TELELYNX

MODEL QM-960

DVB S S2 2ASI IP

Contents

Introduction

Thanks for choosing our products.

This Manual introduces product performance, installation and operation in details.

Please read this manual before starting to use the product no matter it's the first time for you to use or you have known similar ones before.

Inspection

Make sure package is in perfect condition and all accessories are there as packing list or below shows:

- DVB-S2 Modulator 1 set
- Power line 1 piece
- ASI Cable 1 piece

If you find items are not same as above, please kindly inform us immediately.

Read the User Manual

Please read it carefully and do as it asks.

1 SAFETY INSTRUCTION

- Read manual carefully before use
- Do not open the case and touch internal components for safety and warranty
- Pull out power plug in case of long time standby. Do not use faulty power plug or power supply to avoid fire or electric shock
- Do not touch power supply with wet hands
- Handle with care when pulling out power plug, no touch with the wire
- No flammable or liquid allowed into device
- Do not install device in hot area or strong sunshine or dusty place
- Shock-proof is a must
- Room with good ventilation is required
- Keep original packing material for future possible transportation

2 Overview

2.1 Function and Application

DVB-S2 modulator supports 2×ASI input and outputs DVB-S2 RF signal by QPSK/8PSK modulation. It uses advanced frame structure, channel coding modulation technology. Compared with DVB-S modulator, it increase 50% of the transmission capacity under same condition and it has stronger reception capacity under same spectral efficiency. This modulator complies with DVB-S2 EN302 307 and DVB-S (EN300 421) standard. It suits 1U rack and can be configured by front panel LCD and NMS (network management software). Its high-integrated and cost-effective design makes it widely used in varieties of digital wireless and satellite broadcasting distribution systems.

2.2 Size (1U Rack)

Length: 482mm
Width: 280mm
Height: 44mm
Net Weight: 4.5 KG

3 Main Feature

- Comply with DVB-S2(EN302 307) and DVB-S (EN300 421) standard
- 2×ASI input, supports hot backup
- Support input and output signal real time monitoring
- LCD/Keyboard control by front panel and network management by Ethernet

4 Technical Specification

Input	**ASI**	ASI (DVB standard, BNC interface)
	Package Format	188/204bytes
Output	**Modulation Mode**	QPSK/8PSK
	Frequency Range	950-2150MHz
	Symbol Rate	17.2-40Mbaud/s
	Error-Correcting Codes	FEC: 1/2 3/5 2/3 3/4 4/5 5/6 8/9 9/10
	Input Rate	1.0-108Mbps
	Channel Data Rate	1-56Mbps
	MER	＞38dB
	BER	0
	Level Attenuation Range	0-20dB（0.5dB step）
	Impedance	75Ω
Control	**Ethernet Port**	10/100M RJ45
General Features	**Size**	482mm×280mm×44mm
	Temperature Range	0~45°C (Operation); -20~80°C (Storage)
	Power	100-240VAC, 50Hz, 25W

4.1 ASI Interface

Input Interface: 2×ASI, DVB standard

Connector: BNC

Impedance: 75Ω

TS package format: 188/204bytes (automatic identification)

4.2 RF Port

4.2.1 RF Output

Connector: F-head (male)

Impedance: 75Ω

Output Frequency: 950MHz~2150MH

Output level: 80dBuV~110dBuV (adjustable)

SNR (Out of Band): ≥50dB

4.2.2 RF Test Output

Connector: BNC

Impedance: 75Ω

Output Level: 60dBuV~90dBuV (adjustable)

4.3 Signal Encoding

Modulation Mode: QPSK/8PSK

Channel Coding: DVB Standard, RF Coding

MER: ≥38dB

SNR (Out of Band): ≥50dB

4.4 Network Interface

Ethernet Port: IEEE802.3 Ethernet, RJ45

Software Protocol: UDP

4.5 Radiation and Safety Requirements

Conforms to GB13837-92 & GB8898-88

5 System Composition and Operating Principle

5.1 System Composition

Structure Diagram (1U Rack)

Front Panel

1	LCD Display
2	ASI Indicator
3	Indicator
4	Keyboard
5	Enter
6	Exit

Rear Panel

1	RF Test
2	10MHZ IN
3	10MHZ OUT
4	ASI IN
5	ASI Loop OUT
6	TS over IP
7	Ethernet Port
8	RF Out
9	Switch

5.2 Operating Principle

DVB-S2 modulator supports 2×ASI input and outputs DVB-S2 RF signal by 8PSK/DVB-S2 modulation. It uses advanced frame structure, channel coding modulation technology, complying with DVB-S2 EN302 307 and DVB-S (EN300 421) standard.

6 Installation Guide

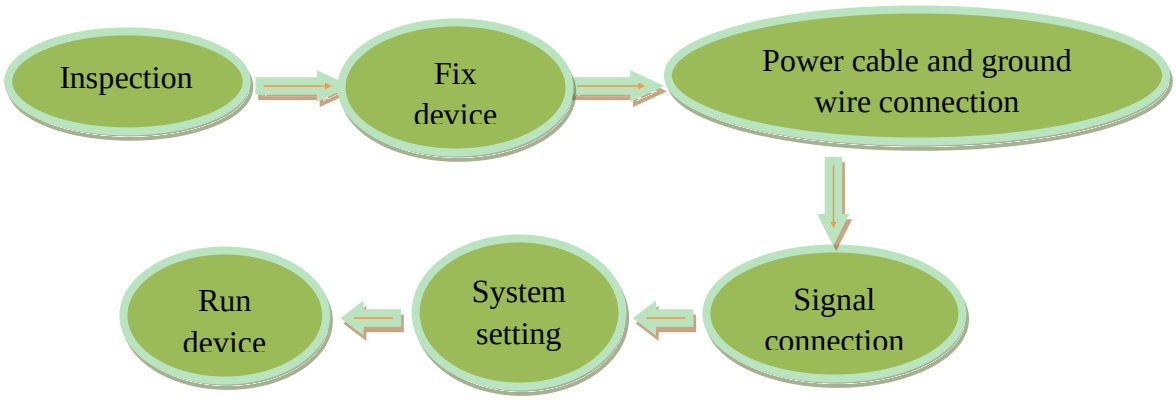
6.1 Installation Preparation

Please install as bellow steps:

- Check possible lose or damage of the device during transportation
- Prepare a suitable environment for installation
- Install the device
- Signal cable connection

Each tiny step will be mentioned in this chapter. Please refer to rear panel for specific location.

6.2 Installation Procedure



6.3 Environment Requirement

Project	Requirement
Room Space	When installing multi-row of racks, please make the distance 1.2~1.5M between front door and back door, and the distance 0.8M between rack and wall.
Room Floor	Non-conducting, dust-free Ground anti-static material volume resistivity: 1×10^{7}-$1\times10^{10}\Omega$, ground current-limiting resistance: 1MΩ, floor bearing weight: ＞450KG/M^2
Temperature	Long-term operation: 5~40ºC, short-term operation: 0~45ºC, air-conditioner is a good option.
Relative Humidity	Long-term operation: 20%~80%, short-term operation: 10%-90%
Ambient Pressure	86-105KPa
Doors and Windows	Seal by dust-prevention rubber strip, double glass is a good option for window and seal it tightly.
Fire Requirement	Automatic fire alarm system and hand-held fixed fire extinguish system are required.
Power Requirement	3 stand alone power supply system for equipment, air-conditioner, and lighting. Alternating current power supply for equipment (220V, 50Hz, 24.2W). Please check before running the device.

6.4 Grounding Requirement

- Good ground wire design is the base of the whole system, and is essential to lightning protection and anti-interference. The system must follow above principles.
- Keep good electrical contact between both ends of outer conductor and shielding layer and the appearance of metal case of the connected device.
- Make sure that connections of both ends of the ground wire are with good electrical contact and prepare for corrosion prevention treatment.
- Do not use other device for ground wire electrical connection.
- The sectional area of ground wire from rack connecting to anti-thunder unit must be greater than or equal to 25mm^2

6.4.1 Rack Grounding

Ground terminals of racks in one room should be separately connected to protective are copper bar provided by side board. And ground wire should be as far as possible short. If the wire is too long when installing, please cut off to avoid ground wire coiling. The sectional area of guide line of ground terminal row must be greater than or equal to 25mm^2.

6.4.2 Equipment Grounding

When grounding, use guide line to connect protective area binding post to the protective ground wire row of assembly rack.

6.5 Cable Connection

6.5.1 Power Cable Connection

- Power jack is on the left of rear panel, power switch is at the left side of power jack, and ground connecting screw is at the lower left side of power jack.
- Connecting power cable: put one end of the cable into the AC power jack and the other (power plug) to the AC power supply.

- Connecting ground wire: when connecting alone to protective area in the room, you can use independent ground or common ground with other equipments (like transmission equipment) with a resistance less than 1.

Note:
Before connecting power cable, please turn power switch to “O” position and it’s required to ground with power supply system.

6.5.2 Signal Line Connection

Before operating, user should connect all devices requiring cables.

7 Front Panel Operation Guide

7.1 Keyboard

Left & right keys: moving cursor

Up & down keys: menu scanning and modifies parameter

Enter: go in submenu and parameter confirm

Exit: return or cancel modification

Note:

A. When keyboard is locked, press any key to make LCD active, and then press “enter”, and then “exit” to unlock the keyboard to enter the main menu.
B. After 60 seconds without any operation, the keyboard automatically locks.
C. When keyboard it locked, press any key to make LCD active, and then press up key to check device version number, down key to check IP address, right key to check MAC address.
D. For numerical value modification, press “enter” key to active the cursor, then move cursor to the specific location, press “up or down” key to change the value, press enter key again to confirm parameter modification.

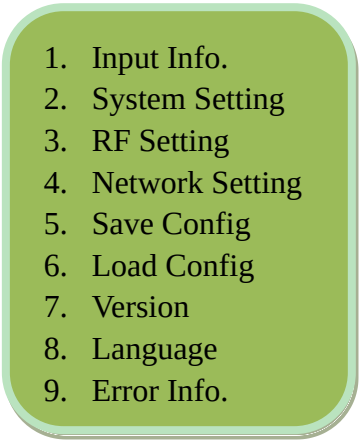
7.2 Menu

7.2.1 Lock Status Display

DVB-S2 Modulator
RF: 970.000/000.000

7.2.2 Press “EXIT” to Enter Menu

After initialization, the menu shows as below (Press ‘up or down’ key to choose menu, then press the ‘enter’ key to confirm):

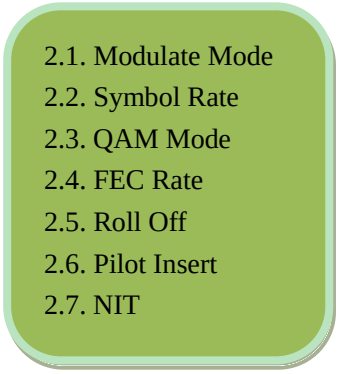


7.2.3 Input Info

Move the cursor to “Input Info” and enter into it. Then it shows as below (Press ‘up or down’ key to choose menu, then press the ‘enter’ key to confirm):

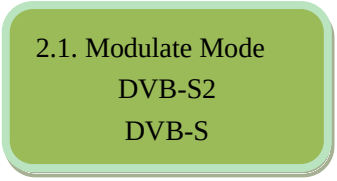
7.2.4 System Setting

Move the cursor to “System Setting” and enter into it. Then it shows as below (Press ‘up or down’ key to choose menu, then press the ‘enter’ key to confirm):



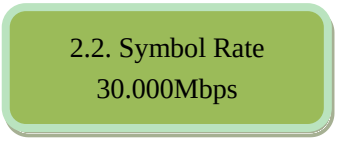
7.2.4.1 Modulate Mode

Move the cursor to “Modulate Mode” and enter into it. Then it shows as below (Press ‘up or down’ key to choose menu, then press the ‘enter’ key to confirm):



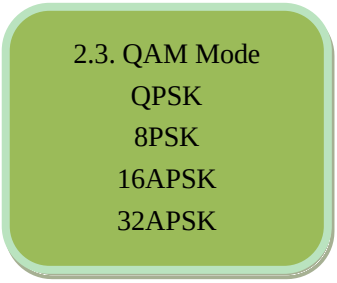
7.2.4.2 Symbol Rate

Move the cursor to “Symbol Rate” and enter into it. Then it shows as below:



7.2.4.3 QAM Mode

Move the cursor to “QAM Mode” and enter into it. Then it shows as below (Press ‘up or down’ key to choose menu, then press the ‘enter’ key to confirm):

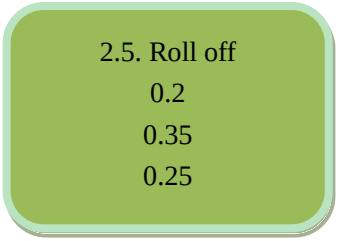


7.2.4.4 FEC Rate

Move the cursor to “FEX Rate” and enter into it. Then it shows as below (Press ‘up or down’ key to choose menu, then press the ‘enter’ key to confirm):

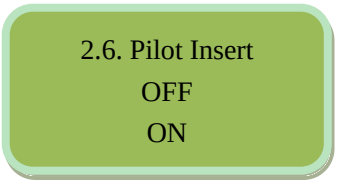
7.2.4.5 Roll Off

Move the cursor to “Roll Off” and enter into it. Then it shows as below (Press ‘up or down’ key to choose menu, then press the ‘enter’ key to confirm):



7.2.4.6 Pilot Insert

Move the cursor to “Pilot Insert” and enter into it. Then it shows as below (Press ‘up or down’ key to choose menu, then press the ‘enter’ key to confirm):

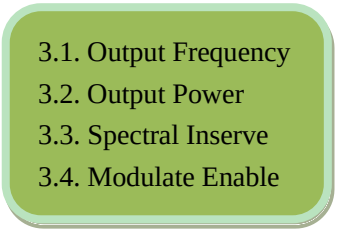


7.2.4.7 NIT

Move the cursor to “NIT” and enter into it. Then it shows as below (Press ‘up or down’ key to choose menu, then press the ‘enter’ key to confirm):

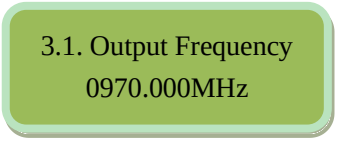
7.2.5 RF Setting

Move the cursor to “RF setting” and enter into it. Then it shows as below (Press ‘up or down’ key to choose menu, then press the ‘enter’ key to confirm):



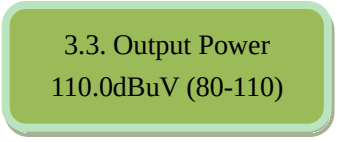
7.2.5.1 Output Frequency

Move the cursor to “Output Frequency” and enter into it. Then it shows as below:



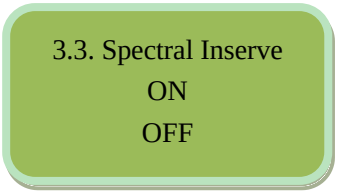
7.2.5.2 Output Power

Move the cursor to “Output Frequency” and enter into it. Then it shows as below:



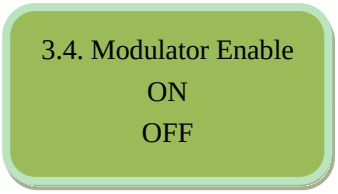
7.2.5.3 Spectral Inserve

Move the cursor to “Spectral Inserve” and enter into it. Then it shows as below (Press ‘up or down’ key to choose menu, then press the ‘enter’ key to confirm):



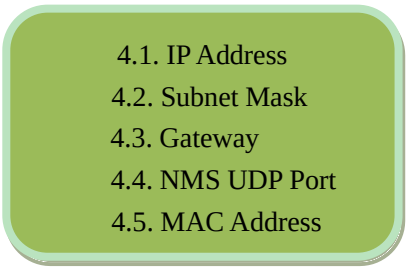
7.2.5.4 Modulator Enable

Move the cursor to “modulator enable” and enter into it. Then it shows as below (Press ‘up or down’ key to choose menu, then press the ‘enter’ key to confirm):



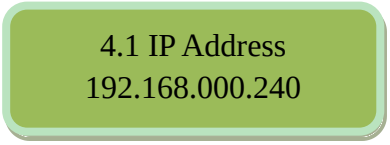
7.2.6 Network Setting

Move the cursor to “network setting” and enter into it. Then it shows as below (Press ‘up or down’ key to choose menu, then press the ‘enter’ key to confirm):



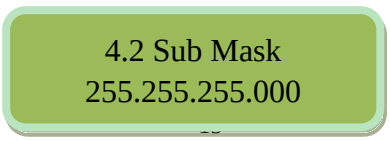
7.2.6.1 IP Address

Move the cursor to “IP address” and enter into it. Then it shows as below:



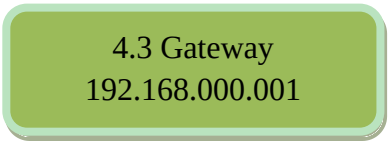
7.2.6.2 Subnet Mask

Move the cursor to “subnet mask” and enter into it. Then it shows as below:



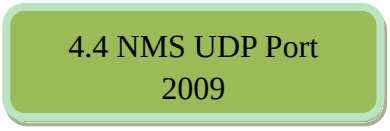
7.2.6.3 Gateway

Move the cursor to “gateway” and enter into it. Then it shows as below:



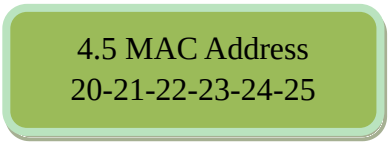
7.2.6.4 NMS UDP Port

Move the cursor to “NMS UDP port” and enter into it. Then it shows as below:



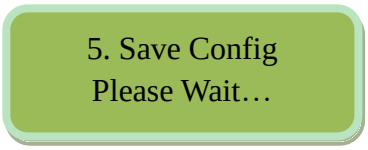
7.2.6.5 MAC Address

Move the cursor to “MAC address” and enter into it. Then it shows as below:



7.2.7 Save Config

Move the cursor to “save config” and enter into it. Then it shows as below:



Power Failure Saving:

When power failure, it can automatically save last status and start again when power on.

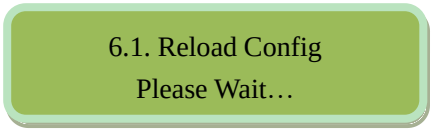
7.2.8 Load Config

Move the cursor to “load config” and enter into it. Then it shows as below (Press ‘up or down’ key to choose menu, then press the ‘enter’ key to confirm):

7.2.8.1 Reload Config

Move the cursor to “reload config” and enter into it. Then it shows as below:

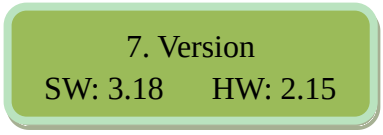
7.2.8.2 Restore Config



Move the cursor to “restore config” and enter into it. Then it shows as below:

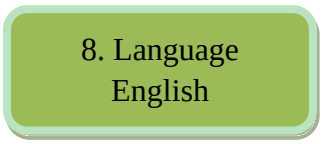
7.2.9 Version

Move the cursor to “version” and enter into it. Then it shows as below:



7.2.10 Language

Move the cursor to “language” and enter into it. Then it shows as below (Press ‘up or down’ key to choose menu, then press the ‘enter’ key to confirm):



The system works normally after all above settings.

7.2.11 Error Info

Move the cursor to “error info.” and enter into it. It shows as below:

7.3 Error Info and Shooting

7.3.1 Indicator Status

There are 2 LED indicators on the panel:

1. “POWER” is power indicator. When switch on, it’s green, which indicates device works well.
2. “ERROR” indicates error status when it’s red.

7.3.2 Error Shooting

7.3.2.1 “POWER” is Off

Please check power supply, power cable and power plug.

7.3.2.2 “ERROR” Indicator Turns Red

Device works abnormally. Please check error info and process accordingly.

8 NMS Operation Guide

Network Management System (NMS) can remotely set config and monitor the device. It can be used only after being authorized.

Except setting config by front panel, you can also use NMS 

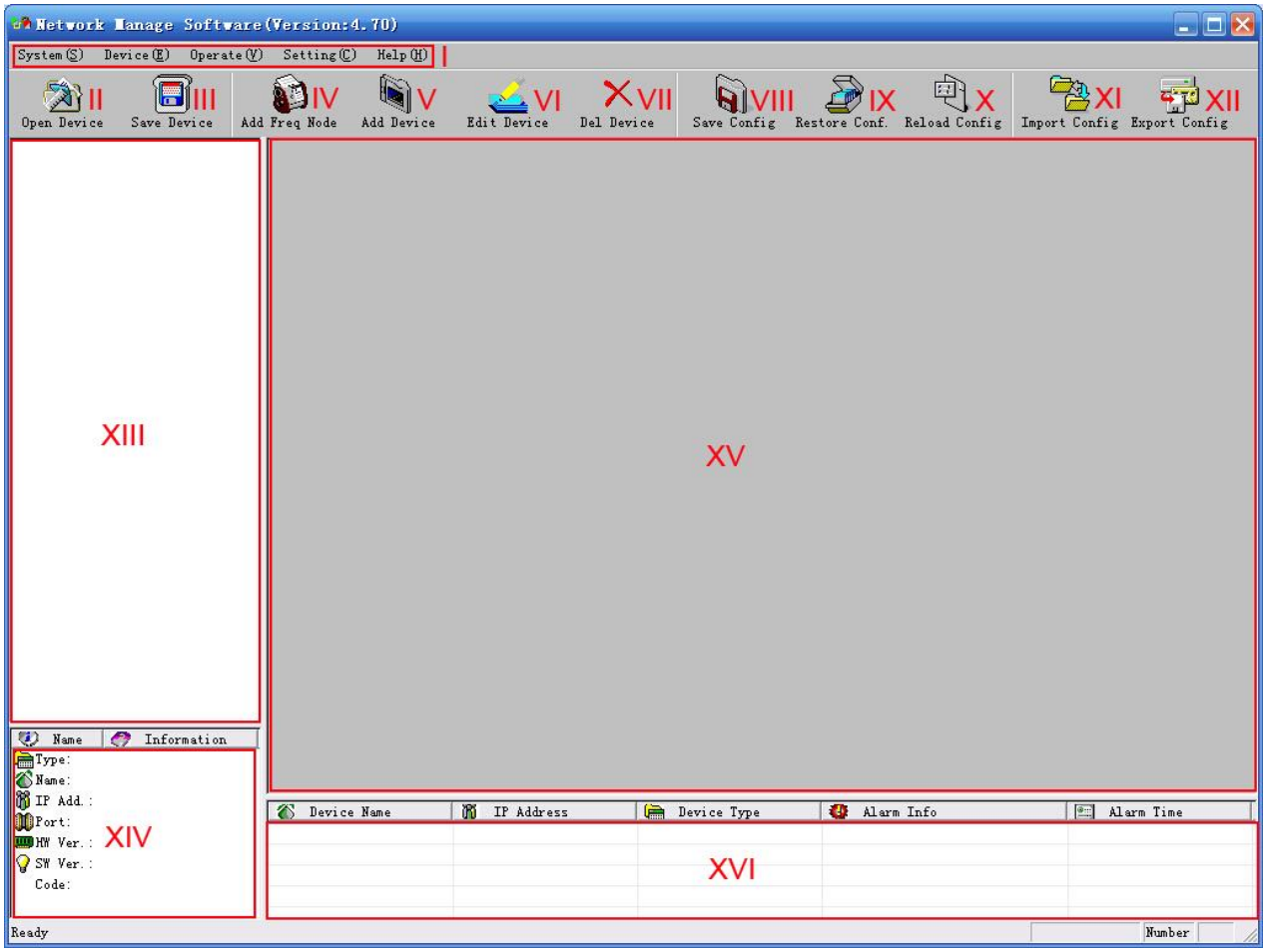
on a PC to set and monitor device. Most of all head-end equipments (satellite receiver, encoder, multiplexer, scrambler, modulator, and adapter, etc.) can be set by NMS which is with UDP protocol and supports windows operation system.

8.1 NMS Login

NMS Login Interface

Both default user name and password are “**admin**”. You can change the user name and password

by “Setting”->”User Setting” and then login again. If it’s the first time to use it, without any device info, the menu shows as below:



Current NMS is without any device, user can add per his device.

I: Menu Bar

II: Open Device

III: Save Device

IV: Add Freq Node

V: Add Device

VI: Edit Device

VII: Del Device

VIII: Save Config

IX: Restore Config

X: Reload Config

XI: Import Config

XII: Export Config

XIII: Device List

XIV: Device Connection Info

XV: Device Config Operation

XVI: Alarm List

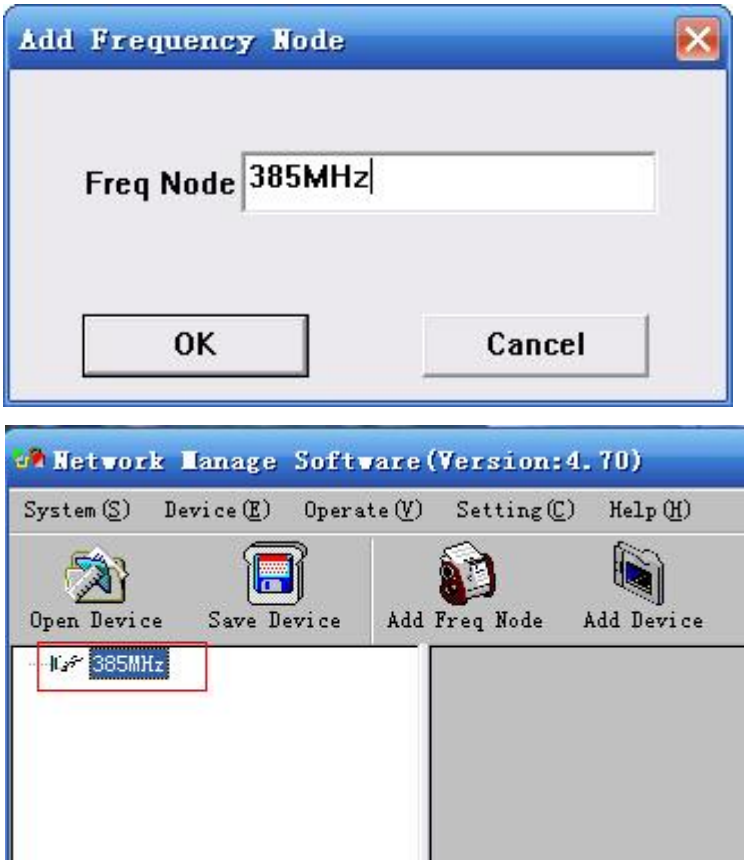
Below chapters will introduce above functions separately.

“Open Device” & “Save Device”: open saved config and save current config. If the config and the NMS are in the same file, they can automatically run when opening or closing the network

management software.

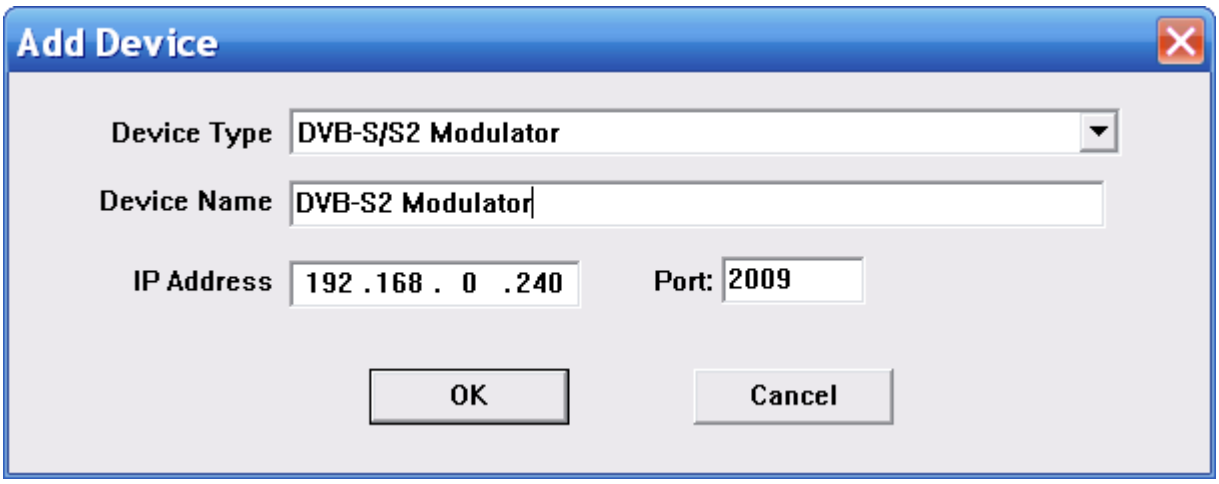
8.2 Add Frequency

“Add Frequency”: all devices can be divided and managed by frequency. Click “Add Freq Node”, then a dialog for adding frequency shows up. Input a frequency, like 385MHZ”, and then click “OK” to confirm:



8.3 Add Device

Add device under the frequency. Choose frequency and then click “Add Device”, then below dialog shows up:

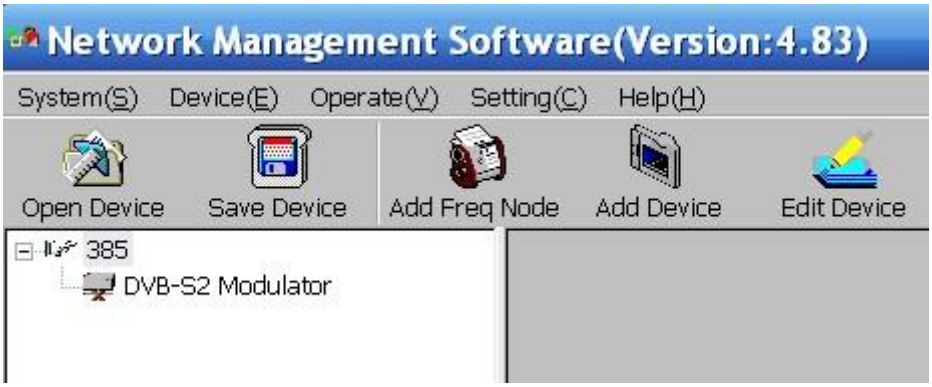


ADD "DVB-S/S2 Modulator"

Choose device type "**DVB-S/S2 Modulator**", set device name (you can name as you like), and set IP address and Port of the device. You can check IP address by clicking down key on the panel or you can enter into "Network Setting" in the menu to check it. **Default IP address and Port for DVB-S/S2 Modulator are 192.168.000.240 and 2009.**

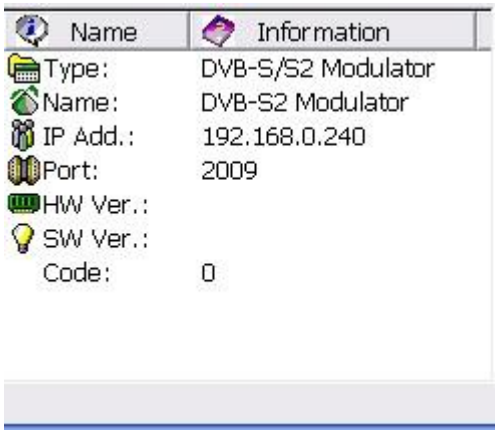
8.4 Edit Device

Click the device you need to edit and then you can edit any you like. If the device is not connected, then it shows as below:

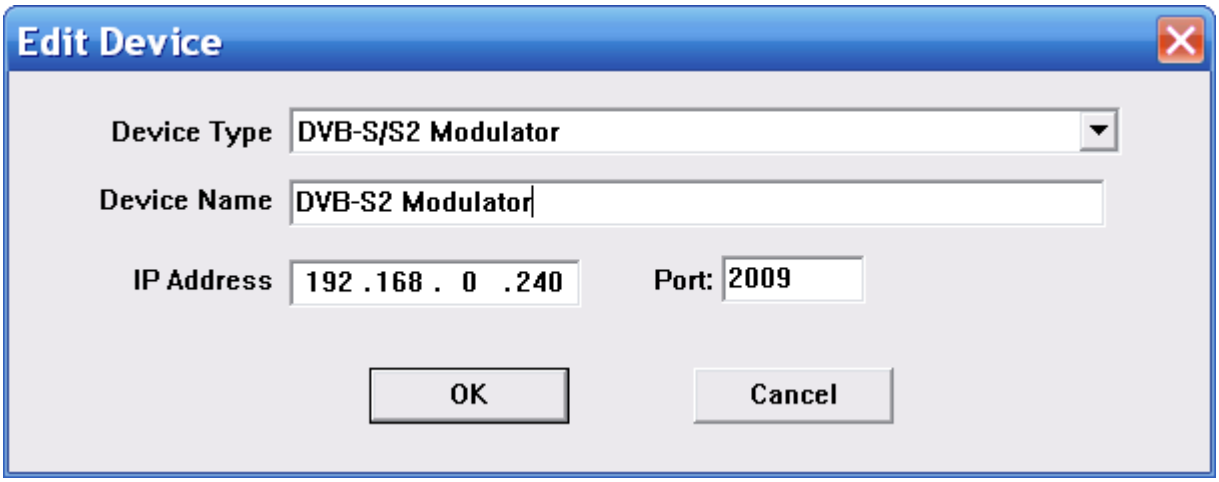


Then check by below steps:

1. Check if the connection info is correct:

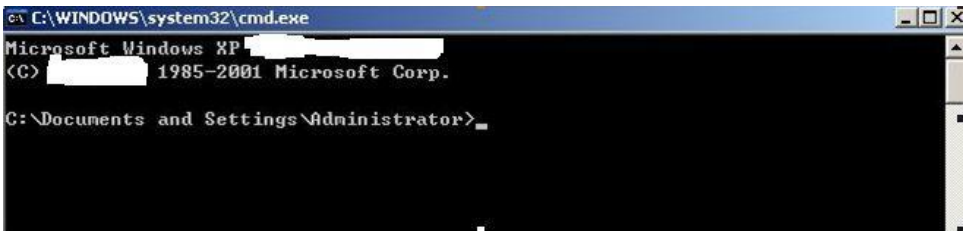


If config is wrong, please choose the device and then click “Edit Device”, then below dialog shows up. Modify it and then click “OK” to save.

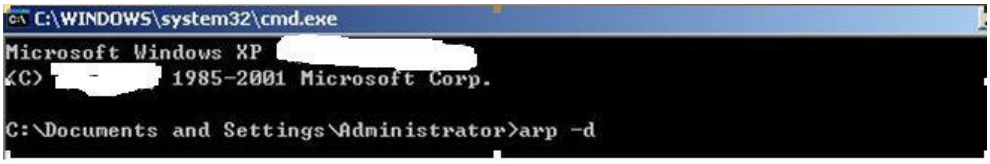


2. Check if there is IP conflict. Turn off the device, and input “cmd.exe” at command column on your PC:

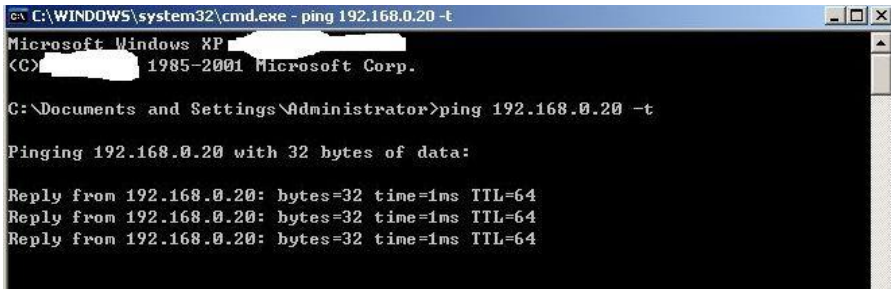
After entering into it:



Input “**arp –d**” to clear old “arp” information:

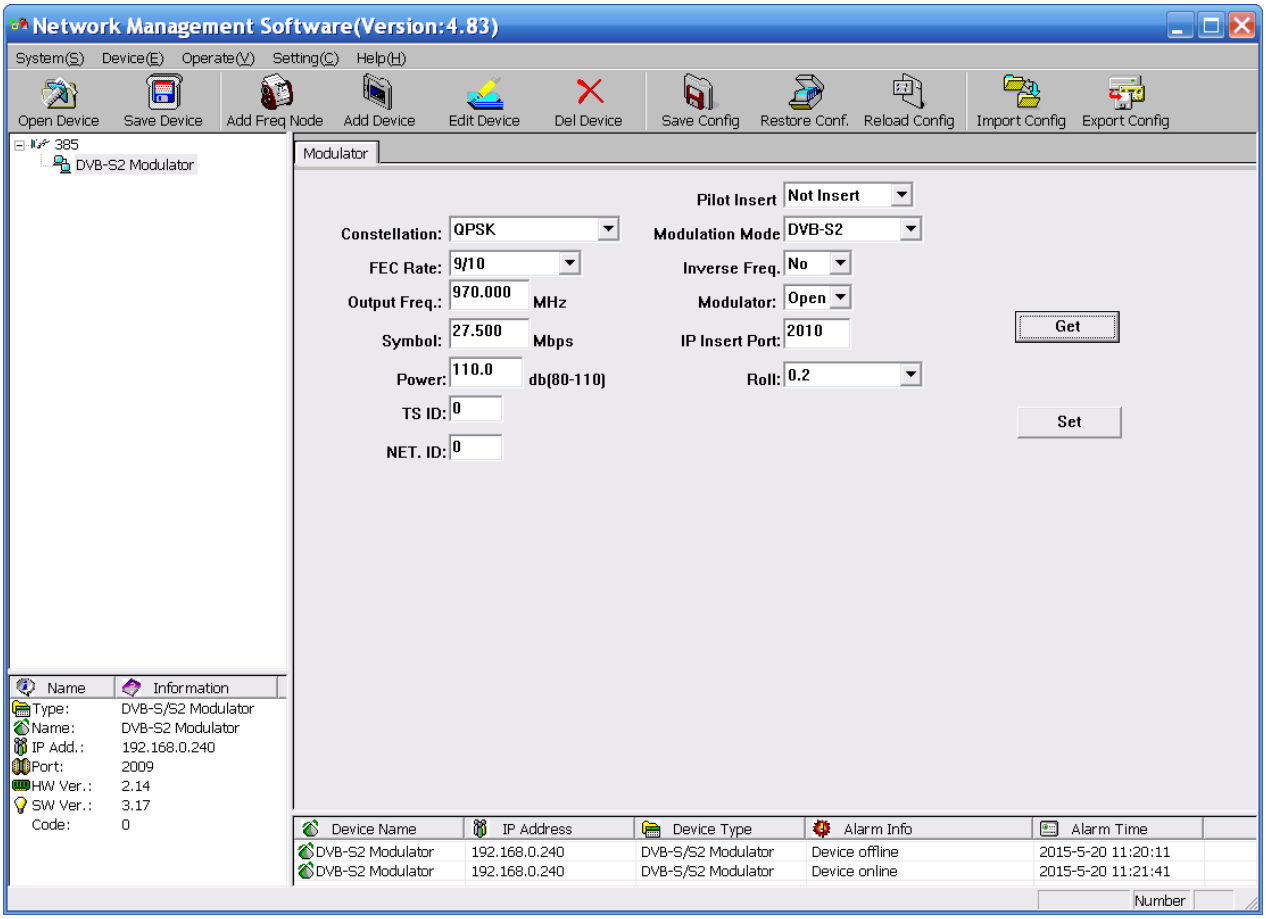


Input “**PING**”:



Here the ping is 192.168.0.20 (you can put your device IP address when you do it). Here we found 192.168.0.20 passed, which means there is already a device with 192.168.0.20. Then we can find the device out and modify the IP address of the device or your device.

After shooting the problem, the icon turns 



At the device list column, click device name to check it. Check the basic info (like firmware and software version) at the device connection column and edit it at the right device operation area.

“Del Device”: delete the device you don’t need from the device list.

8.5 Check and Set Config

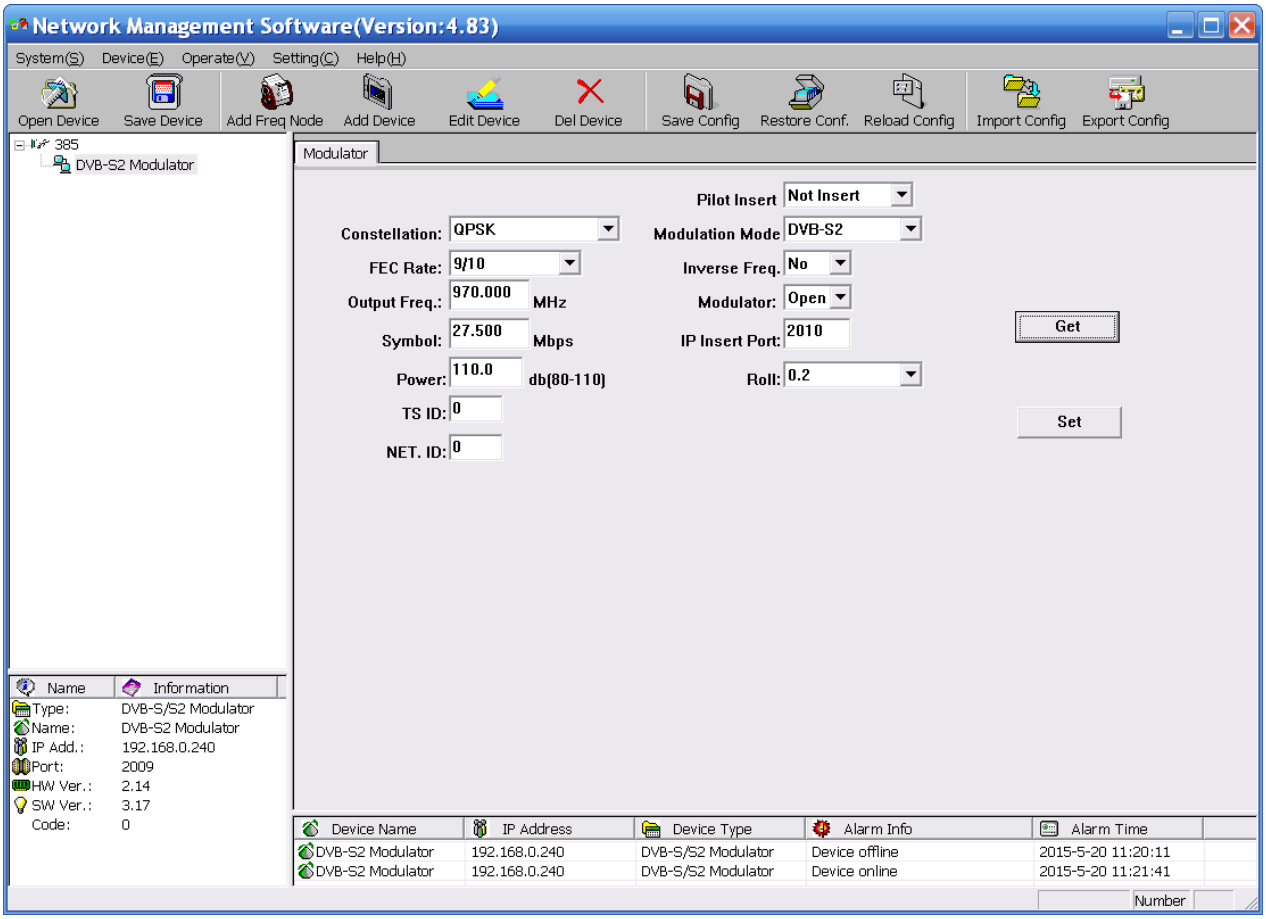
Note: user had better do the following operation before configuring the device:

Click 

button in NMS software, then click 

button to clear the old parameter.

8.5.1 Modulator



8.6 Public Function of NMS

Public function of NMS includes “Save Config”, “Restore Cong.”, “Reload Config”, “Import

Config", and "Export Config".

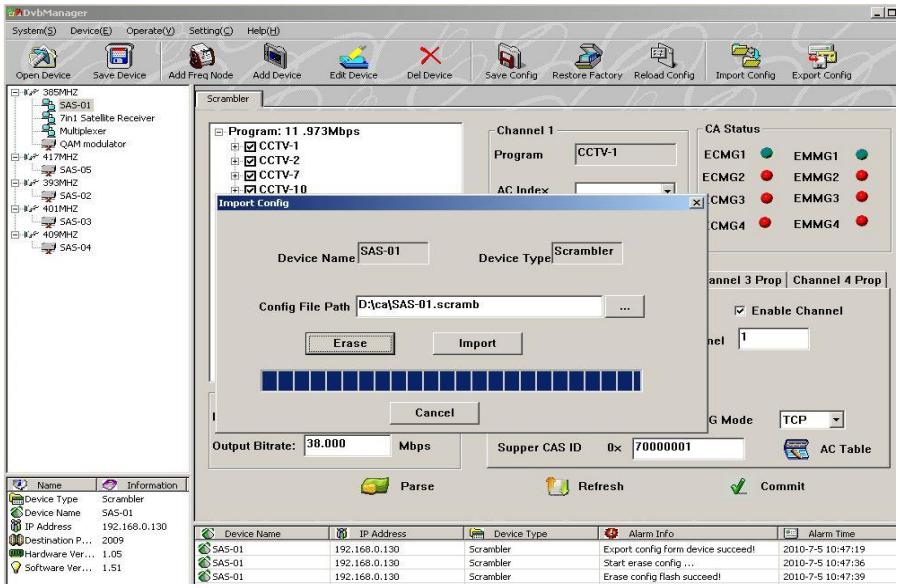
Choose a device at device list.

"Save Config": After committing or confirming set configuration, click this button to save all configuration into "FLASH" (storage); you do this by front panel.

"Restore Cong.": renew and start using the configuration. You can read the renewed configuration by clicking "refresh" or "parse" on operation interface. Please click "Save Config" if it needs to be saved.

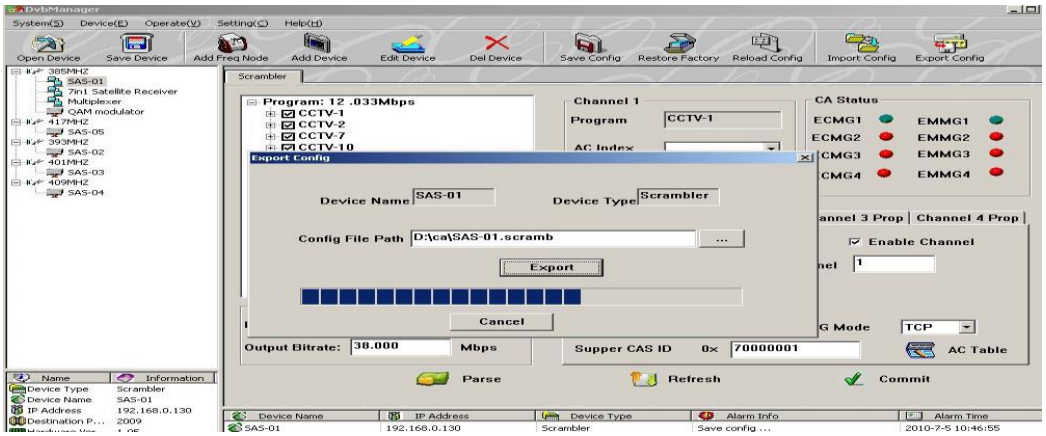
"Reload Config": reload and use the configuration saved in FLASH. This function is usually used after "import config", and the new configuration is effective without restarting the device.

"Import Config": import configuration of "export config" into FLASH; the imported config can be used after 'reload config' or restart the device.



First please choose the config you want to import, and click "Erase" to clear current config and then import config from FLASH. At this moment, the config cannot be used. You need restart the device or click "Reload Config" to start new config.

"Export Config": fetch the device's configuration to local disk (computer). You can import this configuration when it needs to renew the configuration or to use a back-up device in future.


DvbManager
System(S) Device(E) Operate(V) Setting(C) Help(H)
Open Device
Save Device
Add Freq Node
Add Device
Edit Device
Del Device
Save Config
Restore Factory
Reload Config
Import Config
Export Config
386MHZ
SAS-01
7in1 Satellite Receiver
Multiplexer
QAM modulator
417MHZ
SAS-05
393MHZ
SAS-02
401MHZ
SAS-03
409MHZ
SAS-04
Scrambler
Program: 12 .033Mbps
CCTV-1
CCTV-2
CCTV-7
CCTV-10
Channel 1
Program
CCTV-1
AC Index
CA Status
ECMG1
EMMG1
ECMG2
EMMG2
CMG3
EMMG3
CMG4
EMMG4
Export Config
Device Name
SAS-01
Device Type
Scrambler
Config File Path
D:\ca\SAS-01.scramb
...
Export
Cancel
annel 3 Prop
Channel 4 Prop
Enable Channel
G Mode
TCP
Output Bitrate:
38.000
Mbps
Supper CAS ID
0x
70000001
AC Table
Parse
Refresh
Commit
Name
Information
Device Type
Scrambler
Device Name
SAS-01
IP Address
192.168.0.130
Destination P...
2009
Device Name
IP Address
Device Type
Alarm Info
Alarm Time
SAS-01
192.168.0.130
Scrambler
Save config ...
2010-7-5 10:46:55