

Digital Media Platform

Quick Installation Guide

1. Installation Instruction

1.1 Mounting unit to a 19" rack



ATTENTION When selecting the installation site, try to comply with the following:

- **Protective Ground** - The protective ground lead of the building's electrical installation should comply with national and local requirements.
- **Environmental Condition** - The installation site should be dry, clean, and ventilated. Do not use this equipment where it could be at risk of contact with water.



WARNING To avoid electric shock, make sure the rack has been correctly grounded before switching on the device.

To mount the DMP 900 unit to a 19"/42U rack, please perform the following steps:

1. Make sure the mounted rack surface is stable and can support the size and weight of this equipment.
2. For single unit mounting, use an "L" shape slide (not included in the package) to support holding the unit if necessary, and fastened with appropriate screws to each side of the chassis' rails.



L-shape slide

3. For group pile up (no space between each unit), the unit should be placed on a flat holding bracket. No more than 5 units for each group, and leave at least one unit space between each group to ensure good air ventilation.



5.2 Wiring Connection



ATTENTION Before setting up the connection, please turn off the equipment and all other connected external devices. The equipment and all connected external devices are required grounded. Turn on the devices only after the wiring connection is completed. Otherwise the device may be damaged.

You can look below picture as reference (PIC-1.2-1) to insert the boards in the six slots, there are no special insertion limitations, and each slot accepts all types of the sub modules.



PIC-1.2-1

NOTE:When you need to pull in/out the module, please make sure there is 3 seconds above interval for the pull in/out operation. Otherwise the submodule might not be able to load successfully.

After you have inserted all the sub-modules into the DMP900 platform, you can start to wire it.

1. **DVB-S/S2 module:** there are four RF ports on the module, each can be connected to one transponder to receive a TS delivered from it. You can use four RF cables to connect the RF ports to the antenna.



1. **DVB-C module:** there are four RF ports on the module, within them, port 2 & 4 (marked with **RF-IN 1/2** and **RF-IN 3/4**) are signal input ports, and port 1 & 3 are loop out ports. You can use two RF cable to connect the module with cable source at the two signal input ports. And if necessary, you can loop out the signal for other usage.



2. **DVB-T/ISDB-T module:** The DVB-T / ISDB-T module supports receiving programs compliant with DVB-T / ISDB-T standard from 4 different frequencies simultaneously. Similar to DVB-S/S2, four ports on the module. Four cables can be used to connect the four RF ports with the signal source.

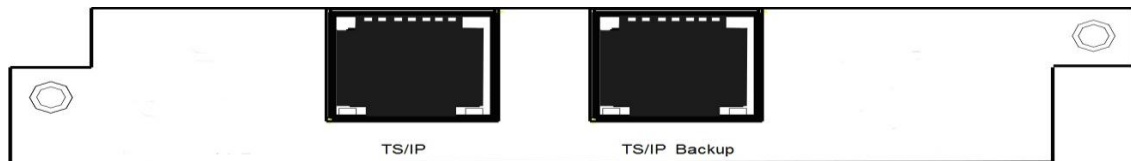


3. **ASI Module:** The ASI module is equipped with four BNC-type ASI connectors, supporting four ASI inputs/outputs. The default setting of the module is: Ports 1 & 2 is for input, and Ports 3 & 4 is for output. User can specify the port to be input or output at any

time through the NMS. According to your application, connect the four ports to the corresponding devices (receive or send) with ASI cable.



- 5. GbE IP I/O Module:** The IP module is equipped with two RJ45 connectors. Left one is for the IP stream input/output; the other is for stream output only, it's as the backup output when you set 'TS/IP' port as output mode. Connect the TS/IP port with the IP stream receiving or sending devices according to your application. If you need to use the IP board for both receiving and transmitting data, you can connect the TS/IP port to a signal source, and TS/IP Backup to a IP stream receiving device.



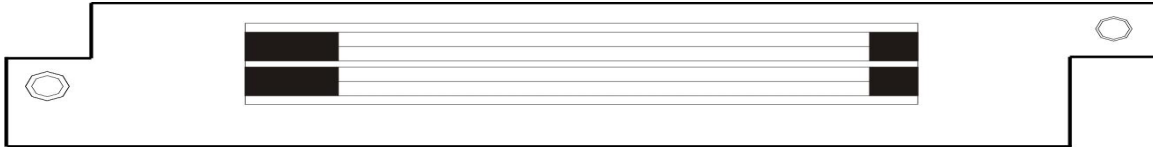
- 6. QAM/COFDM Module:** The QAM/COFDM module can output up to 8 separate RF QAM frequencies signals with one physical output interface, and extra monitor port is used for local monitoring. With adopting corresponding license key, the module can turn to be a 4-COFDM module without changing the hardware. Connect the module with a RF cable to the HFC.



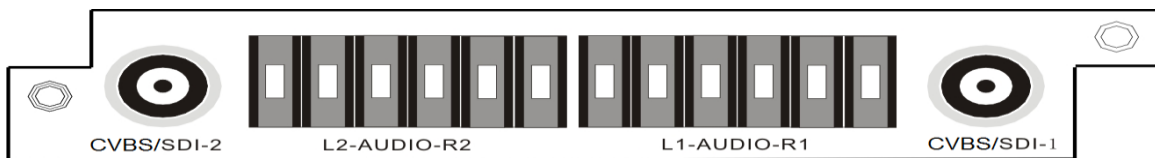
- 7. CI Descrambling Module:** The CI descrambling module is for descrambling the input scrambled stream via CAM module. The module supports 2 CAMs working

simultaneously. Insert appropriate CAM card with smart card to descramble program.

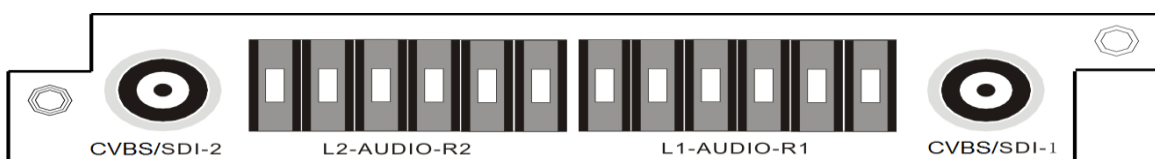
Note: different CAM card support different CAS algorithm. Before you insert the card, you need to figure out what kind of the algorithm the program is scrambled, you can inquire the information from the content provider.



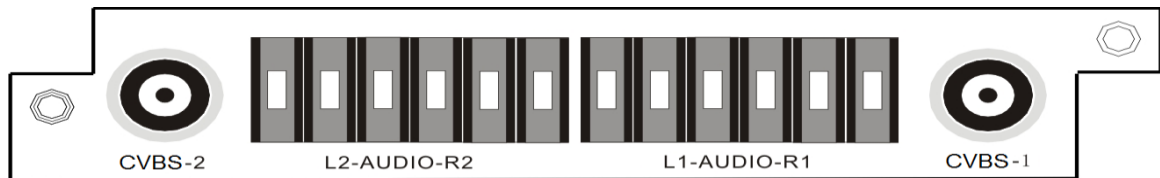
8. 2 SD&HD H.264 SDI/AV Encoder Module: The 2-SD&HD H.264 SDI/AV Encoder Module supports encoding 2 SDI channels or 2 AV channels simultaneously. To encode a program from AV source, a specified AV cable, which is packed in your package, is needed to connect the source to the CVBS/SDI port and the L-Audio-R port next to it. To encode a program from SDI source, one common SDI cable is needed to connected the source to the CVBS/SDI interface.



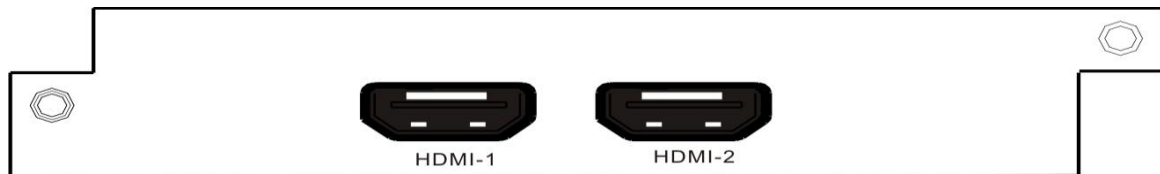
9. SD MPEG2 SDI/AV Encoder Module: The 2 SD MPEG2 SDI/AV Encoder Module supports encoding 2 SDI channels or 2 AV channels simultaneously. To encode a program from AV source, a specified AV cable, which is packed in your package, is needed to connect the source to the CVBS/SDI port and the L-Audio-R port next to it. To encode a program from SDI source, one common SDI cable is needed to connected the source to the CVBS/SDI interface.



- 10. SD MPEG2 AV Encoder Module:** The 2-SD MPEG2 AV Encoder Module supports encoding 2 AV channels simultaneously. To encode a program from AV source, a specified AV cable, which is packed in your package, is needed to connect the source to the CVBS/SDI port and the L-Audio-R port next to it.



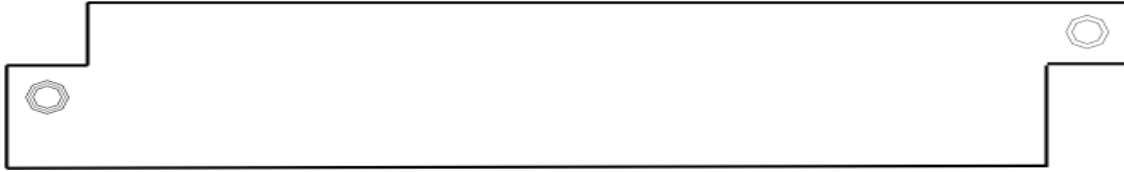
- 11. HD H.264 HDMI Encoder Module:** The HD H.264 HDMI Encoder Module supports encoding 2 HDMI channels simultaneously. You can use a HDMI cable to connect the HDMI source to the HDMI port of the module.



- 12. DVB Scrambler Module:** Connect the RJ45 port with crossover Ethernet cable to the CAS server. (You may need a switch to setup the connection.)



- 13. MPEG2 to MPEG4 Transcoder / MPEG4 to MPEG2 Transcoder Module:** Physical connection is not necessary for this module.



- 14. Power:** There are two UPS power supply units (one for redundant), you can connect them with two different power supply sources.



ATTENTION Connect this equipment only to the power sources that are identified on the equipment-rating label normally located close to the power inlet connector(s). Always pull on the plug or the connector to disconnect a cable. Never pull on the cable itself.



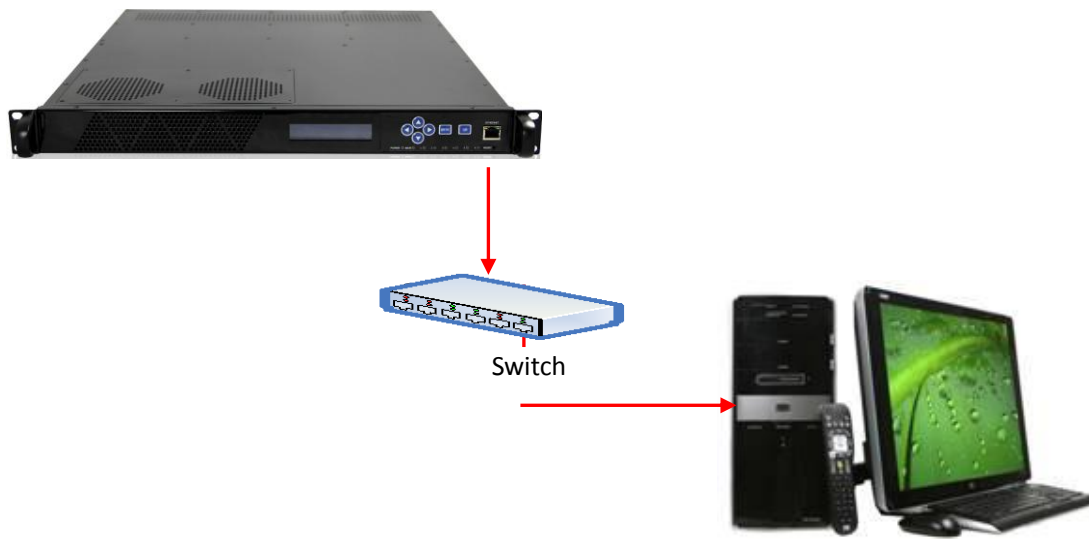
TIPS To protect your valuable interests and services, equipping a UPS (Uninterrupted Power Supply) and an AVR (Automated Voltage Regulator) to the system is highly recommended.

- 15. Management Port Connection:** Connect the Management Port on the front Panel to a switch, and then connect the switch to a Monitor computer with crossover Ethernet Cable. (PIC-1.2-2)

Note: The equipment can be connected directly to a monitor PC using a crossover Ethernet cable.



TIPS In order to ensure a smooth communication between the management PC and the equipment, please separate the connection of management port and TS/IP output port to different switch. The switch with management port connected should be without large data processing.



PIC-1.2-2

16. **Ground Protective:** Connect the Ground Port to the Rack with a lead wire.

2. Operation Instructions

2.1 Powering Up & Initializations



REMARKS

Before powering-up the device, make sure that all cabling is correctly connected. The device is correctly connected to the power inlet and grounded.

When you have finished the wiring, power up the device, you can see the booting information through the LCD screen on the front panel, the initialization will take about one or two minutes.

Digital Media Platform
IP : 192. 168. 001. 016

PIC-6.1-1

After the initialization is finished, the Device Name and its IP address will appear on the LCD screen (PIC-2.1-1).



TIPS

If the unit fails to initialize and hangs at the “booting” stage, switching off the device and then powering up again may help. If the device still fails to initialize, please contact your service representative for help.

2.2 Enter the NMS interface

DMP 900 provides a user-friendly UI interface for you to easily configure the device and constantly monitor the device status. Before you can configure the DMP 900 through the NMS, you need to set up a stable connection between the device and the monitor server. Below steps will help:

1. Setup a connection between the DMP 900 and monitor PC.

Note: Step 1 to Step 2 is operated from the front panel. There are six buttons on the front panel: Up / Down / Left / Right / Menu / OK for you to manually configure the basic parameters of the device.

- **Step 1:** Check out the DMP IP

Press **MENU** button to enter main menu.

Press **UP** button and **DOWN** to navigate to the sub menu **Ethernet**.

Press **OK** to Enter the Sub menu **Ethernet**, within it, press **UP** button and **DOWN** button, you can check out the **IP**, **Gateway**, **Subnet Mask**, etc.

- **Step 2:** Change the **IP**, **Gateway** and **Subnet Mask** to make it in the same network section as the management PC:

Example:

	Media Platform	Management PC
IP Address	192.168.1.16	192.168.1.28
Gateway	192.168.1.1	192.168.1.1
Sub Mask	255.255.255.0	255.255.255.0

Note: to Change a parameter, you can first press **OK** button, Then the parameter will be selected with a blinking short line under its first character (or number), then you can use **UP** and **DOWN** button to change the parameter's value as you desired, press **OK** button to take effect.

- **Step 3:** After you have setup the above parameters, press **MENU** button to exit the configuration, the device will reboot automatically.
- **Step 4:** Ping the new IP of the DMP 900 through the management PC to check the connectivity.

2. Enter the NMS interface

Step 1: Start the **Network Management Software** on the accessory CD in you package.



NMS_V1.6.3_SVN10...
MNG MFC Application

Network Management Software Icon

Step 2: For first time log on, **User Name** and **Password** are required. Default User Name and Password are “**admin**”. Select “Remember Me” if you want to log on without inputting the User Name/Password next time. Click “Login” to get in the NMS main interface.

(PIC-2.2-1)

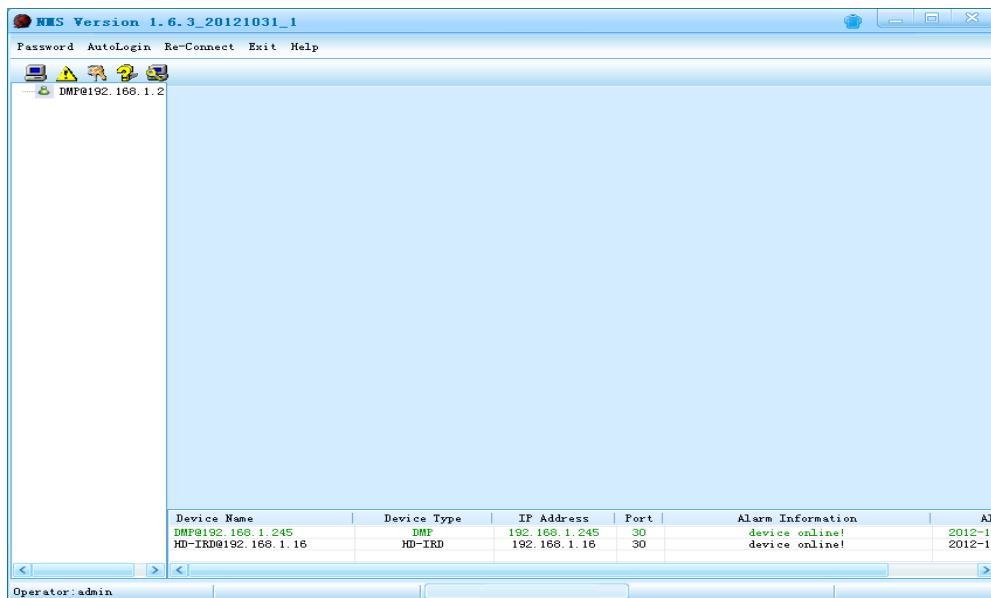


PIC-2.2-1

After successful log on, the following screen will display (PIC-2.2-2):

The equipment you operate on will appear in the left white panel as format:

“DMP@ IP address”



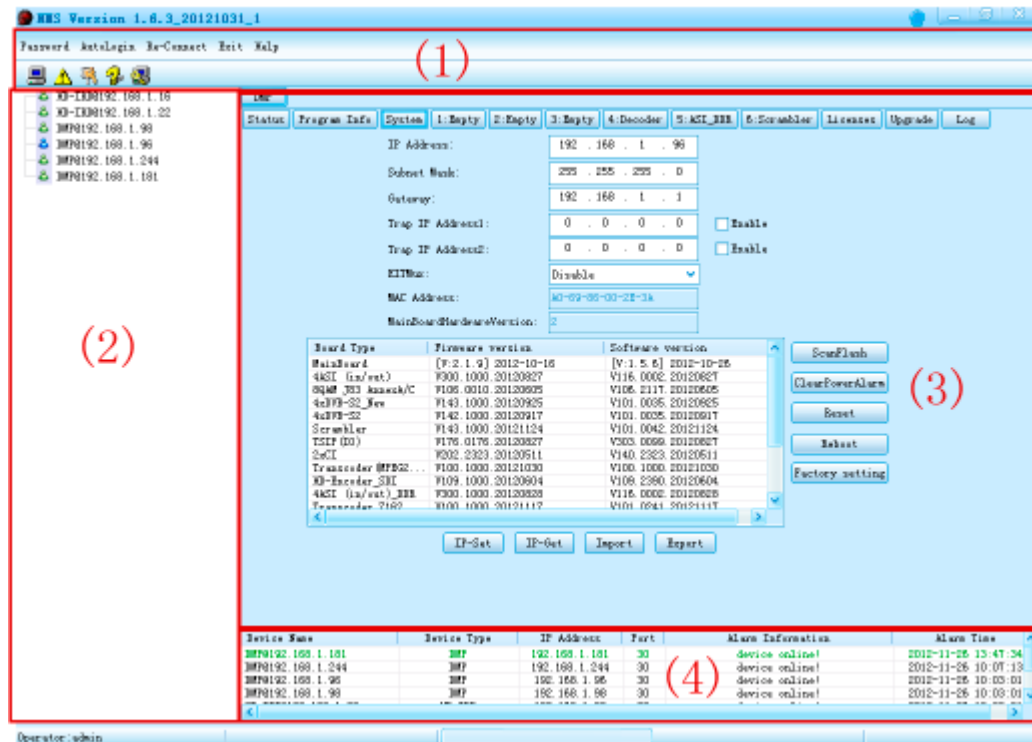
PIC-2.2-2

Note: If the equipment is not shown on the list, please try to Reset the Ethernet through the navigate key on the front panel to active the IP connection.

(Ethernet Reset Steps: Menu>System>Eth Control, Press OK Twice)

● Main Interface Introduction

Click on the target equipment in the list, the following screen will display: (PIC-2.2-3)



PIC-2.2-3

The NMS main interface can be divided into four areas according to its functionality.

- (1) **Toolbar:** It includes shortcut to change password and save settings etc.
- (2) **Equipment list:** If more than one piece of equipment is connected to the NMS, the equipment will be listed in this area by its IP address.
- (3) **Parameter setting and configuration area:** The parameters of the equipment are shown and configured here by selecting different tabs. This is the main operation area of the NMS. It share same 6 tabs including “**Status**”, “**Program Info**”, “**System**”, “**License**”, “**Upgrade**” and “**Log**”. Specific to each model, the detailed module configuration tab will be different.
- (4) **Event information window.**

2.3 Quick Configuration on key parameters

In the Parameter setting and configuration area, Totally 12 tabs are listed at the top, “Status”, “Program Info”, “System”, “License”, “Upgrade” and “Log” are fixed for mother board configuration or status monitor for both mother board and sub modules. Another Six tabs marked with numbers from 1 to 6 represent the configuration entry of the corresponding modules inserted in the six slots at the rear panel.

For first users, once you have configured the IP connection parameters through the front panel, we assume that you may use little of the “System”, “License”, “Upgrade” and “Log”. To know specified information about these 4 tabs, please refer to the User Manual.

Below content is mainly about the “Status”, “Program Info” instruction and the six modules tab configuration and monitor.

Status:

By selecting this item the NMS displays the current system operation data status. Users can switch between tabs under the “Status” to check the current working status of mother board and inserted modules. (PIC-2.3-1)



PIC-2.3-1

In this page, status information of mother board and all the sub modules are compliant with below rules:

1. Different colors in the Bitrate Info indicate different meaning:

Orange: the total input bit rate;

Blue: the effective input bit rate;

Yellow: the total output bit rate;

Green: the effective output bit rate;

Red: alarm indicator, it means the actual output bit rate (it's proportional to the amount of the programs you transfer from input port to output port in 'Program Info') is more than the output bit rate of some channel you set in sub-board.

2. Communicate Status indicates the communication status between NMS and the device.

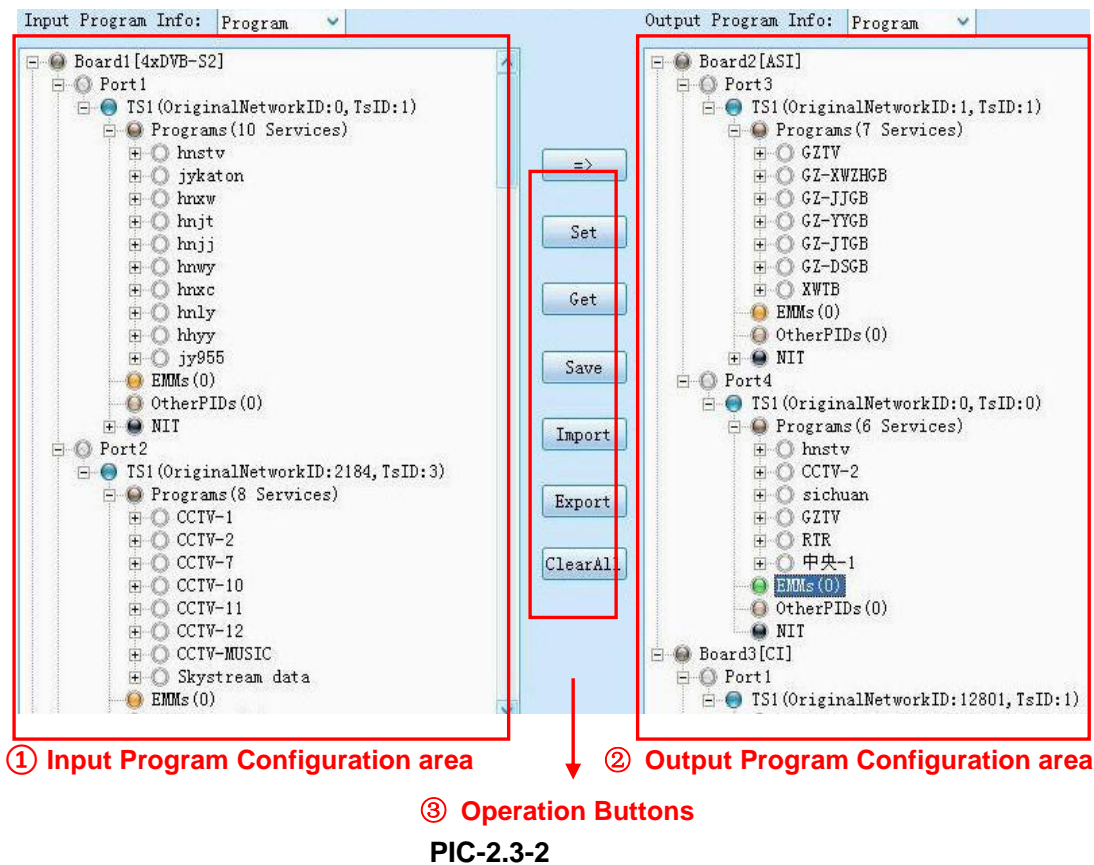
Green: the communication is normal. All the parameters in NMS are updated according to the equipment synchronously.

Red: the communication is abnormal. The parameters in NMS maybe not updated in time. You need check the network connection and restart the NMS.

3. For mother board, Board#(O) indicates the total output bitrate of this board, and Board#(I) indicates the total input bitrate of this board. For each module, Port#(T) indicates the total bitrate, and Port#(E) indicates the effective bitrate.

Program Info:

This menu is to configure the input and output program of the equipment. (PIC-2.3-2)



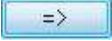
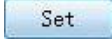
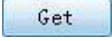
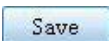
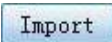

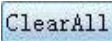
① **Input Program Configuration Area:** the “Input Program Configuration” is on the left side of the “Program Info” window. It displays all the inserted modules information and the received input streams.

- ◆ Board1~6 represents the corresponding slots of the equipment. If the slot is inserted with a card module, the corresponding Board No. will be displayed on the “Input Program Configuration” window, and the name of the inserted module will be displayed after the Board No.
- ◆ For empty slot, no Board No. will be displayed.
- ◆ Port No.: represents each physical port of the inserted module.

② **Output Program Configuration:**

In the “Output Program Configuration” window, it shows the inserted module which can be set to transmit output stream.

③ **Operation Buttons:** The operation buttons include 4 different function buttons:

- ◆  Transfer button: to transfer the selected stream/PID from the “Input Program Info window” to the “Output Program Info window” .
- ◆  Set button: to apply the changes to the NMS. The setting will lose if the NMS is close or the equipment is powered off.
- ◆  To obtain/refresh the current parameters status of the equipment mother board.
- ◆  To save the configuration. The saved data can be kept after NMS is closed or the equipment is powered off.
- ◆  Import program list (input&output) configuration file.
- ◆  Export the current program list (input&output) and save as a configuration file.
-  To eliminate all the settings in the input and output window.

Above information has covered basic introduction of the Program Info window, the following content will describe certain basic operations for the program setting, these operations will be frequently used in the program setting of different modules.

2.3.1 Basic Program Setting

2.3.1.1 Scan TS

Scan TS is a basic operation of the program setting with receiver or encoder module. These modules include: DVB-S/S2, DVB-C, DVB-T/ISDB-T, ASI (If part of the ports are set as input), IP I/O (If part of the ports are set as input) and Encoder module.

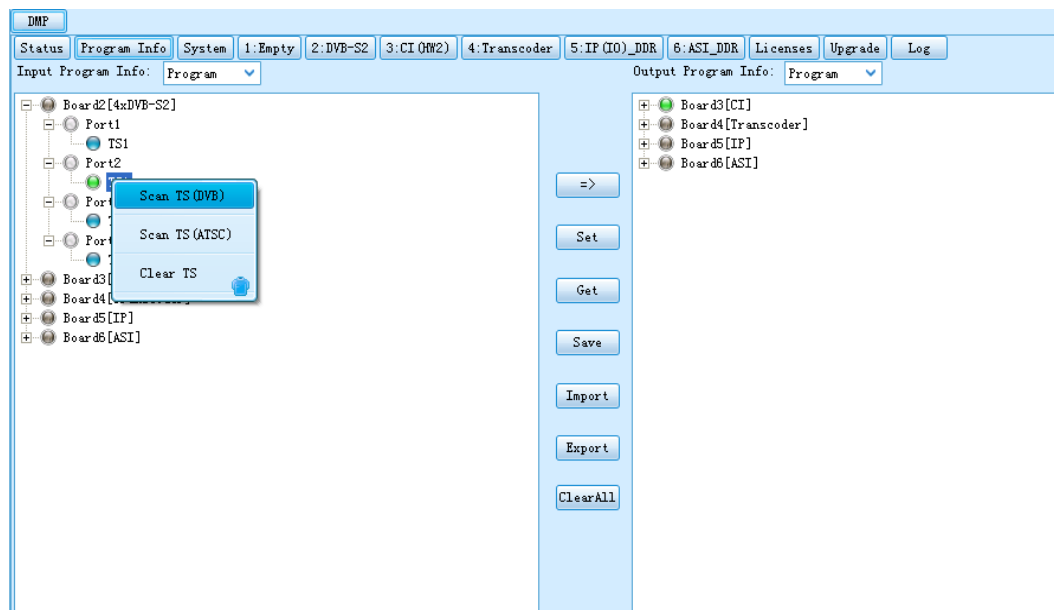
Take DVB-S/S2 module for example:

Once there is a DVB-S/S2 module inserted in the DMP 900 platform, and the corresponding parameters are configured correctly, the DVB-S/S2 module will display in the “Input Program Info window” :

Click Menu “**Program Info**”, the program configuration page will display, in the “Input

Program Info”, Select the “**Board#[4XDVB-S2]**”, click + beside it to expand the port list, there are four ports under the DVB-S2 module, representing the corresponding four physical RF ports.

Under each port there’s a **TS1** sub tree. Right click it, in the new menu, click “**Scan TS**”, all the programs delivered from the source will display. (PIC-2.3-3) Repeat above steps to scan the programs from the other three RF ports.



PIC-2.3-3

2.3.1.2. Transfer a program (or TS)

This operation is frequently used when you plan to transfer a program (or TS) from one module to another for transmitting or further processing.

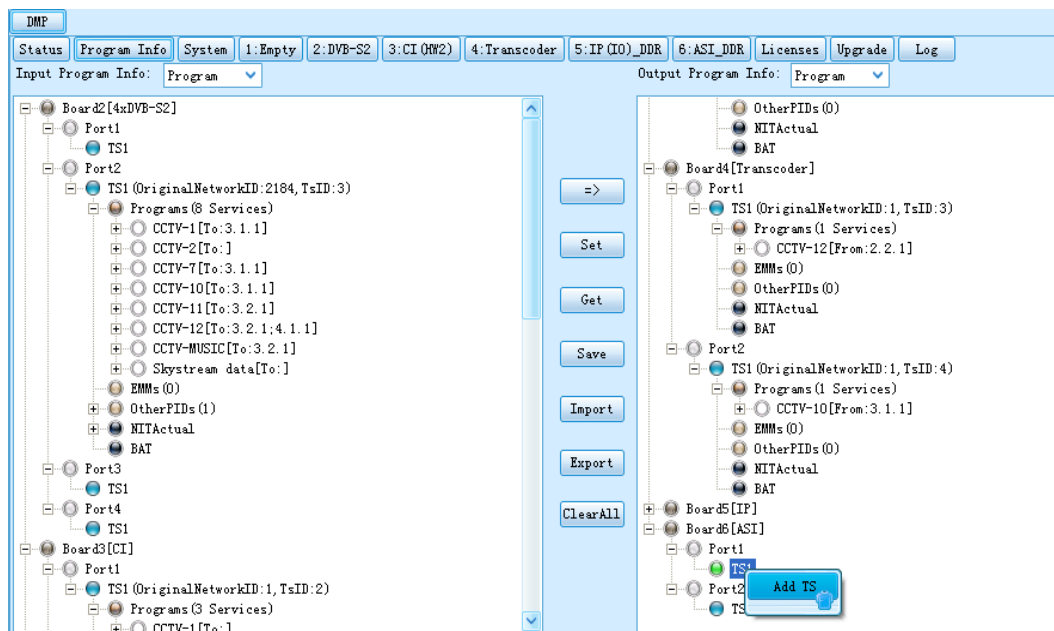
Take ASI module for example:

If there is a ASI module inserted in the DMP 900 platform, and some ports of it is configured as output type, the ASI module will appear in the “Output Program Info window” and is ready to receive program (or TS).

● Step 1: Add TS

Add TS is to set up a TS path for receiving program or TS.

Find the ASI module by mark “**Board#**[ASI]” in the “Output Program Info window”, click + to expand the port list. Under the port, there is a TS1 sub tree, right click it, select “Add TS” from the menu. (PIC-2.3-4) A sub tree “Programs” will appear under TS1, it indicate the port is ready to receive program or TS.



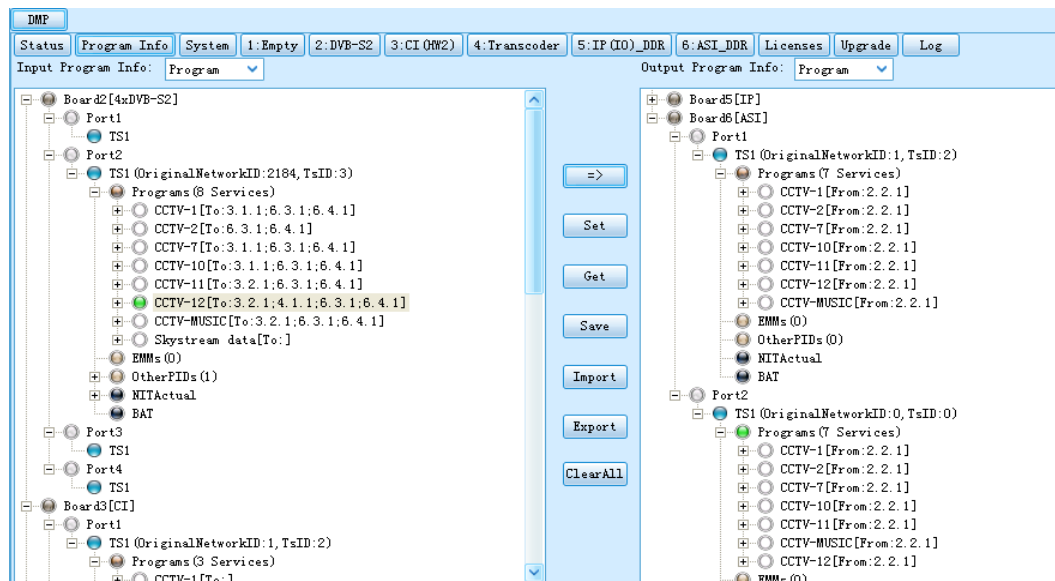
PIC-2.3-4

Step 2: Assign a program (or TS) to the module.

Select a program or a TS from a module of the Input Programs Info window, Click



to add the program or TS into the ASI module. You can see the program appears under the module in the “Output Program Info window”. (PIC-2.3-5)



PIC-2.3-5

2.3.2 Configuration parameters of sub modules

Module parameters should be set correctly to ensure it will work according to your application. After setting the parameters of each module, you should click “Set” button on the parameter setting page of each module to make the setting take effect.

In this document, only key parameters are introduced for you to quickly install and configure the devices, follow the steps and keep the default value of the other parameters, you can setup the device for basic function, if you need to know the specified parameter beyond this document, please refer to the User Manual.

2.3.2.1 DVB-S/S2 Receiving Module

Setting:

Port	SatFrequency (MHz)	SymbolRate (KSym/s)	Polarization	BandSelection	Type	LOLowFrequency (MHz)	LOHighFrequency (MHz)	Bias
1	11060.0	27500.000	13V (V) ▼	Auto ▼	Single Band ▼	9750.0	10600.0	Disable ▼
2	11060.0	27500.000	13V (V) ▼	Auto ▼	Single Band ▼	9750.0	10600.0	Disable ▼
3	11060.0	27500.000	13V (V) ▼	Auto ▼	Single Band ▼	9750.0	10600.0	Disable ▼
4	11060.0	27500.000	13V (V) ▼	Auto ▼	Single Band ▼	9750.0	10600.0	Disable ▼

Key Parameters:

Parameters	Description
Port	Indicates which input port the channels comes from
Sat Frequency	Input the frequency of transponder which you want to receive programs. The unit is MHz
Symbol Rate	Input the symbol rate of the transponder. The unit is KS/s
Polarization	Select the voltage provided to LNB (13V for vertical or 18V for Horizontal).

Please contact your program provider for the parameters details of the channel if you are not clear about.

After setting all parameters, you should press the 'Set' button to save the settings.

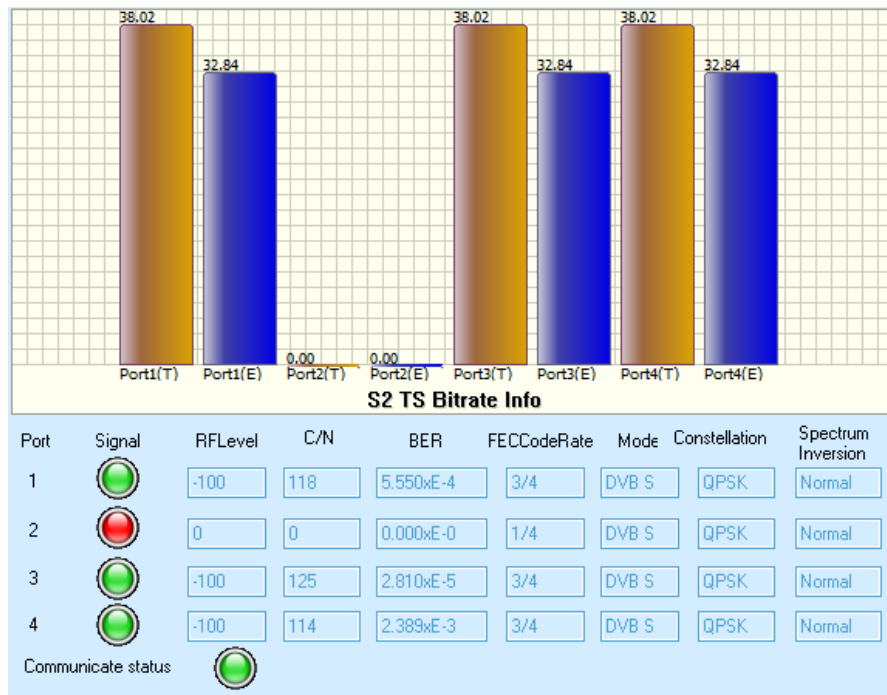
Note:

1. Parameters of "FECCodeRate" can be automatically recognized by the NMS.
2. Only LNB 1 & 3 inputs support polarization setting. LNB 2 & 4 cannot provide power (13V or 18V) to the LNB.
3. Satellite parameters may changed, please coordinate with the content provider or browse www.lyngsat.com for the updated parameters.
4. Symbol rate usually if:
 - b) Ku-Band: 11,300 KS/s.
 - c) C-Band: 5150 KS/s

- **Program Setting**

DVB-S/S2 is a receiver module. If the parameters of the module are correctly configured, it is ready to receive programs (or TS) from transponders. Please refer to chapter **2.3.1.1 Scan TS**.

- **Status Monitor**



Once the signal turns GREEN, it means that it is LOCK. As a result, a data will appear on the status monitoring. Otherwise, the signal will turn to RED which means No Signal.

Note:

If there's no signal received, please do as follows:

- Check the Parameters and Setting configuration if it's correct.
- Check the Cable.
- You can double check at the back of the equipment if there's already a signal coming in. The DVB-S2 module has a LED display as well, showing that the signal is LOCK on the ports on which the signal was connected.

2.3.2.2 DVB-C Receiver configuration

Setting:

Port	Frequency(KHz)	Symbol Rate(Ksym/s)	QAM
1	474000	6875	Qam64
2	474000	6875	Qam64
3	474000	6875	Qam64
4	474000	6875	Qam64

Buttons: Set, Get, Import, Export, Reboot, Power off, Factory setting

Key parameters:

Parameters	Description
Port	Indicates which input port the channel comes from.
Frequency	Frequency on which the channel is transmitted. The unit is in KHz.
Symbol Rate	Symbol rate of the input channel. The unit is in KS/s.
QAM Mode	Select the actual QAM mode of the input channel.

Note: the input signals of Port 1&2 are from the 'RF-IN 1/2' port of tuner 1, and the input signals of Port 3&4 are from the 'RF-IN 3/4' port of tuner 2.

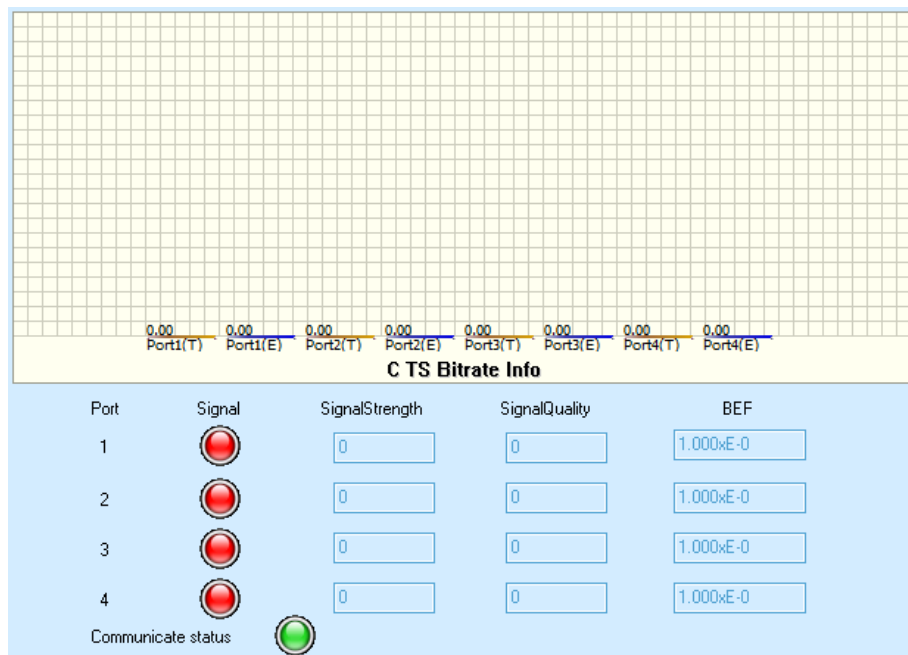
Please contact your program provider for the parameters details of the channel if you are not clear about.

After setting all parameters, you should press the 'Set' button to save the settings.

- **Program Setting**

DVB-C is a receiver module. If the parameters of the module are correctly configured, it is ready to receive programs (or TS) from cable source. Please refer to chapter **2.3.1.1 Scan TS**.

- **Status monitor**



Once the signal turns GREEN, it means that it is LOCK. As a result, a data will appear on the status monitoring. Otherwise, the signal will turn to RED which means No Signal.

2.3.2.3 DVB-T / ISDB-T Receiving Module

Setting:

Port	Frequency(KHz)	BandWidth	Mode
1	474000	6M	ISDB-T
2	474000	6M	DVB-T
3	474000	8M	DVB-T
4	474000	8M	DVB-T

Buttons: Set, Get, Import, Export, Reboot, Power off, Factory setting

Key Parameters:

Parameters	Description
Port	Indicates which input port the channels comes from

Frequency	Input the frequency of being used by the content provider which you want to receive programs. The unit is MHz
Bandwidth	Bandwidth depends upon the current standards on different countries, but it is variable at 6 MHz, 7 MHz, and 8MHz.
Mode	Indicates which signal you want to received (ISDB-T / DVB-T)

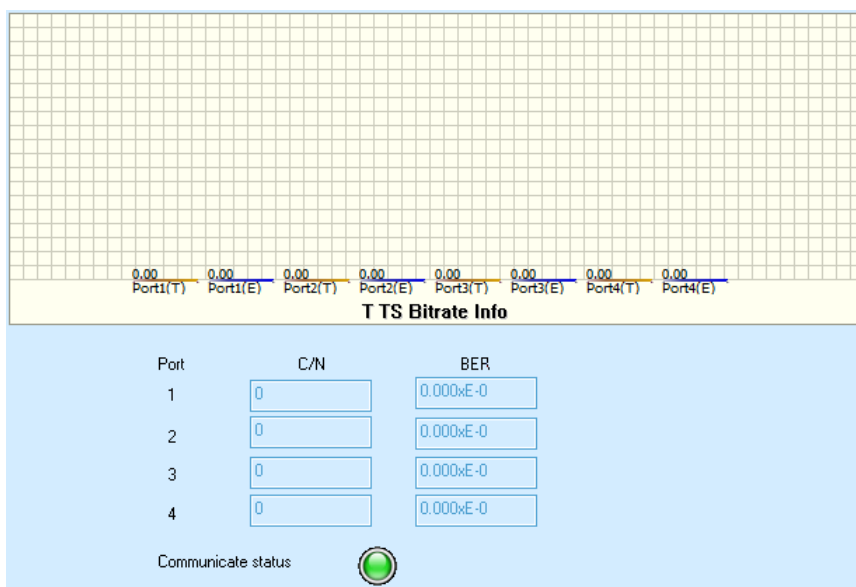
Please contact your program provider for the parameters details of the channel if you are not clear about.

After setting all parameters, you should press the 'Set' button to save the settings.

● Program Setting

DVB-T/ISDB-T is a receiver module. If the parameters of the module are correctly configured, it is ready to receive programs (or TS). Please refer to chapter **2.3.1.1 Scan TS**.

● Status Monitor



Key Parameters:

Parameters	Description
Port#(T)	Indicates the total bit rate of input signal, including the valid and null packet. The unit is Mbps.

Port#(E)

Indicates the bit rate of valid packet (excluding the null packet). The unit is Mbps.

If the column value of port#(T) and port#(E) is above zero, it means that the program stream has been received.

6.3.2.4 ASI I/O Module

Port	Type	PacketSize	Mode	ConstantRate (Mbit)	MaxRate (Mbit)	MinRate (Mbit)
1	Input	188	CBR	34.037	0.000	0.000
2	Input	188	CBR	34.037	0.000	0.000
3	Output	188	CBR	34.037	0.000	0.000
4	Output	188	CBR	34.037	0.000	0.000

Buttons: Set, Get, Import, Export, Reboot, Power off, Factory setting

Key Parameters:

Parameters	Description
Type	Set each ASI port to be Input or Output.
PacketSize	Set 188 or 204 packet size for outputs.
ConstantRate(Mbit)	Set constant bitrate for ASI output.

● Program Setting

ASI module is a stream I/O module. It can be configured as either Input or output according to your application:

ASI Input program setting:

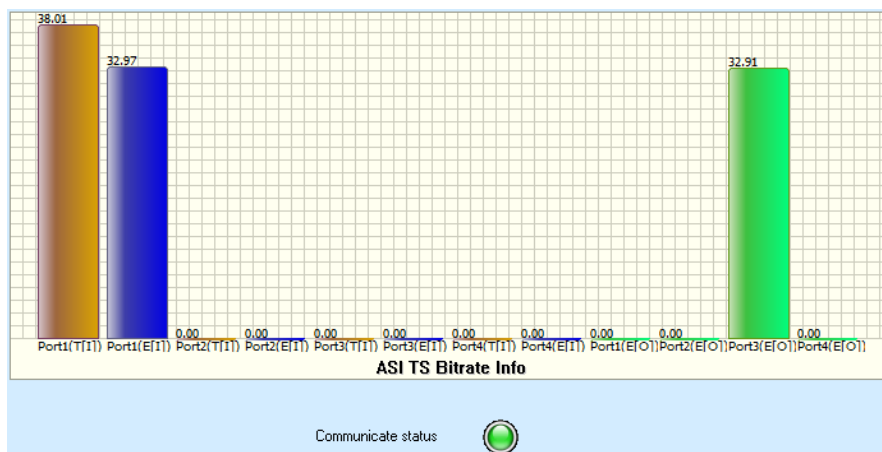
If certain ports of ASI module are set as Input, the ASI module will appear in the “Input Program Info window” with the ports under it and if appropriate signal source is connected

with the ports, you can **Scan TS** to show the input programs (TS). (Refer to the **2.3.1.1 Scan TS**)

ASI Output program setting:

If certain ports of ASI module are set as output, the ASI module will display in the “Output Program Info window” with the ports under it. It can receive programs or TS and then transmit to the HFC, as the limitation of its transmitting capability, no more than **120Mbps** data should be transmitted from one ports. To assign programs (or TS) to be transmitted by ASI module, please refer to chapter **2.3.1.2 Transfer a program**.

● **Status Monitor**



Key Parameters:

Parameters	Description
Port#(T)	Indicates the total bit rate of input signal, including the valid and null packet. The unit is Mbps
Port#(E)	Indicates the bit rate of valid packet (excluding the null packet). The unit is Mbps.

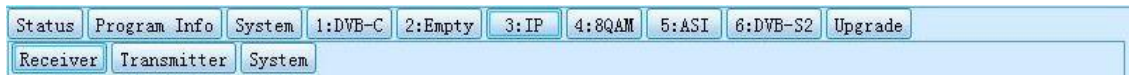
NOTE:

- Once the settings is properly configured, when the source what inserted on the proper port, a data will automatically appear on the specific port.
- If no data, please check the source if it really has an output or it can be a loose contact.

2.3.2.5 GbE IP I/O Module

- **IP Module Setting Interface**

By selecting the 'IP' tab on the NMS operation interface, the IP module setting interface will be displayed.



The settings on the IP module include the settings on the 'Receiver', 'Transmitter' and 'System'.

- **'System' Setting of the IP I/O Module**

Key Parameters:

Parameters	Description
IP Address	Set IP address of IP module. The IP address of IP module is used for communication with CAS server that should be in the same IP section with IP address of the equipment
Subnet Mask	Set Subnet Mark of the IP module
Gateway	Set Gateway of the IP module
MAC Address	MAC address of the IP module

After setting all the parameters, you should press 'Set' button to save the settings.

● 'Receiver' Setting of the IP I/O Module

The 'Receiver' setting menu is to set the IP input function for receiving multicast or unicast IP stream.

The screenshot shows the 'Receiver' configuration window. At the top, there are tabs for 'Status', 'Program Info', 'System', and a row of module types: '1:DVB-C', '2:Empty', '3:IP' (selected), '4:8QAM', '5:ASI', '6:DVB-S2', and 'Upgrade'. Below these are sub-tabs: 'Receiver' (selected), 'Transmitter', and 'System'. The main area is for 'Channel1' configuration. 'ChannelSelect' is set to 'Channel1' and 'Enable' is 'ON'. The 'Channel Configuration' section contains: 'EnableChannel' (OFF), 'SourceIPAddress' (227.40.50.60), 'SourcePort' (1234), 'Protocol' (UDP), 'ColPortMatching' (Disable), and 'RowPortMatching' (Disable). The 'FEC Parameter' section contains: 'ColFECSeen' (0), 'RowFECSeen' (0), 'FECL' (0), and 'FECD' (0). The 'Bitrate Parameter' section contains: 'TotalRate (Mbit)' (0.000) and 'EffectiveRate (Mbit)' (0.000). 'Set' and 'Get' buttons are at the bottom.

Key Parameters:

Parameters	Description
ChannelSelect	IP I/O module support up to 64 channels input and 32 channels output, each channel support up to 72 Mbps I/O data. In this 'ChannelSelect', user can select a specified channel to configure its parameters.
Enable	On: enable the IP receiving function. Off: disable the IP receiving function. Note: this parameter setting applies to all channels.
Channel configuration	
EnableChannel	Enable or disable corresponding input channel
SourceIPAddress	Set the IP address of the multicast/unicast that are going to receive
SourcePort	Set port of multicast/unicast
Protocol	Select UDP/RTP for multicast/unicast

After setting all the parameters, you should press 'Set' button to save the settings.

● Program setting

If certain channels of the IP module are set as Input type, the IP module with the assigned

channels will appear in the Input Program List, you can **Scan TS** to receive the input programs (IP stream). Please refer to chapter **2.3.1.1 Scan TS**.

● 'Transmitter' Setting of the IP I/O Module

The 'Transmitter' setting menu is to set the IP output function for transmitting multicast/unicast IP stream to other devices.

After setting all parameters, you should press 'Set' button to save the settings.

Key Parameters:

Parameters	Description
ChannelSelect	In this 'ChannelSelect', user can select a channel to configure its transmitting parameters.
Enable	On: enable the IP receiving function. Off: disable the IP receiving function. Note: this parameter setting applies to all channels.
Channel configuration	
EnableChannel	Enable or disable corresponding output channel

SourcePort	Set port of multicast/unicast
DestIPAddress	Set IP address of the multicast/unicast.
Protocol	Select UDP/RTP for multicast/unicast

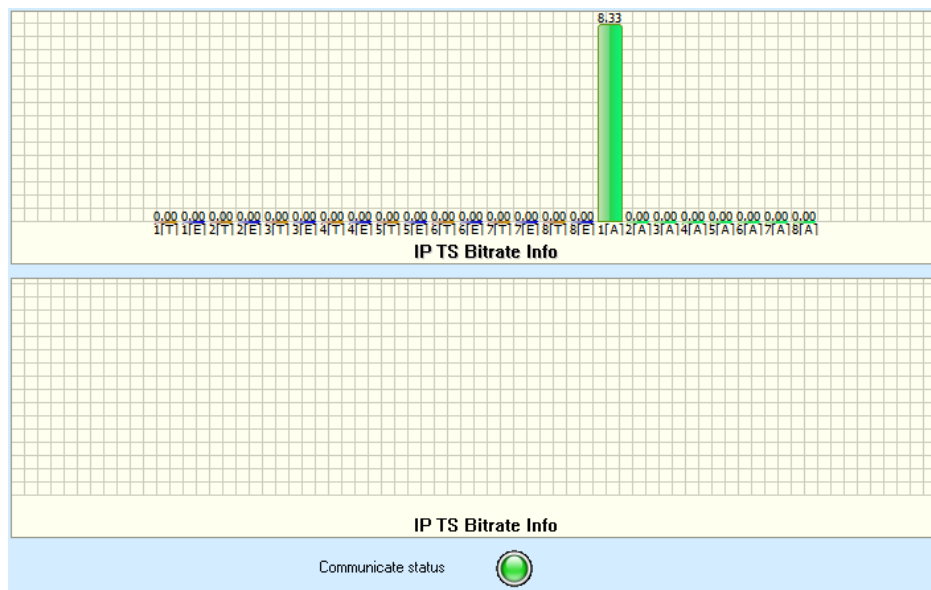
After setting all parameters, you should press 'Set' button to save the settings.

● Program setting

If certain of the IP channels are set as output, the IP module with the assigned ports will appear in the Output Program List. About the output program setting, please refer to chapter

2.3.1.2 Transfer a program.

● Status Monitor



Key Parameters:

Parameters	Description
#(T)	Indicates the total bit rate of input signal, including the valid and null packet. The unit is Mbps
#(E)	Indicates the bit rate of valid packet (excluding the null packet). The unit is Mbps.

NOTE:

- Once the IP module is properly configured, a status data will automatically appear.
- If no data status shown on the TSIP Input:
 - Check the configuration is the Multicast Address and port is correct based from the source input.
 - Check the TSIP out of the source (via VLC) it is really transmitting.

2.3.2.6 QAM/COFDM Module

Bandwidth:	<input type="text" value="8M"/>	RF Level:	<input type="text" value="90"/>	dBuV
SymbolRate(Channel 1-4):	<input type="text" value="6875"/>	KBaud	SymbolRate(Channel 5-8):	<input type="text" value="6875"/>
SpectrumShaping:	<input type="text" value="Disable"/>			

Port	Enable	RF Frequency (KHz)	Mode	MaxRate (Mbit)
1	<input type="text" value="Enable"/>	<input type="text" value="474000"/>	<input type="text" value="QAM64"/>	<input type="text" value="38.015"/>
2	<input type="text" value="Enable"/>	<input type="text" value="482000"/>	<input type="text" value="QAM64"/>	<input type="text" value="38.015"/>
3	<input type="text" value="Enable"/>	<input type="text" value="490000"/>	<input type="text" value="QAM64"/>	<input type="text" value="38.015"/>
4	<input type="text" value="Enable"/>	<input type="text" value="498000"/>	<input type="text" value="QAM64"/>	<input type="text" value="38.015"/>
5	<input type="text" value="Enable"/>	<input type="text" value="506000"/>	<input type="text" value="QAM64"/>	<input type="text" value="38.015"/>
6	<input type="text" value="Enable"/>	<input type="text" value="514000"/>	<input type="text" value="QAM64"/>	<input type="text" value="38.015"/>
7	<input type="text" value="Enable"/>	<input type="text" value="522000"/>	<input type="text" value="QAM64"/>	<input type="text" value="38.015"/>
8	<input type="text" value="Enable"/>	<input type="text" value="530000"/>	<input type="text" value="QAM64"/>	<input type="text" value="38.015"/>

Key Parameters:

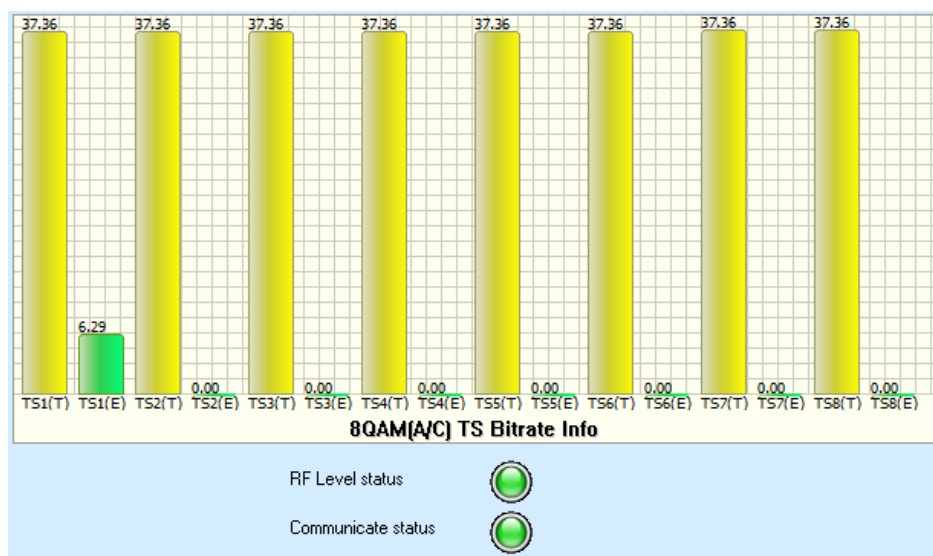
Parameters	Description
Bandwidth	Select the bandwidth of output RF, 6M/7M/8M are available.
SymbolRate (Channel 1~4)	Set symbol rate for the first four transmission frequencies
SymbolRate (Channel 5~8)	Set symbol rate for the last four transmission frequencies
Enable	Switch 'Enable' or 'Disable' for the selected channel output
RF Frequency (KHz)	Set the carrier frequency for the first modulation frequency. Note: for the RF frequencies of port 2~8, they will be set automatically by the NMS base on the frequency of port 1 and the 'Bandwidth' setting.
Mode	Set modulation type of each modulators port. The modulation mode can be QAM16, QAM32, QAM64, QAM128, QAM256.

After setting all parameters, you should press 'Set' button to save the settings.

- **Program setting**

QAM module is to receive the programs, then modulate them for transmitting, you can refer to chapter **2.3.1.2 Transfer a program**.

- **Status Monitor**



Key Parameters:

Parameters	Description
TS#(T)	Indicates the total bit rate of input signal, including the valid and null packet. The unit is Mbps
TS#(E)	Indicates the bit rate of valid packet (excluding the null packet). The unit is Mbps.
RF Level status	Indicates if the physical RF port works (green) or not (red)

2.3.2.7 4-COFDM Module Parameter Setting

Port	Enable	Frequency (KHz)	GuardIntervalL	OFDM	Constellation	FECHF	MaxRate (Mbit)
1	Enable	474000	1/32	Mode 2k	QPSK	1/2	4.980
2	Enable	482000	1/32	Mode 2k	QPSK	1/2	4.980
3	Enable	490000	1/32	Mode 2k	QPSK	1/2	4.980
4	Enable	498000	1/32	Mode 2k	QPSK	1/2	4.980

Buttons: Reboot, Set, Get, Import, Export, Power off, Factory setting

Key Parameters:

Parameters	Description
Bandwidth	Select the bandwidth of output RF, 6M/7M/8M are available.
RF Level	Set RF output signal level in dBu, the value RF Level is 90dBuV~112dBuV.
Enable	Switch 'Enable' or 'Disable' for the selected channel output
Frequency (KHz)	Set the carrier frequency for the first modulation frequency. Note: for the RF frequencies of port 2~4, they will be set automatically by the NMS base on the frequency of port 1 and the 'Bandwidth' setting.

After setting all parameters, you should press 'Set' button to save the settings.

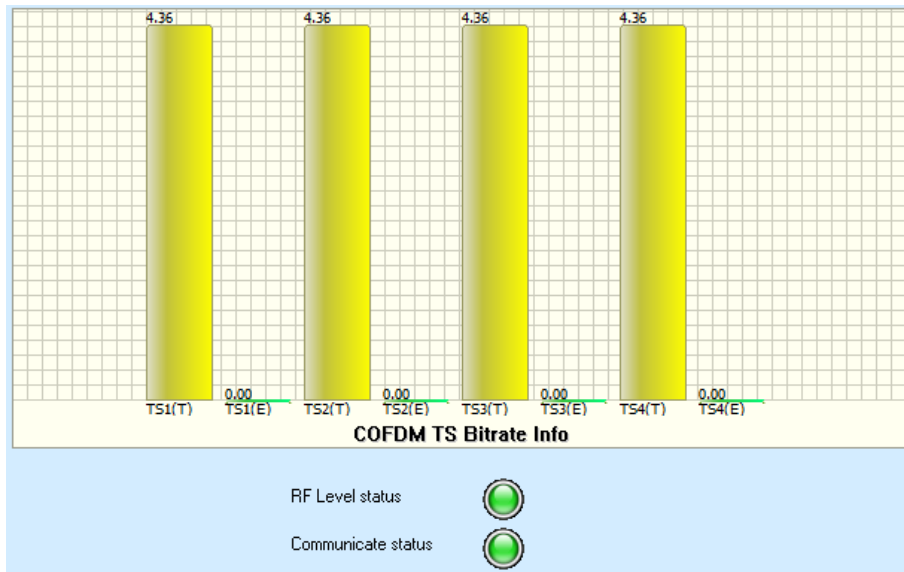
Note:

- Total allowable Bit rate, will automatically appear based on the configuration that was set.
- Effective bit rate should not exceed total allowable bit rate. Otherwise, overflow will occur.
- It is advisable to save a space to prevent overflow.

- **Program setting**

OFDM module is to receive the programs, then modulate them for transmitting, the program setting, please refer to chapter **2.3.1.2 Transfer a program**.

- **Status Monitor**

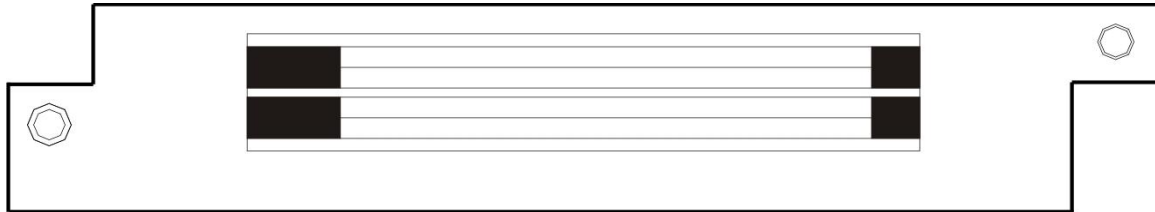

Key Parameters:

Parameters	Description
TS#(T)	Indicates the total bit rate of input signal, including the valid and null packet. The unit is Mbps
TS#(E)	Indicates the bit rate of valid packet (excluding the null packet). The unit is Mbps.
RF Level status	Indicates if the physical RF port works (green) or not (red)

Note:

- Total allowable Bit rate, will automatically appear based on the configuration that was set.
- Effective bit rate should not exceed total allowable bit rate. Otherwise, overflow will occur.
- It is advisable to save a space to prevent overflow.

2.3.2.8 CI Descrambling Module Parameter Setting



The CI descrambling module is for descrambling the input scrambled stream via CAM module. The module supports 2 CAMs working simultaneously.

CAM	Enable	TSClock	Mode	ConstantRate (Mbit)
1	<input type="button" value="Enable"/>	<input type="button" value="9MHz"/>	<input type="button" value="CBR"/>	<input type="button" value="64.000"/>
2	<input type="button" value="Enable"/>	<input type="button" value="9MHz"/>	<input type="button" value="CBR"/>	<input type="button" value="64.000"/>

In the CI module NMS interface, there are four items for user to select/configure. Only after the parameters are correctly set can the CI module work normally.

Key Parameters:

Parameters	Description
CAM No.	Indicates which CAM the user is operating.
Enable/Disable switch	<p>Enable--turn on the CI module and enable the input stream to pass through the CI module and get descrambled.</p> <p>Disable--Disable any input stream to pass through the CI module and thus the CI module will not be functional.</p> <p>! Please select Disable if no CAM is inserted in the CI module.</p>
TSClock	The TSClock is selected according to the CAM and actual bitrate of input TS.

	<p>Five options in the TSClock can be selected:</p> <p>9MHz--support up to 72Mbit input TS.</p> <p>9.5MHz--support up to 76Mbit input TS.</p> <p>10.5MHz--support up to 84Mbit input TS.</p> <p>11.5MHz--support up to 92Mbit input TS.</p> <p>13MHz--support up to 104Mbit input TS.</p> <p>! Please select default 9MHz for the TSClock if input TS is less than 72Mbit in total bitrate.</p>
Mode	<p>CBR--the output descrambling TS bitrate is set at a bitrate which set in the ConstantRate.</p> <p>VBR--the output descrambling TS bitrate is changeable depending on the input TS.</p>
ConstantRate (Mbit)	<p>To set a fixed output bitrate for the CI module. It will take effect when user selects the CBR mode.</p> <p>! Please set a bigger bitrate value than the input TS rate and reserve a bit buffer.</p>

Note: for the descrambling operation on a program, please refer to “Descramble Operation”, page-51 of this manual for the details.

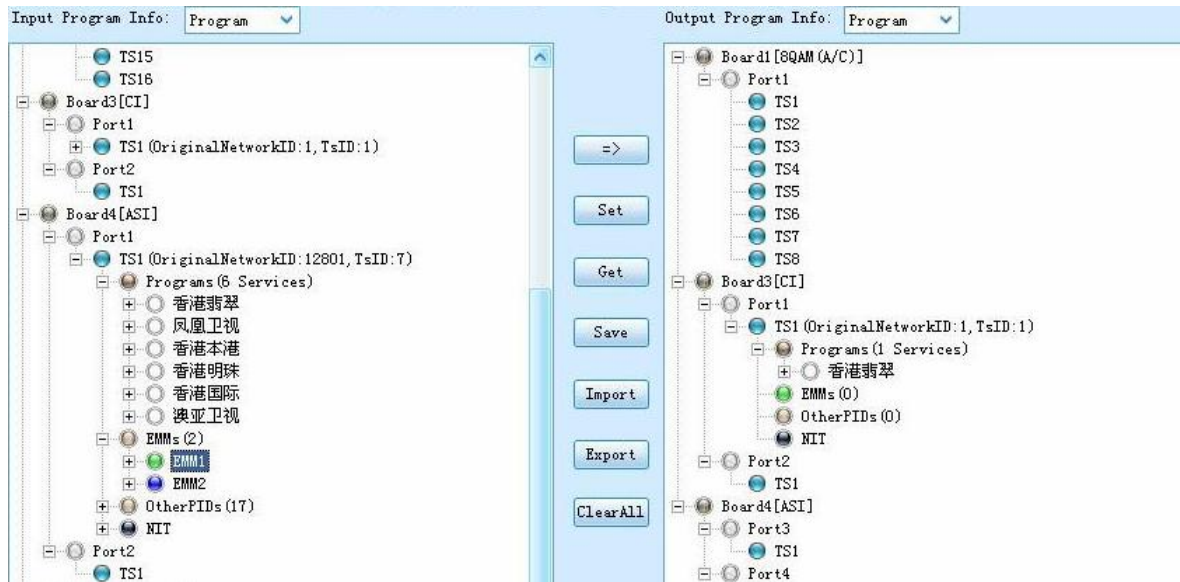
After setting all the parameters, you should press ‘**Set**’ button to save the settings.

NOTE:

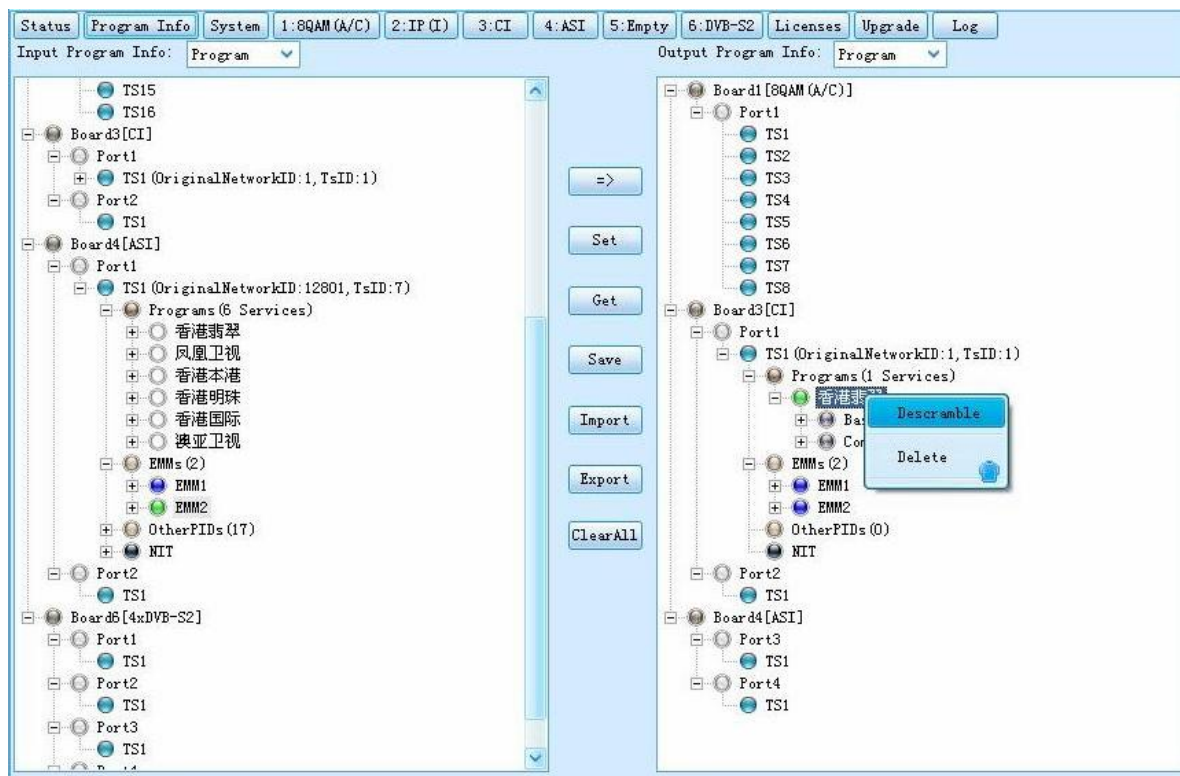
- In decrypting the encrypted programs, you just need to pick a specific program and transfer it to the CI board at program information.
- CI has two slot, select which slot it should belong (from you the CAM Card is inserted).
- Status monitoring, will automatically display the data of the programs being decrypted.

- **Program setting**

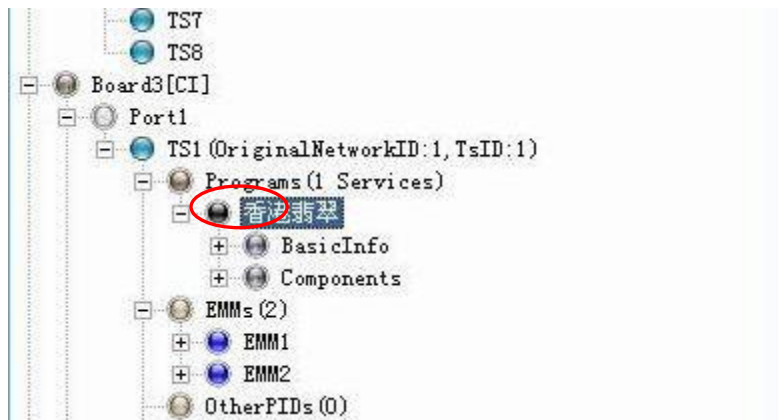
Select a scrambling program of a receiving module in the input window and transfer it to the corresponding CI module port (port 1 or 2) in the output window. **The EMM data of the scrambling program must be transferred at the same time.** Please refer to the chapter 2.3.1.2 Transfer a program.



Right click on the transferred program, and select “Descramble” menu.

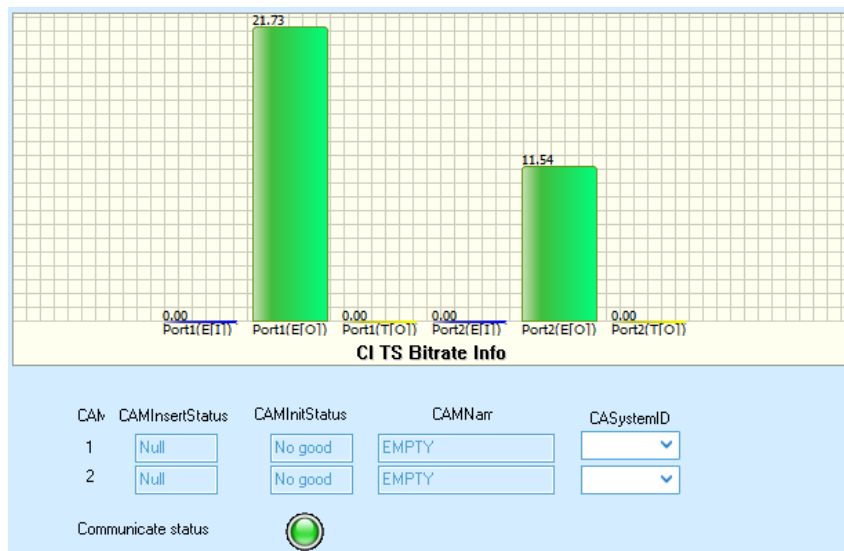


After the program is scrambled, the button indicators of the program name will turn to black color.



Back to the “Input Program Info window”, the descrambled programs have already been automatically transferred to the corresponding port of the CI module and is ready for further process. To transmit or process the descrambled programs by other modules, please refer to chapter **2.3.1.2 Transfer a program**.

● Status Monitor



Key Parameters:

Parameters	Description
CAM Port	Indicates which CAM the user is operating.
CAM Insert Status	Indicates if the CAM module is detected (Inserted) or not (Null)

CAMInitStatus	Indicates if the initialization of CAM module is successful (Good) or failed (No good)
CAM Narr	Indicates the CAM module name.
CASystemID	Indicates the CAS system ID of the inserted CAM module.

NOTE:

- In decrypting the encrypted programs, you just need to pick a specific program and transfer it to the CI board at program information.
- CI has two slot, select which slot it should belong (from you the CAM Card is inserted).
- Status monitoring, will automatically display the data of the programs being decrypted.

2.3.2.9 SD & HD H.264 SDI/AV Encoder Module Parameter Setting

The screenshot displays a web-based configuration interface for an SD & HD H.264 SDI/AV Encoder Module. At the top, there is a navigation bar with tabs: Status, Program Info, System, 1:OFDM_DDR, 2:DVB-C, 3:Scrambler, 4:HD-Encoder_SDI (selected), 5:SD-Encoder_CVBS, 6:8QAM (A/C), Licenses, Upgrade, and Log. Below the navigation bar, the 'Channel' is set to 'Channel1'. The configuration fields are organized into two columns. The left column includes: Video Source (CVBS), Audio Source (CVBS), Encode Mode (CBR), Video Max Encode Rate (6000), Video Min Encode Rate (0), Video Encode Rate (3000), Audio Encode Rate (128K), Encode Rate (Total) (3128), and GOP Struct (IBBP). The right column includes: Video PID (258), Audio PID (259), PCR PID (260), PMT PID (257), Service ID (1), Transport Stream ID (0), Provider Name (WellAV), Program Name (CCTV 1), and Frame Rate (60I). At the bottom, there are buttons for Set, Get, Import, Export, Reboot, Power off, and Factory setting.

Parameters	Description
Channel	Indicates which input port the channel comes from.
Video Source	To select the correct video source for the input.
Audio Source	To select the correct audio source for the input.
Provider Name	To edit the program provider name.
Program Name	To edit the program name.

After setting all the parameters, you should press 'Set' button to save the settings.

● Program Setting

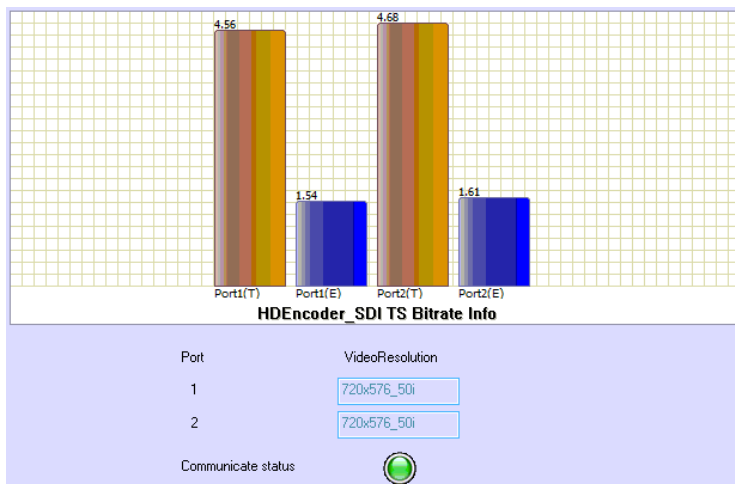
After you have finished above parameter setting, the encoder module is ready to receive program source and encode it into the corresponding format (depending on the encoder module type). You can **Scan** the encoded program out from the two encoder ports in the Input Program List. The program name is as “Program_1”, it is editable for you to alter it as the required name. Please refer to chapter **2.3.1.1 Scan TS**.

Currently, we have four types of encoder modules, they are :

1. MPEG2 AV Encoder;
2. MPEG2 SDI/AV Encoder
3. H.264 SDI/AV SD Encoder
4. H.264 SDI/AV SD/HD Encoder

Program setting of above modules are the same.

● Status Monitor



Parameters	Description
Port#(T)	Indicates the total bit rate of input signal, including the valid and null packet. The unit is Mbps
Port#(E)	Indicates the bit rate of valid packet (excluding the null packet). The unit is Mbps.
VideoResolution	the resolution of input video

2.3.2.10 SD MPEG2 SDI/AV Encoder Module

Channel:	Channel1	
Video Source:	SDI	Video PID: 258
Audio Source:	SDI	Audio PID: 259
Encode Mode:	CBR	PCR PID: 260
Video Max Encode Rate:	0	PMT PID: 257
Video Min Encode Rate:	0	Service ID: 1
Video Encode Rate:	4000	Transport Stream ID: 0
Audio Encode Rate:	128K	Provider Name: Encoder
Encode Rate(Total):	4128	Program Name: Program-1
Audio Mode:	Stereo	Frame Rate: 59.94I
GOP Struct:	IBBPBBPBB	GOP Size: 15
<input type="button" value="Set"/> <input type="button" value="Get"/> <input type="button" value="Import"/> <input type="button" value="Export"/>		<input type="button" value="Reboot"/>
		<input type="button" value="Power off"/> <input type="button" value="Factory setting"/>

Parameters	Description
Channel	Indicates which input port the channel comes from.
Video Source	To select the matched video source for the input. You need to know the input source type, for AV input in the first channel (representing to the first port of the module), you need to choose set this parameter as CVBS, if you use a SDI line to introduce the program, you need to choose the SDI for this parameter
Audio Source	To select the correct audio source for the input.
Provider Name	To edit the program provider name.
Program Name	To edit the program name.

After setting all the parameters, you should press 'Set' button to save the settings.

- **Program Setting**

Please refer to Chapter **2.3.2.9 SD & HD H.264 SDI/AV Encoder Module Parameter Setting**.

- **Status Monitor**

Status monitor please refer to the instruction of 2 SD & HD H.264 SDI/AV Encoder Module.

2.3.2.12 HD H.264 HDMI Encoder Module

Channel: Channel1

Encode Mode: CBR

Video Max Encode Rate: 6000

Video Min Encode Rate: 0

Video Encode Rate: 4000

Audio Encode Rate: 128K

Encode Rate (Total): 4128

GOP Struct: IBBP

Frame Rate: 60I

Video PID: 258

Audio PID: 259

PCR PID: 260

PMT PID: 257

Service ID: 1

Transport Stream ID: 0

Provider Name: Encoder

Program Name: Program-1

Buttons: Set, Get, Import, Export, Reboot, Power off, Factory setting

Parameters	Description
Channel	Indicates which input port the channel comes from.
Provider Name	To edit the program provider name.
Program Name	To edit the program name.

After setting all the parameters, you should press 'Set' button to save the settings.

● Program Setting

Please refer to Chapter **2.3.2.9 SD & HD H.264 SDI/AV Encoder Module Parameter Setting**.

● Status Monitor

Status monitor please refer to the instruction of 2 SD & HD H.264 SDI/AV Encoder Module.

Chapter: **2.3.2.9 SD & HD H.264 SDI/AV Encoder Module Parameter Setting**

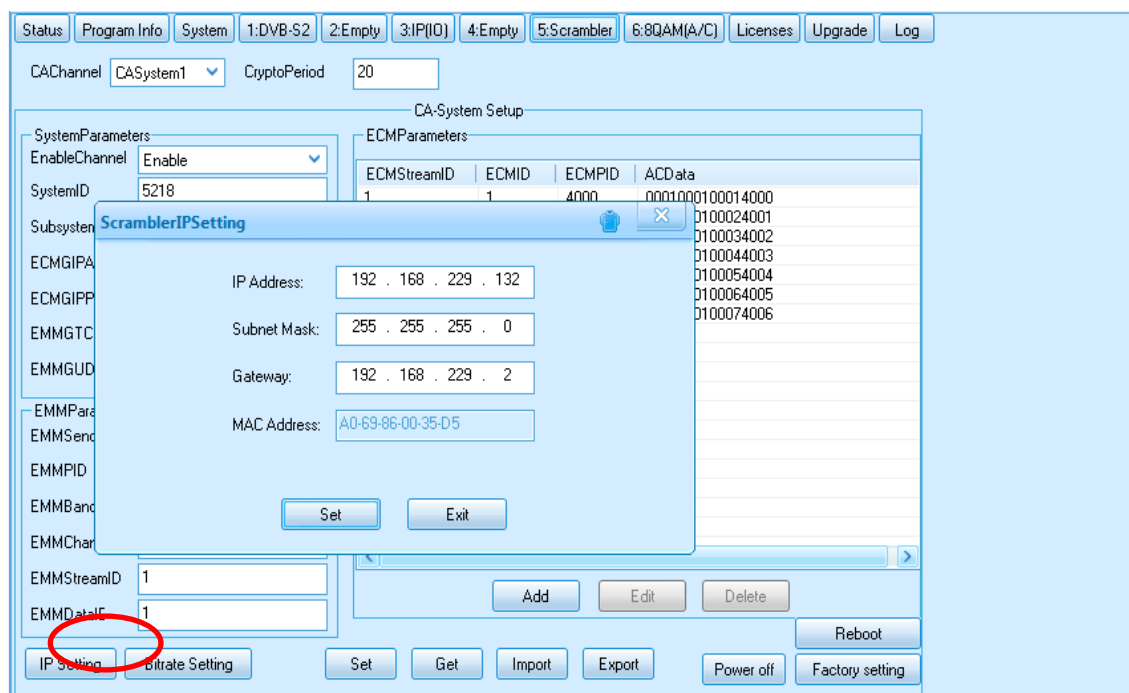
2.3.2.13 DVB Scrambler Module

Parameters	Description
CACChannel	the scrambler module supports up to 4 different CAS Simulcrypt. User can configure different settings for each CAS system by selecting different “CACChannel” in this item.
CryptoPeriod	the time interval between two ECMs generated by ECMG.
SystemID	Each CAS system has a unique SystemID when it is registered in DVB. Please contact your CAS service provider if you don't know what the ID is.
ECMGIPAddress	Input the CAS server IP address.
ECMGIPPort	Shall input the same port no and ID setting as those on the CAS server. Otherwise connection cannot be set up between the CAS server and the scrambler module.
EMMGTCPPort	
EMMGUDPPort	
EMMSendType	
EMMPID	
EMMBandwidth	

EMMChannelID	
EMMStreamID	
EMMDataID	

To ensure the scrambler module can set up connection successfully with the CAS server, user shall configure the correct parameters on the scrambler module

IP Setting button: Click this button to set an IP address for the scrambler module per the network environment. After setting the IP address, the scrambler module must be rebooted.



Bitrate Setting button: Click this button to set the allowed max bitrate for each channel of the scrambler module.

Bitrate Setting

TSIndex	ConstantRate(Mbit)
1	<input type="text" value="50"/>
2	<input type="text" value="50"/>
3	<input type="text" value="50"/>
4	<input type="text" value="50"/>
5	<input type="text" value="50"/>
6	<input type="text" value="50"/>
7	<input type="text" value="50"/>
8	<input type="text" value="50"/>
9	<input type="text" value="50"/>
10	<input type="text" value="50"/>
11	<input type="text" value="50"/>
12	<input type="text" value="50"/>

Set

Exit

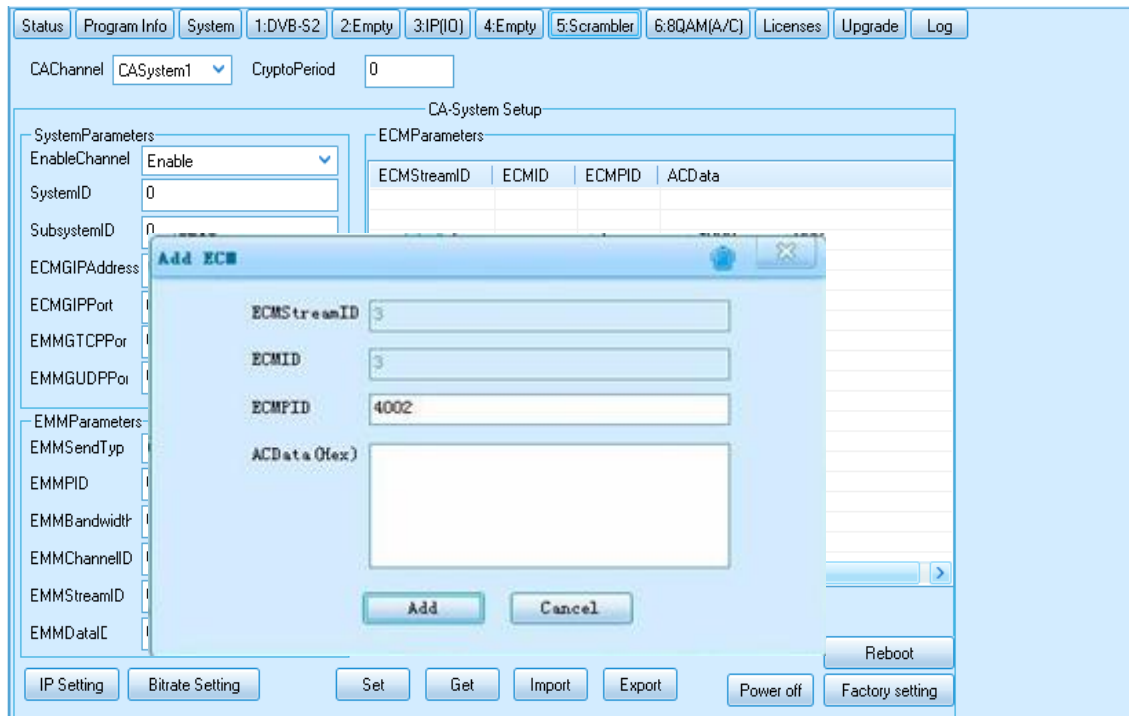
After inputting the correct parameters, the scrambler module shall connect with the CAS server.

Add the AC Data for each program of a TS stream

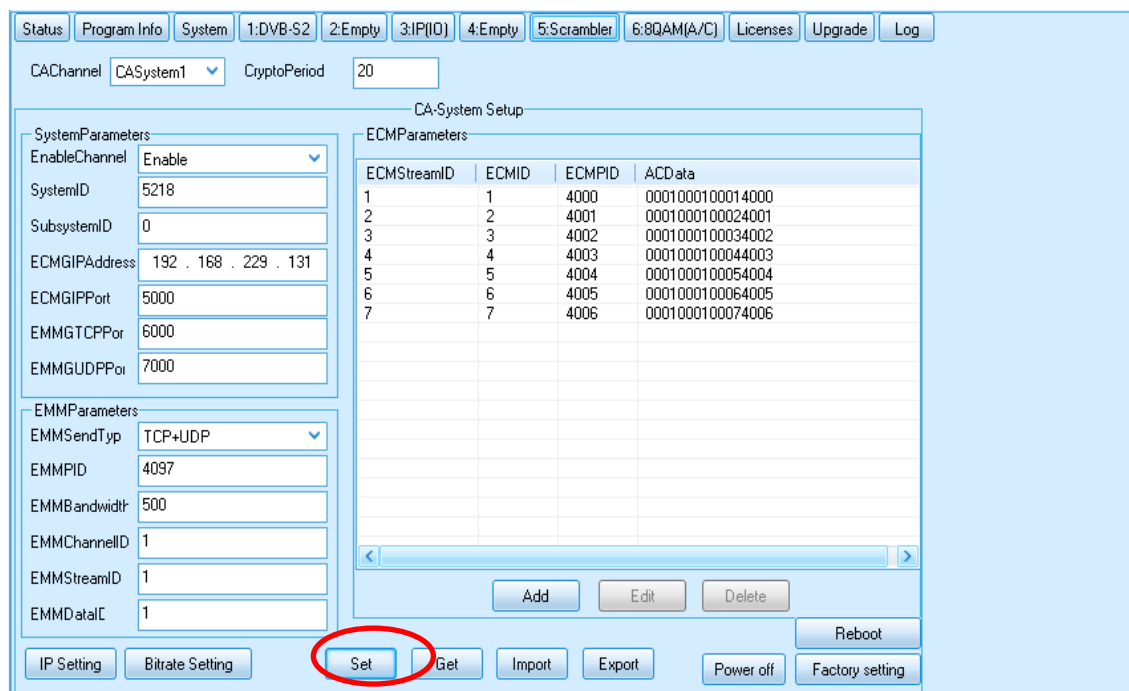
- Click “Add” button on the NMS

[illegible]

- In the “Add ECM” window, input the ACData (Hex), and click “Add” to insert the AC Data.



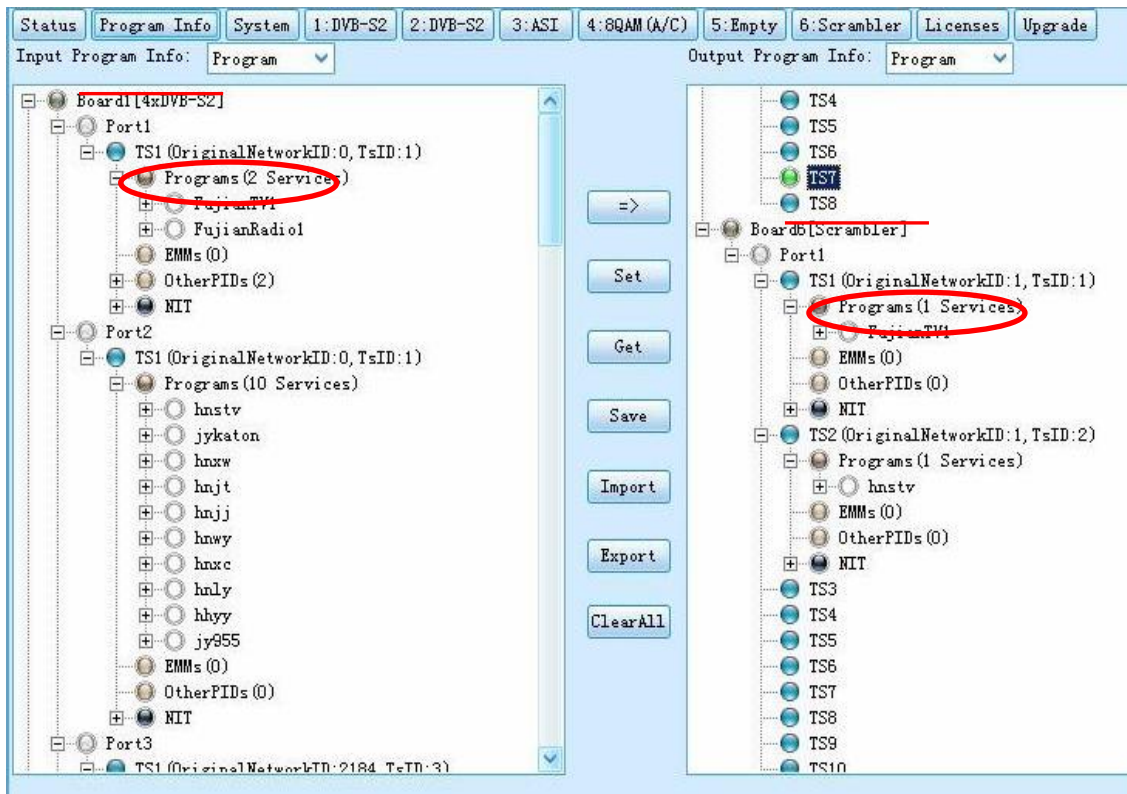
- After finishing all the parameters setting and the AC Data insertion, click “Set” button on the NMS to apply for the settings.



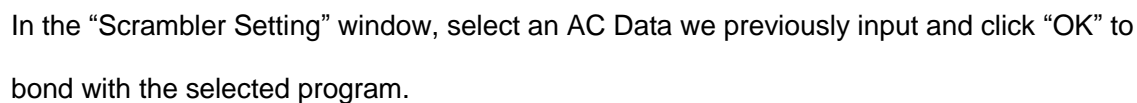
After configuring on the scrambler module setting window, user shall operate in the “Program Info” tab to specify which program to be scrambled and transfer to the transmission module (QAM/IP/ASI) for output. Operation steps are as following:

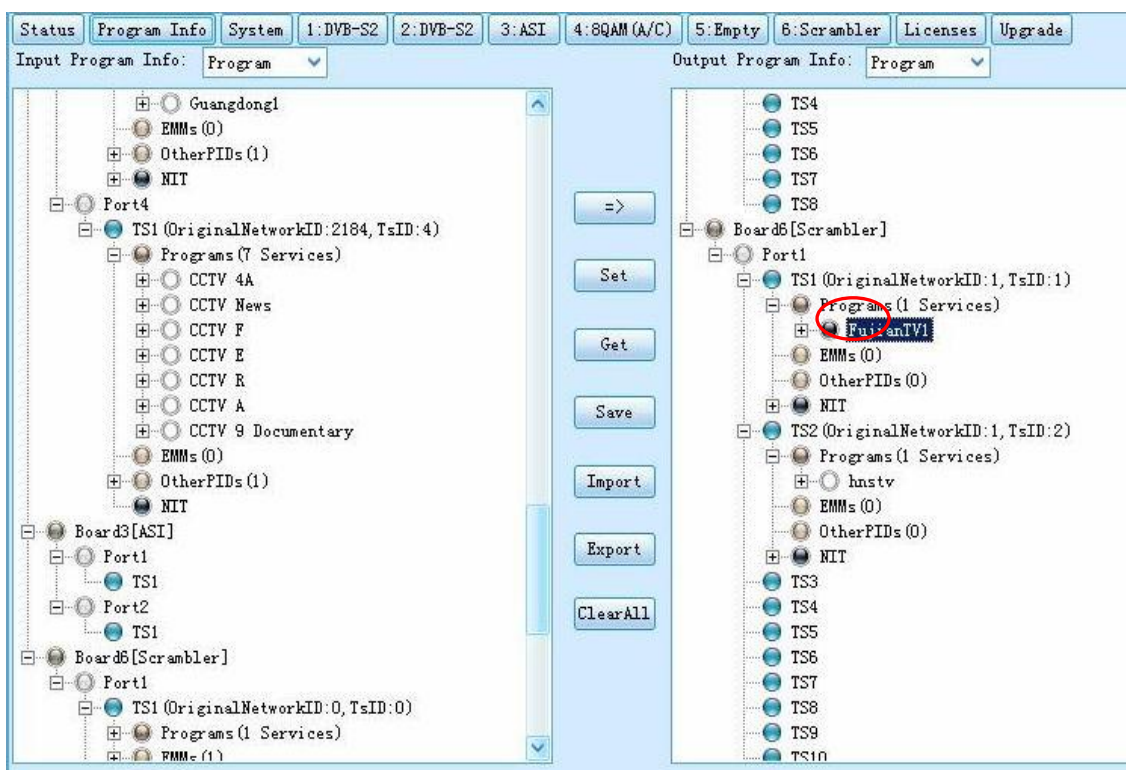
Select the program which is to be scrambled and transfer it from the signal source to the scrambler module at “Output Program Info”. (To know how to transfer programs, please refer to chapter 2.3.1.2)

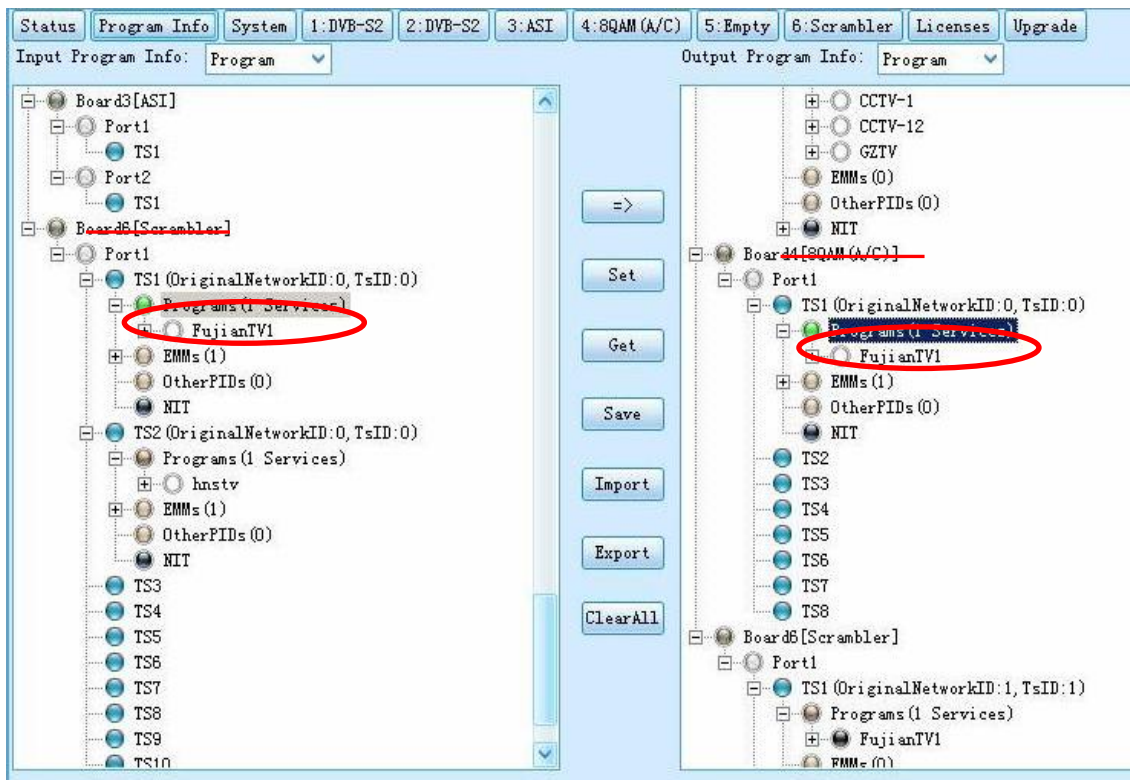
In below example picture, program “FujianTV1” is selected and is transferred from DVB-S2 module in “Input Program Info” window to scrambler module in “Output Program Info” window.



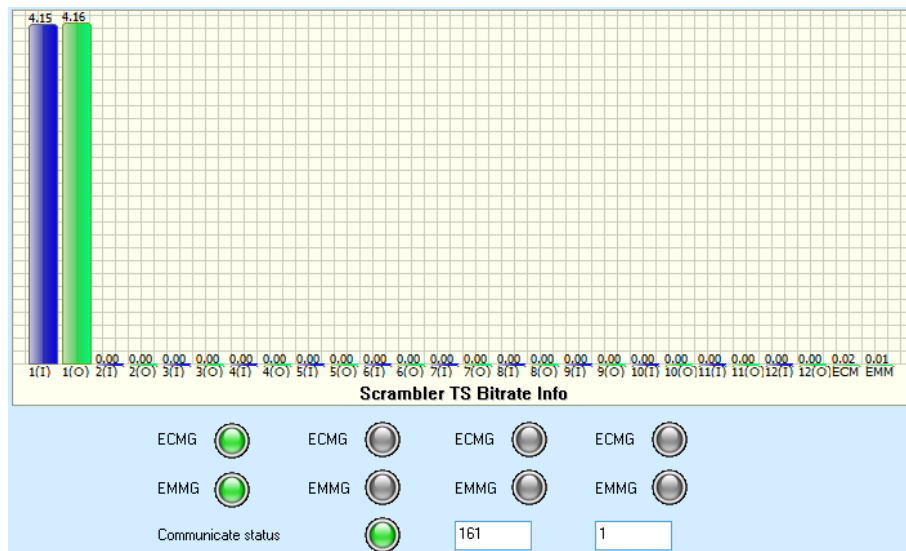
Edit the Network ID, TSID for the selected program, same as the setting in the CAS server for that program. Select the program name and click mouse right button to select “Scramble Setting”.





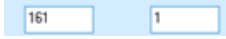




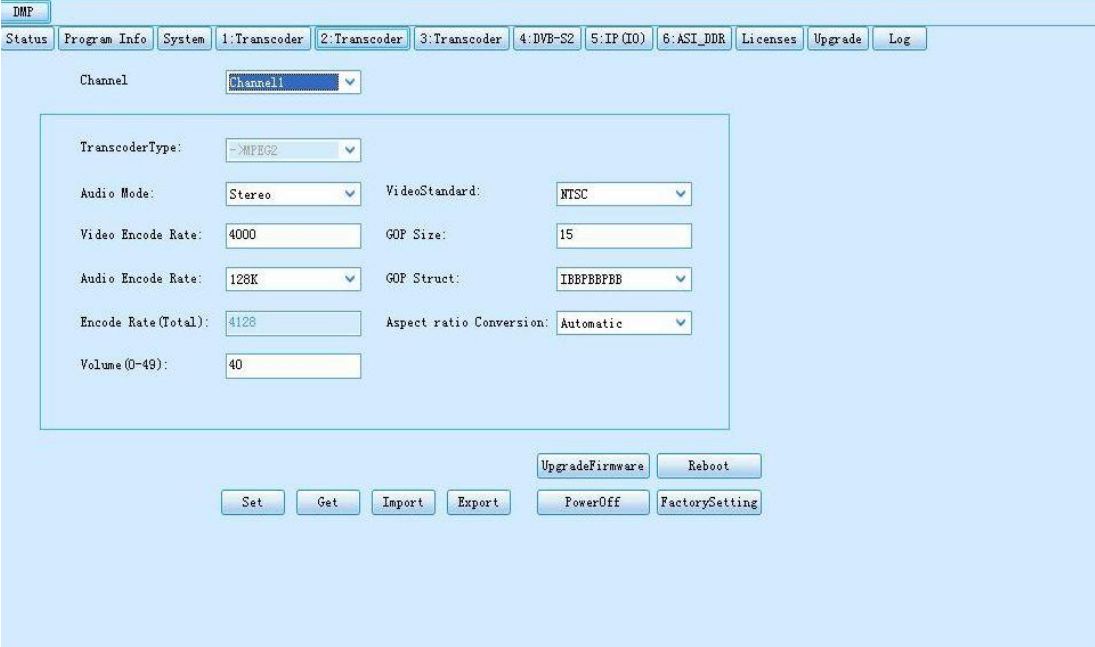
● Status Monitor



Parameters	Description
1(I)~12(I)	the input bitrate of channel1~channel12
1(O)~12(O)	the output bitrate of channel1~channel12
ECM	the bitrate of ECM generated by ECMG
EMM	the bitrate of EMM generated by EMMG

	<p>The communication status between ECMG and Scrambler. Green means the status is good, while red indicates the communication is interrupted.</p>
	<p>The communication status between EMMG and Scrambler. Green means the status is good, while red indicates the communication is interrupted.</p>
	<p>The first number is the accumulated number of EMM, which should keep increasing to send the EMM to scrambler. The second number is the number of ECM, also the number of programs you have scrambled.</p>

2.3.2.14 MPEG2 to MPEG4 / MPEG4 to MPEG2 Transcoder Module



Parameters	Description
Channel	<ul style="list-style-type: none"> The channel quantity represents the supported max. transcoding channels.

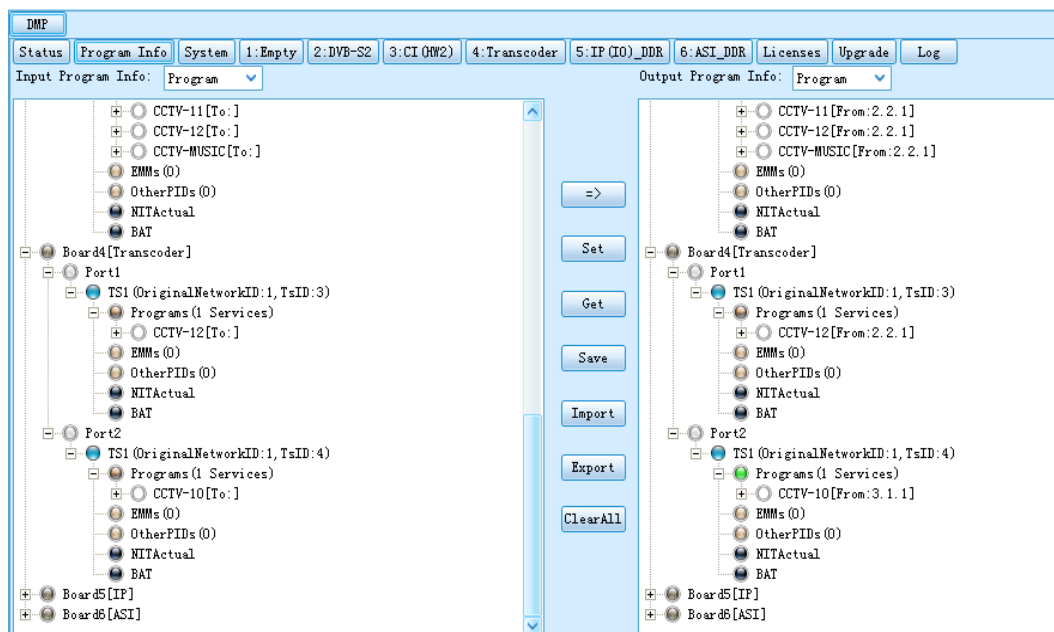
	<ul style="list-style-type: none"> For 2-channel transcoding module, channel1~channel2 are available in this option, while channel1~channel4 are available for 4-channel module. Each channel transcoding parameters can be set in separated pages when selecting different channel.
Transcoder Type	<p>The transcoder module type is automatically recognized by the software and not selectable.</p> <p>->H.264: Means the inserted module is a TC4 module (MPEG-2 to MPEG-4/H.264);</p> <p>->MPEG-2: represents the inserted module is a TC2 module (MPEG-4 to MPEG-2)</p>
Video Encode Rate	Set the encoded video bitrate, range from 1.0 to 20.0Mbps
Audio Encode Rate	Set the encoded audio bitrate, range from 64 to 384Kbps
Encode Rate (Total)	<p>Total bitrate automatically by the software which is not editable.</p> <p>The bitrate is summed up by audio and video bitrate.</p>
Volume (0~49)	<p>Define the output channel volume after transcoding.</p> <p>Level 0 means mute while level 49 is the Max. volume output.</p>
Video Max. Encode Rate	<p>This parameter takes effect only when the Video Encode Mode is set to "VBR" on TC4 module.</p> <p>Max. Encode Rate: base on the parameter set in "Video Encode Rate", it should be input a parameter from 1.75 to 2 times the encode rate.</p>
Video Min. Encode Rate	<p>This parameter takes effect only when the Video Encode Mode is set to "VBR" on TC4 module.</p> <p>Min. Encode Rate: base on the parameter set in "Video Encode Rate", it should be input a parameter from 0 to 0.75 times the encode rate.</p>
Aspect Ration Conversion	Options are available for 4:3 and 16:9 aspect ratios.

After setting all the parameters, you should press '**Set**' button to save the settings.

● Program setting

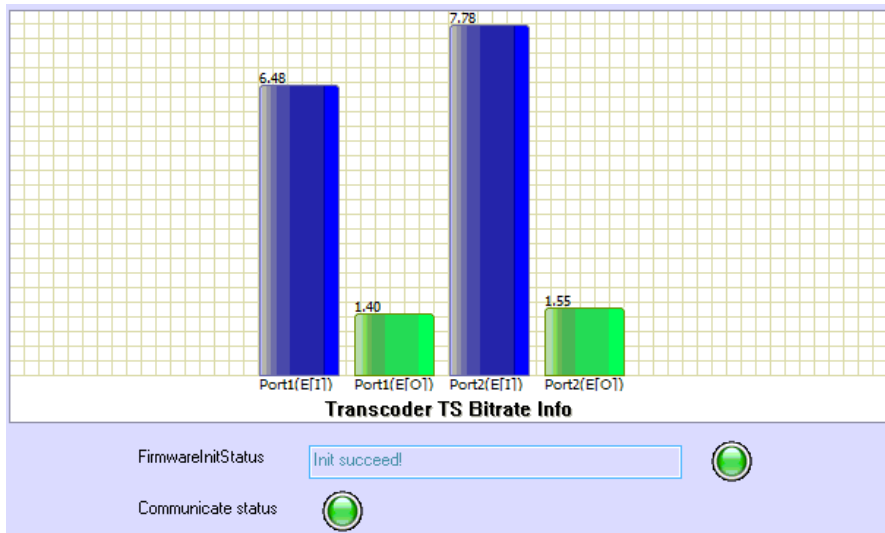
Transcoder module will display in both the “Input Program Info window” and the “Output Program Info window”. If you want to transcode a program received from a certain module in the Input Program Info window, you can transfer it to the transcoder module in the Output program Info window. Please refer to Chapter **2.3.1.2 Transfer a Program**. After the operation, the transcoded programs will appear under the transcoder module in the Input Programs List, and is ready to be transmitted or further processed by other modules.

(PIC-2.2-13)



PIC-2.2-13

● Status Monitor



Parameters	Description
Port#(T)	Indicates the total bit rate of input signal, including the valid and null packet. The unit is Mbps
Port#(E)	Indicates the bit rate of valid packet (excluding the null packet). The unit is Mbps.
FirmwareIniStatus	the status indicates if the firmware is initiated successfully

Note: This Quick Installation Guide only contains tutorials with simple instructions for device installation and configuration. For more information, please refer to the User Manual in the CD packaged with your product.