



v100GX

Ku-to-Ka Convertible

Installation and Operation Manual

Serial number of the product

This serial number will be required for the all troubleshooting or service inquiries.

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CERTIFICATIONS



FCC Declaration of Conformity

Intellian Technologies, manufactures of stabilized maritime VSAT antenna systems for satellite communication at sea, supplies stabilized maritime VSAT antenna systems to the satellite communication service providers for their ESV (Earth Station on Vessels) networks.

FCC §25.222 defines the provisions for blanket licensing of ESV antennas operation in the Ku-band. It defines the antennas radiation, and each article regulates the followings;

§25.222 (a)(1)(i)(A): Regulation for Azimuth Direction & Co Polarization
§25.222 (a)(2)(i)(B): Regulation for Other Direction & Co Polarization
§25.222 (a)(1)(i)(C): Regulation for Cross Polarization

Intellian Technologies, Inc. declares that v100GX complies with the threshold level as defined in §25.222(a)(1)(i)(A);, and declares that v100GX is in accordance with all defined regulations from §25.222(a)(1)(i)(B) to §25.222(a)(1)(i)(C) at the below stated input power spectral density, with an N value of 1.

Product description	Intellian v100/v100GX, 103cm Ku-band maritime VSAT antenna system
EIRP spectral density limit	-16.18 dBW/ 4 KHz

Intellian Technologies, Inc. declares that the above antenna will maintain a pointing error of less than or equal to 0.2 degree under specified ship motion conditions in accordance with the requirements of §25.222 (a)(1)(ii).

Intellian Technologies, Inc. declares that the above antennas will automatically cease the transmission with a mute command to the modem within 100 milliseconds if the target satellite and the axis of the main lobe of the ESV antenna exceeds 0.5 degree and will not resume until such angle is less than or equal to 0.2 degree in accordance with the requirements of §25.222 (a)(1)(iii)

Radiation pattern data is available upon request to verify the conformance.

Authority: **Steve Cha**
Director, Research & Development



Signature: _____

Date: _____ May 13, 2013

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R&TTE Declaration of Conformity (DoC)

We, Intellian Technologies, Inc. located at 2F Dongik Bldg., 98 Nonhyun-dong, Kangnam-gu, Seoul 135-080, Korea declare under our sole responsibility that the product(s) described in the below to which this declaration relates is in conformity with the *essential requirements* and *other relevant requirements* of the Radio and Telecommunications Terminal Equipment(R&TTE) Directive (1999/5/EC).

Product Information:

Product Name(s):	Intellian v100/v100GX, 103cm Maritime VSAT Antenna System
-------------------------	---

To provide the presumption of conformity in accordance to Annex III(encompassing Annex II) of Directive 1999/5/EC; the following harmonized standards and normative documents are those to which the product's conformance is declared, and by specific reference to the essential requirements of Article 3 of the Directive 1999/5/EC.

1995/5/EC Article	Standard(s) Applied in Full	Date of Withdraw
SAFETY (Art 3.1.a)	IEC EN 60950-1: 2001 (1 st Edition)	Not Referenced
EMC (Art. 3.1.b)	IEC EN 60945: 2002 ETSI EN 301 489-1 V1.8.1: 2008	Not Referenced
SPECTRUM (Art. 3.2)	ETSI EN 301 428 V1.3.1: 2006-02 ETSI EN 302 340 V1.1.1: 2006-04	Not Referenced

Supplementary Information:

Notified Body Involved: (Testing Organization)	SK Tech Co., Ltd. 820-2, Wolmoon-Ri, Wabu-Up, Namyangju-Si, Kyunggi-Do, 472-905, Korea
Technical/Compliance File Held by:	Intellian Technologies, Inc. (R&D Department) 32-1-4 Block, Jinwi Industrial Park Jinwi-Myeon, Pyeongtaek-Si, Gyeonggi-Do, Korea
Place and Date of issue:	Seoul, Korea on 20 Oct 2012

Authority: **Steve Cha**
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Signature: _____

Date: _____ **20 Oct, 2012**

INTRODUCTION

Intellian v100GX Introduction

Intellian v100GX Features

System Configuration

Intellian v100GX Introduction

Intellian v100GX (1.03m) is a Ku-band VSAT maritime antenna system convertible to Ka-band for Inmarsat's Global Xpress™ (GX) network. Featuring fully optimized RF performance for Ku or Ka-band, the v100GX provides advanced VSAT solutions for Ku-band satellite services that are also designed to be upgraded when the system is configured to the Ka-band GX high throughput broadband services. To make the future conversion process easy and simple, the v100GX is equipped with a new mounting architecture of RF module consisting of BUC and LNB.

The mounting assembly of BUC and LNB is simply attachable to the rear-side of the reflector so that it will be easily replaced without the need to balance the system after conversion.

The v100GX is built to meet or exceed the industry's most stringent standards such as FCC, ETSI, R&TT and MIL-STD-167. With its frequency tuned radome and newly designed reflector, the v100GX offers the maximized performance both on a Ku-band VSAT system and a Ka-band Inmarsat Global Xpress system. The antenna's 3-axis stabilized platform and advanced shock-resistant and vibration damping design of the Pedestal is fully optimized to withstand the demanding maritime conditions and to ensure reliable broadband communications. The unlimited azimuth range ensures continuous tracking without unwrapping the cables in the antenna and the low elevation angle (-20°) supports seamless signal reception at extremely high latitudes.

Equipped with Intellian's next generation Antenna Control Software, 'Aptus®', the v100GX antenna can be remotely accessed, monitored and controlled through Serial connection or secured TCP/IP network. Its graphic-based user interface provides easy-to-use operating environment. The v100GX has also embedded webserver and secured web user interface called Aptus Web for remote management of the antenna on a web browser. Network connection can be easily setup through the front Management Ethernet Port on the ACU that supports automatic IP configuration.

The v100GX is fully integrated with ABS (Automatic Beam Switching) function with various platform compatibility such as the OpenAMIP protocol of iDirect and the ROSS Open Antenna Management (ROAM) protocol of Comtech. The v100GX is supplied with both cross-pol and co-pol feeds and comes equipped with Intellian's patent pending Global PLL LNB by standard.

Features of Intellian v100GX

Ku to Ka-band convertible terminal

The v100GX can be converted from a Ku-band system to a Ka-band GX™ system by a few simple steps. The v100GX is equipped with an integrated RF module consisting of BUC and LNB. This BUC and LNB mounting assembly is attached to the rear side of the reflector in order to support easy conversion and balance-free installation.

Optimized reflector for Ku or Ka-band

The v100GX is designed and engineered to operate on both Ku and Ka-band. The reflector of the v100GX is capable of handling either Ku or Ka-band without the need to replace the reflector when the system is converted to Ka-band. The system is supplied with a Ku-band feed chain as standard. The 1m reflector for the v100GX satisfies EIRP and G/T performance of both Ku and Ka-band.

Frequency tuned radome

To ensure efficient operations for both Ku-band VSAT and Ka-band Inmarsat Global Xpress™ systems, the v100GX has the tuned radome to minimize signal loss while offering improved RF pattern for both Ku and Ka-band systems.

Gyro-free satellite search capability

Intellian's new generation gyro-free satellite search function enables the v100GX to acquire and lock onto the satellite without requiring a separate input from the ship's gyrocompass.

DVB/DVB-S2 and NBD detection capability

Intellian v100GX is capable of detecting DVB-S/DVB-S2 signal, SCPC, and Narrow- Band signal using integrated digital tuner and the narrow band detector (NBD).

Graphical and user-friendly antenna control software

Intellian's next generation Antenna Control Software, 'Aptus®' is developed based on the Intellian developed 'Antenna Remote Management System (ARMS) Software Development Kit (SDK)'. This graphic-based software is designed to remotely monitor and control Intellian antennas through an IP network.

Dedicated Management Ethernet Port

The v100GX has a Management Ethernet Port on the ACU front that enables direct and simple network connection between a PC and the ACU. The Management Port supports DHCP network connection by default, allowing automatic IP configurations, Internet access and quick access to Intellian's remote management solution, the Aptus Web.

Wireless access via WiFi and Bluetooth

The built-in WiFi wireless network card enables the ACU to be wirelessly connected that can be either turned on and off by a switch. Any kind of wireless devices such as PCs, laptops and smartphones can be used to connect to the ACU and monitor, control and change the settings of Intellian antenna system wirelessly. Users can also access and control the antenna with a PC that has Bluetooth capability. The Bluetooth connectivity enables wireless antenna monitoring and control from a PC without Ethernet or Serial Cable connection.

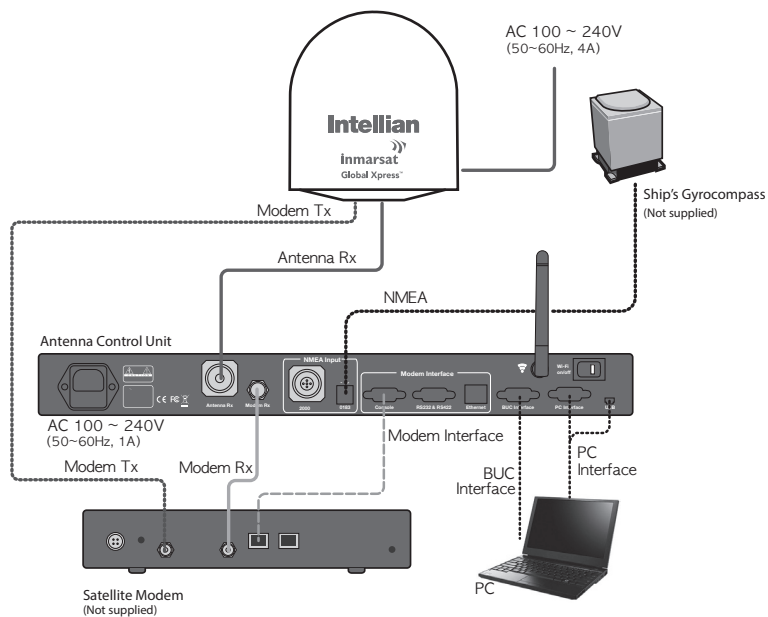
Intelligent firmware upgrade

Intellian v100GX provides easy and intelligent firmware upgrade methods. Firmware upgrade can be automatically initiated by plugging a firmware stored USB Memory Stick to the USB Port on the ACU front or by launching 'Firmware Upgrade' on the Aptus® or Aptus Web. User can also manually select a firmware file on a local disk and complete the upgrade. The firmware can be rolled back to a previous version as the ACU's built-in memory stores the current and previous firmware files.

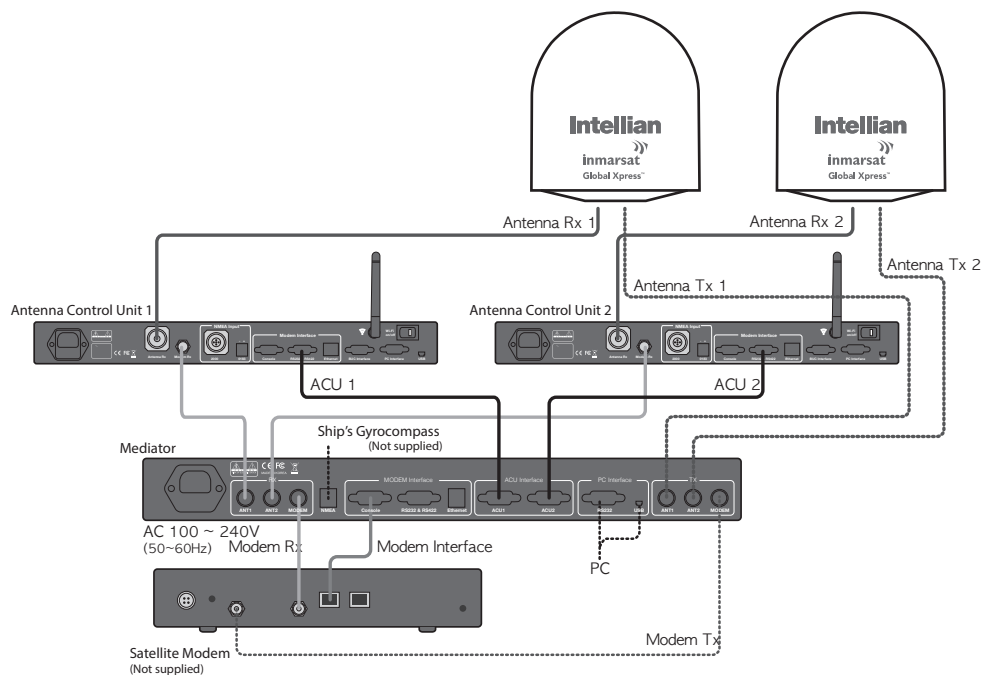
System Configuration

For your satellite communication system to work properly, the system will have to be connected with all of the provided components as shown in the figure below. Separate purchase of a satellite modem, ship's gyrocompass, and Intellian Dual VSAT Mediator may be required.

Basic System Configuration



Dual System Configuration



INSTALLING THE ANTENNA

System Package

Antenna Unit

ACU (Antenna Control Unit)

Installation Kit

Planning the Installation

Selection of Antenna Installation Site

Configure Radiation Hazard/Block Zones

System Cables

Power Requirement

Tools Required for Installation

Antenna Installation

Unpacking the Wooden Crate

Antenna Dimensions

Antenna Mounting Templates

Position the Radome

Mount the Radome

RF Cable Connections

Secure the RF Cables

System Package

The package of Intellian v100GX consists of antenna unit, lifting straps, ACU and installation kit box.

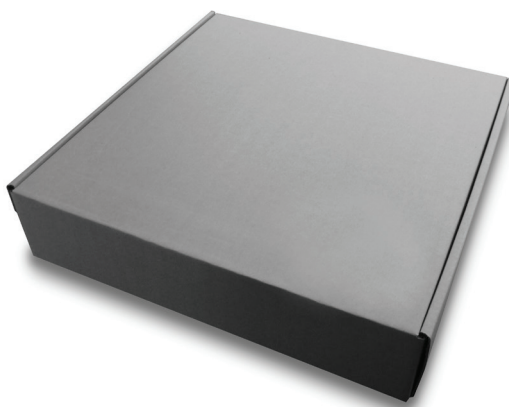
Antenna unit



ACU



Installation kit box



Antenna Unit

The antenna unit includes an antenna pedestal inside a radome assembly unit. The pedestal consists of a satellite antenna main dish with RF components mounted on a stabilized pedestal. The radome protects the antenna pedestal assembly unit from the severe marine environment.

Antenna Unit



ACU (Antenna Control Unit)

The digital VFD (Vacuum Fluorescent Display) allows for easy operation of the ACU, even in the dark.

Antenna Control Unit



Front panel



Rear panel

The functions of the ACU are as follows :

- Setting the satellite
- Editing satellite information
- Setting the antenna parameter
- Setting the antenna manual search
- Setting the LNB local frequency
- Setting radiation hazard or block zone
- Setting modem connections
- Setting GPS and Gyrocompass
- Display versions
- Display power status
- Built-in real-time diagnostics function
- Backup and restore the system settings
- Set up the interface with a PC
- Supports Wi-Fi ACU operation
- Recording antenna activities and firmware upgrade through USB
- Built-in web-based remote control management
- Front panel Management Ethernet port

Installation Kit

Contains the items required for securing the antenna unit and ACU to the vessel.

ACU box			
Description	Q'ty	Size	Remarks
Antenna Control Unit (ACU)	1	43.1 x 38 x 4.4cm	Antenna Control Unit
User Manual	1		
Mounting Tamplate	1		
Aptus CD	1		
WiFi Antenna	1	110mm	
USB Flash Drive	1		

Components box			
Description	Q'ty	Size	Remarks
ACU Bracket (Rack)	2		ACU-19inch Rack
ACU Bracket (Table)	2		ACU-Table
RG6 Cable	2	3m	ACU to Modem
AC Power Cord (CEEE7/7)	1	1.5m	ACU Power
AC Power Cord (USA)	1	1.8m	ACU Power
AC Input Cable to Power Box	1	3m	AC Power to Antenna Power Box
PC Serial Cable	1	1.8m	ACU to PC
USB Cable (A-A)	1	1.8m	ACU to PC
Ethernet Cable (RJ45/LAN)	1	1.8m	ACU to PC
iDirect Interface Cable	1	1.5m	ACU to modem
D-sub 9 pin Male Connector	2	-	ACU
N to F Adaptor	1		N(Male) to F(Female) Adaptor
Hex Bolt	5	M12 x 100L	Antenna-Deck 4 Sets : Installation 1 Set : Spare
Flat Washer	5	M12	
Spring Washer	5	M12	
Hex Nut	10	M12	
Hex Head Wrench Bolt	5	M6 x 35L	Radome (Spare Bolts)
Spring Washer and Flat Washer	5	M6	
Sems Bolt	2	M4 x 8	
Self-Tapping Screw	5	M4 x 16	Table Mount Bracket
Flat Head Screw	10	M4 x 12L	Rack Mount Bracket ACU
Sems Bolt	5	M3 x 12L	Table Mount Bracket ACU

Planning the Installation

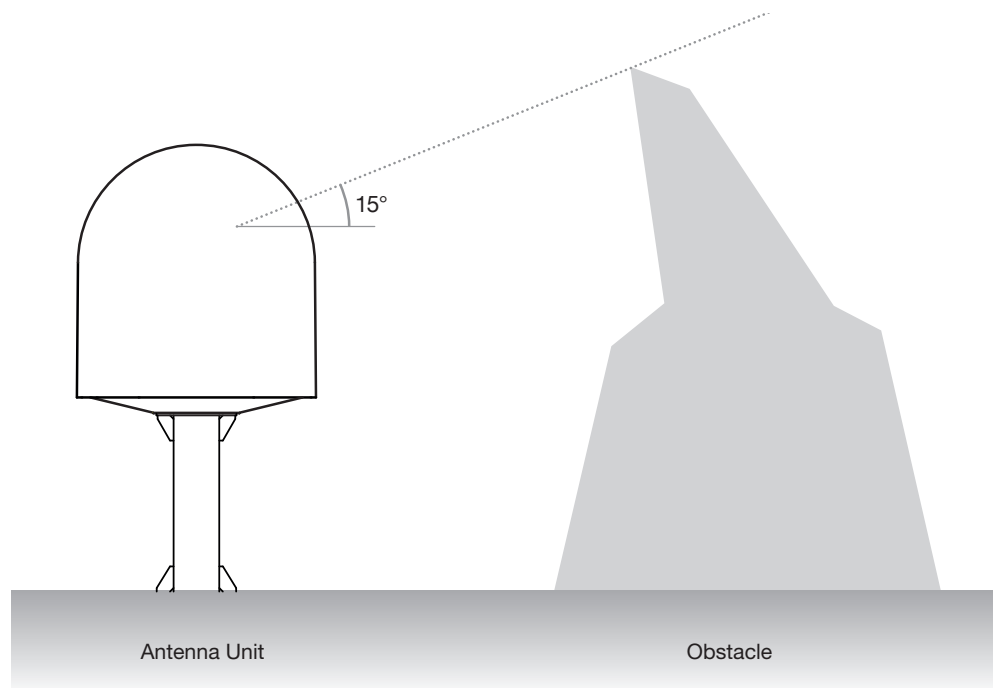
Selection of Antenna Installation Site

Install the antenna in accordance with the following procedures to insure maximum performance of the antenna. The ideal antenna site has a clear view of the horizon or satellite all around. Please be sure there are no obstacles within 15° above the center of the antenna. Any obstacles can prevent the antenna from transmitting and receiving the satellite signal.

Do not install the antenna near the radar especially on the same plane as its energy levels may overload the antenna front-end circuits. It is recommended to position the antenna at least 4 feet (1.2 m) above or below the level of the radar and minimum of 15 feet (4.6 m) away from the high power short wave radars.

The mounting platform should be rigid enough and not subjected to excessive vibration. The movement of the antenna can be minimized by installing at the center of the vessel. If these conditions can be only partially satisfied, find the best compromised installation site between the various considerations.

Elevation Limit
of Obstacles



Configure Radiation Hazard/Block Zones

It is important to set up the radiation hazard or block zones for Intellian VSAT communication systems. The ACU can be programmed with relative azimuth and elevation sectors to create up to five zones where transmit power would endanger personnel who are frequently in that area or blockage exists. Several things happen when the antenna is within one of these zones.

1. "BLOCK" will be displayed on the ACU screen.
2. Tracking continues as long as the signal level is greater than the predefined threshold value. When the signal level drops below the threshold value the antenna will wait "Search Wait Time" parameter amount of time and re-target the satellite you targeted last. The antenna will continue to re-target the satellite until the satellite is re-acquired and tracking can be resumed.
3. A transmit inhibit output from the ACU will disable/mute the modem transmission.

System Cables

Before installing the system cables, you need to take the following points into consideration.

1. All cables need to be well clamped and protected from physical damage and exposure to heat and humidity.
2. Cable with an acute bend is not allowed.
3. Where a cable passes through an exposed bulkhead or deck head, a watertight gland or swan neck tube should be used.

• RF Cable (Customer Furnished)

Due to the voltage losses across the length of the RF coax on L-Band, Intellian recommends the following 50 ohm coax cable types for standard system installations. For cables that run longer than 200 meters, please consult Intellian Technologies.

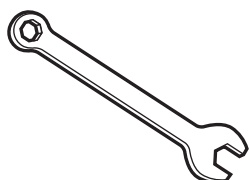
Recommended
RF Cables

Coaxial Cable Type	Attenuation in dB/100M	Attenuation in dB/M	Recommended Cable Length
LMR300	30.3	0.303	35M
LMR400	19.6	0.196	60M
LMR500	15.9	0.159	80M
LMR600	12.8	0.128	100M
LMR900	8.6	0.086	150M
LMR1200	6.5	0.065	200M

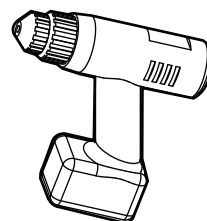
Power Requirement

Intellian v100GX has been designed to work on a vessel's power supply rated at 100-240V AC.

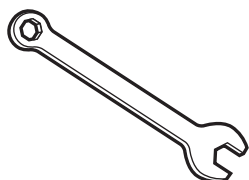
Tools Required for Installation



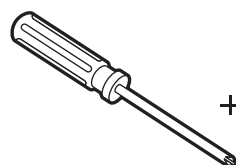
11 mm Wrench



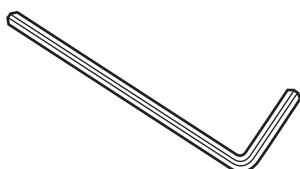
Power Drill



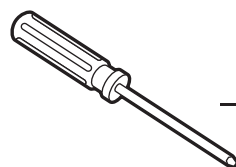
19 mm Wrench



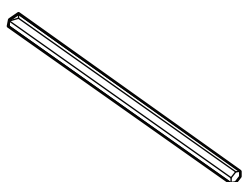
Phillips Head Screwdriver



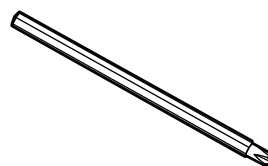
5 mm Allen/Hex key



Flat Head Screwdriver



5 mm Allen/Hex key
(for Power drill)



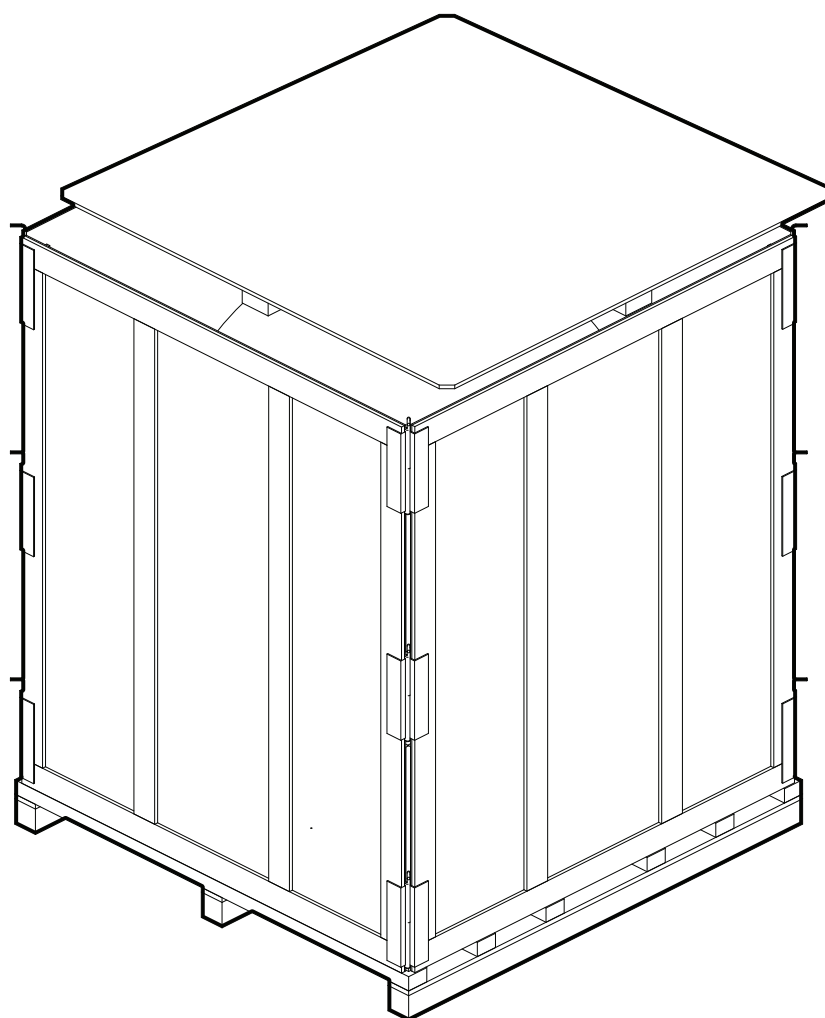
Head Screwdriver
(for Power drill)

Antenna Installation

Unpacking the wooden crate of v100GX

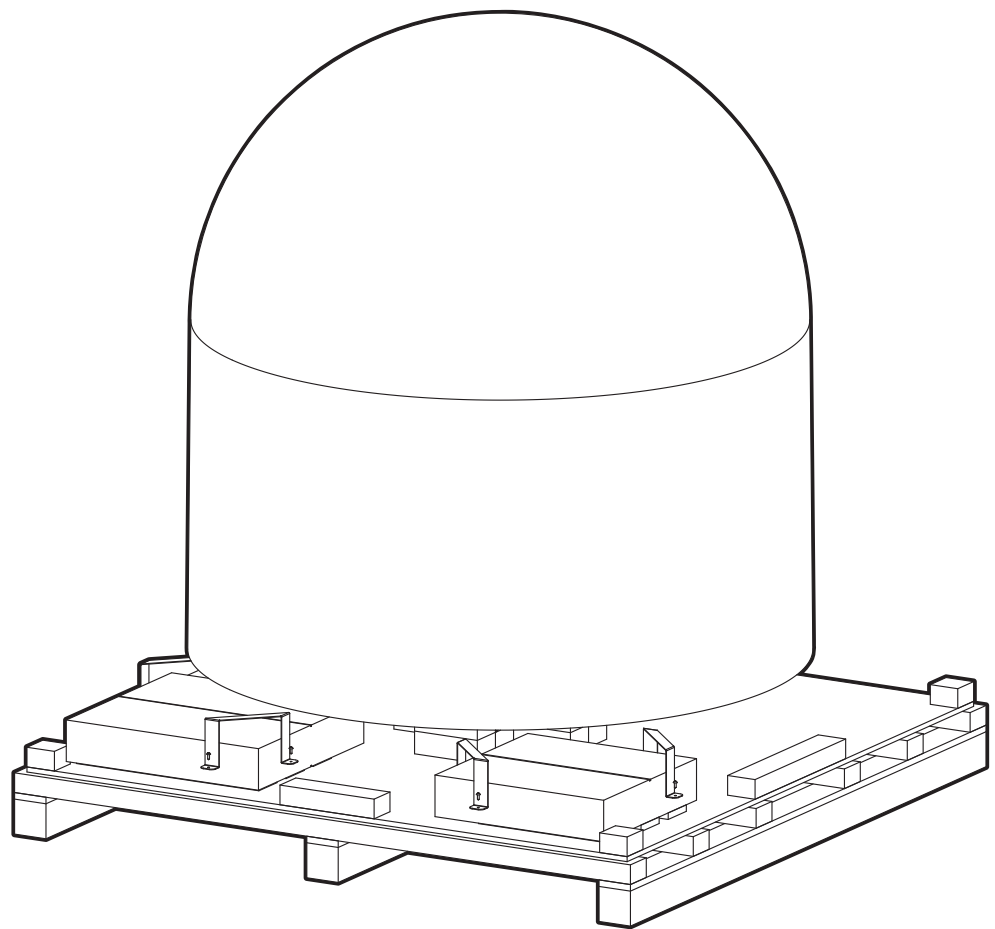
Step 1.

Remove the top panel and 12 pins from the hinges of the wooden crate.



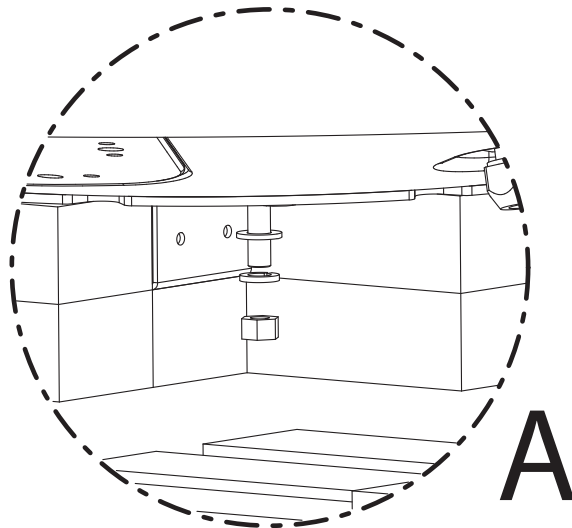
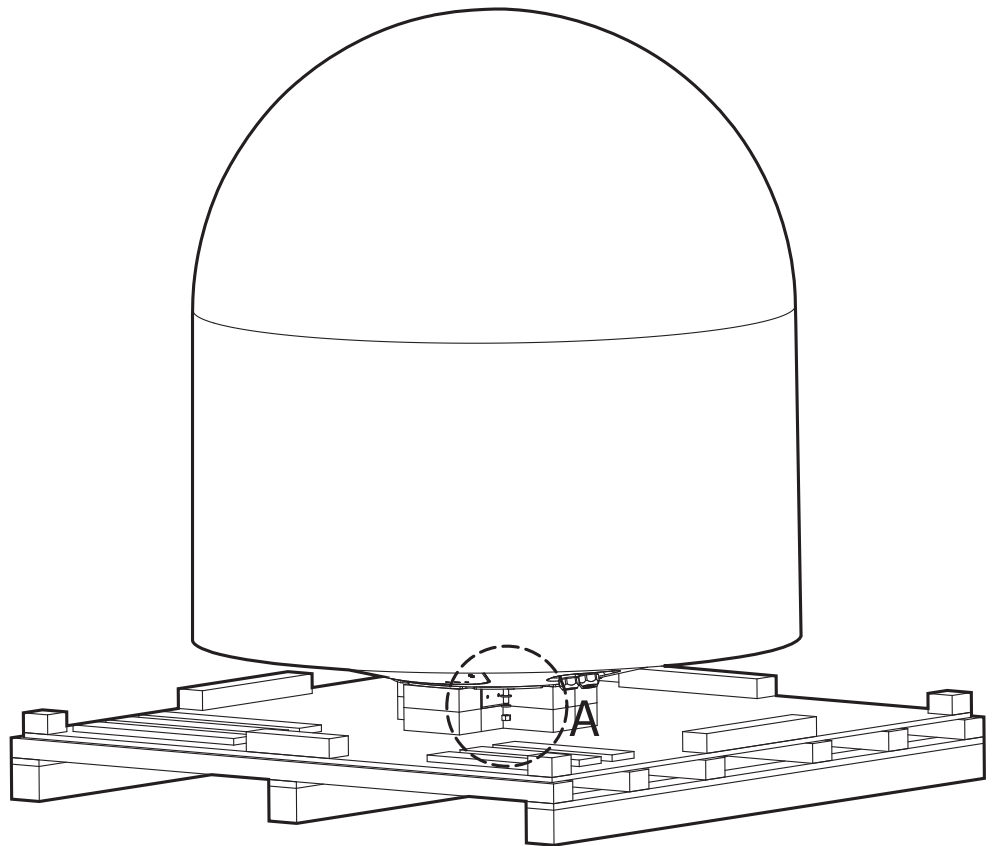
Step 2.

Remove 8 tapping screws that mount the ACU box and installation kit box to the pallet.



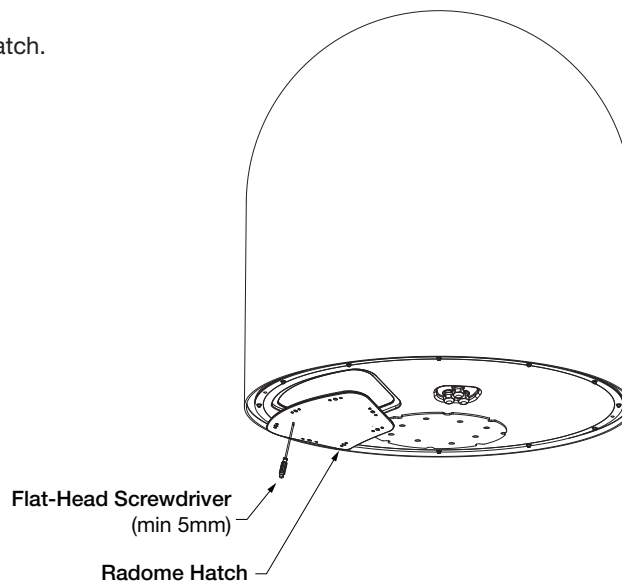
Step 3.

Using a 19mm wrench, remove 4 shipping bolts that mount the antenna to the pallet.



Step 4.

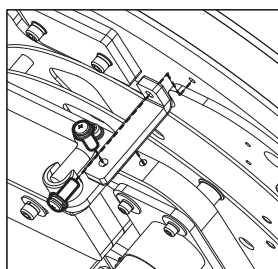
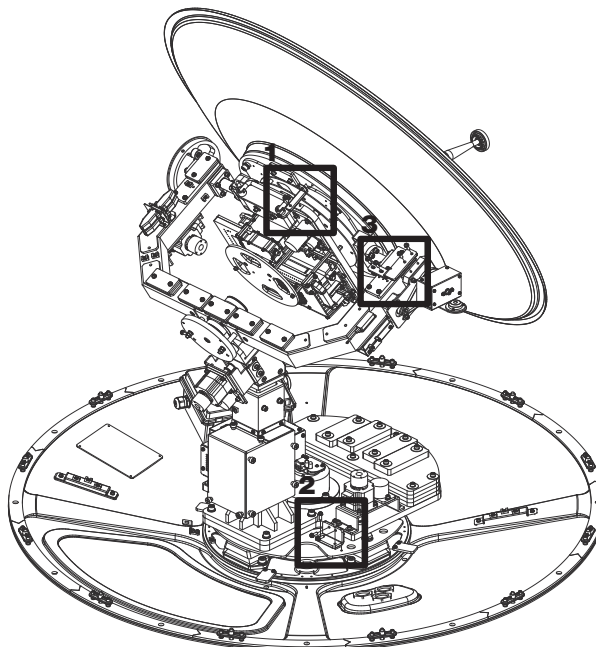
Open the radome hatch.



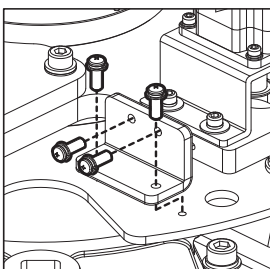
Step 5.

Open the top radome and remove the shipping restraints.

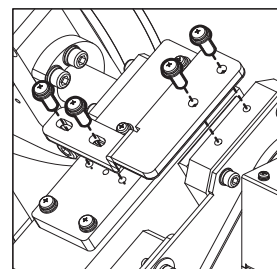
A. Remove shipping brackets securing the Skew, AZ axis and EL axis.



1. Remove the Skew Shipping Bracket

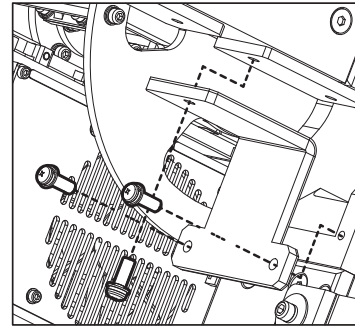
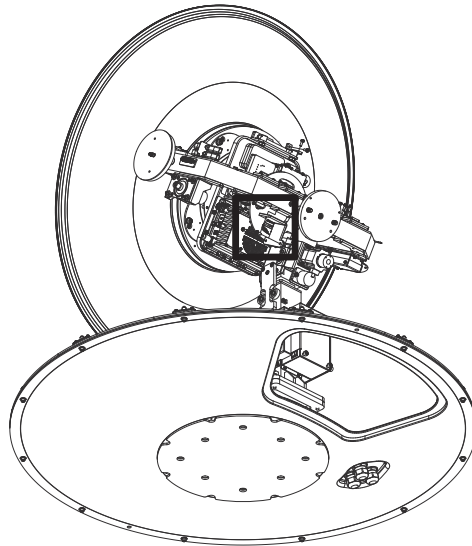


2. Remove the AZ Shipping Bracket



3. Remove the EL Shipping Bracket

B. Remove shipping bracket securing the CL axis.



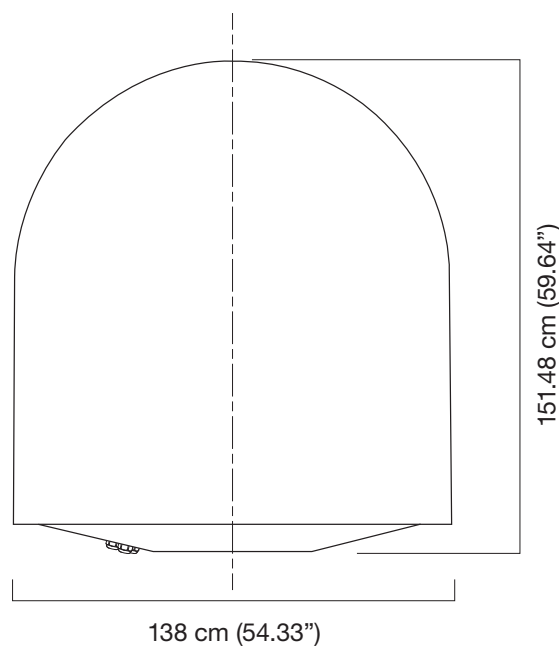
Remove the CL Shipping Bracket

C. Re-assemble the top radome and tighten the radome retention bolt (M6) to a torque setting of 3.5 N·m. To ensure security, apply Loctite #242 or equivalent.

Antenna Dimensions

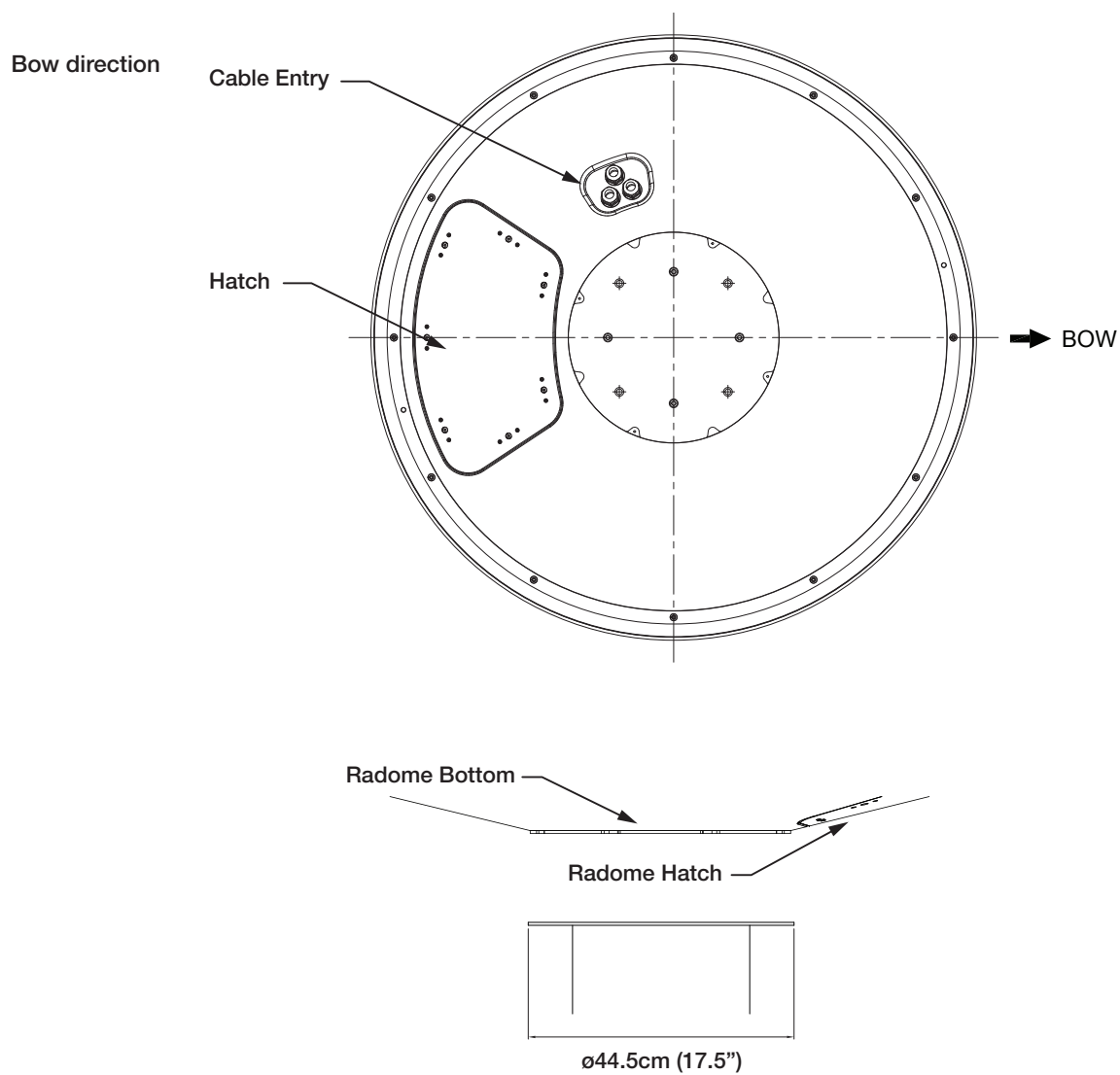
The method of installation and mounting of antenna may vary with vessel design but the following procedures are applicable in most situations, and will result in a secure and effective installation. Confirm the height and diameter of the antenna before installing it.

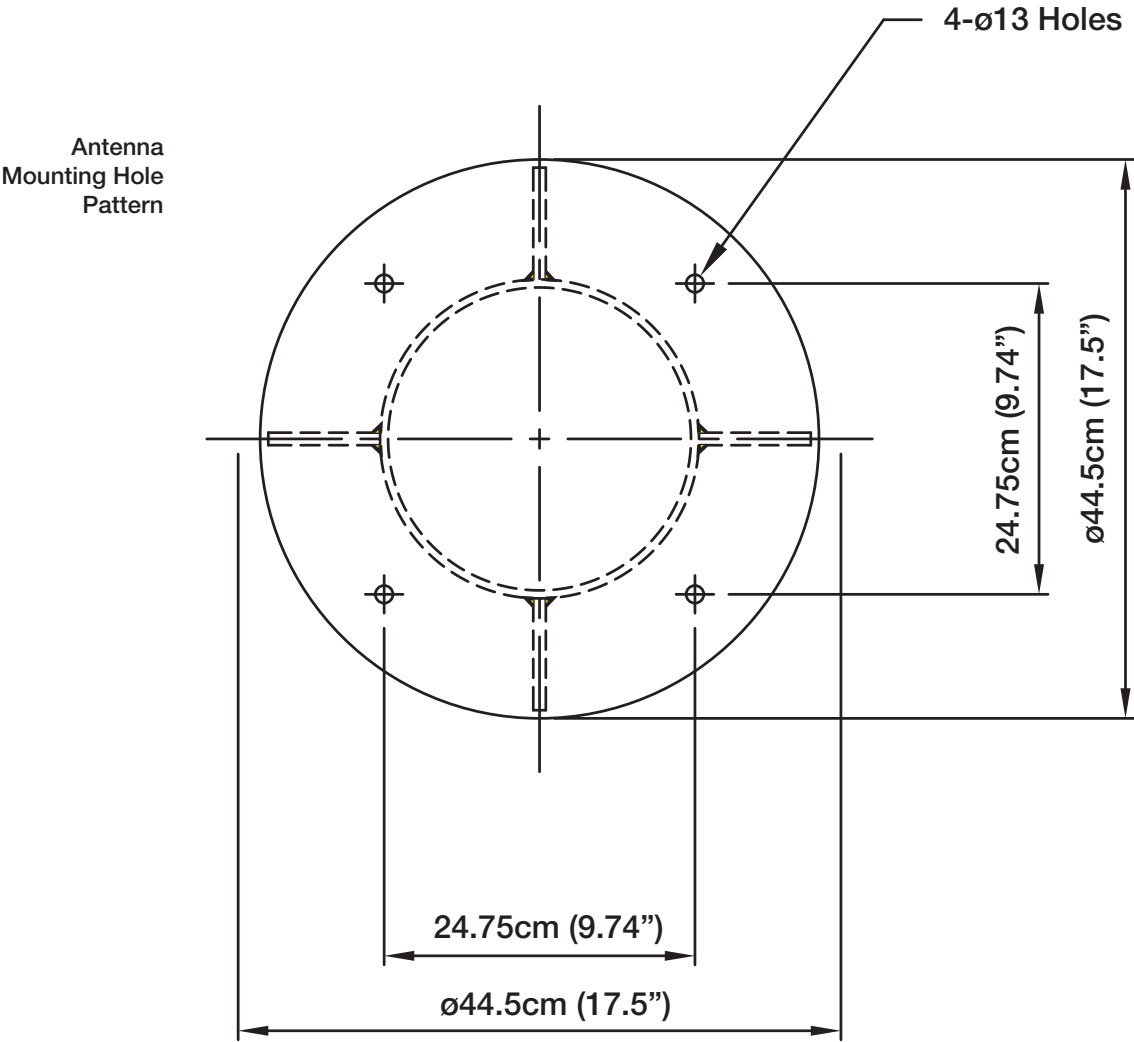
Radome Dimensions



Antenna Mounting Templates

The mounting holes must be in the exact same place as shown in the diagram below.

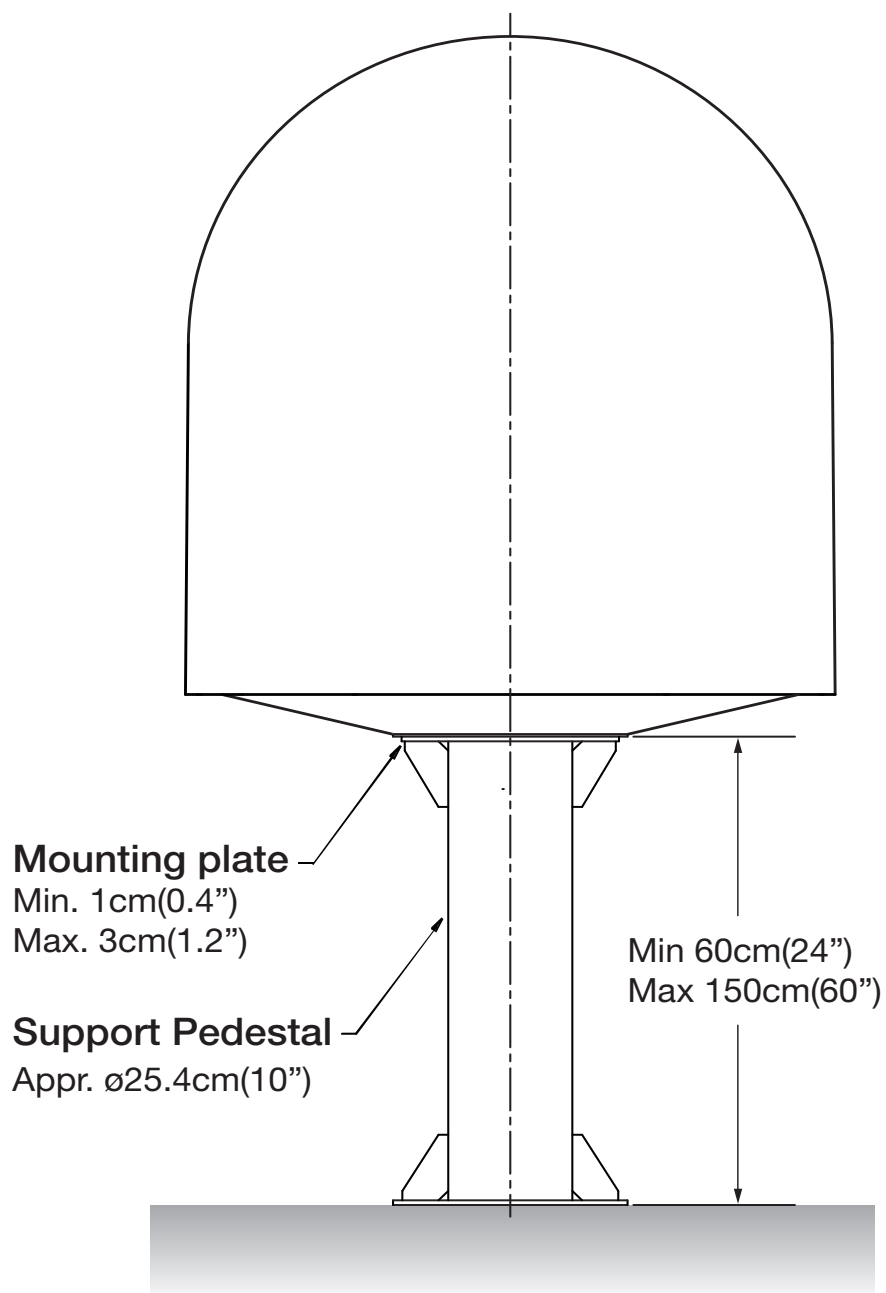




Position the Radome

The radome should be positioned with the BOW marker aligned as closely as possible to the ship's centerline.

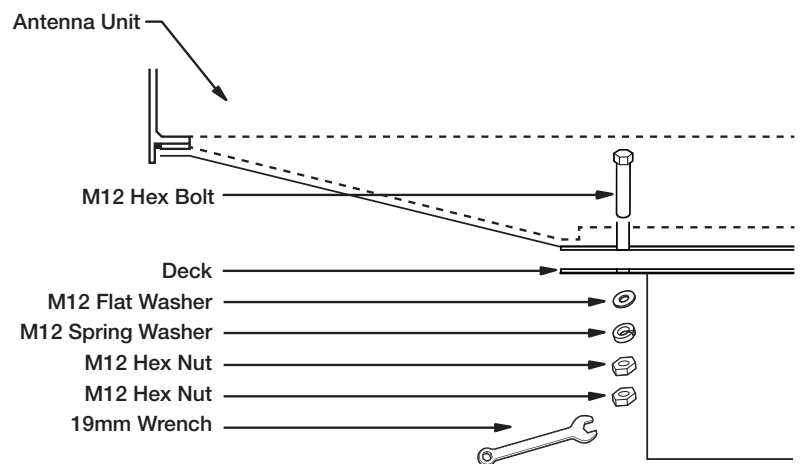
Recommended size of the
support pedestal



Mounting the Radome

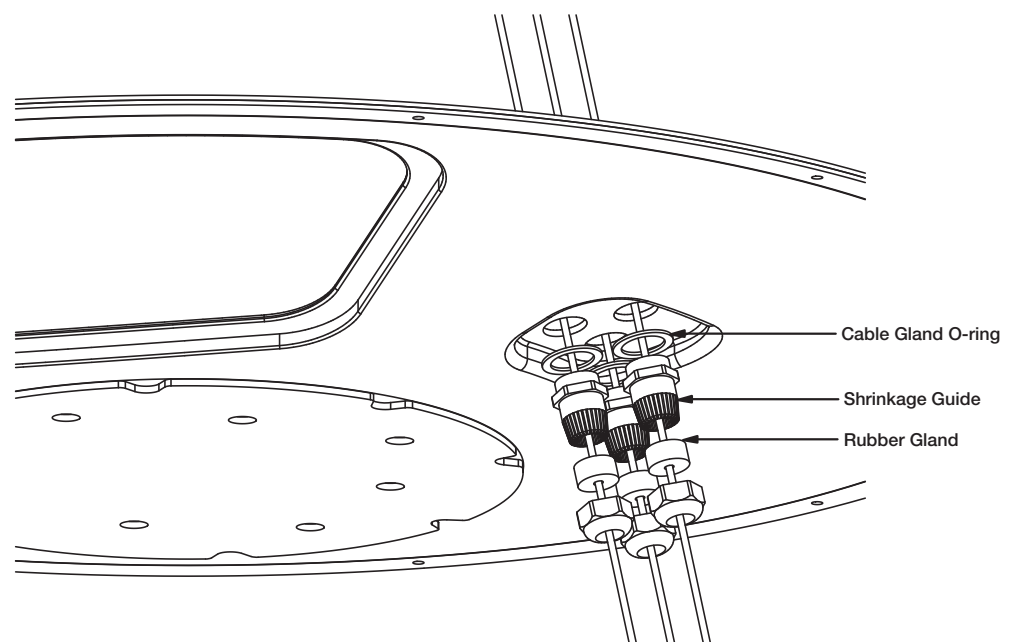
Bolt the radome base directly to the support pedestal.

Note: Make sure to use the Intellian supplied bolts from the accessory box when you mount the radome. Apply Loctite #262 or equivalent to the bolt thread, and fasten it to a torque setting of 110 N·m.

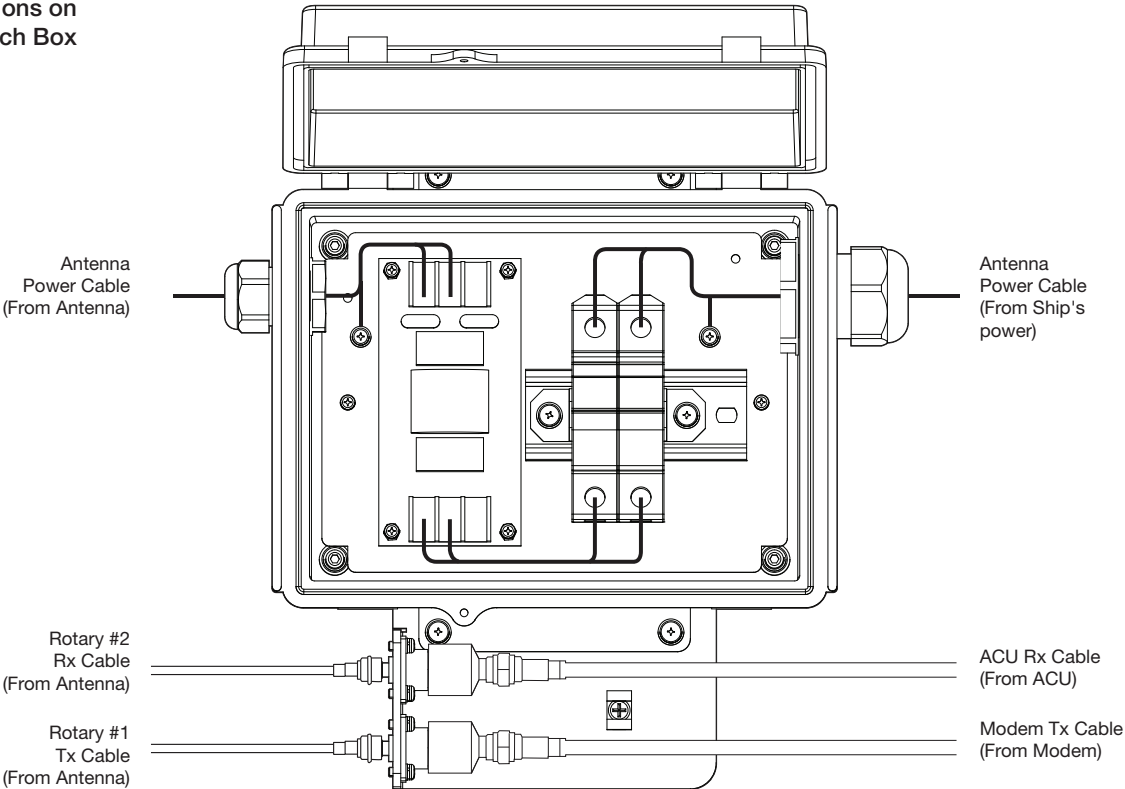


RF Cable Connections

Ensure that the switch on the power switch box is off during the installation period. When all the cables have been installed, turn on the switch.



Cable Connections on
Power Switch Box



NOTE:

- Intellian recommends the following size of the input power cable for standard system installations.

Cable Length	Cable Cross Sectional Area	AWG (American Wire Gauge) Size
Up to 100m	2.62mm ²	13
Up to 200m	4.17mm ²	11

- After connection, seal the cable gland and tie the power cable securely in place.
- The antenna power is supplied from the power switch box equipped with the circuit breakers, and the power switch box should be installed near the antenna.

NOTE: Tightening torque

Connector Type	Tightening Torque
F Type	1.0 N-m
SMA	0.6 N-m
N Type	1.5 N-m

INSTALLING THE ACU

Mounting the ACU

19" Rack Mount Type

Table Mount Type

ACU Dimensions

Selection of ACU Installation Site

Gyrocompass Connection

Connecting the System with a Gyrocompass

Connecting the System without a Gyrocompass

PC to ACU Communication Setup

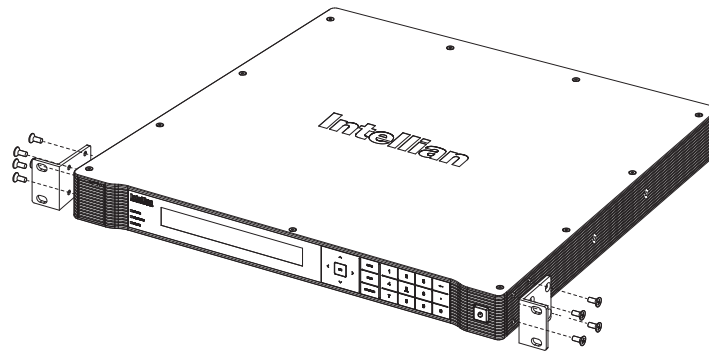
WiFi Connection

ACU Connector Guide

Mounting the ACU

Intellian supplies two types of mounting methods (a) 19" Rack Mount Type and (b) Table Mount Type to mount the ACU.

19" Rack Mount Type



19" Rack Mount Type

- The ACU should be installed using the two supplied Rack Mounting Brackets which allow for a side 19" rack mounting configuration.
- Using the self tapping screws supplied, attach the mounting brackets to the sides of the ACU.
- Place the ACU in the location where it is going to be installed.
- Connect the cables to the rear of the ACU.

Table Mount Type

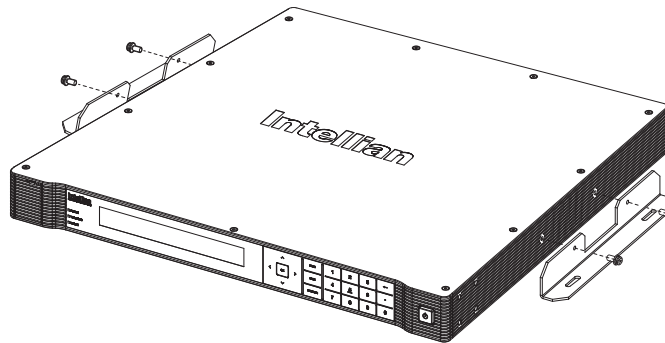


Table Mount Type

- The ACU should be installed using the two supplied Table Mounting Brackets which allow for a top or bottom mounting configuration.
- Using the self tapping screws supplied, attach the mounting brackets to the sides of the ACU.
- Place the ACU in the location where it is going to be installed.
- Using a pencil to mark the 4 hole positions (2 each side), and use the appropriate drill bit to screw down the brackets.
- Connect the cables to the rear of the ACU.

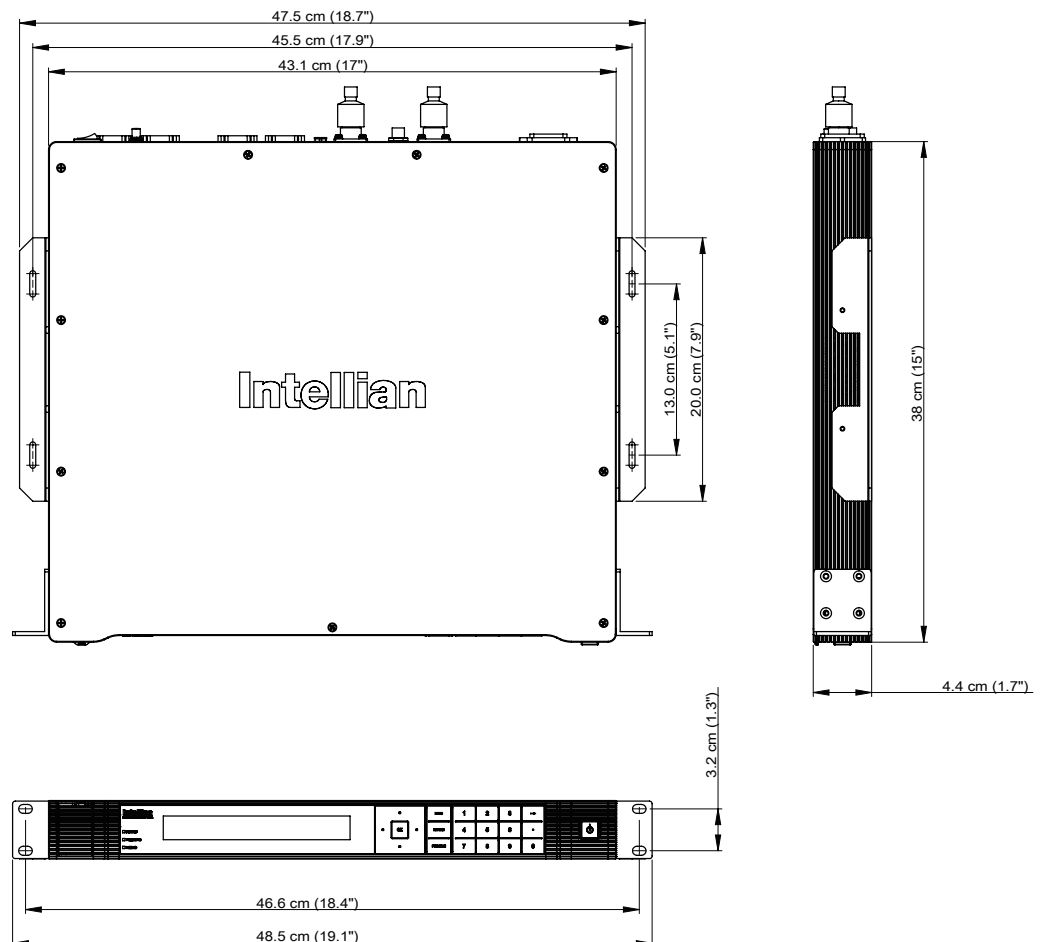


WARNING

WARNING: Ensure that the cables connected to the ACU are long enough to prevent damage when the ACU is pulled out from the rack.

ACU Dimensions

Dimension of ACU



Selection of ACU Installation Site

The ACU should be installed below deck, in a location that is:

- Dry, cool, and ventilated.
- The front panel should be easy accessible to user.

Gyrocompass Connection

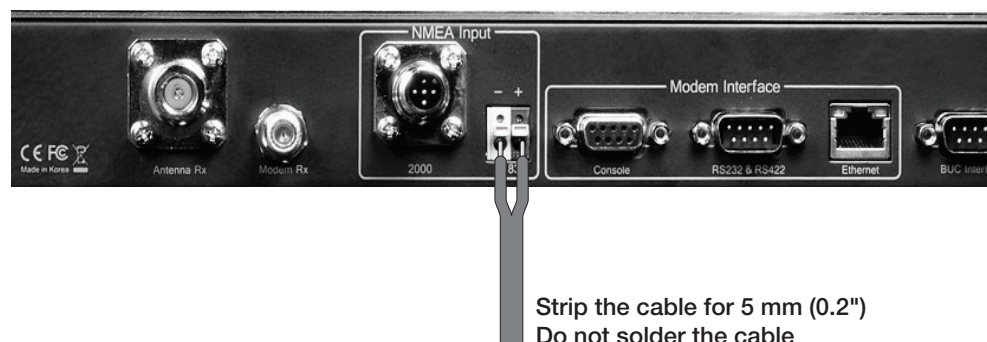
Connecting the System with a Gyrocompass

The ship's gyrocompass provides true heading input to the antenna which easily allows the antenna to target and acquire the desired satellite. Intellian always recommends to connect a gyrocompass to the antenna through the gyrocompass interface on the ACU. If the ship's gyrocompass output is other than NMEA 0183 and NMEA 2000, separate purchase of an NMEA converter is required.

Recommended Cable

- NMEA 0183 / NMEA 2000 Gyrocompass Cable (Customer supplied)
- Connector Type: 2 conductors for NMEA 0183, 5 conductors for NMEA 2000
- NMEA heading sentence: xx HDT (4800 Baud, 8, N,1)
If there is no HDT sentence, then use HDM sentence instead.
- NMEA 2000 heading PGN Number = 127250 (Vessel Heading)

Gyrocompass Connection



Connecting the System without a Gyrocompass

For a vessel where the ship's gyrocompass is not installed or is difficult to be connected, the Intellian Gyro-Free satellite search function will be automatically enabled to allow the antenna to lock onto the desired satellite without requiring an external heading input.

The table below provides an example of the Gyro-Free satellite search algorithm. The Search 1 or Search 3 satellite search pattern will be triggered according to the existence of heading input and the setting of the heading device.

Search 1: The antenna will search for the target satellite by turning its azimuth angle in CCW(Counter Clockwise) direction until the antenna receives the lock signal from the modem or the DVB(Digital Video Broadcasting) transponder of the target satellite is decoded by the antenna.

Search 3: The antenna will search for the target satellite by turning its azimuth angle directly to the position calculated using the ship's heading input and lock onto the satellite.

Existence of Heading Data	Setting of Heading Device		
	No Device	NMEA / NMEA 2000	Ground Test
With Heading Data	Search 1	Search 3	Search 3
Without Heading Data	Search 1	Search 1	Search 3

Quick Setup Procedure

- Set the satellite with DVB transponder as the target satellite.
- Set "No Device" to the heading device.
- The antenna will search for the target satellite by turning its azimuth angle in CCW direction and lock onto the satellite signal until the antenna receives a lock signal from the modem or the DVB transponder of the target satellite is decoded.
- Set the heading device as NMEA.
- Enter "Manual search" menu and touch "Function" key to save the current settings. Intellian ACU will automatically calculate and save the bow offset.
- Upload the real TARGET satellite pre-configured from the library.

PC to ACU Communication Setup

You can establish data communication between a PC and the ACU using one of the following methods.

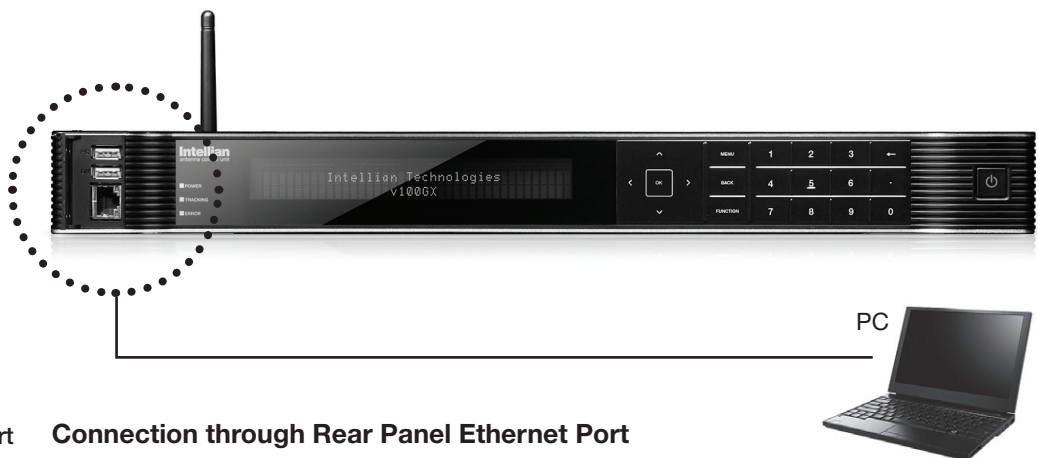
TCP/IP Connection

Management Ethernet Port

Connection through Front Panel Management Port

This method is most recommended. Network is automatically configured by DHCP without the need of additional PC IP configuration nor intervention to Modem to ACU connection in use.

1. Connect an Ethernet cable from a PC Ethernet port to the Management port on the front of the ACU.
2. Network connection is established.
3. Use the following IP address to access Intellian Aptus® or Aptus Web page.
(See also page 84 or 109 for details.)
 - 192.168.2.1 (Default)



Ethernet Port

Connection through Rear Panel Ethernet Port

This method requires separate IP configuration on a PC.

1. Connect an Ethernet cable from a PC Ethernet port to an available LAN port of a Switch/Hub.
2. Go to Control Panel > Network and Sharing Center > Change Adapter Settings and right-click on the Local Area Connection then click Properties
3. Select TCP/IPv4, then click Properties.
4. Change the network settings on a PC;
 - Default IP: 192.168. 0.222 (Secondary: 10.10.1.2)
 - Subnet Mask: 255.255.255.0
 - Gateway: 192.168.0.223 (Secondary: 10.10.1.1)
5. Use the following IP address to access Intellian Aptus® or Aptus Web page.
(See also page 84 or 109 for details.)
 - Default: 192.168.0.223 (Secondary: 10.10.1.1)

Serial/USB Connection

Serial Connection **Connection through Serial Port**

1. Connect a 9-pin Serial cable from the PC INTERFACE connector on the ACU to the 9-pin serial port on your PC.
2. If there is not a 9-pin serial port on the PC, use a USB-Serial adapter.
3. To access Intellian Aptus®, see page 85.

USB Connection **Connection through USB Port**

There are two USB(USB-to-Serial) ports available on the ACU. One is on the front and the other is on the rear.

1. Connect a USB cable from a USB port on your PC to the USB port on the ACU.
2. To access Intellian Aptus®, see page 85.

Note: The v100GX also supports Wi-Fi connection between PC and the ACU and Bluetooth connection between PC and the antenna. To setup Wi-Fi or Bluetooth connection, refer to page 38 and 147, respectively.

WiFi Connection

Setup WiFi Connection

- Setting up the ACU in order to access WIFI
- Setting up the PC (Adhoc Mode) in order to access WIFI
- Remote Access Confirmation

Setting up the ACU in order to access WiFi



1. Turning on the WIFI switch

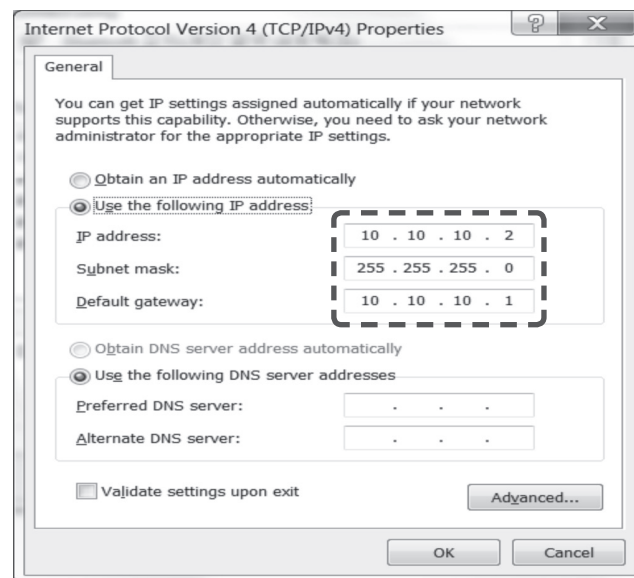
Turn on the switch on the back of the ACU, and 30 seconds after enabling the power supply, confirm if a red light appears on the switch.

Setting up the PC in order to access WiFi

1. Setting up my computer's wireless IP address

- Control Panel > Network and Sharing Center > Change Adapter Settings > Right click on the "Bluetooth Wireless Connection" > Click Properties

After selecting TCP/IPv4, click on the properties menu.



2. Change the network settings to the settings listed below.

Case #1

If Ethernet to Serial (E2S) Module's IP is known
The E2S module's default IP is 192.168.1.223

PC IP : 192.168.1.222
Subnet Mask : 255.255.255.0
GateWay : 192.168.1.223

Case #2

If Ethernet to Serial (E2S) Module's IP is unknown
The E2S module's secondary IP is 10.10.10.1

PC IP : 10.10.10.2
Subnet Mask : 255.255.255.0
GateWay : 10.10.10.1

3. Connect WIFI in Ad-hoc mode.

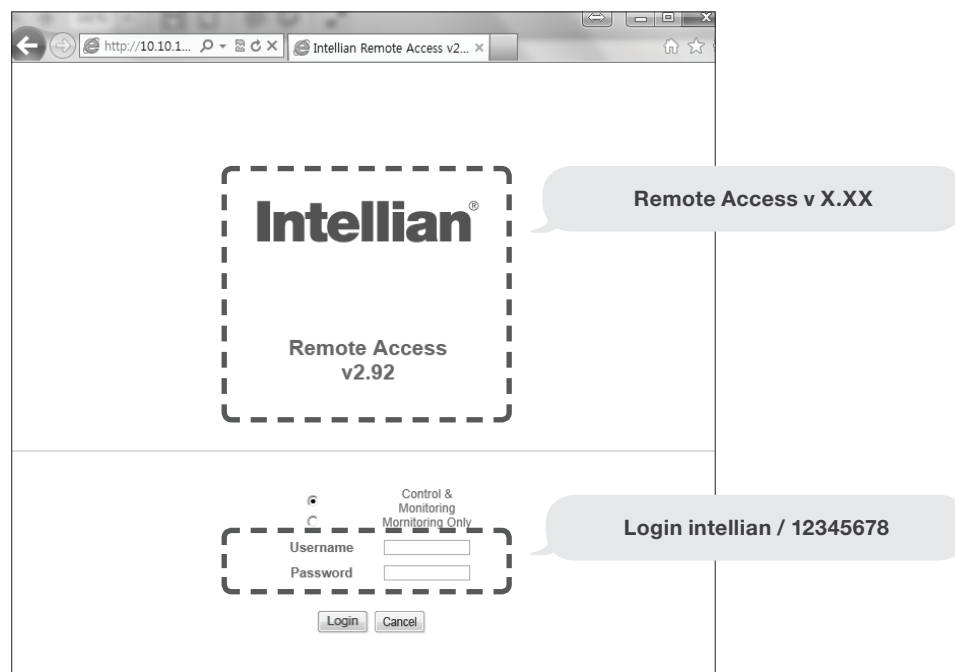
After clicking on the Windows Wireless Connection icon, click on intellian-WIFI (Default)

4. Enter the Network Security Key.

Key: intellian1234 (Default)



5. You can confirm the logo and version data by accessing <http://192.168.1.223>



Login by entering the ID / Password listed below.

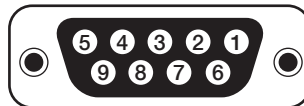
Username: intellian (Default)

Password: 12345678 (Default)

6. When you login, make sure that all the data within every page is being displayed correctly.

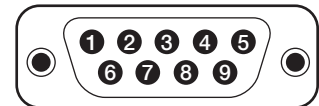
ACU Connector Guide

• Console Port



ACU Console Port
D-Sub 9 pin Female

Pin	Signal
1	GND
2	GPS OUT +
3	MODEM_LOCK
4	MODEM_CTRL1 (TX MUTE)
5	GPS IN +

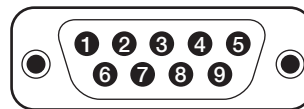


D-Sub 9 pin Male connector
Supplied Component

Pin	Signal
6	GPS OUT -
7	MODEM_SIGNAL_IN
8	MODEM_CTRL2
9	GPS IN -

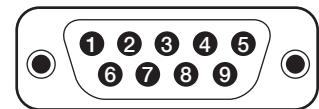
NOTE: NMEA GPS IN/OUT Sentence: GPGLL (4800 Baud, 8, N, 1)

• RS232/422 Connector (Modem & BUC Interface)



D-Sub 9 pin RS232
Connector

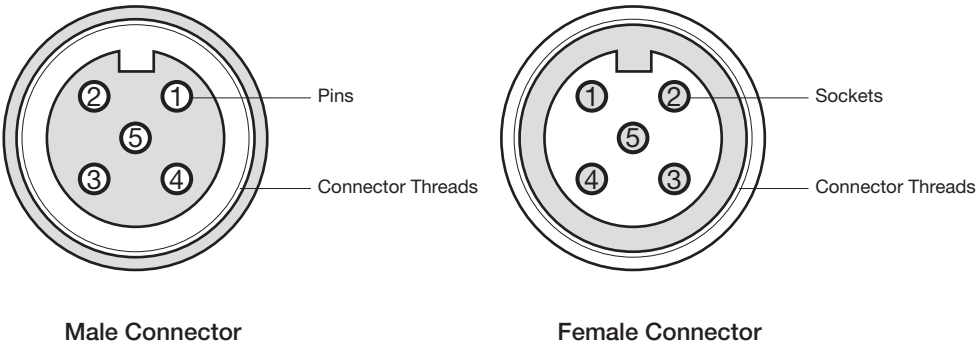
Pin	Signal	Pin	Signal
1	-	6	-
2	RXD	7	-
3	TXD	8	-
4	-	9	-
5	GND		



D-Sub 9 pin RS422
Connector

Pin	Signal	Pin	Signal
1	-	6	-
2	RXD +	7	RXD -
3	TXD +	8	TXD -
4	-	9	-
5	GND		

• NMEA 2000 Connector



Pin	Signal	Pin	Signal
1	Shield	1	Shield
2	NET-S, (power supply positive, +V)	2	NET-S, (power supply positive, +V)
3	NET-C, (power supply common, -V)	3	NET-C, (power supply common, -V)
4	NET-H, (CAN-H)	4	NET-H, (CAN-H)
5	NET-L, (CAN-L)	5	NET-L, (CAN-L)

OPERATING THE ACU

Introduction

Normal Mode

Setup Mode

Installation Settings

Antenna Settings

Manual Search

Setup Antenna LNB Polarization Angle

Search Parameters

Setup Antenna Parameters

Setup Block Zone

Antenna Diagnostic Test

Satellite Settings

Load Satellite

Edit Satellite Information

Add Satellite Information

Check NID

System Settings

Set LNB Local Oscillator Frequency

Set Location

Set Modem Port

System Backup & Restore

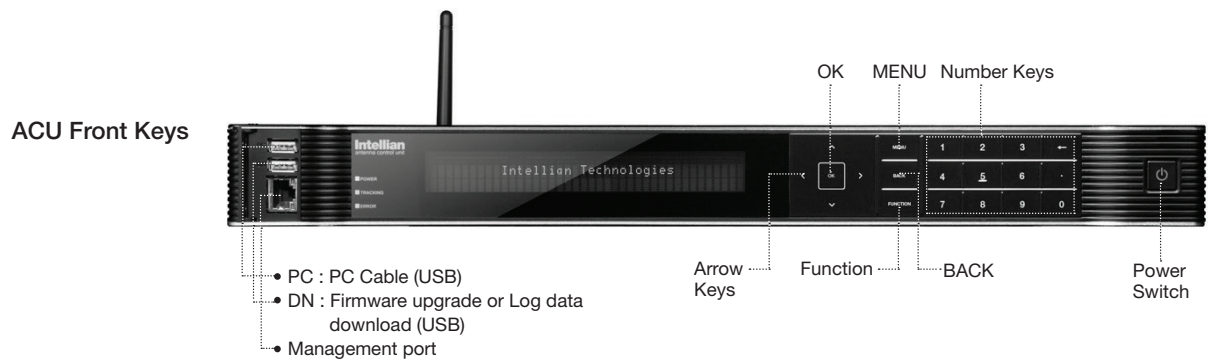
Display Versions

Introduction

This section of the handbook describes how to setup your system after installing the ACU. It includes the following functions:

Mode	Function	Page
Normal Mode	Startup	46
	Monitoring current antenna status	47
	Installation settings	52
	Selecting satellite	52
	Setting GPS and Gyrocompass	52
	Setting Bow adjus TM ment	52
	Setting Modem connection	53
	Setting LNB Local Frequency	53
	Antenna settings	55
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	Setting Antenna LNB Pol Angle	56
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	Setting Antenna parameters	59
	Setup Mode	62
	Performing diagnostic tests	64
Setup Mode	Satellite settings	66
	Load Satellite	66
	Edit satellite information	67
	Add Satellite	70
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	Setting LNB Local Frequency	73
	Setting GPS and Gyrocompass	74
	Setting Modem port	76
	System management	79
	Setting Key lock	80

NOTE: Many of the above functions will only be required after initial installation of your system.



Touch Key Functions

Touch key	Function
MENU	Enter SETUP mode
BACK	In SETUP mode, returns to previous menu or option or saves the adjusted settings. In Normal mode, returns to the first page of antenna current status.
FUNCTION	Saves the adjusted settings.
Arrow keys	Selects from the alternative options to increase or decrease the selected character to a desired value.
OK	Enter next step / menu
Number keys	Inputs the numbers.

Normal Mode

Startup

With the system installed and power applied, the ACU screen will show the following sequence.

Start up

```
INTELLIAN TECHNOLOGIES INC.
```

1. The data communication is being established between the antenna and the ACU.

Initialize antenna info

```
INITIALIZE - ANTENNA INFO  
INTELLIAN V100GX
```

2. The ACU receives antenna information.

Initialize elevation & cross level angle

```
INITIALIZE - EL POSITION  
INTELLIAN V100GX
```

3. The elevation angle and cross level angle are initialized.

Initialize azimuth angle

```
INITIALIZE - AZIMUTH POSITION  
INTELLIAN V100GX
```

4. The azimuth angle is initialized.

Initialize target satellite position

```
INITIALIZE - SAT POSITION  
INTELLIAN V100GX
```

5. The antenna returns to the target satellite position.

Search status

```
SEARCH1 138.0E TELST_18 SIG:301 VL  
AZ:292.7( 202.7) EL: 48.3 SK: -72.0
```

6. The antenna is searching for the target satellite.

Tracking status

```
TRACKING 138.0E TELST_18 SIG:501#VL  
AZ:292.7( 202.7) EL: 48.3 SK: -72.0#Fn
```

7. The antenna has locked onto the satellite.

Monitoring Antenna Current Status

When the ACU power is on, it displays the status of the antenna. The current status of the antenna is displayed as shown below.

Current search status

```

SEARCH1  138.0E TELST_18 SIG: 301 VL  ↗
AZ: 292.7 ( 202.7) EL:  48.3  SK: ▲-72.0 ↘
  
```

1. The antenna is searching for the target satellite.

Current tracking status

```

TRACKING 138.0E TELST_18 SIG: 301#VL  ↗
AZ: 292.7 ( 202.7) EL:  48.3  SK: ▲-72.0 ↘Fn
  
```

2. The antenna has locked onto the target satellite.

Current IF signal level (SIG/dB scale/AGC) is displayed. SIG and dB scale will be displayed when NBD (Narrow band detection) mode for TRACKING SIGNAL is chosen to be used and AGC will be displayed when DVB mode of TRACKING SIGNAL is chosen to be used.

The symbol “●” will be only displayed when the satellite signal is strong enough to locked onto. [VL] indicates the LNB's local frequency corresponding to 13V is in use for the signal reception.

VL: 13V + 0 kHz, HL: 18V + 0 kHz, VH: 13V + 22 kHz, HH: 18V + 22 kHz

Touch the UP or DOWN arrow key to increase or decrease the LNB pol angle. UP or DOWN arrow key can be displayed or hidden by touching OK button 3 times consequently. Pol angle can be adjusted only when UP or DOWN arrow key is displayed (enabled). True azimuth [292.7] position of the antenna is the sum of ships heading 090.0 [HDG] and antenna relative [202.7].

NOTE: However, if the "GYRO TYPE" is set to "NONE" or "NMEA" but without receiving a proper input signal, "---.-" will be displayed at "True Azimuth"

Save current satellite info

```

TRACKING 138.0E TELST_18 SIG: 301#VL  ↗
AZ: ---.- ( 202.7) EL:  48.3  SK: ▲-72.0 ↘Fn
  
```

```

      SAVE CURRENT SAT INFO ?
    ↗ YES                      NO
  
```

3. Touch FUNCTION key to save current satellite information or abort and return to the main display. "Fn" will be displayed only if the antenna is in tracking mode.

Current tracking status

```
4 TRACKING 138.0E TELST_18 SIG: 301#VL  ▶
  AZ: 292.7 ( 202.7) EL: 48.3 SK: 4-72.0+Fn
```

4. Touch RIGHT arrow key to display NBD, GPS and ship's heading information.

Tracking & Heading information

```
4 NBD      F: 1247000  BW: 1000      SIG: 301# ▶
  004.53E  52.22N  HDG: 090.0  L: 10000 Fn
```

5. NBD, GPS and ship's heading information are shown.

- NBD (Narrow Band Detection) IF tracking frequency: 1247000 kHz
- Detected Band Width: 1000 kHz
- SIG/dB scale (Signal Level): 140/14.0dB (When NBD mode for tracking signal is chosen)
- W (West)/E (East) Longitude: 4.53° E
- N (North)/S (South) Latitude: 52.22° N
- HDG (Ship's Heading): 90°
- LNB local oscillator (LO) frequency: 10000 MHz

Antenna & ACU versions

```
4 V3-111-X8W  ANT SERIAL  1.00 (1.00) ▶
  VP-T431     ACU SERIAL  1.00
```

7. Touch RIGHT arrow key to display the below information.

- Antenna part number, antenna serial number and PCU and Stabilizer firmware version.
- ACU part number, ACU serial number, ACU firmware version and Library version.

Touch BACK Key to return to the first page of the antenna current status.

Select
USB
functions

```

┌ [USB FUNCTION]  SELECT USB FUNCTION  ┐
└                                UPGRADE FIRMWARE                                ┘

```

8.Touch RIGHT arrow key to display the **USB FUNCTION***

This menu will be displayed automatically if a USB flash drive is plugged into the USB port located in the front panel of the ACU.

USB FUNCTION*

- UPGRADE FIRMWARE: upgrade the system by using the firmware files (files format: *.FWP) from the specified folder in the USB flash drive.
- COPY LOG DATA: Copy the up-to-date log data from the system to the USB flash drive.



Upgrade
the
system

UPGRADE ?	
→ YES	NO

9. Touch OK key to upgrade firmware.

Refer to the error messages below if any errors occur.

UPGRADE FIRMWARE

- FIRMWARE FILE NOT FOUND: the system cannot find the FWP file.
- INVALID FIRMWARE: the file is not in a recognizable FWP format.
- MORE THAN 1 FILE EXIST: there is more than 1 firmware file that exists from the specified folder in the USB flash drive.
- CHECK USB CONNECTION: the USB flash drive is not connected.

COPY LOG DATA

- COPY LOG DATA TO USB [30%]: display the copy progress in percentages.
- NOT ENOUGH SPACE IN USB: USB occupies no memory space.
- CHECK USB CONNECTION: the USB flash drive is not connected.

Real-time
diagnostic
result

⏪	[DIAGNOSTIC]	SENSOR BOX	⏩
	CODE109	RESULTS : FAILED	→FN

10. Touch RIGHT arrow key to display the real-time diagnostic result.

The real-time diagnostic code will be displayed automatically if there is any error found during the system operation. However, this page will not be displayed if there is no error message.

Erase
Error message

ERASE DIAGNOSTIC ERROR LOG ?	
→ YES	NO

11. Touch FUNCTION key to erase diagnostic error message.

Setup Mode

Enter the SETUP mode simply follow the instructions below.

Searching / Tracking mode

```

* TRACKING 138.0E TELST_18 SIG: 301# VL *
  AZ: 292.7 ( 202.7) EL: 48.3 SK: -72.0 Fn
  
```

1. While the antenna is in SEARCHING/TRACKING mode, touch MENU key to enter SETUP mode. * indicates the key pad lock function is on (Refer to KEY LOCK menu to setup the key pad lock function). When key pad lock function is activated touch MENU key or when “Fn” menu is activated touch FUNCTION key then ENTER PASSWORD menu will be displayed.

Enter password

```

ENTER PASSWORD
- - - -
  
```

2. If the key pad lock function is on, enter the password before accessing to the SETUP mode. If the key pad lock function is off, access to the SETUP mode directly as Step 3.

Setup mode

```

                SETUP MODE ?
      ↗ YES                      NO
  
```

3. Touch LEFT arrow key to move cursor to YES and touch OK key to enter SETUP mode or touch RIGHT arrow key to move cursor to NO and touch OK key to abort and return to the main display.

Exit setup mode

```

                EXIT SETUP MODE ?
      ↗ YES                      NO
  
```

4. While the antenna is in SETUP mode, touch FUNCTION key as shortcut key to exit SETUP mode.

Installation Settings

During the first time installation, it is required to setup the installation settings.

Setup mode

SETUP MODE ?	
→ YES	NO

1. Touch LEFT arrow key to move cursor to YES and touch OK key to enter SETUP mode

Installation menu

+ANTENNA	+SATELLITE
+SYSTEM	→+INSTALLATION

2. Touch arrow keys to move cursor to INSTALLATION menu and touch OK key to enter it.

Select satellite

SELECT SATELLITE	
▲	[1] TELST_18 138.00E ▼

3. Touch UP and DOWN arrow keys to select the satellite that you wish to track and touch OK key to load the selected satellite.

Latitude & Longitude

LATITUDE		LONGITUDE	
▲	37.00N ▼		126.53E

4. Set the current LATITUDE and LONGITUDE
Touch LEFT and RIGHT arrow keys until the desired character is underscored (selected). Touch UP and DOWN arrow keys to increase or decrease the value. Or touch NUMBER keys to set the desired value directly. Touch OK key to set the parameter.

Gyro type

GYRO TYPE		BOW OFFSET	
▲	NMEA ▼		000

5. Set the ship's **GYRO TYPE*** & BOW OFFSET
A search pattern 1 or 3 will be initiated according to which gyrocompass type is selected and the existence of the gyrocompass input. Ensure that the supported gyrocompass type is set correctly. For v100GX, If the ship's gyrocompass output is different than NMEA, A search pattern 1 will be initiated automatically if the gyrocompass input does not exist and the gyrocompass type that is selected is different than GROUND TEST.

The BOW OFFSET is to offset the angle difference between the antenna's bow and the ship's bow (Range: 0 – 360°).

NOTE: The bow offset will not be saved automatically if Search 1 pattern is initiated. In this case, the antenna will need to retarget the desired satellite using Search 1 every time if the antenna restarts.

Gyro search mode

Existence of Heading Data	Setting of Heading Device		
	No Device	NMEA/NMEA 2000	Ground Test
With Heading Data	Search 1	Search 3	Search 3
Without Heading Data	Search 1	Search 1	Search 3

GYRO TYPE*

NO DEVICE
NMEA
NMEA 2000
GROUND TEST

Set modem type
and LNB local frequency

```

MODEM TYPE          13V + 0KHz
┌ IDIRECT-I/O ─┐    10000 MHz
  
```

6. MODEM TYPE 1) is to select a proper data communication port and protocol on the ACU to interface with the satellite modem. The settings related to the modem interface will be set automatically once the modem type is selected.

The options on the next page will be displayed and required to be set if "USER SETTING" is selected.

MODEM TYPE*

- USER SETTING
- IDIRECT-I/O
- IDIRECT-AMIP
- COMTECH-I/O
- COMTECH-ROSS
- HUGHES
- SATLINK-SERIAL
- SATLINK-VACP
- ELEKTRIKOM-AMIP
- GILAT-SE-II

LNB local frequency

```

18V + 0KHz          13V+22KHz
┌ 10750MHz ─┐      11300MHz
  
```

```

18V +22KHz
┌ 11300MHz ─┐
  
```

7. Set the LNB local oscillator frequency for each voltage power. (13V +0 kHz, 18V +0 kHz, 13V +22 kHz, 18V +22 kHz)

Load

LOAD ?

➔ YES NO

8. Touch BACK key to load the current setting or abort and return to the main display.

Loading settings

LOADING ...

DO NOT TURN OFF ! ■■■■■■■■■■

9. Setting is being loaded to the system.

The ACU will restart the system automatically after uploading the setting.

DO NOT TURN OFF ACU POWER while the data is being uploaded.

Tracking status

✦ TRACKING 138.0E TELST_18 SIG: 301 ■ VL ✦

AZ: 292.7 (202.7) EL: 48.3 SK: -72.0 Fn

10. Antenna has locked onto the target satellite.

Antenna Settings

Manual Search

Search the desired satellite manually.

Setup mode

SETUP MODE ?	
→ YES	NO

1. Touch LEFT arrow key to move cursor to YES and touch OK key to enter SETUP mode.

Antenna menu

→+ANTENNA	+SATELLITE
+SYSTEM	+INSTALLATION

2. Touch OK key to enter ANTENNA menu.

Manual search menu

← → +MANUAL SEARCH	+SET POL ANGLE →
+SEARCH PARAM	+SET PARAMETERS

3. Touch OK key to enter MANUAL SEARCH menu.

Antenna movement

STEP SIZE	AZIMUTH	ELEVATION	AGC
# 00.2 #	← 231.7 →	▲ 48.3 ▼	301 Fn

4. Current IF tracking signal level (AGC)/(SIG/dB scale) is displayed to assist you in manually peaking AZIMUTH (0°-360°) and ELEVATION (0°-90°) angle for best signal level.

Touch NUMBER key to change the STEP SIZE (Range: 0.1~99.9). Touch LEFT and RIGHT arrow keys to increase or decrease the azimuth angles. Touch UP and DOWN arrow keys to increase or decrease the elevation angles.

Touch FUNCTION key to save current settings or abort and return to the main display.

Save

SAVE CURRENT SAT INFO?	
→ YES	NO

5. If the current settings are able to locate the satellite, touch FUNCTION key to save “current satellite information”. This will help to reduce the satellite acquisition time after restarting the system. Touch LEFT arrow key to move cursor to YES and touch the OK key to save the settings.

NOTE: If the gyrocompass type is not NMEA or the gyrocompass is not connected to the ACU, the information cannot be saved.

Setup Antenna LNB pol Angle

Setup mode

```

      SETUP MODE ?
    → YES                NO
  
```

1. Touch LEFT arrow key to move cursor to YES and touch OK key to enter SETUP mode.

Antenna menu

```

    →+ANTENNA           +SATELLITE
      +SYSTEM           +INSTALLATION
  
```

2. Touch OK key to enter ANTENNA menu.

Set pol angle menu

```

    ← +MANUAL SEARCH    → +SET POL ANGLE  →
      +SEARCH PARAM      +SET PARAMETERS
  
```

3. Touch RIGHT arrow key to move cursor to SET POL ANGLE menu and touch OK key to enter it.

LNB pol angle type

```

      SELECT LNB POL. ANGLE MENU
    ↑          CALIBRATION          ↓
  
```

4. Touch UP and DOWN arrow keys to select the LNB pol angle menu and touch OK key to run the selected operation 'CALIBRATION', 'MANUAL ADJUST' or 'RESET MECHANICAL OFFSET'. Select MANUAL ADJUST to control LNB pol angle manually. If the control board, LNB pol potentiometer or belt is replaced, select CALIBRATION to calibrate LNB pol angle. If the satellite skew offset is unknown, you may select RESET MECHANICAL OFFSET to reset the mechanical skew offset (Overall system skew offset = satellite skew offset + mechanical skew offset).

LNB pol angle Signal

```

    LNB POL ANGLE          SIGNAL: 180
      ↑ 20 ↓
  
```

5. Touch UP and DOWN arrow keys to increase or decrease the LNB pol angle manually and the correspondent SIGNAL level will be displayed next to it. Touch BACK key to return to the main display.

NOTE: LNB POL ANGLE menu will be displayed only if MANUAL ADJUST is selected.

Search Parameters

Setup mode

SETUP MODE ?	
→ YES	NO

1. Touch LEFT arrow key to move cursor to YES and touch OK key to enter SETUP mode.

Antenna menu

→+ANTENNA	+SATELLITE
+SYSTEM	+INSTALLATION

2. Touch OK key to enter ANTENNA menu.

Manual search menu

← +MANUAL SEARCH	+SET POL ANGLE →
→+SEARCH PARAM	+SET PARAMETERS

3. Touch arrow keys to move cursor to SEARCH PARAM menu and touch OK key to enter it.

Search param

SEARCH WAIT TIME	INCREMENT STEP
▲ 030 ▼	0.50

Search 1 range

SEARCH1 AZ	SEARCH1 EL
▲ 400 ▼	06

Search 3 range

SEARCH3 AZ	SEARCH3 EL
▲ 003 ▼	04

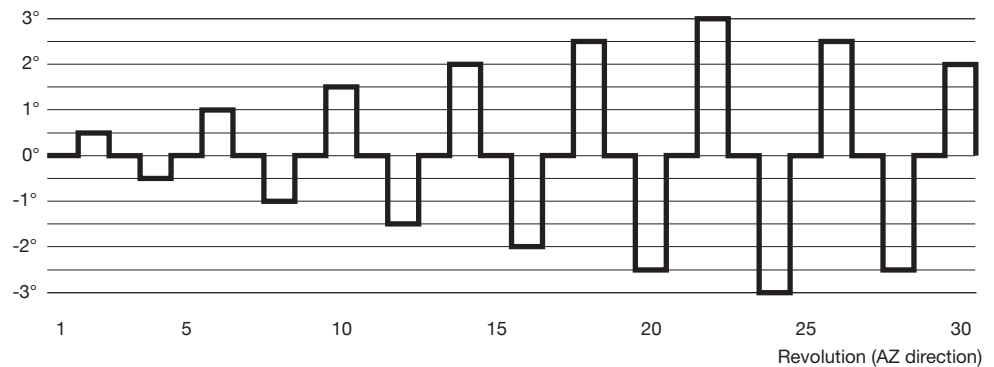
4. Set SEARCH 1 and 3 AZ (Azimuth) range and EL (Elevation) range. SEARCH 2 is reserved for future use.

A search pattern 1 or 3 will be initiated according to which gyrocompass type is selected and the existence of the gyrocompass input.

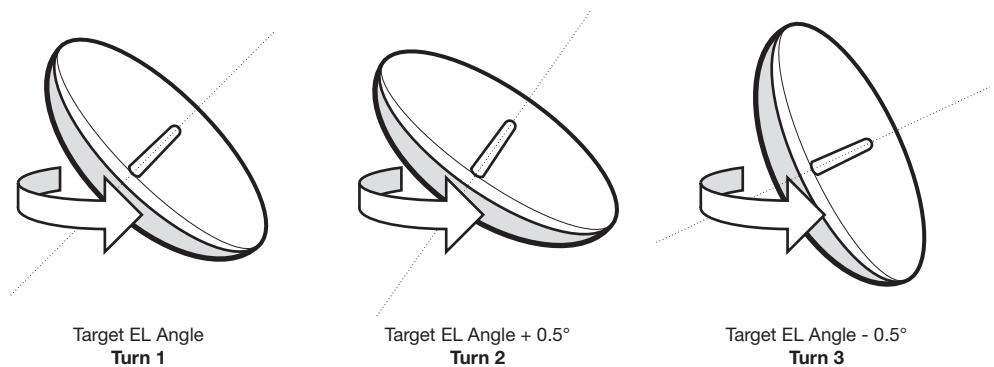
Search 1: A search pattern 1 will automatically be initiated when the ship's heading input does not exist/is failed. The antenna will go to the relative azimuth position 0° at the calculated elevation and search in the azimuth CCW direction and search up +0.5° & down -0.5° with a total 6°(±3°) in elevation. The search cycle will repeat until the antenna receives the lock signal from the modem or the DVB transponder of the target satellite is decoded by the antenna. If the desired signal is found and above the predefined detect level, the ACU will enter to Search 3. However, the antenna will not initiate Search 3 pattern but go into TRACKING mode immediately if the desired signal is above the predefined tracking threshold level. If the detected signal is below the predefined tracking threshold level, the search 1 will repeat and start 3° away from the current position.

Search 1 (Gyro Free) Search Pattern

Target Satellite EL Position

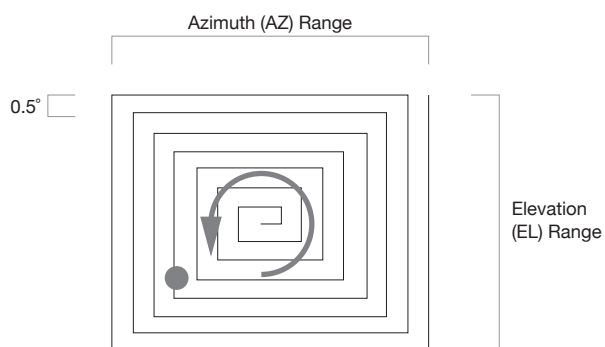


Search 1 antenna motion



Search 3: A search pattern 3 will automatically be initiated when AGC/SIG falls below the current tracking level threshold value. If the desired signal is found and above the predefined tracking level, the ACU will terminate Search 3 and go into TRACKING mode. A search pattern will automatically be initiated when AGC/SIG falls below the current threshold setting (indicates that satellite signal has been lost). Search is conducted in a two-axis pattern consisting of alternate movements in azimuth (AZ) and elevation (EL) as forming expanding square indicated as below diagram.

Search 3 pattern



Setup Antenna Parameters

These parameters should only be changed by an authorized Intellian service technician. Improper setting of these parameters will cause your system to perform improperly.

Setup mode

SETUP MODE ?	
→ YES	NO

1. Touch LEFT arrow key to move cursor to YES and touch OK key to enter SETUP mode.

Antenna menu

→+ANTENNA	+SATELLITE
+SYSTEM	+INSTALLATION

2. Touch OK key to enter ANTENNA menu.

Set parameters menu

+MANUAL SEARCH	+SET POL ANGLE
+SEARCH PARAM	→+SET PARAMETERS

3. Touch arrow keys to move cursor to SET PARAMETERS menu and touch OK key to enter it.

Password

ENTER PASSWORD
- - - -

4. Touch 4 digit password to enter SET PARAMETERS menu (1590).

Setup parameters is only required after installation or repairs of your antenna system.

These parameters should only be changed by an authorized service technician. Improper setting of these parameters will render your system inoperable.

Set detect & tracking DVB

DETECT DVB	TRACKING DVB
⬆ 040 ⬇	020

5. Set DETECT DVB and TRACKING DVB when DVB mode of TRACKING SIGNAL is chosen to be used (Range: 1-200).

DETECT DVB is to set the satellite signal detection level and TRACKING DVB is to set the satellite signal tracking level.

Touch LEFT and RIGHT arrow keys until the desired character is underscored (selected). Touch UP and DOWN arrow keys to increase and decrease the selected character. Or touch NUMBER keys to set the desired value directly. Touch OK key to set the parameter. Touch BACK key to select the parameter you wish to edit and touch BACK key again to save or abort and return to the main display.

Set detect & tracking NBD

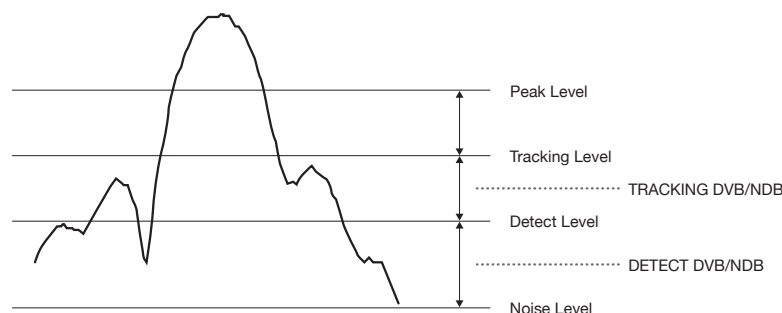
DETECT NBD	TRACKING NBD
▲ 040 ▼	020

6. Set DETECT NBD and TRACKING NBD when NBD (Narrow Band Detection) mode of TRACKING SIGNAL is chosen to be used (Range: 1-200).

DETECT NBD is to set the satellite signal detection level and TRACKING NBD is to set the satellite signal tracking level.

Touch LEFT and RIGHT arrow keys until the desired character is underscored (selected). Touch UP and DOWN arrow keys to increase and decrease the selected character. Or touch NUMBER keys to set the desired value directly. Touch OK key to set the parameter. Touch BACK key to select the parameter you wish to edit and touch BACK key again to save or abort and return to the main display.

Detect & tracking level



BOW & EL adjust

BOW OFFSET	EL. ADJUST
▲ 000 ▼	+0.0

7. Set BOW OFFSET and EL. ADJUST

BOW OFFSET is to offset the angle difference between the antenna's bow and the ship's bow (Range: 0 – 360°) and EL. ADJUST is to offset the angle difference between the mechanical elevation angle and actual elevation angle (Range: $\pm 5^\circ$).

Touch LEFT and RIGHT arrow keys until the desired character is underscored (selected). Touch UP and DOWN arrow keys to increase and decrease the selected character. Or touch NUMBER keys to set the desired value directly. Touch OK key to set the parameter. Touch BACK key to select the parameter you wish to edit and touch the BACK key again to save or abort and return to the main display.

Select operation
process

OPERATION

▲

SAVE

▼

8. Execute the command of the selected item from **OPERATION***.

OPERATION*

- **SAVE:** save and execute the current settings.
- **IDLE ON/OFF:** the motor brakes will be released while IDLE MODE is ON. The antenna will restart automatically if IDLE MODE is re-set from ON to OFF touch BACK key is pressed to exit SETUP mode.
- **REBOOT:** the antenna will restart automatically if REBOOT ANTENNA is ON.
- **RATESENSOR BIAS:** rate sensor bias is to calibrate DC voltage output from the three rate sensors used to sense antenna motion in azimuth, elevation and cross-level axes. The DC voltage output from each of the rate sensors may vary by an amount which is directly proportional to the direction and rate of motion induced on it. The motion of the ship must be stable when the sensor box is replaced.
- **TILT BIAS:** TILT BIAS is to adjust the two solid-state tilt sensors used to provide absolute cross-level tilt of the antenna and elevation feedback to eliminate long-term pointing drift (error). The TILT BIAS is required to be set when the system is newly installed or when the antenna control board or sensor box is replaced. Check and see if the bubble is located at the center of the level vial. If not, touch OK key to enter TILT BIAS menu to adjust it.

Level vial



Tilt bias

STEP SIZE	ELEVATION	CROSS LEVEL
# 0.2 #	▲ 00.0 ▼	← 01.0 →

Setup Block Zone

Up to 5 block or radiation hazard zones can be programmed with relative azimuth and elevation sectors.

Setup mode

SETUP MODE ?		
→	YES	NO

1. Touch LEFT arrow key to move cursor to YES and touch OK key to enter SETUP mode.

Antenna menu

→+ANTENNA	+SATELLITE
+SYSTEM	+INSTALLATION

2. Touch OK key to enter ANTENNA menu.

Block zone menu

←	→+BLOCK ZONE	+DIAGNOSTIC	→
---	--------------	-------------	---

3. Touch RIGHT arrow key to move cursor to BLOCK ZONE menu and touch OK key to enter it. Up to 5 block zones is allowed to be programmed.

Block zone 1

ZONE 1 BLOCK		
↑	ON	↓

Block zone range

←	→AZ.1 START	AZ.1 END	EL.1 LIMIT→
	000	000	90

4. Set ZONE 1 BLOCK

Touch UP and DOWN arrow keys to select "ON" to setup the block zone for ZONE 1.

Touch OK key to use ZONE 1 BLOCK and set zone 1 block range.

Touch BACK key to select the parameter you wish to edit and touch BACK key again to save or abort and return to the main display.

Set the AZ.1 START, AZ.1 END and EL.1 LIMIT while ZONE 1 BLOCK is ON.

This is the clockwise of the two points. AZ.1 START is where the relative azimuth starts and AZ.1 END is where the relative azimuth ends (Range: 0- 360°). EL.1 Limit is where the elevation starts (Range 0- 90°).

Touch LEFT and RIGHT arrow keys until the desired character is underscored (selected).

Touch UP and DOWN arrow keys to increase and decrease the selected character.

Or touch NUMBER keys to set the desired value directly. Touch OK key to set the parameter.

Touch BACK key to select the parameter you wish to edit and touch BACK key again to save or abort and return to the main display.

Block zone 2

ZONE 2 BLOCK

▲

OFF

▼

5. ZONE 2 to ZONE 5 BLOCK setting is same as ZONE 1 BLOCK.
Touch OK key to set ZONE 2 BLOCK and set next parameter.

Save

SAVE ?

➔ YES

NO

6. Touch LEFT arrow key to move cursor to YES and touch OK key to save and execute the current settings. Or touch RIGHT arrow key to move cursor to NO and touch OK key to abort and return to the main display.

Refer to the diagnosis codes for the test results.

```

      SETUP MODE ?
      → YES              NO

```

→+ANTENNA	+SATELLITE
+SYSTEM	+INSTALLATION

```
4      +BLOCK  ZONE          →++DIAGNOSTIC      4
```

DIAGNOSTIC COMMUNICATION
▲ FULL TEST ▼ READY

DIAGNOSTIC	FULL TESTING
FULL TEST	#####-##-

DIAGNOSTIC CODE 101	COMMUNICATION RESULT : PASSED
------------------------	----------------------------------

64

Diagnosis Code:

CODE 101: The data communication between the antenna and the ACU is tested.

CODE 102: The azimuth motor is tested.

CODE 103: The elevation motor is tested.

CODE 104: The cross-level motor is tested.

CODE 105: The azimuth encoder is tested.

CODE 106: The cross-level encoder is tested.

CODE 107: The rate sensor is tested.

CODE 108: The tilt sensor is tested.

CODE 109: The sensor box motor is tested.

CODE 110: The LNB/NBD is tested.

CODE 111: The LNB pol motor is tested.

CODE 112: The sub-reflector is tested. (Skip for v-Series communication products)

CODE 113: The antenna power is tested.

CODE 114: The ACU power is tested.

CODE 115: The receiver power is tested.

(Skip for v-Series communication products)

CODE 116: The home sensor is tested.

An example of test result: ●2●●●●●●●●●●-●●-●

●: test is passed

2: test is failed (CODE102)

-: test is skipped (TVRO products only)

?: test is in process

Satellite Settings

Load Satellite

Setup mode

SETUP MODE ?	
→ YES	NO

1. Touch LEFT arrow key to move cursor to YES and touch OK key to enter SETUP mode.

Satellite menu

+ANTENNA	→+SATELLITE
+SYSTEM	+INSTALLATION

2. Touch RIGHT arrow key to move cursor to SATELLITE and touch OK key to enter it.

Load sat menu

→+LOAD SAT.	+EDIT SAT.
+ADD SAT.	+CHECK NID

3. Touch OK key to enter LOAD SAT. menu.

Load satellite

LOAD SATELLITE	
▲	[1] TELST_18 138.00E ▼

4. Touch UP and DOWN arrow keys to select satellite that you wish to track.
Touch OK key to load the selected satellite.

Load

LOAD ?	
→ YES	NO

5. Touch LEFT arrow key to move cursor to YES and touch OK key to load the selected satellite and execute the current settings. Or touch RIGHT arrow key to move cursor to NO and touch OK key to abort and return to the main display.

Edit Satellite Information

Setup mode

SETUP MODE ?	
→ YES	NO

1. Touch LEFT arrow key to move cursor to YES and touch OK key to enter SETUP mode.

Satellite menu

+ANTENNA	→+SATELLITE
+SYSTEM	+INSTALLATION

2. Touch RIGHT arrow key to move cursor to SATELLITE and touch OK key to enter it.

Edit sat menu

+LOAD SAT.	→+EDIT SAT.
+ADD SAT.	+CHECK NID

3. Touch RIGHT arrow key and OK key to enter EDIT SAT. menu.

Edit satellite

EDIT SATELLITE	
▲	[1] TELST_18 138.00E ▼

4. Touch UP and DOWN arrow keys to select the satellite that you wish to edit and touch OK key to edit the selected satellite.

Edit longitude & name

LONGITUDE	EDIT NAME
▲ 138.0E ▼	TELST_18

5. Edit satellite orbit position, LONGITUDE and satellite NAME.

DVB verify method

DVB VERIFY	SKEW OFFSET
⬆ DVB DECODE ⬇	+0.0

6. Edit satellite **DVB VERIFY*** method and SKEW OFFSET.

DVB VERIFY will be only activated and applied when DVB mode of TRACKING SIGNAL is chosen to be used. Touch UP and DOWN arrow keys to select DVB VERIFY and touch OK key to set the parameter.

DVB VERIFY*

AGC – use signal level for satellite tracking.

DVB Lock – use DVB Lock for satellite tracking.

DVB Decode – use DVB Decode for satellite tracking.

DSS Decode – use DSS Decode for satellite tracking.

Set LNB local frequency

SELECT LOCAL	TRACKING SIGNAL
⬆ 11300MHZ ⬇	NBD

7. Set **SELECT LOCAL*** frequency and **TRACKING SIGNAL***.

Touch LEFT and RIGHT arrow keys until the desired character is underscored (selected).

Touch UP and DOWN arrow keys to select the LNB local frequency from the installed LNB.

Or touch NUMBER keys to set the desired value directly. Touch OK key to set the parameter.

SELECT LOCAL*

The selectable LNB frequencies are depended on the installed LNB type.

TRACKING SIGNAL*

NBD

DVB

Set polarity

RX POL	TX POL
⬆ VERT. ⬇	HORI.

8. Set RX POL and TX POL to select the polarity for both RX (receive) and TX (transmit).

Touch UP and DOWN arrow keys to select VERTICAL or HORIZONTAL.

Touch OK key to set the parameter.

Set DVB tracking frequency

DVB FREQ.	SYMBOL	NID
11747MHZ	21300kSp/s	0X00AD

9. Set DVB FREQUENCY, SYMBOL RATE and NID when DVB mode of TRACKING SIGNAL is chosen to be used.

45,000 is the maximum allowed symbol rate value. NID (network ID) range is from 0 x 0000 to 0 x FFFF (hexadecimal digit).

Touch LEFT and RIGHT arrow keys until the desired character is underscored (selected).
Touch UP and DOWN arrow keys to increase or decrease the value.
Or touch NUMBER keys to set the desired value directly.
Touch OK key to set the parameter.

Set NBD tracking frequency

NBD FREQ.	BANDWIDTH
1070.000MHZ	01000KHZ

10. Set NBD IF FREQUENCY and BANDWIDTH when NBD (Narrow Band Detection) mode of TRACKING SIGNAL is chosen to be used.

Touch LEFT and RIGHT arrow keys until the desired character is underscored (selected).
Touch UP and DOWN arrow keys to increase or decrease the value.
Or touch NUMBER keys to set the desired value directly. Touch OK key to set the parameter.

Save

SAVE ?	
YES	NO

11. Touch LEFT arrow key to move cursor to YES and touch OK key to save and execute the current settings. Or touch RIGHT arrow key to move cursor to NO and touch OK key to abort and return to the main display.

Add Satellite Information

Setup mode

SETUP MODE ?	
→ YES	NO

1. Touch LEFT arrow key to move cursor to YES and touch OK key to enter SETUP mode.

Satellite menu

+ANTENNA	→+SATELLITE
+SYSTEM	+INSTALLATION

2. Touch RIGHT arrow key to move cursor to SATELLITE and touch OK key to enter it.

Add sat menu

+LOAD SAT.	+EDIT SAT.
→+ADD SAT.	+CHECK NID

3. Touch DOWN arrow key and OK key to enter ADD SAT. menu.

Set longitude & name

←	LONGITUDE	EDIT NAME	→
↑	000.00E	SAT.00	↓

4. Set satellite LONGITUDE and satellite NAME.

DVB verify method

DVB VERIFY	SKEW OFFSET
↑ DVB DECODE ↓	+00.0

5. Edit the satellite **DVB VERIFY*** and SKEW OFFSET.

DVB VERIFY will be only activated and applied when DVB mode of TRACKING SIGNAL is chosen to be used. Touch UP and DOWN arrow keys to select DVB VERIFY and touch OK key to set the parameter.

DVB VERIFY*

AGC – use signal level for satellite tracking.

DVB Lock – use DVB Lock for satellite tracking.

DVB Decode – use DVB Decode for satellite tracking.

DSS Decode – use DSS Decode for satellite tracking.

Set LNB local frequency

SELECT LOCAL	TRACKING SIGNAL
▲10000MHZ▼	NBD

6. **SELECT LOCAL*** to set LNB local oscillator frequency and **TRACKING SIGNAL***.
 The selectable LNB frequencies are depended on the installed LNB type.
 Touch LEFT and RIGHT arrow keys until the desired character is underscored (selected).
 Touch UP and DOWN arrow keys to increase or decrease the value.
 Or touch NUMBER keys to set the desired value directly.
 Touch OK key to set the parameter.

SELECT LOCAL*

The selectable LNB frequencies are depended on the installed LNB type.

TRACKING SIGNAL*

NBD
DVB

Set polarity

RX POL	TX POL
▲ VERT. ▼	HORI.

7. Set RX POL and TX POL
 To select the polarity for both RX (receive) and TX (transmit) polarization.
 Touch UP and DOWN arrow keys to select VERTICAL or HORIZONTAL.
 Touch OK key to set the parameter.

Set DVB tracking frequency

DVB FREQ.	SYMBOL	NID
▲00000MHZ▼	00000kSpS	0X0000

8. Set DVB FREQUENCY, SYMBOL RATE and NID when DVB mode of TRACKING SIGNAL is chosen to be used.
 45,000 is the maximum allowed symbol rate value. NID (network ID) range is from 0 x 0000 to 0 x FFFF (hexadecimal digit).
 Touch LEFT and RIGHT arrow keys until the desired character is underscored (selected).
 Touch UP and DOWN arrow keys to increase or decrease the value.
 Or touch NUMBER keys to set the desired value directly.
 Touch OK key to set the parameter.

Sat NBD tracking frequency

NBD FREQ.	BANDWIDTH
▲ 0000.000MHZ▼	00000KHZ

9. Set NBD IF FREQUENCY and detection BANDWIDTH when NBD (Narrow band detection) mode of TRACKING SIGNAL is chosen to be used.

Touch LEFT and RIGHT arrow keys until the desired character is underscored (selected).
 Touch UP and DOWN arrow keys to increase or decrease the value.
 Or touch NUMBER keys to set the desired value directly. Touch OK key to set the parameter.

Save

SAVE ?	
→ YES	NO

10. Touch LEFT arrow key to move cursor to YES and touch OK key to save and execute the current settings. Or touch RIGHT arrow key to move cursor to NO and touch OK key to abort and return to the main display.

Check NID**Setup mode**

SETUP MODE ?	
→ YES	NO

1. Touch LEFT arrow key to move cursor to YES and Touch OK key to enter SETUP mode.

Satellite menu

+ANTENNA	→+SATELLITE
+SYSTEM	+INSTALLATION

2. Touch RIGHT arrow key to move cursor to SATELLITE menu and touch OK key to enter it.

Check NID menu

+LOAD SAT.	+EDIT SAT.
+ADD SAT.	→+CHECK NID

3. Touch DOWN arrow key and OK key to enter CHECK NID menu.

NID verification

[CHECK NID]	F: 12490 S: 27490 0X00AD
PRESS OK	RECEIVED NID[0X0000]

4. CHECK NID is to verify the NID (Network ID) of the current tracking transponder. Touch OK key to verify the NID [0 x 0000] only when “PRESS OK” function is activated. “PRESS OK” function will only be activated when DVB Lock signal is confirmed by the antenna. However, “NO LOCK” message will be displayed if DVB Lock signal can’t be confirmed.

System Settings

Set LNB Local Oscillator Frequency

Setup mode

SETUP MODE ?	
→ YES	NO

1. Touch LEFT arrow key to move cursor to YES and touch OK key to enter SETUP mode.

System menu

+ANTENNA	+SATELLITE
→+SYSTEM	+INSTALLATION

2. Touch DOWN arrow key to move cursor to SYSTEM and touch OK key to enter it.

Set local frequency menu

← →+SET LOCAL	+SET LOCATION →
+MODEM PORT	+MANAGEMENT

3. Touch OK key to enter SET LOCAL menu to set the LNB local frequency.

LNB info

← →13V + 0KHZ	18V + 0KHZ →
10000MHZ	11300MHZ
13V + 22KHZ	18V + 22KHZ
10750MHZ	± 09750MHZ ▾

4. Set LNB local oscillator frequency for each correspondent voltage power.
(13V +0 kHz, 18V +0 kHz, 13V +22 kHz, 18V +22 kHz)

Touch BACK key and Touch LEFT and RIGHT arrow keys to select the parameter you wish to edit. Touch OK key to edit parameter. Or touch BACK key again to return to the main display.

LNB LOCAL: The selectable LNB frequencies are depended on the installed LNB type.

Save

SAVE ?	
→ YES	NO

5. Touch LEFT arrow key to move cursor to YES and touch OK key to save current settings. Or move cursor to NO and touch OK key to abort and return to the main display.

Set Location

Setup mode

SETUP MODE ?	
→ YES	NO

1. Touch LEFT arrow key to move cursor to YES and touch OK key to enter SETUP mode.

System menu

+ANTENNA	+SATELLITE
→+SYSTEM	+INSTALLATION

2. Touch DOWN arrow key to move cursor to SYSTEM and touch OK key to enter it.

Set location menu

← +SET LOCAL	→+SET LOCATION
+MODEM PORT	+MANAGEMENT

3. Touch RIGHT arrow key to move cursor to SET LOCATION and touch OK key to enter it.

Gyro type and Baud rate

GYRO TYPE	BAUD RATE
NMEA	⬆ 4800 ⬇

4. Set the ship's **GYRO TYPE*** and BAUD RATE

A search pattern 1 or 3 will be initiated according to which gyrocompass type is selected and the existence of the gyrocompass input. Set the BAUD RATE as 4800, 9600, 19200 or 38400 according to your device.

A search pattern 1 will be initiated automatically if the gyrocompass input does not exist and the gyrocompass type is selected other than GROUND TEST.

NOTE: The bow offset will not be saved automatically if Search 1 pattern is initiated. In this case, the antenna will need to re target the desired satellite using Search 1 every time if the antenna restarts.

Gyro search type

Setting of Heading Device			
Existence of Heading Data	No Device	NMEA / NMEA 2000	Ground Test
With Heading Data	Search 1	Search 3	Search 3
Without Heading Data	Search 1	Search 1	Search 3

GYRO TYPE*

NO DEVICE
NMEA
NMEA 2000
GROUND TEST

Latitude & longitude

←	→	LATITUDE	LONGITUDE	→
		37.00N	126.50E	

5. Set the current LATITUDE and LONGITUDE

Touch LEFT and RIGHT arrow keys until the desired character is underscored (selected).

Touch UP and DOWN arrow keys to increase or decrease the value.

Or touch NUMBER keys to set the desired value directly.

Touch the OK key to set the parameter.

Heading

←	HEADING	→
	090.0	

6. Entry of ship's heading.

Ensure that the supported gyrocompass type is set correctly. If the ship's gyrocompass output is other than NMEA and Synchro, a purchase of an NMEA converter is required.

Save

	SAVE ?	
→ YES		NO

7. Touch LEFT arrow key to move cursor to YES and touch OK key to save current settings. Or move cursor to NO and touch OK key to abort and return to the main display.

Set Modem Port

Setup mode

SETUP MODE ?	
→ YES	NO

1. Touch LEFT arrow key to move cursor to YES and touch OK key to enter SETUP mode.

System menu

+ANTENNA	+SATELLITE
→+SYSTEM	+INSTALLATION

2. Touch DOWN arrow key to move cursor to SYSTEM menu and touch OK key to enter it.

Modem port menu

← +SET LOCAL	+SET LOCATION →
→+MODEM PORT	+MANAGEMENT

3. Touch DOWN arrow keys to move cursor to MODEM PORT menu and touch OK key to enter it.

Set Mediator &
modem type

USE MEDIATOR	MODEM TYPE
⏏ NO ⏏	IDIRECT-I/O

4. USE MEDIATOR is to enable the usage of MEDIATOR if the antenna is connected to the Intellian Dual VSAT Mediator.

NOTE: USE MEDIATOR must be disabled if there is no MEDIATOR connected to the ACU. Improper setting of this parameter will cause your ACU's modem interface working incorrectly.

MODEM TYPE* is to select a proper data communication port and protocol on the ACU to interface with the satellite modem. The settings related to the modem interface will be set automatically once the modem type is selected.

The options on the next page will be displayed and required to be set if "USER SETTING" is selected.

MODEM TYPE*

- USER SETTING
- IDIRECT-I/O
- IDIRECT-AMIP
- COMTECH-I/O
- COMTECH-ROSS
- HUGHES
- SATLINK-SERIAL
- SATLINK-VACP
- ELEKTRIKOM-AMIP
- GILAT-SE-II

Set modem protocol

MODEM PORT	PROTOCOL
ETHERNET	I/O CONSOLE

5. **MODEM PORT*** is to select a proper data communication port on the ACU to interface with the modem.

PROTOCOL* is to select a proper communication protocol on the ACU to interface with the modem.

MODEM PORT*

ETHERNET
RS422
RS232

PROTOCOL*

I/O CONSOLE is a protocol for interchanging of information (GPS Out, TX mute, and modem lock) between the ACU (through Console port) and a modem.

OPEN AMIP is an ASCII based protocol developed by iDirect for interchanging of information between the ACU and a modem. OpenAMIP is not intended for any purpose except to allow the ACU and a modem to perform synchronized automatic beam switching (ABS).

SERIAL GPS is a protocol for sending GPS Out information from the ACU (through RS232/422 port) to a modem.

ROSS: ROSS Open Antenna Management (ROAM) protocol is developed by Comtech EF Data Cooperation to offer common management interface for Comtech EF Data's Roaming Oceanic Satellite Server (ROSS) and ACU.

VCAP is the interface between the SatLink mobile VSAT IDU and the Intellian antenna controllers for Intellian mobile antennas.

ELEKTRIKOM-AMIP is the interface using extended OpenAmip including the console port (modem lock) between the elektrikom ROAM-PC and the Intellian controller.

GILAT-SE-II is a protocol that generates between the Gilat SkyEdge modem and the Intellian antenna controllers two-channel interfacing based on the NMEA 0183 data protocol. The interfacing occurs via RS232 serial port at 9600-N-8-1 baud.

Use TX mute

GPS OUT SENTENCE	USE TX MUTE
GPGLL	YES

6. **GPS OUT SENTENCE*** is to select the GPS OUT SENTENCE type **USE TX MUTE** is to select whether or not to **USE TX MUTE** function from the satellite modem. A transmit inhibit output from the ACU will disable/mute the modem transmit via a voltage whenever the antenna is blocked, searching, or is mis-pointed 0.5 degrees from the peak satellite position.

GPS OUT SENTENCE*GPGLL
GPGGA
SIMPLE GPGGA

Use EXT.LOCK

USE EXT. LOCK	EXT. LOCK ACTIVE
⬅️ YES	➡️ LOW

7. USE EXT. LOCK is to select whether or not to use external lock signal from the satellite modem. USE EXT. LOCK item will only be activated when PROTOCOL is set as I/O CONSOLE.

EXT. LOCK ACTIVE is referred that modem lock output from the modem provides a logic input through a 5 V (HIGH) or 0 V (LOW). current to the ACU to identify when it is on the correct satellite. *EXT. LOCK ACTIVE item will only be activated when PROTOCOL is set as I/O CONSOLE.*

TX mute activation

TX MUTE ACTIVE
⬅️ LOW ➡️

8. TX MUTE ACTIVE is a transmit inhibit output from the ACU to disable/mute the modem transmit through a 5 V (HIGH) or 0 V (LOW) current whenever the antenna is blocked, searching, or is mis-pointed 0.5° from peak satellite position. *TX MUTE ACTIVE item will only be activated when PROTOCOL is set as I/O CONSOLE.*

Save

SAVE ?
➡️ YES NO

9. Touch LEFT arrow key to move cursor to YES and touch OK key to save current settings. Or move cursor to NO and touch OK key to abort and return to the main display.

Management

Setup mode

```

      SETUP MODE ?
    ↗ YES                NO
  
```

1. Touch LEFT arrow key to move cursor to YES and touch OK key to enter SETUP mode.

System menu

```

    +ANTENNA                +SATELLITE
  ↗+SYSTEM                +INSTALLATION
  
```

2. Touch DOWN arrow key to move cursor to SYSTEM menu and touch OK key to enter it.

Backup and restore
menu

```

  ⬅ +SET LOCAL                +SET LOCATION ➡
    +MODEM PORT            ↗+MANAGEMENT
  
```

3. Touch arrow keys to move cursor to MANAGEMENT menu and touch OK key to enter it.

Select process type

```

      SELECT PROCESS TYPE
    ⬆      BACKUP USER DATA      ⬆
  
```

4. Touch UP and DOWN arrow keys to **SELECT PROCESS TYPE***

Touch OK key to set the parameter and the processing message will be displayed.

SELECT PROCESS TYPE*

BACKUP USER DATA: To backup the antenna settings set by user to the ACU.

RESTORE USER DATA: To restore the antenna by using the backup user data stored from the ACU.

USE BLUETOOTH: To use bluetooth. If the select process type is set to "Bluetooth", the data communication between Antenna and ACU will be disconnected. Refer to page 147 for setting up bluetooth connection.

DEFAULT ACU-REMOTE P/W: to default ID and Password of the Web Server.

UPGRADE FROM USB: to upgrade the system by using the firmware files from a specified folder in the USB flash drive.

COPY LOG TO USB: to copy the antenna log data from the system to the USB flash drive.

BACKUP TO USB: To backup the antenna settings to a specified folder in the USB flash drive.

RESTORE FROM USB: To restore the antenna by using the backup user data from a specified folder in the USB flash drive.

UPGRADE ACU-REMOTE: To upgrade the system using the Remote Access firmware file (ETSW-fs-XXX.bin) from a specified folder in the USB flash drive.

NOTE: UPGRADE FROM USB, COPY LOG TO USB, BACKUP TO USB, RESTORE FROM USB and UPGRADE ACU-REMOTE options are displayed only if the USB flash drive is plugged into the USB port located in the front panel of the ACU.

Processing

```

    BACK UP ANT INFO
    DO NOT TURN OFF!      #####
  
```

Key Lock

Setup mode

SETUP MODE ?	
→ YES	NO

1. Touch LEFT arrow key to move cursor to YES and touch OK key to enter SETUP mode.

System menu

+ANTENNA	+SATELLITE
→+SYSTEM	+INSTALLATION

2. Touch DOWN arrow key to move cursor to SYSTEM menu and touch OK key to enter it.

Key lock menu

←	→+KEY LOCK	→
---	------------	---

3. Touch arrow keys to move cursor to KEY LOCK menu and touch OK key to enter it.

Set key lock and password

KEY LOCK		UNLOCK P/W	
↑	ON	↓	1590

4. Touch UP and DOWN arrow keys to choose whether or not to use key pad lock when entering the SETUP mode or saving the satellite information. Setup the password for entering the key pad lock. The factory default is 1590.

ANTENNA CONTROL SOFTWARE

Introduction to Aptus®

Requirements

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Satellite (Satellite View)

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Introduction to Aptus®

Intellian's new VSAT Antenna PC Controller Software, Aptus® is a next-generation graphically based antenna remote control software. The Aptus® allows users to easily and conveniently set up the antenna by using a personal computer.

The minimum PC hardware and software requirements to install and run Aptus® are as below.

Requirements


Hardware

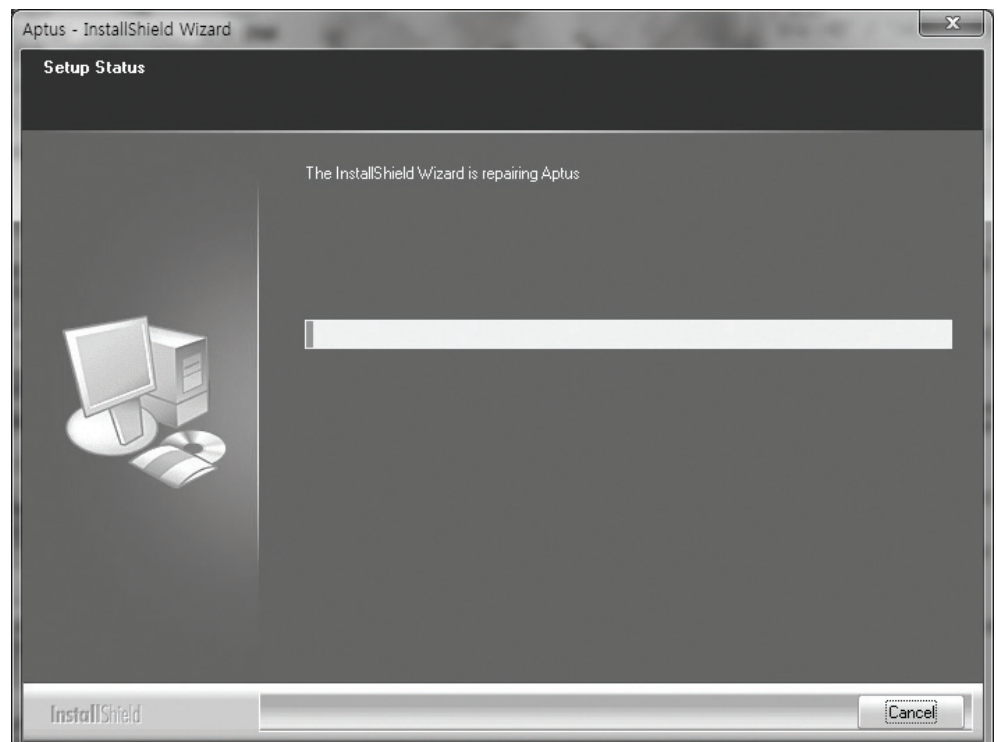
Hardware	Requirements
CPU	Intel® Pentium® 4 or higher
Memory	512MB or higher
Video Card	DirectX9.0 or higher supported
	H/W acceleration supported
	Video Memory 128MB or higher
HDD	1GB or higher

Operating System and Software

Software	Requirements
Operating System	Windows XP SP or higher
Framework	Microsoft.Net Framework 3.5 Service Pack 1 or higher

Software Installation

Double click the 'Aptus for v-Series Setup.exe' icon  to install Aptus® directly onto your computer/ laptop. The InstallShield Wizard will guide you through the program setup process. The installation routine provides an icon on the desktop.

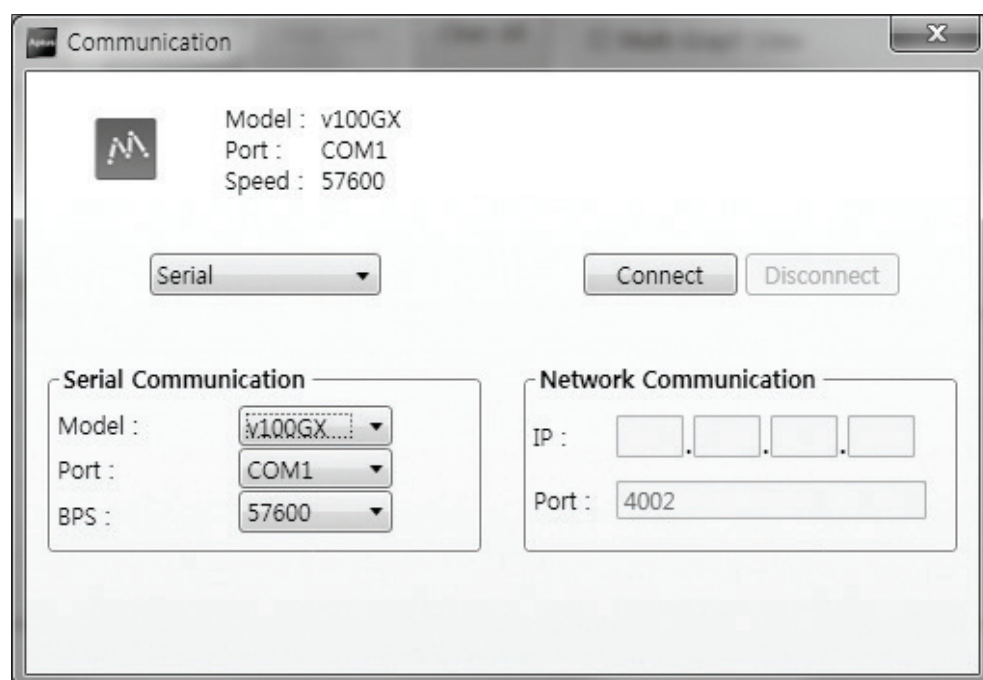


Click the icon to start the software. In addition, Intellian also provides patch files for software upgrade.

PC to ACU Communication Setup

Starting Aptus®

Double-click the Aptus® desktop icon, then Communication Window appears to establish the data communication between your PC and the ACU. Select options of connection method to access your ACU either through the Serial Port Communication or the Network Communication (TCP/IP).



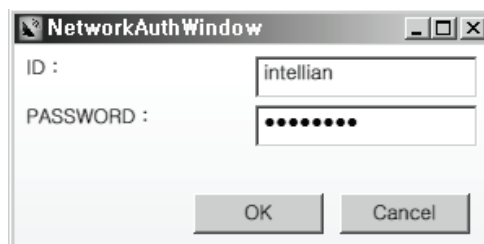
Establish a data communication

Access ACU through Serial Communication

1. Connect a 9 pin Serial cable between the PC INTERFACE connector on the ACU and the 9 pin Serial port on the PC. (Or you can use a USB cable to setup Serial connection between a PC and the USB port on the ACU.)
2. Select Serial at communication type combo-box.
3. The baud rate of the ACU is 57600 for the v100GX.
4. Select a COM port which is not occupied by other devices.
5. Click the Connect button.

Access ACU through Network Communication (TCP/IP)

1. Turn off the wireless connection while using this method.
2. Connect your PC to the Management Port. (See page 36 for other network connection method.)
3. Select Network at communication type combo-box.
4. Enter in the ACU's IP address (Factory default : 192.168.2.1)
5. Enter in the ACU's port number (Factory default : 4002)
 - Enter 4003 for SSL Secure Connection.
6. Click the Connect button then the Authentication window will appear.
7. Login by using the username and password below:
 - Username: intellian (Factory default)
 - Password: 12345678 (Factory default)



NOTE: If the remote access PC is located in the same network group with the ACU, the ACU can be accessed through the internal IP address. But, if the remote access PC is located outside of the network group, the ACU's IP address should be changed to the IP address assigned by the network service provider. Refer to page 129 for changing the ACU's IP address. To change the username and password, refer to page 133.

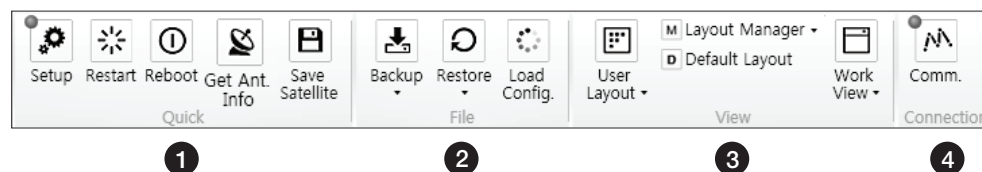


WARNING:

- Do not plug a USB to the ACU while TCP/IP communication is in use. Doing so will disable current PC Software Control because the USB connection has higher priority than TCP/IP connection.
- The amount of data will increase rapidly if Network Communication is in use. Intellian recommends using Remote Web Access (Aptus Web) to access the ACU. (refer to page 109).

Toolbar Menus

The toolbar menus at the top of the screen display command buttons of the most commonly used functions of the Aptus®. The toolbar menus consists of 4 main menus; Quick (for quick launch of functions), File (for file backup, restoring and loading), View and Connection.



① Quick



Setup: enters Setup mode.



Restart: exits Setup mode and restarts the antenna.



Reboot: reboots the antenna.

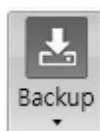


Get Ant. Info: obtains the information stored in the antenna



Save Satellite: saves the current bow offset only if the antenna is tracking onto the satellite. The satellite acquisition time can be reduced significantly after the antenna is restarted.

② File



Backup: backups the antenna information to ACU or PC.



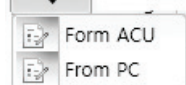
- Select 'To ACU' to backup the antenna information to ACU. The backup file (file format: *.ibf) will be stored on the ACU.

- Select 'To PC' to backup the antenna information to a PC. The backup files (file format: *.rpt and *.ibf) will be generated on the PC.

NOTE: Both *.rpt and *.ibf files contain antenna information. However, while *.ibf file can be used for restoring antenna information, *.rpt file is stored as plain-text for viewing purpose only. Users can open the *.rpt using text editors such as notepad software.

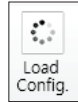


Restore: restores the antenna by using the stored information in ACU or PC.



- Select 'From ACU' to restore the antenna by using the stored information in ACU.

- Select 'From PC' to restore the antenna by using the stored information in PC (file format: *.ibf).



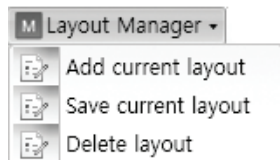
Load Config. : loads the antenna configuration file (file format: *.cfg).

The configuration file includes the antenna control parameters which are pre-loaded at the factory and should only be changed by an authorized service technician. Improper setting of these parameters will cause your system to perform improperly.

③ View



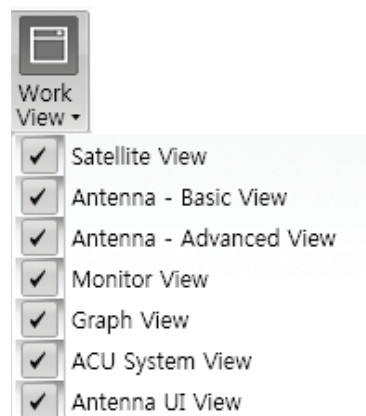
- **User Layout:** displays the layout list that the user has previously stored by using Layout Manager. If you select a layout in this list, the selected layout will be constructed in Work View screen. The 'Basic layout' is provided by default.



- **Layout Manager:** provides the user with add, delete, and save functionalities in order to manage the user's layouts.
 - Selecting 'Add current layout' opens a pop up window. Type in a desired name of current layout and click Add, then the new name of the current layout will be saved to the list under User Layout menu.
 - When changes are made to the current layout, select 'Save current layout' option. The current layout will be saved with changes.
 - To remove a layout, select 'Delete layout' option. Select a desired layout to remove on the pop up window, then click 'Delete'. Close the window by clicking on 'Close'. The selected layout is removed from the User Layout list.



- **Default Layout:** returns the current layout to the default layout.



- **Work View:** displays a list of seven pre-constructed Work View Tabs (Satellite View, Antenna Basic View, Antenna Advanced View, Monitor View, Graph View, ACU System View, and Antenna UI View) and also provides the Activate / Close functionalities for each view tab. Activate the work view tab by ticking the checkbox next to it.

④ Connection



At any time, data communication channel can be re-established between Serial and Network connection. Selecting Comm. Button will display Communication Window to connect to the ACU via Serial or Network communication. See also page 85 for establishing a data communication.

System Property Status Dashboard

The property status dashboard on the left pane of the screen provides the antenna status, the availability of TX transmission, signal level, GPS and heading status, software information, product information and error status to be monitored quickly.

The screenshot shows a vertical dashboard with the following sections:

- 1 Antenna Status:** A section with a 'Setup' button.
- 2 TX Enable:** A section with radio buttons for 'Enable Mode', 'Blockage', 'Pointing', 'Modem Lock', and 'LNB Rotate'.
- 3 Signal Level:** A section showing 'NBD 139' with a progress bar.
- 4 Ant. GPS Status:** A section showing coordinates '(127.05 E , 37.07 N)' and 'Heading Status (0.00)'.
- 5 Software Information:** A section listing 'Ant. PCU : V 0.90', 'Ant. Stabilizer : V 0.90', 'ACU Main : V 9.00', and 'Lib Version : V 1.01'.
- 6 Product Information:** A section listing 'Ant. Size : 100 cm / 41 inch', 'Ant. Voltage : 24.1V / 23.8V', 'Ant. Name : V2-GX-v100', 'Ant. Serial : GX110120703', 'ACU Name : VP-T431', 'ACU Serial : GX110120703', and 'System Pol : Cross'.
- 7 Diagnostic Error Report:** A section with a checkbox.

① Antenna Status: Displays the status of the current mode of the antenna.

- **Search 1:** A Search 1 pattern will automatically be initiated when the ship's heading input does not exist or if it fails. The search cycle will repeat until the antenna receives the lock signal from the modem or until the DVB transponder of the target satellite is decoded by the antenna.
- **Search 2:** Search 2 is reserved for future use.
- **Search 3:** Search 3 pattern will automatically be initiated when AGC(DVB mode is in use) or SIG/dB (NBD mode is in use) falls below the current tracking level threshold value. Once the desired signal is found and above the predefined tracking threshold, the ACU will enter to tracking mode.
- **Tracking:** Antenna is tracking the target satellite.
- **Initialize:** Antenna or ACU is initializing.
- **Setup:** Antenna is in SETUP mode.

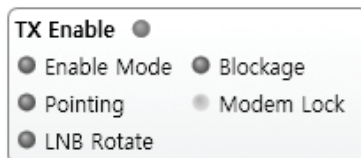
② TX Enable

Displays the status of TX transmit. If the circle next to the TX Enable shows “Blue”, it means the antenna TX function is enabled. If the circle shows “Red”, it means the antenna TX function is disabled. The TX function will be enabled only if all five factors (Enable Mode, Blockage, Pointing, Modem Lock, and LNB Rotate) listed below show a “Blue” circle. However, if the “Use TX Mute” function in the ‘ACU System’ Work Tab is disabled, the TX function will be enabled regardless the above factors.

- **Enable Mode:** displays whether or not the antenna is in SETUP mode. If the antenna is in Setup mode, the circle next to the Enable Mode will show “Gray”.
- **Blockage:** displays whether or not the antenna is pointing in a predefined block zone(s). If the antenna is pointing in the block zone, the circle next to the Blockage will show “Gray”. If the antenna pointed outside the block zone, the circle next to the Blockage will show “Blue”.
- **Pointing:** displays whether or not the antenna is pointing to the target satellite. If the antenna is mis-pointing to the target satellite, the circle next to the Pointing will show “Gray”. If the antenna is pointing to the target satellite, the circle next to the Pointing will show “Blue”.
- **Modem Lock:** displays whether or not the modem is locked by receiving a confirmation signal from the satellite modem. If the modem is not locked, the circle next to the Modem Lock will show “Gray”. If the modem is locked, the circle next to the Modem Lock will show “Blue”.

NOTE: If the Modem Lock shows “Gray”, check the cable connection between the antenna system and the satellite modem as well as settings on the modem.

- **LNB Rotate:** displays whether or not the LNB is rotating. If the LNB is rotating, the circle next to the LNB Rotate will show “Gray”. If the LNB is not rotating, the circle next to the LNB Rotate will show “Blue”.



③ Signal Level

Shows “DVB” when DVB mode of tracking signal is in use and “NBD” when NBD mode of tracking signal is in use. The “Red” line indicates the signal “Detect Level Threshold” and the “Orange” line indicates the signal “Tracking Level Threshold”. If the signal level is higher than the tracking level threshold, the signal level bar will display “Blue” color. If the signal level is lower than the tracking level threshold, the signal level bar will display “Orange” color and the antenna will stay in searching mode.

NOTE: If the signal level is not higher than the tracking threshold, decrease the detect and tracking level. See page 97.

④ GPS and Heading

Displays the current GPS location from the Antenna and Ship’s heading information. The status light flashes green if the system receives a correct input of the GPS and Ship’s heading.

Ant. GPS Status (127.05 E , 37.07 N)
Heading Status (0.00)

⑤ Software Information: Displays the antenna and the ACU firmware versions, and the library version.

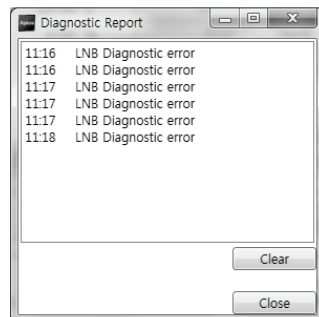
Software Information
Ant. PCU : V 0.90
Ant. Stabilizer : V 0.90
ACU Main : V 9.00
Lib Version : V 1.01

⑥ Product Information: Displays the antenna and ACU serial numbers, antenna model and ACU model.

Product Information
Ant. Size : 100 cm / 41 inch
Ant. Voltage : 24.1V / 23.8V
Ant. Name : V2-GX-v100
Ant. Serial : GX110120703
ACU Name : VP-T431
ACU Serial : GX110120703
System Pol : Cross

⑦ Diagnostic Error Report

The square button next to the Diagnostic Error Report turns red when the system receives an error. Click the button to see a Diagnostic Report.



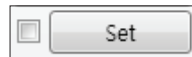
Work View Tabs

Aptus® provides seven Work View Tabs (Satellite View, Antenna Basic View, Antenna Advanced View, Monitor View, Graph View, ACU System View, and Antenna UI View) to manage the Antenna and the Satellite configuration.

How to modify the settings on Work View;



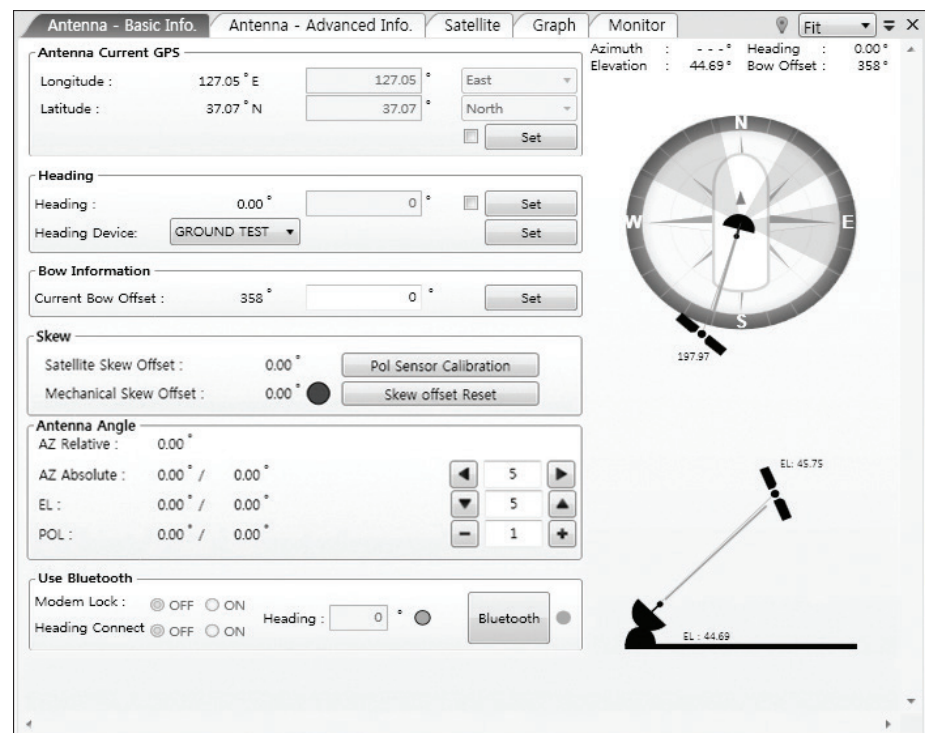
1. Enter the Setup mode by clicking Setup icon.



2. Tick the checkbox next to the “Set” button to modify the settings.
3. Enter the desired value then press the Set button to save the settings.

1. Antenna – Basic Info.

This view tab provides information on the Antenna’s Current GPS location, Heading Device, Bow Information, Skew Information, and the Antenna’s Angle. This view tab uses the Antenna’s AZ and EL information as well as the Ship’s Heading information in order to provide a dynamic graphic user interface (UI).



- **Antenna Current GPS:** displays and sets current antenna's GPS.
- **Heading:** displays and sets current ship's heading information.
 - Heading Device: None / NMEA/ NMEA 2000/Ground Test.
The baud rate (4800/ 9600/ 19200/ 38400) must be set if NMEA is selected.
- **Bow Information:** displays and sets current antenna's bow.
- **Skew:** displays current antenna's skew and skew offset.
 - Pol Sensor Calibration: calibrates the sensor (potentiometer).
 - Mechanical Skew Offset: the mechanical skew offset is preset in the factory with a default value (0, 1, or 2) depending on the assembly status. Resetting of the mechanical skew offset may be required when the satellite skew offset is unknown (Overall system skew offset = satellite skew offset + mechanical skew offset). Due to each satellite has its own skew offset, Intellian recommends you check with your service provider or satellite operator to get the satellite skew offset value and input it in Satellite Work Tab rather than resetting the mechanical skew offset directly.
- **Antenna Angle:** displays and sets current antenna's absolute and relative AZ (azimuth) position, EL (elevation) position and LNB Pol angle. You can move antenna azimuth and elevation position and LNB Pol angle by using the arrows or inputting a value to find the desired satellite manually.
- **Use Bluetooth:** The data communication between the ACU and the antenna will be terminated once the Bluetooth function is activated. The built-in Bluetooth connection module inside of the antenna dome can enable a PC connection right alongside the dome. For Bluetooth connection, see page 147.
 - Modem Lock: turns on/off the modem lock signal sent from your PC/ laptop to the antenna while Bluetooth is in use.
 - Heading Connect: turns on/off the heading signal sent from your PC/ laptop to the antenna while Bluetooth is in use.

2. Antenna – Advanced Info.

This view provides information on the Tilt Sensor Bias, Conical Range, EL Adjust, Rate Sensor, Search Parameter and Block Zone.

Tilt Sensor Bias

Ready EL - 1.00 +

Rate Sensor

Idle Mode Bias Check AZ : -120 EL : -153 CL : 248

Conical Range

AZ : 80 EL : 100 Set

EL Adjust

EL Adjust : -0.01 Set

Search Parameter

Type1 Type2 Type3
 AZ : 400 6 3
 EL : 8 6 4
 Wait Time : 5 (s)
 Search Step : 0.50 Set

Threshold Setting

DVB Detect Level : 40
 DVB Tracking Level : 20
 NBD Detect Level : 40
 NBD Tracking Level : 20
 TX Enable : 50 Set

Blockage

No	AZStart	AZEnd	EL
<input checked="" type="checkbox"/> 1	30	60	0
<input checked="" type="checkbox"/> 2	300	350	0
<input checked="" type="checkbox"/> 3	80	120	0
<input type="checkbox"/> 4	0	0	0
<input type="checkbox"/> 5	0	0	0

AZ Start : AZ End : EL : Set

Monitor

Azimuth : - - - ° Heading : 0.00 °
 Elevation : 44.95 ° Bow Offset : 358 °

Compass rose showing North (N), South (S), East (E), and West (W). A satellite icon is shown at 197.97°.

Antenna diagram showing EL: 45.75 and EL: 44.95.

-Tilt Sensor Bias: This maintains the elevation and the cross level axes in order to keep the pedestal parallel to the horizon. Adjust the two solid-state tilt sensors to provide absolute cross-level tilt of the antenna and elevation feedback to eliminate long-term pointing drift (error). Tilt bias must be adjusted when the antenna control board or sensor box is replaced. If the bubble on the button level located on the sensor box is not centered, follow the following steps to adjust the tilt sensor bias.

- Step 1. Enter Setup mode and press the “Ready” button to bring the elevation and cross-level to 0.
- Step 2. Select “EL” from the drop down list and press Up and Down arrow keys to adjust the bubble until it is located in the center ring of the button level.
- Step 3. Select “CL” from the drop down list and press Up and Down arrow keys to adjust the bubble until it is located in the center ring of the button level.



- Step 4. Press the “Restart” icon to restart the antenna.

- **Rate Sensor:** is used to calibrate the DC voltage output from the three rate sensors (azimuth, elevation, and cross-level). These are used to sense antenna motion that corresponds to the ship’s motion (roll, pitch, and yaw) for stabilizing the pedestal. The DC voltage output from each of the rate sensors may vary by an amount which is directly proportional to the direction and rate of motion induced on it.

Before calibrating the rate sensors located in the Sensor box, make sure that the antenna is placed on a rigid and flat platform. During the calibration process, any motion of the antenna should be avoided as it can affect the antenna’s performance. Proceed with the following steps to perform the calibration.

- Step 1. Enter Setup mode
- Step 2. Press the “Idle Mode” button to release the elevation and cross level motor brakes while the antenna is in Setup mode.
- Step 3. Check whether or not the bubble is located at the center of the button level. If not, move it to the center by following the previous instruction of Tilt Sensor Bias adjustTM.
- Step 4. Press the “Bias Check” button to calibrate the rate sensor. A blue circle will be displayed next to the Bias Check button if the calibration is completed. A red circle will be displayed if calibration failed. A green circle will be displayed during the calibration process.

- **Conical Range:** The relative force of the motors controlling azimuth and elevation. Set the conical range while the antenna is in tracking mode.

- **EL Adjust:** The elevation adjustTM is to offset the angle difference between the mechanical elevation angle and actual elevation angle. If this value is not properly adjusted, the antenna may take longer time for satellite search or tracking.

- **Search Parameter:**

- Wait time: set the time-out for automatic initiation of a search after the signal level drops below the pre-defined threshold value.

- Search Step: set increment step size.
- Type 1 & Type 3 (Search 1 & 3) Range: set Search 1 & 3 search range. Search 3 is conducted in a two-axis pattern consisting of alternate movements in azimuth and elevation as it forms an expanding square.
- Type 2 (Search 2) Range: is reserved for future use.

- Block Zone

Displays current block zones by azimuth and elevation sectors. Up to 5 block zones can be programmed. Once the block zone is created, a blue shading area will be displayed in the Antenna UI view on the right.

- Threshold Settings

- DVB Detect Level: displays and sets signal detection threshold level when DVB tracking mode is in use.
- DVB Tracking Level: displays and sets signal tracking threshold level when DVB tracking mode is in use.
- NBD Detect Level: displays and sets signal detection threshold level when NBD tracking mode is in use.
- NBD Tracking Level: displays and sets signal tracking threshold level when NBD tracking mode is in use.
- TX Enable Threshold: displays and sets TX enable threshold.

3. Satellite (Satellite View)

This view provides information on the Satellite's Information, Tracking Common Information, DVB and NBD Tracking Transponder, LNB Local Frequency, and Satellite Library. This view shows a graphic UI of the current satellite that the antenna is pointing at and the satellites that are located at a 180° arc on the horizon with reference to the current position (See Antenna UI on page 103).

NOTE: Based on the satellite EIRP footprint and the size of the antenna, you may not be able to track all the satellites visible in 180° arc.

- **Tracking Information of Current Satellite:** displays the current satellite's name, longitude position, and satellite skew of the satellite in the library.

- **Transponder Information:** displays the current LNB local oscillator frequency that is in use and the corresponding voltage supplied. Selects the tracking mode (DVB / NBD) to be used and sets polarization (Horizontal / Vertical) for the RX pol and the TX pol.

- **DVB and NBD Tracking Transponder:** sets tracking transponder information for either DVB tracking mode (Verification Type, Frequency, Symbol rate, and NID) or NBD tracking mode (Frequency and bandwidth).

NOTE: DVB and NBD parameter settings should only be changed by an authorized service technician. Improper setting of these parameters will render your system inoperable. Consult Intellian for changing antenna parameters.

- **LNB Local Frequency:** Displays or sets LNB local frequency and its corresponding LNB voltage supplied. You may select pre-programmed LNB LO settings from the drop down list. This procedure is same for both the Intellian Global VSAT PLL LNB and any other LNB.

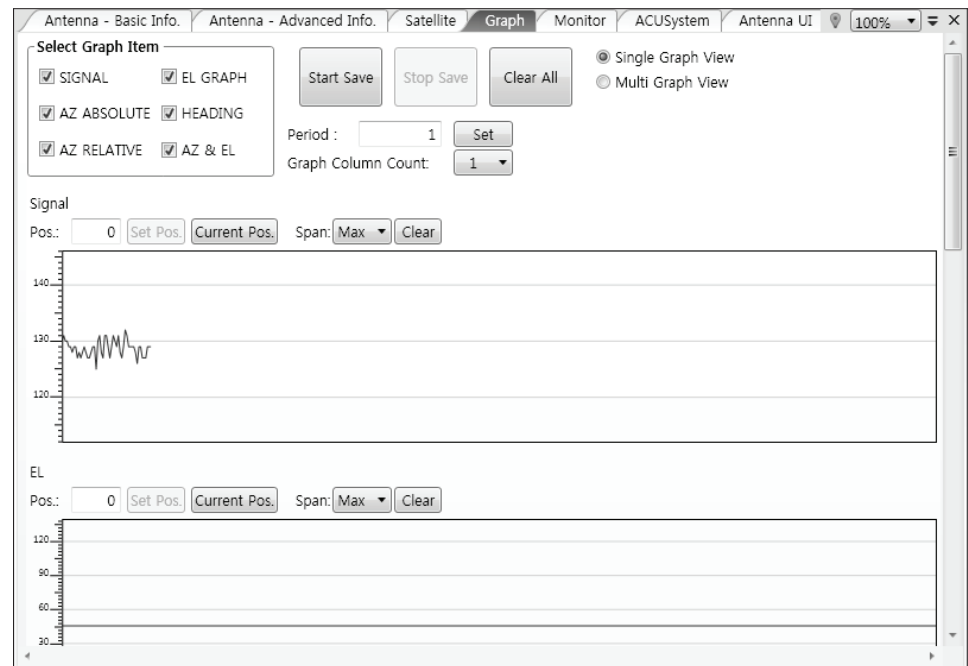
- **Tracking Information of Library:** Selecting “Library” option on top of the Satellite screen enables “Add Satellite”, “Edit Satellite” and “Delete Satellite” buttons.

- **Get Library From PC :** opens the satellite library file (File format:*.ilf) from the PC.
- **Get Data From ACU:** obtains the satellite information from the ACU.
- **Load Satellite:** uploads the satellite information to the ACU.
- **Upload to ACU:** uploads the satellite library to ACU.
- **Edit Satellite:** edits the satellite information of the selected satellite. When Eutelsat satellite is selected, enable Eutelsat option. This applies defined skew angles for each Eutelsat satellite automatically and doesn't require manual modification.
- **Add Satellite:** adds the satellite information as defined in the current settings.
- **Delete Satellite:** deletes the selected satellite from the library.
- **Save to PC:** saves the current library settings to PC.

NOTE: It is required to click the "Save to PC" button after "Edit Satellite", "Add Satellite", or "Delete Satellite" button is clicked.

4. Graph View

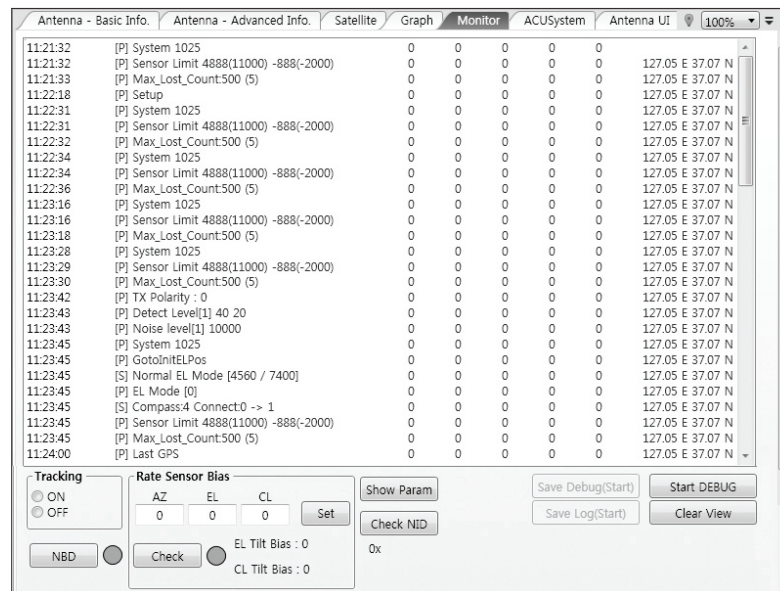
This view provides information on Signal, Elevation (EL), Absolute AZ (Azimuth), Relative AZ, Heading, AZ and EL in Single or Multi graph formats.



- **Select Graph Item:** shows the graphs of only the checked item(s) in a Single or Multi Graph View.
- **Single Graph View:** shows Graph Views per each single Graph Item selected in 'Select Graph Item'.
- **Multi Graph View:** shows one large integrated Graph View of multiple Graph Items selected in 'Select Graph Item'.
- **Start/Stop Save:** the chosen item is saved within the data log. The data log which stores the information displayed in the graphs can be later used for a service technician to find out a cause of any possible problem to the antenna.
- **Clear All:** clears everything drawn on the Graph View window.
- **Set Pos.:** sets the current position as center value of each Graph Item.
- **Current Pos.:** moves to the location according to values of each Graph Item.
- **Span:** sets the Display Range(s) of each corresponding Graph Item.
- **Period:** displays and sets the signal sampling rate.
- **Graph Column Count:** makes all Graph Views show in either one or two-column format.

5. Monitor

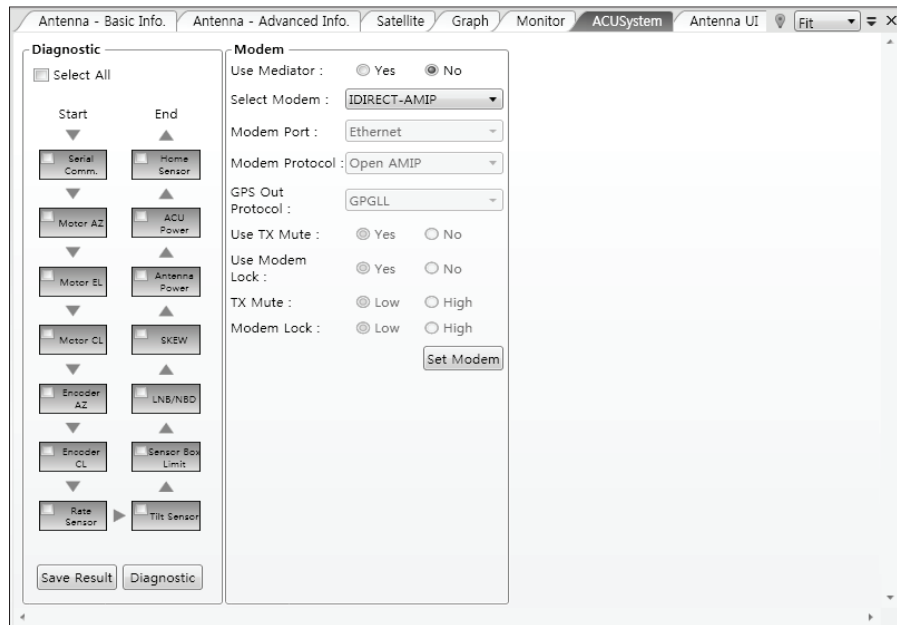
This view provides a UI which can monitor all data that has been received from the ACU.



- **Tracking:** turns on or off the dish scan function. If the dish scan function is disabled, the antenna will stop adjusting the antenna pointing angle in order to optimize the receive signal level.
- **Rate Sensor Bias:** is used to calibrate the DC voltage output from the three rate sensors (azimuth, elevation, and cross-level). These are used to sense antenna motion that corresponds to the ship's motion (roll, pitch, and yaw) for stabilizing the pedestal. You can find the same function in Antenna-Advanced View Tab. Refer to page 95 for details.
- **Show Param:** shows the current antenna parameters.
- **Check NID:** verifies the NID (network ID) of the current tracking transponder. Press the NID button to obtain the NID only if the antenna is locked onto the desired satellite .
- **Debug (Start):** starts the debug log of the antenna. The debug message will be displayed once the debug button is pressed.
- **Stop Debug:** stops debug logging of the antenna.
- **Save Log (Start/Stop):** starts or stops the logs of the antenna. This button will be enabled while viewing the debug log. The log message will be stopped or be saved into a *.txt file once the log button is pressed. (V_Date.txt.)
- **Save Debug (Start/Stop):** starts or stops saving the debug log. This button is enabled once the Start Debug button is pressed.
- **Clear View:** clears the debug message or log data in monitoring window.

6. ACU System

This view provides Antenna Diagnostic Testing and also provides functions to set up the interface between the ACU and the Intellian VSAT Mediator or the satellite modem.



- **Diagnostic** : select to run a full diagnostic test or single diagnostic test. "Green" indicator is displayed for the test under progress. "Blue" indicates the test result as Pass while "Red" indicates the result as Fail. "Yellow" indicates the test has been skipped.

- **Serial Comm.:** tests the data communication between the antenna and the ACU.
- **Motor AZ:** tests the azimuth motor.
- **Motor EL:** tests the elevation motor.
- **Motor CL:** tests the cross-level motor.
- **Encoder AZ:** tests the azimuth encoder.
- **Encoder CL:** tests the cross-level encoder.
- **Rate sensor:** tests the rate sensor.
- **Tilt Sensor:** tests the tilt sensor.
- **Home sensor:** tests the home sensor.
- **ACU power:** tests the ACU power to see whether or not it is within the nominal operating range.

- **Antenna power:** tests the antenna power to see whether or not it is within the nominal operating range.
 - **Skew:** tests the LNB skew motor.
 - **LNB/ NBD:** tests the LNB and NBD (narrow band detector).
 - **Sensor Box Limit:** tests the sensor box motor .
- **Modem:** sets the interface between the ACU and the Intellian Dual VSAT Mediator or the satellite modem.

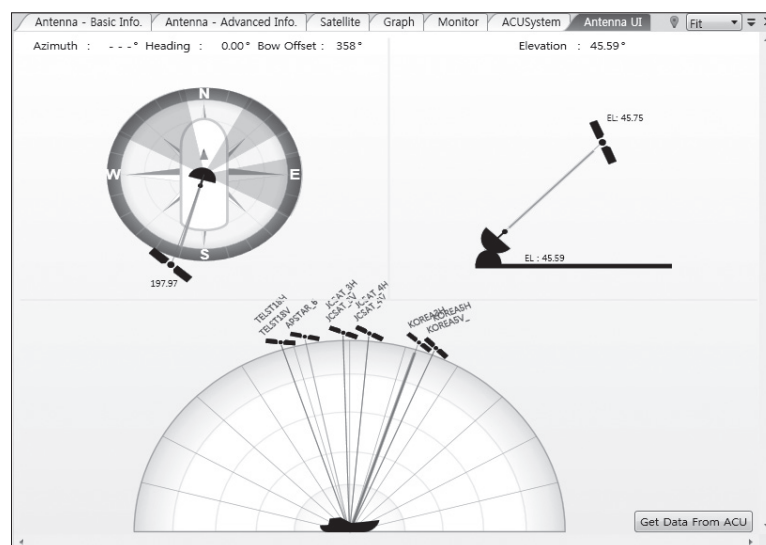
NOTE: Before setting this function, make sure connection of a RJ45 cable from the Ethernet connector on the ACU to the modem or connect a 9 pin serial cable from the RS232/422 connector on the ACU to the modem.

- **Use Mediator:** enables use of the Intellian Dual VSAT Mediator. Use Mediator must be set to “NO” if there is no MEDIATOR connected to the ACU. Improper setting of this parameter will cause your ACU’s modem interface to work incorrectly.
- **Select Modem:** selects your modem type for loading pre-configuration settings. If the ABS (auto beam switching) function is in use, select either IDIRECT-AMIP or COMTECH-ROSS depending on which type of modem is used.
- **Modem Port:** selects a proper data communications port (RS232/ 422/ Ethernet) to interface with the modem.
- **Modem Protocol:** selects a proper communications protocol on the ACU to interface with the modem (I/O Console/ Open AMIP/ Serial GPS/ ROSS/ VCAP/ ELEKTRIKOM AMIP/ GILAT-SE-II).
- **GPS Out Sentence:** selects GPS out sentence type (GPGLL/ GP GGA/ Simple GPGGA).
- **Use TX Mute:** selects whether or not to use the “TX Mute” function from the satellite modem. A transmit inhibit output from the ACU will disable/ mute the modem transmit via a voltage change whenever the antenna is blocked, searching, or is mis-pointed 0.5 degrees from the peak satellite position.

- **Use Modem Lock:** selects whether or not to use external lock signal from the modem. “Use Modem Lock” will only be activated when the modem protocol is set as I/O Console.
- **TX Mute:** TX Mute is a transmit inhibit output from the ACU to disable /mute the modem transmit through a 5 V (HIGH) or 0 V (LOW) current whenever the antenna is blocked, searching, or is mis-pointed 0.5 degrees from peak satellite position. TX Mute will only be activated when modem protocol is set as I/O console.
- **Modem Lock:** is the modem lock output from the modem. It provides a logic input through a 5V (HIGH) or 0 V (LOW) current to the ACU to identify when the system is on the correct satellite. “Modem Lock” will only be activated when modem protocol is set as I/O Console.

7. Antenna UI

This view shows a graphical representation of the current antenna position which allows you to easily identify whether or not the antenna is aligned properly to the target satellite or is in a block zone. In addition, this view shows the current satellite that the antenna is pointed towards and the satellites that are located at a 180° arc on the horizon, according to the current position.



NOTE: Based on the satellite EIRP footprint and the size of the antenna, you may not be able to track all the satellites visible in 180° arc.

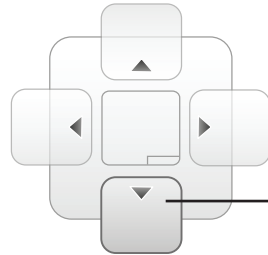
8. Work View Functions

The seven Work View Tabs displayed in the Work View can be arranged in customized layouts.

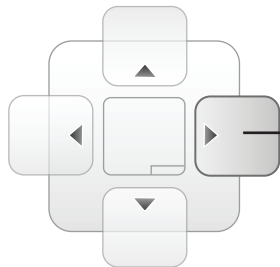
- Layout Formatting

- Each of the Work View Tab can be separated from the rest Tabs. Click and hold the left mouse button on the Work View Tab's header and then drag a desired Tab out. When a Work View Tab is separated from the rest of your Work View Tabs, again click and hold the left mouse button on the Work View Tab's header to display a cross-shaped Navigator icon. While holding the mouse button, bring the selected Work View Tab closer to the Navigator icon and release the mouse button at your desired position (top, left, right or bottom arrow). This time, the selected Tab will be moved to the desired position.

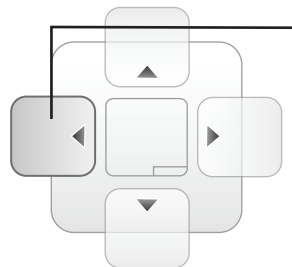




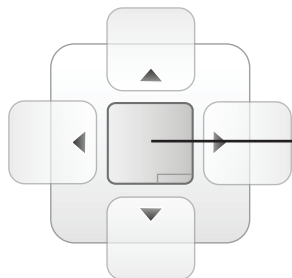
Move the selected Work View Tab to the bottom position of the Work View layout.



Move the selected Work View Tab to the right position of the Work View layout.

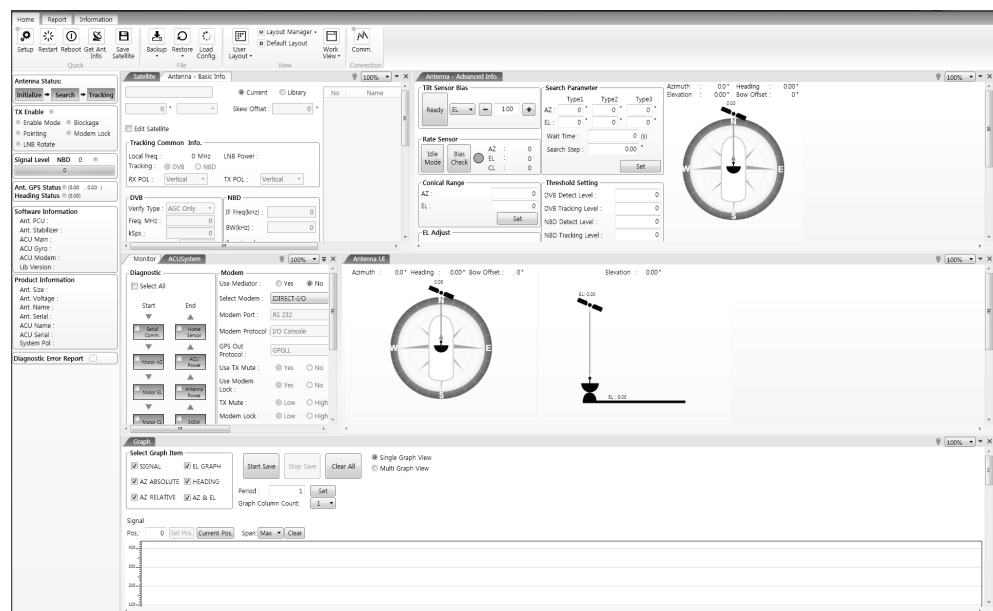


Move the selected Work View Tab to the left position of the Work View layout.



Move the selected Work View Tab to the center position of the Work View layout.

You can also drag multiple Work View Tabs into a customized layout in the same manner. Click and hold left mouse button on each Work View Tab's header and drag it onto a desired arrow on the Navigator icon. Then each Work View Tab can be placed to the desired positions as shown in the figure below.



The Navigator will appear in each area your mouse pointer is located. To return to the default layout, select the Default Layout toolbar menu.

- Horizontal or Vertical Tab Group

The Work View Tabs can be also aligned horizontally or vertically. Without dragging them out, right-click the mouse button on a desired Tab header and select 'New Horizontal Tab Group' or 'New Vertical Tab Group' option. Selecting 'New Horizontal Tab Group' will separate a selected Tab from the rest of other Tabs then arrange it in a horizontal format. Likewise, selecting 'New Vertical Tab Group' will separate a selected Tab from the rest of other Tabs then arrange it in a vertical format.

- Closing the Work View Tab

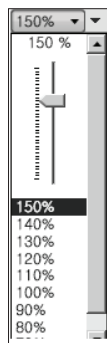
To close the Work View Tab, right-click the mouse button on a desired Tab header and select 'Close' option in the drop down list. To close all Work View Tabs except the selected Tab, select 'Close All But This' option in the drop down list.

- Zoom Tool

Using the Zoom tool, you can easily select the magnification you want by using Zoom In and Zoom Out bar, and Fit in Work View button.



Fit Work View Button: fits the current view to the Work View window size. The button toggles between the fit view and the previous view.



Zoom In and Zoom Out Bar: zooms in and out to expand and reduce the View to the desired size. (The zoom changes in 10% increments.)



View Switch Button: displays a list of the current views in a list. Choosing one of these views will display the selected view in the Work View window.



View Name Button: displays the current Work View name.



Close View Button: closes the current view.

REMOTE ACCESS (APTUS WEB)

Introduction

Main Page

Page Login

Top menus

Dash Board & Information

Antenna Settings

Ship setting

Antenna Position & Parameters

Tracking setting

Modem Setting

Diagnostic

Library Setting

Firmware & Configuration

Antenna Firmware Upgrade

Antenna Log

Antenna Backup & Restore

Administration

Wireless Setting

Network Setting

Serial Setting [1]

Serial Setting [2]

SNMP Setting

User Management

E2S (Ethernet-to-Serial) Upgrade

E2S Save & Reboot

E2S Log

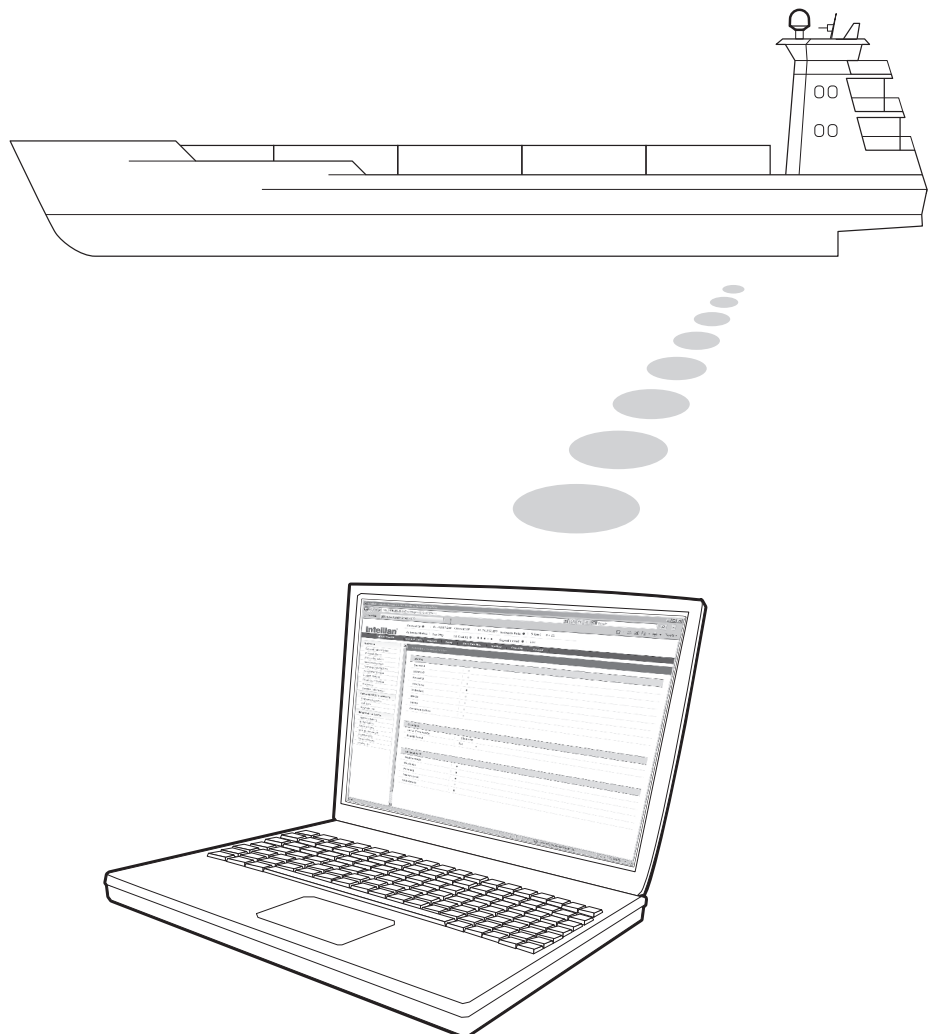
Introduction

With embedded Remote Access (Aptus Web) function, the v-Series can be monitored, controlled, and diagnosed remotely from anywhere, anytime through the TCP/IP protocol. This not only can save time but also save the cost generated from the hundreds of routine maintenance activities such as operating firmware upgrades, tracking parameters resets, and system diagnostic.

How to access Aptus Web:

1. Connect an Ethernet Cable between your PC and the Management Ethernet Port.
2. Enter the ACU's IP address (192.168.2.1) into your web browser's address bar to login into the ACU's internal HTML page, if this system has not been changed from the ACU's factory default. See page 36 for details.

NOTE: Aptus Web can be displayed in Internet Explorer 7 or later and is also compatible with Firefox and Chrome web browser.



Main Page

Page Login

1. Choose either to Control & Monitor the ACU (Control & Monitoring) or Only Monitor the ACU (Monitoring Only).
2. Log into the ACU by typing in User Name and Password information. If this system has not been changed from the factory default:

- **User Name:** intellian
- **Password:** 12345678



The image shows the Intellian Remote Access v3.12 login interface. At the top, the 'Intellian' logo is displayed. Below it, the text 'Remote Access v3.12' is centered. The interface is divided into two sections. The top section contains two radio buttons for mode selection: 'Control & Monitoring' (selected) and 'Monitoring Only'. The bottom section contains two input fields labeled 'Username' and 'Password', followed by 'Login' and 'Cancel' buttons.

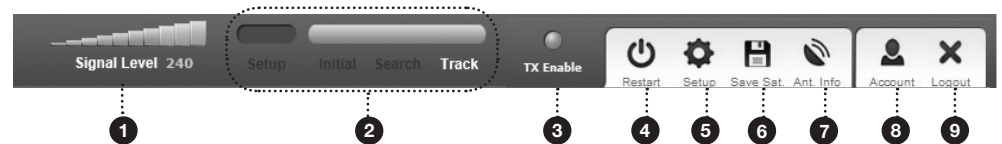


WARNING: The Control & Monitoring Mode will be switched to the Monitoring Only Mode in the following cases;

- If PC Software (Aptus) is connected using TCP/IP Communication while Remote Access Control is in use.
- If Remote Access Control & Monitoring Mode is accessed while PC Software is running via TCP/IP Communication. In this case, the web page will display a pop-up message asking if you want to disconnect the PC Software network connection. If you select 'No', the Control & Monitoring Mode will be switched to the Monitoring Only Mode.

Top Menus

Once you log in, the following information and menus are displayed.



No.	Item	Description
①	Signal Level	Display current signal level.
②	Antenna status	<ul style="list-style-type: none"> - Setup: Displays whether or not the antenna is in SETUP mode. The indicator shows "Blue" in the SETUP mode. - Initial: Antenna or ACU is initialized. - Search: Antenna is searching a target satellite. - Track: Antenna is tracking the target satellite.
③	TX Enable/ TX Disable	Displays whether or not the antenna is able to transmit the data
④	Restart	Restart the antenna system.
⑤	Setup	Enter SETUP mode.
⑥	Save Sat.	Save current satellite settings. Bow offset will be adjusted and saved automatically.
⑦	Ant. Info	Obtain current antenna information.
⑧	Account	Shortcut to User Management menu. Change login ID and Password.
⑨	Logout	Logout the ACU's internal HTML page.

Dash Board & Information

On the left side of the page, Dash Board and Information menus are displayed as below to provide quick monitoring of the antenna status and settings. Other menus are displayed only in the Control & Monitoring mode and their functions will be described in the next sections.

Intellian® Signal Level 185 Setup Initial Search Track TX Enable [Icons: Power, Gear, Save, Antenna, Info, User, Logout]

1 Dash Board

- > Ship Setting
- > Antenna Setting
- > Tracking Setting
- > Modem Setting
- > Diagnostic
- > Library Setting
- > Firmware&Configuration
 - Antenna Firmware Upgrade
 - Antenna Log
 - Antenna Backup & Restore
- > Administration
 - Wireless Setting
 - Network Setting
 - Serial Setting
 - SNMP Setting
 - User Management
 - E2S Upgrade
 - E2S Save & Reboot
 - E2S Log

2 Dash Board

Current Antenna Position / Target Antenna Position

Absolute Azimuth(°)	----
Relative Azimuth(°)	282.90 / 198.05
Elevation(°)	44.88 / 45.61
LNB Pol Angle(°)	-75.00 / -75.73

3 GPS

Longitude(°)	127.05	[E]
Latitude(°)	37.07	[N]

4 Heading Device

Current Device: [NONE]

Heading(°): 0.00

5 BOW Offset

Current Bow Offset(°): 288

6 DVB Information

Frequency(MHz)	12490
Symbol(kSps)	27490
NID	0x 0173
Verify Type	[DVB Decode]

7 NBD Information

Frequency(kHz_IF)	1190000
Bandwidth(kHz)	1000
Base Local	11300 Mhz

8 Local Frequency Setting(MHz)

13V + 0kHz	10000	[C]
13V + 22kHz	10750	[C]
18V + 0kHz	11300	[C]
18V + 22kHz	9750	[C]

9 Software Information

Antenna Stabilizer Version	V 0.96
Antenna PCU Version	V 0.95
ACU Main Version	V 0.95
Library Version	V 1.02

10 Azimuth Animation

11 TX Enable

Enable Mode: [ON]

Blockage: [OFF]

Pointing: [OFF]

Modem Lock: [OFF]

LNB Rotate: [OFF]

12 Tracking Satellite

Satellite: KOREA_3

Longitude(°): 116.00 [E]

Skew Offset(°): 12.0

Tracking Method: [C] [DVB] [NBD]

RX Polarization: [Horizontal]

TX Polarization: [Vertical]

13 Antenna Information

Antenna Size	100 cm / 40 inch
Voltage	23.8V / 23.6V
Antenna Product	V3-111-X8W
ACU Product	VP-T431
Antenna Serial Number	VGX12070007
ACU Serial Number	
System Polarization	CO&CROSS-POL

14 Information

Control IP * 175.195.19.2

Current IP 175.195.19.2

Refresh Rate * 5 (sec)

Refresh Disable 7.00

Wifi *

No.	Item	Description
①	Dash Board	Displays current antenna status to be quickly monitored.
②	Current Antenna Position / Target Antenna Position	Displays current antenna position. - Relative Azimuth: displays antenna relative AZ angle. - Absolute Azimuth: displays antenna absolute AZ angle. - Elevation: displays antenna elevation angle. - LNB Pol Angle: displays LNB pol angle. - Heading: displays ship's heading information
③	GPS	Displays current GPS information. - Longitude (East / West) - Latitude (North / South)
④	Heading Device	Displays current Heading Device: NONE, NMEA, NMEA 2000, Ground test If the ship's gyrocompass input is other than NMEA separate purchase of NMEA Converter is required. - Heading: displays ship's heading information.

⑤	BOW Offset	Display current bow offset
⑥	DVB Information	Displays DVB tracking mode's current tracking information. - Frequency: displays tracking frequency. - Symbol rate: displays symbol rate. - NID: displays network ID. - Verify type: displays verification typ (AGC, DVB, DVB Decode)
⑦	NBD Information	Displays NBD tracking mode's current tracking information. - Frequency: displays tracking IF frequency. - Bandwidth: displays detection bandwidth.
⑧	Local Frequency Setting (MHz)	Displays current LNB's local frequency and voltage
⑨	Satellite Information	Displays current Antenna and ACU firmware versions and Satellite Library version installed in the system. - Antenna POL Version (It will display "v-----" if there is no Pol Control Board installed.) - Antenna Stabilizer Version - Antenna PCU Version - ACU Main Version - Library Version
⑩	Azimuth Animation	Shows a graphical representation of the current antenna position to identify whether or not the antenna is aligned properly to the target satellite or is in a block zone.
⑪	TX Enable	Displays whether or not the antenna is able to transmit the data. The TX function will only be enabled (shows BLUE dot) only if all of the factors listed below shows "BLUE" dot. Exception: If "Use TX Mute" is set as "NO", the TX function will be enabled regardless of which factor listed below shows "gray" dot or "red" dot. - Enable Mode: antenna is not in SETUP mode. - Blockage: antenna is not facing the predefined block zone(s). - Pointing: antenna is pointing to the target satellite. - Modem Lock: satellite modem is sending a logic input to the ACU to identify when the antenna tracks on the correct satellite. - LNB Rotate: LNB is not rotating.
⑫	Tracking Satellite	Displays current tracking mode. - Satellite: displays satellite name. - Longitude: displays satellite orbit position. - Skew Offset: displays Skew offset. - Tracking Method: displays current tracking mode (DVB/ NBD). - RX Polarization: displays current RX polarization. - TX Polarization displays current TX polarization.
⑬	Antenna Information	Displays the product information
⑭	Information	- Control IP: Displays current IP that controls the ACU. - Current IP: Displays current IP address.- Refresh Rate: Displays screen refresh rate (default: 1 sec.) - Refresh Disable: Displays time out. The screen will not refresh once the time-out shows 0:00. Exception: If the Refresh Disable Time is set to "OFF" in the Network Setting page, then the clock will show "--:--" and system will keep monitoring all activities regardless of timeout. - Wifi : Displays Wifi on/off switch

Antenna Settings

Ship Setting

> Dash Board

1 Ship Setting

> Antenna Setting

> Tracking Setting

> Modem Setting

> Diagnostic

> Library Setting

> Firmware&Configuration

Antenna Firmware Upgrade

Antenna Log

Antenna Backup & Restore

> Administration

Wireless Setting

Network Setting

Serial Setting

SNMP Setting

User Management

E2S Upgrade

E2S Save & Reboot

E2S Log

> Information

Control IP • 192.168.0.224

Current IP 192.168.0.224

Refresh Rate • 5 (sec)

Refresh Disable 8:50

Wifi

Ship Setting

2 GPS ☒

Longitude(°)

127.05

E

Latitude(°)

37.07

N

Set GPS

*

3 BOW Offset ☐

Current Bow Offset(°)

0

4 Heading Device ☐

Current Device

NMEA

19200

Heading(°)

0.00

*

5 Blockage ☒

☒BL1
 ☐BL2
 ☐BL3
 ☐BL4
 ☐BL5

AZ Start(°)

0 0 0 0 0 0

AZ End(°)

0 0 0 0 0 0

EL(°)

0 0 0 0 0 0

Set Block Zone

No.	Item	Description
①	Ship Setting	Set the ship information and block zone.
②	GPS	Set GPS information. - Longitude (East/West) - Latitude (North/South)
③	Bow Offset	Set Bow Offset if needed.
④	Heading Device	Set ship's heading device (NONE, NMEA, NMEA2000, Ground Test) and ship's heading information
⑤	Blockage	Set the antenna's block zones up to 5 by azimuth and elevation sectors. AZ. START is where the relative azimuth starts and AZ. END is where the relative azimuth ends (Range: 0 - 360°). EL. Limit is where the elevation starts (Range 0 - 90°).

WARNING

WARNING: Enter the SETUP mode for configuration. Tick the checkbox before modifying the settings. After configuration, click 'Set ...' button to submit the settings.

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Antenna Position & Parameters

Dash Board

Ship Setting

1 Antenna Setting

Tracking Setting

Modem Setting

Diagnostic

Library Setting

Firmware&Configuration

Administration

Information

Antenna Firmware Upgrade

Antenna Log

Antenna Backup & Restore

Wireless Setting

Network Setting

Serial Setting

SNMP Setting

User Management

E2S Upgrade

E2S Save & Reboot

E2S Log

Control IP • 175.195.19.2

Current IP 175.195.19.2

Refresh Rate • 1 (sec)

Refresh Disable 8:35

Wifi •

Antenna Setting

2 Current Antenna Position / Target Antenna Position

Relative Azimuth(°)

321.51

Absolute Azimuth(°)

201.51 / 202.59

Elevation(°)

45.91 / 44.82

LNB Pol Angle(°)

-94.70 / 17.80

Heading(°)

240.00

3 Manual Movement

Azimuth Angle(°)

◀ 5.00 ▶

Elevation Angle(°)

▼ 5.00 ▲

LNB Pol Angle(°)

▼ 5.00 ▲

4 LNB Pol Sensor Calibration

Sat Skew Offset(°)

0.0

Mechanical Offset(°)

1.0 *

Pol Sensor Calibration

Mechanical Skew Offset Reset

5 Elevation Adjust

EL Adjust(°)

-1.0

Set EL Adjust

6 Conical Range

Azimuth

110

Elevation

110

Set Range

7 Idle Mode

Idle Mode

8 Reboot

Reboot

9 Search & Tracking Parameter Setting

DVB Detect Level Threshold

40

DVB Tracking Level Threshold

20

NBD Detect Level Threshold

40

NBD Tracking Level Threshold

20

Tx Enable Threshold

40

Wait Time(s)

5

Search Step(°)

0.50

Search 1 Range(°)

Azimuth

400

Elevation

8

Search 2 Range(°)

Azimuth

6

Elevation

6

Search 3 Range(°)

Azimuth

3

Elevation

4

10 Tilt Sensor Bias

Tilt Sensor

Ready

Elevation

Cross Level

Step(°)

▼ 1.00 ▲

11 Rate Sensor Adjust

Azimuth

-41

Elevation

23

Cross-Level

69

Set Rate Sensor Bias

Rate Sensor Calibration

*

No.	Item	Description
①	Antenna Setting	Set current antenna position and Search and Tracking parameters. These parameters should only be changed by an authorized service technician. Improper setting of these parameters will render your system inoperable.
②	Current Antenna Position/ Target Antenna Position	Display current antenna position. - Relative Azimuth: display antenna relative AZ angle. - Absolute Azimuth: display antenna absolute AZ angle. - Elevation: display antenna elevation angle. - LNB Pol Angle: display LNB pol angle. - Heading: display ship's heading information.
③	Manual Movement	Move antenna azimuth and elevation angles and LNB pol angle to find the desired satellite manually. LNB Pol Angle can be adjusted at any time either in SETUP Mode or Tracking Mode.
④	LNB Pol Sensor Calibration	Calibrate the LNB pol angle when the control board, potentiometer or belt is replaced.
⑤	Elevation Adjust	Adjust the elevation to offset the angle difference between the mechanical elevation angle and actual elevation angle.
⑥	Conical Range	The relative force of the motors controlling azimuth and elevation. Set the conical range while the antenna is in tracking mode.

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No.	Item	Description
⑦	Idle Mode	Release the elevation and cross level motor brakes while the antenna is in SETUP mode. The antenna can be moved manually during the mode.
⑧	Reboot	Reboot the system.
⑨	Search & Tracking Parameter Setting	<p>DVB Detect and Tracking Level Threshold: display / set current detect level threshold and tracking level threshold when DVB tracking mode is chosen to be used.</p> <p>- NBD Detect and Tracking Level Threshold: display / set current detect level threshold and tracking level threshold when NBD tracking mode is chosen to be used. - TX Enable Threshold: display / set TX enable threshold. - Wait time: set the time-out for automatic initiation of a search after the signal level drops below the pre-defined threshold value.</p> <p>- Search Step: set increment step size.</p> <p>- Search 1 & 3 Range: set Search 1 & 3 search range. Search is conducted in a two-axis pattern consisting of alternate movements in azimuth and elevation as forming expanding square.</p> <p>- Search 2 Range: is reserved for future use.</p>
⑩	Tilt Sensor Bias	Adjust the two solid-state tilt sensors used to provide absolute cross-level tilt of the antenna and elevation feedback to eliminate long-term pointing drift (error). Tilt bias is required to be adjusted when the antenna control board or sensor box is replaced. Check to see whether or not the bubble is located at the center of the level vial.
⑪	Rate Sensor Adjust	Calibrate DC voltage output from the three rate sensors used to sense antenna motion in azimuth, elevation and cross-level axes. During the calibration process, the antenna should avoid any motion as it can affect the antenna's performance.



WARNING

WARNING: Tick the checkbox before modifying the settings. After configuration, click 'set...' button to submit the settings.

Tracking Setting

> Dash Board

> Ship Setting

> Antenna Setting

1 Tracking Setting

> Modem Setting

> Diagnostic

> Library Setting

> Firmware&Configuration

Antenna Firmware Upgrade

Antenna Log

Antenna Backup & Restore

> Administration

Wireless Setting

Network Setting

Serial Setting

SNMP Setting

User Management

E2S Upgrade

E2S Save & Reboot

E2S Log

> Information

Control IP • 192.168.0.224

Current IP 192.168.0.224

Refresh Rate • 5 (sec)

Refresh Disable 8:50

Wifi

Tracking Setting

2 Local Frequency Setting(MHz) ✓

13V + 0kHz

11300

13V + 22kHz

11300

18V + 0kHz

10000

18V + 22kHz

11300

Set Local Freq (MHz)

3 Current Satellite Setting ✓

4 Tracking Satellite

Satellite

KOREA

Longitude(°)

116.00

E

Skew Offset(°)

0.0

Tracking Method

DVB

NBD

RX Polarization

Horizontal

TX Polarization

Vertical

5 DVB Information

Frequency(MHz)

12490

Symbol(kSps)

27490

NID

0x

00AD

Verify Type

DVB Decode

6 NBD Information

Frequency(kHz_IF)

1190000

Bandwidth(kHz)

1000

Base Local

11300 Mhz

Set Tracking Info

No.	Item	Description
①	Tracking Setting	Display or set current tracking mode and tracking frequency of the target satellite.
②	Local Frequency Setting (MHz)	Display and set LNB's local frequencies. Display current LNB local frequency which is in use and voltage.
③	Current Satellite Setting	Display and set current satellite setting.
④	Tracking Satellite	Display and set current tracking mode. <ul style="list-style-type: none"> - Satellite: display and set satellite name. - Longitude: display and set satellite orbit position. - Skew Offset: display and set Skew offset. - Tracking Method: display and set current tracking mode (DVB/ NBD). - RX Polarization: display and set current RX polarization. - TX Polarization display and set current TX polarization.
⑤	DVB Information	Display and set DVB tracking mode's tracking information. <ul style="list-style-type: none"> - Frequency: display and set tracking frequency. - Symbol rate: display and set symbol rate. - NID: display and set network ID. - Verify type: display and set verification type (AGC, DVB, DVB Decode)
⑥	NBD Information	Display and set NBD tracking mode's tracking information. <ul style="list-style-type: none"> - Frequency: display and set tracking IF frequency. - Bandwidth: display and set detection bandwidth.



WARNING

WARNING: Tick the checkbox before modifying the settings. After configuration, click 'set...' button to submit the settings.

Modem Setting

No.	Item	Description
①	Modem Setting	<p>Set the modem interface.</p> <ul style="list-style-type: none"> - Use Mediator: enable the usage of Mediator if the antenna is connected to the Intellian Dual VSAT Mediator. Use Mediator must be set to “NO” if there is no MEDIATOR connected to the ACU. Improper setting of this parameter will cause your ACU’s modem interface to work incorrectly. - Select Modem: is to select a proper data communication port and protocol on the ACU to interface with the satellite modem. The settings related to the modem interface will be set automatically once the modem type is selected (USER SETTING, IDIRECT-I/O, IDREICT-AMIP, COMTECH-I/O, COMTECH-ROSS, HUGHES, SATLINK-SERIAL, SATLINK-VACP, ELEKTRIKOM-AMIP, GILAT-SE-II). However, it is required to set the related settings separately if USER SETTING is selected. - Modem Port: is to select a proper data communication port on the ACU to interface with the satellite modem (RS232/422/ Ethernet). - Modem Protocol: is to select a proper communication protocol on the ACU to interface with the modem (I/O Console, OpenAMIP, Serial GPS, ROSS, VACP, ELEKTRIKOM AMIP, GILAT). - GPS Out Sentence: is to select the GPS out sentence type (GPGLL/GPGGA/SIMPLE GPGGA) - USE TX Mute: is to select whether or not to use TX mute function from the satellite modem. - USE Modem Lock: is to select whether or not to use external lock signal from the satellite modem. - TX Mute: is a transmit inhibit output from the ACU to disable/ mute the modem transmit through a 5V (High) or 0V(LOW) current whenever the antenna is blocked, searching, or is mispointed 0.5° from peak satellite position. - Modem Lock: is the modem lock output from the modem which provides a logic input through a 5V (High) or 0V(LOW) current to the ACU to identify when it is on the correct satellite. <p>Note: TX Mute and Modem Lock items will only be activated when the modem protocol is set as I/O Console.</p>
②	Modem	



WARNING

WARNING: Ensure to tick the checkbox before modifying the settings. Select 'Set Modem Configuration' to confirm the modem settings configured.

Diagnostic

No.	Item	Description
①	Diagnostic	<p>Execute antenna diagnostic test.</p> <p>Select to run a full diagnostic test or single diagnostic test.</p> <ul style="list-style-type: none"> - Serial Comm.: test the data communication between the antenna and the ACU. - Motor AZ: test the azimuth motor. - Motor EL: test the elevation motor. - Motor CL: test the cross-level motor. - Encoder AZ: test the azimuth encoder. - Encoder CL: test the cross-level encoder. - Rate Sensor: test the rate sensor. - Tilt Sensor: test the tilt sensor. - Sensor Box Limit: test the sensor box motor. - LNB/NBD: test the LNB. - SKEW: test the LNB pol motor. - Antenna Power: test the antenna power. - ACU Power: test the ACU power. - Home Sensor: test the home sensor - Test ALL: test all devices.
②	Diagnostic	<p>Select to view a graph of AZ Absolute, AZ Relative, EL and Heading data of the antenna. The status of Graph Service Pack (see E2S Upgrade on page 134) should be loaded to use this menu.</p>
③	Graph	<ul style="list-style-type: none"> - A Month: display all data within a month - A Week: display all data within a week - A Day: display all data in a day - Real-time: display data in real time. Press F5 button to refresh. - Data Num: set the maximum number of graph data set to be displayed. - View Graph: select to view the data graph.



WARNING

WARNING: Tick the checkbox before modifying the settings. Click Diagnosis button to execute diagnostic test. To clear previous diagnosis result, click Diagnosis Clear button.

④	iDirect Modem Monitor (OpenAMIP only)	<p>Displays iDirect Modem status and control connection. This menu appears only when IDIRECT-AMIP protocol is selected at Modem Setting page.</p> <ul style="list-style-type: none">- Connection: control modem connection.- Modem IP: iDirect modem IP- Port: Connection ID for telnet- Password: Connection password for telnet- Start(Stop): Connect to telnet or disconnect- Auto Connect: Enabling Auto Connect and rebooting the ACU will save connection data and will auto connect once ACU is powered on next time.- Status: Displays iDirect modem status- Last Update Date: Displays last updated data and time of the iDirect modem data- Connect: Displays connection status (INACTIVE, CONNECTING, LOGGEDIN, Black data indicates being INACTIVE)- RX SNR: Displays RX SNR data.- View Detail Information: Select to view detail information- Status: Displays last update date and connection status.- Information : Displays rx snr, tx power, tx power min, rx power, tx power max, tx power, ref, latlong.- Option File Information: Displays information about VERSION, MOBILE, LOCAL and ACU PORT
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Library Setting

No.	Item	Description
①	Library Setting	Display and set the satellite library information.
②	Library	<ul style="list-style-type: none"> - Get Library from ACU: Obtain satellite information installed in the ACU. - Open Library from PC: open the satellite library file from the supplied Intellian CD or from the external hard drive/PC. (File format: *.ilf) - Upload Library to ACU: upload the satellite library file to ACU. - Save as Library to PC: save the current library setting to the PC.
③	Load Satellite	Select the satellite that you wish to track and press Load Satellite button to load the selected satellite.
④	Selected Satellite Setting	Displays selected satellite information.
⑤	Tracking Satellite	<ul style="list-style-type: none"> - Satellite: displays satellite name. - Longitude: displays satellite orbit position. - Skew offset: displays Skew offset. - Tracking method: displays current tracking mode (DVB/NBD) - RX polarization: displays current RX polarization. - TX polarization: displays current TX polarization.
⑥	DVB Information	<ul style="list-style-type: none"> - Displays DVB tracking mode's tracking information. - Frequency: displays tracking frequency. - Symbol rate: displays symbol rate. - NID: displays network ID. - Verify type: displays verification type (AGC only, DVB lock, DVB decode, DSS decode)
⑦	NBD Information	<ul style="list-style-type: none"> - Displays NBD tracking mode's tracking information. - Frequency: displays tracking frequency. - Bandwidth: displays detection bandwidth.
⑧	Local Frequency Setting (MHz)	Displays LNB local frequency (MHz) and voltage.

Firmware & Configuration

Antenna Firmware Upgrade

- > Dash Board
- > Ship Setting
- > Antenna Setting
- > Tracking Setting
- > Diagnostic
- > **Firmware&Configuration**
 - Antenna Firmware Upgrade
 - Antenna Log
 - Antenna Backup & Restore
- > Administration
 - Wireless Setting
 - Network Setting
 - Serial Setting
 - SNMP Setting
 - User Management
 - E2S Upgrade
 - E2S Save & Reboot
 - E2S Log

Antenna Firmware Upgrade

2 New Antenna Firmware

Browse and select the firmware file to upload.

D:\Documents\GX\User manual\src\firmware\V100GX_120726.fwp

The update may take a few minutes to complete.
The upload time may vary due to a variety of factors such as the speeds of your network.
Upload an incorrect firmware file may cause serious damage to your antenna and ACU.

3 Rollback Upgrade

Previous Package Version	Antenna POL v----	<input type="button" value="Rollback"/>
v120612	Antenna STABILIZER v6.04	
	Antenna PCU v6.07	
	ACU Main v2.10	
Latest Package Version	Antenna POL v----	<input type="button" value="Rollback"/>
v120612	Antenna STABILIZER v6.04	
	Antenna PCU v6.07	
	ACU Main v2.10	
Current Firmware Version	Antenna POL v----	
	Antenna STABILIZER v6.04	
	Antenna PCU v6.07	
	ACU Main v2.10	

No.	Item	Description
①	Antenna Firmware Upgrade	Upgrade antenna and ACU firmware version.
②	New Antenna Firmware	Browse and select the firmware package file to upload and click Start Upload button.
③	Rollback Upgrade	Roll back antenna and ACU firmware to previous package version or latest package version.

Upgrade procedures:

1. Select the upgrade package file.
2. Click on “Start Upload” button to transfer the Firmware package file (“*.fwp”) to E2S (Ethernet to serial) module.
3. After the package file is transferred, it'll show “upgrade from vx.xx Version to vx.xx Version”. Enable the check box to select the firmware file that you wish to upgrade. To select all firmware files, click Select All Firmwares.
4. Click on “Start Upgrade” button.

- > Dash Board
- > Ship Setting
- > Antenna Setting
- > Tracking Setting
- > Modern Setting
- > Diagnostic
- > Library Setting
- > **Firmware&Configuration**
 - Antenna Firmware Upgrade
 - Antenna Log
 - Antenna Backup & Restore
- > Administration
 - Wireless Setting
 - Network Setting
 - Serial Setting
 - SNMP Setting
 - User Management
 - E2S Upgrade
 - E2S Save & Reboot
 - E2S Log

Antenna Firmware Upgrade

The Firmware Package Upgrade Ready

Antenna POL	Upgrade From v---- To v----	<input checked="" type="checkbox"/>
Antenna STABILIZER	Upgrade From v0.96 To v0.95	<input checked="" type="checkbox"/>
Antenna PCU	Upgrade From v0.95 To v0.95	<input checked="" type="checkbox"/>
ACU MAIN	Upgrade From v0.95 To v0.95	<input checked="" type="checkbox"/>

Firmware upgrade status page

- > Dash Board
- > Ship Setting
- > Antenna Setting
- > Tracking Setting
- > Modem Setting
- > Diagnostic
- > Library Setting
- > **Firmware&Configuration**
 - Antenna Firmware Upgrade
 - Antenna Log
 - Antenna Backup & Restore
- > Administration
 - Wireless Setting
 - Network Setting
 - Serial Setting
 - SNMP Setting
 - User Management
 - E2S Upgrade
 - E2S Save & Reboot
 - E2S Log

Antenna Firmware Upgrade

The Firmware Package v120726 Upgrade Status

Antenna POL	Upgrade From v----- To v----- Ready
Antenna STABILIZER	Upgrade From v0.96 To v0.95 Ready
Antenna PCU	Upgrade From v0.95 To v0.95 Ready
ACU MAIN	Upgrade From v0.95 To v0.95 Ready

[Back to main page](#)

5. It'll display information about the upgrade process status on full screen.

Upgrade process status page

Antenna Firmware Upgrade

The Firmware Package v120726 Upgrade Status

Antenna POL	Upgrade From v----- To v----- Skip
Antenna STABILIZER	Upgrade From v0.96 To v0.95 Success
Antenna PCU	Upgrade From v0.95 To v0.95 20 %
ACU MAIN	Upgrade From v0.95 To v0.95 Ready

[Back to main page](#)

6. If the firmware is successfully upgraded, it'll display "The firmware update is completed."

7. Click on "Back to main page" to go out of the screen.

To verify the upgraded firmware version, go to Dash Board > Software Information.

Upgrade complete
page

The Firmware Package v120726 Upgrade Complete

Antenna POL "-----" "Skip"
Antenna STABILIZER "0.95" "Success"
Antenna PCU "0.95" "Success"
ACU MAIN "0.95" "Success"

The firmware update is completed.
If you receive an fail message, please try again.
Please refer to the User Guide if you have trouble connecting to the antenna.

[Back to main page](#)

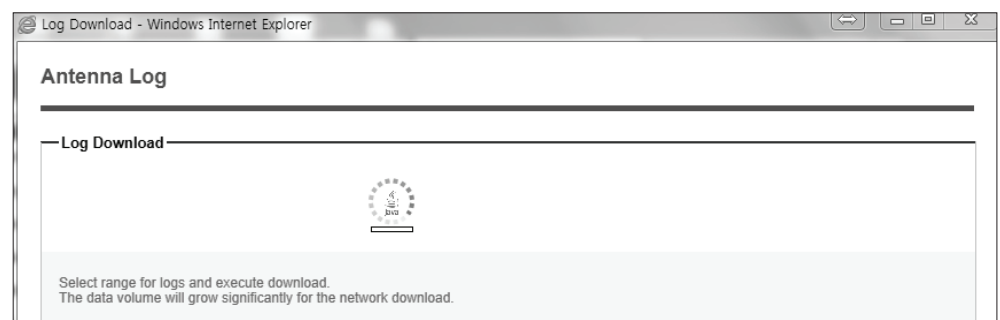
NOTE: To roll back to the previous firmware package version or latest package version, select Rollback Upgrade menu on the Antenna Firmware Upgrade page.

Antenna Log

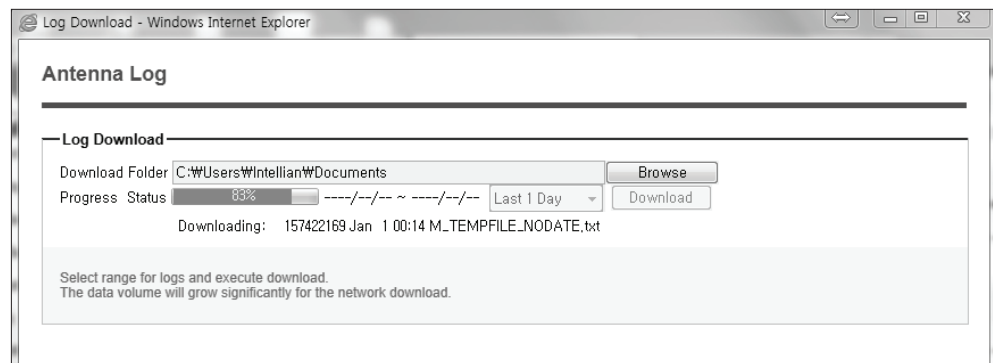
No.	Item	Description
①	Antenna Log	Displays antenna log data
②	GPS Log Option	Disable/Enable to save GPS information in the antenna log file.
③	Antenna Log Download	Download the log file. Select start download button to proceed.
④	Start Download	Download the antenna log information.
⑤	Antenna Firmware Log	Display log information of firmware upgrade.

Log Download procedures:

1. Select 'Start Download' button.
2. To run Java applications you must have Java Runtime Environment (JRE) version 6.0 and above installed in your PC/ laptop when you access the antenna log page for first time. Click "Run" button on the popup message "The application's digital signature cannot be verified. Do you want to run the application? " to install the Applet. Refer to Appendix for Java Installation Instructions if the system does not display the popup message.

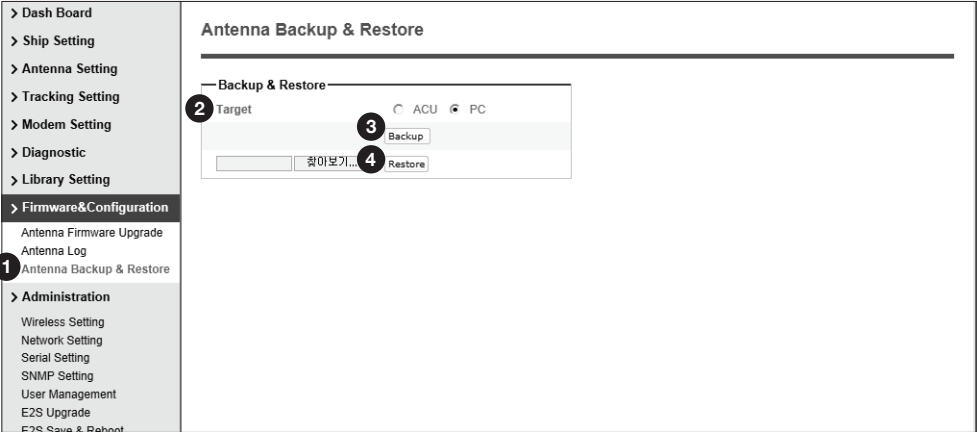


3. Select 'Browse' to browse the target directory of the antenna log file.
4. Select log period for file download.
 - Last 3 Months: download the antenna log information for the past three months.
 - Last 1 Month: download the antenna log information for the past one month.
 - Last 1 week: download the antenna log information for the past one week.
 - Last 1 Day: download the antenna log information for the past one day.
5. Select 'Download' to download the log file to the target directory according to the selected log period.



NOTE: In v100GX system, users can choose to Enable or Disable the GPS tracking function. Liability for information that is disclosed when GPS is enabled is solely the operators responsibility and it is up to the operator on whether or not to provide their GPS information to third parties. Any issues regarding safety and privacy when turning on the GPS function is solely up to the user. Intellian is not responsible for information that is disclosed when the GPS function is enabled.

Antenna Backup & Restore



No.	Item	Description
①	Antenna Backup & Restore	Enter Backup & Restore page. (Setup mode is required)
②	Target	Backup antenna information to ACU/PC or restore antenna by using the saved information from ACU/PC.
③	Backup	Backup antenna information.
④	Restore	Restore antenna information.

Administration

WARNING: Ensure to enter the SETUP mode before starting configuration. After completing the modification of settings, enter Save & Reboot page and click on “Save & Reboot” button. Without doing so, the modified settings will be lost.

No.	Item	Description
-----	------	-------------

①	Wireless Setting	Enter wireless setting page.
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②	Wireless Network Configuration	<p>The E2S (Ethernet-to-Serial) supports WiFi Network. Turn on WiFi switch on the rear panel of the ACU to activate your WiFi networking.</p> <ul style="list-style-type: none"> - Connection Type: select an obtaining IP address method for E2S's wireless network connection. - IP Address: the current Wireless IP address E2S is assigned to. If the connection type is set to DHCP, the current IP will be displayed but not be editable. Enter an appropriate IP address manually if the connection type is set to Static IP. - Subnet Mask: the current wireless subnet mask E2S is assigned to. If the connection type is DHCP, the current subnet mask will be displayed but not be editable. Enter an appropriate subnet mask manually if the connection type is set to Static IP. - Gateway: the current default gateway for wireless network E2S is assigned to. If the connection type is set to DHCP, the current default gateway will be displayed but not be editable. Enter an appropriate default gateway manually if the connection type is set to Static IP. - DNS: the current default wireless DNS address E2S is assigned to.
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③ Ping test

Enter target IP address and the numbers of transmitting times to monitor the connecting status between ACU and target IP. If the connection is normal, "0% packet loss" will be displayed. Packet loss value shows the loss rate of received packets over transmitted packets.

④ Advanced

- Wireless Network Mode: select an appropriate wireless network mode for your current WiFi network environment.
- Wireless Network Name (SSID): The SSID is the network name shared among all devices in a wireless network. The SSID must be identical for all devices in the wireless network. It is case-sensitive and must not exceed 32 alphanumeric characters, which may be any keyboard character. Make sure this setting is the same for all devices in your wireless network.
- Channel: select an appropriate channel from the list provided to correspond with your network settings. All devices in your wireless network must use the same channel in order to function correctly. Try to avoid conflicts with other wireless networks by choosing a channel where the upper and lower three channels are not in use.
- Bitrate: select an appropriate bit rate for the wireless communication. If Bitrate is set to "Auto", the optimized bitrate will be determined automatically. Please note that "802.11b Only Mode" supports 1, 2, 5.5, and 11Mbps, while "802.11g Only Mode" supports 6, 9, 12, 18, 24, 36, 48, and 54Mbps. In the mixed mode, all options are available.
- RTS Threshold: The RTS Threshold (RT) value which determines when the RTS/CTS handshaking mechanism should be used. RTS/CTS adds a handshake before each packet transmission to make sure that the channel is clear. This adds overhead, but increases performance in case of hidden nodes or a large number of active nodes. This parameter sets the size of the smallest packet for which the node sends RTS; a value equal to the maximum packet size disables the mechanism.
- Fragment Threshold: allows to split an IP packet in a burst of smaller fragments transmitted on the medium. This adds overhead, but in a noisy environment this reduces the error penalty and allows packets to get through interference bursts. This parameter sets the maximum size which is always lower than the maximum packet size.
- 802.11h: is a spectrum management standard designed to resolve wireless interference issues. If this option is set, E2S will auto switch the channels and control the transmission power to minimize the risk of interferences from other systems. This field only can be enabled in A band.
- Wireless Roaming: the E2S supports roaming functionality. The access points for which you want to enable roaming must all have the same SSID.
- Authentication Mode: the E2S supports an authentication mode which defines the procedure that the 802.11 device uses when it authenticates and associates with an access point or IBSS cell.
- Encryption Type: The E2S supports different types of encryption settings for your network.
- Key Index: select the key index to use WEP encryption.
- Key: enter the key/ password which is used for connecting Antenna Control Unit (ACU) through WiFi.

Network Setting

No.	Item	Description
①	Network Setting	Modify ACU's Internal IP address.
②	Ethernet Port Configuration	<p>Modify ACU's Internal IP address and press Submit button. Go to "Save & Reboot" page and press Save & Reboot button to validate the changes.</p> <ul style="list-style-type: none"> - IP Address: Factory default (Primary: 192.168.0.223) / (Secondary: 10.10.1.1) - Subnet Mask: Factory default (255.255.255.0) - Gateway (modem IP): Factory default (192.168.0.254)
③	Management Port Configuration	<p>Modify Management Port's network configuration and press Submit button. Go to "Save & Reboot" page and press Save & Reboot button to validate the changes.</p> <ul style="list-style-type: none"> - Management Port: Set disable on Management Port connection if IP address conflicts across the network when Ethernet port and Management port are both in use. Factory default is set to Enable. - DHCP Server: Set whether or not to use DHCP Server. Enabling DHCP Server allows access to Aptus Web page without configuration of network address on a PC. To use the DHCP service, the PC should be also set to use DHCP. - IP Address: Factory default (192.168.2.1) - Subnet Mask: Factory default (255.255.255.0) - Lease Start Address: Set Lease Start Address when DHCP Server is enabled. Factory default (192.168.2.2) - Lease End Address: Set Lease End Address when DHCP Server is enabled. Factory default (192.168.2.30) - Lease Time: Factory default is 180 min
④	Network Service Configuration	Select to enable or disable Telnet Service.

⑤	Sys Log Configuration	<p>Set the system log configuration.</p> <p>Antenna sends log messages according to emergency level. Enabling this function sends the message to your management server.</p> <ul style="list-style-type: none"> - Management Server : Sys log function enable/disable - Server IP : Management server IP address - UDP Port : Management port - Message Type : Select message type (Intellian message level) to send to management server (Lower number indicates higher emergency). - Sys log Target Level : If you select this target level, the management server receives log message equal to or less than this level.
⑥	Browser Configuration	<p>Modify browser refresh rate and refresh disable time. If the check box of Refresh Disable Time is enabled, then Refresh Disable Time function will be activated and system will keep monitoring all activities regardless of time-out.</p>

Serial Setting [1]

No.	Item	Description
①	SNMP v1/v2/v3 Agent	Configure Serial port [1] and Serial port [2]
②	Serial Port [1]	<p>Serial Port [1] is to communicate with an external modem via Ethernet. Follow the below instruction to configure Serial port [1] and press Submit button. Go to “Save & Reboot” page and press Save & Reboot button to validate the changes.</p> <ul style="list-style-type: none"> • Operation mode: TCP Server • Local socket port: 4001 • Baud Rate: 9600 bps • Data Bit: 8 Bit • Stop Bit: 1 Bit • Parity: None • Flow Control: None The data communication between the modem and the PC may disconnect while setting these parameters.
③	[1] [2]	Select to configure Serial port [1] or Serial port [2]

Serial Setting [2]

➤ Antenna Setting

➤ Tracking Setting

➤ Modem Setting

➤ Diagnostic

➤ Library Setting

➤ Firmware&Configuration

Antenna Firmware Upgrade

Antenna Log

Antenna Backup & Restore

➤ Administration

Wireless Setting

Network Setting

1 Serial Setting

SNMP Setting

User Management

E2S Upgrade

E2S Save & Reboot

E2S Log

➤ Information

Control IP * 175.195.19.2

Current IP 175.195.19.2

Refresh Rate * 5 (sec)

Refresh Disable 8:10

Wifi *

2 Serial Port 2

Operation Mode	TCP Server	Help
Interface	RS-232	Help
Local Socket Port	4002	Help
Port Alias	Port-02	Help
Baud Rate	57600 bps	Help
Data Bits	8 bits	Help
Stop Bits	1 bit	Help
Parity	None	Help
Flow Control	None	Help
Device Type	Data Only	Help
Remote IP Address / Port	0.0.0.0 / 4000	Help
KeepAlive Check Time(sec)	0	Help
Latency Time	0	Help
Port Login	Enable	Help

3 [1] [2]

Submit Cancel

No.	Item	Description
①	Serial Setting	Configure Serial port [1] and Serial port [2]
②	Serial Port [2]	<p>Port [2] is to communicate with the PC Control via Ethernet. Follow the below instruction to configure Serial port 2 and press Submit button. Go to “Save & Reboot” page and press Save & Reboot button to validate the changes.</p> <ul style="list-style-type: none"> • Operation mode: TCP Server • Local socket port: 4002 • Baud Rate : 57600 bps • Data Bit : 8 Bit • Stop Bit : 1 Bit • Parity : None • Flow Control : None • Port Login: Enable (Asks login information of other user who attempts to connect PC control software in the same network.) <p>The ACU control settings should be applied as same above.</p>
③	[1] [2]	Select to configure Serial port [1] or Serial port [2]

SNMP Setting

SNMP Setting

SNMP Agent Configuration

SNMP V1/V2/V3 Agent [Help](#)

2 V1/V2 Attribution [Help](#)

3 V3 Attribution [Help](#)

4 V3 Username / Password / [Help](#)

5 TRAP IP / Port / [Help](#)

6 System Reset Notification [Help](#)

7 Port Connect Notification [Help](#)

8 Port Disconnect Notification [Help](#)

No.	Item	Description
①	SNMP Setting	Configure SNMP settings.
②	V1/2 Attribution	Configure the SNMP v1/v2 attributes (Read-Only, Read- Write, Disable). The community name of SNMP v1 / v2 is “public”.
③	V3 Attribution	Configure the SNMP v3 attributes (Read-Only, Read- Write).
④	V3 Username / Password	Set a v3 username & password of the SNMP agent.
⑤	TRAP IP / Port	Set the trap IP address and socket number of the SNMP trap server. Trap feature will be disabled if the trap IP is set to 0.0.0.0.
⑥	System Reset Notification	Enable or disable the system reset SNMP trap notification.
⑦	Port Connect Notification	Enable or disable the port connect SNMP trap notification.
⑧	Port Disconnect Notification	Enable or disable the port disconnect SNMP trap notification.

User Management

> Dash Board

> Ship Setting

> Antenna Setting

> Tracking Setting

> Modem Setting

> Diagnostic

> Library Setting

> Firmware&Configuration

Antenna Firmware Upgrade

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> Administration

Wireless Setting

Network Setting

Serial Setting

SNMP Setting

1 User Management

E2S Upgrade

E2S Save & Reboot

E2S Log

User Management

Change ID & Password

2 Change ID

Current IDintellian

New IDintellian

3 Change Password

Enter Current Password

Enter New Password

Confirm New Password

Submit

Cancel

No.	Item	Description
①	User Management	Change login ID and Password to access the Aptus Web. This setting can be also accessed by 'Account' icon on the top menu.
②	Change ID	Enter your current login ID (user name) and new login ID. Press Submit button to validate the changes that are made to the login ID.
③	Change Password	Enter your current login password and new login password. Press Submit button to validate the changes that are made to the login password.

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E2S (Ethernet-to-Serial) Upgrade

E2S Upgrade

2 New E2S Firmware

Browse and select the firmware file to upload.

Current Remote Access Version: v3.00 (ETSW-fs-300.bin)
 Current Kernel Version: v2.00 (ETSW-os-200.bin)
 Current Bootloader Version: v2.20 (ETSW-bl-220.bin)
 The update may take a few minutes to complete.
 The upload time may vary due to a variety of factors such as the speeds of your network.
 Upload an incorrect firmware file may cause serious damage to your antenna and ACU.

Start Upgrade Cancel

3 E2S Service Pack

4 New E2S Service Pack

Browse and select the service pack file to upload.

Upgrade Adds-on updates by uploading Service Pack.

Start Upgrade Cancel

5 Service Pack Setting

NAME	VERSION	DESCRIPTION	FS VER MIN	OS VER MIN	SIZE	PRI	STATUS
graph	1.00	Graph Added - DB Support	3.00	2.00	1.07MB	50	Load
security	1.00	SSL/TLS Added - HTTPs Support	2.20	2.00	1.76MB	50	Unload

MemFree :5MB DiskFree :23MB Load :0

Submit & Reboot Cancel

6 Service Pack Status

NAME	VERSION	DESCRIPTION	FS VER MIN	OS VER MIN	SIZE	PRI	STATUS
------	---------	-------------	------------	------------	------	-----	--------

No.	Item	Description
①	E2S Upgrade	Upgrade the firmware of Ethernet-to-Serial module.
②	New E2S Firmware	Select a new E2S firmware file and click Start Upgrade button to upgrade the firmware of Ethernet-to-Serial module.
③	E2S Service Pack	Upgrade Adds-on by uploading Service Pack.
④	New E2S Service Pack	Select a new E2S Service Pack file and click Start Upgrade button to upgrade the Service Pack.
⑤	Service Pack Setting	Displays uploaded Service Pack information. Change the STATUS from Unload to Load to apply the new Service Pack.
⑥	Service Pack Status	Displays currently loaded Service Pack status. Graph Service Pack and SSL Service Pack cannot be loaded at the same time.

E2S firmware upgrade procedures:

1. Click on “Browse” button to select the E2S firmware file (.bin) that you wish to upgrade.
2. Click on “Start Update” button to update the E2S firmware. Wait until the page is loaded.
3. It'll inform you that the firmware is being uploaded.

Firmware upload in progress

<ul style="list-style-type: none"> Wireless Setting Network Setting Serial Setting SNMP Setting User Management E2S Upgrade E2S Save & Reboot E2S Log 	<p>Please wait for file transfer...</p> <div> <div></div> <div>running</div> </div>
---	---

4. Do not turn off the ACU power if the firmware upgrade page is displayed.

Firmware upgrade in progress

<ul style="list-style-type: none"> Antenna Backup & Restore 	<p>Please wait for updating system...</p> <div> <div></div> <div>running</div> </div> <p>DO NOT TURN OFF ACU.</p>
--	---

5. It'll take around 2 minutes to complete the firmware upgrade. Once the upgrade is completed, the system will reboot automatically.

<ul style="list-style-type: none"> Dash Board Ship Setting Antenna Setting Tracking Setting Modem Setting Diagnostic Library Setting Firmware&Configuration <ul style="list-style-type: none"> Antenna Firmware Upgrade Antenna Log Antenna Backup & Restore Administration <ul style="list-style-type: none"> Wireless Setting Network Setting Serial Setting SNMP Setting User Management E2S Upgrade E2S Save & Reboot E2S Log 	<h4>Save & Reboot</h4> <p>Now the device will reboot with new firmware. Please refer to the User Guide if you have trouble connecting to the device. This screen will be inaccessible in 10 seconds.</p>
---	--

6. The connection will be disconnected during the reboot. It'll take around 30 seconds to reboot the E2S module and get the connection back again. (Disconnection message may vary depending on the web browsers.)

E2S Service Pack upgrade procedures:

1. Click on “Browse” button to select the E2S Service Pack file (.bin) that you wish to upgrade.
2. Click on “Start Update” button to update the new E2S Service Pack. Wait until the page is loaded.
3. It'll inform you that the firmware is being uploaded displaying “Upgrade Complete” pop-up window. Click ‘OK’ to confirm.
4. Go to the Service Pack Setting menu and check that the Service Pack versions are correctly displayed.

Service Pack Setting						
NAME	VERSION	DESCRIPTION	FS VER MIN	OS VER MIN	SIZE	STATUS
security	1.00	SSL/TLS Added - HTTPs Support	2.20	2.00	1.76MB	Unload <input type="button" value="v"/>

MemFree :3MB DiskFree :20MB Load :0

Service Pack Status						
NAME	VERSION	DESCRIPTION	FS VER MIN	OS VER MIN	SIZE	STATUS

5. Set the ‘Unloaded’ status to ‘Load’, then the message, ‘All configuration changes made will be saved in the ACU and effective upon reboot’ will be displayed. Click OK to proceed loading the Service Pack.

<div> <div>> Administration</div> <div> Wireless Setting Network Setting Serial Setting SNMP Setting User Management E2S Upgrade E2S Save & Reboot E2S Log </div> </div> <div> <div>> Information</div> <div> Control IP * 175.195.19.2 Current IP 175.195.19.2 Refresh Rate * 5 (sec) Refresh Disable 8:30 Wifi * </div> </div>	<p>Please wait for rebooting system...</p> <div> <div>running</div> <div></div> </div> <p>It takes around 10 seconds to complete. If it is successful, the screen will be inaccessible. In this case, please reconnect the web page</p>
---	---

6. It'll take around 30 seconds to complete the reboot. Once the reboot is completed, the system will prompt you to login again. Click OK to proceed and login the page again.
7. Go to E2S Upgrade and check the Service Pack Status. It will display in formation of the loaded Service Pack with the status indicating 'LOADED'.

Antenna Backup & Restore
> Administration
Wireless Setting
Network Setting
Serial Setting
SNMP Setting
User Management
E2S Upgrade
E2S Save & Reboot
E2S Log

> Information
Control IP • 175.195.19.2
Current IP 175.195.19.2
Refresh Rate • 5 (sec)
Refresh Disable 8:55
Wifi •

E2S Service Pack

New E2S Service Pack

Browse and select the service pack file to upload.

찾아보기...

A different with firmware upgrade.
Add-ons what unaffected whole system can be upgrade using service pack.
Add-ons will be requested a version that file-system and os firmware more then current version.
Service pack cannot be unloaded when DEDICATED on system.
Except that service pack can be LOAD , UNLOAD or DELETE.
The update may take a few minutes to complete.
The upload time may vary due to a variety of factors such as the speeds of your network.

Start Upgrade

Cancel

Service Pack Setting

NAME	VERSION	DESCRIPTION	FS VER MIN	OS VER MIN	SIZE	STATUS
security	1.00	SSL/TLS Added - HTTPs Support	2.20	2.00	1.76MB	<div>Load</div>

MemFree :3MB DiskFree :24MB Load :1

Submit & Reboot

Cancel

Service Pack Status

NAME	VERSION	DESCRIPTION	FS VER MIN	OS VER MIN	SIZE	STATUS
security	1.00	SSL/TLS Added - HTTPs Support	2.20	2.00	1.76MB	<div>LOADED</div>

E2S Save & Reboot

> Dash Board

> Ship Setting

> Antenna Setting

> Tracking Setting

> Modem Setting

> Diagnostic

> Library Setting

> Firmware&Configuration

Antenna Firmware Upgrade

Antenna Log

Antenna Backup & Restore

> Administration

Wireless Setting

Network Setting

Serial Setting

SNMP Setting

User Management

E2S Upgrade

E2S Save & Reboot

E2S Log

> Information

Control IP • 192.168.0.224

Current IP • 192.168.0.224

Refresh Rate • 5 (sec)

Refresh Disable 8:50

Wifi

E2S Save & Reboot

2 Save & Reboot

All configuration changes made will be saved in the ACU and effective upon reboot.

Save & Reboot

3 Reboot without Saving

All configuration changes made will be lost upon reboot.

Reboot Only

No.	Item	Description
①	E2S Save & Reboot	Save settings to the ACU and reboot or reboot the system without saving.
②	Save & Reboot	Save the modified settings and reboot the system. Click Save & Reboot button.
③	Reboot without Saving	Reboot the system without saving the modified settings. Click Reboot Only button.

E2S Log

> Dash Board

> Ship Setting

> Antenna Setting

> Tracking Setting

> Modem Setting

> Diagnostic

> Library Setting

> Firmware&Configuration

Antenna Firmware Upgrade

Antenna Log

Antenna Backup & Restore

> Administration

Wireless Setting

Network Setting

Serial Setting

SNMP Setting

User Management

E2S Upgrade

E2S Save & Reboot

E2S Log

> Information

Control IP • 192.168.0.224

Current IP 192.168.0.224

Refresh Rate • 5 (sec)

Refresh Disable 8:55

Wifi

E2S Log

Access Log

Date/Time(UTC 00:00)	ID	IP
1970-01-01 00:01:53	intellian	192.168.0.224
1970-01-01 00:00:34	intellian	10.10.1.2
1970-01-01 00:00:58	intellian	10.10.1.2
1970-01-01 19:51:20	intellian	10.10.1.2
1970-01-01 19:03:05	intellian	10.10.1.2
1970-01-01 15:11:49	intellian	175.195.19.2
1970-01-01 15:06:22	intellian	175.195.19.2
1970-01-01 00:06:04	intellian	112.168.126.91
1970-01-01 00:12:28	intellian	112.168.126.91
1970-01-01 00:12:03	intellian	112.168.126.91

No.	Item	Description
①	E2S Log	Displays user's log information (Date/Time, Login ID and IP)

Warranty

This product is guaranteed by Intellian Technologies, Inc. against defect due to faulty workmanship or materials and this guarantee covers for 3 year's parts and 1 year workmanship guarantee from installation.

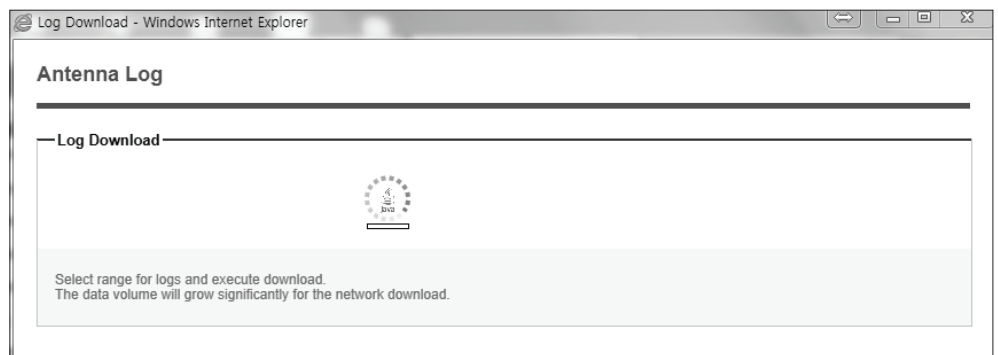
You are requested to present a copy of the purchase receipt that proves the date of purchase for after sales service under warranty. In case of failure to present the date of purchase, the warranty period is to be calculated to 30 days after the manufacturing production date.

If you discover a defect, Intellian Technologies, Inc. will, at its option, repair, replace or refund the purchase price of the product at no charge to you, provided you return it during the warranty period, transportation charges prepaid, to the factory direct. Please attach your name, address, telephone number, a description of the problem and a copy of the bill of sale or sales receipt as proof of date of original purchase, to each product returned to warranty service. Alternatively, you may bring the product to an authorized Intellian Technologies, Inc. dealer/distributor for repair.

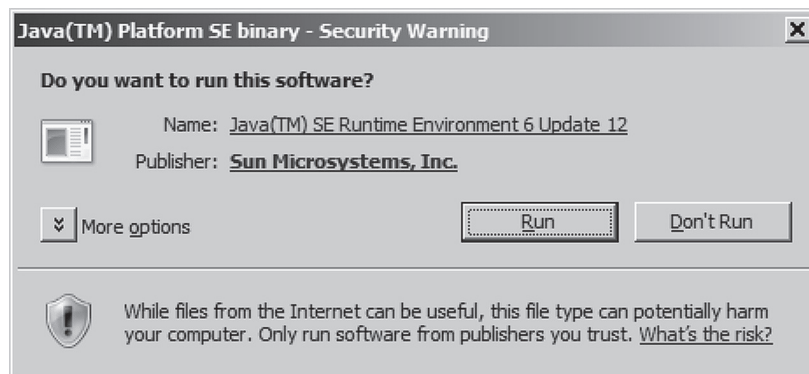
This Limited Warranty does not apply if the product has been damaged by accident, abuse, misuse or misapplication or has been modified without the written permission of Intellian Technologies, Inc.; if any Intellian Technologies, Inc. serial number has been removed or defaced; or if any factory-sealed part of the system has been opened without authorization.

Appendix: Java Download and Install Guide

NOTE: To run Java applications you must have Java Runtime Environment (JRE) version 6.0 and above installed in your PC/laptop.



If JRE has not been installed in your PC/laptop, you'll get the below message box. Click Run button to install it through online or offline download and install methods. After installing JRE, Java Applet will be executed automatically when you access the Antenna Log page.



NOTE: The JRE installation guide may vary depending on the operating system installed in your PC/laptop.

Method 1. Online method for downloading and installing

<http://www.java.com/en/download/manual.jsp>

The screenshot shows the Java website's download page. At the top, there's a search bar and navigation links for 'Java in Action', 'Downloads', and 'Help Center'. A sidebar on the left lists 'Available Operating Systems' with links for Windows, Solaris, Linux, and Apple. The main content area is titled 'Java Downloads for All Operating Systems' and recommends 'Version 6 Update 26'. It instructs users to select a file based on their operating system. Below this, there's a section for Windows with a 'Which should I choose?' dropdown. Two options are visible: 'Windows 7, XP Online' (file size ~ 11 MB) and 'Windows 7, XP Offline' (file size 10.0 MB). Each option has a download icon and a link to 'Instructions'. To the right of the 'Instructions' link for the online version is a 'Verify Now' link. A note states: 'After installing Java, restart your browser and verify Java has been installed correctly.' At the bottom, there's a link for 'Information about the 64-bit Java plug-in'.

Java Downloads for All Operating Systems

Recommended Version 6 Update 26

Select the file according to your operating system from the list below to get the latest Java for your computer.

> [Remove Older Versions](#) > [What is Java?](#)

By downloading Java you acknowledge that you have read and accepted the terms of the [end user license agreement](#)

Windows Which should I choose?

Windows 7, XP Online file size: ~ 11 MB	Instructions	Verify Now
Windows 7, XP Offline file size: 10.0 MB	Instructions	After installing Java, restart your browser and verify Java has been installed correctly .

[Information about the 64-bit Java plug-in](#)

Method 2. Offline method for downloading and installing

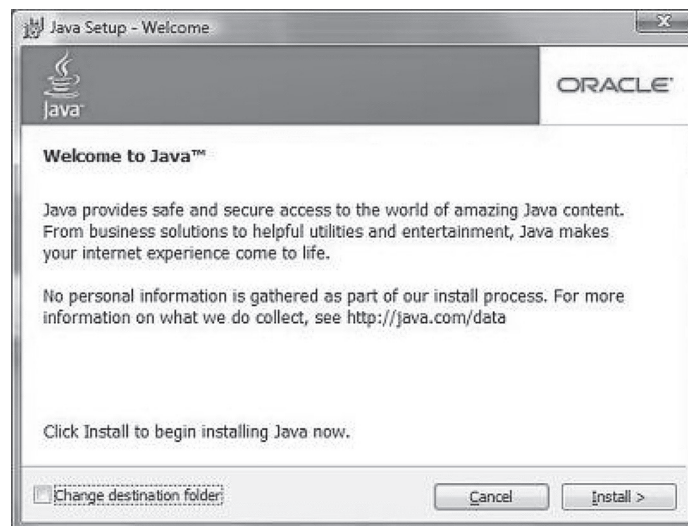
http://www.java.com/en/download/help/windows_offline_download.xml

This process requires you to download an executable file that includes all the files needed for the complete installation. You do not need to remain connected to the Internet during the installation. The file can also be copied to a computer that is not connected to the Internet.

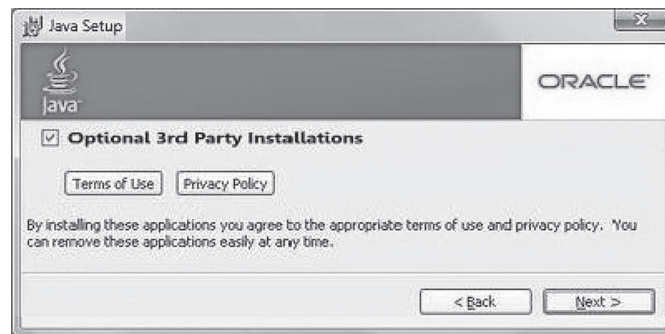
1. Go to the Manual download page
2. Click on Windows Offline.
3. The File Download dialog box appears prompting you to run or save the download file. Click Save to download the file to your local system.

Tip: Save the file to a known location on your computer, for example, to your desktop.

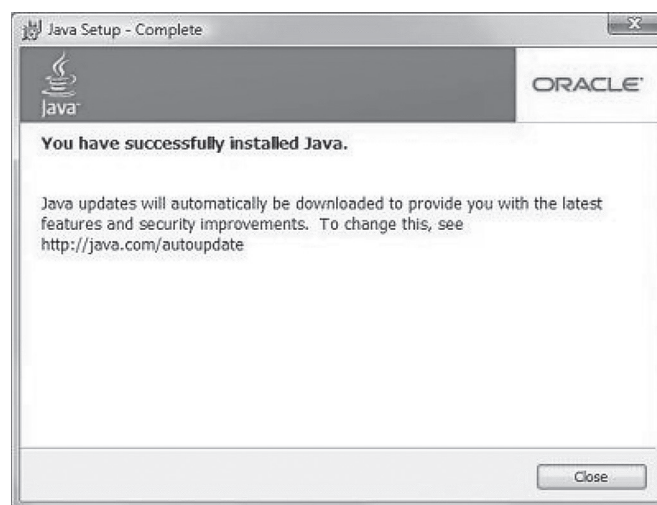
4. Close all applications including the browser.
5. Double-click on the saved file to start the installation process.
6. The installation process starts. Click the Install button to accept the license terms and to continue with the installation.



7. Oracle has partnered with companies that offer various products. The installer may present you with option to install these programs when you install Java. After ensuring that the desired programs are selected, click the Next button to continue the installation.



8. A few brief dialogs confirm the last steps of the installation process: click Close button on the last dialog.



9. This will complete Java installation process.

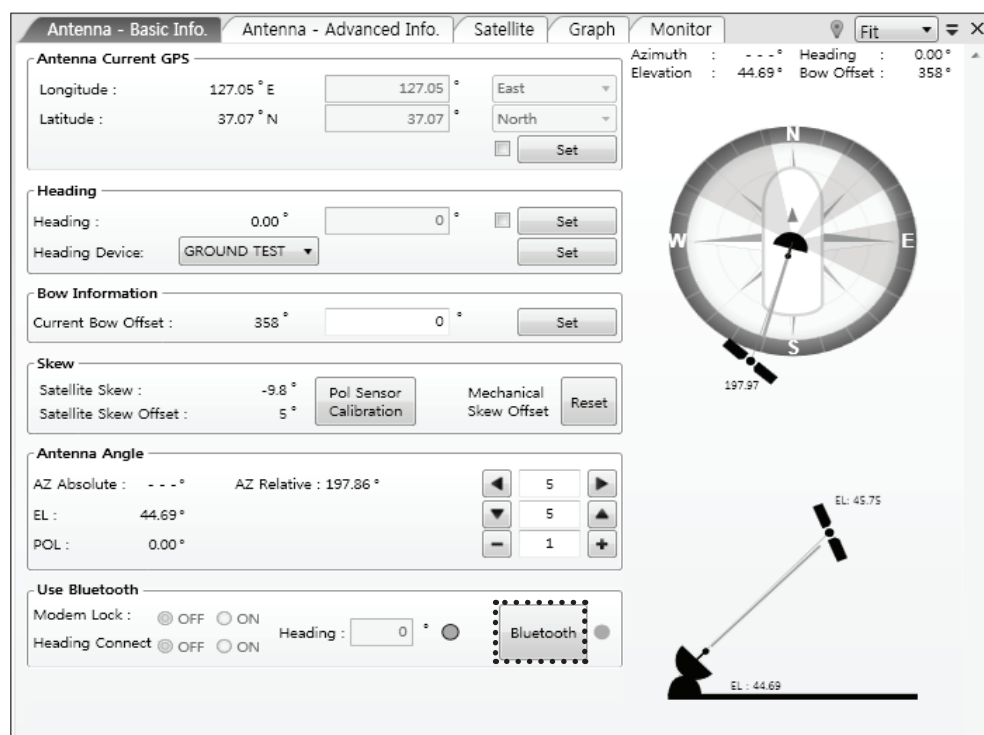
NOTE: You may need to restart (close and re-open) your browser to enable the java installation in your browser.

Appendix: Setup Bluetooth Connection

```

+ TRACKING 116.0E KOREA3HN AGC: 224# HL
  AZ: 201.4 (201.4) EL: 45.0 SK: -75.4   Fn
  
```

1. After setting up the v100GX that contains bluetooth functions and after authorizing the power supply, the antenna will confirm if it is operating normally.
2. In order to utilize the antenna's Bluetooth function, you have to choose one of the two methods below in order to Enable Bluetooth.



- 2-A. After you connect the ACU and the PC with a USB cable, you have to click the Bluetooth button within the PC Program's Antenna - Basic Info. Work View Tab in order to Enable the Bluetooth Module.

```

          SETUP MODE ?
  
```

```

+YES
  
```

```

NO
  
```

```

+ANTENNA
++SYSTEM
  
```

```

+SATELLITE
+INSTALLATION
  
```

```

+SET LOCAL
+MODEM PORT
  
```

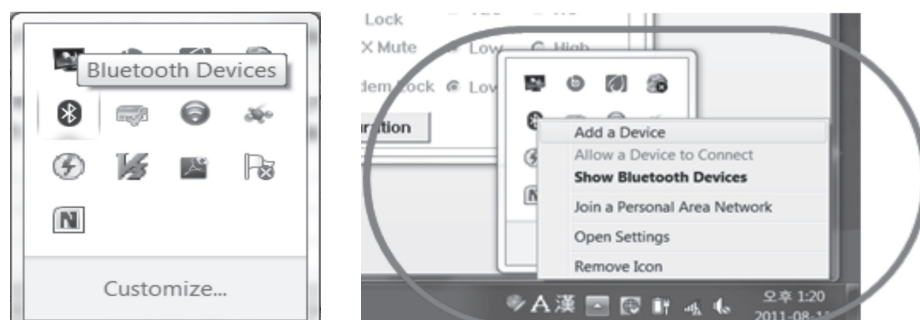
```

+SET LOCATION
++MANAGEMENT
  
```

SELECT PROCESS TYPE	
USE BLUETOOTH	

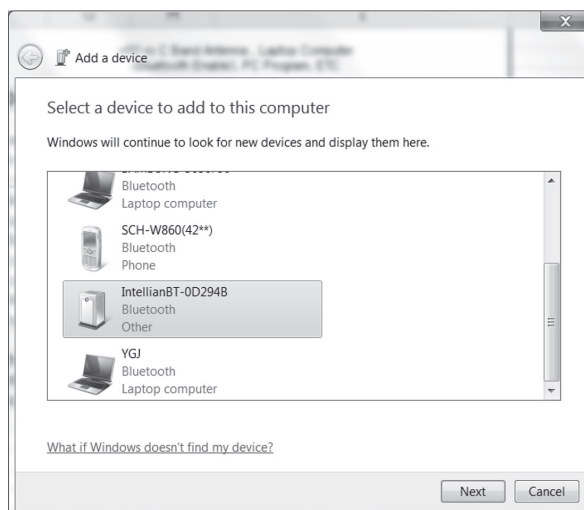
USE BLUETOOTH COMMUNICATION ?	
→ YES	NO

2-B. Once you select YES within SETUP MODE-SYSTEM-MANAGEMENT-USE BLUETOOTH (as shown in them picture above), the Bluetooth Module will be Enabled.

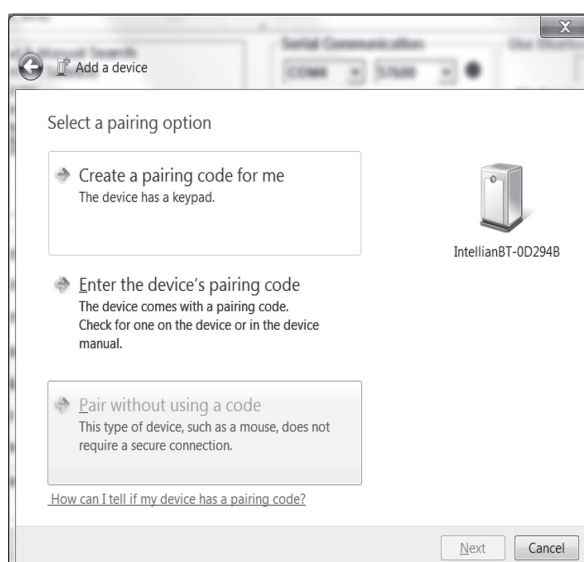


3. Prepare a notebook that has a Bluetooth device included within it. While the Bluetooth device is getting ready to be used you can choose to add a bluetooth device if you right click on the Bluetooth icon.

※ Methods of setting up Bluetooth within your notebook can differ by the manufacturers software and Operating System being used within your notebook.

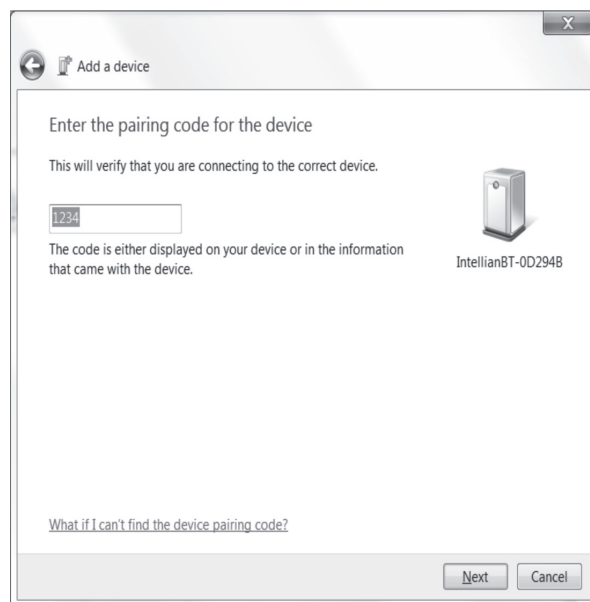


4. On the left is a window in order to run the setup wizard where you can add a Bluetooth device. Find the IntellianBT-0D294B Bluetooth Device (**0D294B may be a different number depending on each user**) and if you click next, then the wizard will search for a Bluetooth device. **The window for adding a bluetooth device may differ by the type of Operating System being used.**



5. Pair the device without using a code. Select "Pair without using a code" and press Next.

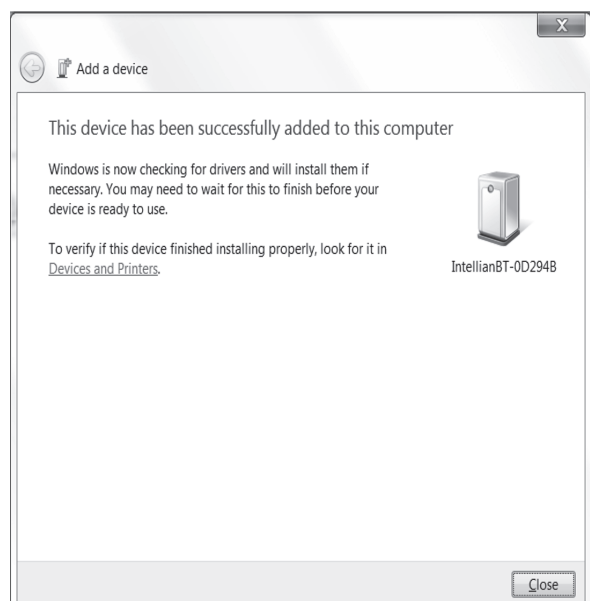
NOTE: Some OS systems may not have an option to Pair the bluetooth device without using a code therefore, go to the next step to enter a Pairing Code.



6. The picture shown on the left is a Pairing Connection page. Enter the security code in order to go to the next page. Do this by entering "1234" within the Security Code box.

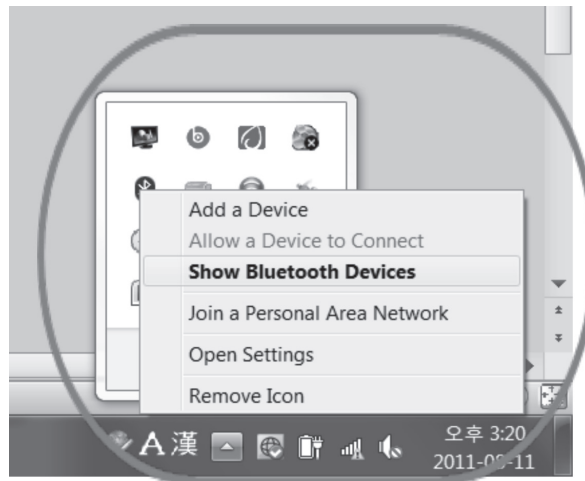
※ If the OS or the Bluetooth program has Skip button available, press the Skip button to go to the next page instead of entering a pairing code.

The Pairing Window may differ by different OS systems used. The picture on the left is in Windows 7 format.

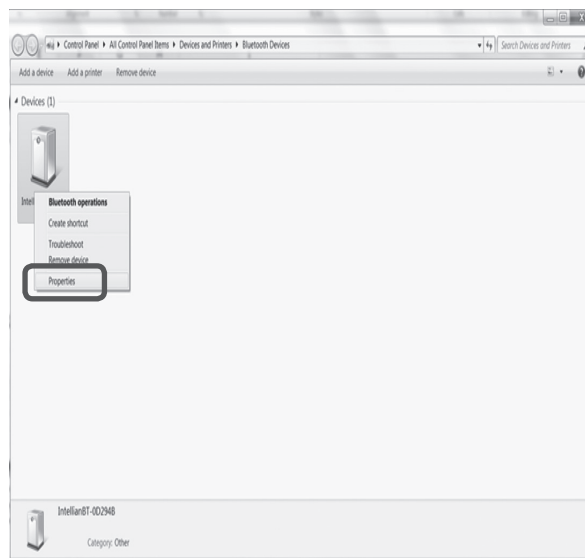


7. Pairing completed, the bluetooth device has been added to the computer. With Generic Serial Setup for OS systems that are different from Windows 7, go to a Generic Serial Service page (which applies to some OS Systems), select the Generic Serial Service and click Next.

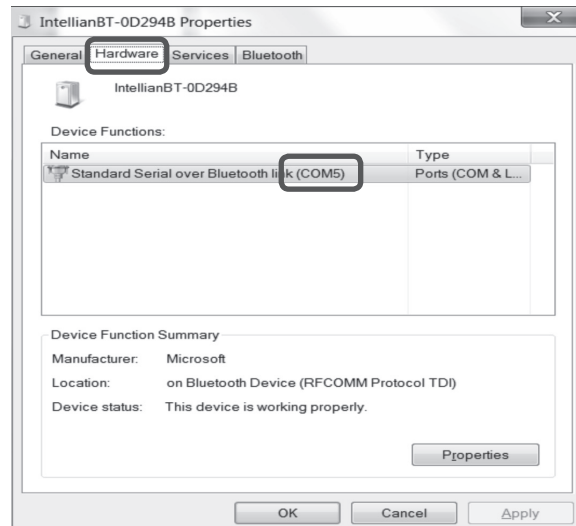
Click Finish to complete Bluetooth setup tasks.



8. Go to your toolbar and right click on your WiFi logo. Click on "Show Bluetooth Devices" as shown in the picture on the left.

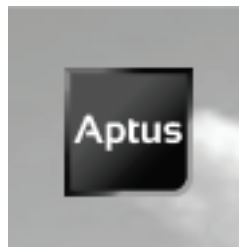


9. Right click on your bluetooth device called "IntellianBT-0D294B" (name may differ by user) and click on "Properties".

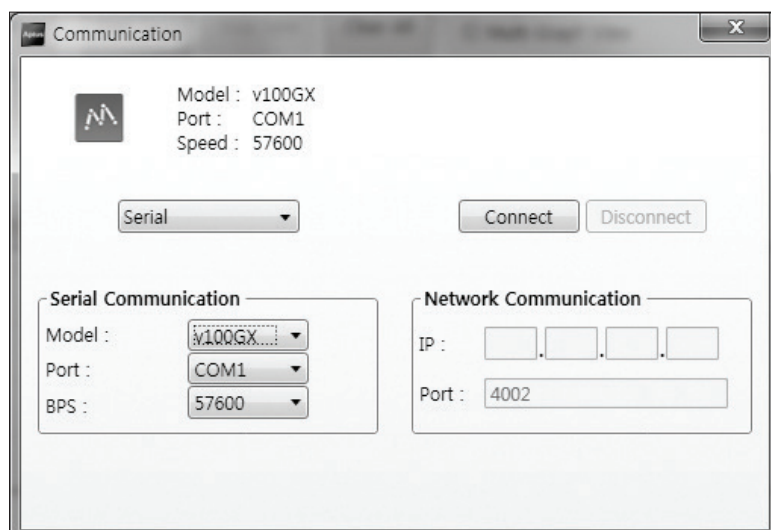


10. Go to the Hardware tab and check your COM Port Number.

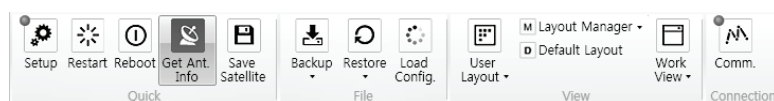
NOTE: Remember the COM Port Number for step 12.



11. Run the Aptus Program.



12. Click on Comm. icon to open the communication window. Assign the correct COM Port (step 10) and click the "Connect" button.



13. Press the "Get Ant. Info" button to confirm if the antenna's data within the Aptus Program is functioning normally.

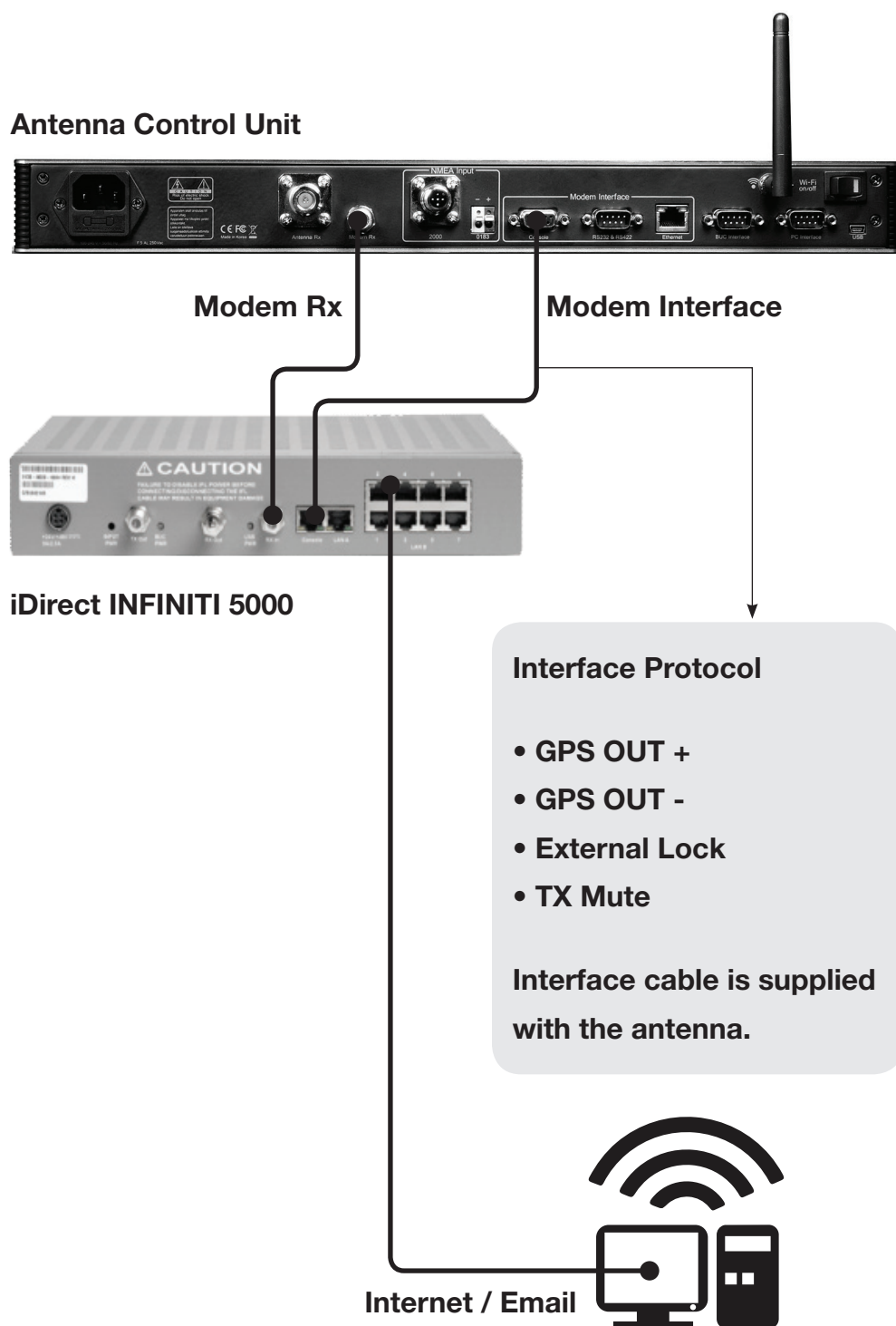
End of Bluetooth Setup **(To Disconnect your Bluetooth, click the "Bluetooth" button).**

Appendix: Modem Connection

Integrated with iDirect INFINITI5000

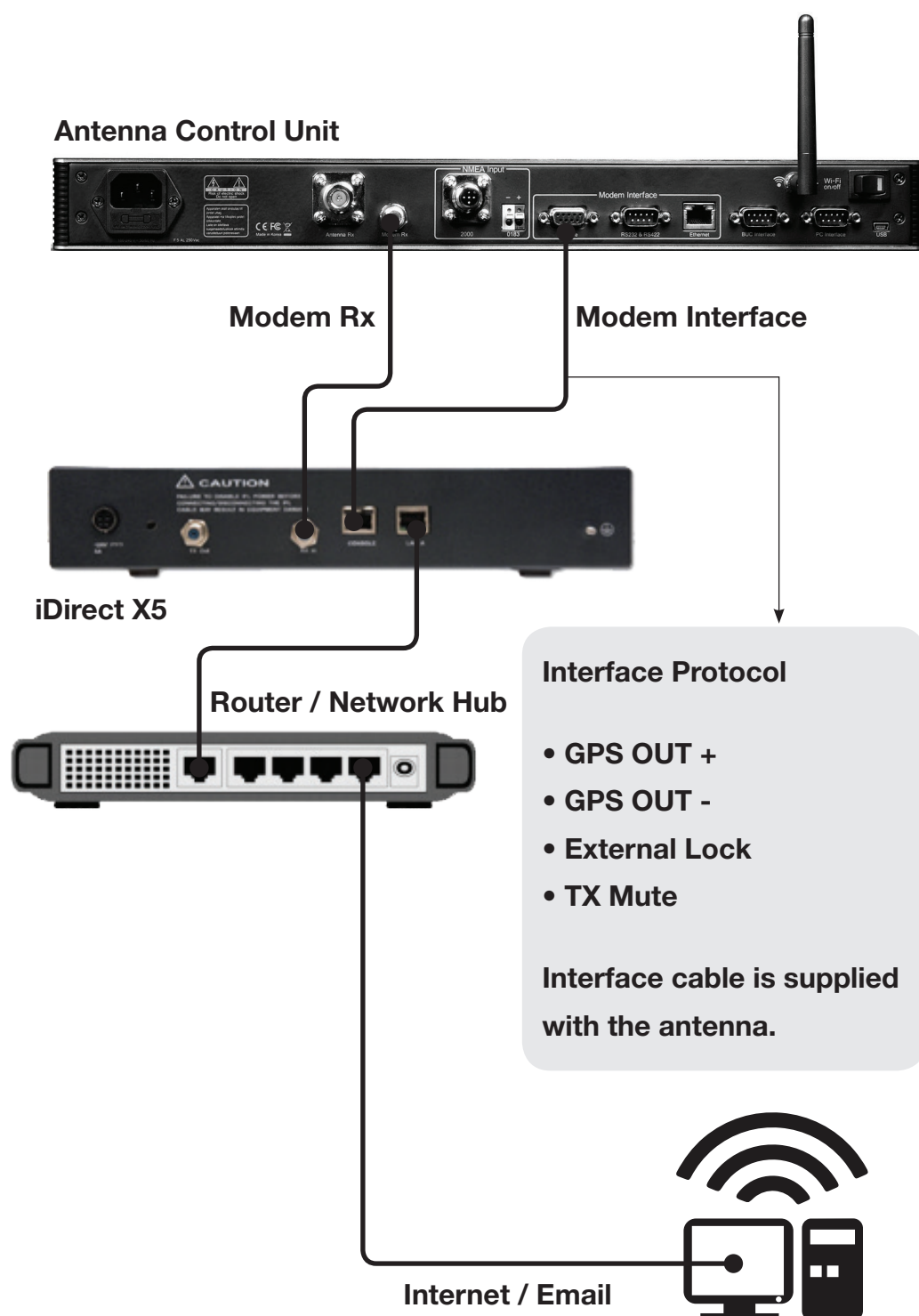
- iDirect Modem interface through the Console Port

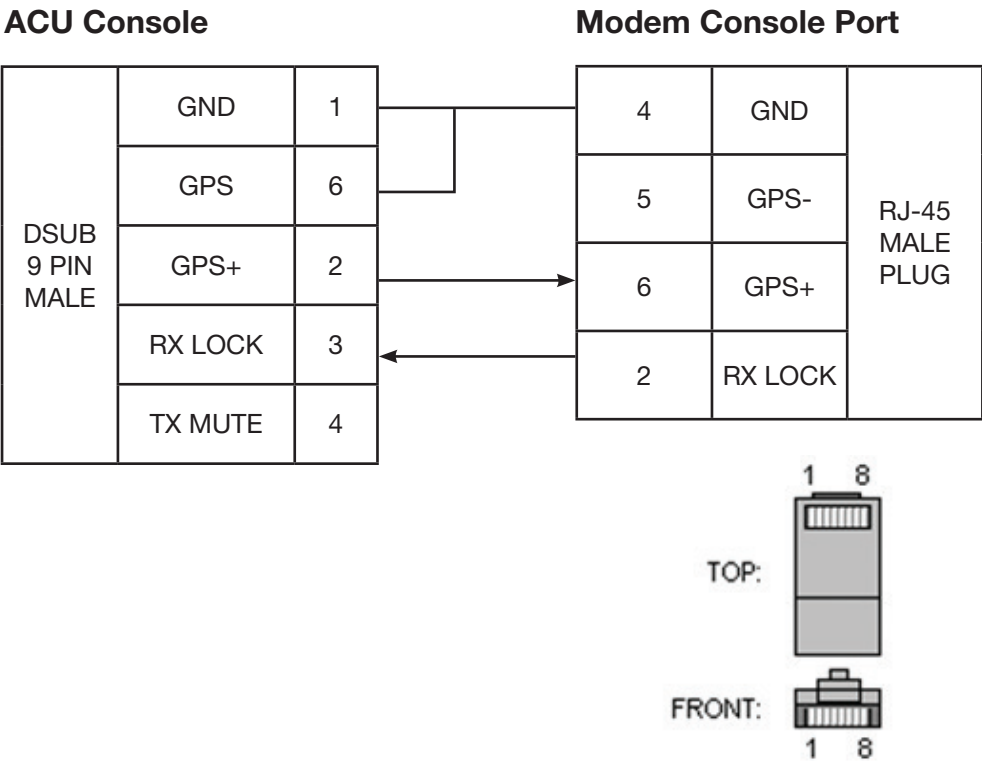
Antenna Control Unit



Integrated with iDirect X5

- iDirect Modem interface through the Console Port

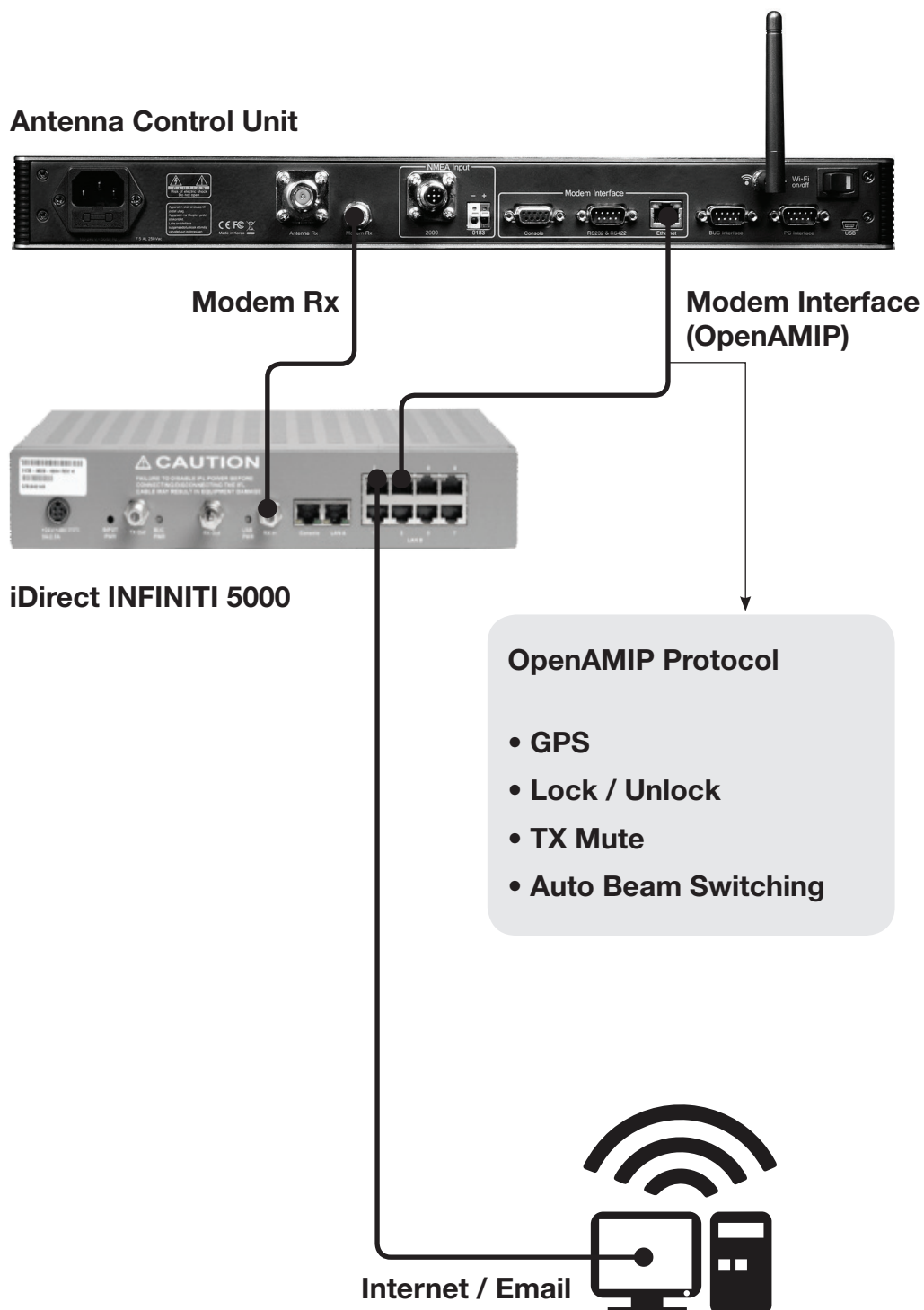




Integrated with iDirect INFINITI5000

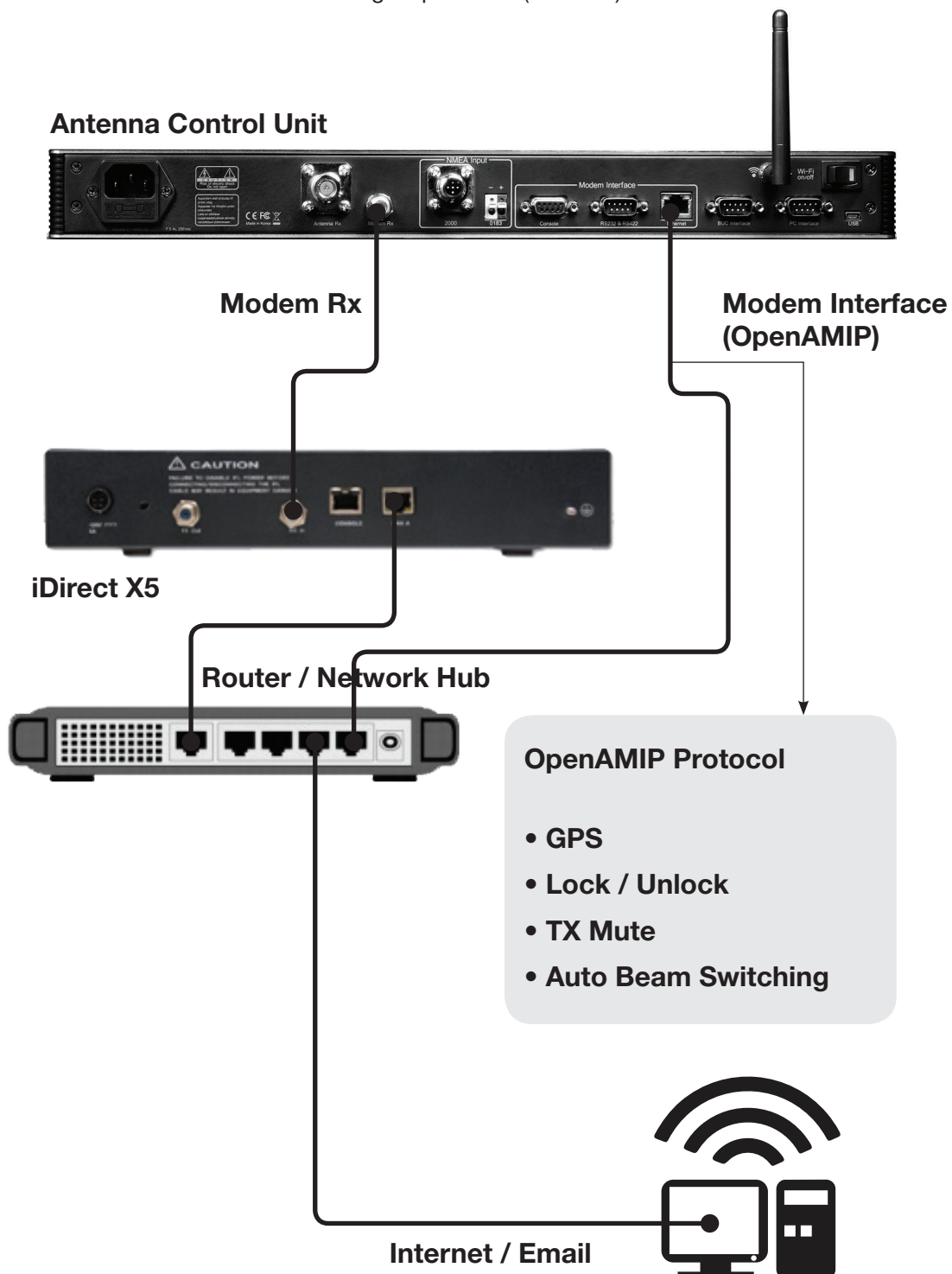
- iDirect Modem interface through the OpenAMIP

Antenna Control Unit



Integrated with iDirect X5

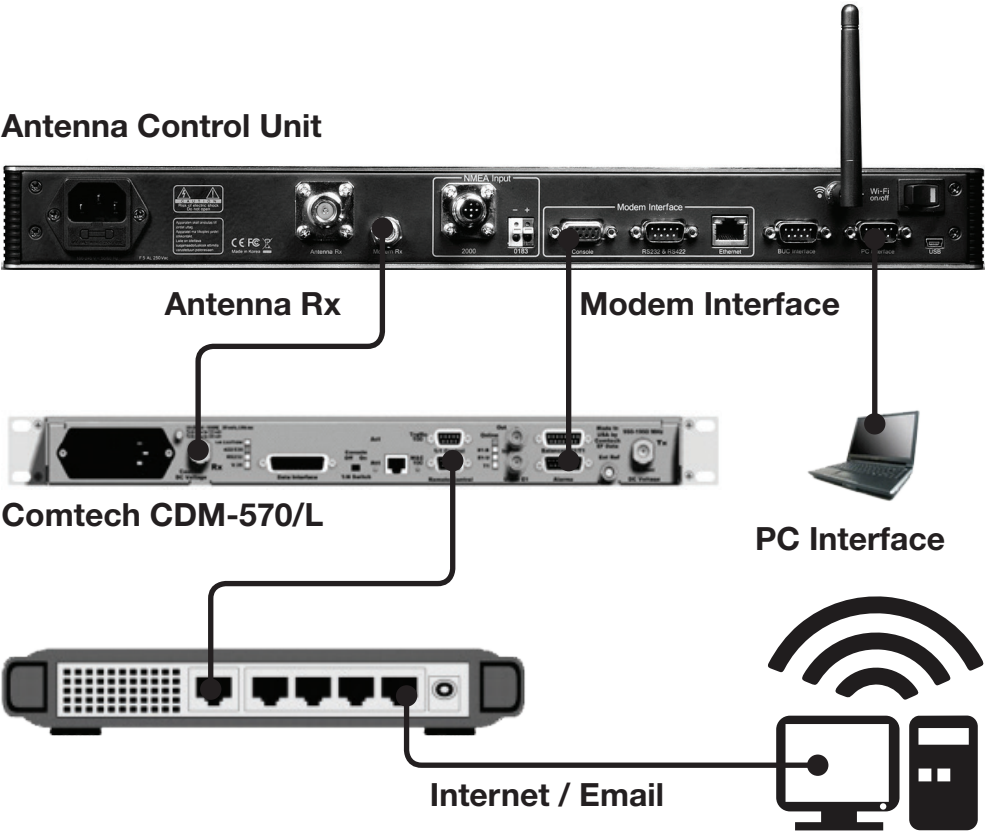
- iDirect Modem interface through OpenAMIP (Ethernet)



Integrated with Comtech

- Comtech Modem interface through the Console Port

Antenna Control Unit

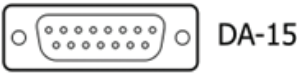


ACU Console

DSUB 9 PIN MALE	GND	1
	GPS	6
	GPS+	2
	RX LOCK	3
	TX MUTE	4

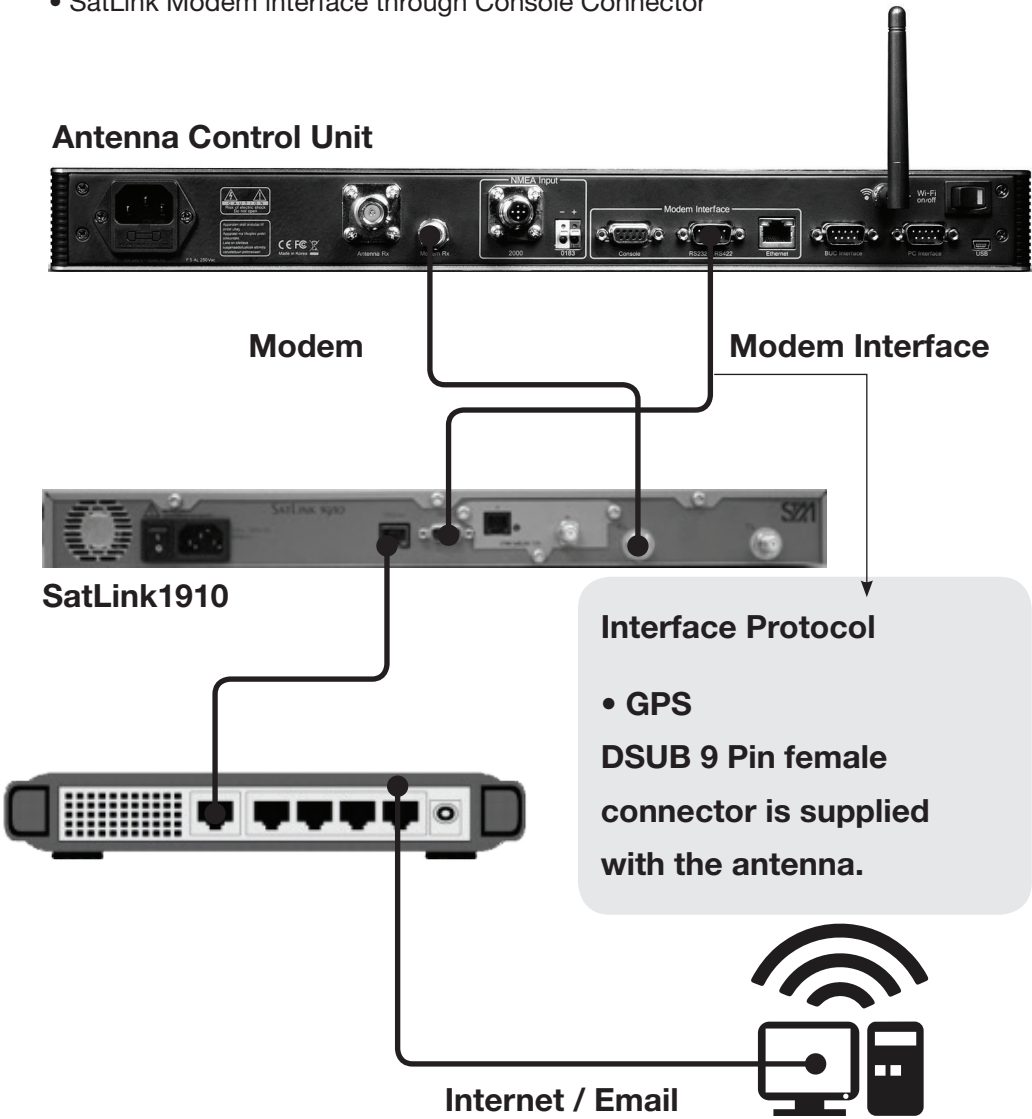
Modem Console Port

1	GND	DSUB 15 PIN FEMALE 2 rows
7	RX Comm	
15	Modem LOCK	
9	TX MUTE	

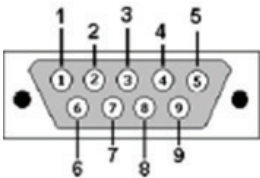


Integrated with SatLink1910

- SatLink Modem interface through Console Connector



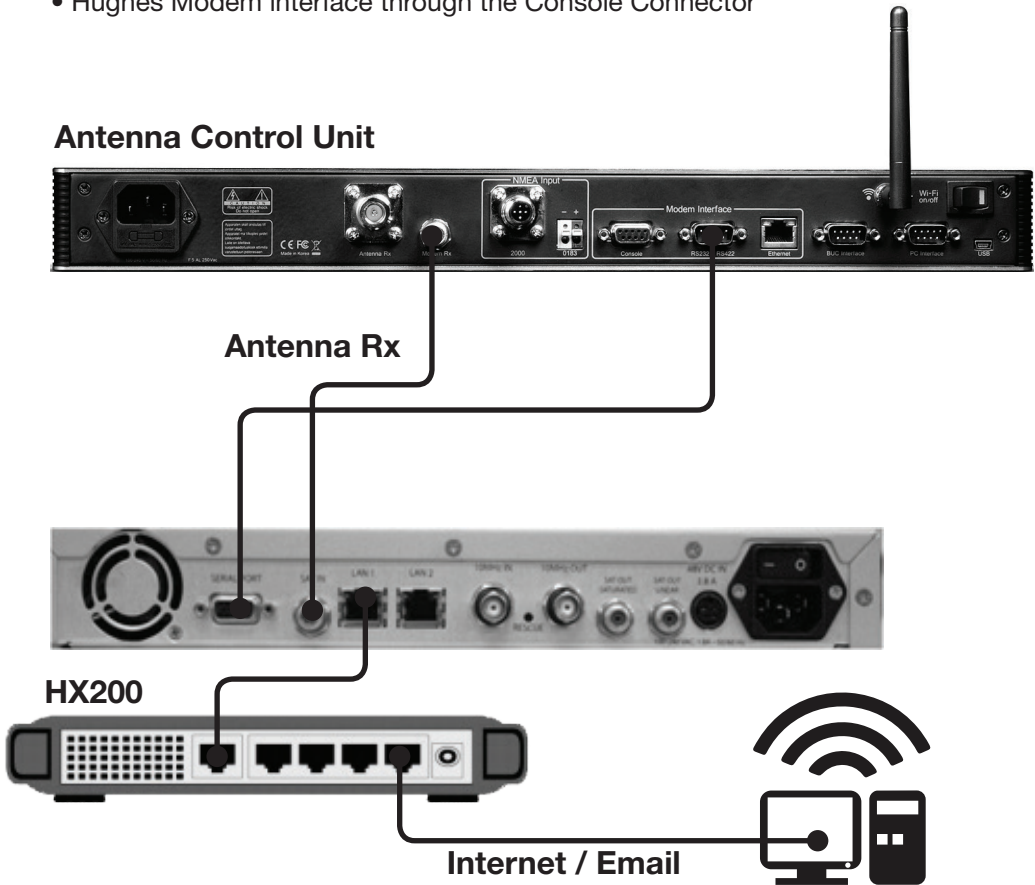
SatLink Serial	D-Sub 9 Pin (MALE)	D-Sub 9 Pin (FEMALE)	ACU Modem RS232/422
GPS IN	7	3	TX
GPS GND	5	5	GND



Integrated with Hughes HX200

- Hughes Modem interface through the Console Connector

Antenna Control Unit



ACU Console

DSUB 9 PIN MALE	GND	1
	GPS	6
	GPS+	2
	RX LOCK	3
	TX MUTE	4

Modem Serial Port

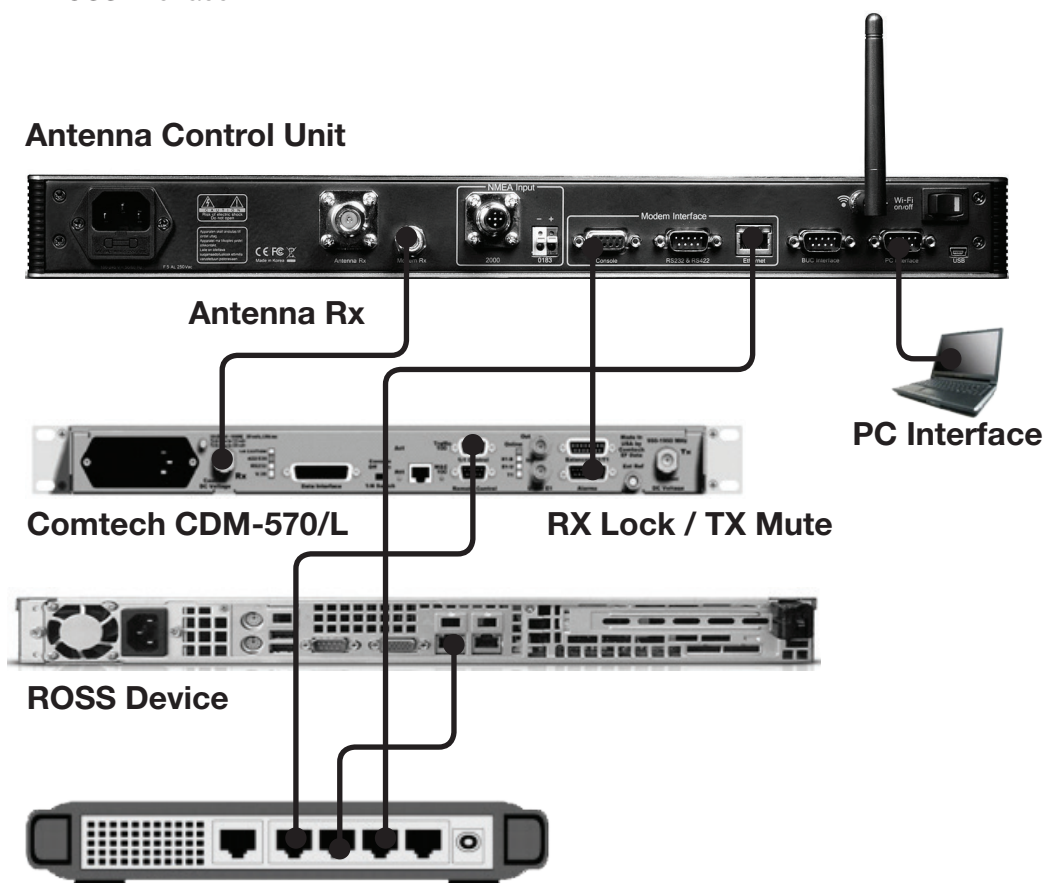
3	GND	DSUB 15 PIN FEMALE 3 rows
12	GPS	
15	RX LOCK	
9	TX MUTE	



Integrated with ROSS

- ROSS interface

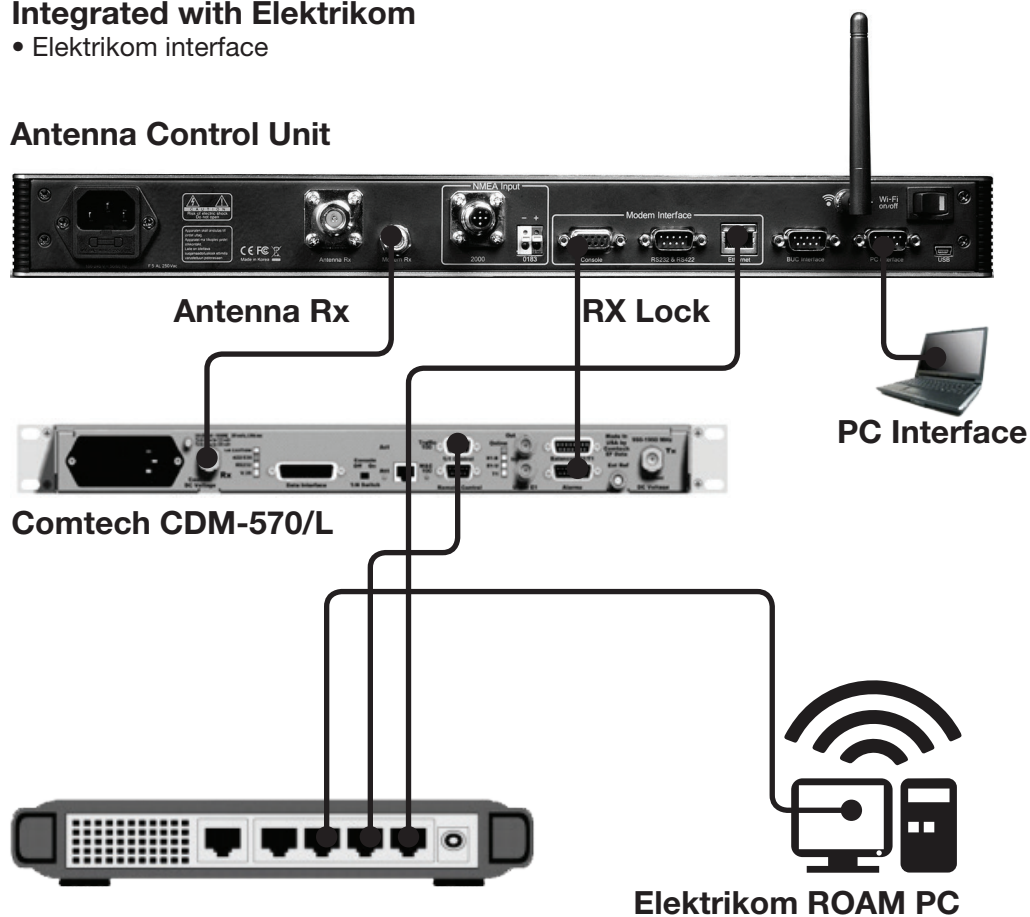
Antenna Control Unit



Integrated with Elektrikom

- Elektrikom interface

Antenna Control Unit



Technical Specification

General	
Approvals	
CE – conforms to	EU Directive 89/336/EEC
FCC – verified to	CFR47: Part 15
Dimensions	
Satellite antenna unit	138cm x 151.4cm (54.33" x 59.63")
Antenna dish diameter	103cm (41")
Antenna control unit	43.1cm x 38cm x 4.4cm (17" x 15" x 1.7")
Weight	
Satellite antenna unit	Radome: 35.4kg Antenna: 92kg
Antenna control unit	3.5 kg (7.7 lbs)
Antenna system performance (V3-11X-XXX)	
Tx Frequency	13.75~ 14.5 GHz Ku-band
Tx Gain	41.6 dBi @ 14.25 GHz
Rx Frequency	10.95 ~ 12.75 GHz Ku-band
Rx Gain	39.4 dBi @ 11.7 GHz
Polarized Feed	Cross-pol and Co-pol
Cross-pol Isolation	Minimum 35 dB
G/T	> 19.6 dB/k (@ 12.5 GHz)
Azimuth Range	Unlimited
Elevation Range	-20° ~ +115°
Cross-level Range	±37°
Stabilization Accuracy	0.2° peak mis-pointing @ max ship motion condition
Max Ship's motion	±25°roll, ±15° pitch, ±8°yaw@ 6 sec
Turning rate	Up to 10°/ sec 2
BUC	4W, 8W, 16W (optional)
Power Consumption	100 ~ 240 V AC, 50 ~ 60Hz, 3A
Rack Mount Antenna Control Unit (VP-TXXX)	
Display	2 Line 40 Character Graphic VFD Module
PC Interface	RS232C (57600 bps 8, N, 1) / USB
Modem Interface	Ethernet port / RS232C / I/O ports
RF Interface	Antenna RX: N-Type, Modem RX: F-Type
Gyrocompass Interface	NMEA 2000 / NMEA 0183
GPS Interface	NMEA In / NMEA Out
Remote Access	RJ45, TCP / IP
Power Consumption	100 ~ 240 V AC, 50 ~ 60Hz, 1A

Intellian®

APAC

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