iNetVu® Fly-75V & Fly-98G/H/V & Fly-981 User Manual

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iNetVu FLY-75V

iNetVu FLY-98H H & V

iNetVu FLY-981

1. Introduction

1.1 About This Manual

The iNetVu® Fly-75V & Fly-98 Flyaway Systems Installation and Operation are described in this manual. An electronic version of this manual is included on the iNetVu® flash drive that came with your system.

1.2 System Overview

Equipped to work with the iNetVu® 7710 Controller, the iNetVu® Fly-75V & Fly-98 Flyaway antenna is an easily assembled, rugged and reliable product for automatic satellite acquisition anytime anywhere. This antenna is a rapidly deployable unit that is ideal for applications that require satellite communication over Ka or Ku Band. The Flyaway empowers users with the ability to stop anywhere there exists satellite coverage and access Internet at broadband speeds.
The 75 cm Fly-75V system come with 2 ruggedized cases while the Fly-98 system come with 3 ruggedized cases. The systems have been designed to be airline checkable. The Flyaway could be field assembled and operational in less than 10 minutes by one person without the use of any tools.

Fig. 1: iNetVu® Fly-75V Flyaway Antenna

Fig. 2: iNetVu® Fly-981 Flyaway Antenna

Supported Fly-Away Types
A0756A (Fly-75V) – Viasat Ka
**A0986A-1 Fly-98H () – HNS
**A0986A-2 (Fly-98G) – Skyware G Ka
**A0986A-3 (Fly-98V) – Viasat Ka
**A0986A-4 (Fly-98H) – HNS Jupiter Ka
**A0986B-2 (Fly-98G) – 3 Axis – Skyware G Ka
A0986C (Fly-981) – Ku Band

**** The dash and number after the letter is dropped when selecting the mount type in the iNetVu software.**

1.3 Power Consumption

Minimum Power Consumption:	24VDC@0.19A for 7710 alone (24VDC@0.13A for 7720).
Maximum Power Consumption:	24 @ 13A
Controller AC Universal Input:	100 ~ 240 VAC, 50/60 Hz

Fig. 3: iNetVu® 7710 Controller

Fig. 4: iNetVu® 7720 Controller

The iNetVu® Fly-75V, Fly-98G/H/V & Fly-981 Flyaway systems offer the following capabilities and features:

- 2-Axis DC motor drive system on AZ & EL
- Motorized 3rd axis (POL) on the Fly-981 and optional on Fly – 98G/H)
- Satellite acquisition within 5 minutes (under normal operating conditions)
- Compatible with configured satellite over the Ka or Ku Band.
- Fully automatic, software controlled satellite acquisition
- Optimized signal reception and transmission
- Self-calibrating and tuning after satellite acquisition
- Integrated with some of the world`s leading satellite service providers (Tooway, SurfBeam2, Hughes and iDirect).
- Easily assembled, ruggedized carry cases.

Note – Only the reflector size and VSAT TRIA type will differ between Fly-75V and Fly-98 Ka Platforms. The Fly-981 Ku antenna will have polarization instead of the TRIA.

Physical Outline

Fig. 5: iNetVu® Fly-75V

Fig. 6: iNetVu® Fly-981 (Left) and Fly-98G (Right)

Required Antenna Clearance

1.4 Fly-75V Clearance Measurements

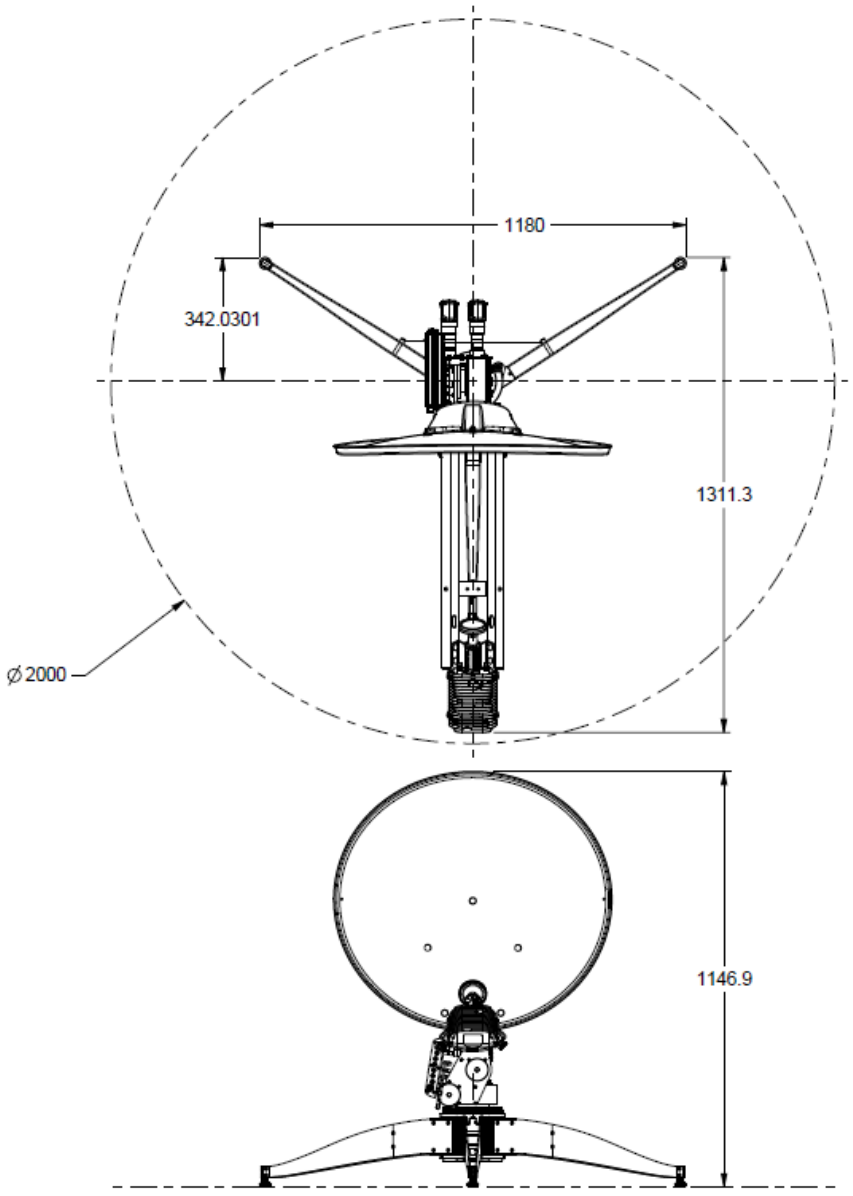


Fig. 7: iNetVu® Fly-75V top and front clearance view

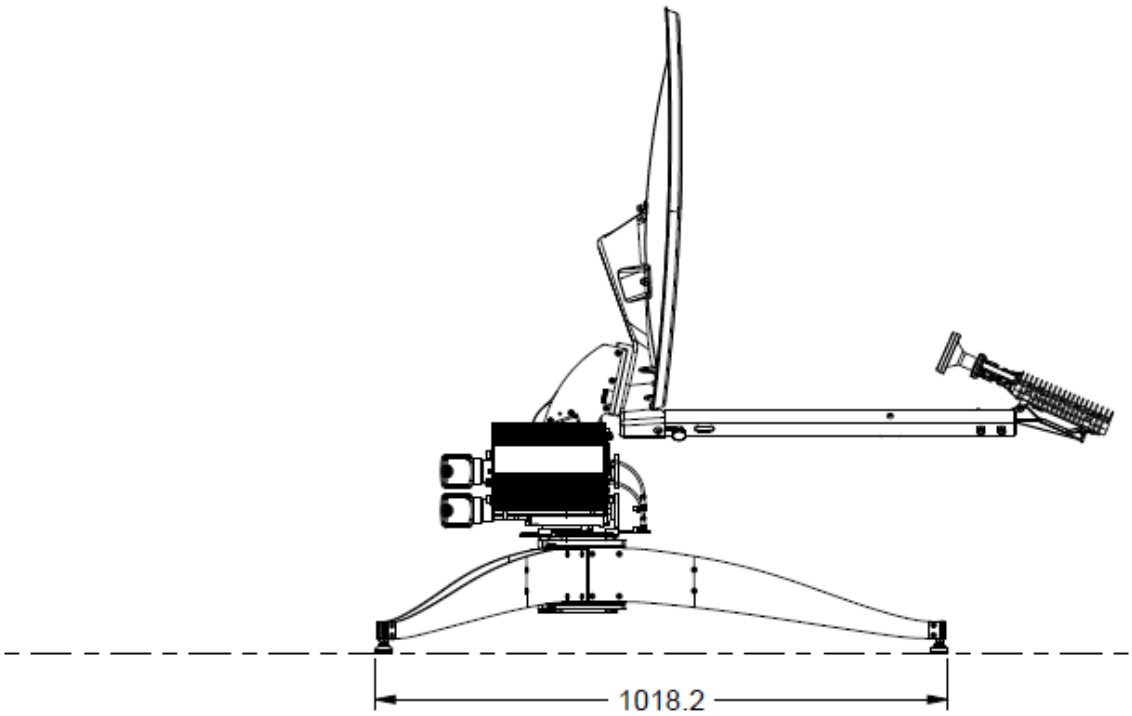


Fig. 8: iNetVu® Fly-75V side clearance view

1.5 Fly-98G Clearance Measurements

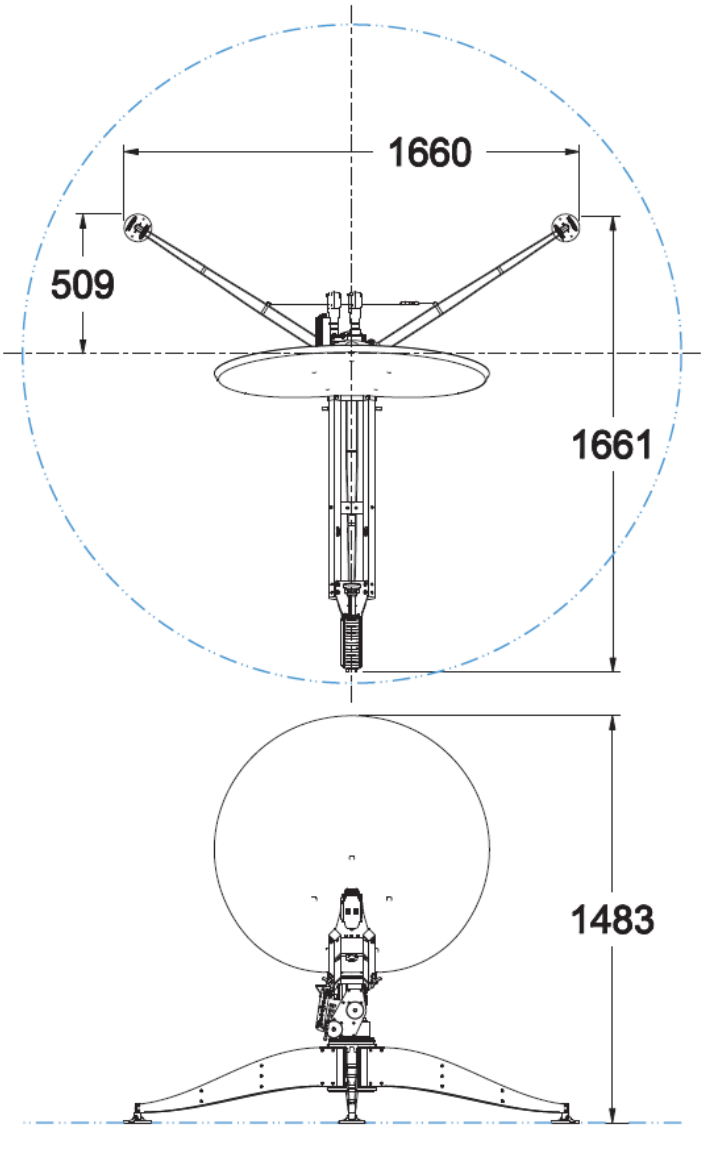


Fig. 9: iNetVu® Fly-98G side clearance view

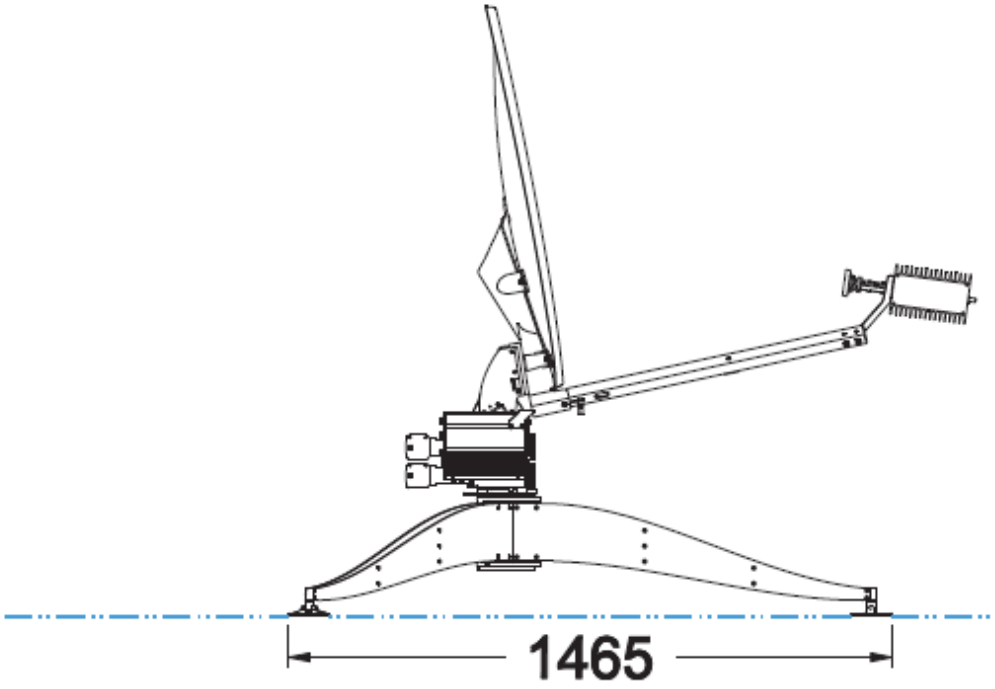
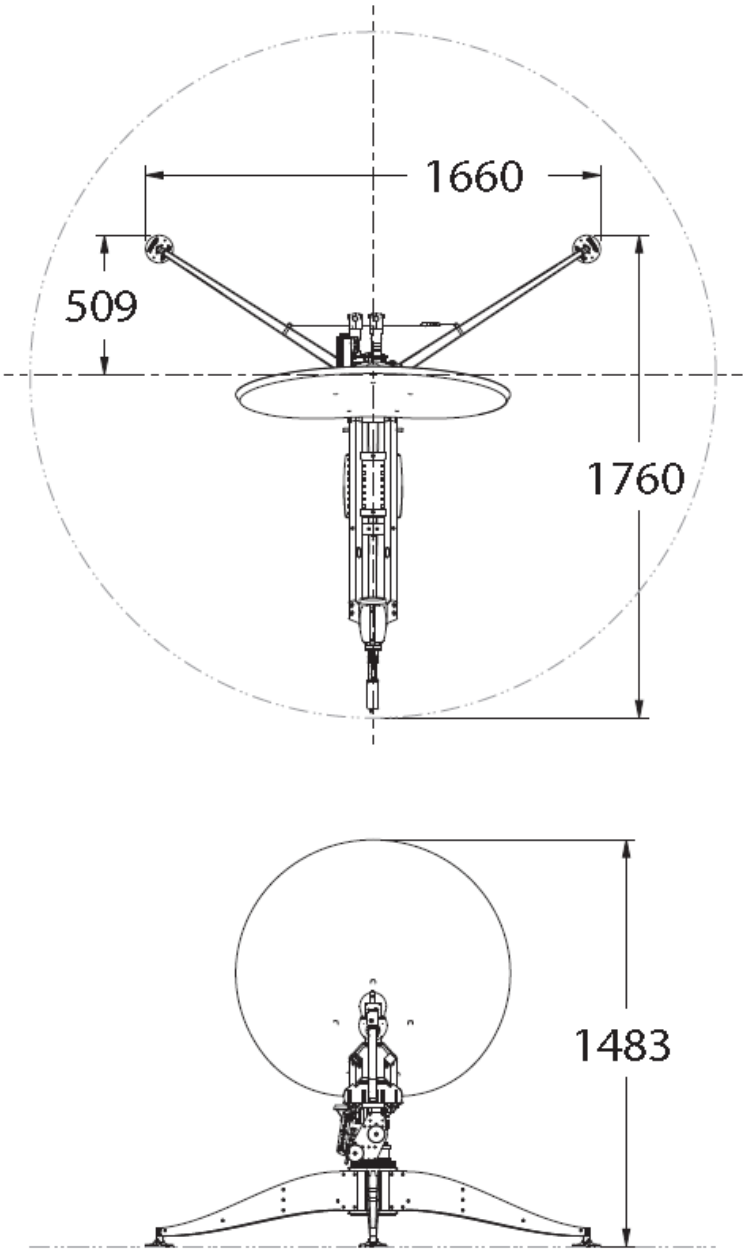
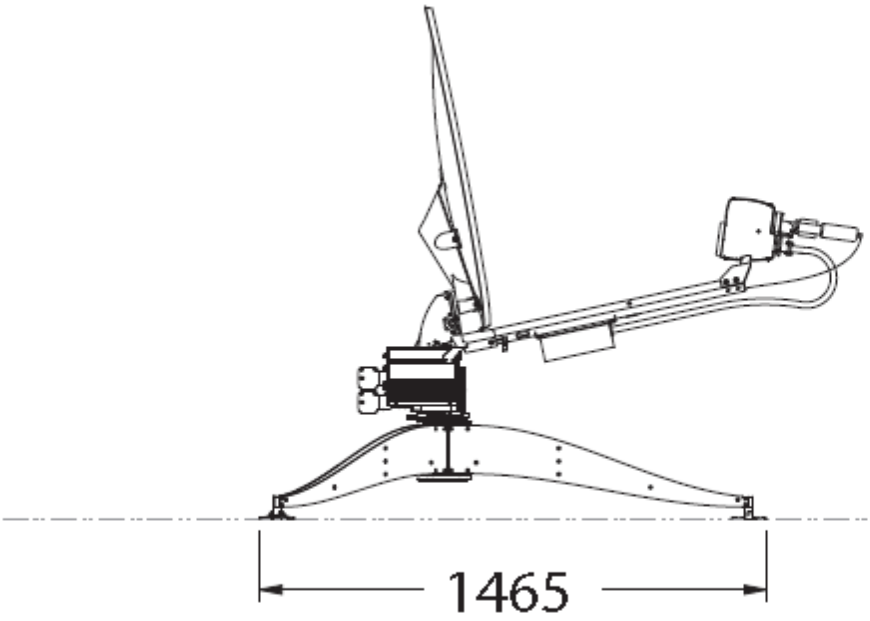


Fig. 10: iNetVu® Fly-98G side clearance view

1.6 Fly-981 Clearance Measurements




1465

2. System Connections

The iNetVu® New Generation Flyaway (Fly-75V, Fly-98G/H/V and Fly-981) Antennas have been built to operate with the iNetVu® 7710 Central Controller and a 7720 Remote (Onboard) Drive Module. 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. The user may select the connection that corresponds to his/her preferred system setup prior to configuration. The system connections shown in this section can be used with either the Ka or Ku systems with one variable, the Ku will have two coax connections while the Ka in most cases will only have one.

2.1 Typical Connection with Ku Service – PC Free

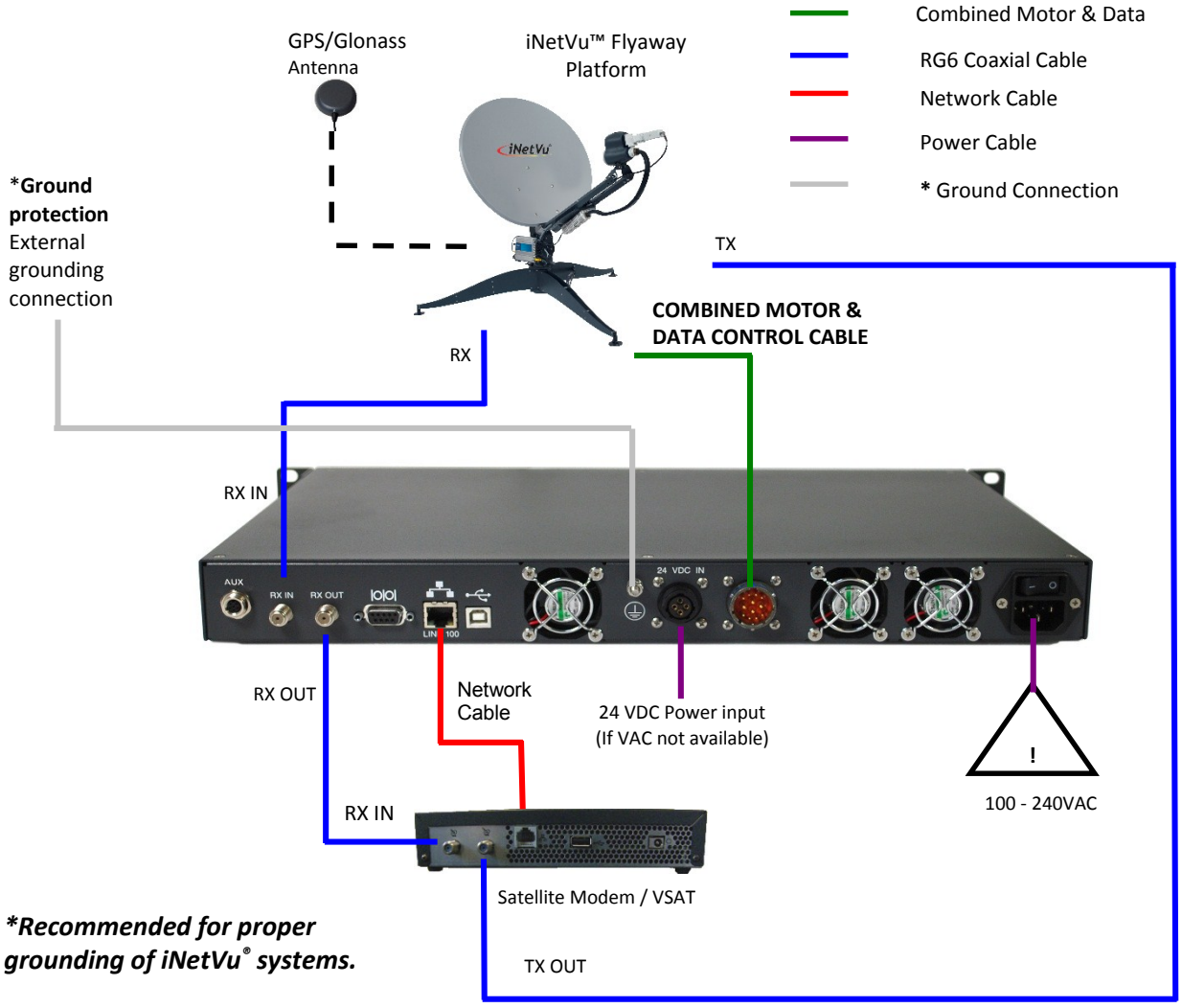


Fig. 11: iNetVu® 7710 Controller & Ku Antenna Connection with PC Free Configuration

2.2 Typical Connection with Ka Service – PC Free

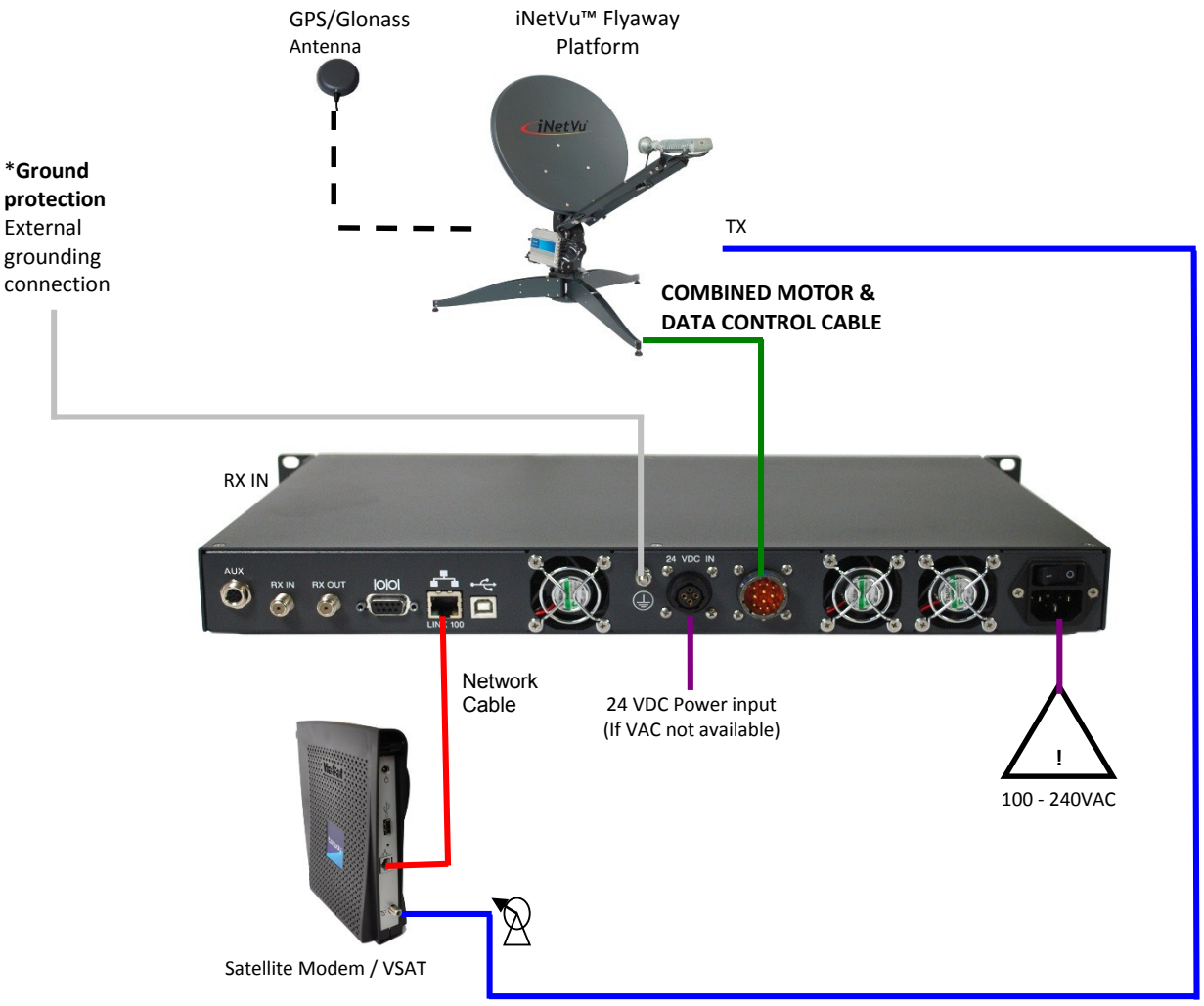


Fig. 12: iNetVu® 7710 Controller & Ka Antenna with PC Free Connection Configuration

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

Combined Motor & Data
RG6 Coaxial Cable
Network Cable
Power Cable
* Ground Connection

2.3 Typical Network Interface Connection - Ku

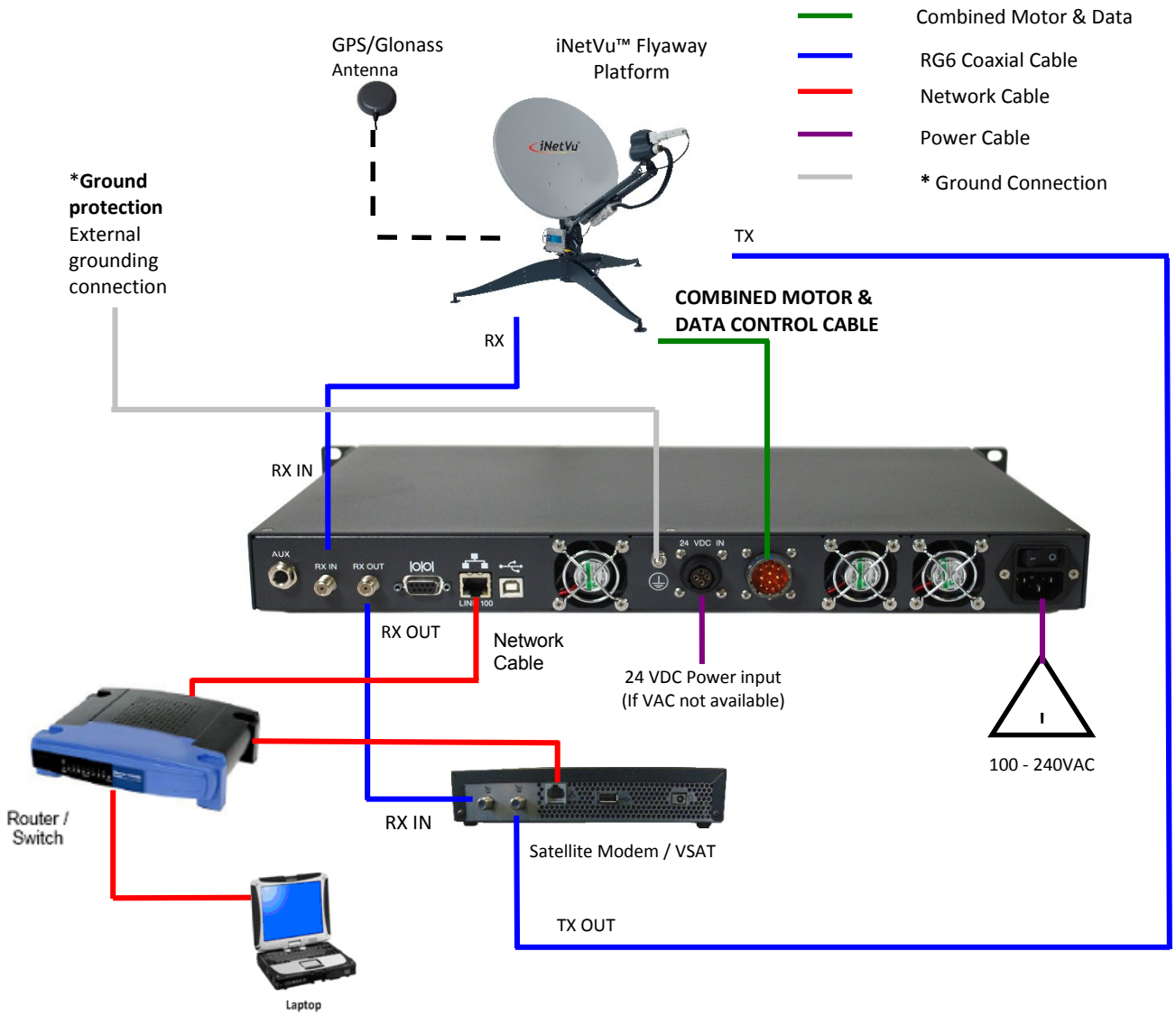


Fig. 13: iNetVu® LAN interface Connection Configuration with Ku Antenna

Recommended for proper grounding of iNetVu® systems.

2.4 Typical Network Interface Connection - Ka

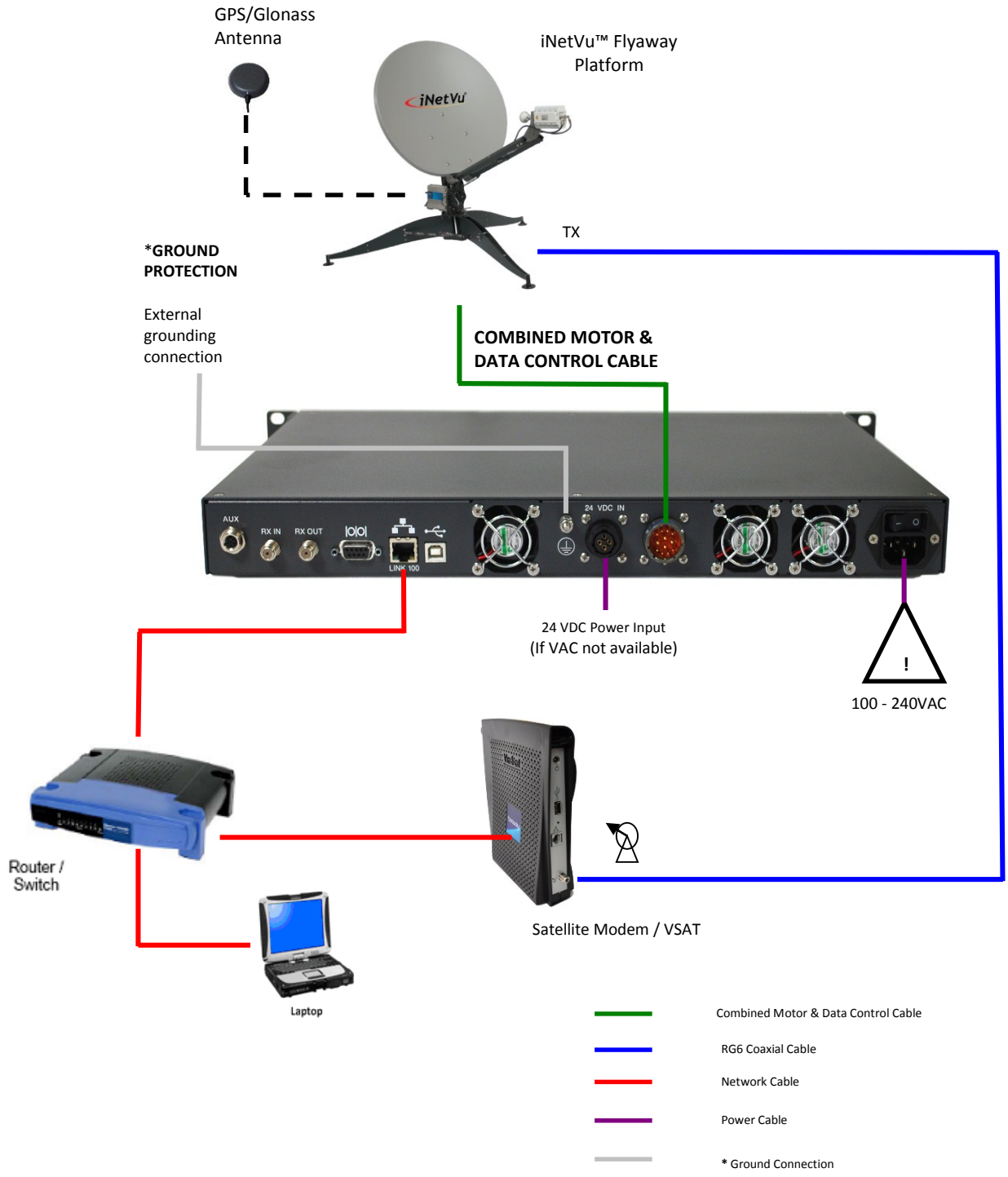


Fig. 14: iNetVu® LAN interface Connection Configuration with Ka Antenna

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

2.5 Typical USB Communication Interface - Ku

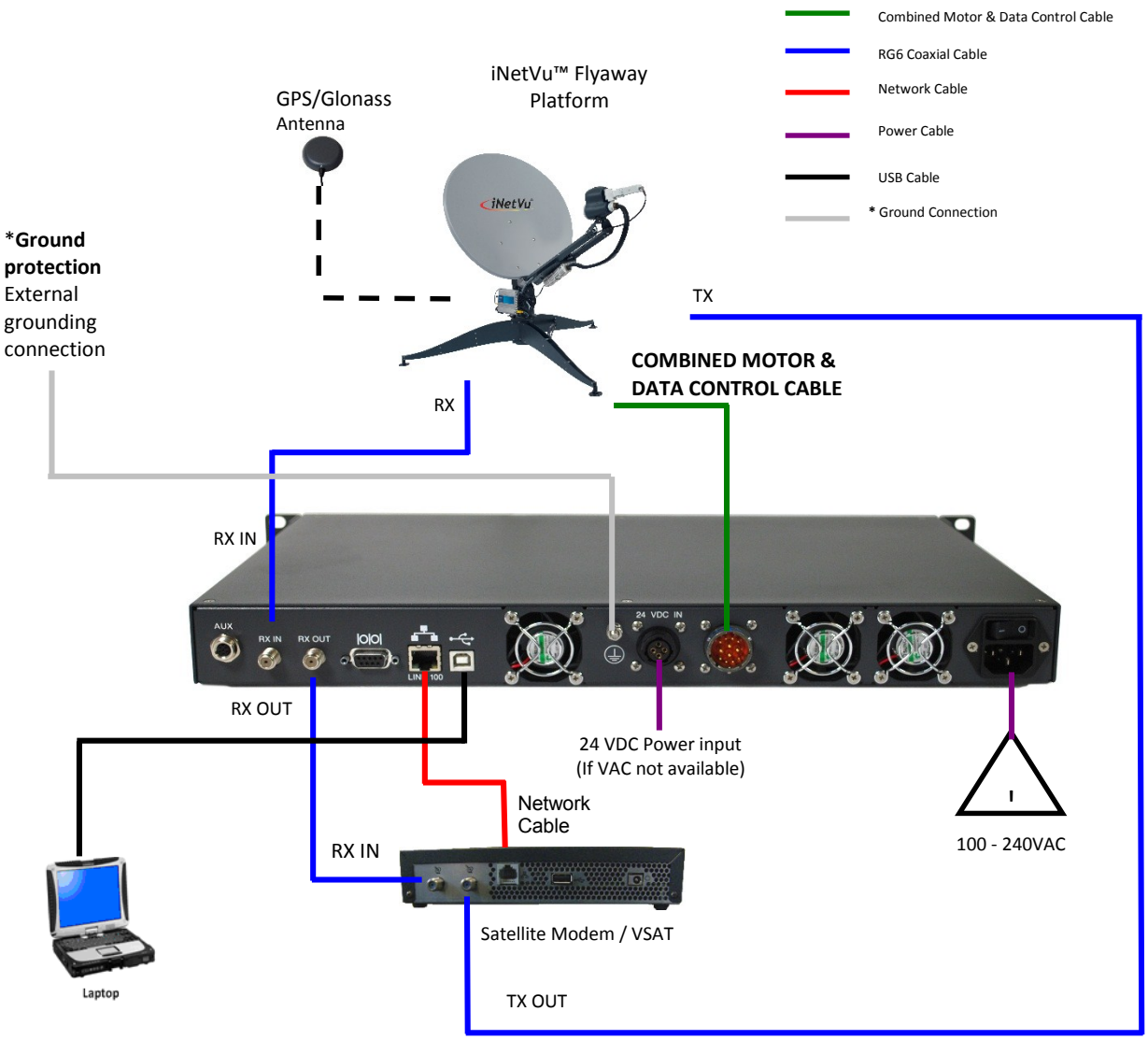


Fig. 15: USB Interface Connection with Ku Antenna

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

2.6 Typical USB Communication Interface - Ka

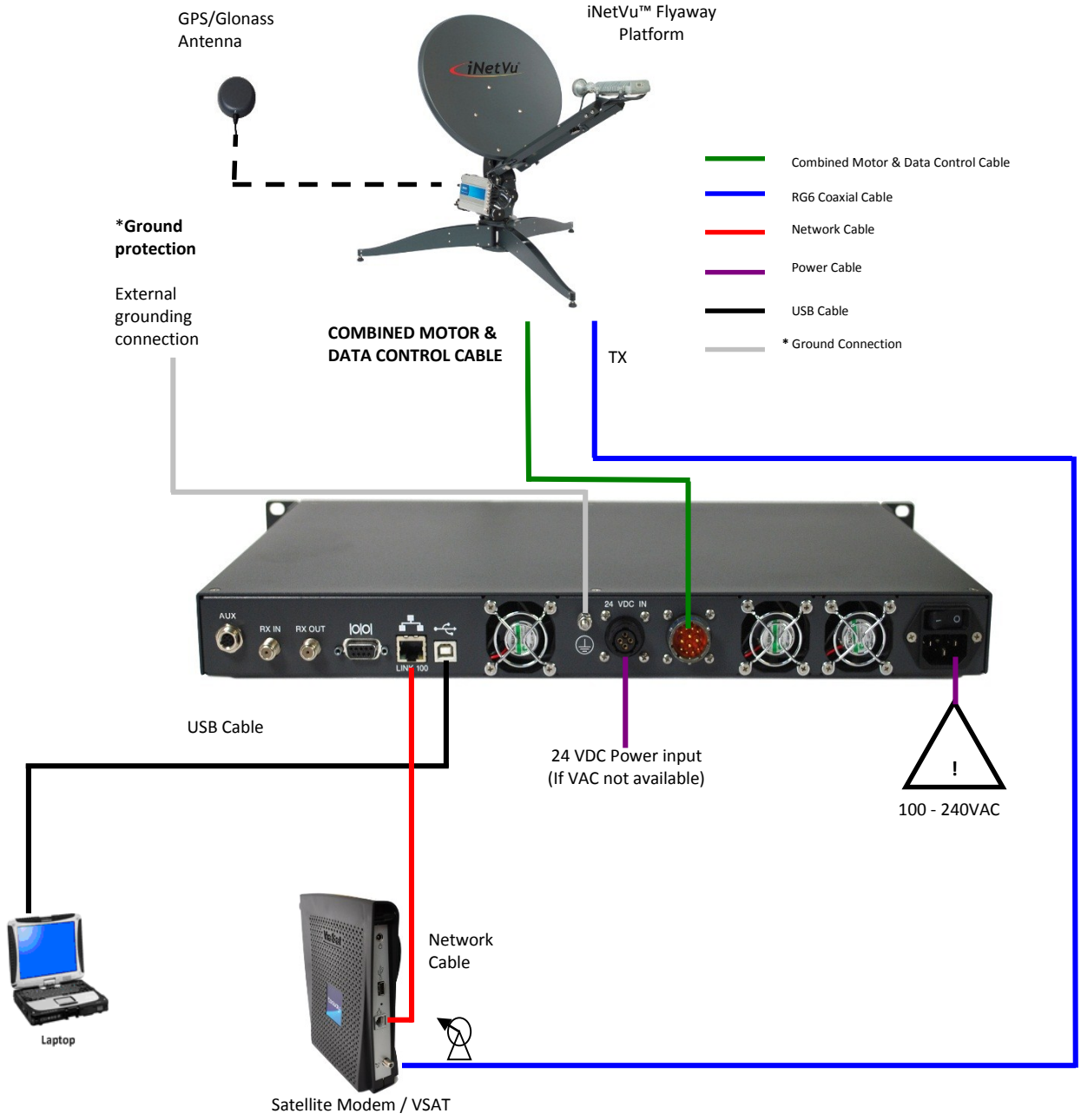


Fig. 16: USB Configuration Interface with Ka Antenna

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

3. Assembly and Disassembly

3.1 Assembly Procedure

1) Open controller case (7710 Main Controller) which also houses the AZ/EL assembly, this is the higher of the two cases. Fly-75V has 2 cases while the Fly-98G/H/V and Fly-981 requires 3 cases.

Fig. 17: Fly-75V cases

Fig. 18: 98 cm Flyaway cases

3.1.1 Fly-75V Assembly Procedure

2) Open reflector, tripod and feed boom case, this is identified by being the shorter and thinner of the two cases.

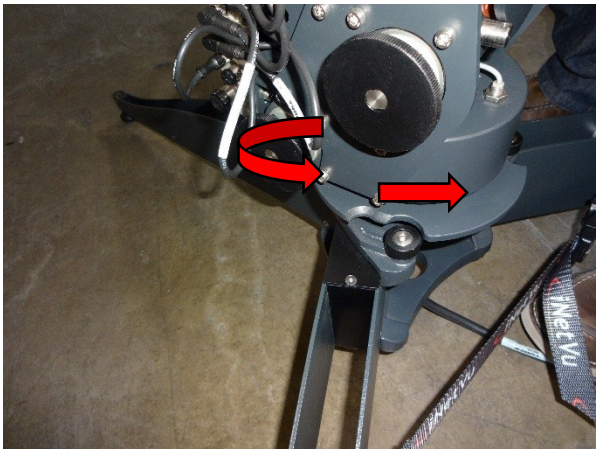
3) Remove reflector from case and set it down in a safe location. Do not stand it up.

4) Remove tripod legs and expand out to maximum distance until they are up against the stops, fasten retention strap and tighten securing tripod legs.

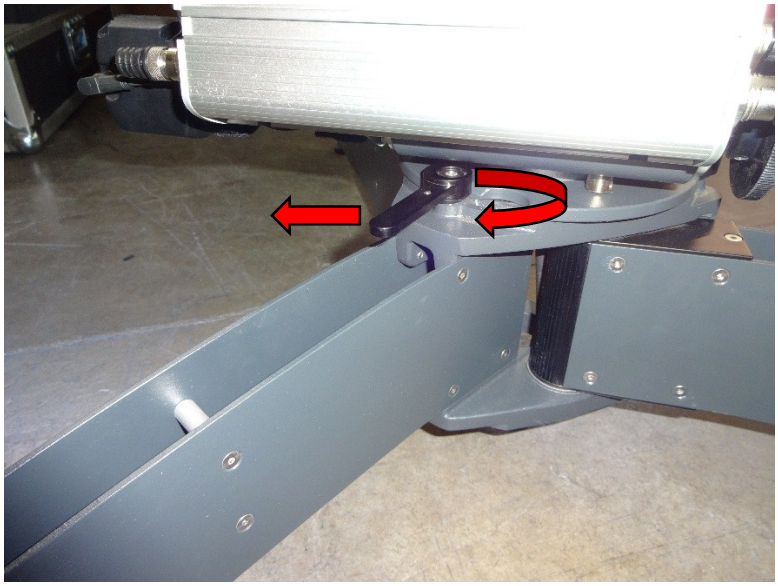
5) Remove AZ/EL assembly from case by releasing and turning lock lever counter clockwise (ccw) at the base. Rotate AZ/EL assembly clockwise (cw) until assembly becomes free, slowly lifting the assembly upwards.

   IMPORTANT - do not handle AZ/EL with the (7720) on-board Remote Drive Module or motors during this operation as it will cause damage. Slowly lift out AZ/EL ensuring cable does not get caught on anything inside the case.

6) Feed cable through center of tripod and mount AZ/EL assembly aligning larger cut-out notches with posts.

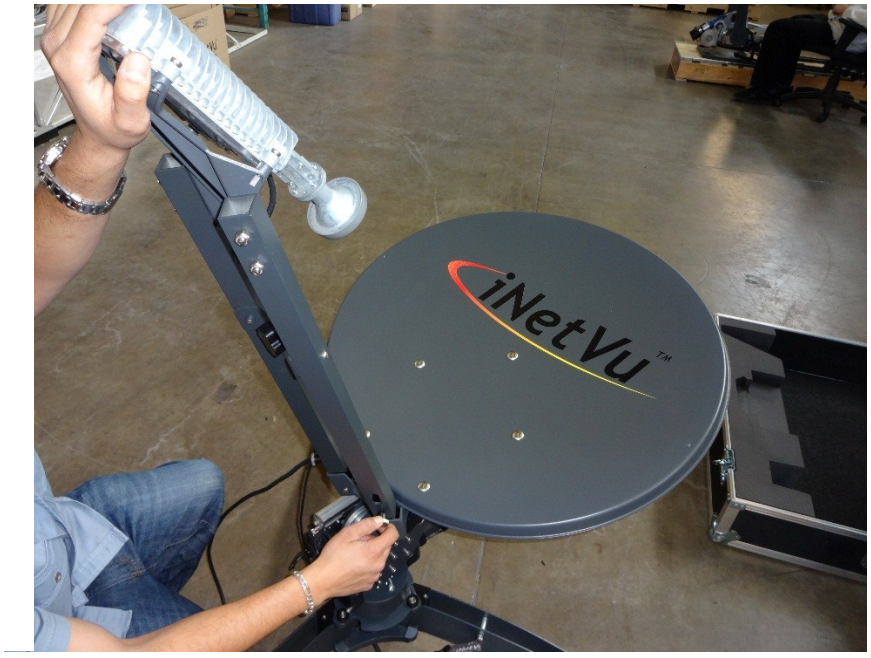


7) Rotate AZ/EL assembly counter clockwise until it locks and secure lock lever in place.



8) Mount reflector by lining it over the reflector bracket supporting it while it's being installed. With one hand supporting the top of the reflector align and tighten the reflector thumb screws.

9) Install feed boom after removing it from case. Align the square tubes to the ones at the base of the reflector and tighten thumb screws at the bottom of the reflector to secure the boom in place. **Note it is recommended to support and push feed boom towards the reflector while tightening the thumb screws in order to eliminate weight factor.**



10) Feed the IFL cable through the center of the AZ/EL drive and through the tripod center same as was done with the motor/sensor cable.

11) Connect compass cable to compass connector on 7720 Remote Drive Module. Line up the pins of the connector and rotate locking ring to avoid damaging the pins.

12) Connect motor/sensor cable and IFL cable coming from controller to their respective connections at base of antenna.

Note: Routing cables through rear of case is recommended.

CAUTION

Indicates a situation or practice that might result in property or equipment damage. Ensure Sensor, Motor and RX/TX cables are connected prior to powering on 7710 Controller.

13) Plug power cable into power source after feeding cable through rear case opening and power on the controller. USB and Network cables may also be routed through the opening.

14) Once 7710 controller has completely booted up, press FIND SAT. This is assumed that the controller is preconfigured with the correct settings if not configure controller, refer to service Quick start.

15) Satellite searching triggered and connected in minutes. Fly-75V successfully assembled just like that!

3.1.2 Fly-98G/H/V & Fly-981 Assembly Procedure

1) Open Tripod and Feed boom case.

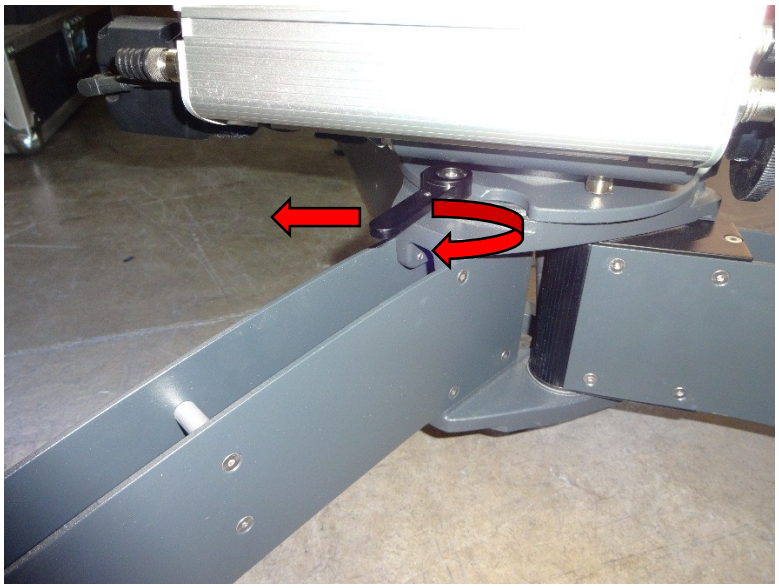
2) Remove tripod legs and expand out to maximum distance until they are up against the stops, fasten retention strap and tighten securing tripod legs.

3) Open AZ/EL case, Remove AZ/EL assembly from case by releasing and turning lock lever clockwise at the base. Rotate AZ/EL assembly clockwise until assembly becomes free.

IMPORTANT - do not handle with the (7720) on-board Remote Drive Module during this operation as it will cause damage. Slowly lift out AZ/EL ensuring cable does not get caught on anything inside the case.

4) Feed cable through center of tripod and mount AZ/EL assembly aligning larger cut-out notches with posts.

5) Rotate AZ/EL assembly counter clockwise (ccw) until it locks and secure lock lever in place by turning it clockwise (cw).



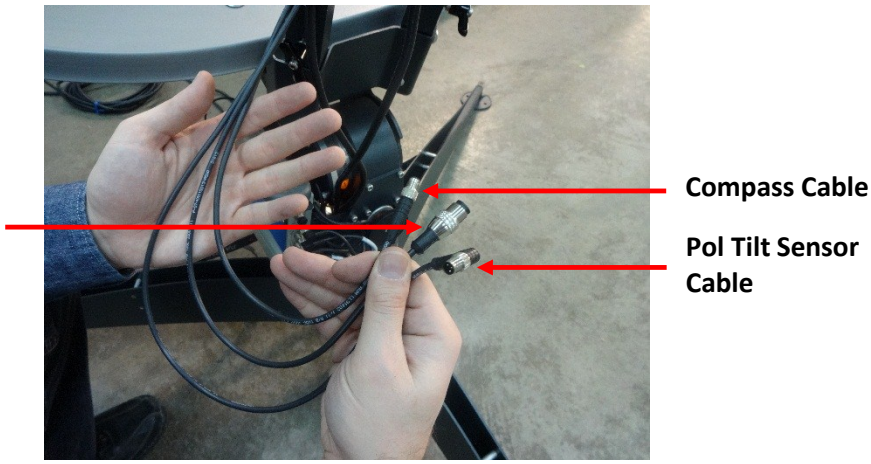
6) Mount reflector by lining it over the reflector bracket supporting it while it's being installed. With one hand supporting the top of the reflector, align and tighten the reflector thumb screws.

7) Remove feed boom from case and install on antenna.

8) Align the square tubes to the ones at the base of the reflector and tighten thumb screws at the bottom of the reflector to secure the boom in place. **Note it is recommended to support and push feed boom towards the reflector while tightening the thumb screws in order to eliminate weight factor.**

9) Feed the IFL cable through the center of the AZ/EL drive (Fly-981 requires 2 IFL cables) and through the tripod center same as was done with the motor/sensor cable.

10) Connect compass cable to compass connector on 7720 Remote Drive Module. Line up the pins of the connector and rotate locking ring to avoid damaging the pins. The Fly-981 will have additional cables that will require connecting such as Pol Motor and Pol Tilt sensor.



11) Connect external motor/sensor cable and IFL cable(s) coming from controller to their respective connections at bottom of antenna tripod.

Note: Routing cables through rear of case is recommended.

CAUTION

Indicates a situation or practice that might result in property or equipment damage. Ensure Sensor, Motor and RX/TX cables are connected prior to powering on 7710 Controller.

12) Plug power cable into power source after feeding cable through rear case opening and power on the controller. USB and Network cables may also be routed through the opening.

16) Once 7710 controller has completely booted up, press FIND SAT. This is assumed that the controller is preconfigured with the correct settings if not configure controller, refer to service Quick start.

13) Satellite searching triggered and connected in minutes. Fly-98 system successfully assembled just like that!

3.2 Disassembly Procedure

1) Press STOW button on the front of the controller and wait for antenna to stow in upright (reflector faces the sky) position.

2) Power off 7710 main controller (this will also turn off the power on the 7720 Remote Drive Module). Unplug from power source.

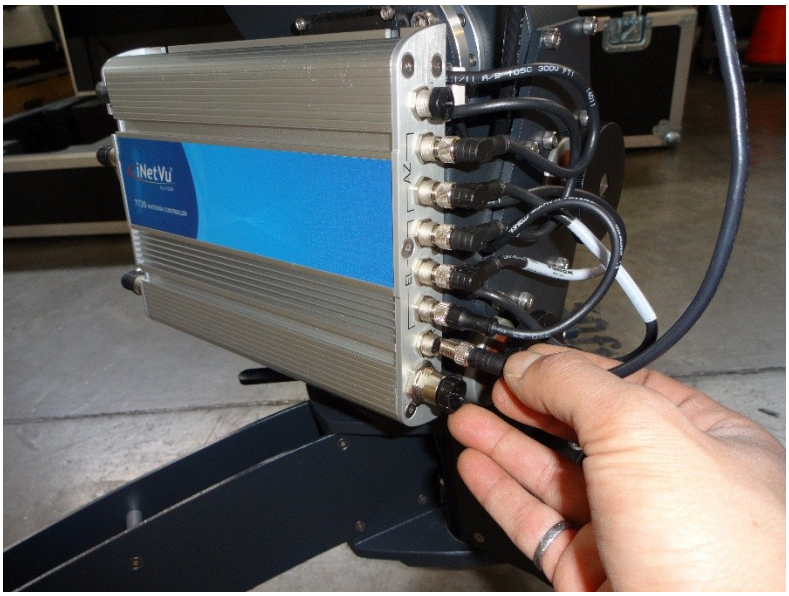
CAUTION Ensure to power off the 7710 Controller prior to disconnecting cables.

3) Disconnect motor/sensor and IFL cables between controller and antenna.

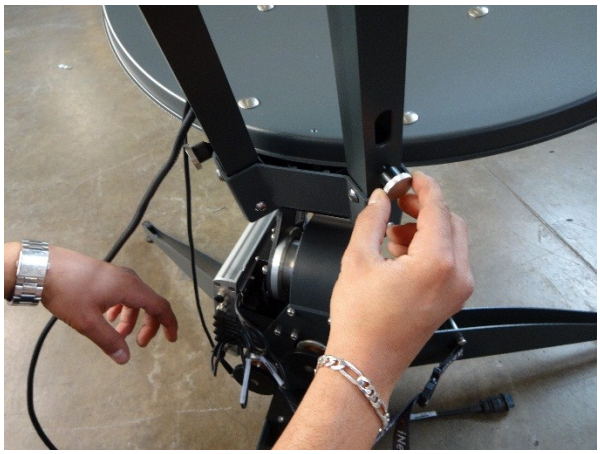
4) Coil the motor/sensor cables and pack into controller case.

5) Remove IFL cable by pulling it through center of drive assembly. Fly-981 will have 2 IFL cables that will need to be removed.

6) Disconnect compass cable from the 7720 remote drive module. Fly-981 will have additional Pol Motor and Pol Tilt Sensor cables to be disconnected.

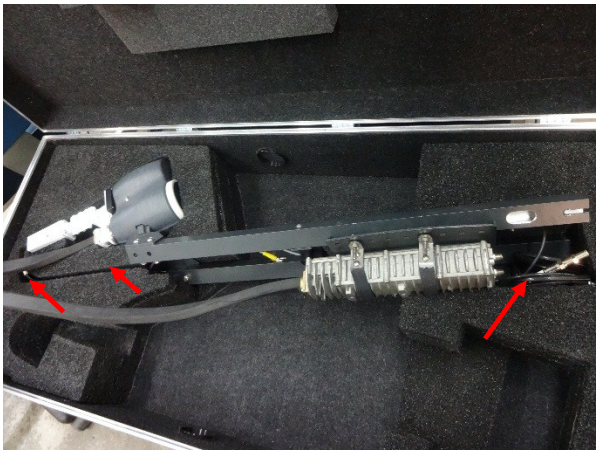


7) Loosen the feed boom's thumb screws at the bottom of reflector.



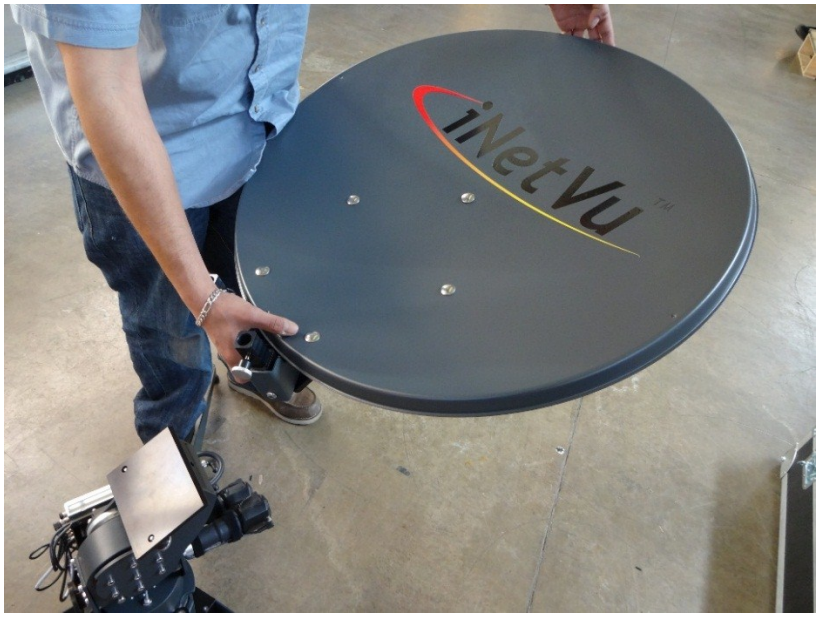
8) Remove and set back into case leaving cables on top.

9) Tuck cables away into cable channels to keep them from getting pinched during case closure.



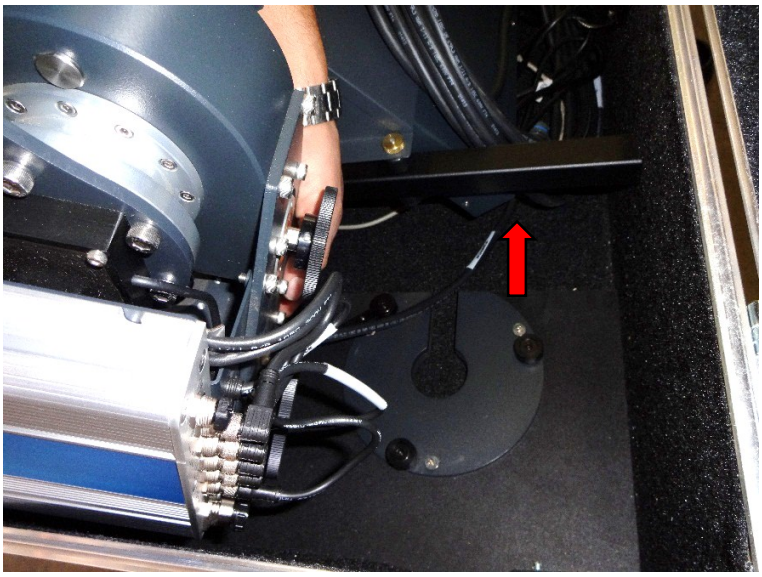
10) Supporting the reflector with one hand, loosen thumb screws.

11) Remove reflector and place it safely on the ground, Fly-98 reflector can be placed directly in the case.



12) Release and rotate lock lever counter clockwise on AZ/EL assembly rotating the unit clockwise. Lift from tripod pulling motor/sensor cable connector through tripod center. **IMPORTANT**, do not handle/lift using the on-board Remote Drive Module (7720) for this operation as it will cause damage.

13) Feed the motor/sensor cable connector along the bottom of the case towards controller side.

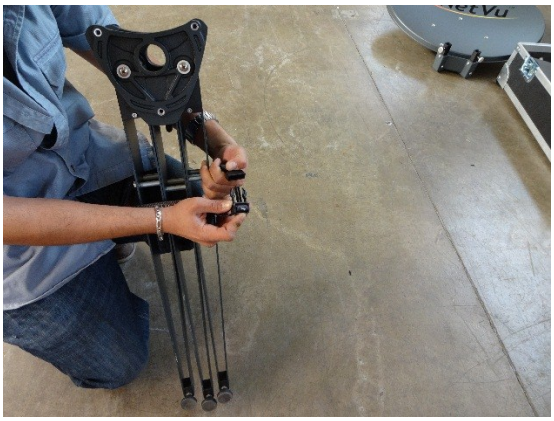


14) Place AZ/EL assembly into case position and orient locking levers in place. Rotate the entire unit counter clockwise to engage the locking mechanism. Rotate the lock lever clockwise to secure in place.

15) Ensure all cables are tucked away and the assembly is locked in place to avoid damage.

16) Close the controller case lid.

17) Release the safety clip on the retention strap and fold pod legs together. Secure legs in place with the retention strap.



18) Place tripod feet first into the case and slide the feet into the front side of the case foam.

Fly-75V Tripod

Fly-98 System Tripod

19) Place reflector in case with front side facing up, ensure cables of Fly-75V do not interfere with reflector.

Fly-75V Reflector

Fly-98 System Reflector

20) Ensure cables are tucked away to avoid getting them pinched and close reflector case lid.

Appendix 1: Default Limits and Configuration Data Tables

Compass Reading Elevation

	PLATFORM TYPES					
	Fly-75V (A0756A)	Fly-98G/H/V (A0986A)	Fly-981 (A0986C)			
COMPASS READING ELEVATION	32	32	32			

Table 1: Compass Reading Elevation Default Values

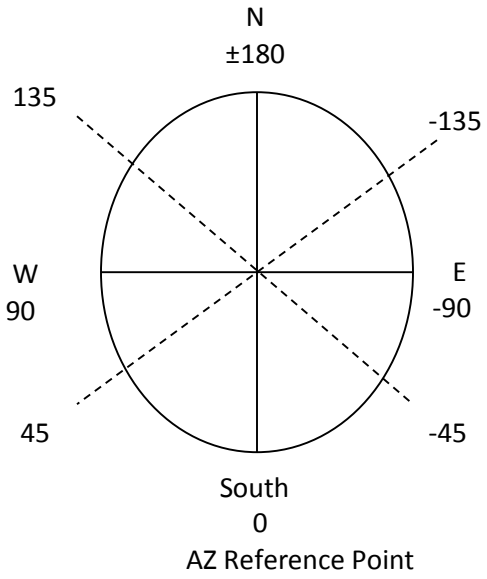
Elevation Offset

	Fly-75V Flyaway	Fly-98G Flyaway	Fly-981
EL OFFSET	4.5	4.5	5.5

Table 2: Default Elevation Offsets. All values are ± 2° after Target Calibration.

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