

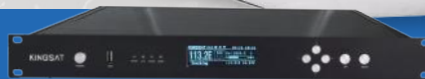
KINGSAT
Maritime Antennas

EARDATEK
www.eardatek.com

Quick Installation

Maritime VSAT P8/P8E/P8+E

KINGSAT®



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Preparation for Installation

Antenna First Installation Checklist

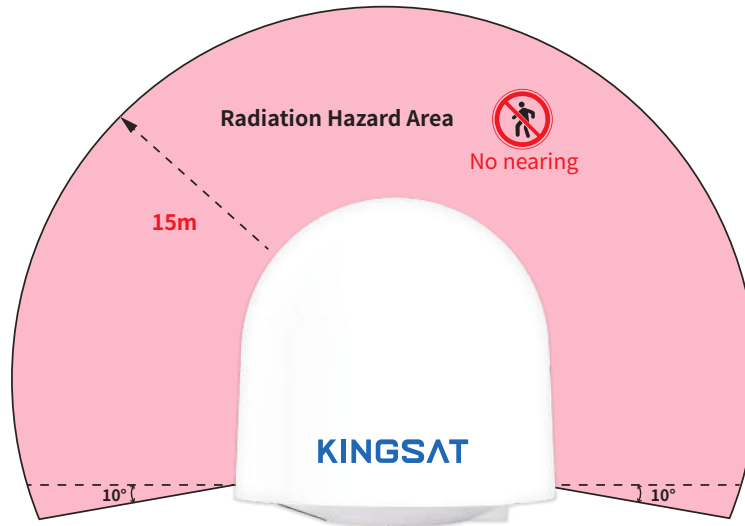
For the first installation, please follow the steps below. Check each step to ensure that the antenna is installed and used correctly. Each step after well done with mark " ✓".

Part1 Antenna Installation Site (Above Deck Unit Preparation)			
1	Attention: Keep safe distance for radiation hazard.	Page 2	Done()
2	Check if any obstructions exist with EL range -15°~120°.	Page 3	Done()
3	Check mounting mast site .	Page 4	Done()
4	Check physical solidness of mast.	Page 5	Done()
5	Unpack carton and remove radome.	Page 9	Done()
6	Check materials list in the carton.	Page 12	Done()
7	Check connecting cables.	Page 13	Done()
8	Check connecting diagram.	Page 14	Done()
Part2 ACU and Modem (Below Deck Unit Preparation)			
9	Check ACU.	Page 15	Done()
10	Check connections of ACU , Modem and Switch.	Page 16	Done()

Preparation for Installation

Part-1 Antenna Installation Site (ADU Preparation)

Step 1. Attention: When VSAT working especially transmitting signal, make sure 100% keep safe distance (15m far from ADU) for radiation hazard.



Safety Warning when antenna working

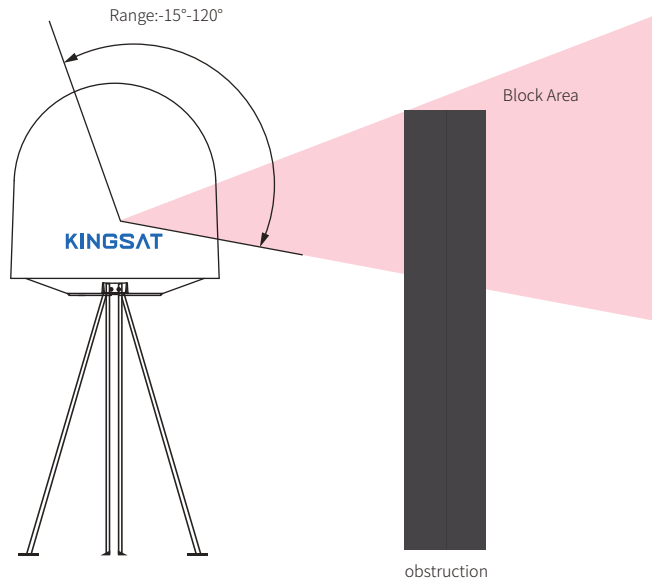
Preparation for Installation

Part-1 Antenna Installation Site (ADU Preparation)

Step 2. Check if any obstructions exist with EL range **-15°~120°**.

Make sure antenna is free of obstructions, it can transmit and receive the satellite signal fully.

The optimized site is that 360° free of obstruction when pointing to sky.

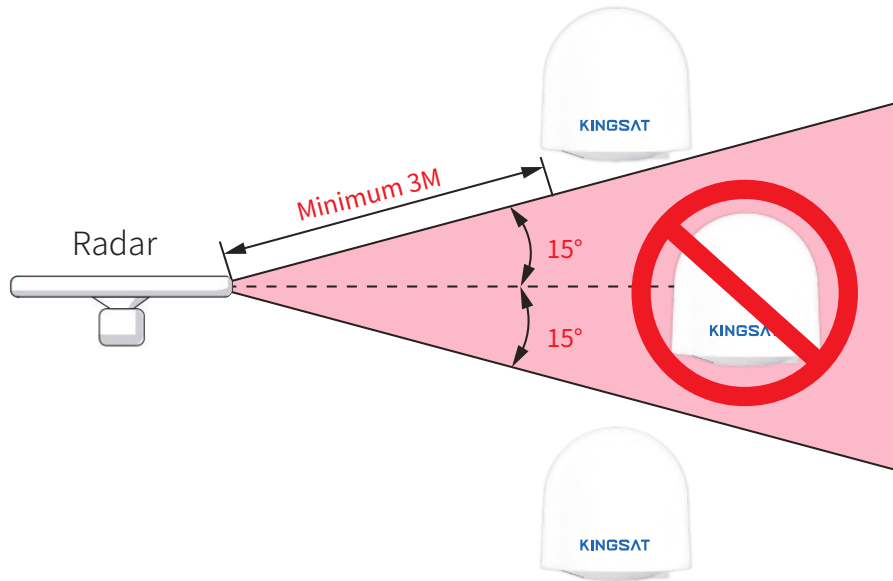


Preparation for Installation

Part-1 Antenna Installation Site (ADU Preparation)

Step 3. Check mounting mast site. The optimized site has

- (1) Minimum vibration (better far from engine)
- (2) Keep safe distance to Radar or other RF transmitter (avoid fan beam $\pm 15^\circ$ of Radar, keep distance to Radar **minimum 3m**).



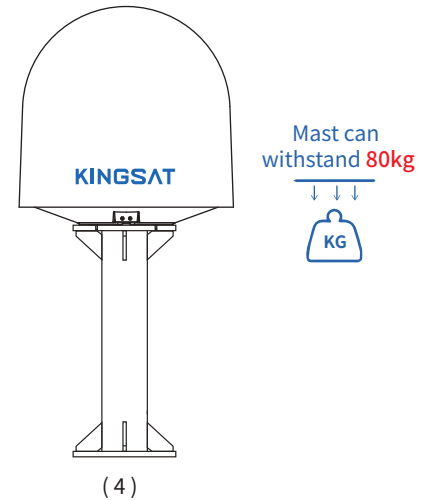
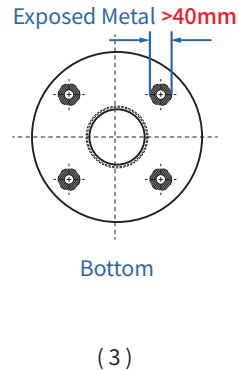
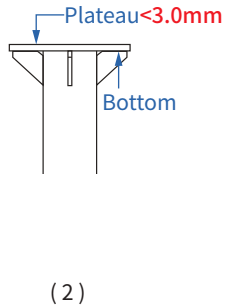
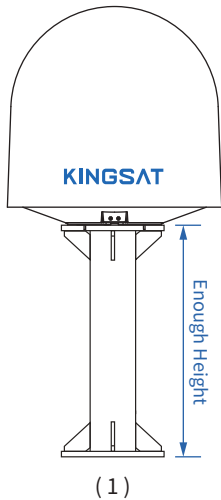
Preparation for Installation

Part-1 Antenna Installation Site (ADU Preparation)

Step 4. Check physical solidness of mast.

Make sure the mast has

- (1) Enough height, must be free of obstructions.
- (2) Good flatness, plateau is below **3.0 mm**.
- (3) Good grounding, exposed metal is above **40mm**.
- (4) High solidness, it can withstand **80kg**.

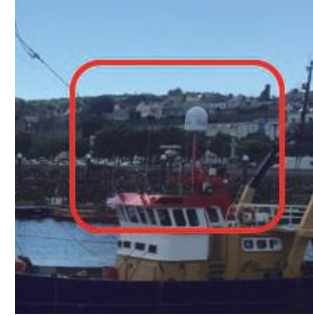


Preparation for Installation

Part-1 Antenna Installation Site (ADU Preparation)

Installation Site Selection and Case Analysis

The following installation cases are the optimal sites.



Preparation for Installation

Part-1 Antenna Installation Site (ADU Preparation)

Installation Site Selection and Case Analysis

The following installation cases **are not the optimal sites and can be optimized.**



Too close to the mast, the antenna may be obstructed at mast direction.



Too close to the funnel, the radome is easy to get dust, then it will decrease RF performance of antenna.

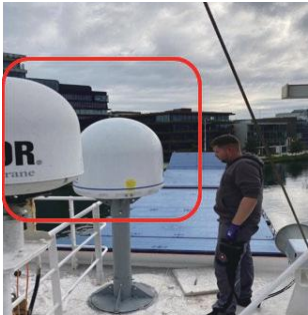
Preparation for Installation

Part-1 Antenna Installation Site (ADU Preparation)

Installation Site Selection and Case Analysis

The following installation cases **are not the optimal sites and must be optimized.**

 **Must be optimized**



Too close to the mast, antenna can not get 360° free view to sky. **The site needs to be re-selected, must be far away from obstructions while the height of mounting bracket should be made as high as possible.**

Preparation for Installation

Part-1 Antenna Installation Site (ADU Preparation)

Step 5.1: Unpack carton and take out the accessories. Remove the fixing screw on the radome bracket that secures the antenna to the pallet using a wrench.



Preparation for Installation

Part-1 Antenna Installation Site (ADU Preparation)

Step 5.2: The antenna comes with the lifting straps pre-mounted from the factory. Take out the shackle from the bottom of the lifting straps and unscrew it.



Preparation for Installation

Part-1 Antenna Installation Site (ADU Preparation)

Step 5.3 Remove radome. Then remove **4 red fixing bolts** of safe delivery purpose. After that, fix the radome with bolts, put back the lifting straps, and tighten up the shackle.



Preparation for Installation

Part-1 Antenna Installation Site (ADU Preparation)

Step 6. Check Material List in the carton.



KINGSAT

Material Checklist of KINGSAT P8/P8-				Standard DC Version	
No	Material	Quantity	Picture	Factory check	User Check
1	User Manual for Quick Installation	1			
2	Antenna (ADU)	1			
3	ACU	1			
4	ACU wall mounting bracket	2			
5	10x Coaxial Cable (RG316)	2			
6	10m W Cable (RG317)	2			
7	5m Ethernet Cable	2			
8	DC Power Supply Cable	1			
9	W-F converter	4			
10	Hex Hex Key	1			
11	Star Hex Key	1			
12	Wrench 3, Spanner	1			
13	M12 Hex Nut	4			
14	M12 Spring Washer	4			
15	M12 Flat Washer	4			
16	M3*8 combined screws	4			
17	Splice Connectors for Coaxial Cable	4			
18	USB Flash stick	1			
19	Masking Tape	1			
Total:		41PCS	Checked By:		

Preparation for Installation

Part-1 Antenna Installation Site (ADU Preparation)

Step 7. Check connecting cables. We supply below accessories for each unit of antenna.

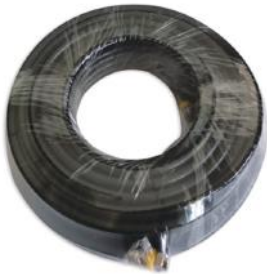
2 * 30 meter coaxial cable (RG11 black color)

2 * 1 meter coaxial cable (RG179 gold color)

2 * 0.4 meter network cable

4 * N-F type connecting converter

1 * 5 meter waterproof tape



RG11 coaxial cable



RG179 coaxial cable



Network cable



Waterproof tape

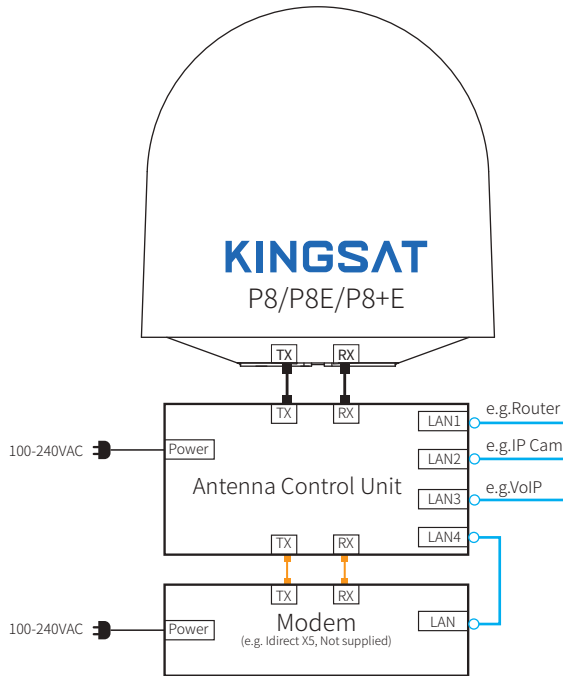


N-F type connecting converter

Preparation for Installation

Part-1 Antenna Installation Site (ADU Preparation)

Step 8. Check connecting diagram.



- coaxial cable 30M with RG11
- coaxial cable 1M with RG179
- network cable with RJ45 plugs

►We recommend cable type according to cable length, as follows:

- within 20m: RG6
- within 50m: RG11
- within 100m: LMR400
- within 200m: LMR600

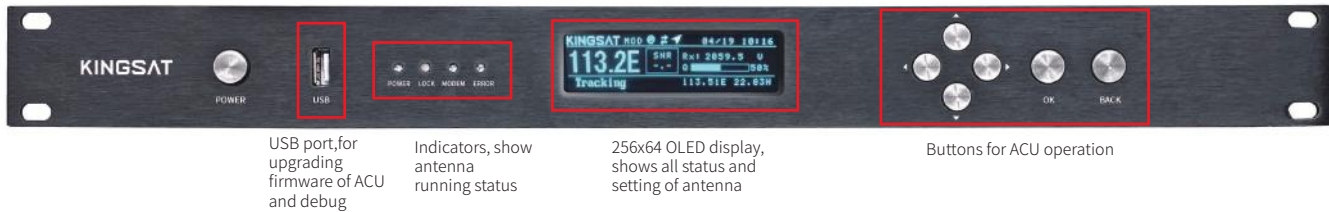
NOTE: Impedance of cable is 50ohm, attenuation of cable is under 20dB at 2.5GHz.

Preparation for Installation

Part-2 ACU and Modem (BDU Preparation)

Step 9. Check ACU. Check each port of rear panel connection.

Front Panel of ACU



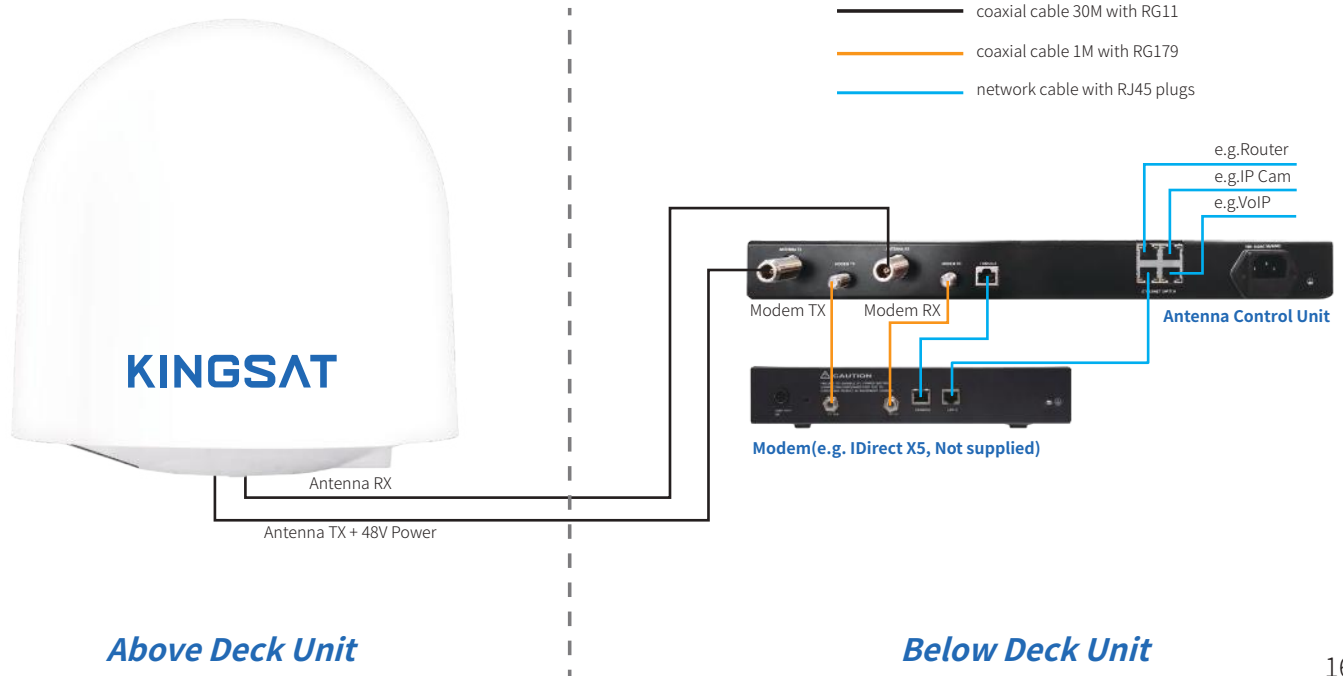
Rear Panel of ACU



Preparation for Installation

Part-2 ACU and Modem (BDU Preparation)

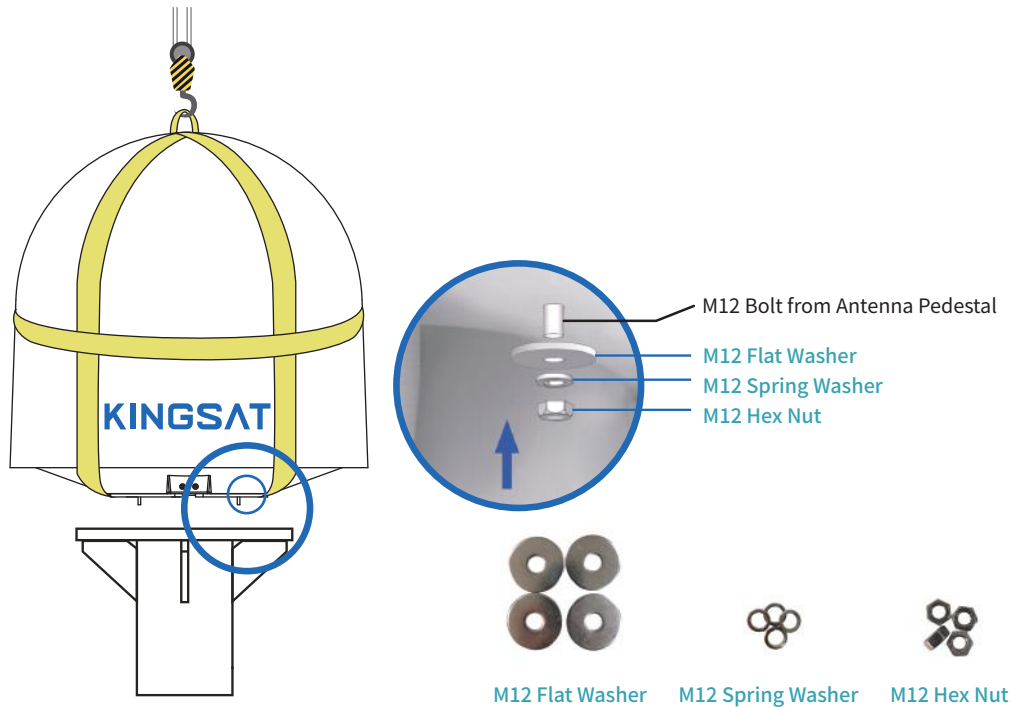
Step 10. Check connections of ACU , Modem and Switch.



Installation

Step 1 Mounting Antenna

Check the condition of the lifting strap and that the shackle is tightened up. Lift the antenna above the mast using a crane and carefully put the antenna down on the mast. Mounting antenna with below accessories.



Installation

Step 2 Connection Diagram

Prepare cables and make sure connections as below diagram.

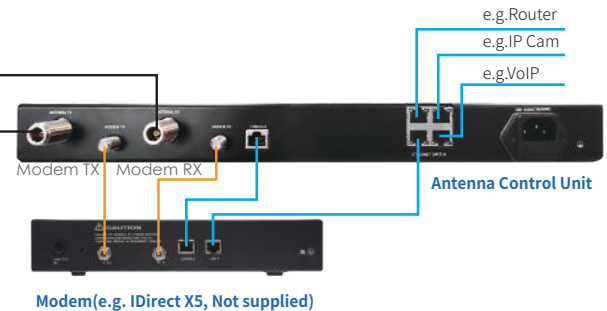
Supplied cables

- 2 * 30 meter coaxial cable (RG11 black color)
- 2 * 1 meter coaxial cable (RG179 gold color)
- 2 * 0.4 meter network cable with RJ45 plugs



Above Deck Unit

- coaxial cable 30M with RG11(supplied)
- coaxial cable 1M with RG179(supplied)
- network cable with RJ45 plugs(supplied)



Below Deck Unit

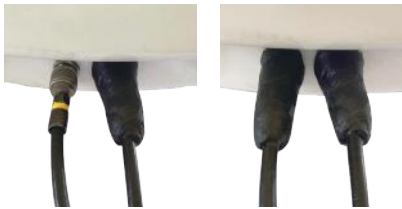
Installation

Step 3 Confirm All Connections

Review all connections.



Antenna connections



Connectors should be sealed with waterproof tape



ACU connections



Modem connections

Installation

Step 4 ACU Setting Procedure

Turn on power of the ACU. ACU starts to initialize.



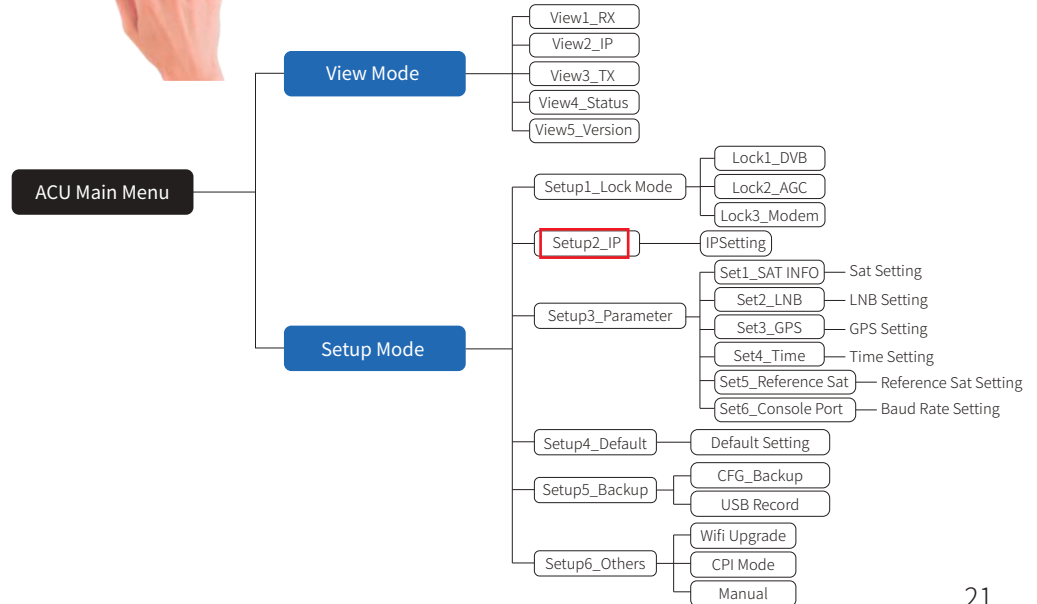
- Error may happen as below shows. This means ACU can not communicate with antenna correctly.
Please check below cables connection
1) whether TX and RX coaxial cables are connected correctly
2) whether F-N connectors are tight enough
After reconnect and check, then restart system.



Installation

Step 5 ACU IP Setting

Press “OK” to set **IP address** and **PORT** same as MODEM OpenAMIP setting, “GW” is same as MODEM IP. Press “OK” and “BACK” to save setting.



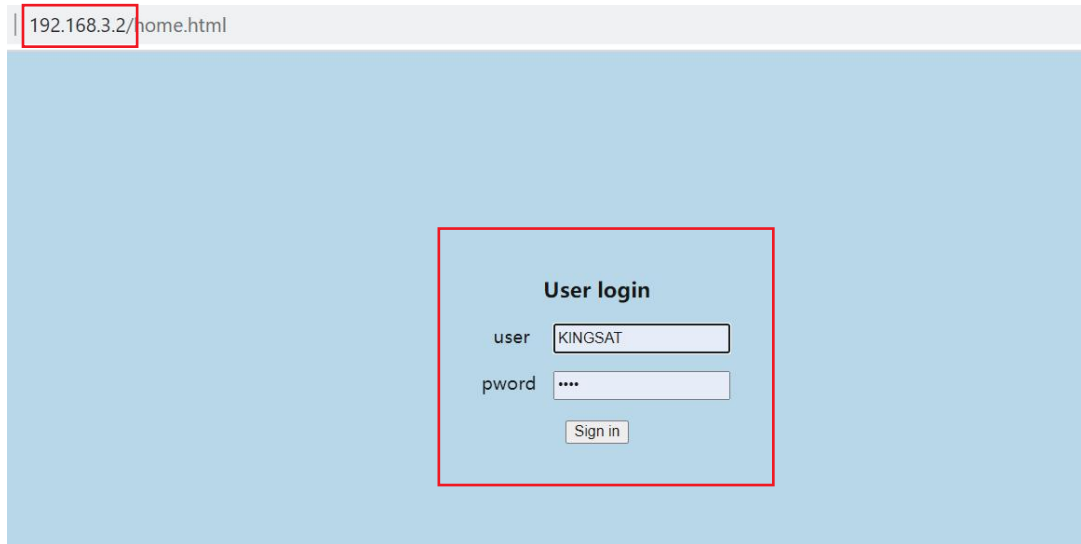
Installation

Step 6 Web Interface Login

Connect laptop to ACU ethernet port. **Make Sure laptop IP and ACU IP in same segment** , then go to Browser, input ACU IP.

USER: KINGSAT, Password:1234

Now plz follow below guide “Quick Installation Guide with Web Interface”



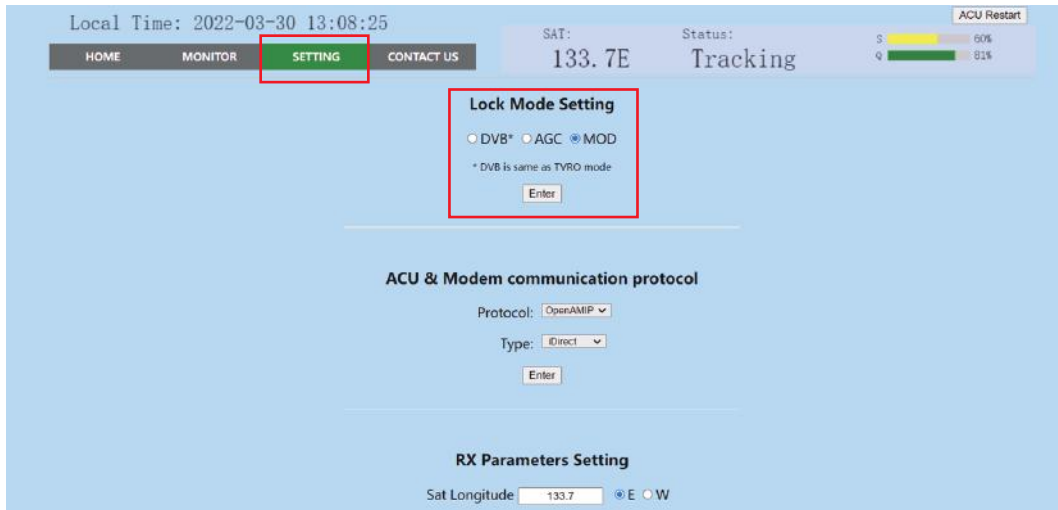
The screenshot shows a web browser window with the address bar containing '192.168.3.2/home.html'. The main content area is light blue and features a 'User login' form. The form has two input fields: 'user' with the value 'KINGSAT' and 'pword' with masked characters '....'. Below the fields is a 'Sign in' button. A red box highlights the entire login form area.

Quick Installation Guide with Web Interface

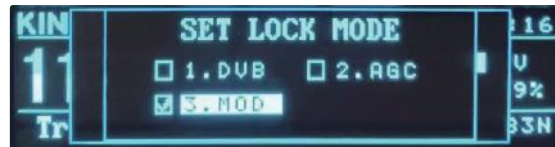
www.eardatek.com

Step1.Setup Lock mode in SETTING page

Go to **SETTING** page, select **MOD** mode (MODEM mode) in **Lock Mode Setting** , press **Enter** to SAVE.



Another way for setting Lock mode, go to ACU ,
Press ok---Set Lock Mode, then BACK and SAVE.



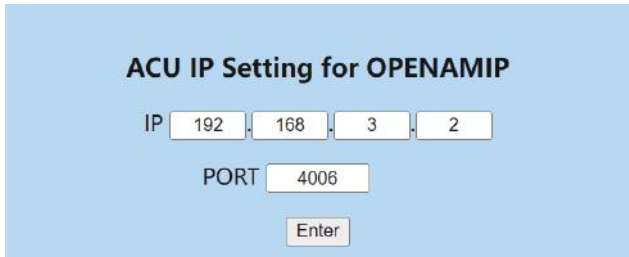
Quick Installation Guide with Web Interface

www.eardatek.com

Step 2. IP Setting and Protocol setting

In SETTING page, set **ACU IP** address and **PORT** same as MODEM OpenAMIP setting, press **Enter** to Save.

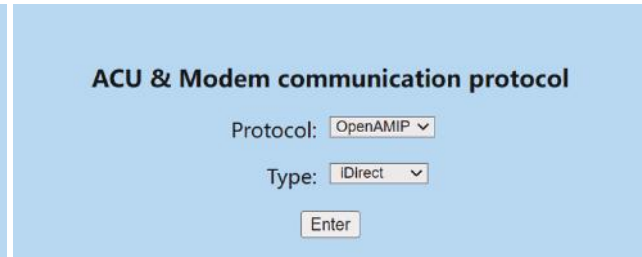
Plz select the correct communication protocol, default is **OPENAMIP-iDirect**, press **Enter** to Save.



ACU IP Setting for OPENAMIP

IP

PORT



ACU & Modem communication protocol

Protocol:

Type:

Another way for setting IP, go to ACU ,
Press ok---Set IP, modify IP,SM(SubMask) ,
GW(Gateway) Port, then BACK and SAVE.



Quick Installation Guide with Web Interface

Step 3. Confirm IP Setting

Back to HOME page, check **ACU IP VIEW**, confirm **ACU OPENAMIP IP** and **PORT** is same as setting.



The screenshot displays the EARDATEK web interface with the following sections:

- Local Time:** 2022-04-20 16:50:48
- Navigation:** HOME (highlighted), MONITOR, SETTING, CONTACT US
- SAT:** 133.7E
- Status:** S 43%, Q 0%
- ACU Restart:** Button
- ANT LOCATION:** Latitude: 22.9065 N, Longitude: 113.5293 E, GPS Number: 35, UTC: +8
- ANT POINTING:** Get Gyro Info, Manual Pointing checkbox, AZ: 136.48 Degree, EL: 54.95 Degree
- RX VIEW:** RX_Freq: 1340.1 MHz, LNB LO: 9750 MHz, POL: VER, RX_BW/RX_SR: 51750 MHz, AGC Threshold: 25, Look Mode: MDD
- TX VIEW:** SAT: 133.7E, TX_Freq: 1240.5 MHz, BVC LO: 12000 MHz, POL: HCR, TX_Bandwidth: 30837 MHz, TX Enable checkbox
- ACU IP VIEW (highlighted):** ACU OPENAMIP IP: 192.168.3.2, ACU OPENAMIP PORT: 4006, MAC: a2.56.4b.08.e4.99, ACU IP: 192.168.3.4, SubMask: 255.255.255.0, Gateway: 192.168.3.168, MAC: a2.56.4b.08.e4.99
- ACU MONITOR:** BOV Voltage (Normal is 48V): 48 V, ADV Voltage (Normal is 24V): 23.7 V, Total Power: 31.6 W, Skew Offset: 0 Degree, AGC Value: 33769, Network: OFFline, OPENAMIP: Connected
- VERSION:** Model: VSATPSE, ID: 032D711A, ADU: V1.0.09 Apr 8 2022, BDU: V4.3.8 Apr 17 2022
- MODEM INFO:** Console: Connected, BandRate: 115200, Modem SN: 020246, Rx SNR: -10, Status: Waiting for Rx Lock
- Log:** [1650473441]Tx:w 1.22.806528, [113.509352 00000000] a 1 0 w 1, [22.906528 113.509357 00000000], [1650473441]Rx:l 0 0, [1650473442]Rx:l 0 0, [1650473443]Rx:l 0 0, [1650473444]Rx:l 0 0, [1650473445]Rx:l 0 0, [1650473446]Tx:w 1.22.806528, [113.509349 00000000], [1650473446]Rx:l 0 0, [1650473447]Rx:l 0 0, [1650473448]Rx:l 0 0
- Settings:** OPENAMIP Monitor (Savebtn), Communication Monitor, OPENAMIP Manual Debug
- Input:** s 1 0 Input
- Copyright:** © 2020 by KINGSAT

Quick Installation Guide with Web Interface **EARDATEK** www.eardatek.com

Step 4. Check OPENAMIP working or not

If ACU IP and modem IP is setting done correctly, ACU and MODEM will start to communicate by OPENAMIP protocol.

Plz check HOME page, you can see [OPENAMIP: connected](#).

Enable OPENAMIP monitor window, it will output some real-time commands between ACU and MODEM.

Local Time: 2022-04-20 16:50:48

SAT: 133.7E Status: Search

ACU Restart

HOME MONITOR SETTING CONTACT US

ANT LOCATION
Latitude: 22.8065 N
Longitude: 113.5203 E
QGS Number: 36
UTC: +8

ANT POINTING Get Gyro Info
Manual Pointing
AZ: 136.49 Degree EL: 54.95 Degree
Current: 132.79 Degree 0.39 Degree

RX VIEW
RX_IP: 1340.1 MHz
LNB LO: 9750 MHz
POL: VEH
RX_BW/RX_SR: 61750 KHz
AGC Threshold: 25
Lock Mode: MOD

TX VIEW
SAT: 133.7E
TX_LP: 1240.5 MHz
BPC LO: 12000 MHz
POL: NRK
TX_Bandwidth: 30837 KHz
 TX Enable

ACU IP VIEW
ACU OPENAMIP IP: 192.168.3.2
ACU OPENAMIP PORT: 8006
MAC: a2:86:43:09:f4:90
ACU IP: 192.168.3.4
SubMask: 255.255.255.0
Gateway: 192.168.3.169
MAC: a2:86:43:09:f4:90

ACU MONITOR
BHV Voltage (Normal is 48V): 48 V
ADV Voltage (Normal is 24V): 23.7 V
Total Power: 31.6 W
Slew Offset: 0 Degree
AGC Value: 33769
Network: Offline
OPENAMIP: Connected

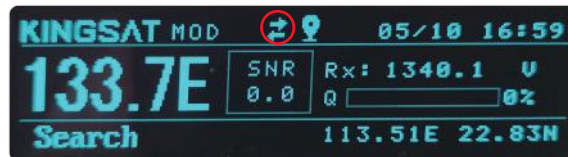
VERSION
Model: VEAT5E
ID: 0002711A
ADU: V1.0.09 Apr 0 2022
BDU: V4.3.0 Apr 17 2022

MODEM INFO
Console: Connected
Firmware: 115200
Modem CN: 002046
Rx SNR: -10
Status: Waiting for Tx Lock

Real-time monitor for communication
 OPENAMIP Monitor [Savebt]
 Communication Monitor
 OPENAMIP Manual Debug
s 1.0 input

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At same time, plz check ACU display shows OPENAMIP icon blinking.



Quick Installation Guide with Web Interface **EARDATEK** www.eardatek.com

Step5.Wait for tracking

Double check RX parameters as below, this parameters are all from MODEM by OPENAMIP, antenna is using this parameter to lock the signal from target satellite.

Just wait for tracking.

The screenshot displays the Eardatek web interface for satellite tracking. The top navigation bar includes 'HOME', 'MONITOR', 'SETTING', and 'CONTACT US'. The main content area is divided into several sections:

- ANT LOCATION:** Latitude: 22.8065 N, Longitude: 113.5003 E, QPS Number: 36, UTC: +8.
- ANT POINTING:** Includes a compass rose and manual pointing controls. Target and current values for AZ (136.40 / 132.79) and EL (54.95 / 0.39) are shown.
- RX VIEW (highlighted with a red box):** SAT: 133.7E. Parameters include RX_IF: 1340.1 MHz, LNB LO: 9750 MHz, POL: V, RX_BW/RX_SR: 51750 KHz, AGC Threshold: 25, and Look Mode: MOD.
- TX VIEW:** SAT: 133.7E, TX_IF: 1240.5 MHz, BWC LO: 12000 MHz, POL: H, TX_Bandwidth: 30837 KHz. A 'TX Enable' checkbox is present.
- ACU IP VIEW:** Lists ACU OPENAPIP IP, PORT, MAC, and Gateway.
- ACU MONITOR:** Shows DCV Voltage (Nominal: 48V, Actual: 48V) and ADV Voltage (Nominal: 24V, Actual: 23.7 V).
- VERSION:** Model: VEAT5E, ID: 002D711A, ADU: V1.0.09 Apr 0 2022, BDW: V4.3.0 Apr 17 2022.
- MODEM INFO:** Console: Connected, BandRate: 115200, Modem SW: 0020146, Rx SWR: -10, Status: Waiting for Tx Lock.

On the right side, there is a 'Search' field and a 'Status' section showing signal strength (S: 43%, Q: 0%). Below the main content, there are checkboxes for 'OPENAMIP Monitor', 'Communication Monitor', and 'OPENAMIP Manual Debug'. A 'Savebt' button and a '510' input field are also visible. The footer indicates 'Copyright © 2020 by KINGSAT'.

Check ACU side, press Right button, check RX VIEW page.

Check whether all Rx parameters are correct or not.

A close-up of the RX VIEW parameters displayed on a screen. The parameters are:

- SAT: 133.7E
- LO: 9750
- POL: U
- SKEW: 0
- BC_FRQ: 1711040KHz
- RXIF: 1340.1MHZ
- RXBW: 51750 KHz
- HBL: 25
- MODE: MOD

The RXIF and RXBW values are highlighted with a red box.

Quick Installation Guide with Web Interface

Step6. Tracking status

If everything is done correctly, you can check monitor window if ACU will receive **L10** then **L11** command from modem. If yes, antenna will show tracking when L10 and L11 come out.

Now check signal Quality ---Q,

if **Q is more than 30%**, it means **stable signal**, antenna keeps tracking.

if **Q is less than 30%**, it may be **weak signal**, or have blockage. Antenna may move.



Local Time: 2022-04-20 16:51:10

SAT: 133.7E

Status: Tracking

ACU Restart

S 95%

Q 87%

HOME MONITOR SETTING CONTACT US

ANT LOCATION

ANT POINTING Get Gyro Info

Manual Pointing

Target Current

AZ 136.49 Degree 136.49 Degree

EL 54.95 Degree 54.95 Degree

RX VIEW

RX_Freq: 1340.1 MHz

RX_LO: 9700 MHz

TX: VEH

RX_SV_RX_SR: 51.850 MHz

AGC Threshold: 25

Lock Mode: MED

TX VIEW

SAT: 133.7E

TX_Freq: 1240.0 MHz

TX_LO: 12800 MHz

PL: MED

TX_Bandwidth: 30837 MHz

TX Enable

ACU IP VIEW

ACU OPERANT IP: 192.168.3.2

ACU OPERANT PORT: 4006

MAC: a2:86:4b:09:54:89

ACU IP: 192.168.3.4

SubMask: 255.255.255.0

Gateway: 192.168.3.168

MAC: a2:86:4b:09:54:99

ACU MONITOR

ADU Voltage (Normal is 48V): 48 V

ADU Voltage (Normal is 24V): 23.0 V

Total Power: 102.0 W

Show Offset: 0 Degree

AGC Value: 44100

Network: OFFLINE

OPERANT: Connected

VERSION

Model: VSATPHE

ID: 03E9711A

ADR: V1.0.00 Apr 8 2022

BDV: V4.3.0 Apr 17 2022

MODERN INFO

Console: Connected

SerialData: 110C00

Modem SW: 000004

Rx SNR: 12.9

Status: Waiting for Acquisition

OFENANIP Monitor

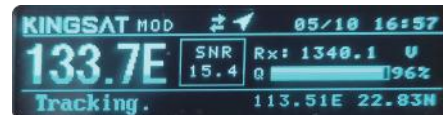
Communication Monitor

OFENANIP Manual Debug

s10

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Check ACU side, it also shows S and Q as the same as Web Interface.

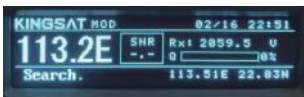


Installation

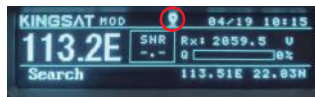
Step 7 Antenna Operating Status

After initialization,

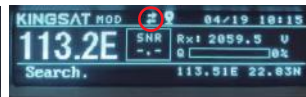
- 1) **GPS icon appears**, antenna receives longitude and latitude from GPS module.
- 2) **OPENAMIP icon shows blinking**, it means OPENAMIP protocol is working correctly between ACU and MODEM.



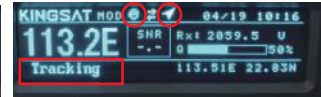
1.Power on and initial



2.Receive GPS info



3.ACU and MODEM communicates by OPENAMIP protocol



4.Tracking, get gyro info and access the network.

Installation

Step 8 Tracking Satellite

When the antenna lock the satellite successfully, ACU shows “TRACKING”. Now VSAT antenna is working correctly. Then MODEM starts to setup the link. Wait for MODEM to access the network.



Press UP button to display all MODEM status information.(now only support X5 X7 IQ200).

Check RX SNR and Status.

SNR < 4 , means weak signal, can not setup stable link

SNR > 6, means signal is ok, can setup stable link

SNR > 10, means good signal.

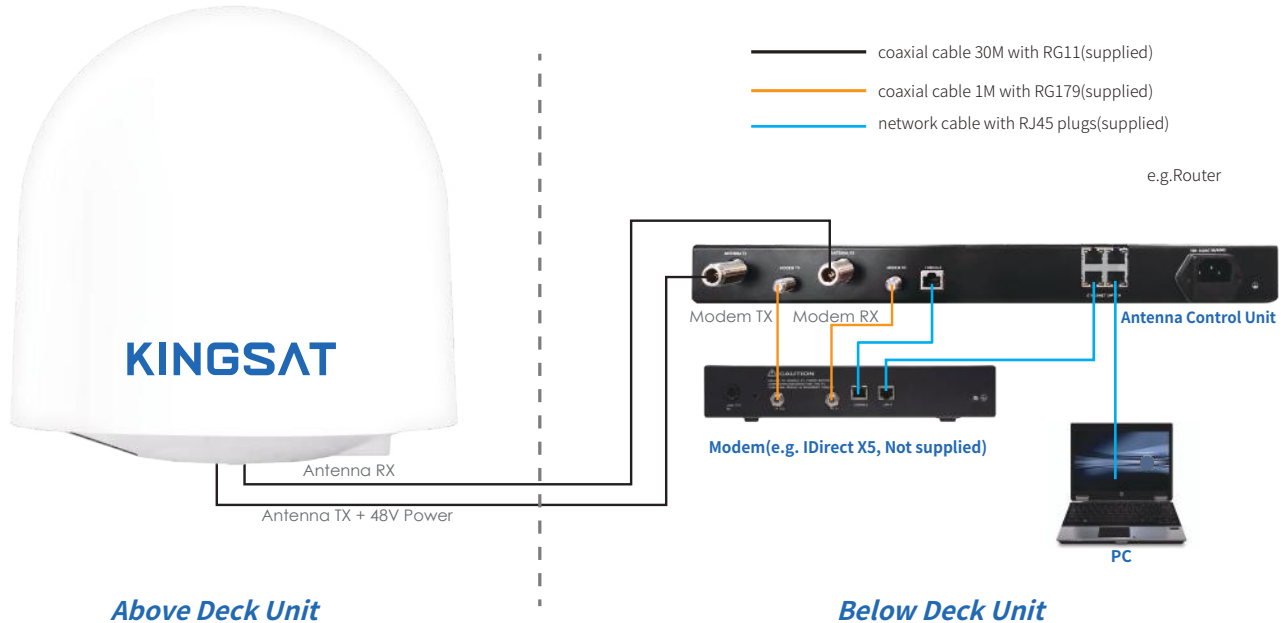
Status: In Network, means now modem already in the network.



Installation

Step 9 Testing Internet Link

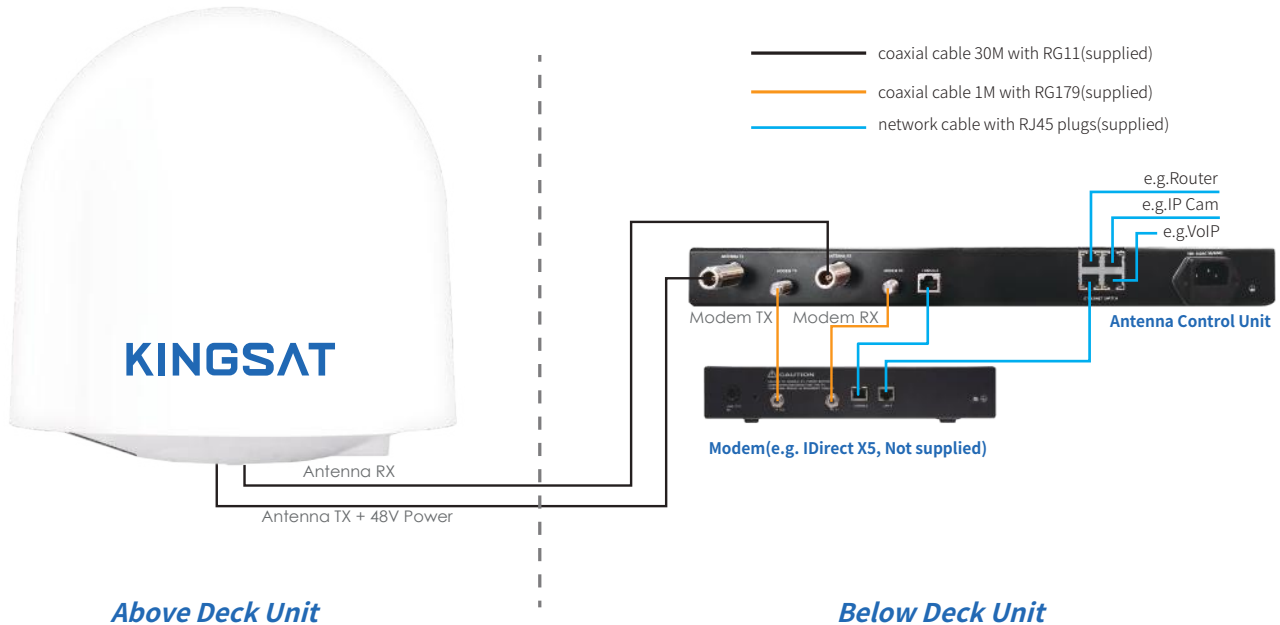
Connect to the PC and test whether the Internet link is connected successfully.



Installation

Step 10 Setting Done and Surf Internet

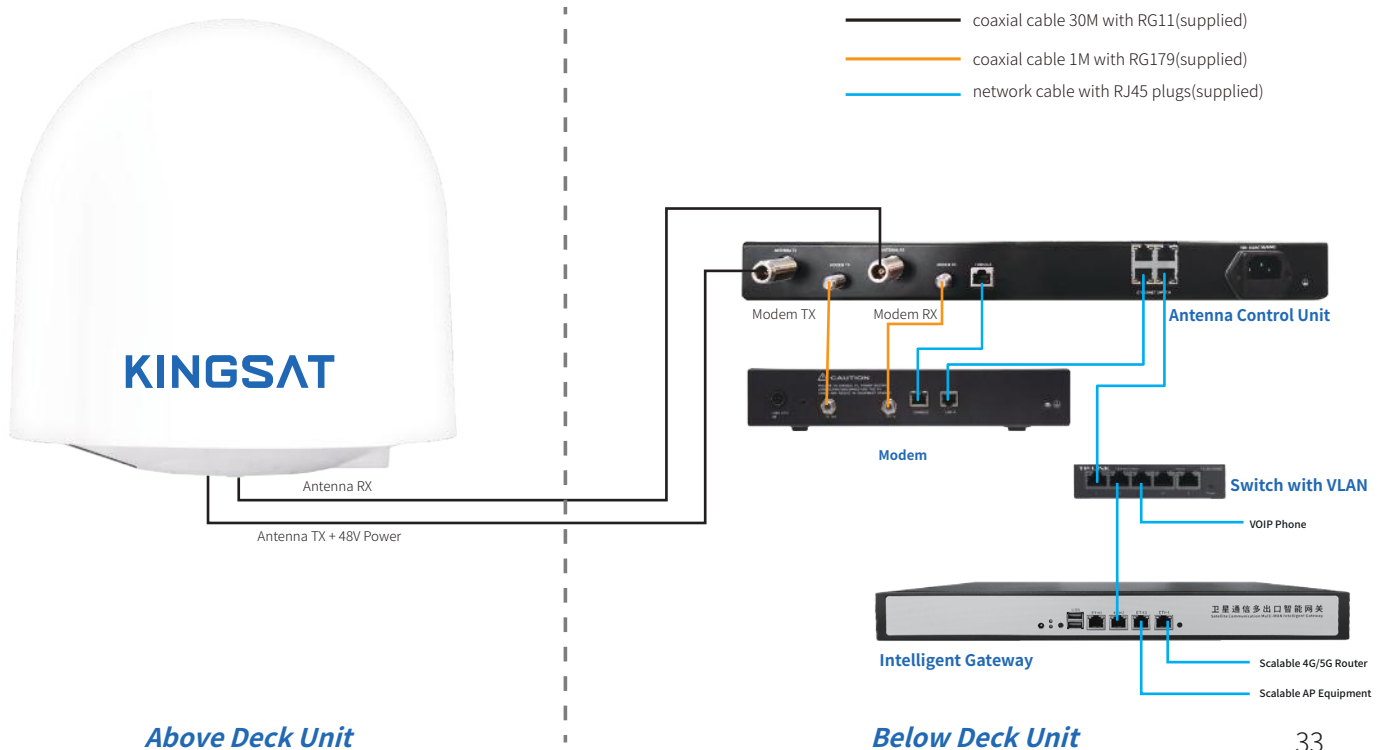
Now you can connect all IP devices to LAN ports of ACU ,then surf internet.



Installation

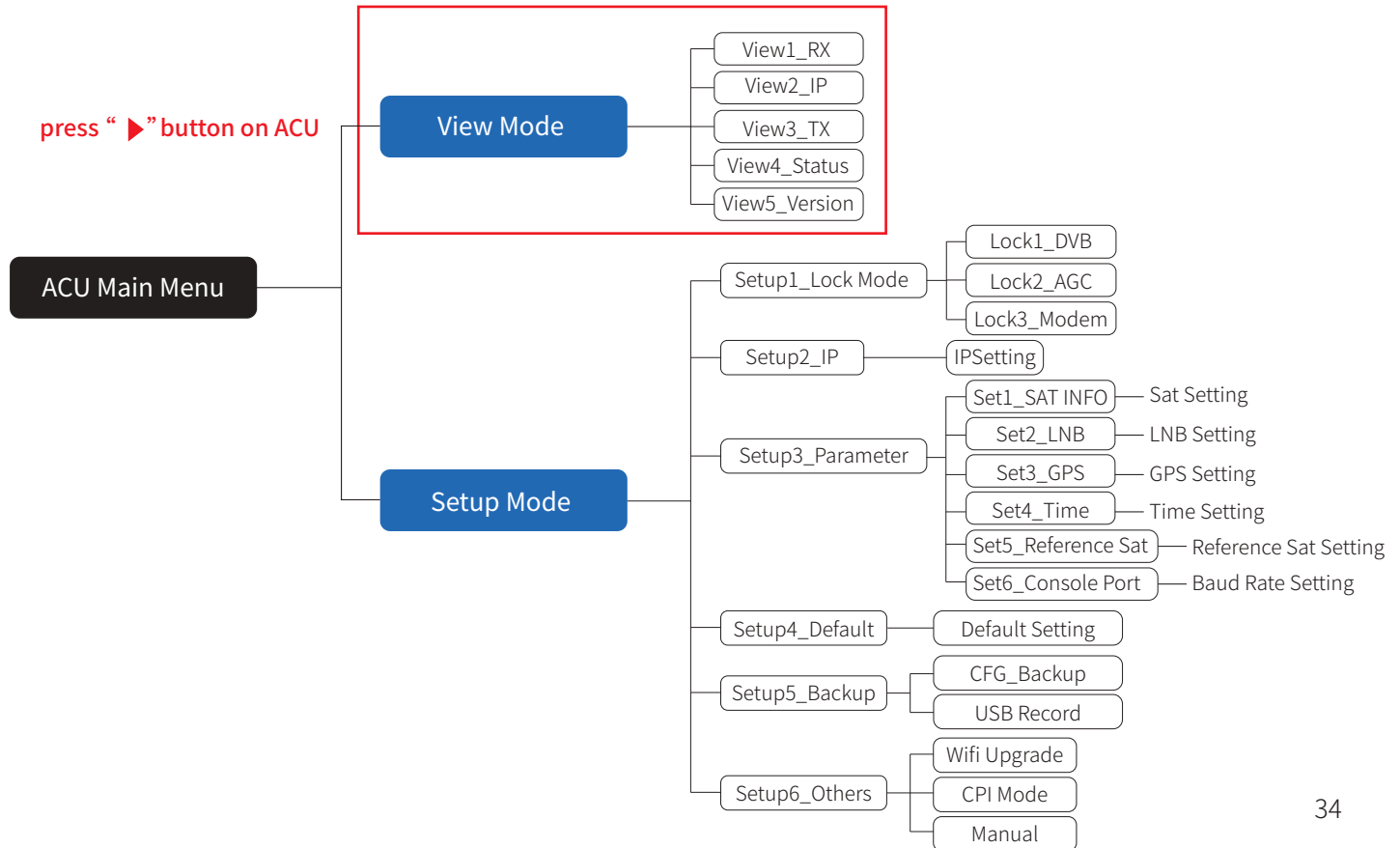
Step 10 Setting Done and Surf Internet

Connect as shown in the figure below, if user needs to access VOIP phones with VLAN settings.



Appendix 1

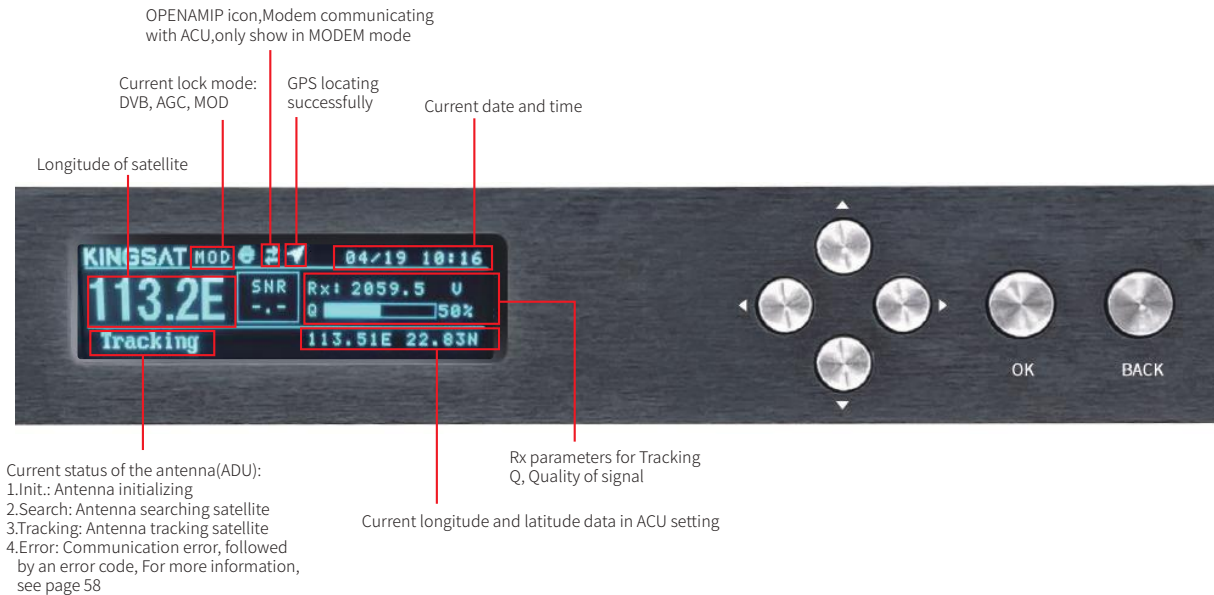
Antenna Status Monitor- View Mode of ACU



Appendix 1

Antenna Status Monitor- View Mode of ACU

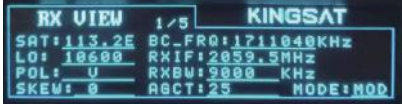
Main display description:



Appendix 1

Antenna Status Monitor- View Mode of ACU

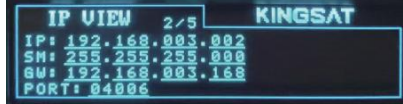
View display description: Press the right button of the ACU to display the following pages page by page.



RX VIEW 1/5 KINGSAT

SAT: 113.2E BC_FRQ: 1711040KHz
 LO: 10600 RXIF: 2059.5MHz
 POL: U RXBW: 9000 KHz
 SKEW: 0 AGCT: 25 MODE: MOD

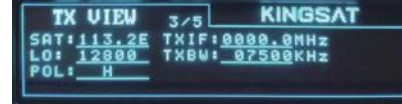
SAT	Longitude of selected satellite.
BC_FRQ	Beacon frequency of selected satellite.
L.O.	Local Oscillator of LNB.
RXIF	Intermediate Frequency of RX. RXIF=RX_Frequency-LNB L.O.
RXBW	Bandwidth of RX.
AGCT	Automatic Gain Control Threshold.
POL	RX Polarization of current active satellite. H(horizontal), V(Vertical)
SKEW	Skew offset. Default is 0 DEG.
MODE	Lock mode. 4 types of lock mode: DVB,AGC,MODEM,BEACON.



IP VIEW 2/5 KINGSAT

IP: 192.168.003.002
 SM: 255.255.255.000
 GW: 192.168.003.168
 PORT: 04006

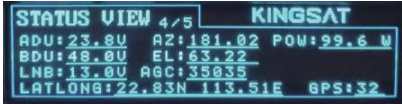
IP	Internet Protocol address. IP must be same segment as Modem IP setting
SM	Subnet mask.
GW	Gateway. Set the same with Modem IP.
PORT	The port that ACU communicate with Modem. Set the same with modem.



TX VIEW 3/5 KINGSAT

SAT: 113.2E TXIF: 0000.0MHz
 LO: 12000 TXBW: 07500KHz
 POL: H

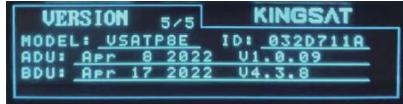
SAT	Longitude of satellite
TXIF	Intermediate frequency of TX TXIF=TX_Frequency-BUC L.O.
L.O.	Local Oscillator of BUC.
BW	Bandwidth of TX.
POL	TX Polarization. H(horizontal), V(Vertical)



STATUS VIEW 4/5 KINGSAT

ADU: 23.8V AZ: 181.02 POW: 99.6 W
 BDU: 48.0V EL: 63.22
 LNB: 13.0V AGC: 35035
 LATLONG: 22.83N 113.51E GPS: 32

ADU	Voltage of Above Deck Unit(Antenna) Normal value is around 24V.
BDU	Voltage of Below Deck Unit(ACU). Normal value is around 48V.
LNB	Voltage of LNB. 13V(RX polarization: Vertical), 18V(RX polarization: Horizontal)
AZ	Azimuth angle of ADU
EL	Elevation angle of ADU
LATLONG	Latitude and Longitude of current location
GPS	Quantity of GNSS satellites which capture signal
POW	Total power consumption



VERSION 5/5 KINGSAT

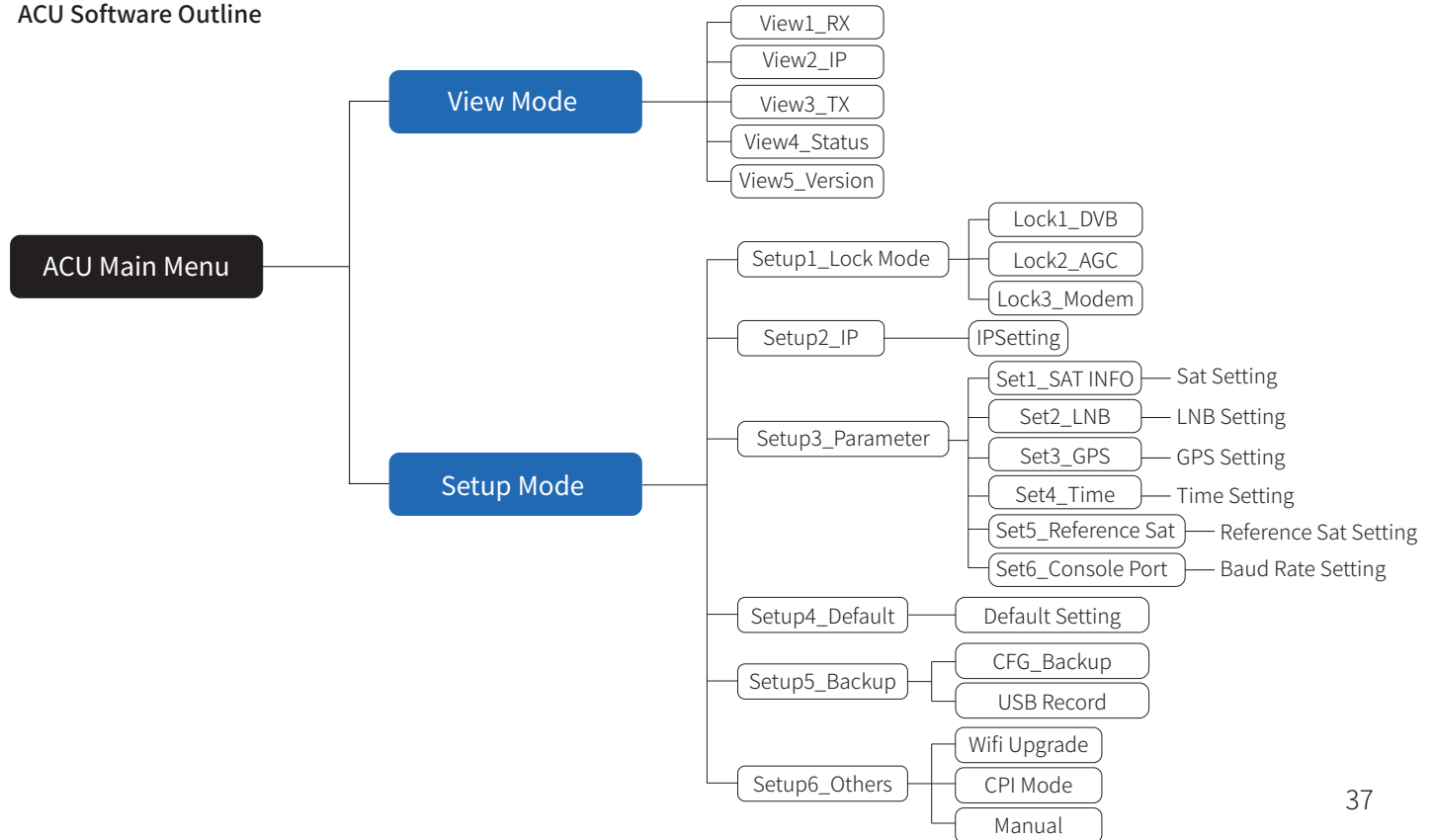
MODEL: USATP8E ID: 03207110
 ADU: Apr 8 2022 U1.0.09
 BDU: Apr 17 2022 U4.3.0

MODEL	Antenna model name
ID	Unique Identification of the ACU
ADU	Current software version of Antenna mainboard
BDU	Current firmware version of ACU

Appendix 1

Antenna Status Monitor- View Mode of ACU

ACU Software Outline



Appendix 2

Web Interface Home page

All antenna parameters are shown on this page. Real-time status is monitored.

Local Time: 2022-03-15 09:51:47

ACU Restart

HOME MONITOR SETTING CONTACT US

SAT: 113.2E Status: Tracking


S 52%
Q 64%

ANT LOCATION

Latitude: 22.8337 N
Longitude: 113.5093 E
GPS Number: 10
UTC +8

ANT POINTING

Get Gyro Info
 Manual Pointing



Target Current
AZ 180.79 Degree 180.80 Degree
EL 63.30 Degree 63.30 Degree

EL+ EL-
AZ+ AZ-

RX VIEW

RX_IF: 2059.5 MHz
LNB LO: 10600 MHz
POL: VER
RX_BW/RX_SR: 9000 KHz
AGC Threshold: 25
Lock Mode: MOD

TX VIEW

SAT: 113.2E
TX_IF: 0.0 MHz
BUC LO: 12000 MHz
POL: HOR
TX_Bandwidth: 7500 MHz

TX Enable

```
[1647337892]Rx:L 1 1 L 1 1
[1647337893]Rx:L 0 0 L 0 0 L 1 0
L 1 0
[1647337894]Tx:w 1 22.833719
113.509356 00000000
[1647337894]Rx:L 1 0 L 1 0
[1647337895]Rx:L 1 0 L 1 0
[1647337896]Rx:L 1 0 L 1 0
[1647337897]Tx:s 1 1
[1647337897]Rx:L 1 0 L 1 0
[1647337898]Rx:L 1 0 L 1 0
[1647337899]Tx:w 1 22.833720
113.509356 00000000
[1647337899]Rx:L 1 0 L 1 0
[1647337900]Rx:L 1 0 L 1 0
[1647337902]Tx:s 1 1
[1647337902]Rx:L 1 0 L 1 1 L 1 1
[1647337903]Rx:L 1 1 L 1 1
[1647337904]Tx:w 1 22.833720
113.509358 00000000
[1647337904]Rx:L 1 1 L 1 1
[1647337905]Rx:L 1 1 L 1 1
[1647337906]Rx:L 1 1 L 1 1
[1647337907]Tx:s 1 1
[1647337907]Rx:L 1 1 L 1 1
```

OPENAMIP Monitor
 Communication Monitor
 OPENAMIP Manual Debug

s 1 0

ACU IP VIEW

ACU OPENAMIP IP: 192.168.3.2
ACU OPENAMIP PORT: 4006
MAC: a2.f6.4b.08.f4.98
ACU IP: 192.168.3.26
SubMask: 255.255.255.0
Gateway: 192.168.3.1
MAC: a2.f6.4b.08.f4.99

ACU MONITOR

BDU Voltage (Normal is 48V): 48 V
ADU Voltage (Normal is 24V): 23.7 V
Total Power: 23.2 W
Skew Offset: 0 Degree
AGC Value: 35492
Network: Offline
OPENAMIP: Connected

VERSION

Model: YSATP8
ID: 032D711A
ADU: V1.0.04 Mar 3 2022
BDU: V4.3.2 Mar 9 2022

MODEM INFO

Console: Unconnected
Baudrate: 115200
Modem SN: 000000
Rx SNR: 0
Status:

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Appendix 2

Web Interface Home page

Sub-pages info indicate different parameters.

Local Time: 2022-03-15 09:51:47

HOME MONITOR SETTING CONTACT US

SAT: 113.2E Status: S 52% Q 64% ACU Restart

Capture GPS info **Antenna real-time pointing status** **RX info for Tracking** **Tx info from modem**

ANT LOCATION

Latitude: 22.8337 N
Longitude: 113.5093 E
GPS Number: 10
UTC +0

ANT POINTING Get Gyro Info Manual Pointing

Target Current
AZ 180.79 Degree 180.80 Degree
EL 63.30 Degree 63.30 Degree

RX VIEW

RX_IF: 2059.5 MHz
LNB LO: 10600 MHz
POL: VER
RX_SW/RX_SR: 9000 KHz
AGC Threshold: 25
Lock Mode: MOD

TX VIEW

SAT: 113.2E
TX_IF: 0.0 MHz
BUC LO: 12800 MHz
POL: HOR
TX_Bandwidth: 7500 KHz

TX Enable

```
[1647337893]Rx:L 0 0 L 0 0 L 0 0
L 1 0
[1647337894]Tx:w 1 22.833719
113.509356 000000000
[1647337894]Rx:L 1 0 L 1 0
[1647337896]Rx:L 1 0 L 1 0
[1647337896]Rx:L 1 0 L 1 0
[1647337897]Tx:s 1 1
[1647337897]Rx:L 1 0 L 1 0
[1647337896]Rx:L 1 0 L 1 0
[1647337896]Tx:w 1 22.833720
113.509356 000000000
[1647337898]Rx:L 1 0 L 1 0
[1647337900]Rx:L 1 0 L 1 0
[1647337902]Tx:s 1 1
[1647337902]Rx:L 1 0 L 1 1 L 1 1
[1647337903]Rx:L 1 1 L 1 1
[1647337904]Tx:w 1 22.833720
113.509358 000000000
[1647337904]Rx:L 1 1 L 1 1
[1647337905]Rx:L 1 1 L 1 1
[1647337906]Rx:L 1 1 L 1 1
[1647337907]Tx:s 1 1
[1647337907]Rx:L 1 1 L 1 1
```

OPENAMIP Monitor Communication Monitor OPENAMIP Manual Debug

Savebtn Input

ACU IP VIEW

ACU OPENAMIP IP: 192.168.3.2
ACU OPENAMIP PORT: 4006
MAC: a2:f6:4b:08:f4:98
ACU IP: 192.168.3.26
SubMask: 255.255.255.0
Gateway: 192.168.3.1
MAC: a2:f6:4b:08:f4:99

ACU MONITOR

BDU Voltage (Normal is 48V): 48 V
ADU Voltage (Normal is 24V): 23.7 V
Total Power: 23.2 W
Shaw Offset: 0 Degree
AGC Value: 35492
Network: Offline
OPENAMIP: Connected

VERSION

Model: VSATP8
ID: 032D711A
ADU: V1.0.04 Mar 3 2022
BDU: V4.3.2 Mar 9 2022

MODEM INFO

Console: Unconnected
BaudRate: 115200
Modem SN: 000000
Rx SNR: 0
Status:

IP setting **ACU voltage and status monitor** **Version view** **Modem status from console port**

Copyright © 2020 by KINGSAT
Real-time monitor for communication

Appendix 2

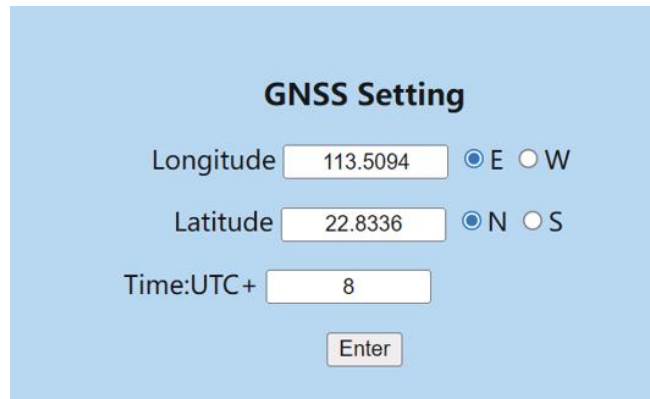
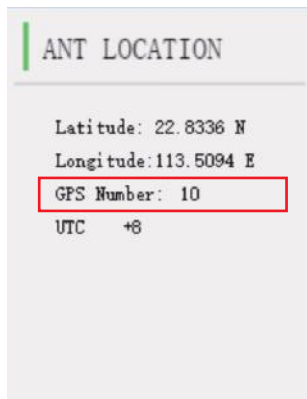
Sub-page Ant Location

ANT LOCATION

This page shows Antenna location which is got from GNSS module inside antenna.

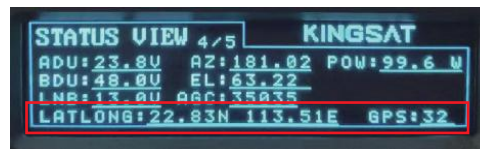
GPS number indicates GNSS satellites number which GNSS module can receive signal at current location.

Time Zone setting , go to SETTING --GNSS Setting, GNSS parameters can be setup by manual if needed.



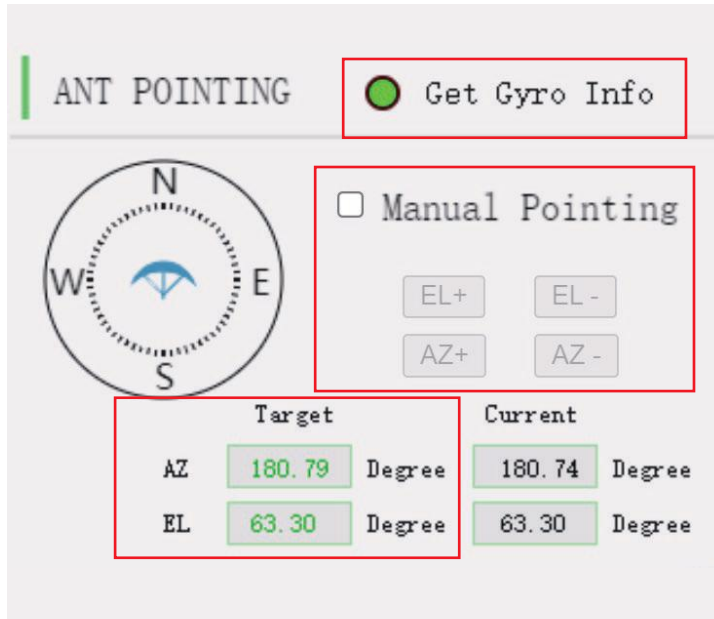
Another way for checking

Check ACU side, press Right button 5 times, you can check GNSS info.



Appendix 2

Sub-page Ant Pointing



ANT POINTING

Gyro info:

Green light indicates Get Gyro info, Gray light indicates Waiting for Gyro info .

- 1)**Free Gyro Version:** Get gyro info from first tracking, antenna will setup coordinate based on first tracking. This is fake Gyro info.
- 2)**Builtin Gyro Version:** Antenna get gyro info from dual GPS module directly.This is real Gyro info.

Manual Pointing Function

Enable Manual Pointing, antenna will erase gyro info ,motors of AZ and EL will stop. AZ and EL motors will move by manual, enter EL+ -or AZ+, each step is 0.5 degree

Target AZ & EL:

Based on your GNSS location and target satellite, antenna will automatically calculate the Target AZ and EL angle. Current AZ and EL is monitored by MEMS sensor.

Appendix 2

Sub-page Rx Tx page

Lock Mode:

Make sure Lock mode is MOD

AGC_Threshold:

Keep default setting. It will effect antenna sensitivity of tracking.
Range is 0-255, the bigger figure will make antenna move faster, and decrease sensitivity of weak signal.

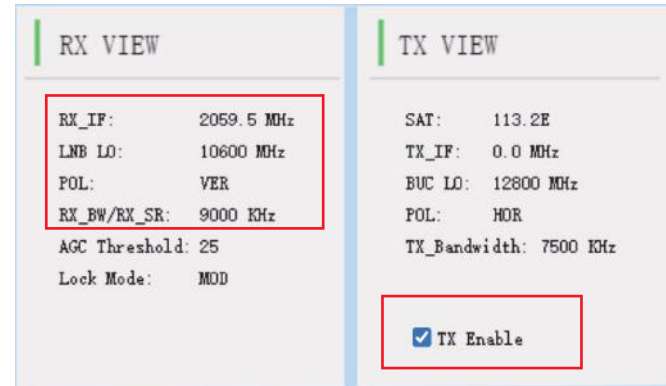
Rx parameters:

All Rx parameters are from MODEM. Antenna will use this parameters for tracking.

Make sure RX_IF LO, POL must be 100% matched with opt. file setting, Rx_BW/Rx_SR must be similar figure ($\pm 20\%$ difference) as real symbolRate, this figure will effect Signal Quality figure.

Another way for checking

Check ACU side, press Right button, check RX VIEW and TX VIEW page.



Tx parameters:

All Tx parameters are from MODEM. It will not effect antenna tracking.
But you can check and confirm Tx link is well configured or not.

Tx Enable function:

It is switch to enable or disable Tx link by ACU. We can use this function to verify BUC working or not.



Appendix 2

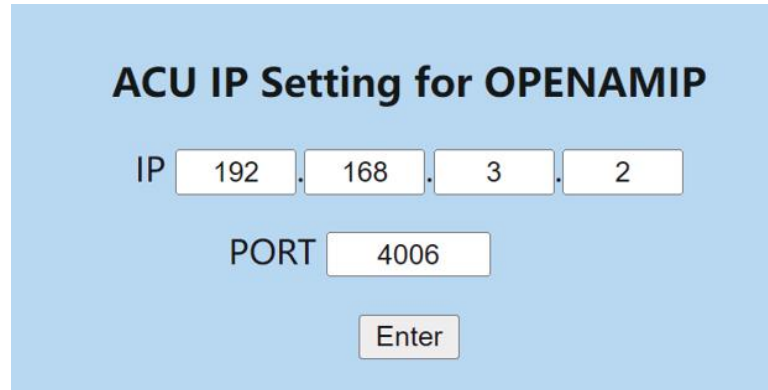
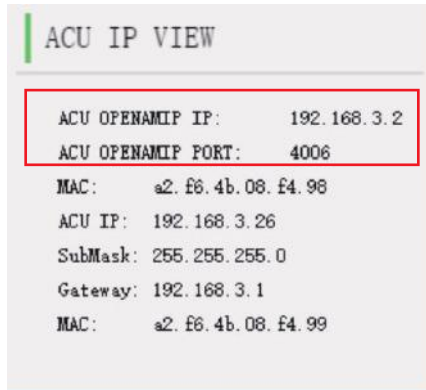
Sub-page IP info

ACU IP VIEW

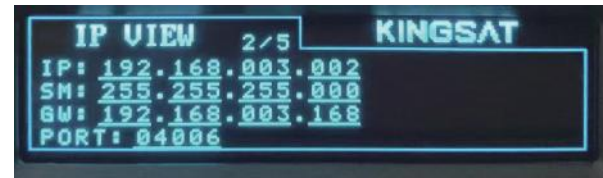
Make sure OpenAMIP IP and PORT match with opt. file of MODEM.

Correct IP and PORT setting is the first step for ACU to communicate with MODEM.

IP setting, go to [SETTING --ACU IP Setting for OPENAMIP](#).

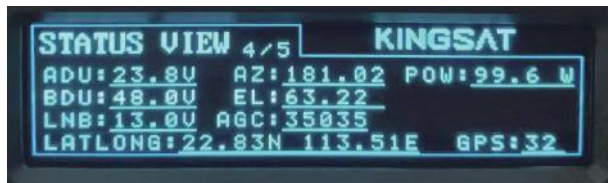
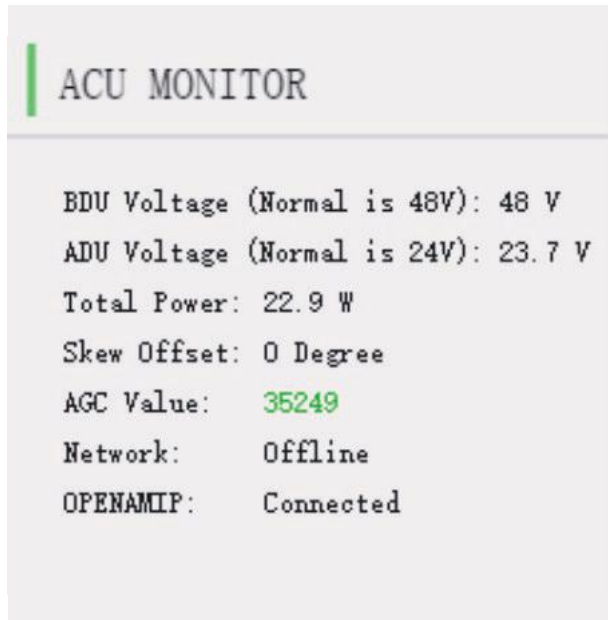


Check ACU side, press Right button, check IP VIEW page.



Appendix 2

Sub-page Monitor page



ACU MONITOR

BDU Voltage:

This is ACU output voltage to ADU. Normal is DC 48V.

ADU Voltage:

This is inside antenna power supply. From ACU, it is 48V. There is one DC-DC module inside antenna (48V-->24V). All antenna power supply with 24V from this DC-DC module.

Total Power:

There is one power detector in ACU. All system power consumption is real-time detected.

When Searching and Tracking, only Rx Link working, total power is about 30-40Watt.

TX working with BUC, total power is about 80-110Watt.

Skew Offset: mostly for CPI setting.

AGC Value: this figure effect Signal Strength.

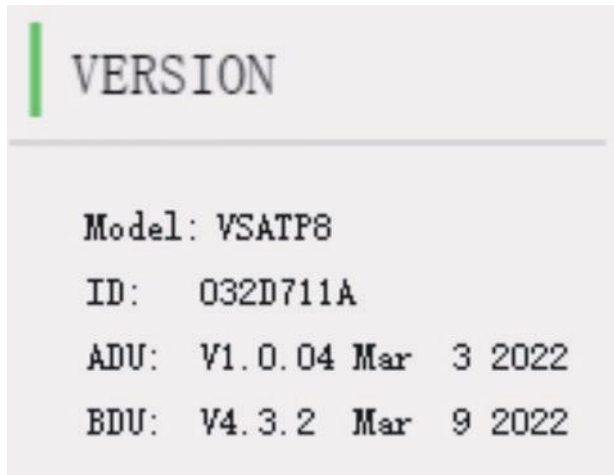
Network: it shows network from MODEM online or not.

OPENAMIP: it shows OPENAMIP protocol get through between ACU and MODEM or not.

Check ACU side, press Right button, check Status VIEW page.

Appendix 2

Sub-page Version page



VERSION

ADU Version:

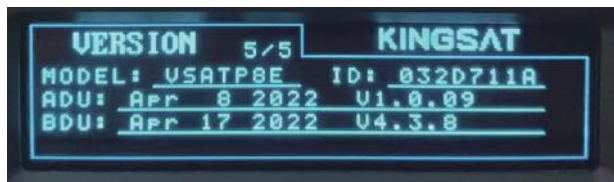
Above Deck unit, means antenna mainboard firmware version.

BDU Version:

Below Deck unit, means ACU firmware version.

ID:

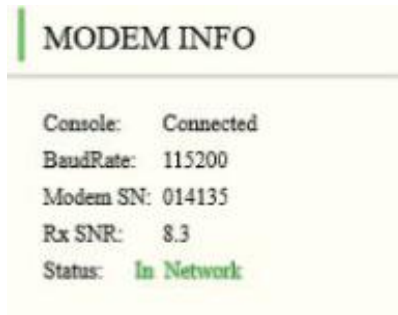
this is **unique ID** for each antenna.



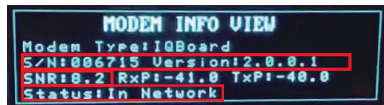
Check ACU side, press Right button, check VERSION page.

Appendix 2

Sub-page MODEM info page



ACU side, press UP button to display all MODEM status information.



MODEM INFO (now only support X5 X7 IQ200)

If ACU console port connect to modem console port correctly. Console BaudRate setting.



Console Port Setting

iDirect IQ200 115200

iDirect X5 X7 9600

After console is connected, ACU can read all modem real-time status directly, like modem S/N, RX_SNR, Status.

S/N, Modem serial number of the MODEM.

SNR, RX SNR.

SNR < 4, means weak signal, can not setup stable link

SNR > 6, means signal is ok, can setup stable link

SNR > 10, means good signal.

Status: the current state of MODEM,

IN_NETWORK works on behalf of MODEM and can access the Internet.

IN_ACQUISITION represents the acquisition network, which is the link-up process, the antenna is aligned, and Rx and Tx are ok.

WAITING_FOR_ACQUISITION the antenna is aligned, Rx is OK, and Tx is ready to start establishing a link.

DETECTED stands for Rx ok.

WAITING_FOR_RX_LOCK the antenna Rx has not locked the star successfully, MODEM is waiting for the antenna to be aligned with the satellite.

WRONG_NETWORK on behalf of MODEM does not have authorized access to the primary station. Plz call for NOC with help.

RECOVERY_STACK on behalf of MODEM can not access the Internet. Plz call for NOC with help.

Appendix 2

BDU upgrade with Web Interface

ACU Firmware Upgrade

You can upgrade ACU firmware with web Interface Setting page.

Select the upgrade **.bin file**, then press **Upgrade**, then ACU side will receive the .bin file and start to upgrade. it will take about 20s.

After upgrade, go to **HOME** page to check **BDU version**.



ACU Firmware Upgrade

选择文件 未选择任何文件 Upgrade Cancel

et Current
i1 Degree 141.22 Degree
i2 Degree 53.86 Degree

LNB LO: 9750 MHz TX_IF: 124
POL: VER BUC LO: 128
RX_BW/RX_SR: 54000 KHz POL: HOF
AGC Threshold: 25 TX_Bandwidth
Lock Mode: MOD TX Enable

VITOR

ge (Normal is 48V): 48 V
ge (Normal is 24V): 23.7 V
er: 58.2 W
et: 0 Degree
: 32843
Offline
Connected

VERSION

Model: VSATP6+
ID: 032D711A
ADU: V4.0.02 Nov 19 2021
BDU: V4.3.5 Mar 29 2022

MODEM INFO

Console: Connected
BaudRate: 115200
Modem SN: 020246
Rx SNR: -10
Status: Waiting fo

Appendix 2

CPI test with Web Interface

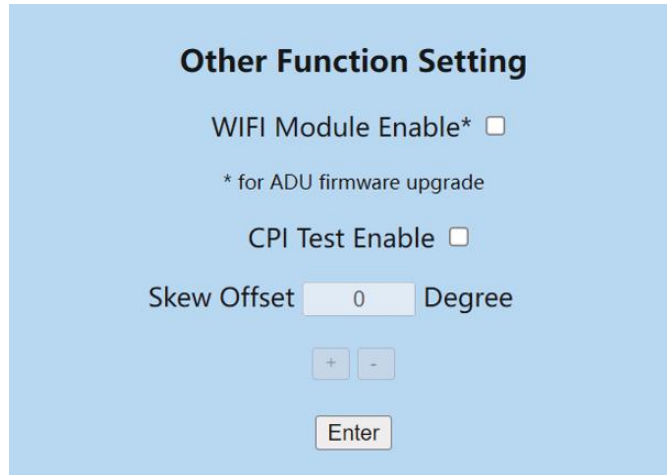
CPI Test

According to NOC requirement, if they need to test CPI so you must **Enable CPI test**.

You can operate antenna skew offset clockwise or counterclockwise with **Skew Offset** Setting. Set the degree of Skew offset then **Enter** to Save.

NOC will require the antenna polarization clockwise (CW) to rotate the antenna 1°, 2° or counterclockwise (CCW) to rotate skew offset 1°, 2° to read the CPI value, at same time you can modify Skew offset to 1,2 or -1,-2.

In the end, NOC will provide the value of CPI to determine whether the antenna meets the standard while you need to save the matched skew offset setting.



Other Function Setting

WIFI Module Enable*

* for ADU firmware upgrade

CPI Test Enable

Skew Offset Degree

+ -

Enter

Appendix 2

Web Interface Setting page--Rx setting

Rx parameters Setting

Modify Rx parameters by manual at this page. This Rx parameters are the one which antenna using for tracking.

RX Parameters Setting

Sat Longitude E W

RX Intermediate Freq MHz

LNB MHz

Bandwidth/SymbolRate KHz

Polarization Vertical Horizontal

AGC Threshold

Appendix 2

Web Interface Setting page--GNSS setting

GNSS Setting

Firstly set the correct **Time zone**, then local time will be updated.

If GNSS module get damaged or output wrong Longitude and Latitude, modify it by manual then press **Enter** to SAVE.



The image shows two screenshots of the EARDATEK web interface. The left screenshot is the 'GNSS Setting' page, and the right screenshot is the main dashboard.

GNSS Setting Page:

- Longitude: 113.5093 (radio buttons for E and W, E is selected)
- Latitude: 22.8337 (radio buttons for N and S, N is selected)
- Time:UTC+ 8
- Enter button

Main Dashboard:

- Local Time: 2022-03-30 12:30:49 (highlighted with a red box)
- SAT: 13
- Navigation tabs: HOME, MONITOR, SETTING, CONTACT US
- ANT LOCATION: Latitude: 22.8337 N, Longitude: 113.5093 E, GPS Number: 12, UTC +8
- ANT POINTING: Waiting Gyro info, Manual Pointing (checkbox), Target/Current values for AZ and EL.
- RX VIEW: RX_IF, LNB LO, POL, RX_BW/RX_SR, AGC Threshold, Lock Mode.
- ACU IP VIEW, ACU MONITOR, VERSION

A red arrow points from the 'Enter' button in the GNSS Setting page to the 'Local Time' field in the dashboard, indicating the result of saving the settings.

Appendix 2

EL Adjustment with Web Interface

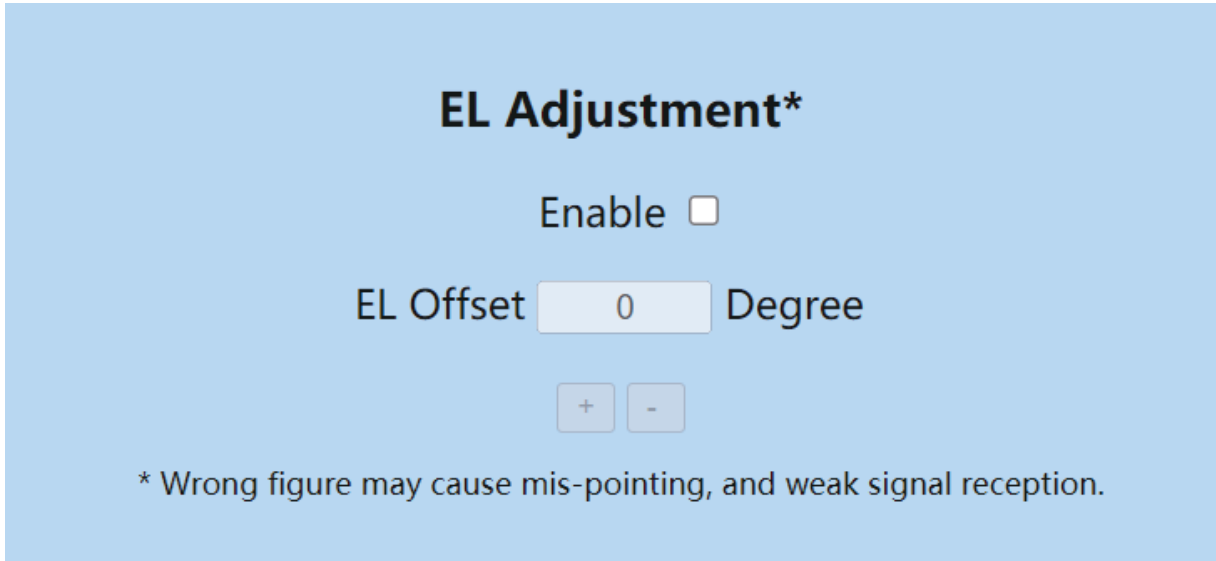
EL Adjustment

Elevation sensor adjustment

If needed, make elevation adjustment with [EL Offset](#).

This setting must be followed by KINGSAT technical team instruction.

Default is disable .



The screenshot shows a web interface for "EL Adjustment*". It features a title "EL Adjustment*" in bold black text. Below the title is an "Enable" checkbox, which is currently unchecked. Underneath is a text input field labeled "EL Offset" containing the number "0", followed by the word "Degree". Below the input field are two buttons: a plus sign (+) and a minus sign (-). At the bottom of the interface, there is a note: "* Wrong figure may cause mis-pointing, and weak signal reception."

Appendix 2

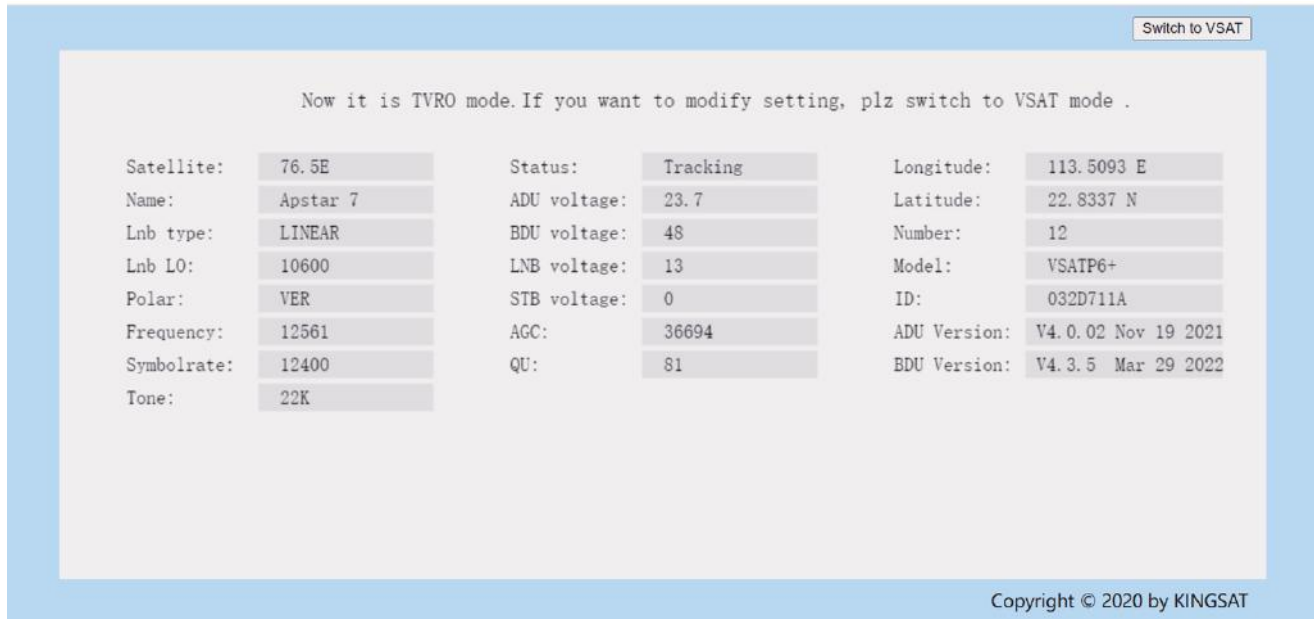
TVRO mode with Web Interface

If antenna is in TVRO mode, web interface only show antenna status as below.

In TVRO mode with web interface , you can not modify any setting, only can view.

If you want to change sat parameters, you need to operate with ACU panel button.

Press Switch to VSAT button, antenna will come back VSAT mode.



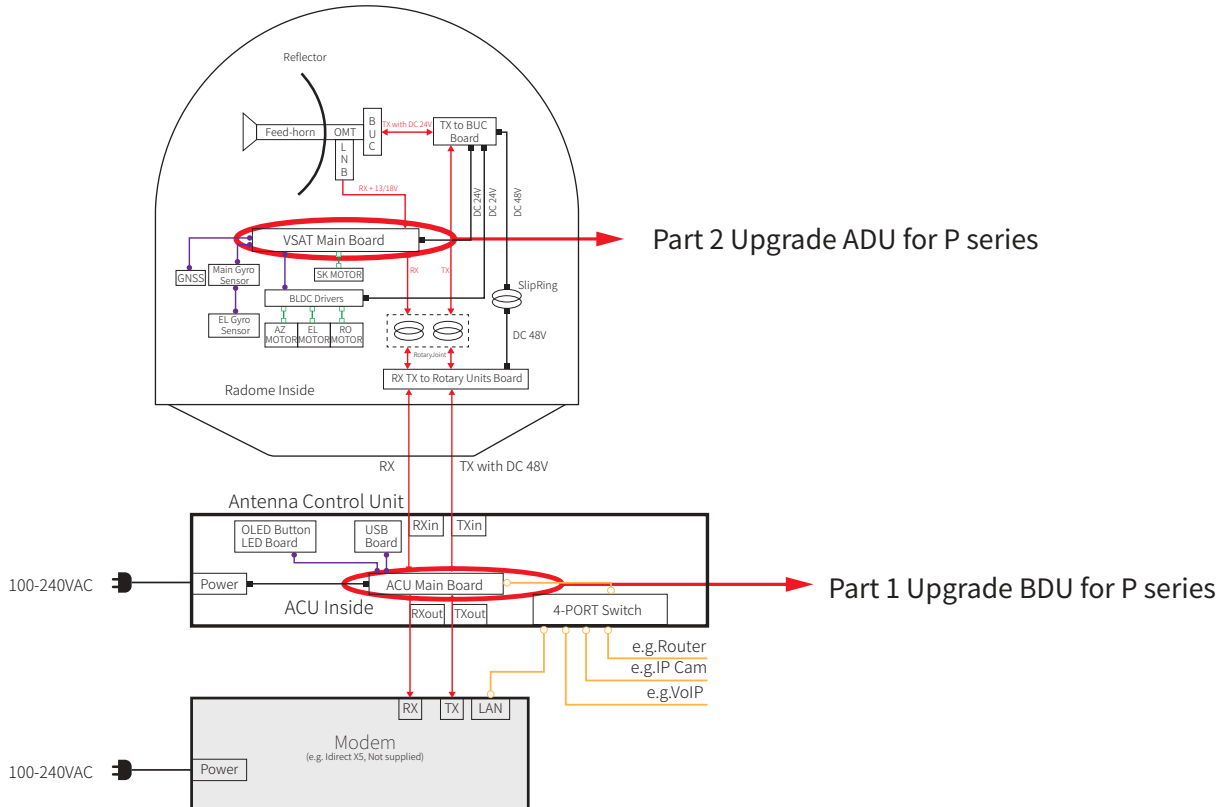
Switch to VSAT

Now it is TVRO mode.If you want to modify setting, plz switch to VSAT mode .

Satellite:	76.5E	Status:	Tracking	Longitude:	113.5093 E
Name:	Apstar 7	ADU voltage:	23.7	Latitude:	22.8337 N
Lnb type:	LINEAR	BDU voltage:	48	Number:	12
Lnb LO:	10600	LNB voltage:	13	Model:	VSATP6+
Polar:	VER	STB voltage:	0	ID:	032D711A
Frequency:	12561	AGC:	36694	ADU Version:	V4.0.02 Nov 19 2021
Symbolrate:	12400	QU:	81	BDU Version:	V4.3.5 Mar 29 2022
Tone:	22K				

Copyright © 2020 by KINGSAT

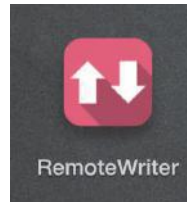
Appendix 3 Upgrade



Appendix 3 Upgrade

Part 2 Upgrade ADU for P series

1.Download and install app "RemoteWriter" on one Android phone from official distributor.



2.At Setup Mode, select<6. SET OTHERS> then turn on WIFI.

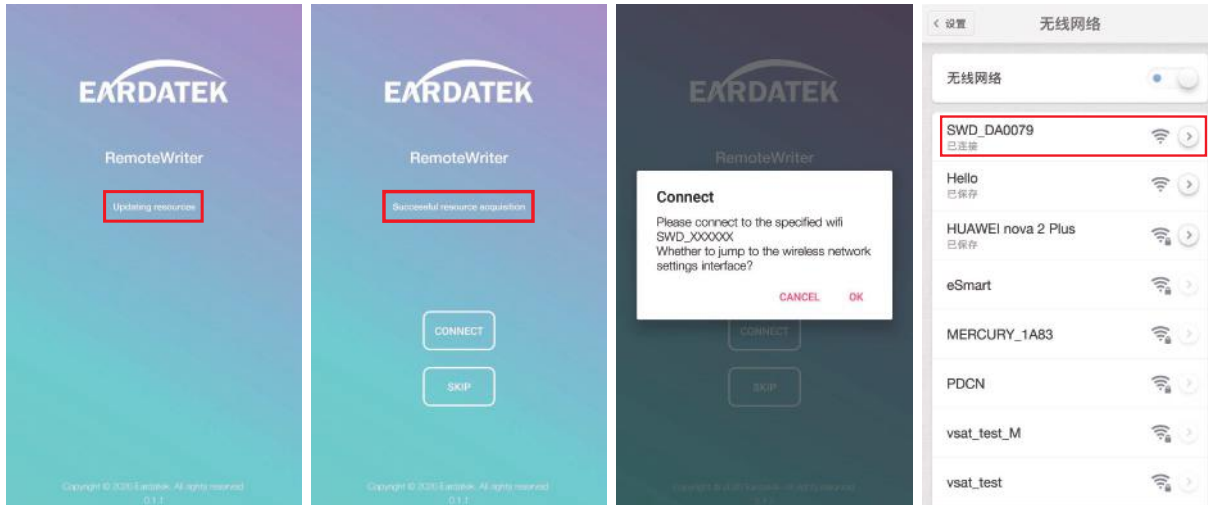


Appendix 3

Upgrade

Part 2 Upgrade ADU for P series

3. Open the Android phone application "Remote Writer", make sure there is a network connection (4G/wifi), wait for a few seconds, from "Updating Resources" until "Successful Resource Acquisition" is displayed. The download of the latest firmware from the server is complete.
4. Click "Connect" to Device, it shows that wifi needs to be connected "SWD_XXXXXX"; jump to the phone settings, connect to this wifi.

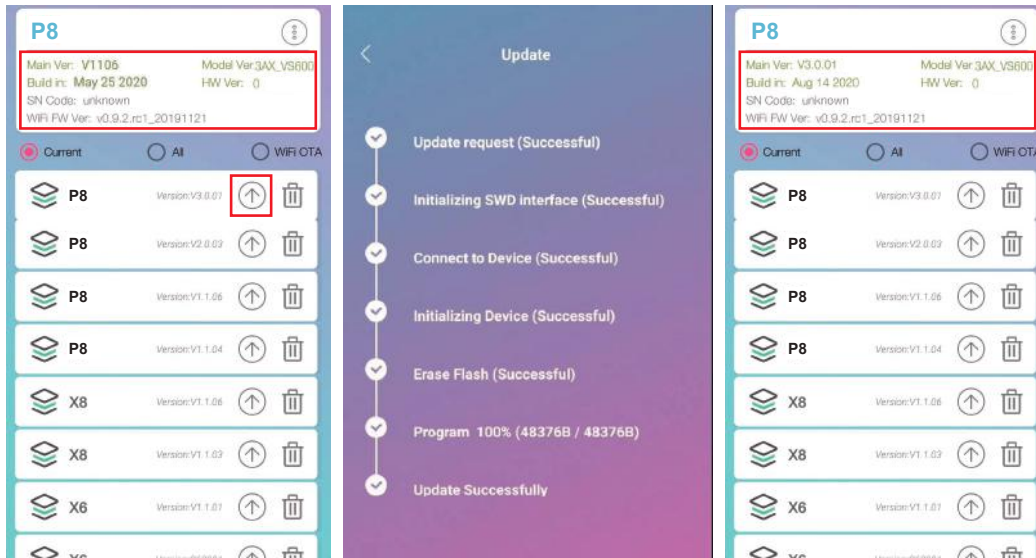


Appendix 3

Upgrade

Part 2 Upgrade ADU for P series

5. Return to the "Remote Writer" application, enter the firmware list, and confirm the firmware version of the current device.
6. Select the appropriate firmware version and click the up icon (⬆) to upgrade.
7. The upgrade is complete, and confirm whether the version is the selected upgrade version.



Appendix 4

Troubleshooting Guide---Error Code

Error Code and Solutions

- E01.** The initialization of antenna mainboard failed, please check connections of Tx and Rx cables and N-F connectors also check the antenna mainboard.
- E02.** The detection of antenna power failed, please check connections of Tx and Rx cables and N-F connectors.
- E03.** The detection of Skew motor failed, please check antenna mainboard, SK connector and Skew motor.
- E04.** The detection of antenna tuner failed, please check tuner on mainboard, cable connection from LNB to Tuner.
- E05.** The detection of LNB failed, please check LNB and cable connection from LNB to Tuner.
- E06.** The detection of Gyro sensors failed, please check Gyro sensor and cable connection of sensors.
- E07.** The detection of EL motor failed, please check the limited sensor, Elevation motor and belt of the EL motor.
- E08.** The detection of AZ motor failed, please check the limited sensor, Azimuth motor and belt of the AZ motor.
- E11.** The detection of beacon circuit failed, please check the beacon circuit on antenna mainboard.
- E12.** The detection of Cross Level motor failed, please check the limit sensor, Cross Level motor and belt of the Cross Level motor.
- E90.** The firmware of antenna mainboard may be damaged . Please contact the manufacturer to recovery the firmware.

The parts involved in the above error codes are shown in the figure below.

Appendix 4

Troubleshooting Guide---Error Code

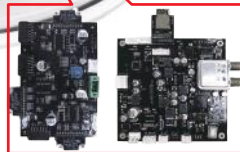
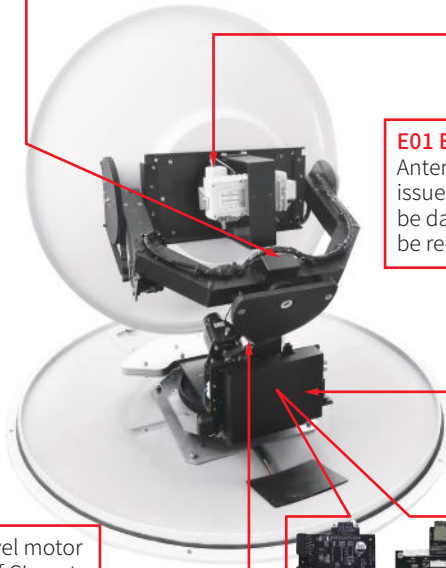
E06 Gyro sensor issue.
Check if the connection of sensor is loose.
If not, replace the gyro sensor.

E05 Check if the RF cable
between LNB and mainboard is
loose or broken.If not, replace
the LNB.

E07 Elevation motor issue.
Check if EL motor is stuck
or belt of EL motor is
broken.

E01 E02 E11 E04
Antenna mainboard
issue. Mainboard may
be damaged, should
be recovery or replaced.

E12 Cross Level motor
issue. Check if CL motor
is stuck or belt of CL
motor is broken.



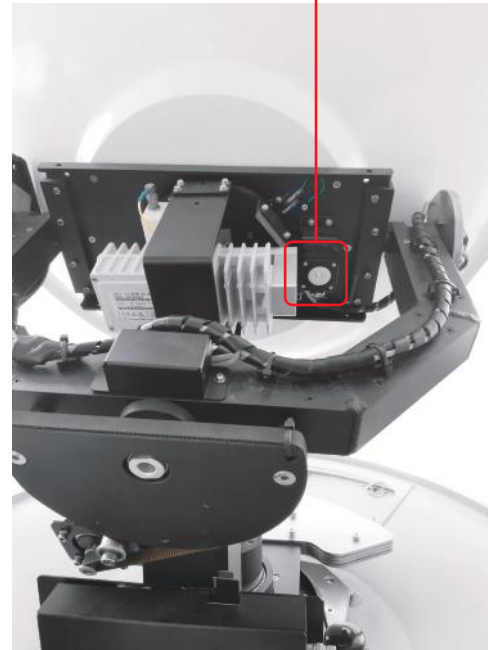
Appendix 4

Troubleshooting Guide---Error Code

E08 Azimuth motor issue.
Check if AZ motor is stuck
or belt of AZ motor is broken.



E03 Skew motor issue.
Check if SK motor is stuck, or belt of
SK motor is broken or the connector
of polarization switch is loose.

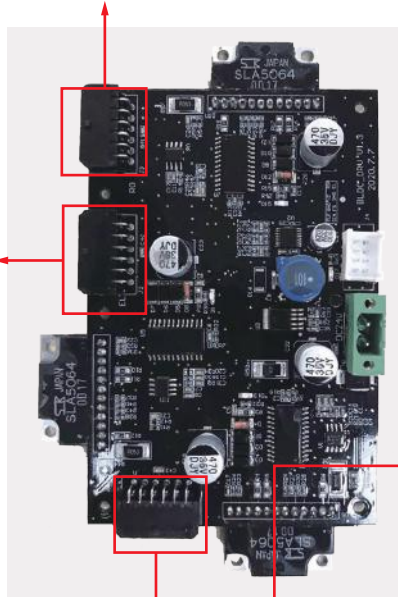


Appendix 4

Troubleshooting Guide---Error Code

E12

Check if cable of cross level motor and connector is loose.

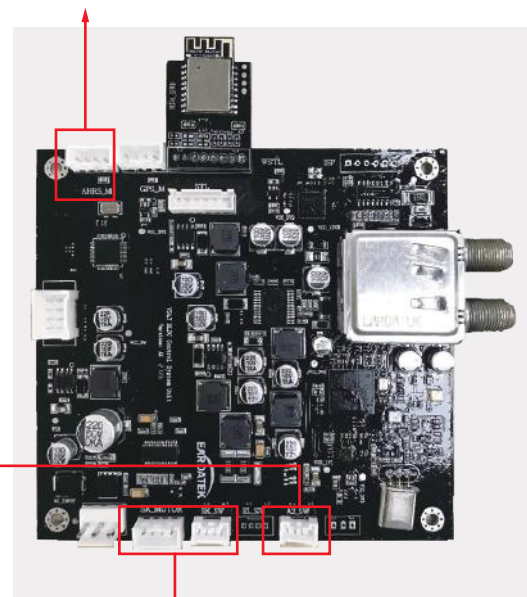


E07

Check if cable of elevation motor and limit sensor connectors are loose.

E06

Check if the connector of gyro sensor is loose.



E08

Check if cable of azimuth motor and limit sensor connectors are loose.

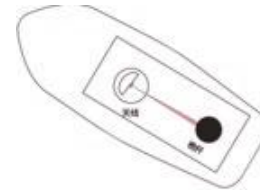
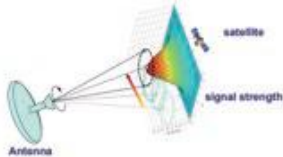
E03

Check if cable of skew motor and limit sensor connectors are loose.

Appendix 4

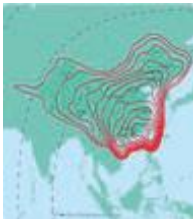
Troubleshooting Guide---Failure Cause

If the SATCOM link broken, it may come from below reasons (**Factors effect link stability**)



A. Hardware issue. The antenna may miss pointing or have tracking error, it may come from wrong configuration of antenna or software issue or some related hardware defective problem (like LNB,BUC,motor, belt, switch ,cable etc.)

B. Installation issue. If the installation site is not optimal, the antenna may be obstructed by the mast, deck house, funnel, boom on dock, tall building or mountain, etc, all this blockage will more or less result in poor reception. TX is more sensitive than RX for blockage.



C. Satellite coverage issue. The antenna cannot work out of the satellite beam range.

D. Hub station service issue. If service under the beam is not available, plz double confirm with NOC.

Appendix 4

Troubleshooting Guide---Failure Cause

If the SATCOM link broken, it may come from below reasons (**Factors effect link stability**)



E. Interference issue. If not installed with safe distance from RF source like radar ,VHF Tx antenna, GPS , AIS ,etc., VSAT antenna will get bad reception effected by RF interference.



G.Low elevation issue. Because GEO satellites are all over the equator ,when VSAT terminal is in high latitude area, the elevation angle of VSAT pointing is low (maybe less than 20°). In this case, antenna will easily miss pointing with high wave so link may be broken by this reason. In high latitude area, GEO satellite VSAT may not work smoothly.



F.Weather issue. The rain attenuation, caused by rain or thick clouds at the location of the antenna and the hub station, affects the stability of the satellite link.

Appendix 4

Troubleshooting Guide---Web Interface

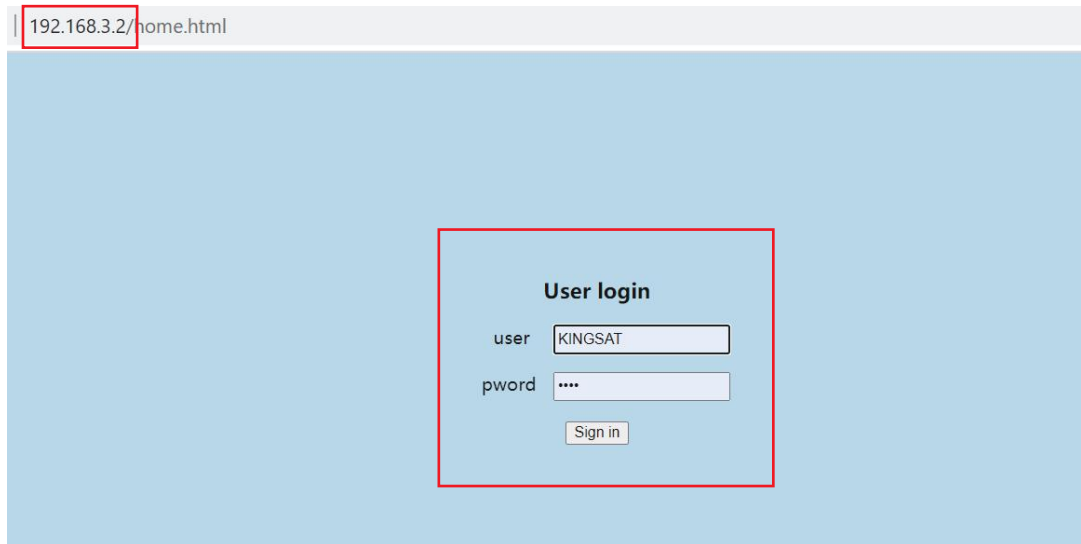
If Antenna keep seaching for long time, can not track satellite, So plz login Web Interface to make troubleshooting.



Appendix 4

Troubleshooting Guide---Web Interface

Connect laptop to ACU ethernet port. **Make Sure laptop IP and ACU IP in same segment** , then go to Browser, input ACU IP.
USER: KINGSAT, Password:1234



192.168.3.2/home.html

User login

user

pword

Appendix 4

Troubleshooting Guide---Web Interface

Sub-pages info indicate different parameters.

Local Time: 2022-03-15 09:51:47

HOME MONITOR SETTING CONTACT US


SAT: 113.2E Status: S 52% Q 64% ACU Restart

Capture GPS info Antenna real-time pointing status RX info for Tracking Tx info from modem

ANT LOCATION

Latitude: 22.8337 N
Longitude: 113.5093 E
GPS Number: 10
UTC +8

ANT POINTING Get Gyro Info Manual Pointing



Target Current
AZ 180.79 Degree 180.80 Degree
EL 63.30 Degree 63.30 Degree

EL+ EL-
AZ+ AZ-

RX VIEW

RX_IF: 2059.5 MHz
LNB LO: 10600 MHz
POL: VER
RX_SW/RX_SR: 9000 KHz
AGC Threshold: 25
Lock Mode: MOD

TX VIEW

SAT: 113.2E
TX_IF: 0.0 MHz
BUC LO: 12800 MHz
POL: HOR
TX_Bandwidth: 7500 KHz

TX Enable

```
[1647337893]Rx:L 0 0 L 0 0 L 0 0
L 1 0
[1647337894]Tx:w 1 22.833719
113.509356 00000000
[1647337894]Rx:L 1 0 L 1 0
[1647337896]Rx:L 1 0 L 1 0
[1647337896]Rx:L 1 0 L 1 0
[1647337897]Tx:s 1 1
[1647337897]Rx:L 1 0 L 1 0
[1647337896]Rx:L 1 0 L 1 0
[1647337896]Tx:w 1 22.833720
113.509356 00000000
[1647337898]Rx:L 1 0 L 1 0
[1647337900]Rx:L 1 0 L 1 0
[1647337902]Tx:s 1 1
[1647337902]Rx:L 1 0 L 1 1 L 1 1
[1647337903]Rx:L 1 1 L 1 1
[1647337904]Tx:w 1 22.833720
113.509358 00000000
[1647337904]Rx:L 1 1 L 1 1
[1647337905]Rx:L 1 1 L 1 1
[1647337906]Rx:L 1 1 L 1 1
[1647337907]Tx:s 1 1
[1647337907]Rx:L 1 1 L 1 1
```

OPENAMIP Monitor Communication Monitor OPENAMIP Manual Debug

SaveTxt Inout

ACU IP VIEW

ACU OPENAMIP IP: 192.168.3.2
ACU OPENAMIP PORT: 4006
MAC: a2:f6:4b:08:e4:98
ACU IP: 192.168.3.26
SubMask: 255.255.255.0
Gateway: 192.168.3.1
MAC: a2:f6:4b:08:e4:99

ACU MONITOR

BDV Voltage (Normal is 48V): 48 V
ADU Voltage (Normal is 24V): 23.7 V
Total Power: 23.2 W
Shaw Offset: 0 Degree
AGC Value: 35492
Network: Offline
OPENAMIP: Connected

VERSION

Model: VSATP8
ID: 032D711A
ADU: V1.0.04 Mar 3 2022
BDU: V4.3.2 Mar 9 2022

MODEM INFO

Console: Unconnected
BaudRate: 115200
Modem SN: 000000
Rx SNR: 0
Status:

IP setting ACU voltage and status monitor Version view Modem status from console port

Copyright © 2020 by KINGSAT
Real-time monitor for communication

Appendix 4

Troubleshooting Guide---Web Interface

Check 1 Target satellite is right or not.

Check 2 Click to enable OPENAMIP Monitor, check if any command output in this window .

Check 3 If not, check ACU OPENAMIP IP and PORT is setting correctly or not.

Local Time: 2022-03-29 20:21:52

ACU Restart

HOME MONITOR SETTING CONTACT US

SAT: 133.7E Status: S 38% Q 0%

Search

Check 1

ANT LOCATION
Latitude: 22.8337 N
Longitude: 113.5093 E
GPS Number: 12
UTC +8

ANT POINTING Waiting Gyro info
 Manual Pointing
AZ: 136.51 Degree EL: 54.93 Degree
Current AZ: 141.49 Degree EL: 53.37 Degree

RX VIEW
RX_IF: 1070.4 MHz
LNB LO: 9750 MHz
POL: VER
RX_BW/RX_SR: 51750 KHz
AGC Threshold: 25
Lock Mode: MOD

TX VIEW
SAT: 133.7E
TX_IF: 1240.6 MHz
BUC LO: 12800 MHz
POL: HOR
TX_Bandwidth: 30637 KHz
 TX Enable

ACU IP VIEW
ACU OPENAMIP IP: 192.168.3.2
ACU OPENAMIP PORT: 4006
MAC: a2:f6:4b:08:f4:98
ACU IP: 0.0.0.0
SubMask: 0.0.0.0
Gateway: 0.0.0.0
MAC: a2:f6:4b:08:f4:99

ACU MONITOR
BDU Voltage (Normal is 48V): 48 V
ADU Voltage (Normal is 24V): 23.7 V
Total Power: 25 W
Skew Offset: 0 Degree
AGC Value: 32276
Network: OffLine
OPENAMIP: Connected

VERSION
Model: VSATP+
ID: 032D711A
ADU: V4.0.02 Nov 19 2021
BDU: V4.3.5 Mar 29 2022

MODEM INFO
Console: Connected
BaudRate: 115200
Modem SN: 020246
Rx SNR: -10
Status: Waiting for Rx Lock

OPENAMIP Monitor
 Communication Monitor **Check 2**
 OPENAMIP Manual Debug
s 1 0

```
09:000 B 9750:000 12800:000 N
90.0 0.0 A 15 W S F
[1648585301]Tx:w 1 22.833737
113.509361 000000000
[1648585301]Rx:L 0 0
[1648585302]Tx:a 1 s 1 0
[1648585302]Rx:S 133.7 0.1 0.0 P
V H 1070.450 51.750 B 9750.000
12800.000 K 90.0 0.0 A 15 W S F L
0 0
[1648585303]Tx:w 1 22.833737
113.509361 000000000
[1648585303]Rx:L 0 0
[1648585304]Rx:L 0 0
[1648585305]Rx:L 0 0
[1648585306]Rx:L 0 0
[1648585307]Rx:L 0 0
[1648585308]Tx:w 1 22.833743
113.509358 000000000
[1648585308]Rx:L 0 0
[1648585309]Rx:L 0 0
[1648585310]Rx:L 0 0
[1648585311]Rx:L 0 0
[1648585312]Rx:L 0 0
```

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Appendix 4

Troubleshooting Guide---Web Interface

Check 4 Check GPS info is correct or not.

Check 5 Confirm Lock mode is MOD. Then check RX parameter is matched with modem setting or not. Antenna is using this parameters for tracking, so here is very important!!!RX_IF, LNB L.O, POL, RX_BW/RX_SR this 4 parameters are all from MODEM.

The screenshot displays the Eardatek web interface with the following sections:

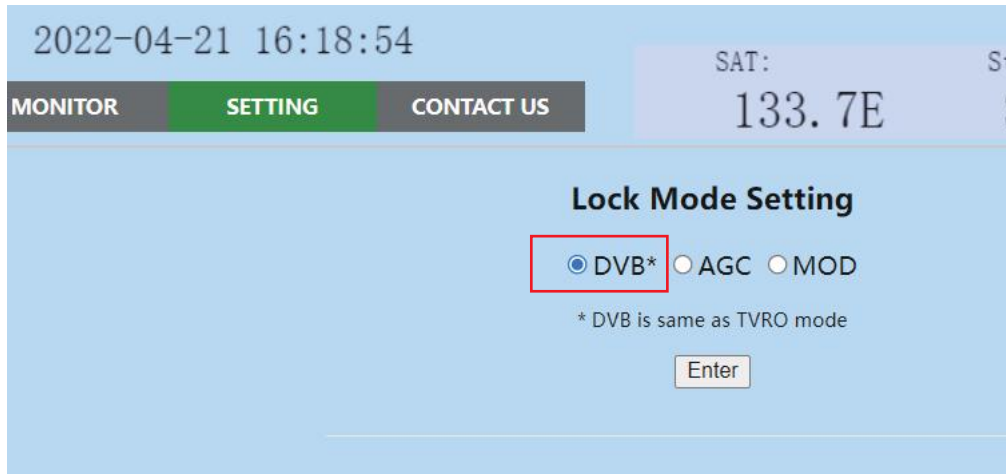
- Local Time:** 2022-03-29 20:21:52
- Navigation:** HOME, MONITOR, SETTING, CONTACT US
- SAT:** 133. 7E
- Status:** Search, with signal strength bars for S (38%) and Q (0%).
- ACU Restart:** Button
- ANT LOCATION:** Latitude: 22.8337 N, Longitude: 113.5093 E, GPS Number: 12. **Check 4** is placed below this section.
- ANT POINTING:** Waiting Gyro info, Manual Pointing, and target/current angle data for AZ and EL.
- RX VIEW:** RX_IF: 1070.4 MHz, LNB LO: 9750 MHz, POL: VER, RX_BW/RX_SR: 51750 KHz, AGC Threshold: 25, Lock Mode: MOD. **Check 5** is placed below this section.
- TX VIEW:** SAT: 133. 7E, TX_IF: 1240.6 MHz, BUC LO: 12800 MHz, POL: HOR, TX_Bandwidth: 30637 KHz, TX Enable checkbox.
- ACU IP VIEW:** ACU OPENAMIP IP: 192.168.3.2, ACU OPENAMIP PORT: 4006, MAC: a2.f6.4b.08.f4.98, ACU IP: 0.0.0.0, SubMask: 0.0.0.0, Gateway: 0.0.0.0, MAC: a2.f6.4b.08.f4.99.
- ACU MONITOR:** BDV Voltage (Normal is 48V): 48 V, ADU Voltage (Normal is 24V): 23.7 V, Total Power: 25 W, Skew Offset: 0 Degree, AGC Value: 32276, Network: OffLine, OPENAMIP: Connected.
- VERSION:** Model: VSATP6+, ID: 032D711A, ADU: V4.0.02 Nov 19 2021, BDV: V4.3.5 Mar 29 2022.
- MODEM INFO:** Console: Connected, BaudRate: 115200, Modem SN: 020246, Rx SNR: -10, Status: Waiting for Rx Lock.
- Log:** Terminal window showing satellite tracking logs.
- Monitoring Options:** OPENAMIP Monitor (checked), Communication Monitor, OPENAMIP Manual Debug.
- Footer:** Copyright © 2020 by KINGSAT

Appendix 4

Troubleshooting Guide---TVRO Mode

TVRO mode for verify hardware

Go to SETTING Page---Lock Mode Setting, select DVB, then Enter to SAVE.
Now antenna changes to TVRO mode.



2022-04-21 16:18:54

MONITOR SETTING CONTACT US

SAT: 133.7E

Lock Mode Setting

DVB* AGC MOD

* DVB is same as TVRO mode

Enter

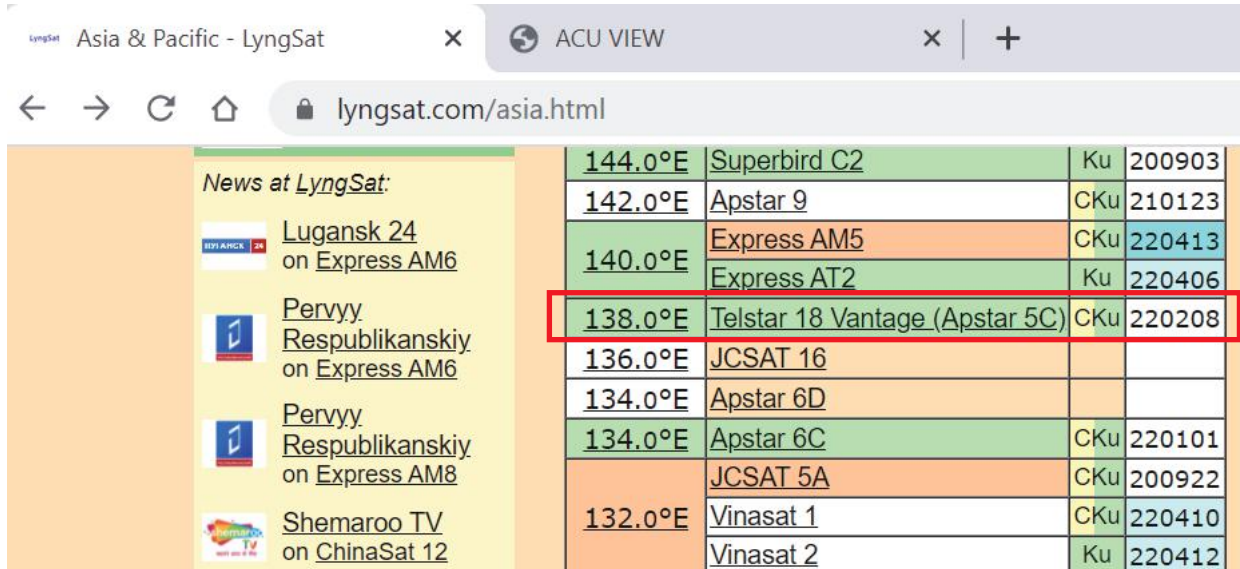
Appendix 4

Troubleshooting Guide---TVRO Mode

TVRO mode for verify hardware

Go to website www.lyngsat.com

Select one of the popular TV satellite to test at your local area.







Asia & Pacific - LyngSat

ACU VIEW

lyngsat.com/asia.html

News at *LyngSat*:

-  **Lugansk 24**
on Express AM6
-  **Pervyy Respublikanskiy**
on Express AM6
-  **Pervyy Respublikanskiy**
on Express AM8
-  **Shemaroo TV**
on ChinaSat 12

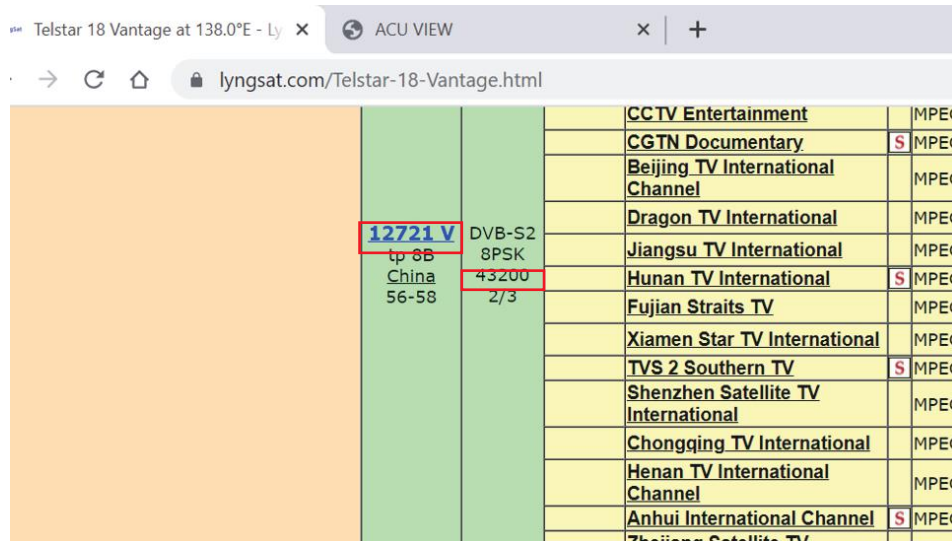
<u>144.0°E</u>	<u>Superbird C2</u>	Ku	200903
<u>142.0°E</u>	<u>Apstar 9</u>	CKu	210123
<u>140.0°E</u>	<u>Express AM5</u>	CKu	220413
	<u>Express AT2</u>	Ku	220406
<u>138.0°E</u>	<u>Telstar 18 Vantage (Apstar 5C)</u>	CKu	220208
<u>136.0°E</u>	<u>JCSAT 16</u>		
<u>134.0°E</u>	<u>Apstar 6D</u>		
<u>134.0°E</u>	<u>Apstar 6C</u>	CKu	220101
	<u>JCSAT 5A</u>	CKu	200922
<u>132.0°E</u>	<u>Vinasat 1</u>	CKu	220410
	<u>Vinasat 2</u>	Ku	220412

Appendix 4

Troubleshooting Guide---TVRO Mode

TVRO mode for verify hardware

Choose one TV signal for testing. Plz record the key figure. **Freq , Pol, SymbolRate**, this 3 parameters. e.g. 12721 V 43200



Frequency	Polarization	Symbol Rate	Channel Name	Modulation
12721 V	DVB-S2	43200	CCTV Entertainment	MPEG
12721 V	DVB-S2	43200	CGTN Documentary	MPEG
12721 V	DVB-S2	43200	Beijing TV International Channel	MPEG
12721 V	DVB-S2	43200	Dragon TV International	MPEG
12721 V	DVB-S2	43200	Jiangsu TV International	MPEG
12721 V	DVB-S2	43200	Hunan TV International	MPEG
12721 V	DVB-S2	43200	Fujian Straits TV	MPEG
12721 V	DVB-S2	43200	Xiamen Star TV International	MPEG
12721 V	DVB-S2	43200	TVS 2 Southern TV	MPEG
12721 V	DVB-S2	43200	Shenzhen Satellite TV International	MPEG
12721 V	DVB-S2	43200	Chongqing TV International	MPEG
12721 V	DVB-S2	43200	Henan TV International Channel	MPEG
12721 V	DVB-S2	43200	Anhui International Channel	MPEG
12721 V	DVB-S2	43200	Zhejiang Satellite TV	MPEG

Now this Freq is 12721>11700, so we need to select **LO 10600** (Plz note that Freq> 11700, LO is 10600, Freq <11700 , LO is 9750), Then now you can make calculation as below

$$\text{RX_IF } 12721 - 10600 = 2121$$

for this DVB carrier info , plz note it

RX_IF 2121

LO 10600

POL V

SymbolRate 43200

Appendix 4

Troubleshooting Guide---TVRO Mode

TVRO mode for verify hardware

Now go to SETTING page ---- we can input parameters, then press Enter to SAVE.

DVB carrier

RX_IF 2121

LO 10600

POL V

SymbolRate 43200

RX Parameters Setting

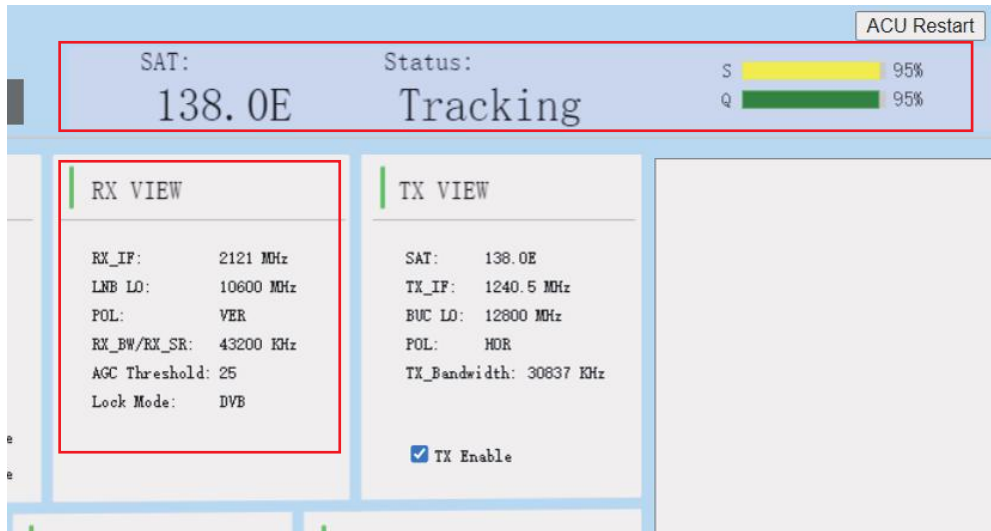
Sat Longitude	<input type="text" value="138.0"/>	<input checked="" type="radio"/> E <input type="radio"/> W
RX Intermediate Freq	<input type="text" value="2121"/>	MHz
LNB	<input type="text" value="10600"/>	MHz
Bandwidth/SymbolRate	<input type="text" value="43200"/>	KHz
Polarization	<input checked="" type="radio"/> Vertical <input type="radio"/> Horizontal	
AGC Threshold	<input type="text" value="25"/>	

Appendix 4

Troubleshooting Guide---TVRO Mode

TVRO mode for verify hardware

Back to HOME page, you can check RX parameter is correct or not, then check antenna status, check if it can track this satellite.



The screenshot displays the TVRO mode interface. At the top right, there is an 'ACU Restart' button. The main status bar shows 'SAT: 138.0E' and 'Status: Tracking'. To the right of the status bar, there are two progress bars: 'S' (yellow) at 95% and 'Q' (green) at 95%. Below the status bar, there are two main sections: 'RX VIEW' and 'TX VIEW'. The 'RX VIEW' section is highlighted with a red box and contains the following parameters: RX_IF: 2121 MHz, LNB LO: 10600 MHz, POL: VER, RX_BW/RX_SR: 43200 KHz, AGC Threshold: 25, and Lock Mode: DVB. The 'TX VIEW' section contains: SAT: 138.0E, TX_IF: 1240.5 MHz, BUC LO: 12800 MHz, POL: HOR, TX_Bandwidth: 30837 KHz, and a checked checkbox for 'TX Enable'.

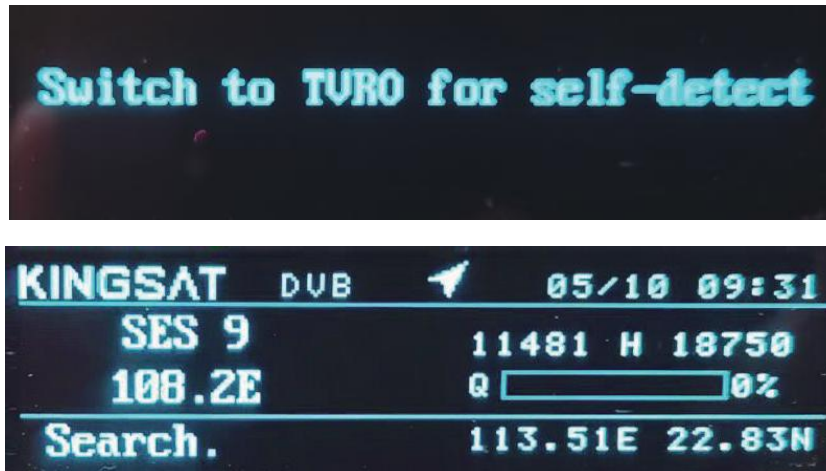
If show Tracking ,means Antenna hardware is ok without any problem.
Use this DVB mode to fast verify hardware.

Appendix 4

Troubleshooting Guide---TVRO Mode

TVRO mode for verify hardware---operation only with ACU ,not Web Interface

Go to ACU side , Press **BACK** button and hold it on **more than 5s**, then VSAT antenna will switch to TVRO mode.

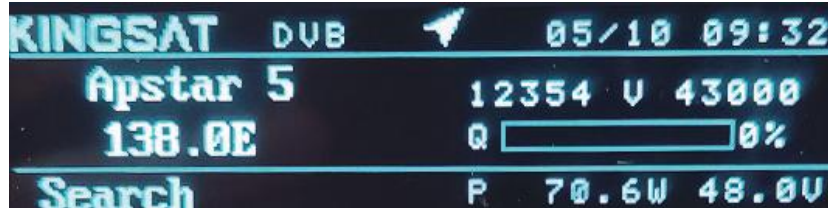


Appendix 4

Troubleshooting Guide---TVRO Mode

TVRO mode for verify hardware---operation only with ACU ,not Web Interface

Press OK, select your local satellite which is available for signal.We already builtin satellite database inside ACU. you can select or modify it.



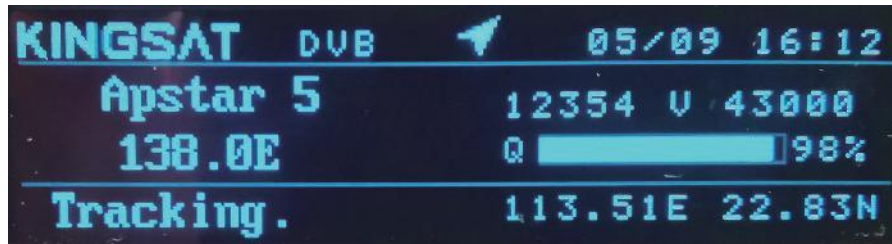
Appendix 4

Troubleshooting Guide---TVRO Mode

TVRO mode for verify hardware---operation only with ACU ,not Web Interface

Wait for Tracking.

Once Antenna shows Tracking, means antenna hardware is verified without any problem.



Appendix 4

Troubleshooting Guide---Manual Mode

Manual Test with Web Interface

Go to Web Interface of ACU, enable Manual Pointing.

Antenna will move by each click with EL+ EL- , AZ+ AZ-. each click step is 0.5°.

Local Time: 2022-04-24 15:00:30

SAT: 133.7E

HOME MONITOR SETTING CONTACT US

ANT LOCATION

Latitude: 22.8336 N
Longitude: 113.5092 E
GPS Number: 37
UTC: +8

ANT POINTING Get Gyro Info

Manual Pointing

EL+ EL-
AZ+ AZ-

Target Current

AZ 136.51 Degree 137.64 Degree
EL 54.93 Degree 53.80 Degree

RX VIEW

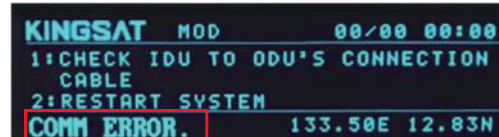
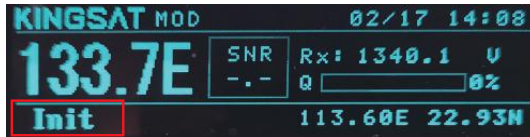
RX_IF: 1340.1 MHz
LNB LO: 9750 MHz
POL: VEH
RX_BW/RX_SR: 51750 KHz
AGC Threshold: 25
Lock Mode: MDD

Appendix 4

Troubleshooting Guide---FAQ

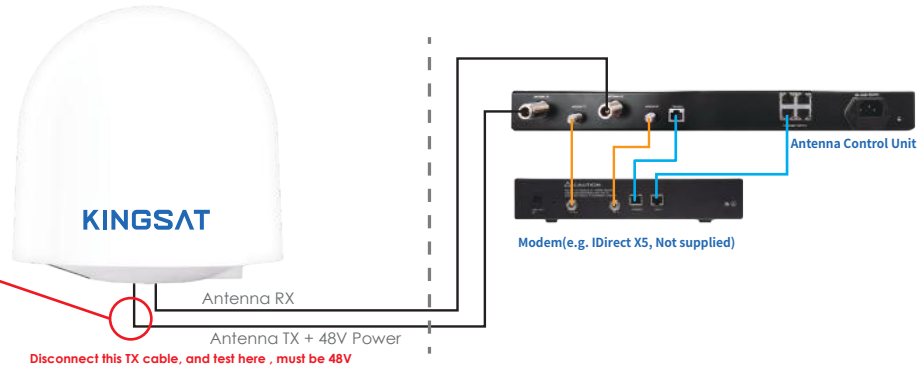
FAQ&A

The status keeps showing Init or COMM ERROR, what should I do?



Now problem is from connection between ACU and antenna.

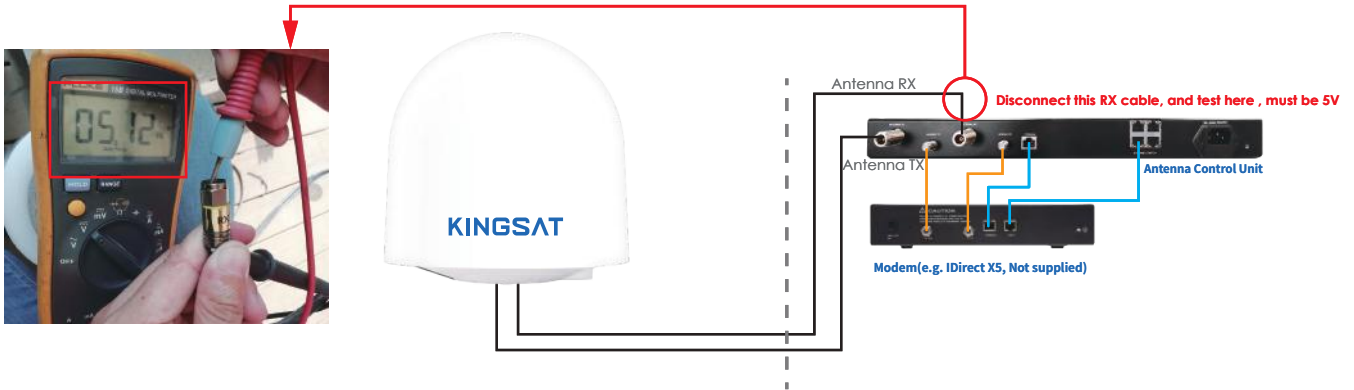
1. Check all cable connectors at ACU side and antenna side.
2. If connector is ok , we can test below TX cable voltage, it must be 48V.



Appendix 4

Troubleshooting Guide---FQ&A

3. Disconnect below RX cable, test voltage, here is Rx cable with control signal, must be 5V.

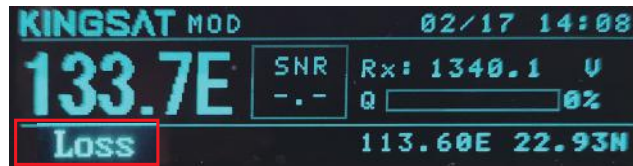


Appendix 4

Troubleshooting Guide---FQ&A

FQ&A

The status shows Loss, what should we do?



This status indicates a loss of signal.

1. Check if any obstacles at antenna pointing range.

2. If without blockage, check that ACU side setting AGC_T (AGC threshold) setting.

we can login Web Interface of ACU, go to SETTING page, modify RX Parameters Setting---AGC Threshold, then press Enter to save, this figure is from 0-255, the bigger figure will decrease antenna sensitivity. So make it smaller if signal is weak.

RX Parameters Setting

Sat Longitude E W

RX Intermediate Freq MHz

LNB MHz

Bandwidth/SymbolRate KHz

Polarization Vertical Horizontal

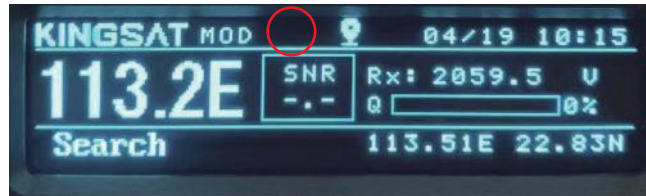
AGC Threshold

Appendix 4

Troubleshooting Guide---FAQ

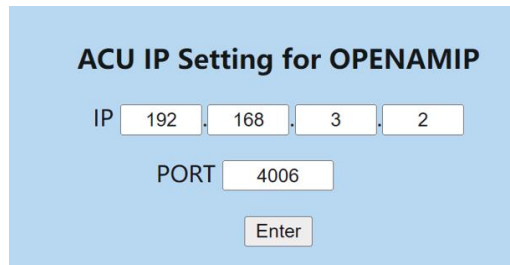
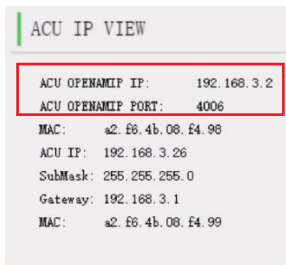
FAQ

If ACU did not show OPENAMIP icon, what should we do?



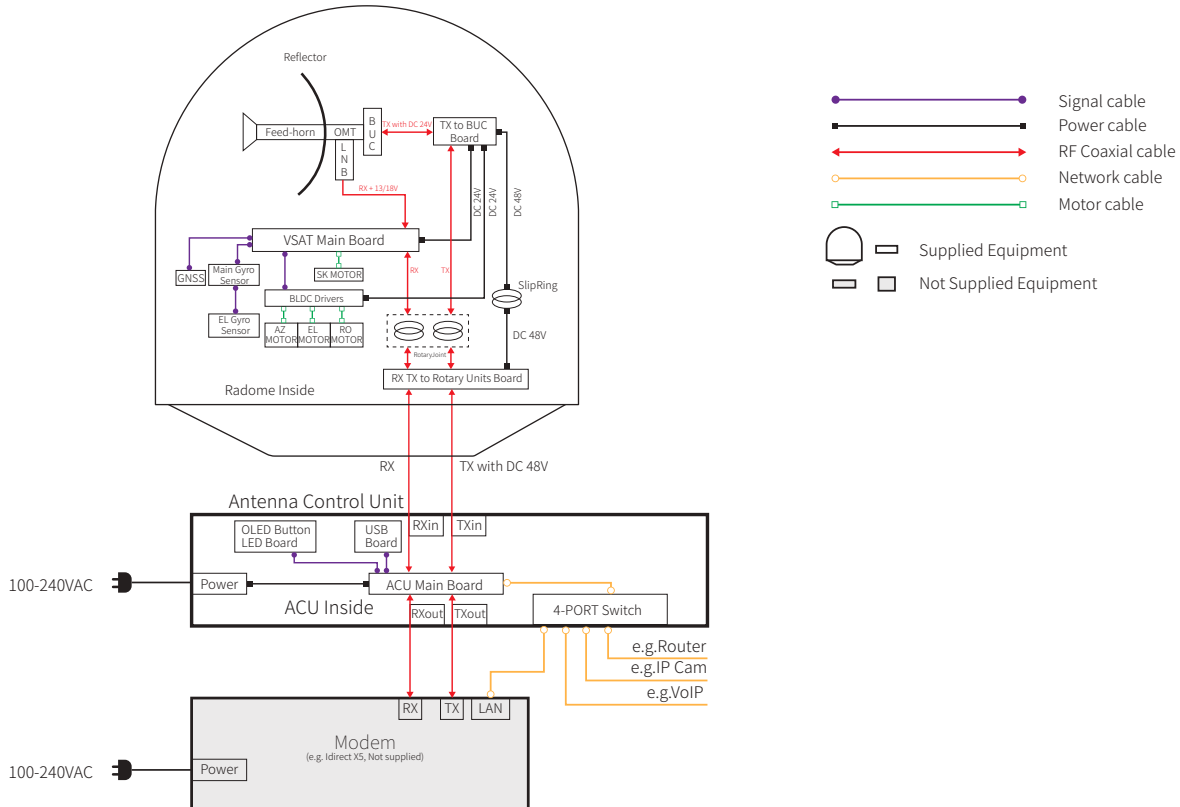
Now ACU can NOT communicate with MODEM correctly .

- 1)Check ACU connect to Modem or not.
- 2)Check ACU IP and PORT setting. Go to SETTING Page, also check MODEM configuration file (opt. file),check carefully ACU IP and Modem IP.



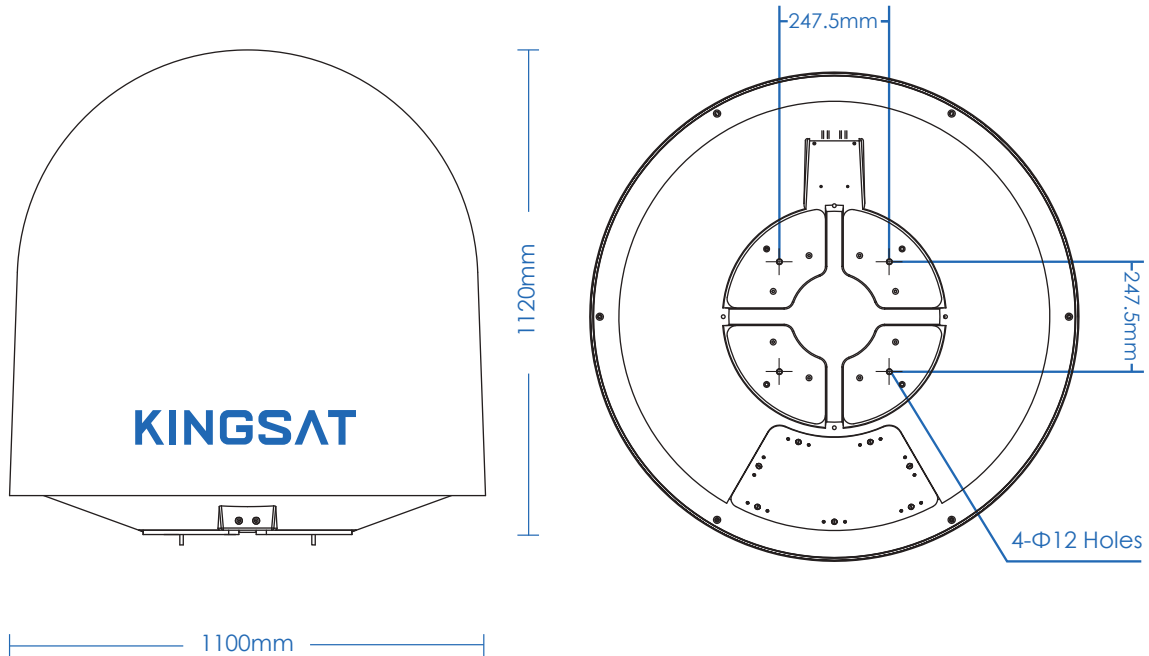
Appendix 5

Block Diagram Inside Radome



Appendix 6

Radome Dimension



Appendix 7

Specification-P8/P8E/P8+E

Mechanical Specification

Dish Diameter:	85 cm(33.5")
Weight:	68KG(150lbs) (including ACU, LNB and 6W BUC)
Radom Size:	110 X 112 cm (43.3" X 44.1")
Radom Material:	P8/P8E:ASA / P8+E:Honeycomb FRP

Antenna Stabilization

Operating Platform:	3-Axis + Auto Skew
Azimuth Range:	P8/P8E:690° / P8+E:Unlimited
Elevation Range:	-15° to 120°
Cross Level Range:	± 35°
Skew Range:	0° to 240°
Position Acquisition:	P8:Free Gyro P8E/P8+E:Builtin Gyro
Ship Motion Support:	Roll: ± 20° @8~12 sec Pitch: ± 10° @6~12 sec Yaw: ± 8° @15~20 sec
Tracking Accuracy:	Automatic tracking level ≤ 1.0dB (R.M.S)

Working Environment

Operating Temperature:	-25° ~ 55°C
Storage Temperature:	-30° ~ 85°C
Humidity:	Up to 100% @ 40°C
Wind Speed:	60m/sec max from any direction
Water Proof:	IP56

Operating Specification

Rx Frequency:	10.70 ~ 12.75 GHz
Rx Gain:	39.5dBi@12.5GHz
Tx Frequency:	13.75 ~ 14.5 GHz
Tx Gain:	40.3dBi@14.25 GHz
G/T:	16.5dB/K (Clear Sky, 30° Elevation)
POL:	Cross-pol only
Cross Pol Isolation:	≥30 dB
LNB:	Universal, PLL LNB
BUC:	8W (4W/6W/16W/20W option)

Antenna Control Unit

Dimensions (WxDxH):	48.2 X 30 X 4.5 cm
Weight:	3.55 kg
Display:	256 X 64 OLED
Modem Interface:	Ethernet Port/RS-232C
Modem Protocol:	Open AMIP
Power requirement:	100-230VAC 50-60Hz
Modem Support:	IDirect, Gilat, Hughes, UHP, SatPath, Newtec (Other Modems can be required to match)

KINGSAT

Maritime Antennas