6 – Motion Protection

The iNetVu™ Mobile Platform will automatically stow the antenna should it experience extreme motion, such as severe shaking caused by poor weather conditions.

7 – Movement Protection

The iNetVu™ Mobile Platform will automatically stow the antenna should it detect that it is moving faster than 5km/h.

Maintenance

The Maintenance screen allows the user to change the Target Satellite, Search Window Size, override the GPS or compass, and it also displays all offsets, as well as the speeds and current limits for each motor.

Users also have the ability to calibrate the Azimuth, Polarization, and Compass, if necessary.

Fig. 28:   Web Interface Maintenance Screen

This Section will break the Maintenance Screen down into six (6) parts to describe in detail the parameters and options found in each part.

Satellite

Fig. 29:   Maintenance Screen - Satellite

1 – Sat Name

Name of the desired Satellite.

2 – Sat 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.

3 – AZ / EL Window

The Search Window is the area of the sky which the iNetVu™ Mobile System will search for the desired Satellite. It uses a rectangular window and searches for the Satellite using smaller concentric windows until the desired Satellite is found. The Search Window range may be manually changed from the default settings which iNetVu™ uses to find the satellite should the desired Satellite cannot be found.
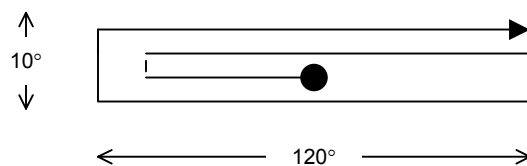
Fig. 30:   Satellite Search Window

The default Azimuth (Horizontal) range is 60° on each side of the Target Point and the default Elevation (Vertical) range is 5° on each side of the Target Point.

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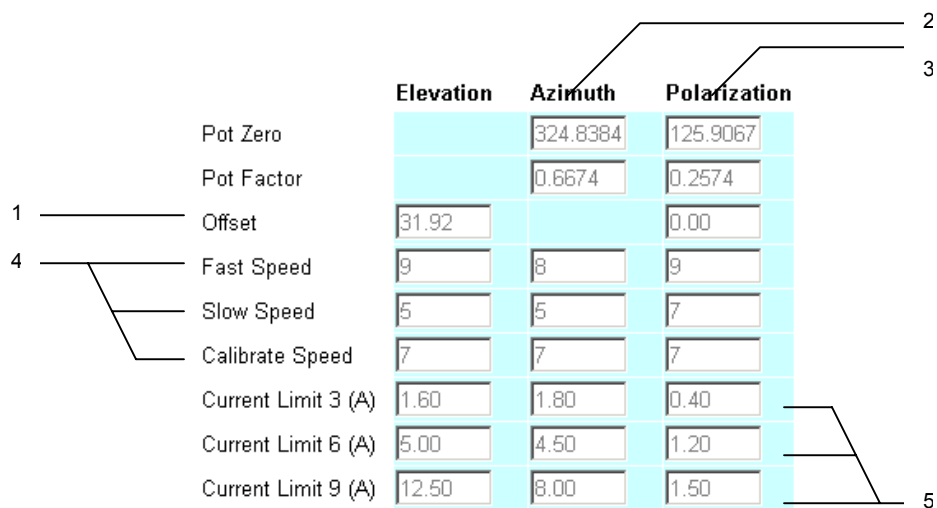
4 – Pol Offset

Transmit Polarization Offset. Default values below.

0   Vertical Transmit
90   Horizontal Transmit

** Can only be modified from **CONFIG** Work Mode

Fig. 31:   Maintenance Screen – Elevation, Azimuth, Polarization Parameters

1 – 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.

The Inclinometer is installed with an offset in order to produce an accurate Elevation Angle reading. Each type of Mobile Platform has its own default offset value.

This value is normally changed when performing the Target Calibration process to compensate for un-level surroundings, and should be left at this updated value.

	PLATFORM TYPES						
	MF1200	ME1200	A1200B/ A1200C	A0980B	MF950	ME950	A0950B
EL OFFSET	42.00	42.00	42.00	31.00	25.00	31.00	31.00

	PLATFORM TYPES				
	MF740	ME740	A0740B	A1800A	A0660A
EL OFFSET	25.40	31.00	31.00	46.5	55.00

2 – Azimuth Parameters

The Azimuth Angle is based on 2 values:

- AZ Pot Factor
- AZ Pot Zero

AZ Pot Factor is an A/D value from the potentiometer which allows the iNetVu™ Mobile Software to convert the A/D value of the Potentiometer into an equivalent angle. The AZ Pot Factor should vary approximately +15% from the Default values below.

AZ Pot Zero is an A/D value from the potentiometer which physically determines where the iNetVu™ Mobile Software places Azimuth Angle 0°. The AZ Pot Zero may vary approximately ±15% from the Default values below.

The AZ Pot Factor and AZ Pot Zero are calculated during the Azimuth Calibration process.

	PLATFORM TYPES						
	MF1200	ME1200	A1200B/ A1200C	A0980B	MF950	ME950	A0950B
AZ POT ZERO	376.14	286.1878	286.1878	343.0747	226.0722	343.0747	343.0747
AZ POT FACTOR	0.737	0.5525	0.5525	0.6683	0.4515	0.6683	0.6683

	PLATFORM TYPES				
	MF740	ME740	A0740B	A1800A	A0660A
AZ POT ZERO	226.0722	343.0747	343.0747	280.7808	343.0747
AZ POT FACTOR	0.4515	0.6683	0.6683	0.5484	0.6683

3 – Polarization Parameters

The Polarization Angle is based on 2 values:

- PL Pot Factor
- PL Pot Zero

PL Pot Factor is an A/D value from the potentiometer which allows the iNetVu™ Mobile Software to convert the A/D value of the Potentiometer into an equivalent angle. The PL Pot Factor should vary approximately ±15% from the Default values below.

PL Pot Zero is an A/D value from the potentiometer which physically determines where the iNetVu™ Mobile Software places Polarization Angle 0°. The PL Pot Zero may vary approximately ±15% from the Default values below.

The PL Pot Factor and PL Pot Zero are calculated during the Polarization Calibration process.

	PLATFORM TYPES						
	MF1200	ME1200	A1200B/ A1200C	A0980B	MF950	ME950	A0950B
PL POT ZERO	250.2905	203.066	203.066	128.5094	80.2096	128.5094	128.5094
PL POT FACTOR	0.5304	0.3852	0.3852	0.2574	0.1586	0.2574	0.2574

	PLATFORM TYPES				
	MF740	ME740	A0740B	A1800A	A0660A
PL POT ZERO	80.2096	128.5094	128.5094	205.4144	128.5094
PL POT FACTOR	0.1586	0.2574	0.2574	0.4012	0.2574

4 – Speeds

Default speed values for the automated processes such as Finding Satellite, Stowing Antenna, and Calibration processes.

5 – Current Limits

A software controlled current protection for the Mobile Platform's motors.

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

- Current Limit 8 – 90% of Current Limit 9
- Current Limit 7 – 80% of Current Limit 9
- Current Limit 5 – 90% of Current Limit 6
- Current Limit 4 – 80% of Current Limit 6
- Current Limit 2 – 90% of Current Limit 3
- Current Limit 1 – 80% of Current Limit 3

Default Speeds and Current Limits

	PLATFORM TYPES						
	MF1200	ME1200	A1200B/ A1200C	A0980B	MF950	ME950	A0950B
EL FAST	9	9	9	9	9	9	9
EL SLOW	7	5	4	4	5	4	4
EL CALIBRATE	7	7	7	7	7	7	7
EL CURRENT3	1.60	1.60	1.60	1.60	1.60	1.60	1.60
EL CURRENT6	5.00	5.00	5.00	5.00	5.00	5.00	5.00
EL CURRENT9	12.50	12.50	12.50	12.50	12.50	12.50	12.50
AZ FAST	9	9	9	8	8	8	8
AZ SLOW	6	5	7	6	5	4	4
AZ CALIBRATE	7	7	7	7	7	7	7
AZ CURRENT3	1.30	1.80	1.80	1.80	1.30	1.80	1.80
AZ CURRENT6	3.50	4.50	7.00	4.50	3.50	4.50	4.50
AZ CURRENT9	6.00	8.00	8.00	8.00	6.00	8.00	8.00
PL FAST	9	9	9	9	9	9	9
PL SLOW	4	4	4	7	7	7	7
PL CALIBRATE	7	7	7	7	7	7	7
PL CURRENT3	0.40	0.40	0.40	0.40	0.40	0.40	0.40
PL CURRENT6	1.20	1.20	1.20	1.20	1.20	1.20	1.20
PL CURRENT9	1.50	1.50	1.50	1.50	1.50	1.50	1.50

	PLATFORM TYPES				
	MF740	ME740	A0740B	A1800A	A0660A
EL FAST	9	9	9	9	9
EL SLOW	4	4	4	7	4
EL CALIBRATE	7	7	7	7	7
EL CURRENT3	1.60	1.60	1.60	1.60	1.60
EL CURRENT6	5.00	5.00	5.00	5.00	5.00
EL CURRENT9	12.50	12.50	12.50	12.50	12.50
AZ FAST	8	8	8	9	8
AZ SLOW	4	4	4	6	4
AZ CALIBRATE	7	7	7	7	7
AZ CURRENT3	1.30	1.80	1.80	1.80	1.80
AZ CURRENT6	3.50	4.50	4.50	5.50	4.50
AZ CURRENT9	6.00	8.00	8.00	9.00	8.0
PL FAST	9	9	9	9	9
PL SLOW	7	7	7	4	7
PL CALIBRATE	7	7	7	7	7
PL CURRENT3	0.40	0.40	0.40	0.40	0.40
PL CURRENT6	1.20	1.20	1.20	1.20	1.20
PL CURRENT9	1.50	1.50	1.50	1.50	1.50

Fig. 32:   Maintenance Screen – GPS, RF, Compass Parameters

1 – GPS Override

Enables the GPS coordinates to be manually overridden to the Latitude and Longitude coordinates.

This should only to be enabled in the event that the GPS Antenna is malfunctioning and the user has a reliable, alternate source for coordinates.

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.

2 – RF Override

Used by the iNetVu™ Mobile Software to begin a signal optimization process for peaking on a Satellite signal after initially locating it. Enabling this option and setting the RF value too low will result in an inability to acquire a reliable signal and IMS will be unable to distinguish between the desired signal and noise.

3 – Compass Override

Enables the Compass to be manually overridden. Ensure that you are using a reliable alternate source.

4 – Direction

After enabling Override, you may enter the vehicle's direction as indicated on your alternate compass. Keep in mind that the base of the iNetVu™ Mobile Platform is oriented to the rear of your vehicle, and the Direction must be based in reference to True North.

This end faces the front
of the vehicle

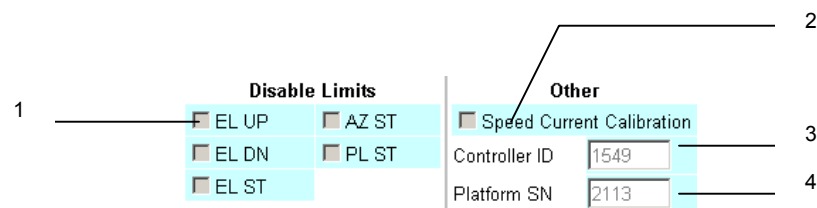*Fig. 33:   Compass Direction Orientation*

5 – Full Search

Performs a full 360º Azimuth search for the desired Satellite. This process may take up to 30 minutes to find and lock onto Satellite.

6 – Compass Offset

The number of degrees the Mobile Platform is rotated in reference to True North.

Fig. 34:   Maintenance Screen – Disable Limits and Other

1 – Disable Limits

Disables UP, DN, and ST limits for testing and troubleshooting. In the event that a limit is disabled, a yellow colored "F" will appear in the **Controls** menu to alert the user that a limit has been disabled.

Note for Disabling Polarization Rotation:

For **A1800A** and **A0660A** Mobile Platforms, **PL RT** will also appear in this section. This function, when checked, will disable the Polarization Rotation of the Mobile Platform. Enabling this function will set the Polarization Angle to display 0.00, and also require the Polarization ST Limit Switch to be closed with a shorted connecter.

2 – Speed Current Calibration

Enables a calibration process which optimizes the current protection values for the motors and allows for elevation to be calibrated.

3 – Controller ID

iNetVu™ 9000 Controller's ID Number

4 – Platform SN

iNetVu™ Mobile Platform's Serial Number

1 – Operation Mode

Displays the standard / modulation scheme used

2 – Secondary Transponder Enabled

Enables a second set of transponder parameters (Frequency 2, Symbol Rate 2, Code Rate 2, Power Type 2) during satellite search. This function is enabled when adjacent satellites may be using the same transponder parameters, and the user requires to distinguish the target satellite with a secondary transponder.

3 – DVB Receiver Parameters

Frequency (kHz) – L-Band Frequency of the receive signal

Symbol Rate (kSps) – Symbol Rate of the receive signal

Code Rate – FEC Rate of the receive signal

Power Type (dBm) - Power ratio in decibel (dB) of the measured power referenced to one milliwatt (mW). This value should always be set to 0.

Calibrate PL

Performs automated Polarization Calibration process.

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

Calibrate AZ

Performs automated Polarization Calibration process.

    i.   Antenna will completely rotate counter-clockwise to the physical limit and temporarily record the A/D value from the Potentiometer.
    ii.   Antenna will completely rotate clockwise to the physical limit and temporarily record the A/D value from the Potentiometer.
    iii.   Based on the A/D values of the two (2) physical limits, and the range of motion for the Mobile Platform, the AZ Pot Factor is calculated.
    iv.   Antenna will center itself and attempt to locate the cut-off edges of the Azimuth Stow Switch.
    v.   After detecting at which angles the ST Switch turns OFF, the Azimuth zero position is calculated and the AZ Pot Zero is set at the zeroed A/D value.
    vi.   You will then be prompted to enter the Platform ID Number prior to finishing the Calibration Process.

Calibrate EL

Calibrates Elevation by adjusting and optimizing the Elevation Current Limits.

Calibrate CP

Tests the compass' heading and accuracy by rotating the antenna at 90° intervals and comparing the compass readings with the actual antenna's movement. If IMS finds that the Compass is inaccurate, it will automatically calibrate the compass.

Compass Check

    i.   Antenna will center itself; move to the proper Elevation for reading the compass, then read the compass heading.
    ii.   Antenna will rotate 90° to each of the following positions and read the compass at each: 0°, 90°, 180°, -90°, 0°
    iii.   iNetVu™ Mobile Software will compare the compass heading values read at each position, and determine if they differ by approximately 90°.
    iv.   The Compass Check will display a message regarding the accuracy of the compass.

Compass Calibration

i.   Ensure that there are no metallic objects that could interfere with the Compass, and that the Mobile Platform is on level surroundings.
ii.   Orient the Mobile Platform as depicted in the following figure. It is recommended that you use an external compass to be as accurate with the orientation as possible.

This end faces South

This end faces North

iii. The Antenna will now rotate in 90° intervals and attempt to calibrate the compass.
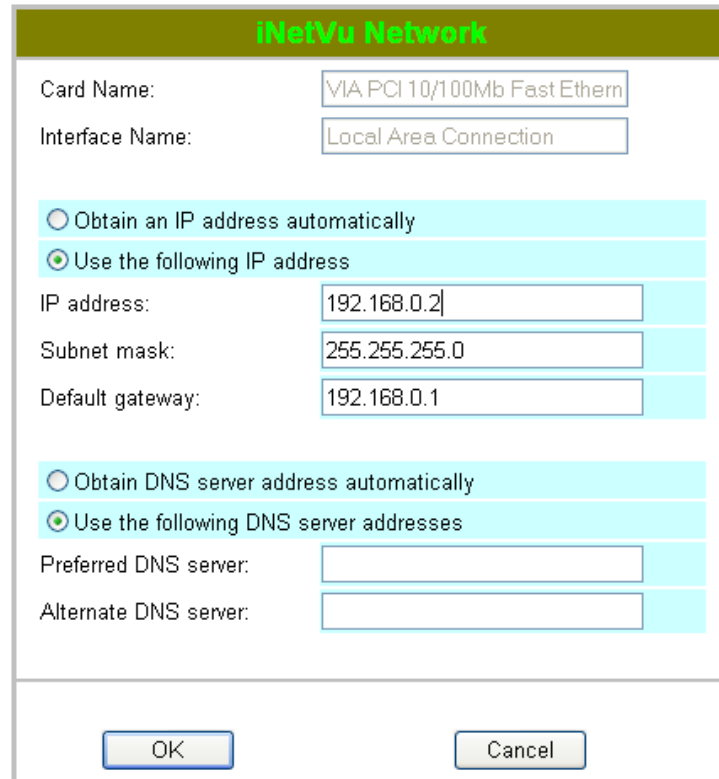iv. A message prompt will appear to notify you that the Compass Calibration has been completed successfully or not.

Log File

Log File
Opens the `iNetVuData5000.txt` data log file into notepad.

Network

The Network Screen allows the user to modify the iNetVu™ 9000 Controller's IP Address, Subnet Mask, Gateway IP, and DNS Settings.

Fig. 35:   Web Interface Network Screen

iNetVu 9000 Controller Default Settings

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

If your Satellite Modem / VSAT is DHCP Enabled:

1. Enable **Obtain an IP address automatically**.

If your Satellite Modem / VSAT is not DHCP Enabled:

1. Set the IP Address to the same network as the Satellite Modem / VSAT.
2. Set the Subnet Mask to that of the Satellite Modem / VSAT.
3. Set the Default Gateway to the IP of your Satellite Modem / VSAT.

About

The About Screen displays all the system component information for the Controller, including the Software installed, Mobile Platform, Satellite Modem / VSAT, and Target Satellite.

Fig. 36:   Web Interface – About Screen

This Section will break the Maintenance Screen down into five (5) parts to describe in detail the parameters and options found in each part.

Fig. 37:   About - Software

- **Version**
  iNetVu™ Mobile Software version
- **Build ID**
  Date of software release
- **Work Mode**
  Current Operation Mode
- **Service**
  Service which iNetVu™ Mobile Software is configured for
- **Controller API**
  Method of communication between the iNetVu™ Controller and iNetVu™ Mobile Software
- **Modem API**
  Method of communication between Satellite Modem and iNetVu™ Mobile Software
- **Applied Field**

Abbreviation for Service

CT – Comtech
DW – Direcway
EM – EMS
GL – Gilat
ID – iDirect
IR - iReceiver
NR – Nera
SF - Surfbeam
SB – StarBand
TS – Technisat
TY – Tachyon
VS - Viasat

Controller

Firmware: 6.0
Service/ID: ID1908
Boot Loader: 3.5
Revision: 3.1
DVB Tuner: No

Fig. 38:   About - Controller

- **Firmware**
  iNetVu™ Controller's firmware version.

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

- **Service/ ID**
  iNetVu™ Controller Serial Number ID.

- **Boot Loader**
  o   9.0 / 9.1 - Latest Version at time of publication (July 7, 2006)

- **Revision**
  o   3.1 - Latest Version at time of publication (November 29, 2005)

- **DVB Tuner**
  DVB Tuner Detected.

Platform

Type: A1200B
Serial Number: 3463
PL Rotation: Enabled

Fig. 39:   About - Platform

- **Type**
  Mobile Platform type and size

  A1800A, A1200B, A0950B, A0740B, A0660A, ME1200, ME950, ME740, MF1200, MF950, MF740,

Unknown
- o   1800 - 1.8m
- o   1200 - 1.2 m
- o   950 - 0.95 m
- o   740 - 0.74 m
- o   660 - 0.66 m

- **Serial Number**
  Mobile Platform serial number

- **PL Rotation**
  Enabled / Disabled - Only be disabled for circular signaled frequency bands

Modem

Firmware:
ID:
Type: iDirect

Fig. 40:   About - Modem

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

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

- **Type**
  Modem type

Satellite

Name: G11
Longitude: 91.0W
Tx Polarity: V

Fig. 41:   About - Satellite

- **Name**
  Name of Satellite

- **Longitude**
  Orbital slot of Satellite

- **Tx Polarity**
  Transmit Signal Polarization

LCD Screen and Navigator Keypad Operation
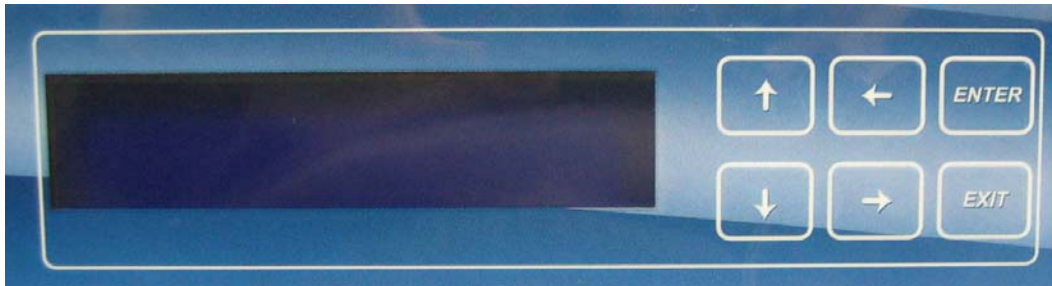
Fig. 42:   iNetVu™ 9000 Controller LCD and Keypad Navigator

↑ ←	
↓ →	Used to move the cursor position
ENTER	Used to select a displayed function
EXIT	Used back out of a selection and return the display to the previous selection

Menu Tree

MONITOR
OPERATION
MAINTENANCE

MONITOR
  MAIN
  MTR
  GPS
  CP
  SAT
  IP
  GW
  MODM
  INFO

OPERATION
  E_TX
  E_TEST

MAINTENANCE
  RESET_IP
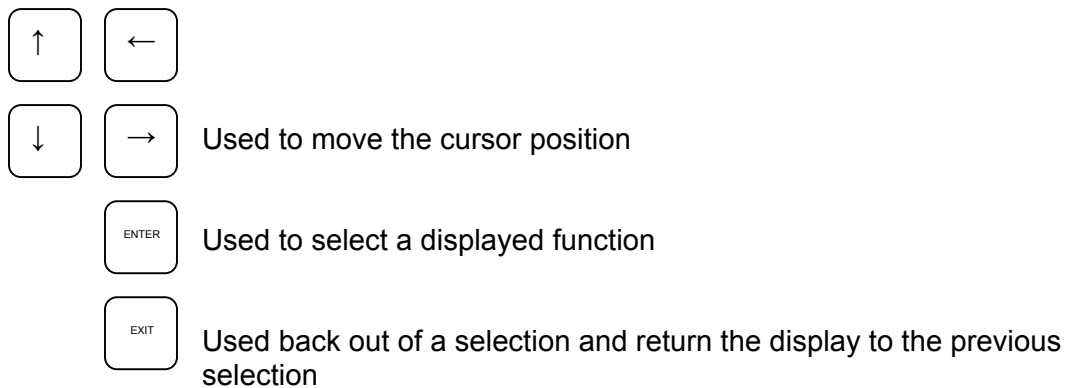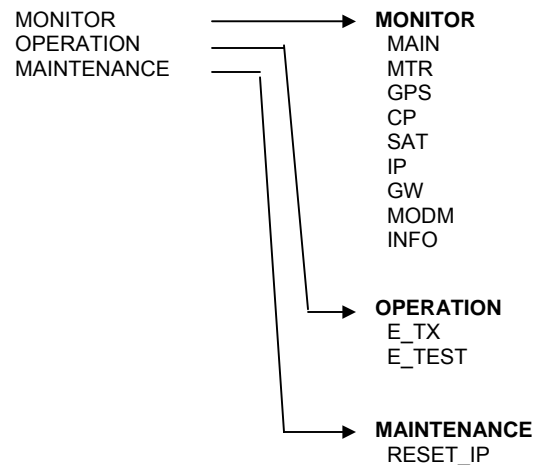
Fig. 43:   iNetVu™ 9000 Controller LCD Menu Options

Opening Screen

When powering the iNetVu™ 9000 Controller, the LCD will display the following during the initial boot-up sequence.

> **iNetVu 9000**
> **Please wait …**
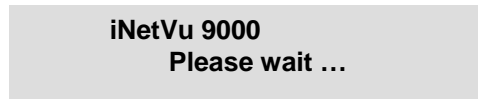
Fig. 44:   LCD Opening Screen

Main Menu

The iNetVu™ 9000 is ready for usage when the following is displayed on the LCD.

There are three (3) Main Menu items to select from: **Monitor** and **Maintenance**.

> **MONITOR   OPERATION**
> **MAINTENANCE**
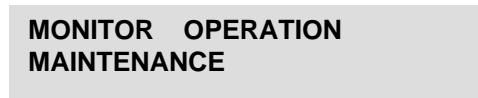
Fig. 45:   LCD Main Menu

MONITOR	This menu branch allows the user to monitor the status of the iNetVu Mobile Platform, its components, and displays information concerning the iNetVu 9000 Controller and the Satellite Modem / VSAT.
OPERATION	This menu branch allows the user to perform miscellaneous functions, such as enabling/disabling the transmitter, and enter CW Test Mode.
MAINTENANCE	This menu branch allows the user to reset the IP Settings of the iNetVu™ 9000 Controller to default.

The Maintenance menu branch is password protected, with a default password of '1234'. |

Monitor

MAIN MTR GPS CP SAT
IP GW MODM INFO

Fig. 46:   Monitor Menu

MAIN	Displays real-time system status and receive signal.
MTR	(Motor) Displays real-time current drawn and speed settings for each motor.
GPS	Displays GPS Status.
CP	(Compass) Displays Compass Status.
SAT	(Satellite) Displays Target Satellite and its coordinates, real-time RF Signal and RF Threshold.
IP	Displays IP and Subnet Mask of iNetVu 9000's Ethernet Port.
GW	(Gateway) Displays Gateway Parameters.
MODM	(Modem) Displays Modem Parameters.
INFO	Displays the Controller ID, IMS Software Version, Firmware Version, Platform Type, Platform ID, and any Error Codes.

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.

Any out of range outputs will be displayed as ***.
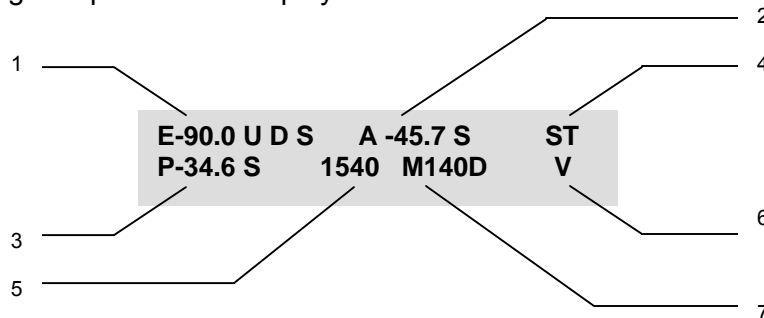
Fig. 47:   "MAIN" (Main) Display

1 – Elevation Angle and Limit Indicators

Ka66/740/950/980 Mobile Platform Range: -90.0° to 65°+
1200/1800 Mobile Platform Range: -90.0° to 75°+

Elevation Angle will be –90.0 when the Elevation Stow Indicator is ON

U   Elevation Up Limit has been reached.
Typically set above 75° for 1200 Mobile Platforms, and above 65° for 740/950/980 Mobile Platforms.

D   Elevation Down Limit has been reached.
Typically set between 5° and 10° for 1200 Mobile Platforms, and between 0° and 10° for Ka66/740/950/980 Mobile Platforms.

S   Elevation Stow Limit has been reached.

2 – Azimuth Angle and Stow Limit Indicator

Range: -200° to +200°

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

3 – Polarization Angle and Stow Limit Indicator

740/950/980 Mobile Platform Range: -70° to 70°
1200/1800 Mobile Platform Range: -90° to 90°
Ka66 / 1800 Circular Band Signals will have the Polarization Angle disabled, and will display 'DDDDD"

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

4 – System Status

I	Idle
PS	Positioning
SR	Searching
PK	Peaking
EC	Elevation Calibration
AC	Azimuth Calibration
PC	Polarization Calibration
CC	Compass Calibration
SG	Stowing
ST	Stowed
DT	Dish Testing
MM	Manual Movement
LK	Locked on Satellite
AT	ACP Testing

5 – Receive RF Signal

Receive RF Signal as measured from the LNB

6 – GPS Status Flag

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

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)

MTR

Displays the real-time current drawn by each of the motors, and the speed settings for "FAST" and "SLOW" movement for each axis of motion.

```
1 ———————
              C:  E0     A0     P0
              S:  E9/5   A8/5   P9/7
                                              ———— 2
```
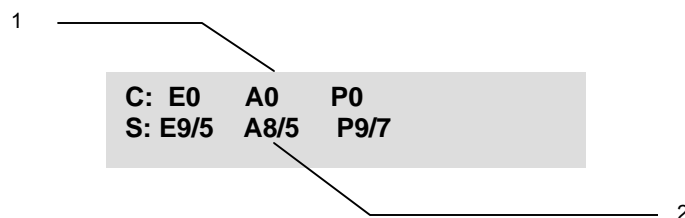
Fig. 48:   "MTR" (Motor) Display

1 – Motor Current

E	Elevation Current Drawn
A	Azimuth Current Drawn
P	Polarization Current Drawn

2 – Speed Setting

EX/Y	Elevation Speed Setting for "FAST" (X) and "SLOW" (Y)
AX/Y	Azimuth Speed Setting for "FAST" (X) and "SLOW" (Y)
PX/Y	Polarization Speed Setting for "FAST" (X) and "SLOW" (Y)

GPS

Displays GPS Status and current GPS Heading.

```
1 ————                              ———— 2
        FLAG: N    V0   H0  ———— 3
        LA:  45.4N  LG:  75.6
                                    ———— 4
```
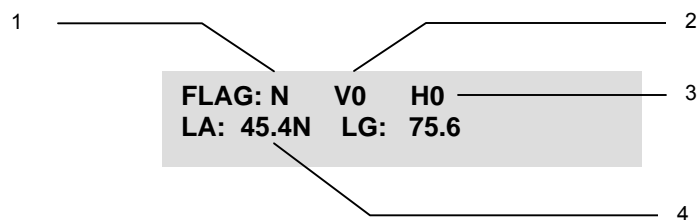
Fig. 49:   "GPS" (GPS) Display

1 – FLAG

N	GPS Status is normal
F	GPS Status has failed
O	GPS Coordinates have been overridden

2 – Velocity

Displays the current velocity in real-time of the antenna based on any changes in the GPS Coordinates. Should the GPS Coordinates change, the iNetVu™ Mobile Software will calculate the velocity.

3 – Heading

Displays the direction in which the Antenna is moving laterally. The GPS Coordinates change in real-time, and based on the changing GPS Coordinates, the directional heading is calculated.

4 – GPS Coordinates

LA   Current Latitude Coordinate
LG   Current Longitude Coordinate

CP

Displays Compass Status, Compass Heading and the Elevation at which the Compass is read.

Fig. 50:   "CP" Compass Display

1 – FLAG

V   Valid
O   Override
FS   Full Search

2 – Compass Heading

Compass Heading after Compass has been read.

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

3 – Compass Elevation Reading

Elevation at which the iNetVu™ 9000 Controller will read the compass. At this Elevation, the Compass must be level in reference to the ground.

SAT

Displays the Target Satellite and its calculated coordinates based on the GPS Heading, Compass Reading, and orbital slot of the desired Satellite.
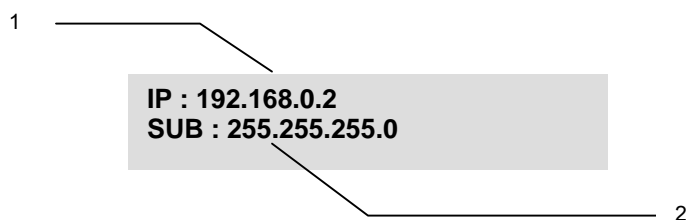

SAT:93.0W E34.6   A-24.6
P64.5   RF1458   RT50
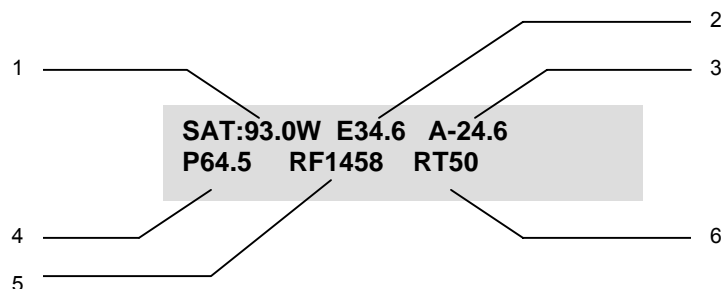
Fig. 51:   "SAT" (Satellite) Display

1 – Target Satellite
2 – Target Elevation
3 – Target Azimuth (in reference to North)
4 – Target Polarization
5 – Receive RF Signal
6 – RF Threshold

IP

Displays the IP Address and Subnet Mask of the iNetVu™ 9000 Controller

IP : 192.168.0.2
SUB : 255.255.255.0

Fig. 52:   "IP" (IP) Display

1 – iNetVu™ 9000 Controller's IP Address (Default: 192.168.0.2)
2 – iNetVu™ 9000 Controller's Subnet Mask (Default: 255.255.255.0)

GW

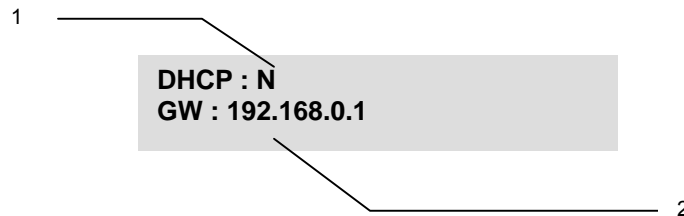Displays the Gateway Parameters of the iNetVu™ 9000 Controller

1 ——————

DHCP : N
GW : 192.168.0.1

—————— 2

Fig. 53:   "GW" (Gateway) Display

1 – DHCP Enabled

> **Y**   Yes – DHCP Enabled
> **N**   No – DHCP Not Enabled

2 – Gateway IP Address (Default: 192.168.0.1)

MODM

Displays the Satellite Modem / VSAT IP Address and Firmware/Software version as read directly from the Satellite Modem / VSAT.
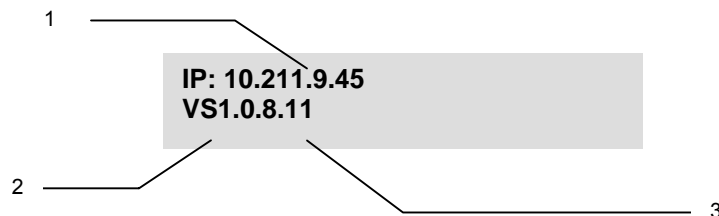
1 ——————

IP: 10.211.9.45
VS1.0.8.11

2 ——————

—————— 3

Fig. 54:   "MODM" (Modem) Display

1 – Satellite Modem / VSAT IP Address as read from the Satellite Modem / VSAT

2 – Service / Manufacturer

IR	iReceiver (DVB Tuner Stand-alone)		**NT**	Newtec
CT	Comtech EF Data		**SF**	Surfbeam
EM	EMS Satellite Networks		**TY**	Tachyon Networks Inc.
GL	Gilat Satellite Networks		**TS**	TechniSat
ID	iDirect Technologies Inc.		**VS**	Viasat
NR	Nera		**DW**	Direcway
SB	Starband Networks			(Hughes Network Systems)

3 – Firmware / Software version of the Satellite Modem / VSAT as read from the Satellite Modem / VSAT

INFO

Displays information regarding the iNetVu™ 9000 Controller's firmware and software versions installed, the Mobile Platform it is configured to, and also any Error Codes detected.
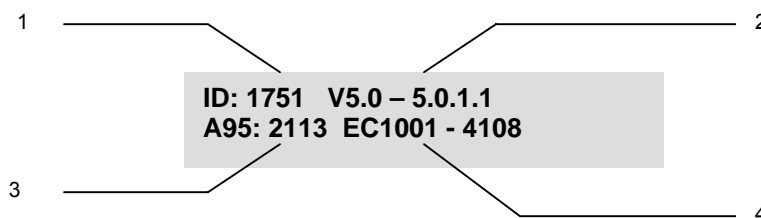
Fig. 55:   "INFO" (Information) Display

1 – iNetVu™ 9000 Controller ID
2 – iNetVu™ Controller Firmware Version and IMS Software Version
3 – Mobile Platform Model Number and Serial Number

F74	MF740
F95	MF950
F12	MF1200
E74	ME740
E95	ME950
E12	ME1200
A66	A0660A
A74	A0740B
A95	A0950B
A12	A1200B
A18	A1800A

4 – Displays the last two (2) ECs (Error Codes), if any. Please refer to the iNetVu™ Mobile Software Error Code List Document for the complete listing of Ecs

Operation

E_TX   E_TEST

Fig. 56:   Operation Menu

E_TX	Enables / Disables the transmitter when locked on the correct satellite.
E_TEST	Enables / Disables Test Mode (CW Mode) when locked on the correct satellite. Used for adjusting the unit for x-pol testing.

E_TX

Enables and disables the transmitter after locking onto the designated satellite.

E_TEST

Enables and disables Test Mode (CW or Carrier Wave Mode) when locked on the correct satellite. This function should be used for adjusting the unit during cross-pol testing.

While in Test Mode, the user may use the Manual Movement Buttons located on the iNetVu™ 9000's Front Panel.

It is recommended to keep the Speed Setting at LOW (Speed H/L LED is OFF) and to quickly press and release the Manual Movement Buttons in order to make fine adjustments. Please be aware that holding down the buttons too long may result in a loss in signal.

Maintenance

The Maintenance menu branch is password protected. The default password is '1234'.

RESET_IP

Fig. 57:   Maintenance Menu

RESET_IP	Resets the iNetVu™ 9000 Controller's Network Configuration back to its default values.

RESET_IP

Resets the iNetVu™ 9000 Controller's Network Configuration back to its default values.

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

GPS Module

- Requires iNetVu™ Controller Firmware 5.1
- Requires 3.3VDC GPS Antenna (Labeled as 3VDC)
- 5VDC GPS Antenna NOT COMPATIBLE
- GPS Antenna Cable length 15 ft and 25 ft compatible
- DO NOT connect GPS Antenna while iNetVu™ Controller is powered ON

Serial Number

The iNetVu™ Controller Serial Number is located on the base of the controller. It is the last 4 digits of the Serial Number.

In the figure below, the Serial Number of this controller is 9000.

0550 – Manufactured in 2005, 50th week of the year.

Fig. 58:   iNetVu™ 9000 Controller Serial Number Label

Image Recovery

The iNetVu™ 9000 Controller is equipped with a 3rd party Image Recovery Application (Phoenix Always and Phoenix Recovery Pro 6) that allows the end user the ability to restore the O/S to a previous state.

Should the end user experience any type of O/S malfunction, contact the C-Com Satellite Systems Technical Support Team.

⚠ **WARNING**   **At no time should the end user attempt to initiate an Image Recovery without the direction and/or supervision of a C-Com Satellite Systems Technical Support Engineer.**

Appendix 1: Utilizing the iNetVu™ 9000 Controller During O/S Failure

Should your iNetVu™ 9000 Controller experience an O/S Failure, and you are unable to communicate with via the Web Interface AND the KVM (Keyboard, Video, and Monitor) Interface, you would still be able to utilize the iNetVu™ 9000 Controller to control the iNetVu™ Mobile Platform.

Required Materials:

- iNetVu™ 9000 Controller
- External PC
- IMS 5.1.1 (and above) Installation CD
    - 6.1.1 is required for DVB Tuner Users
- USB Cable (Type A Male to Type B Male)

1. Install IMS onto your PC and configure. Consult the iNetVu™ Mobile System User Manual for assistance.

2. Ensure that you have configured IMS for USB Communication.

3. Connect the GPS, Motor Control, Sensor Cable and Power Cable to the iNetVu™ 9000 Controller.

4. Connect the USB Cable from your PC to the USB Port on the iNetVu™ 9000 Controller.

5. Once IMS recognizes the iNetVu™ 9000 Controller, you will be able to use the iNetVu™ 9000 Controller like an iNetVu™ 5000 Series Controller.