

SAMYUNG SDA-450N
Marine Satellite TV Antenna
Installation & Operation Manual

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SAMYUNG SDA-450N



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SAMYUNG Marine Satellite TV Antenna **SDA-450N**

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Version	Date	Description	By
Ver.1301.EN	4 th DEC. 2013	Installation & Operation Manual	

SAMYUNG Marine Satellite TV antenna is produced on ISO9001, ISO4001 and this product conforms and is labeled with CE, FCC, and KCC.



This serial number will be required for all troubleshooting or service calls made regarding this product. Please record your Antenna Serial Number Here

> Antenna Model: SDA-450N

> Serial Number:

> Distributors:

> Contact No:

Safety Notice



Do not operate the product in an explosive atmosphere.

Do not operate the equipment in the presence of flammable gases or fumes. Operation of any electrical equipment in such an environment constitutes a definite safety hazard.



Keep away from live circuits

Operating personnel must not remove equipment covers. Component replacement and internal adjustment must be made by qualified maintenance personnel. Do not replace components with the power cable connected. Under certain conditions, dangerous voltages may exist even with the power cable removed. To avoid injuries, always disconnect power and discharge circuits before touching them.



Do not service or adjust alone

Do not attempt internal service or adjustments unless another person, capable of rendering first aid resuscitation, is present



Observe marked areas

Avoid placing the product close to cigarettes, open flames or any source of heat.



Observe marked areas

Under extreme heat conditions do not touch areas of the terminal or antenna that are marked with this symbol, as it may result in injury



Distance to other equipment

Do not move the antenna closer to radars than the minimum safe distance specified in the installation manual - it may cause damage to the antenna. Minimum safe distance 1.2m.

**Note:**

Failure to comply with the rules above will void the warranty!!!

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I. SAMYUNG Marine Satellite TV Antenna

SAMYUNG marine satellite TV antenna allows you to access “TV-Anywhere” with high quality system where you are. SAMYUNG antenna is designed to automatically track and identify satellite signals using Digital Video Broadcasting.

The stylish white SAMYUNG satellite TV antenna use automatic ABSS (Active Beam Scanning System) technology to find the satellite signal quickly in harsh weather conditions and the new indoor unit makes easy to access satellite information and to install.

GPS equipped supports an automatic satellite acquisition and SDA-450N included Auto-skew system provides an automatic satellite switching.



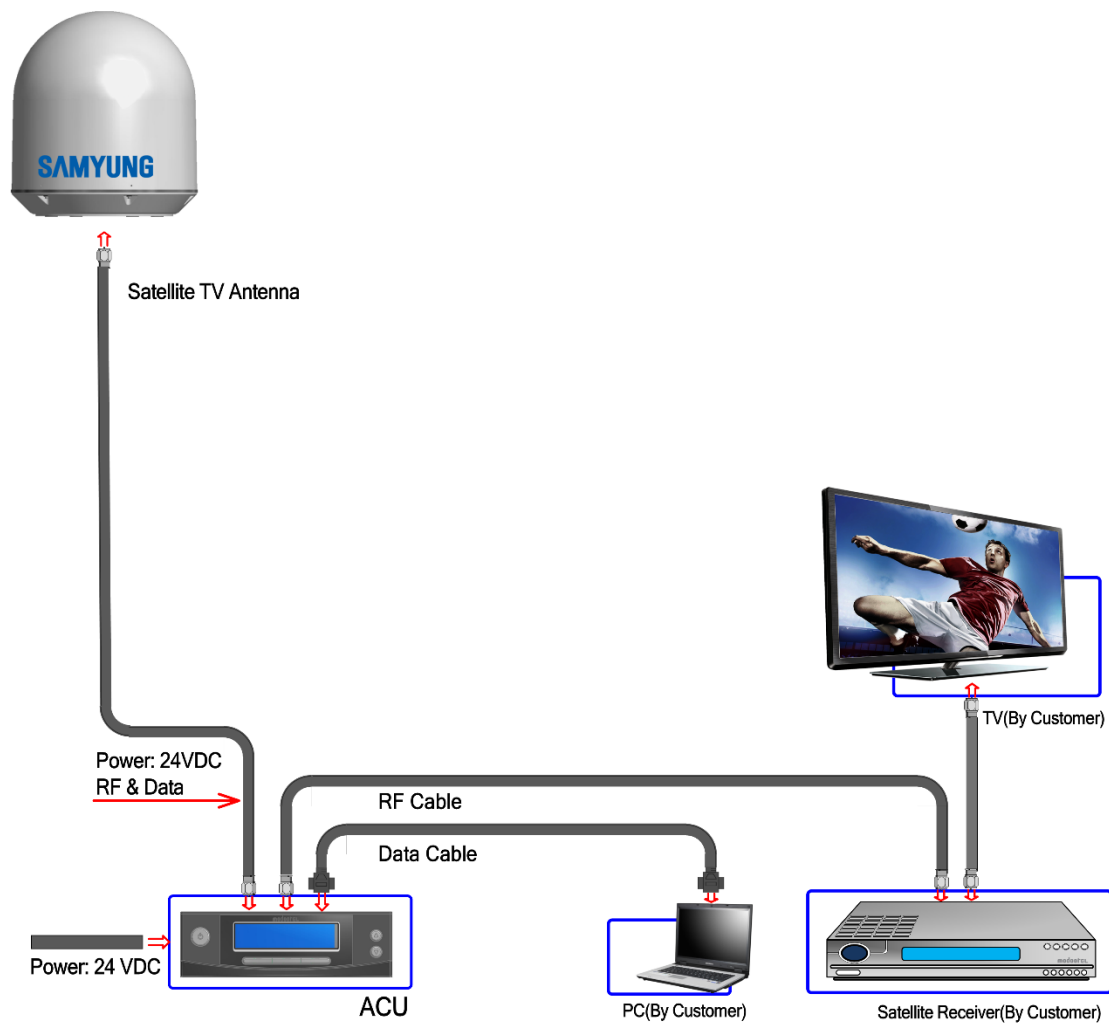
SAMYUNG SDA-450N

I.1 Provides of SAMYUNG Marine Satellite TV Antenna:

- > Powerful tracking system with ABSS (Active Beam Scanning System) in harsh conditions.
- > Automatic identity and high speed tracking from DVB (Digital Video Broadcasting).
- > Easy system operating without any hard working and just power ACU up.
- > High quality TV same as your home and small compact and attractive white Radom suitable to all types of vessels.
- > GPS position equipped to support an automatic satellite acquisition.

1.2 Basic System of SAMYUNG Marine Satellite TV Antenna:

For complete operation of satellite TV antenna, antenna connected to Indoor unit (ACU), satellite receiver and a television like below.



Note:

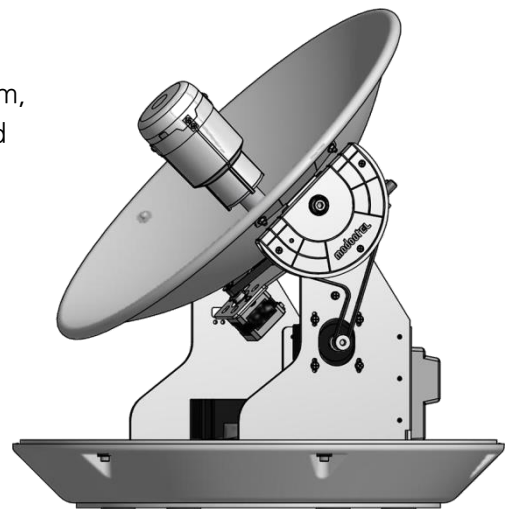
TV and Satellite Receiver (Set top Box) is not supplied by SAMYUNG ENC Co., Ltd. and provided by a Local Service Provider.

I.3 SDA-450N Components

SAMYUNG marine satellite TV antenna SDA-450N/ SDA-450NS includes the following components. Before you install your antenna, you need to check all your components of antenna system

I.3.1 Antenna (Out Door Unit):

The antenna unit is comprised of the antenna mechanism, control unit and radome for receiving satellite signal and mechanical unit operates with a main reflector, sub reflector, horn and LNB for the supreme satellite signal. Control unit controls mechanical operations and program.



SDA-450N inside view

I.3.2 ACU (Antenna Control Unit)

The function of the ACU is accessed through the LCD and soft keys. The ACU provides power to the antenna and allow controlling the antenna system as follows.

- > Provide power to antenna
- > Monitoring the state of the antenna
- > Changing and setting of the target satellite
- > Changing and setting of the satellite information
- > Set up the GPS information



Note:

ACU mounting bracket (Ceiling or Desk fixed) are supplied together.

I.3.3 Accessories:

> Power Supply Unit: PN: 111000401

Power Supply is connected to the ACU (Antenna Control Unit)

- > Input: 110~240 VAC 60Hz
- > Output: 24VDC 3A



> Antenna Cable:

The length of 20m and 1.5m cables are supplied.

- > PN: 111000501 (20M RF Cable)
- > PN: 111000502 (1.5M Sub RF Cable)



Important !!

You must use the antenna cable of 75 ohm (5C-FHBT or RG-6) to see a satellite TV.
If you use the communication cable of 50 ohm (LMR-200) with satellite TV antenna, it will not work.

> Antenna Installation Bolt Kit:

The bolt kit below contains (Hex. Bolt, Flat washer and Spring washer - each 5 pcs.) the items below to secure the antenna unit and antenna fixing sheet.



Important !!

The length of Hex. Bolt must be a 50mm. You should use the bolts supplied by SAMYUNG ENC Co., Ltd.
This instruction is described at page 17

> Antenna Fixing Sheet:

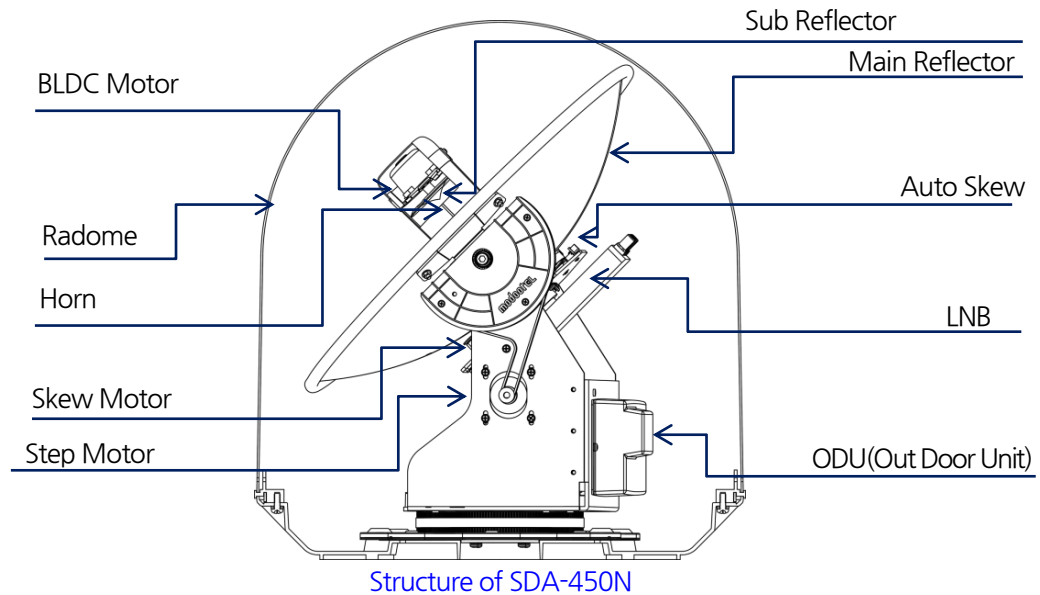
Antenna Fixing Sheet is used to mount the antenna unit. This Antenna Fixing Sheet is not provided by SAMYUNG ENC Co., Ltd. The dimension of the Fixing Sheet is provided at the back of this manual.

> Installation & Operation Manual:

Installation & Operation Manual (PN: 111000101)

II. Installation

II.1 Structure of SDA-450N

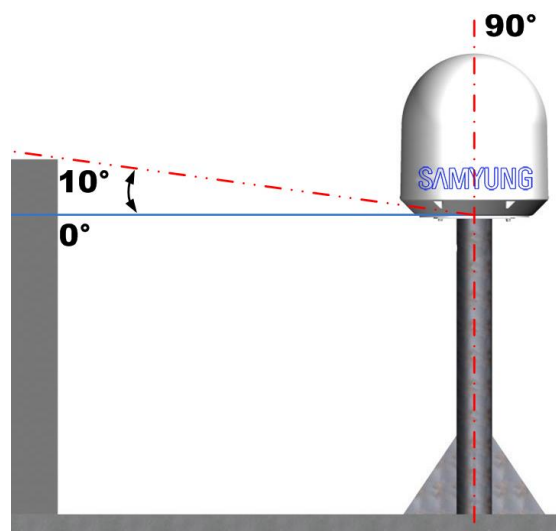


- > **Main Reflector:** Capture radio waves.
- > **Sub Reflector:** Transmit radio waves to Horn and scanning automatically wave value to track target satellite.
- > **BLDC Motor:** Revolution for Beam Tilting.
- > **LNB (Low Noise Block):** Convert the signals from radio waves to electrical signals.
- > **Feed Horn:** Capture the signal reflected from the dish surface and channels it into an LNB.
- > **Step Motor:** Control the angle of Elevation and Azimuth.
- > **ODU (Out Door Unit):** Built-in the control board of antenna
- > **GPS (Global Positioning System):** Support to track quickly target satellite information.
- > **Auto Skew:** Automatically adjusts the antenna's skew to calculate of target satellite and GPS location.

II.2 Before Installation the Antenna

II.2.1 Selecting Location

It is very important that you select a proper location for the antenna unit.

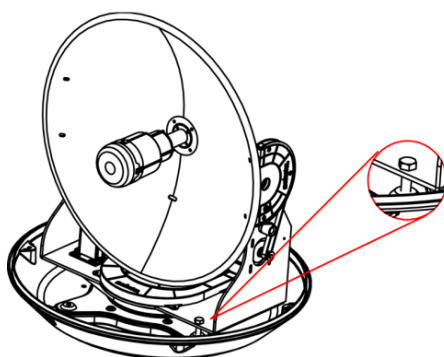
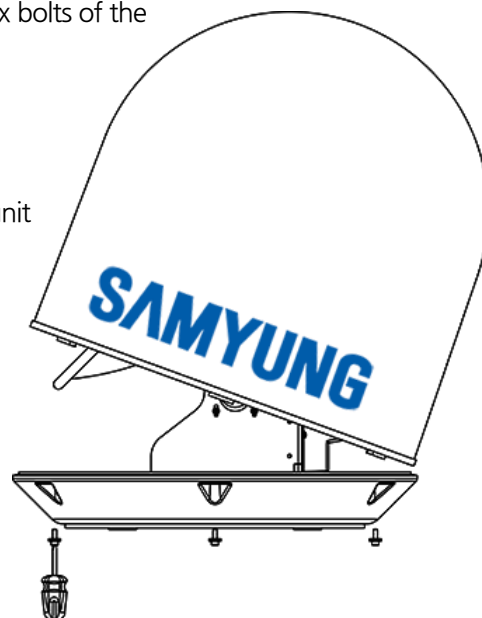


- > The antenna unit has an unobstructed view to the satellite and required a 10° to 90° look angle to receive satellite signals.
- > For a good performance, the antenna unit must be placed as close as possible in the centerline with free space around.
- > A solid, steady and horizontal surface is required to install the 13kg weight antenna unit.
- > Antenna bottom should be paralleled to the surface of the sea.
- > No radar should be installed nearby the antenna unit.
- > The antenna unit should be mounted a minimum distance of 1.2m away and it should not be placed 1.2m above from the radar.

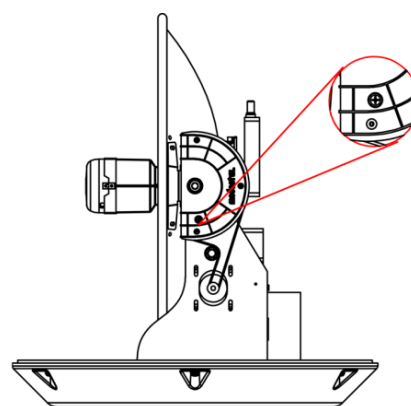
II.2.2 Remove the fixing bolts before installation

Before installing the antenna unit, you must remove the fix bolts of the antenna inside.

1. Remove the 6 bolts securing the radome from antenna unit base and open the radome.
2. Remove 2 bolts tagged to secure the antenna frame during the shipment.
3. Inspect the antenna unit for shipping damage.



AZ fixing bolt location



EL fixing bold location (Remove the bolt)

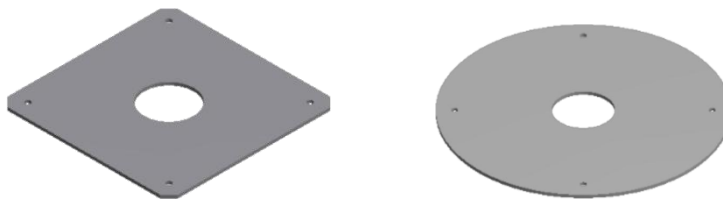
4. Please try to operate the dish of Azimuth and Elevation at the end of the limit switch, after removing bolts.
5. Cover the radome with bolts tightly after checking all system completely. You can fix easily the upper and lower of the radome after matching the triangle label of lower radome to the center of logo.
6. Start to install the antenna.

II.3 Installation Antenna

II.3.1 Antenna Fixing Sheet

This Antenna fixing sheet is not provided by SAMYUNG ENC Co., Ltd..

The dimension of the Antenna fixing sheet is provided at the 73~74 Page of this manual.



Sample of antenna fixing sheet (Recommend)

II.3.2 Connection of the RF Cable

Connect the RF cable to RF connector of the base plate with 13mm spanner through the antenna fixing sheet.

Do not tighten it up strongly to avoid any damage the connector.

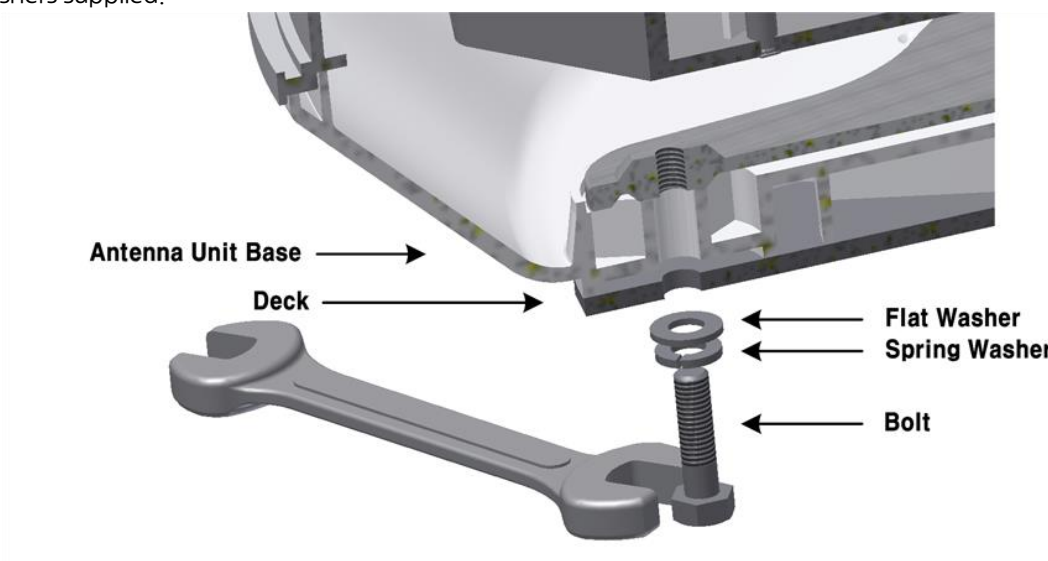
Recommend to use the silicon or waterproof tape to antenna connector.



II.3.3 Mounting the Antenna

Please mount the antenna as below.

1. Check the fixing bolts (PN: 111000503)
2. Using a 13mm spanner, place the antenna unit with M8 hex. Bolts, spring washers, and flat washers supplied.



3. Check that 4 bolts are fixed tightly and correctly. All 5 bolts are supplied with antenna.
4. You must use the M8 bolt supplied.
 - > Size: M8
 - > Length: 38mm ~ 40mm

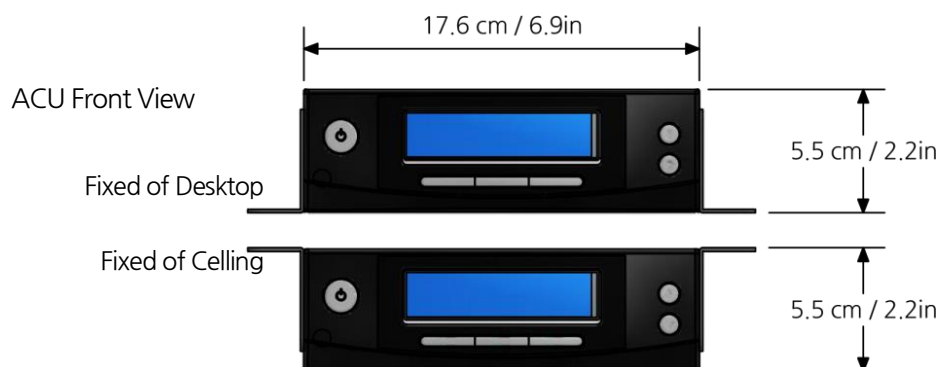
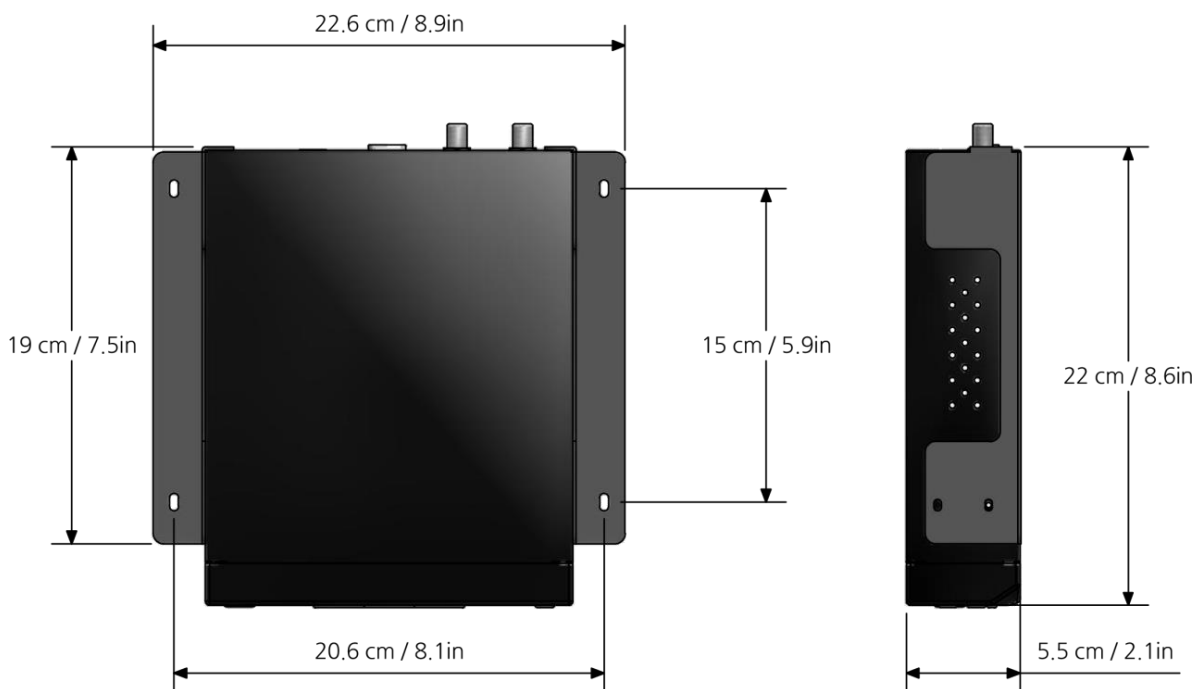
CAUTION:

The length of Hex. Bolt must be a 38 or 40mm.
You should use the bolts supplied by SAMYUNG ENC Co., Ltd.

II.4 Installation of the ACU (Antenna Control Unit)

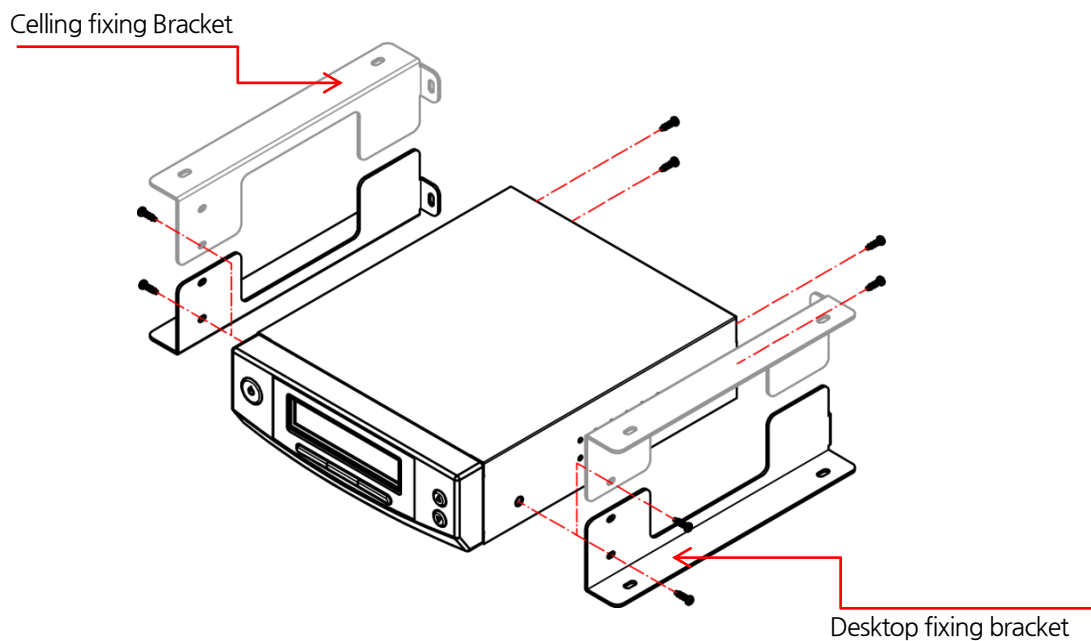
Mount the ACU in a location that is dry and aired, and the TV display is visible the accessible with the buttons by the user.

II.4.1 ACU Dimension



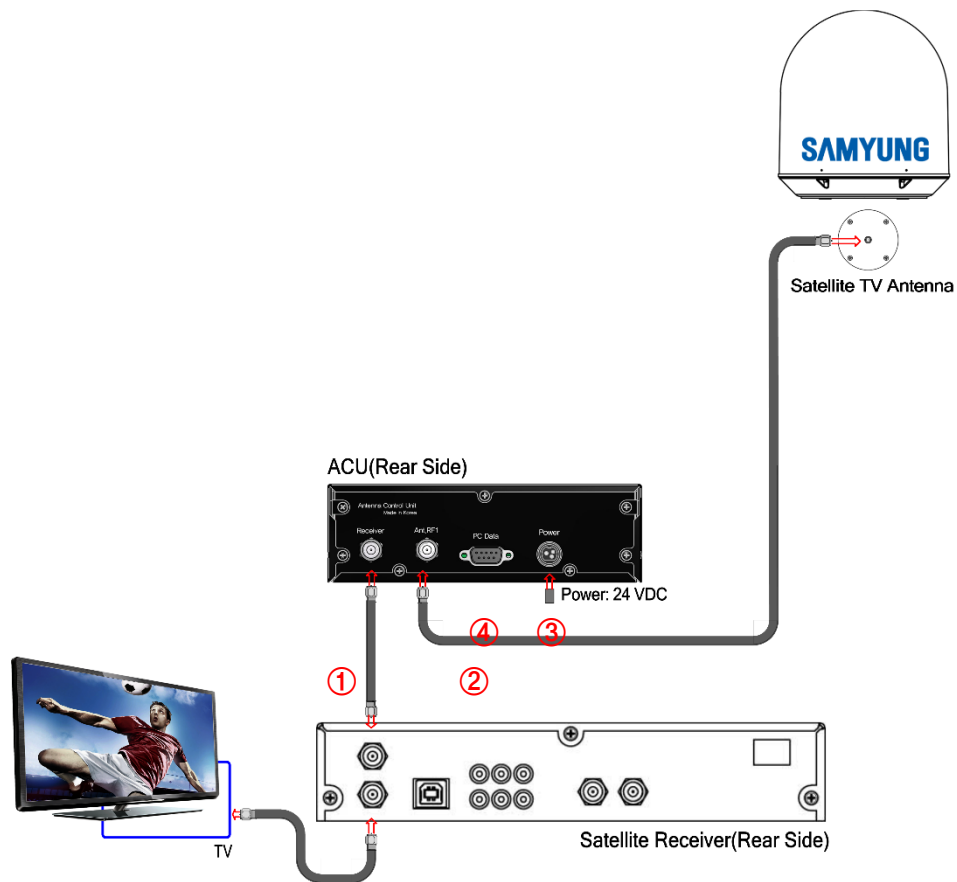
II.4.2 Installing of ACU

1. ACU proper place, namely the ceiling or on the desk using screws to withstand shock or vibration is securely fastened.



2. Please install the ACU as below.

- 1). Connect the 1.5m RF cable from “**Receiver**” connector on ACU to the receiver.
- 2). Connect the 20m RF cable of the antenna to “**Antenna**” connector on ACU.
- 3). Connect the AC/DC power cable to “**Power**” connector on ACU.
- 4). “**Serial port**” on ACU is used to interface with PC, when you need to upgrade the program.
- 5). Please refer to the instruction next page



3. Please organize all cables with cable ties after finishing the installation.

II.4.3 Checking of ACU Installation

Please check it whether the system works likes below after installation of the antenna and the ACU.

1. Initialize ACU will be displayed on screen when supplied the power on ACU.

2. Antenna will start to search the satellite.



3. And then, You can see your favorite TV program.

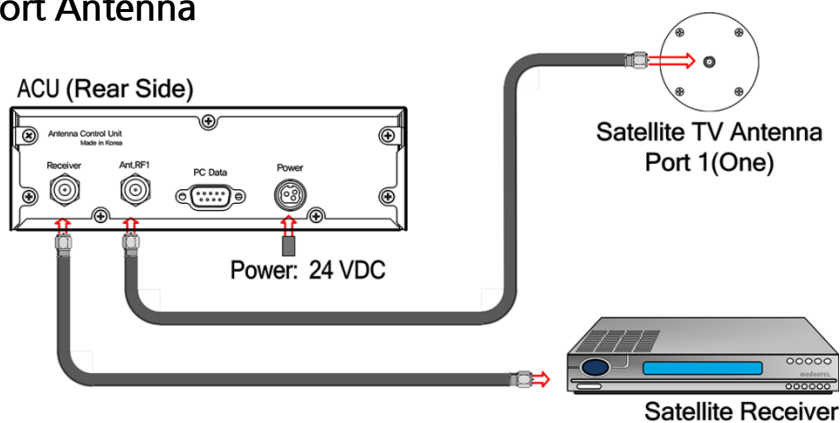
4. Check the connection between antenna cable and power cable, if not supplied the power.

When you have a problem with the antenna, please check to the troubleshooting and checking point of the user guide.

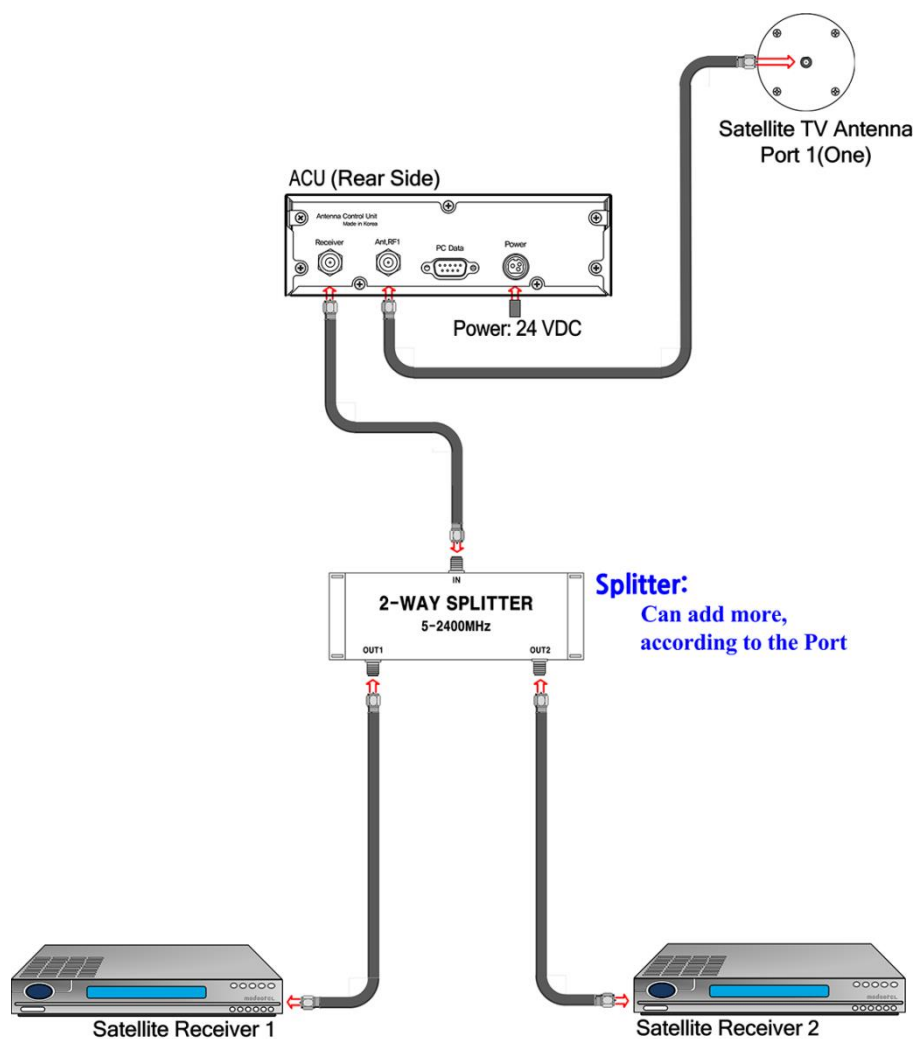
5. Please contact with your distributor, if you can't solve the problem of the antenna or need any help.

II.5 Connection the Antenna Cable

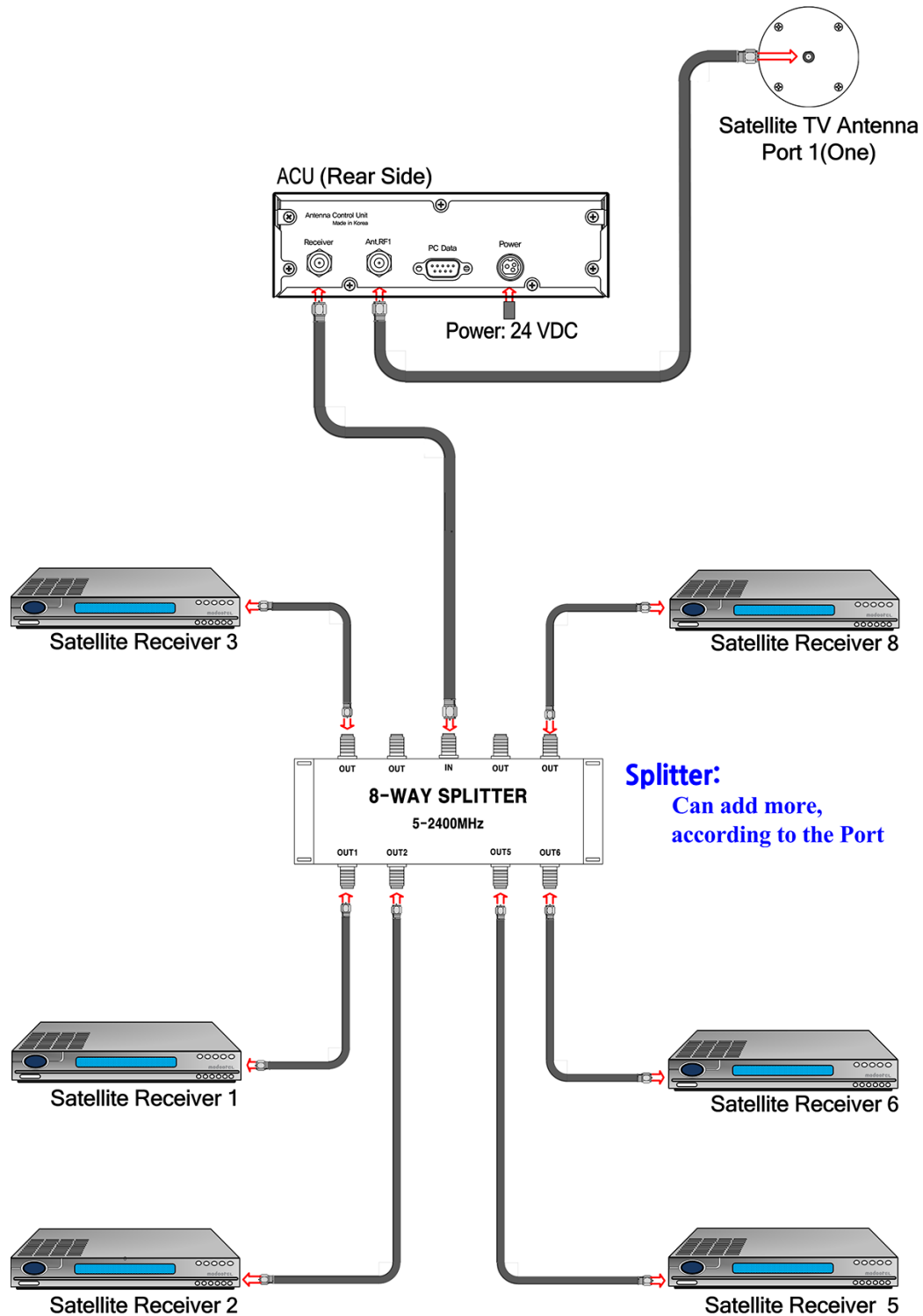
II.5.1 Basic 1 Port Antenna



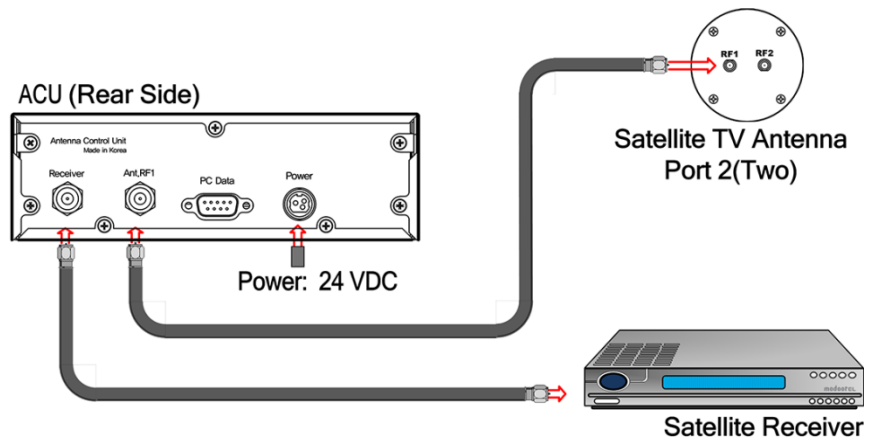
> Using Splitter 1



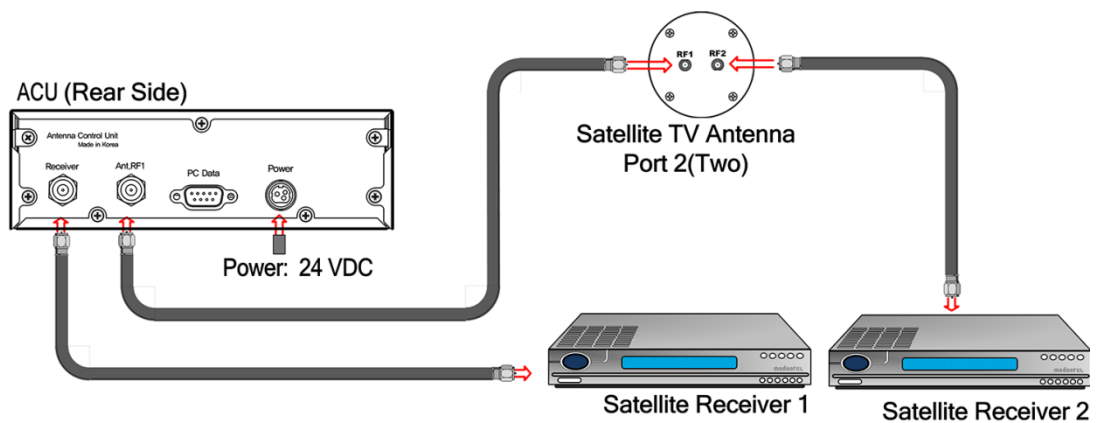
> Using Splitter 2



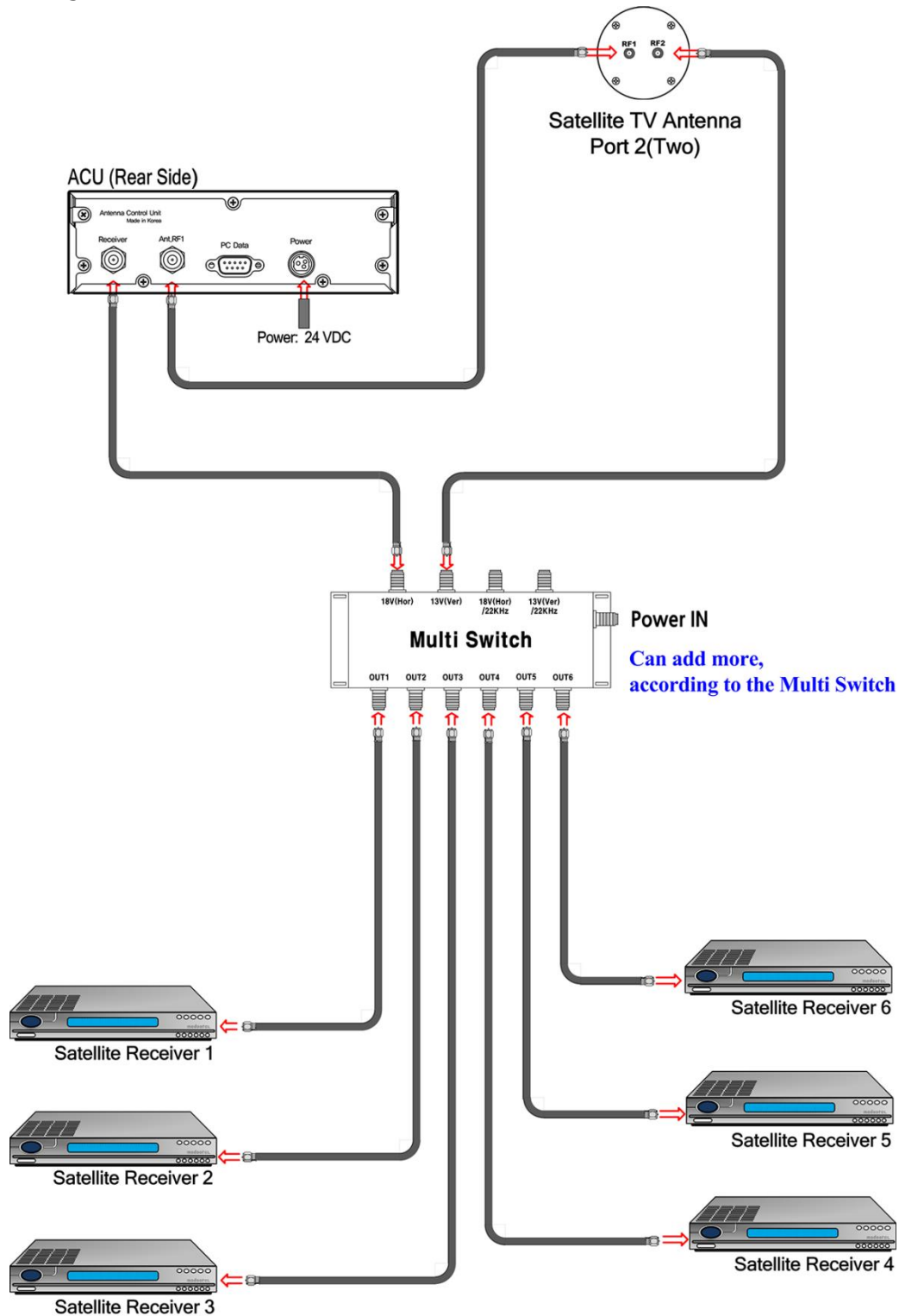
II.5.2 2 Port Antenna



> 2 Port Antenna + 2(Two) Satellite Receiver

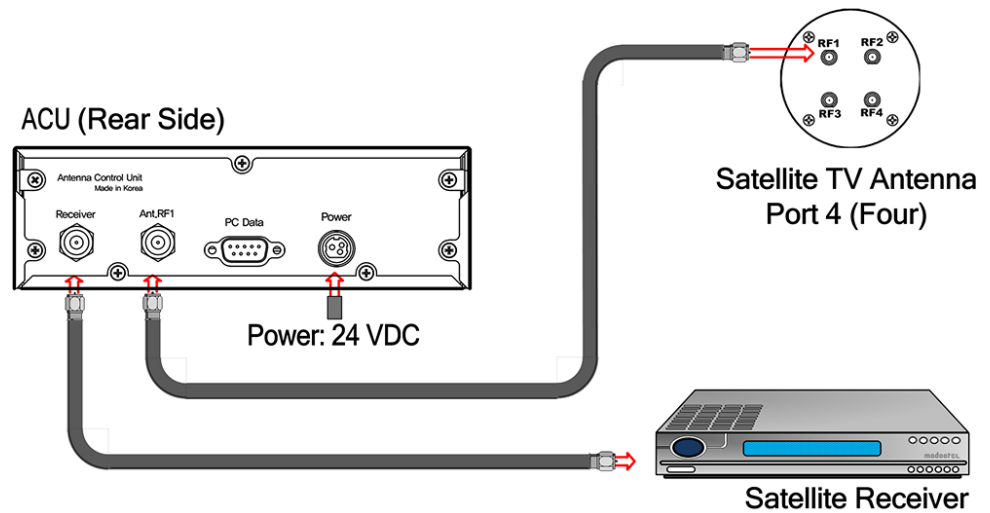


> Using Multi Switch Unit

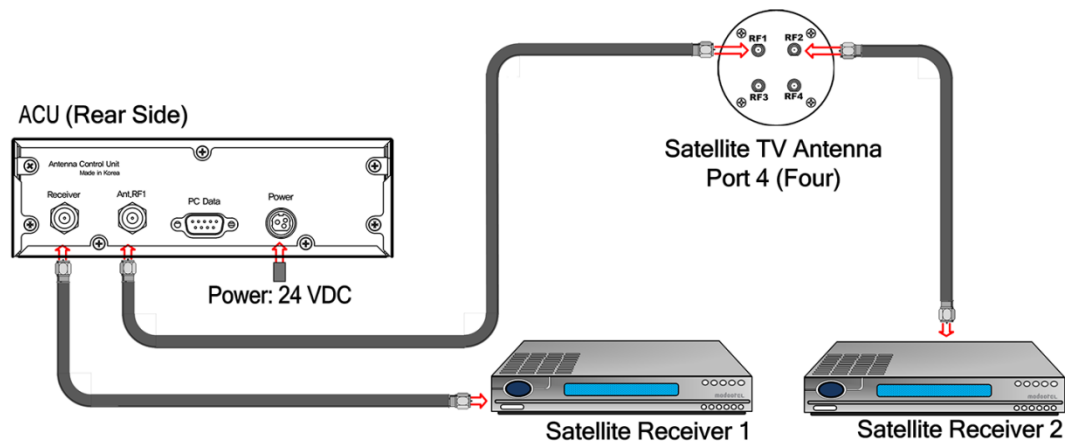


To connect multi Satellite receivers to the antenna unit, you will need to be supplied a multi-switch suitable and it should be installed as above.

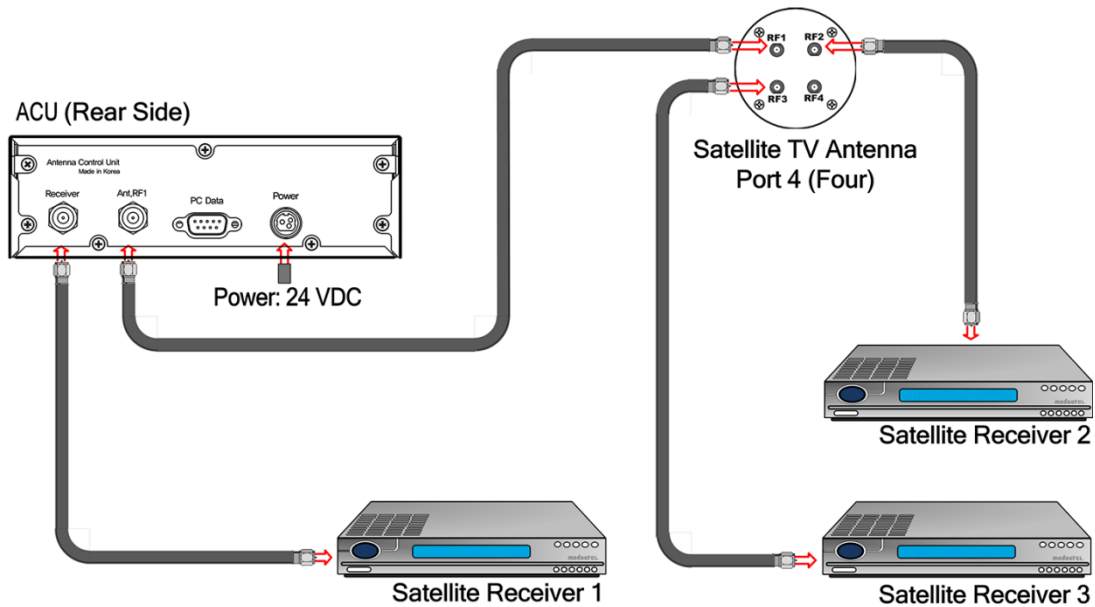
II.5.3 4 Port Antenna



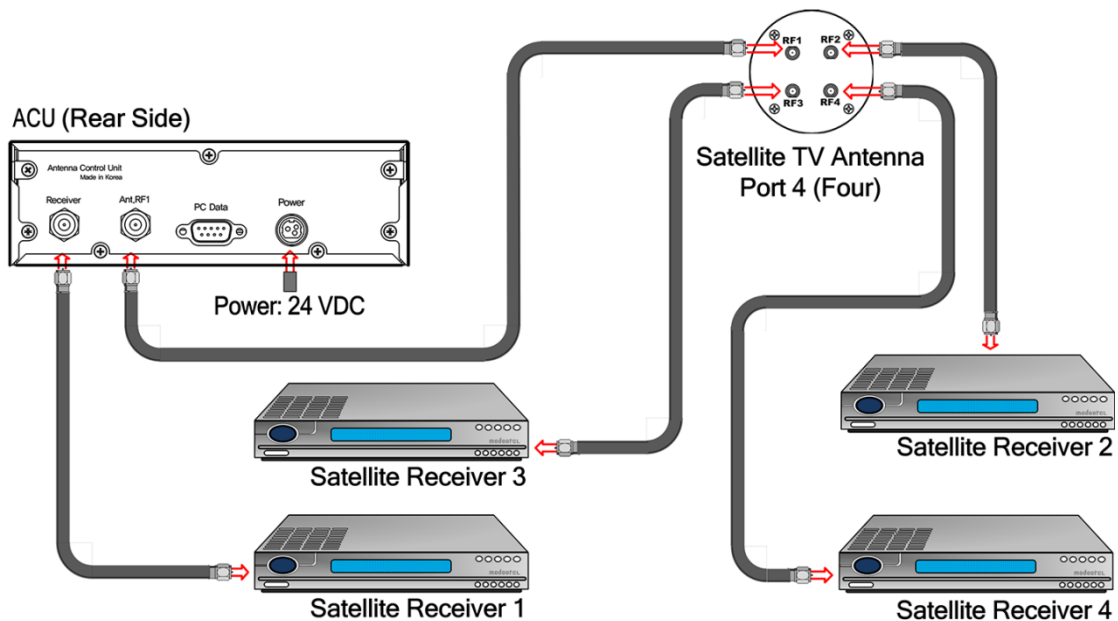
> 4Port Antenna + 2(Two) Satellite Receiver



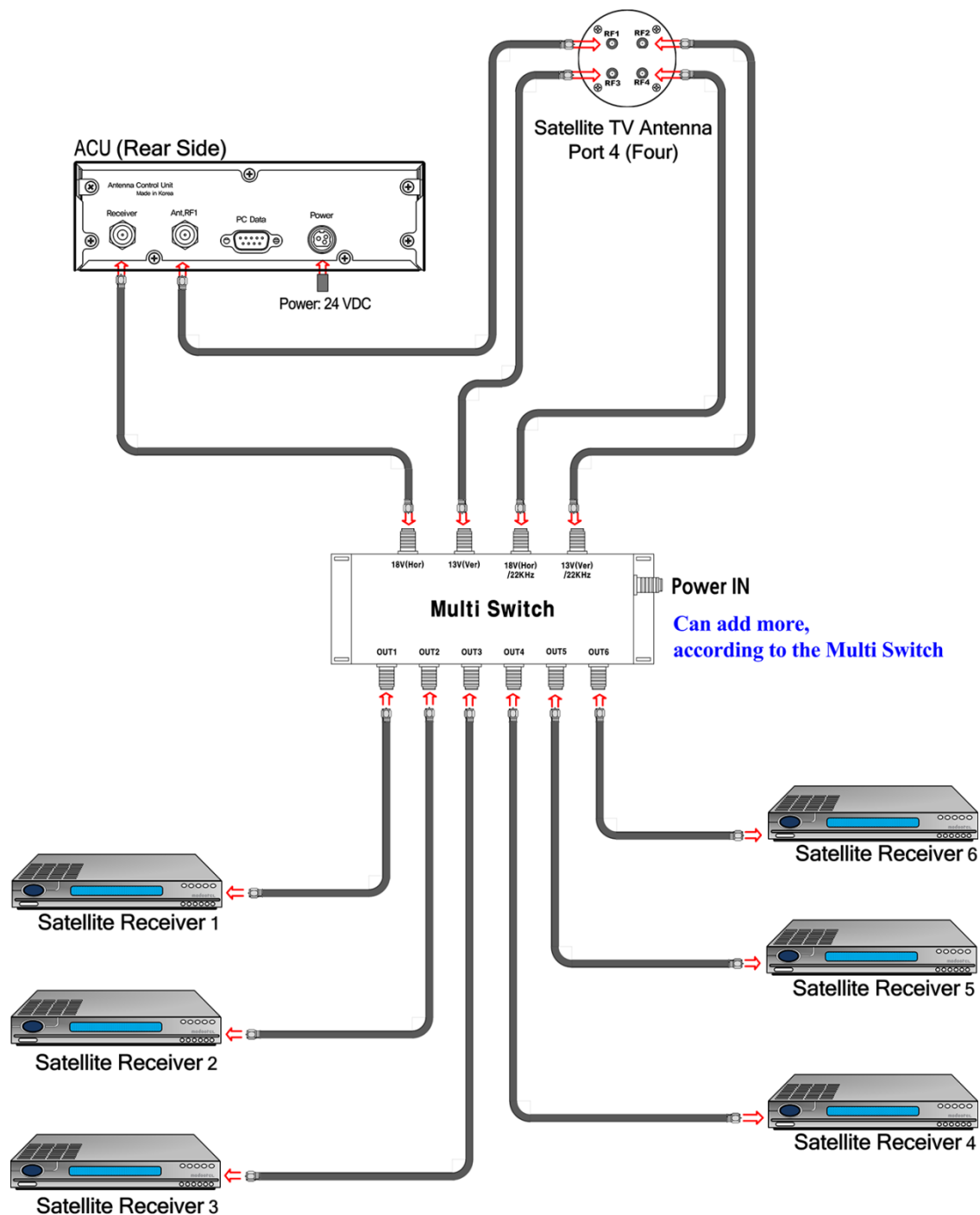
> 4 Port Antenna + 3(Three) Satellite Receiver



> 4 Port Antenna + 4(Four) Satellite Receiver

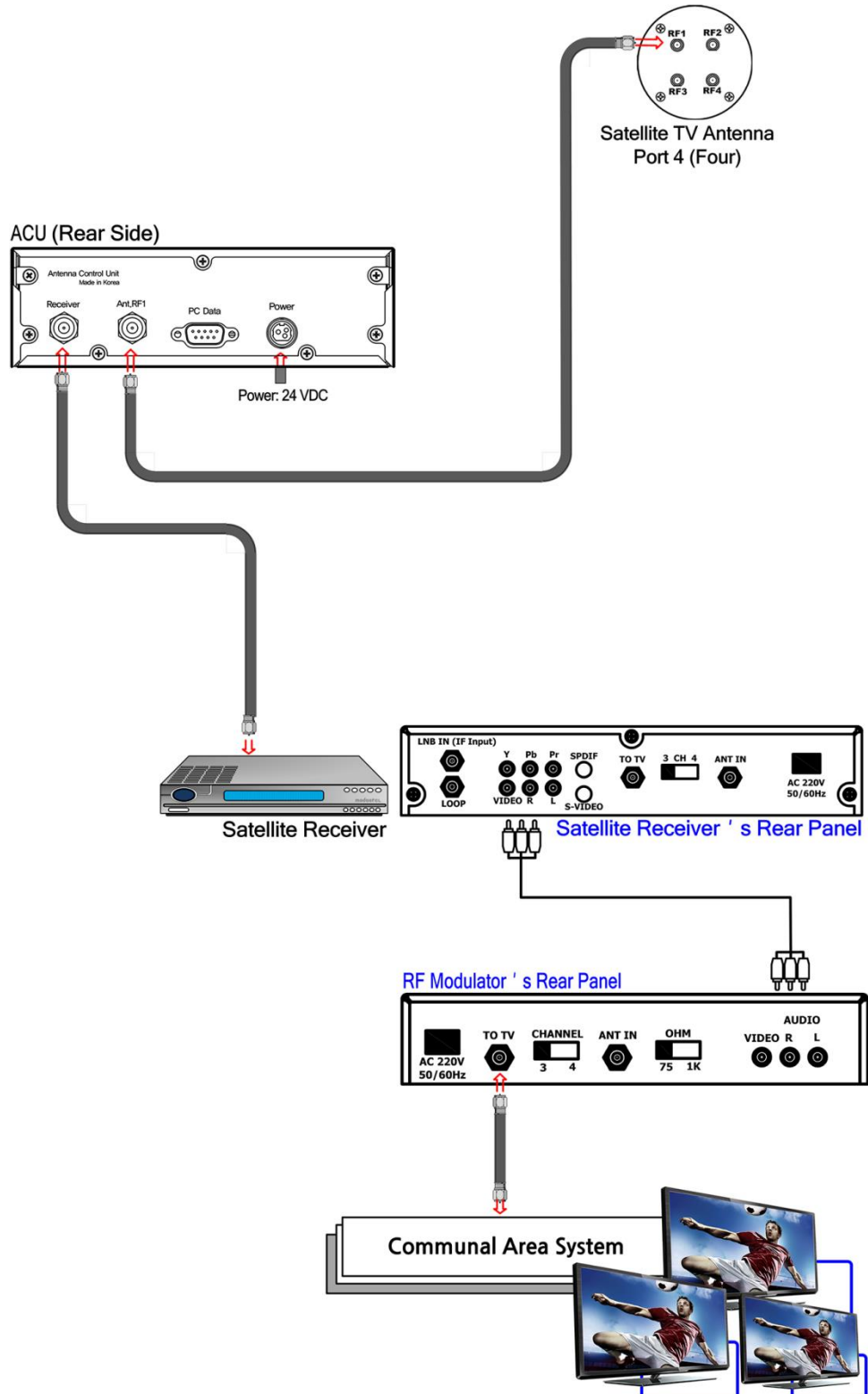


> Using Multi Switch Unit



To connect multi Satellite receivers to the antenna unit, you will need to be supplied a multi-switch suitable and it should be installed as above.

> Using RF Modulator:



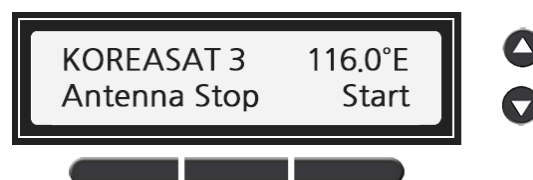
II.6 Antenna Stop

The antenna tries to search the satellite continuously when antenna is out of coverage or prevented any abstracts.

The antenna rotates to search the satellite signal into angle of azimuth by movement of elevation for regular times. The antenna is stopped to search the satellite, if satellite is not locked after regular times.

“Antenna Stop” will be displayed on the screen of ACU.

The antenna will start to search the satellite again, if you press “Start” button on ACU. If not press “Start” button, the antenna will start to search the satellite automatically after 10mins.



The antenna will repeat to search the satellite continuously, if satellite is not locked. The antenna will track the target satellite, if satellite is locked.

CAUTION:

Do make “Antenna Stop”, if antenna cannot search the satellite continuously, or you may damage the antenna motors or system.

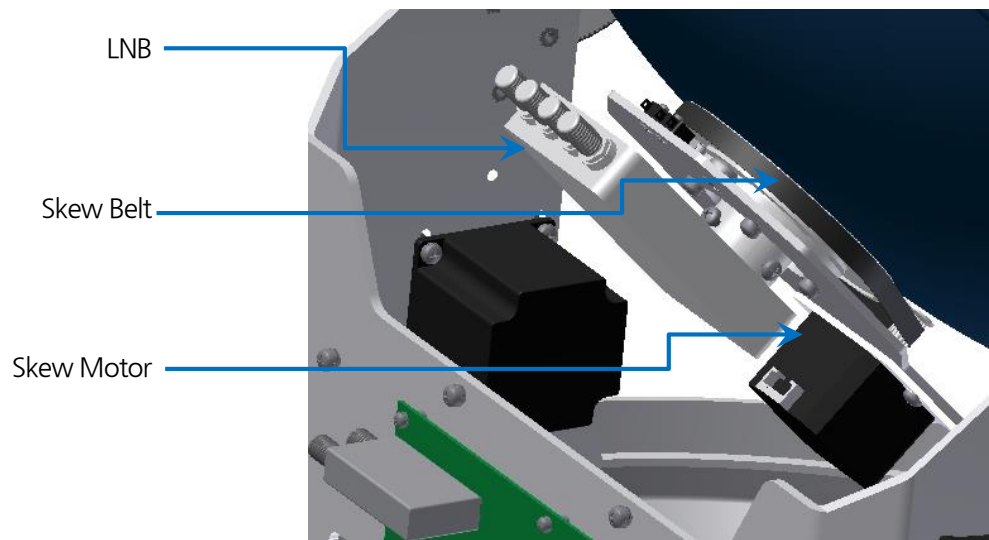
Please check it whether antenna is out of coverage or prevented any obstructs.

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III. Auto Skew

Auto Skew LNB adjusts automatically the antenna's skew to calculate of target satellite and GPS location when the satellite in linear polarized and is changed the region.

It is not required to adjust manually the LNB skew angle.



Auto Skew and LNB

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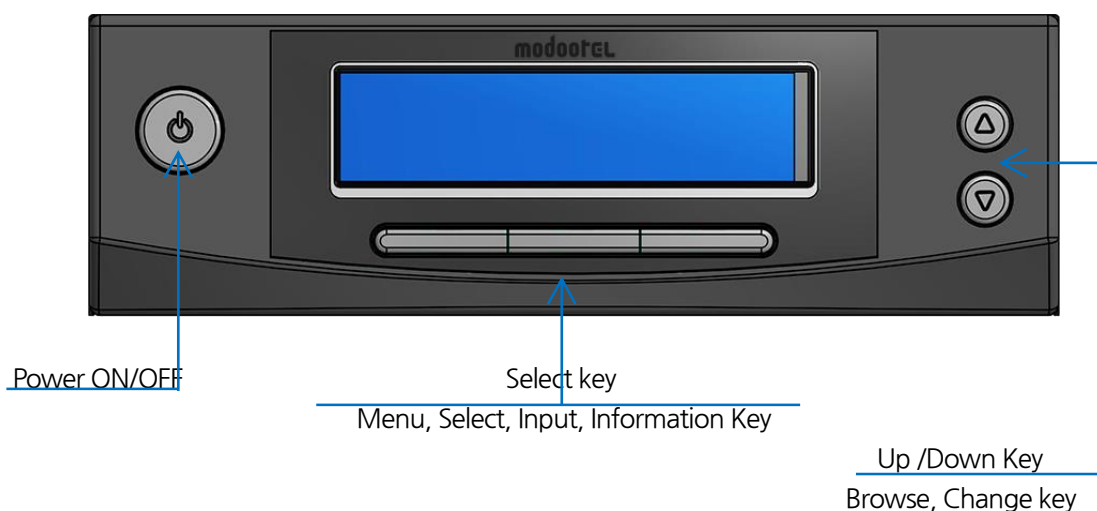
IV. User Guide for ACU

IV.1 ACU (Antenna Control Unit)

The ACU control the operation of the SAMYUNG marine satellite TV antenna.
It has the following functions;

- > Provide power to the antenna system
- > Monitoring the status of the antenna
- > Setting and changing the target satellite
- > Edit the satellite information
- > Setting the GPS

> ACU Operation Keys



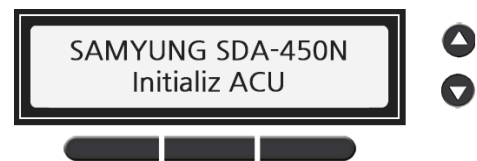
IV.2 Start of the ACU

Antenna will start to search the satellite after all system is installed and power them on.

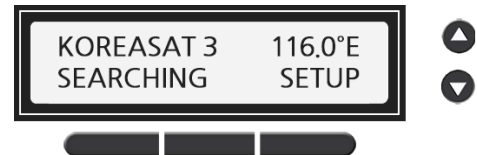
1. The ACU is initialized with power on.



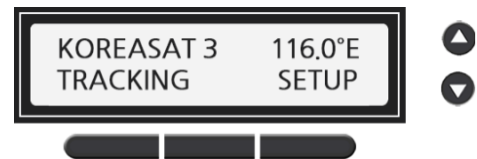
2. The antenna is initialized.



3. The antenna is searching the satellite.



4. The antenna is tracking the satellite.



> ACU Display



- ① Current Target satellite Name
- ② Current satellite longitude
- ③ Current antenna status
- ④ To enter SETUP mode

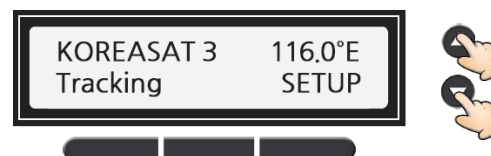
> Antenna Status on ACU Display

1	SEARCHING	Antenna is searching the target satellite.
2	TRACKING	Antenna is tracking the target satellite.
3	Antenna Stop	Antenna is stopped the operation.
4	Antenna Break	Antenna stopped operating on tracking. Antenna will search the satellite again after a holding time.

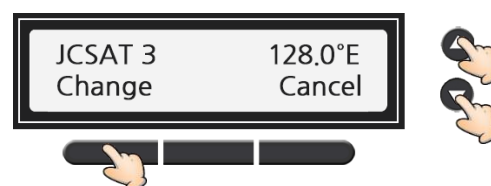
IV.3 Change of the Target Satellite - Simple mode

You can change the target satellite on ACU.

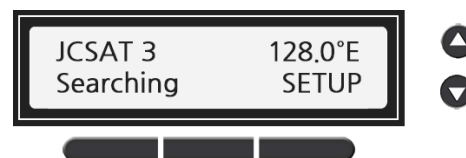
1. Press UP and DOWN buttons to change the target satellite.



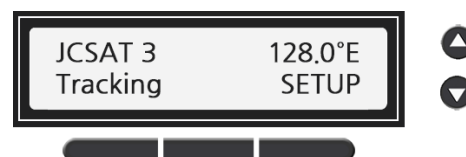
2. Press LEFT button to select the target satellite.



3. The antenna is searching the target satellite.



4. The antenna is tracking the target satellite.



IV.4 Current Antenna Status

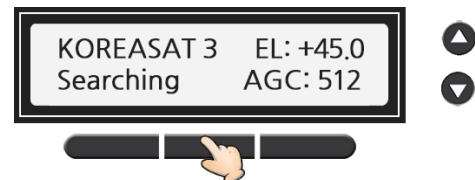
You can see the antenna position, GPS information, and Skew angle of the antenna on ACU.

IV.4.1 Current Antenna Status on Searching Mode

1. Press Center button to see the current antenna status.



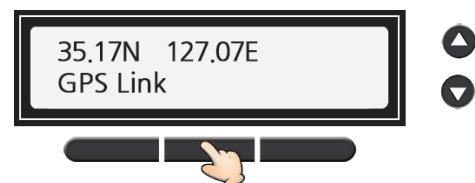
2. The target satellite, antenna angle, status, and signal (AGC) is displayed on ACU.



Note:

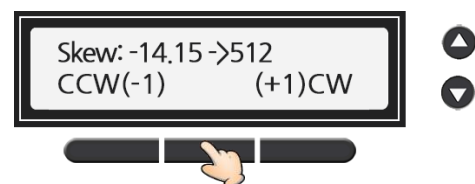
The antenna may not track the target satellite, if satellite signal strength (AGC) is under 650, because AGC is too weak for tracking. But AGC will be a little different depending on the antenna.

3. The GPS information is displayed.
 - > **GPS Link:** Current acquired GPS information
 - > **GPS Link Not:** Entered GPS information



4. The Skew angle and satellite signal strength is displayed.

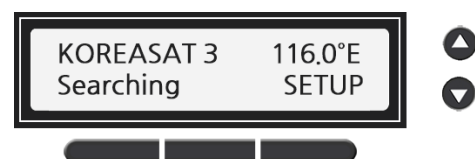
- > **CCW:** Skew angle up +1
- > **CW:** Skew angle down -1



Note:

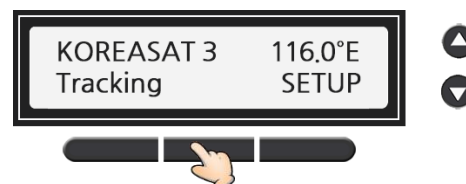
The Skew angle is only applied to Auto Skew

5. The main screen is displayed.

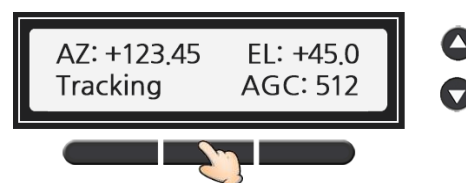


IV.4.2 Current Antenna Status on Tracking Mode

1. Press Center button on tracking mode.



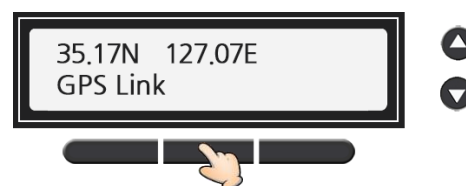
2. The azimuth, elevation, angle, status of the antenna and signal (AGC) is displayed on ACU.



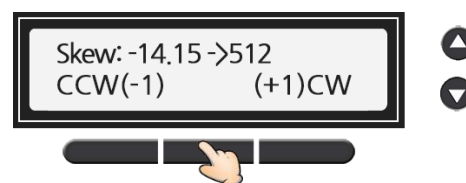
Note:

The antenna may not track the target satellite, if satellite signal strength (AGC) is under 650, because AGC is too weak for tracking. But AGC will be a little different depending on the antenna.

3. GPS information is displayed.
 - > **GPS Link:** Current acquired GPS information
 - > **GPS Link Not:** Entered GPS information



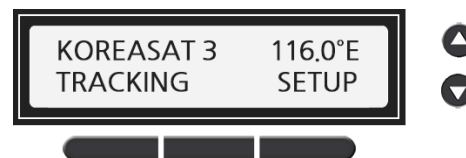
4. The Skew angle and satellite signal strength is displayed.
 - > **CCW:** Skew angle up +1
 - > **CW:** Skew angle up -1



Note:

The Skew angle is only applied to Auto Skew

5. The main screen is displayed.



IV.4.3 Antenna Error Information

> Antenna Communication Error:

Please check the antenna cable between ACU and antenna.



> Antenna Initialization Error:

Please check the photo sensor of the antenna.



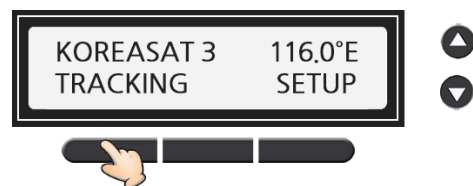
Please check the LNB cable connection of the antenna.



IV.4.4 Antenna Stop

You can make to stop the operation of the antenna.

1. Press LEFT button on ACU.



2. Press YES button to stop the antenna.



3. The antenna will be stopped.
Press Start button to start the operation of the antenna.

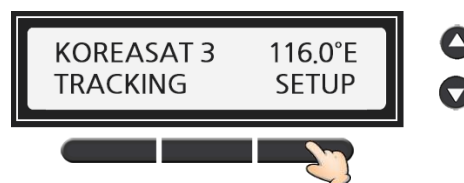


IV.5 SET UP Mode

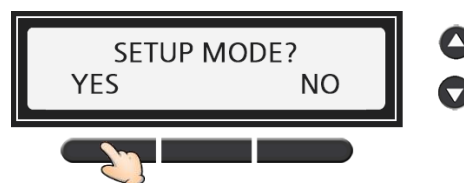
You can change the target satellite, LNB information, Satellite information, GPS information, and region information on setup mode.

Please refer to the instruction below to enter on setup mode.

1. Press SETUP to enter on setup mode.

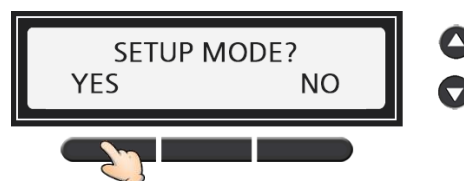


2. Press YES button on ACU.



IV.5.1 Changing of the Target Satellite

1. Press YES button on ACU.



2. Press SELECT button to enter the target satellite.



3. Press SELECT button for the target satellite.



4. Press YES button to change the target satellite.
Press NO button to cancel and return to main setup mode.



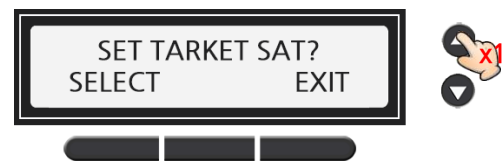
IV.5.2 Edit of the Satellite Information

You can edit the satellite information saved on ACU

1. Press YES button to enter to setup mode.



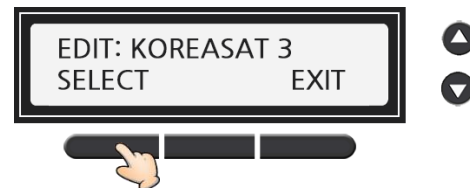
2. Press  button one time.



3. Press SELECT button to edit the satellite information.

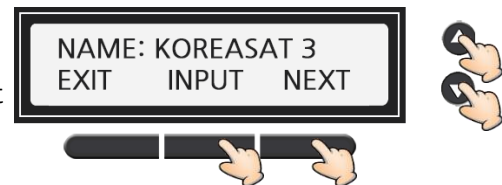


4. Press SELECT button on the satellite information which you want to edit.



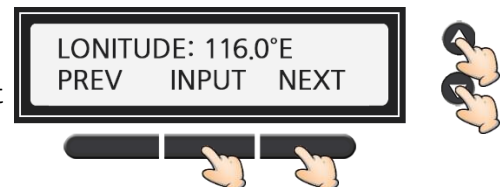
5. To edit the satellite name.

  : To input increase / decrease of letter and digit
EXIT : Return to previous screen
NEXT : Go to next screen



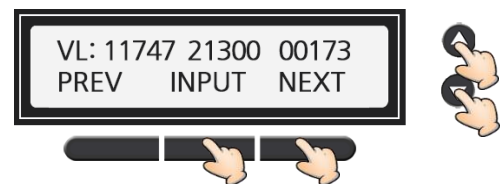
6. To edit the satellite angle.

  : To input increase / decrease of letter and digit
PREV : Return to previous screen
INPUT : Move to next digit/ NEXT : Go to next screen



7. To edit the Vertical low band frequency, symbol, and NID

  : To input increase / decrease of digit
PREV : Return to previous screen
INPUT : Move to next digit/ NEXT : Go to next screen



8. To edit the Vertical High Band frequency, symbol, and NID



To input increase and decrease of digit

PREV : Return to previous screen

INPUT : Move to next digit/ NEXT : Go to next screen

VH: 11747 21300 00173

PREV INPUT NEXT



9. To edit the Horizontal Low Band frequency, symbol, and NID

HL: 11747 21300 00173

PREV INPUT NEXT



10. To edit the Horizontal High Band frequency, symbol, and NID

HH: 11747 21300 00173

PREV INPUT NEXT



11. To verify the satellite signal

	Freq	Symbol	NID
AGC LEVEL	O	X	X
DVB LOCK	O	O	X
DVB DECODE	O	O	O
DSS DECODE	O	O	O

VERIFY: DVB DECODE

PREV NEXT



12. To edit the LNB power supplying method

- > **AUTO:** Auto changing by the setting of receiver
- > **Only 13V:** Always 13V
- > **Only 18V:** Always 18V

VOLTAGE: AUTO

PREV NEXT



13. To modify LNB DISEqC using method

- > **AUTO:** Auto changing by the setting of receiver
- > **Only 0kHz:** Always 0kHz
- > **Only 22kHz:** Always 22kHz

DISEqC: AUTO

PREV SAVE



14. Press YES button to save.

Press NO button to cancel and return to previous screen.

SAVE?

YES NO

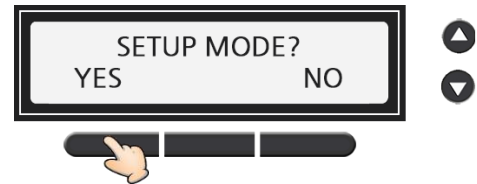


IV.5.3 Setup Local Frequency

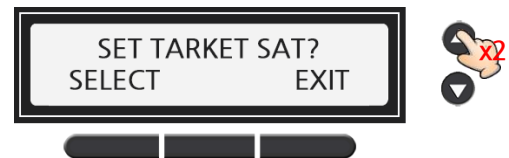
You can setup the LNB type and local frequency of the antenna.

> Universal LNB

1. Press YES button to enter to setup mode.



2. Press  two times.



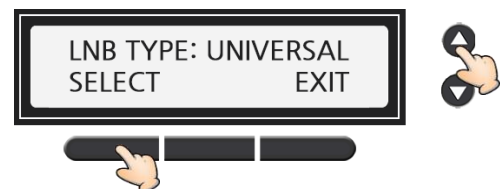
3. Press SELECT button to select the local frequency.



4. Press SELECT button to select LNB type.

 : Universal LNB

 : Single LNB



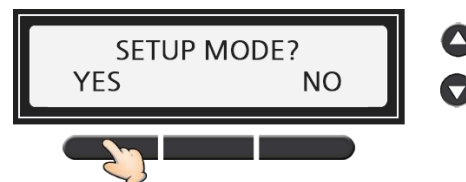
5. Press YES button to save.

Press NO button to cancel and return to previous screen.

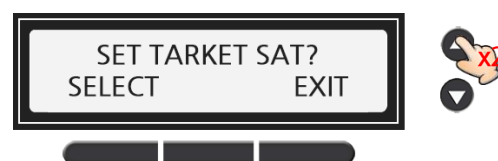


> Single LNB

1. Press YES button to enter to setup mode.



2. Press  two times.

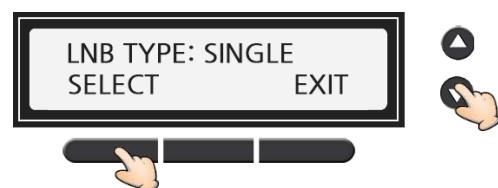


3. Press SELECT button to select the local frequency.



4. Press SELECT button to select LNB type.

-  : Universal LNB
-  : Single LNB

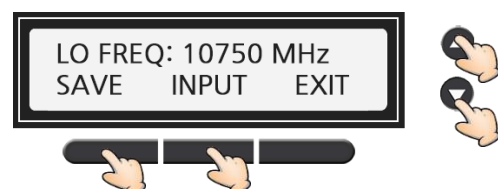


5. Please input the local frequency.

-  : increase of digit /  : decrease of digit

SAVE: To save the local frequency

INPUT: To move cursor / EXIT: Move to previous screen



6. Press YES button to save.

Press NO button to cancel and return to previous screen.



> LNB Type:

> SINGLE Band : 9000 ~ 12000MHz

> UNIVERSAL :

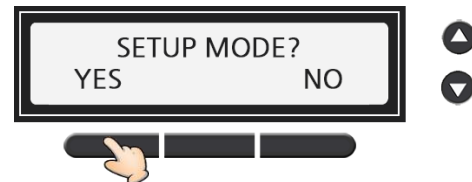
LOW band Local frequency - 9750MHz

HIGH band Local frequency - 10600MHz

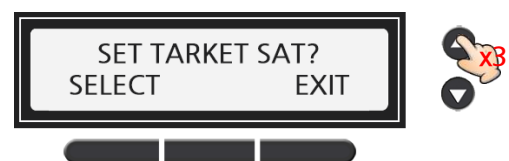
IV.5.4 Setting of DISEqC

You can set the DISEqC using method.

1. Press YES button to enter to setup mode.



2. Press  three times.



3. Press SELECT button on USE DISEqc.



4. Press SELECT button DISEqC using method.



5. Press YES button to save.

Press NO button to cancel and return to previous screen.



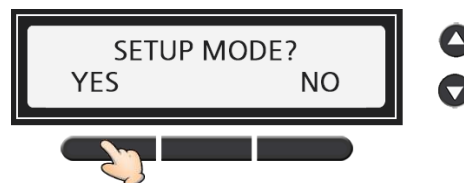
> DISEqC using method::

- > NOT USE : DISEqC is not used.
- > CHANGE BAND : DISEqC is used to change High Band and Low Band.
- > CHANGE SAT : DISEqC is used to change the target satellite.

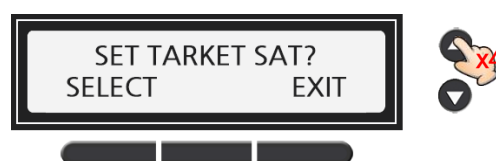
IV.5.5 Setting of DISEqC 1.2

You can set the DISEqC 1,2 using method.

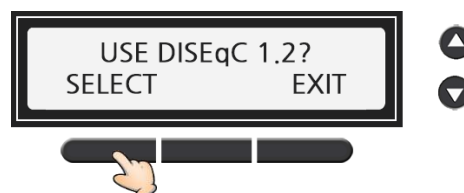
1. Press YES button to enter to setup mode.



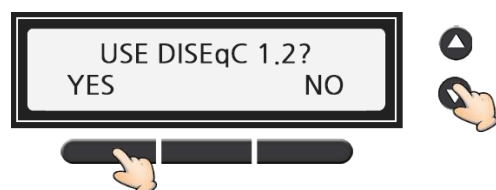
2. Press  four times.



3. Press SELECT button on USE DISEqC 1.2.



4. Press YES button to use DISEqC 1.2 method.



5. Press YES button to save.

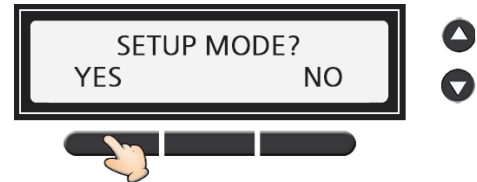
Press NO button to cancel and return to previous screen.



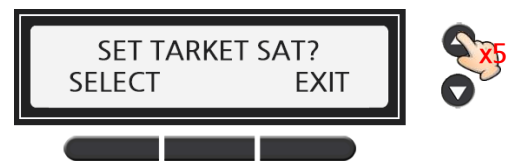
IV.5.6 Setting of GPS

You can set the current GPS information.

1. Press YES button to enter to setup mode.



2. Press  five times.



3. Press SELECT button on SET GPS.

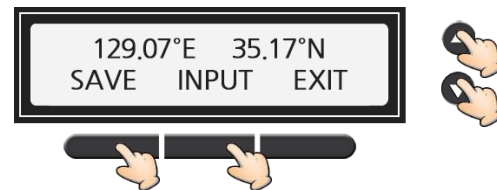


4. Change the GPS information.
 increase of digit  decrease of digit

SAVE : To save the GPS information

INPUT : To move cursor

EXIT : Move to previous screen without save



5. Press YES button to save.

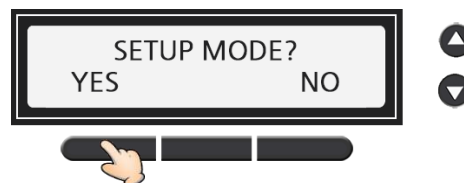
Press NO button to cancel and return to previous screen.



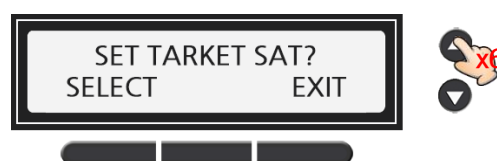
IV.5.7 Setting of Antenna Parameter

You can set the antenna parameter value, but we do not recommend that a beginner sets it.

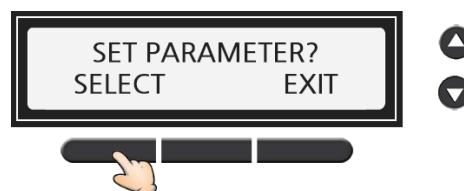
1. Press YES button to enter to setup mode.



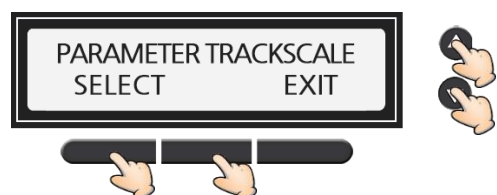
2. Press  six times.



3. Press SELECT button on SET PARAMETER.



4. Please SELECT button on PARAMETER TRACK SACLE.



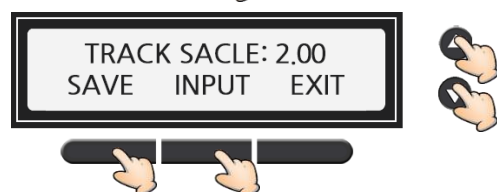
5. Input the PARAMETER value.

 : increase of digit  : decrease of digit

SAVE : To save the GPS information

INPUT : To move cursor

EXIT : Move to previous screen without save



5. Press YES button to save.

Press NO button to cancel and return to previous screen.



> To Setup of Antenna Parameter:

> TRACK SCALE

It is to control the tracking speed on tracking the satellite.

SCALE UP- Increase of tracking speed / SCALE DOWN- Decrease of tracking speed.

> DETECT LEVEL

It is satellite signal detective level on searching the satellite.

> TRACKING LEVEL

It is satellite signal tracking level on searching the satellite.

> EL ADJUST

It is to adjust the limit value of Antenna Elevation.

> Skew ADJUST

It is to adjust the limit value of Antenna Skew.

> RE-SEARCH

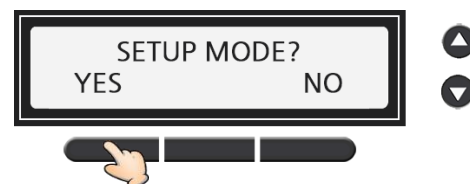
It is a time to track the satellite again when lost to track the satellite.

> BREAK TIME

It is a time until starting to search the satellite again.

IV.5.8 Moving of Antenna Position

1. Press YES button to enter to setup mode.



2. Press  seven times.

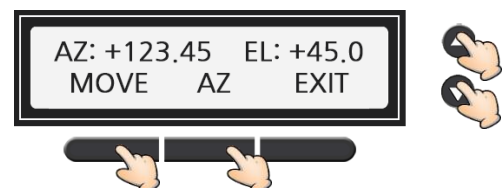


3. Press SELECT button on ANT GO POSITION.



4. Move the antenna position.

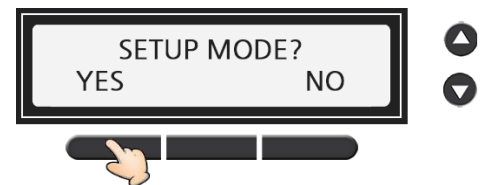
 : increase of digit  : decrease of digit
MOVE : To move the input position
EXIT : To return to previous screen with save



IV.5.9 Moving Manually of Antenna Position

You can move manually the antenna of the Azimuth and Elevation from current position

1. Press YES button to enter to setup mode.



2. Press  eight times.



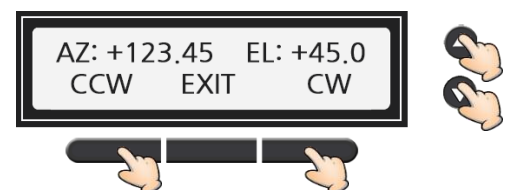
3. Press SELECT button on ANT MOVE STEP.



4. Move the antenna position by 1 degree.

  To increase and decrease of Elevation

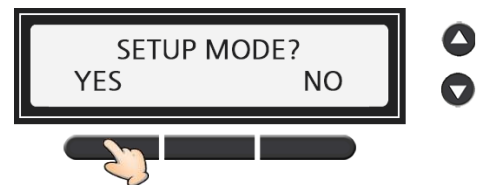
CCW, CW : To increase and decrease of Azimuth



IV.6 Antenna Diagnosis

You can check what problem antenna is on ACU.

1. Press YES button to enter to setup mode.



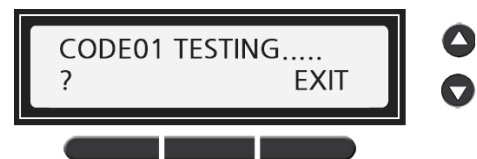
2. Press  nice times.



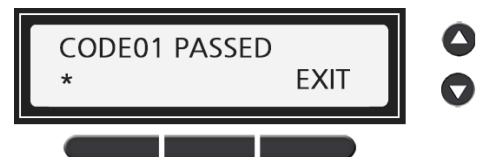
3. Press SELECT button on ANTENNA DIAGNOSIS.



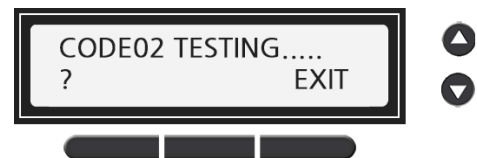
4. Antenna is testing CODE 01.



5. Antenna is passed CODE 01.



6. Antenna is testing CODE 02.

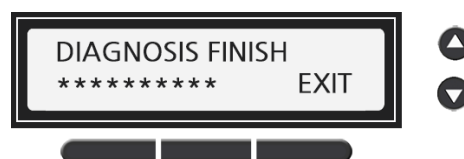


~ You can test it to CODE 10.

7. Antenna is passed CODE 10.



8. Diagnosis result will be displayed on AUC.



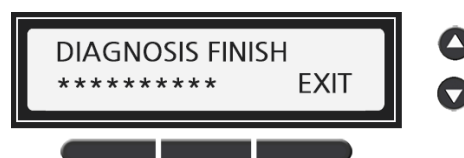
> Diagnosis Result

The diagnosis result is displayed by * and digit.

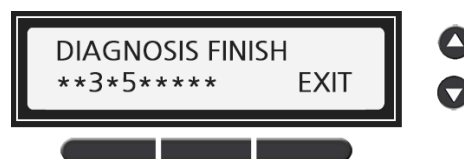
*: Antenna is working well without any problem.

Digit: Antenna has some problem, and you need to contact with your distributor.

> *****: Work Well



> **3*5*****: Error of CODE03, CODE05



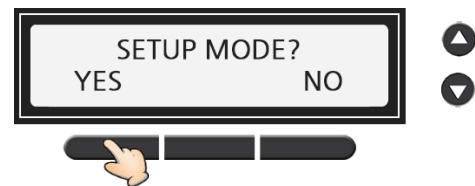
- > CODE 01: Check the communication between antenna and ACU.
- > CODE 02: Check the gyro sensor. (Model: ONLY SDA-390N)
Check the Sub Reflector. (Model: ONLY SDA-450N & SDAS-600N)
- > CODE 03: Check the LNB.
- > CODE 04: Check the Azimuth CW Limit Switch.
- > CODE 05: Check the Azimuth CCW Limit Switch.
- > CODE 06: Check the Elevation UP Limit Switch.
- > CODE 07: Check the Skew Limit Switch (ONLY Auto Skew Model)
- > CODE 08: Check the power supply of the antenna.
- > CODE 09: Check the power supply of the ACU
- > CODE 08: Check the connection of the receiver.

IV.7 Antenna Information

IV.7.1 Power Information

You can check the power information of the antenna.

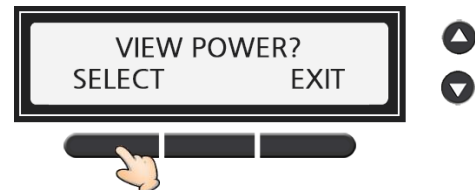
1. Press YES button to enter to setup mode.



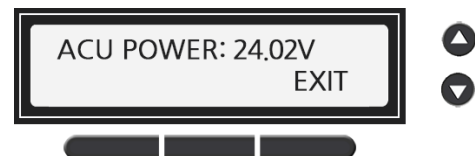
2. Press  ten times.



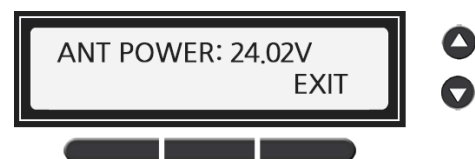
3. Press SELECT button on VIEW POWER.



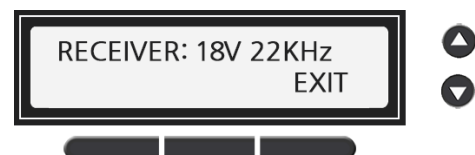
4. ACU power is displayed.
Power will be displayed automatically after 2 sec.



5. Antenna power is displayed.



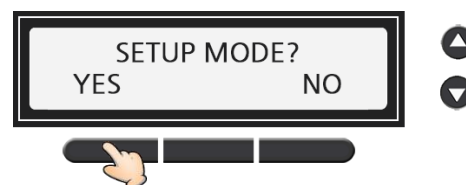
6. Receiver power is displayed.



IV.7.2 Antenna Software Version

You can check the software version of the antenna.

1. Press YES button to enter to setup mode.



2. Press  eleven times.



3. Press SELECT button on VIEW VERSION.

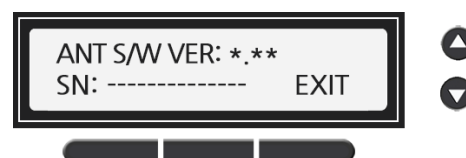


4. Antenna model and serial number is displayed.

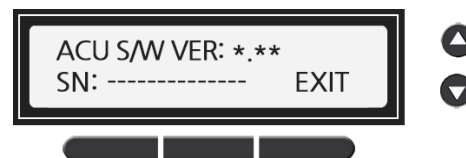
Software version will be displayed automatically every 2 sec.



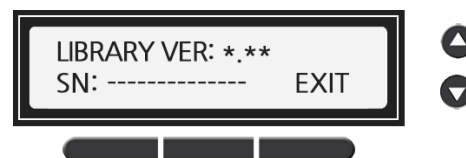
5. Antenna software version is display.



6. ACU software version is display.



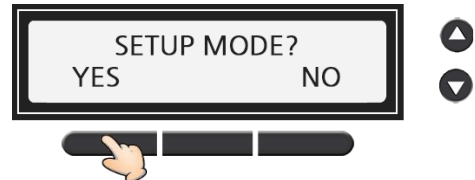
7. LIBRARY version is displayed.



IV.7.3 Loading of Region Information

You can check the region information of the antenna.

1. Press YES button to enter to setup mode.



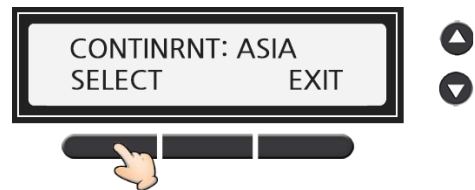
2. Press  twelve times.



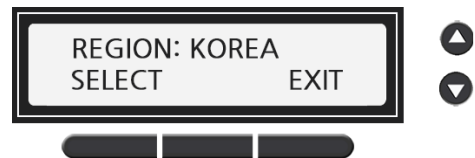
3. Press SELECT button on LOAD REGION INFO.



4. Press SELECT button to select the continent.



5. Press SELECT button to select the region.



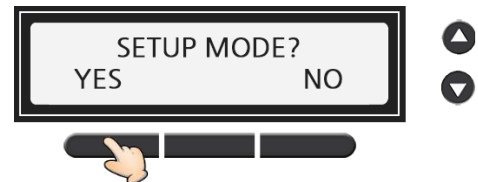
6. Antenna is initialized.



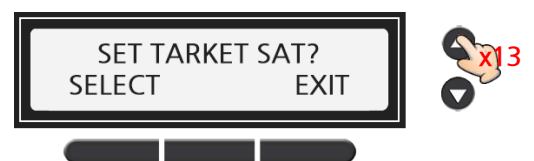
IV.7.4 Factory Setting of the Antenna

You can go back to the factory setting of the antenna.

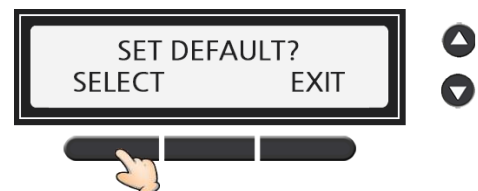
1. Press YES button to enter to setup mode.



2. Press  thirteen times.



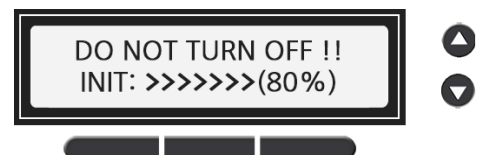
3. Press SELECT button on SET DEFAULT.



4. Press YES button to go the factory set up.



5. Antenna is starting the initialization.



6. Antenna is restarted.

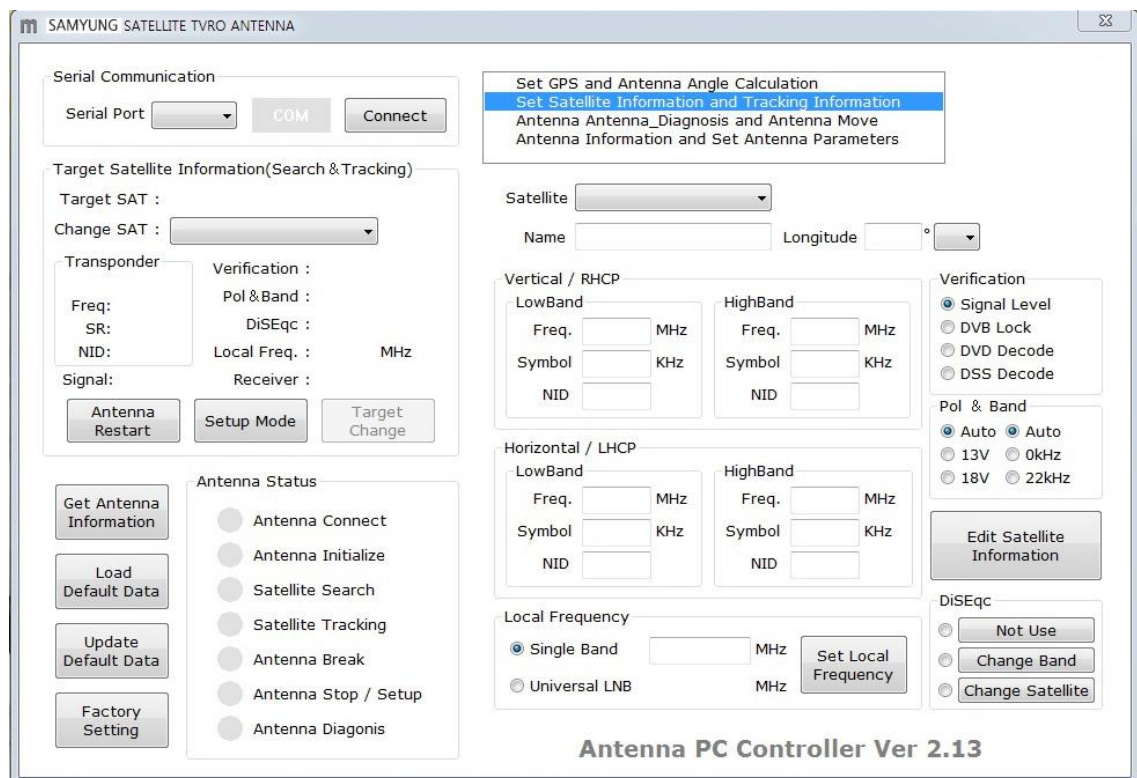


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V. Operation of PC Program

V.1 Start PC Program

Start **m** Satellite TVRO Antenna.exe Program.



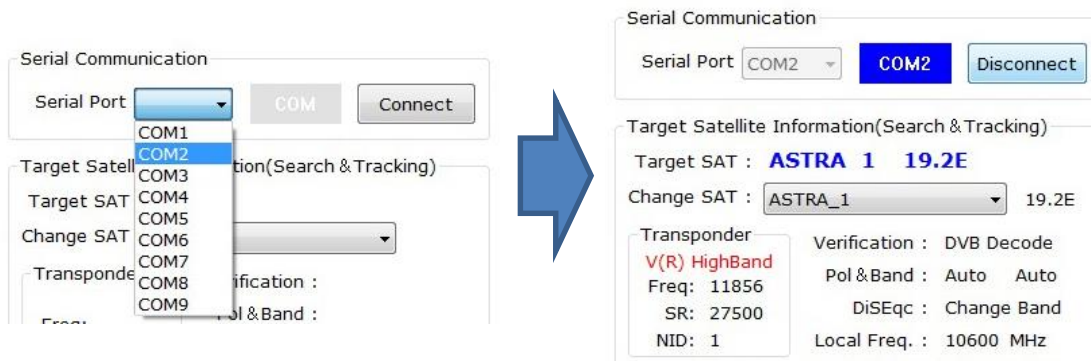
The screenshot shows the SAMYUNG SATELLITE TVRO ANTENNA PC Controller Ver 2.13 software interface. The window is titled "SAMYUNG SATELLITE TVRO ANTENNA" and contains several sections for configuring the antenna system.

- Serial Communication:** Includes a "Serial Port" dropdown menu, a "COM" button, and a "Connect" button.
- Target Satellite Information (Search & Tracking):**
 - Target SAT : [Dropdown]
 - Change SAT : [Dropdown]
 - Transponder: Freq, SR, NID, Signal
 - Verification: Pol & Band, DiSEqc, Local Freq, Receiver
 - Buttons: Antenna Restart, Setup Mode, Target Change
- Antenna Status:** A list of status indicators with radio buttons:
 - Antenna Connect
 - Antenna Initialize
 - Satellite Search
 - Satellite Tracking
 - Antenna Break
 - Antenna Stop / Setup
 - Antenna Diagonis
- Set GPS and Antenna Angle Calculation:** A menu item that is currently selected.
- Satellite Information:**
 - Satellite: [Dropdown]
 - Name: [Text Field]
 - Longitude: [Text Field]
- Vertical / RHCP:**
 - LowBand: Freq, Symbol, NID
 - HighBand: Freq, Symbol, NID
- Horizontal / LHCP:**
 - LowBand: Freq, Symbol, NID
 - HighBand: Freq, Symbol, NID
- Local Frequency:**
 - Single Band: [Text Field] MHz
 - Universal LNB: [Text Field] MHz
 - Buttons: Set Local Frequency
- Verification:**
 - Signal Level (Selected)
 - DVB Lock
 - DVD Decode
 - DSS Decode
- Pol & Band:**
 - Auto (Selected)
 - 13V
 - 18V
 - 0kHz
 - 22kHz
- Buttons:**
 - Get Antenna Information
 - Load Default Data
 - Update Default Data
 - Factory Setting
 - Edit Satellite Information
 - Change Band
 - Change Satellite

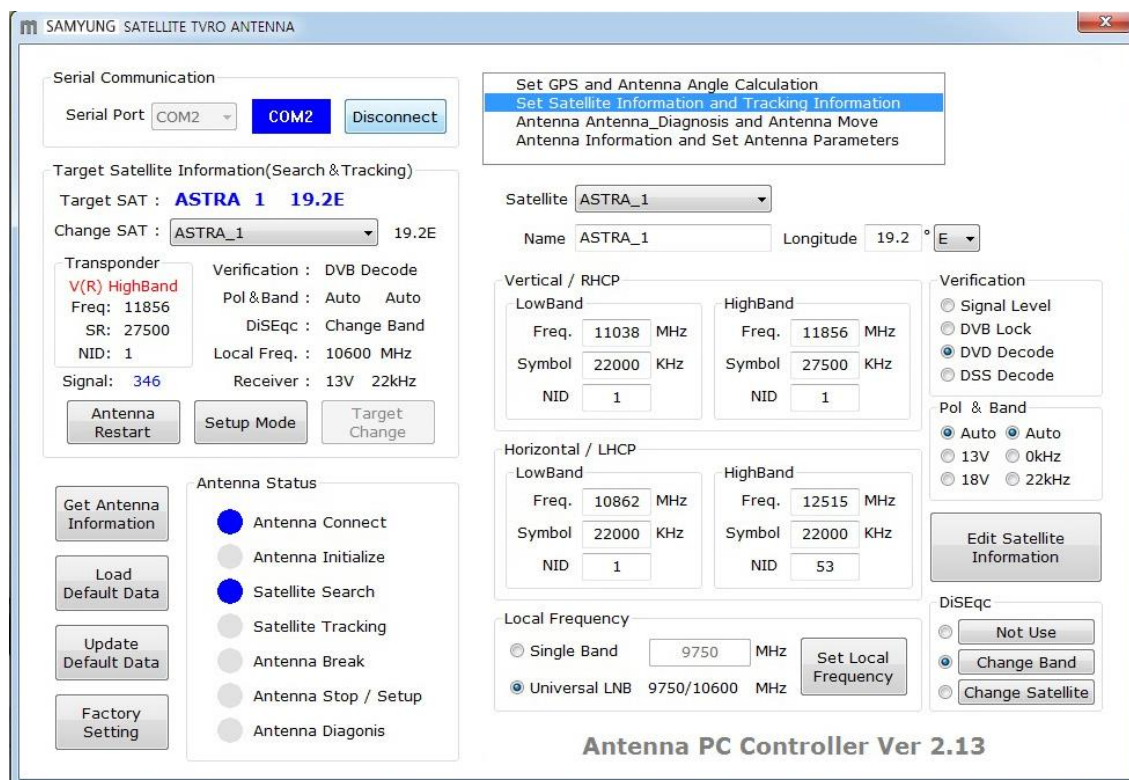
Antenna PC Controller Ver 2.13

V.2 Setup of Serial Port

Press 'Connect' button after connecting PC and ACU serial cables and selecting serial port(COM)



Satellite and Tracking information of ACU is displayed with connecting serial port



V.3 Display

V.3.1 Target Satellite Information

Antenna is searching and tracking for the selected satellite.

Target Satellite Information(Search & Tracking)

① Target SAT : **ASTRA 1 19.2E**

② Change SAT : **ASTRA_1** 19.2E

③ Transponder
V(R) HighBand
Freq: 11856
SR: 27500
NID: 1

④ Verification : DVB Decode
⑤ Pol & Band : Auto Auto
⑥ DiSEqC : Change Band
⑦ Local Freq. : 10600 MHz

⑨ Signal: **346**
⑧ Receiver : 13V 22kHz

⑩ Antenna Restart

⑪ Setup Mode

⑫ Target Change

- ① Target satellite
- ② Changing the target satellite
- ③ Satellite transponder
- ④ Satellite verification method
- ⑤ LNB power and DiSEqC supply method
- ⑥ Operation method of DiSEqC
- ⑦ Information of LNB local frequency
- ⑧ Information of Receiver output
- ⑨ Satellite signal level
- ⑩ Antenna restart mode
- ⑪ Setup mode
- ⑫ Target satellite changing

V.3.2 Function Buttons

Antenna information, Satellite information, Loading and updating of local satellite information, Factory setting

Get Antenna Information	1) Get Antenna Information: Displaying of current antenna satellite information
Load Default Data	2) Load Default Data: Loading of satellite information
Update Default Data	3) Update Default Data: Updating of satellite information on ACU
Factory Setting	4) Factory Setting: All antenna information of ACU is initialized when it was at the factory status.

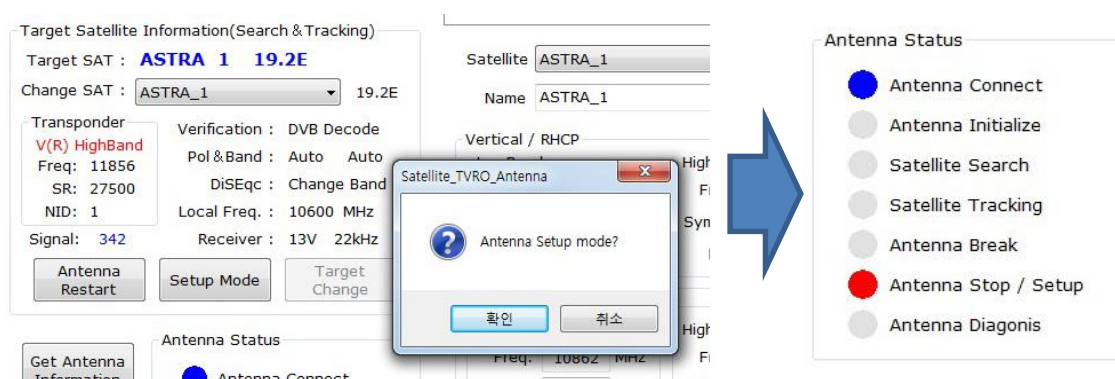
V.3.3 Display of Antenna Status

Antenna status is displayed.

Antenna Status	1). Antenna Connect
● Antenna Connect	●: Antenna connected
● Antenna Initialize	●: Antenna disconnected
● Satellite Search	2) Antenna Initialize: Antenna is initializing.
● Satellite Tracking	3) Satellite Search: Antenna is searching the target satellite.
● Antenna Break	4) Satellite Tracking: Antenna is tracking the target satellite.
● Antenna Stop / Setup	5) Antenna Break: Antenna is in break mode during searching of target satellite.
● Antenna Diagonis	6) Antenna Stop/Setup: Antenna is in stop and setup mode.
	7) Antenna Diagnosis: Antenna is diagnosing.

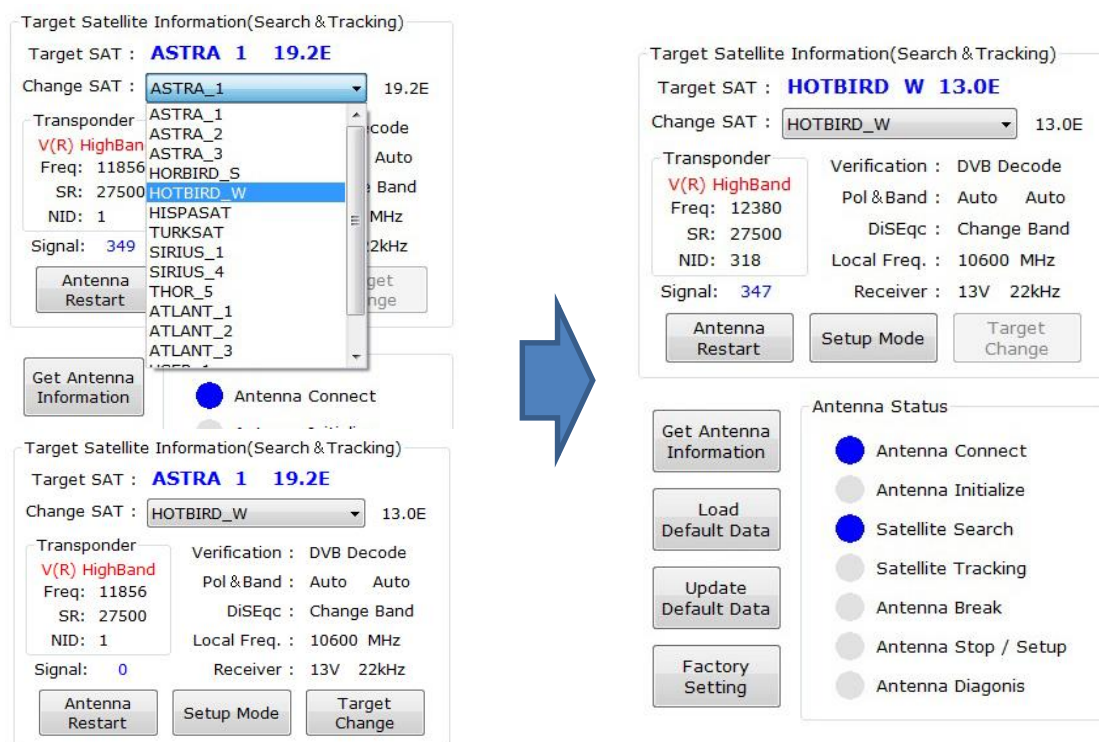
V.4 Setup Mode

1. Press 'Yes' button on Antenna Setup Mode.
2. You can change the satellite information of the antenna on Setup mode.
3. Check it whether antenna is on Antenna stops or Setup mode.



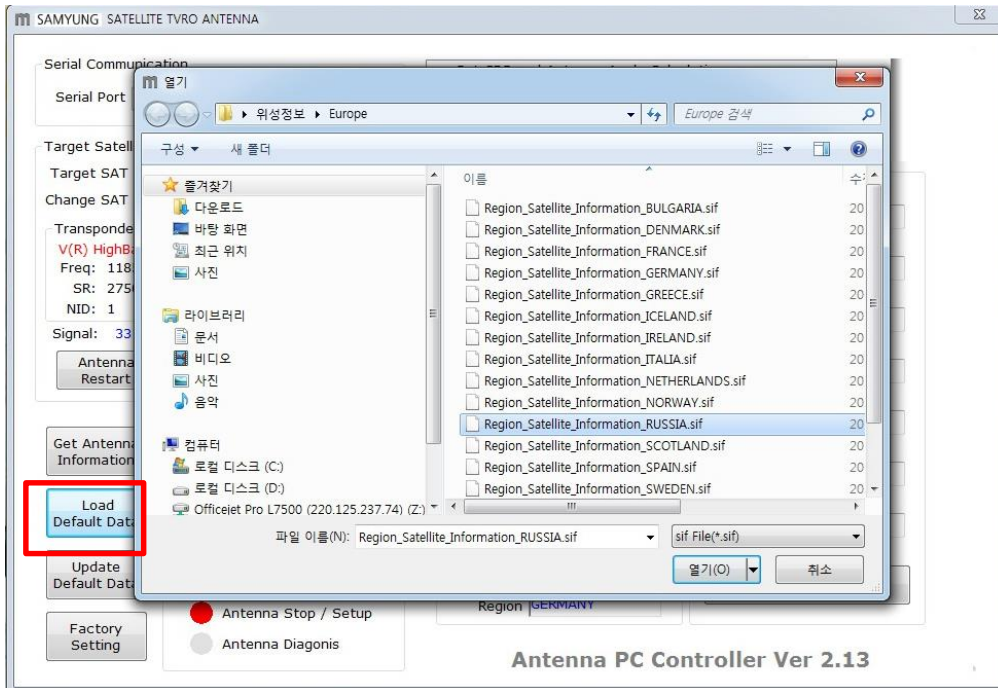
V.4.1 Changing of Target Satellite Information

Select the target satellite on Change SAT after changing the target satellite on Target SAT.

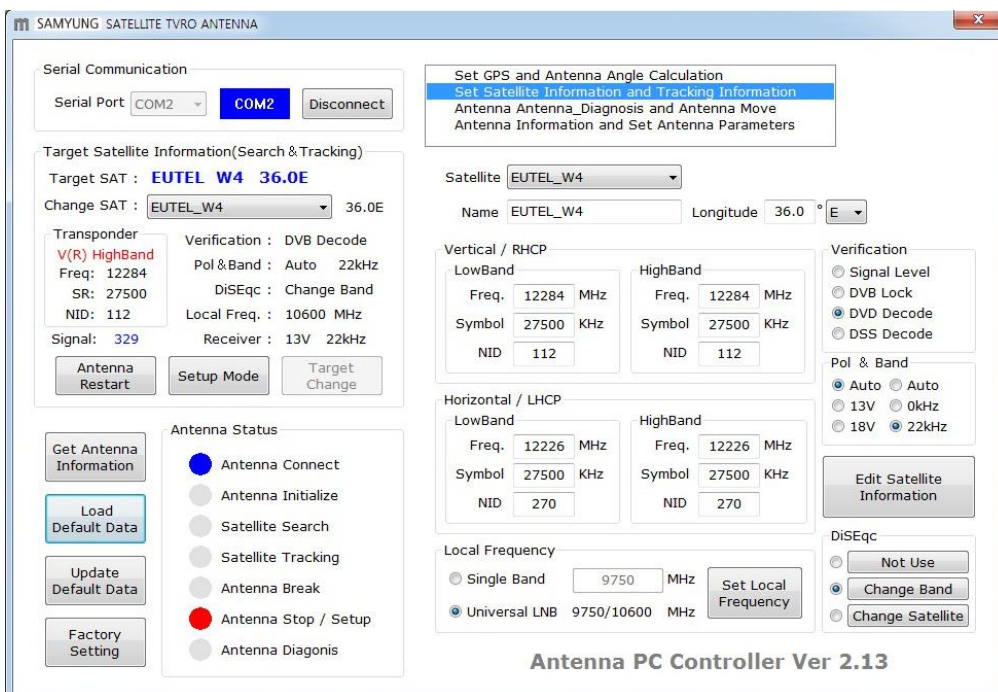


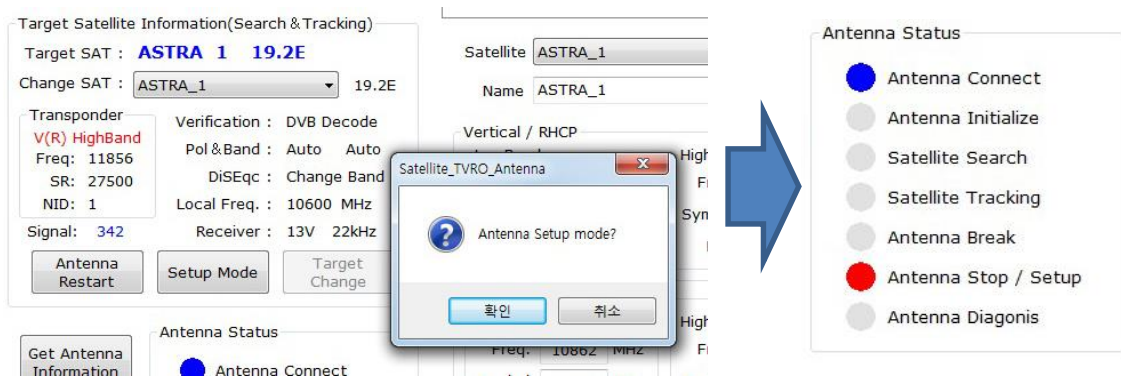
V.4.2 Changing of Target Satellite Information

1. Select the satellite information file on Load Default Data after setting a setup mode



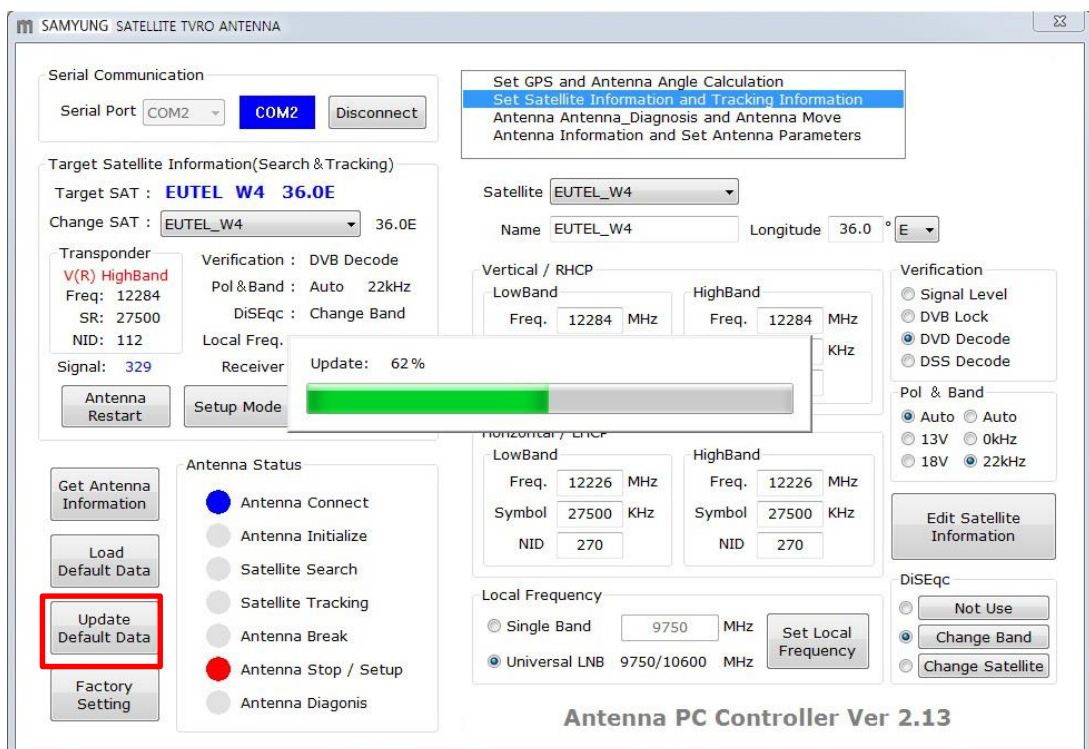
2. Selected satellite information is displayed





V.4.3 Updating of satellite Information

Press 'Update Default Data' button and ACU will be updated with loaded satellite information.



V.4.4 Antenna GPS & Angle

1. The information of GPS Link, Longitude, and Latitude is displayed.
2. You can calculate the location of the satellite by GPS link or GPS setting

Set GPS and Antenna Angle Calculation
 Set Satellite Information and Tracking Information
 Antenna Antenna_Diagnosis and Antenna Move
 Antenna Information and Set Antenna Parameters

① Antenna GPS

☒ GPS Link
 ☐ GPS Not Link

Longitude :
 Latitude :

② Region GPS

Longitude : °
 Latitude : °

Antenna Angle Calculation

③ Satellite

Longitude °

⑥ Azimuth °

Elevation °

Skew °

Angle & Skew Calculation

④ Use Antenna GPS

⑤ Use Region GPS

- ① Antenna current GPS
 - GPS Link
 - GPS information
- ② Input the region GPS information
- ③ Select the satellite
- ④ Calculate the angle by the information of the antenna GPS
- ⑤ Calculate the angle by the region GPS information
- ⑥ Calculated angle

V.4.5 Set Satellite Information and Tracking Information

Press 'Edit Satellite Information' button after changing the satellite information like below

Set GPS and Antenna Angle Calculation
Set Satellite Information and Tracking Information
 Antenna Antenna_Diagnosis and Antenna Move
 Antenna Information and Set Antenna Parameters
 Administrator - 관리자모드

Satellite: **ASTRA_1**

Name: ASTRA_1, ASTRA_2, ASTRA_3

Longitude: 19.2° E

Vertical / HORBIRD_S

LowBand: Freq. 11856 MHz, Symbol 27500 KHz, NID 1

Horizontal: LowBand (Freq. 10862 MHz, Symbol 22000 KHz, NID 1), HighBand (Freq. 12515 MHz, Symbol 22000 KHz, NID 53)

Local Frequency: ☒ Single Band 9750 MHz, ☒ Universal LNB 9750/10600 MHz

Edit Satellite Information





Satellite: **HOTBIRD_W**

Name: HOTBIRD_W, Longitude: 13.0° E

Vertical / RHCP: LowBand (Freq. 11393 MHz, Symbol 27500 KHz, NID 318), HighBand (Freq. 12380 MHz, Symbol 27500 KHz, NID 318)

Horizontal / LHCP: LowBand (Freq. 11642 MHz, Symbol 27500 KHz, NID 318), HighBand (Freq. 12169 MHz, Symbol 27500 KHz, NID 318)

Local Frequency: ☒ Single Band 9750 MHz, ☒ Universal LNB 9750/10600 MHz

Edit Satellite Information

Set GPS and Antenna Angle Calculation
Set Satellite Information and Tracking Information
Antenna Antenna_Diagnosis and Antenna Move
Antenna Information and Set Antenna Parameters
Administrator - 관리자모드

Satellite HOTBIRD_W

① Name HOTBIRD_W Longitude 13.0 ° E

Vertical / RHCP

② LowBand

③ HighBand

④ LowBand

⑤ HighBand

⑥ Verification

⑦ Pol & Band

⑧ Edit Satellite Information

⑨ DiSEqC

⑩ Set Local Frequency

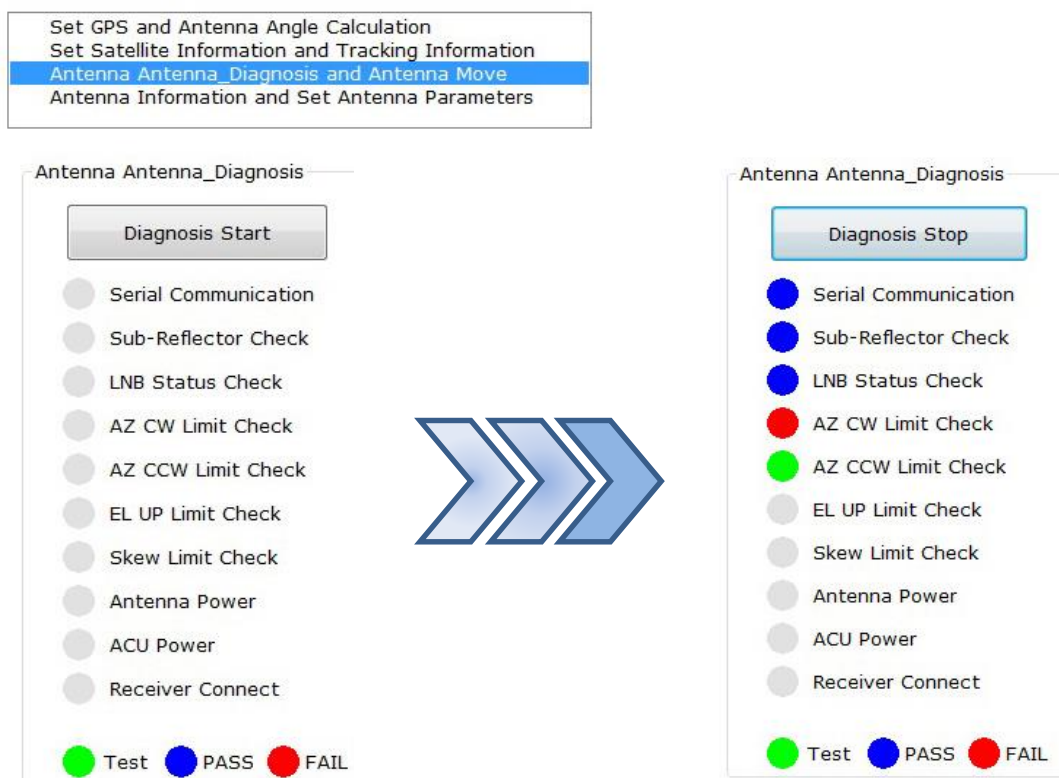
- ① Setting of satellite name and longitude
- ② Satellite information of Vertical Low Band
- ③ Satellite information of Vertical High Band
- ④ Satellite information of Horizontal Low Band
- ⑤ Satellite information of Horizontal High Band
- ⑥ Verification information

	Freq	Symbol	NID
AGC LEVEL	O	X	X
DVB LOCK	O	O	X
DVB DECODE	O	O	O
DSS DECODE	O	O	O

- ⑦ Power supplying method of LNB and DiSEqC
 - Not USE
 - Change Band : To set LNB band
 - Change Satellite : To modify satellite information
- ⑩ Setting of local frequency
 - To setup of LNB type or local frequency

V.5 Antenna Diagnosis

1. You can test the antenna status after pressing 'Diagnosis star' button.



2. Result;

- 1) Serial Communication: Communication between Antenna and ACU
- 2) Sub-Reflector Check: Checking of movement of sub-reflector
- 3) LNB Status Check: Checking the connection of LNB status
- 4) AZ CW Limit Check: Checking of Azimuth CW Limit
- 5) AZ CCW Limit Check: Checking of Azimuth CCW Limit
- 6) EL UP Limit Check: Checking of Elevation UP Limit
- 7) Skew Limit Check: Checking of Skew Limit
- 8) Antenna Power: Checking of input power of Antenna
- 9) ACU Power: Checking of input power of ACU
- 10) Receiver Connect: Checking the connection between receiver and ACU

V.6 Antnna Move

You can move the current position of the antenna.

Set GPS and Antenna Angle Calculation
 Set Satellite Information and Tracking Information
Antenna Antenna_Diagnosis and Antenna Move
 Antenna Information and Set Antenna Parameters

Antenna Antenna_Diagnosis

Diagnosis Start

- ☐ Serial Communication
- ☐ Sub-Reflector Check
- ☐ LNB Status Check
- ☐ AZ CW Limit Check
- ☐ AZ CCW Limit Check
- ☐ EL UP Limit Check
- ☐ Skew Limit Check
- ☐ Antenna Power
- ☐ ACU Power
- ☐ Receiver Connect

● Test
 ● PASS
 ● FAIL

Antenna Move

① **Current Position**

AZ	EL	Skew
122.05	30.25	-0.22

② **Go to Position**

AZ	EL
320	40

Go to Position

③ **Antenna Move Step**

AZ	CCW	10	CW
EL	UP	10	DN
Skew	-	1	+

- ① Indicate the current position of the antenna
- ② Move the antenna position by user input
- ③ Move the Azimuth, Elevation, Skew of the antenna by pressing buttons

V.7 Antenna Information

You can setup the antenna information.

Set GPS and Antenna Angle Calculation
 Set Satellite Information and Tracking Information
 Antenna Antenna_Diagnosis and Antenna Move
Antenna Information and Set Antenna Parameters

① Product Information

Antenna Model

Antenna Type

Serial Number

Parameter Setting

Tracking Scale

Detect Level Threshold

Tracking Level Threshold

EL Adjust

Skew Adjust

Signal lost time

Antenna Break Time

② Antenna Information

Ant S/W Ver.

ACU S/W Ver.

Library Ver.

Antenna Power

ACU Power

RECEIVER

Continent

Region

- ① Indicate the antenna information
- ② Antenna information
 - Software version
 - Satellite information
 - Power information
 - Receiver connection
 - Satellite region information

V.8 Set Antenna Parameters

You can set the antenna parameters value

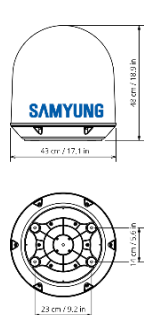
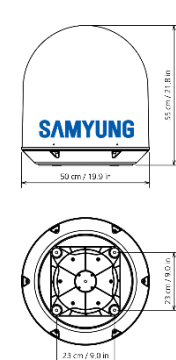
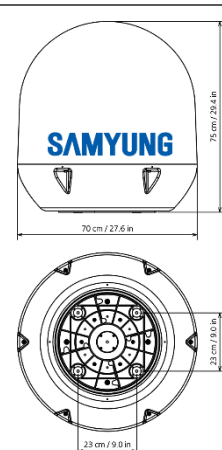
Set GPS and Antenna Angle Calculation
 Set Satellite Information and Tracking Information
 Antenna Antenna_Diagnosis and Antenna Move
Antenna Information and Set Antenna Parameters

Product Information	Parameter Setting
Antenna Model 	① Tracking Scale 1.00
Antenna Type Sub-Reflector Type	② Detect Level Threshold 400
Serial Number M 1234567890	③ Tracking Level Threshold 420
Antenna Information Ant S/W Ver. 3.74	④ EL Adjust -0.00
ACU S/W Ver. 3.30	⑤ Skew Adjust -0.0
Library Ver. 2.13	⑥ Signal lost time 5
Antenna Power 24.24	⑦ Antenna Break Time 10
ACU Power 24.10	⑧ Set Parameters
RECEIVER Not	
Continent EUROPE	
Region GERMANY	

- ① Tracking Scale: Satellite tracking speed
 - Value up: tracking speed up
 - Value down: tracking speed down
- ② Detect Level Threshold: To set the satellite signal detecting level during satellite is searching
- ③ Tracking Level Threshold: To set the satellite signal tracking level
- ④ EL Adjust: To adjust the EL Limit position
- ⑤ Skew Adjust: To adjust the Skew Limit position
- ⑥ Signal lost time: To set the re-tracking time as signal lost
- ⑦ Antenna Break Time: Breaking time during tracking of satellite
- ⑧ To set parameters

VI. Appendix

VI.1 Technical Specification

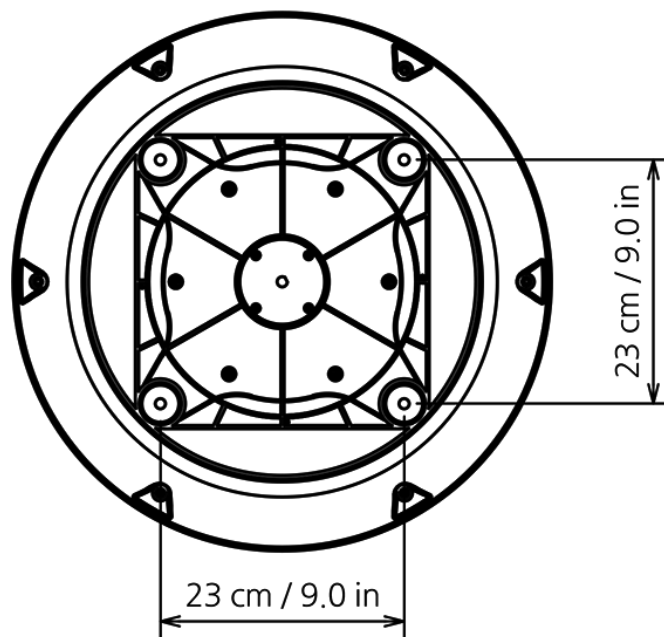
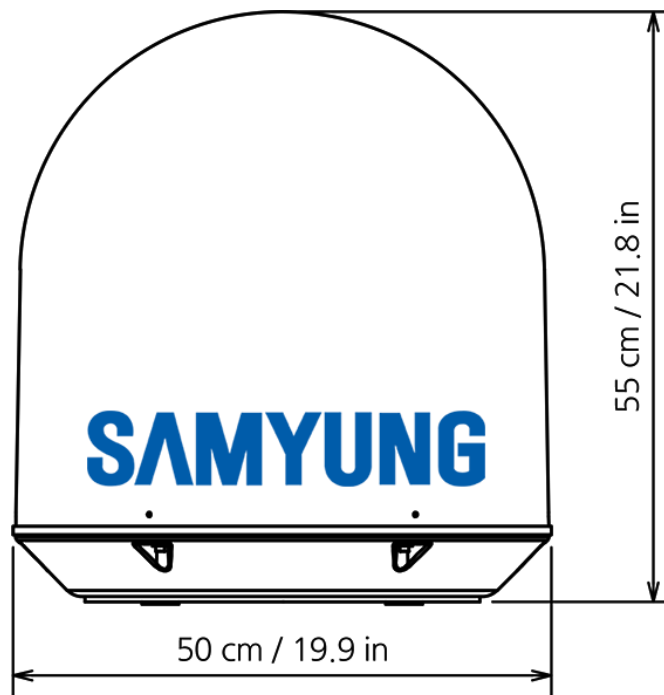
		SDA-390N	SDA-450N	SDA-600N
Input Frequency		Ku-Band(10.7 GHz ~ 12.75 GHz)		
Antenna Type		Parabolic		
Minimum EIRP		50 dBW	49 dBW	47 dBW
Polarization		Horizontal/Vertical, RHCP/LHCP		
AZ Control Range		680°		
EL Control Range		0° ~ 90°		0° (or -15°) ~ 90°
Control Capability		ROLL 65°/Sec, PITCH 65°/Sec,	ROLL 60°/Sec, PITCH 60°/Sec,	ROLL 50°/Sec, PITCH 50°/Sec,
Tracking Rate		60°/Sec	60°/Sec	50°/Sec
Power Supply		AC : 110V~240V / DC : 9.5V ~ 36V (Depend on ACU)		
Op. Temp.(Storage)/Hu.		-15°C ~ +60°C (-25°C ~ +70°C) , 95% R.H.		
ACU		크기: 176 x 220 x 55mm, Weight: 약1.1 Kg		
GPS(Optional)		NMEA0183 GPS		
Certification		KCC / FCC / CE		
Auto Skew(Optional)		Manual Type	-90° ~ +90°	
Dimension	ANT	D430 x H480mm	D500 x H550mm	D700 x H740mm
	Dish	370 mm	450 mm	600 mm
Weight		11Kg	13Kg	16 kg
Antenna				


Note:

The specification shall be subject to change at any time without any notice.

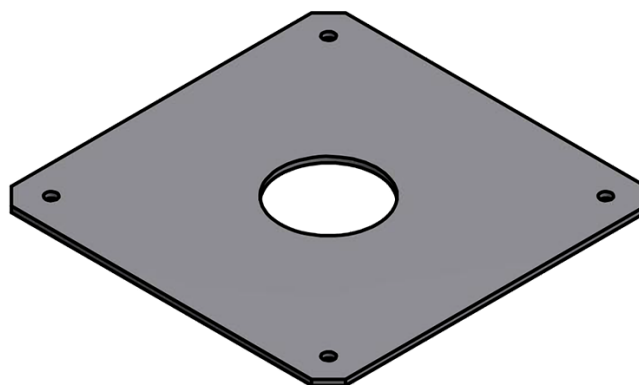
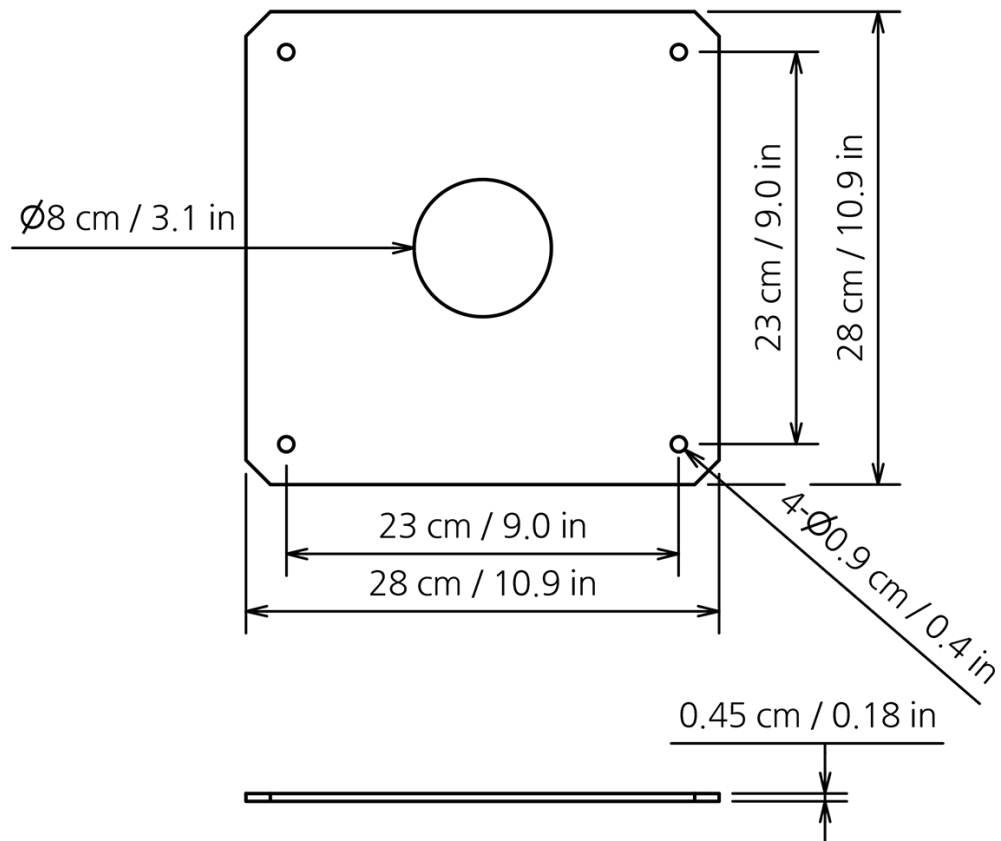
VI.2 Dimension

VI.2.1 Antenna Radome

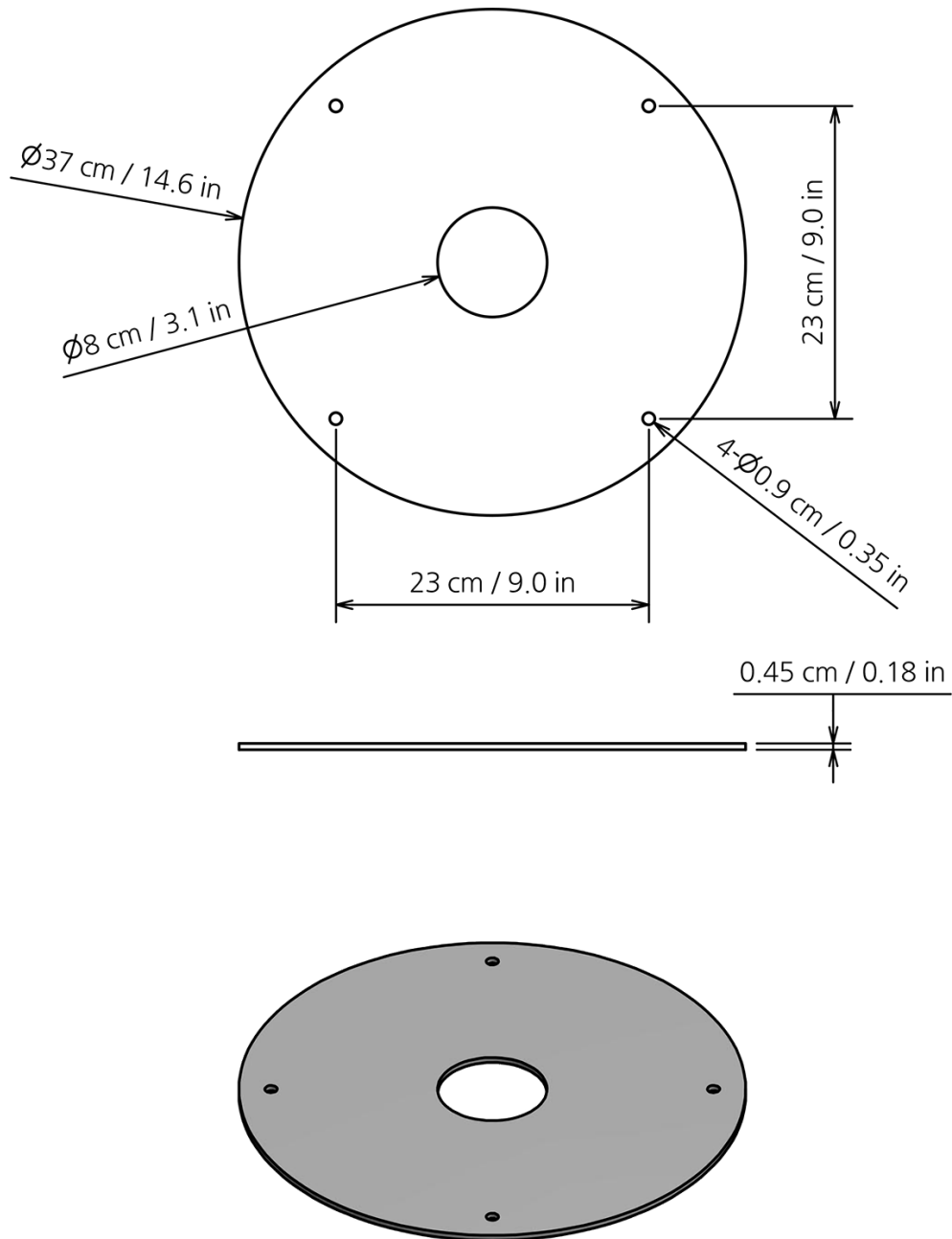


VI.2.2 Antenna Fixing Sheet - Recommend

VI.2.2.1 Sample DWG1



VI.2.2.2 Sample DWG2



 Note:

The Antenna fixing Sheet is not supplied by SAMYUNG ENC Co., Ltd..

VI.3 Troubleshooting

Symptom	Possible Cause or Solution
Antenna not working	> Check antenna cables > Damaged cables check, secured connections ACU status
No picture on TV screen	> ACU status > Satellite Receiver status and check configuration > Check cables between antenna unit and ACU > Satellite signal blocked > Check satellite coverage zone > Radar interference > LNB faulty-contact with your local dealer > Check multi-switch connection
No picture for short intervals on TV	> Satellite signal blocked > Radar interference > Check satellite coverage zone > Check cable connection > LNB faulty-contact with your local dealer > Check multi-switch connection
No sound on TV	> Check cable between satellite receiver and TV set > Mute function on TV
Snowy screen on TV	> Check cables connection > Check Satellite Receiver
System not finding satellite	> Check satellite coverage zone > Radar interference > Satellite frequency information changed > Check cables connection > Satellite receiver or LNB faulty > Check multi-switch connection


Note:

Please contact with your local SAMYUNG dealer or SAMYUNG Product Support for an advice, it you still have a problem after checking the solutions on the table.

VI.4 Warranty

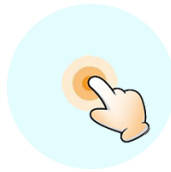
SAMYUNG ENC Co., Ltd. warrants the SAMYUNG Marine Satellite TV Antenna under normal use and wear to be free from defects in material and workmanship for a period of TWO (2) YEAR SPARE PARTS or 3% SPARE PARTS of Purchase Amount from the date of purchase by the original Buyer.

If, under normal use and wear, the Product becomes defective in materials or workmanship and is returned at Buyer's expense to a SAMYUNG ENC Co., Ltd. during the Warranty Period, the product will be repaired or replaced, at SAMYUNG ENC Co., Ltd. sole and exclusive options, and at no charge to Buyer. Buyer will be required to provide reasonable proof of date of purchase. Reconditioned replacement components, parts, units or materials may be used if the Product is repaired or replaced. Costs incurred in the removal, de-installation or reinstallation of the Product are not covered.

The Warranty is only valid with the following products.

No.	Serial number
1	

This image shows a full page of blank primary-ruled notebook paper. The paper features multiple sets of horizontal lines designed to guide young learners' handwriting. Each set consists of three lines: a solid top line, a dashed middle line, and a dotted bottom line. These sets are repeated vertically down the entire page, providing ample space for practicing letter formation and writing. The background is white, and the lines are printed in a light gray or blue color.



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