SMP260

Digital Encoder & Transcoder

Quick Installation Guide

Preface

About This Document

This document provides introductions and guidelines to users about how to install and operate this equipment quickly.

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Intended Readers

- Technical Service Engineer

- Maintenance Engineer

- Test Engineer

- Sales Engineer

Symbols Definition

For the symbols that might appear in this document, the meanings they represent are as the following:

Symbol	Meaning
DANGEROUS	There is highly potential danger. If it cannot be avoided, it will lead to the deaths or serious injury.
WARNING	There is medium or low potential danger. If it cannot be avoided, it will lead to medium or slight injury.
ATTENTION	There are potential risks. If ignore these texts, it may cause damage to the device, data loss, equipment performance reduce or unpredictable results.
TIPS	Tips that help you to solve problems or save your time.

	Remarks. Additional information to the text, in order to emphasize something.

Revision History

The revision history lists the modification history. The newest one contains all the

modifications of the past revision.

V1.00: First revision. (Date: Nov 26th, 2012)

V1.10: Optimize the document structure. (Date: Nov 22nd, 2012)

Contents

1. <u>Safety</u>

- To avoid electric-shock hazards, do not open the receiver; refer service to qualified personnel only.

- Do not expose the device in the sunlight, and keep it away from the heat source.

- Do not block ventilation holes of the device so that air can circulate freely.

- Switch the device off whenever it remains out of service for an extended period.

- Be sure to turn the device off and disconnect the AC power cord before cleaning the receiver surface.

- The apparatus shall be connected the mains socket outlet with a protective grounded connection

- The appliance coupler used as the disconnect device shall remain operable

2. Check Package and Accessories

The SMP260 Encoder package includes the following accessories:

- Base Unit x1

- Power cord x1

- Ground wire x1

- Audio Cable x6

- NMS Installation Disc x1

- BNC Cable x4

- RCA Cable x3

- User guide disc x1

The SMP260 Transcoder package includes the following accessories:

- Base Unit x1

- Power cord x1

- Ground wire x1

- NMS Installation Disc x1

- BNC Cable x1

- User guide disc x1

REMARKS **Please contact the supplier if it's inconsistent with the actual package.**

3. Physical specifications

3.1 Physical Specifications

| Items	Index
Power	90V-260VAC, 50/60Hz
Power Consumption	125W
Size	1RU
Dimension	482mm x44mm x 393mm
Net Weight	5Kg
Gross Weight	7.5Kg

3.2 Interfaces and Protocols

| Inputs	IP input	ASI input
	Interface: RJ45	Interface: BNC, 75Ω
	Max input bit rate: 1000Mbps	TS package length：188/204
	Protocol: UDP/RTP	Max bit rate: 120 Mbps (per TS)
	Input processing: Up to 12 Sockets, max at 72 Mbps per socket	
	SDI/CVBS input	**HDMI input**
	Interface: BNC	Compatible with HDCP
Outputs	**IP output**	**ASI output**
	Interface: RJ45	Interface: BNC, 75Ω
	Max input bit rate: 1000Mbps	TS package length: 188
	Protocol: UDP/RTP	Max bit rate: 120 Mbps (per TS)
	Input processing: Up to 12 Sockets, max at 72 Mbps per socket.	

4. Front Panel and Rear Panel

4.1 Front Panel

SMP260-Encoder
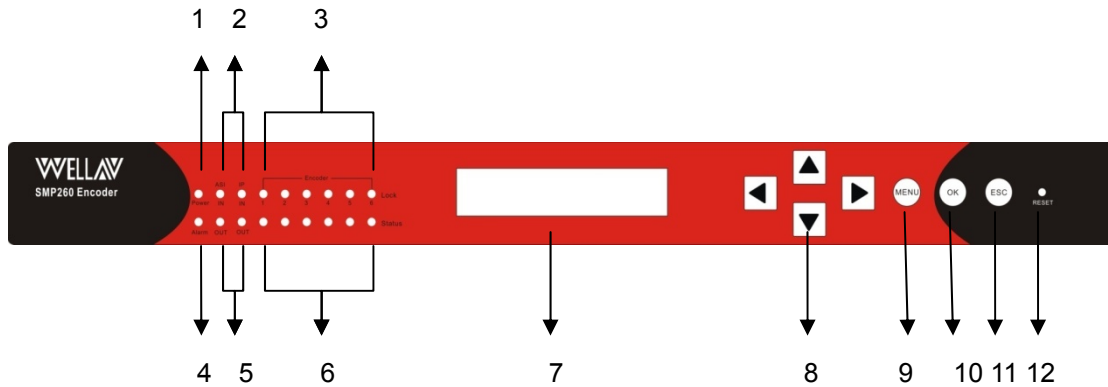
Pic-4-1

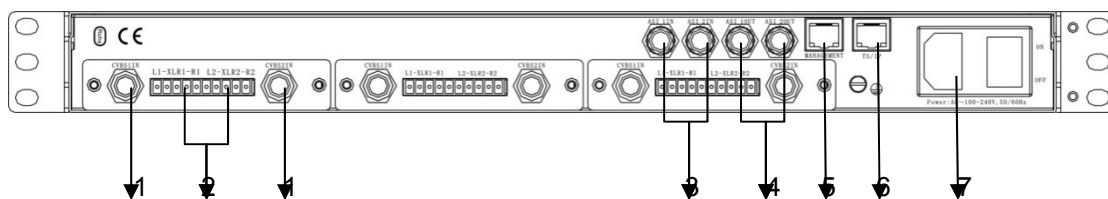| Item No.	Functionality
1	Power status indicator
2	ASI/IP input status indicator
3	Input status indicator
4	Alarm status indicator
5	ASI/IP output status indicator
6	Encoding status indicator
7	LED displaying screen
8	KEY PADS, including Up/Down/Left/Right arrow keys
9	Menu. To enter the menu and the quit function of the sub menus.
10	OK. To confirm the operation in the setup.
11	ESC. The quit function of the menu.
12	Reset. To reboot the equipment.

SMP260-Transcoder
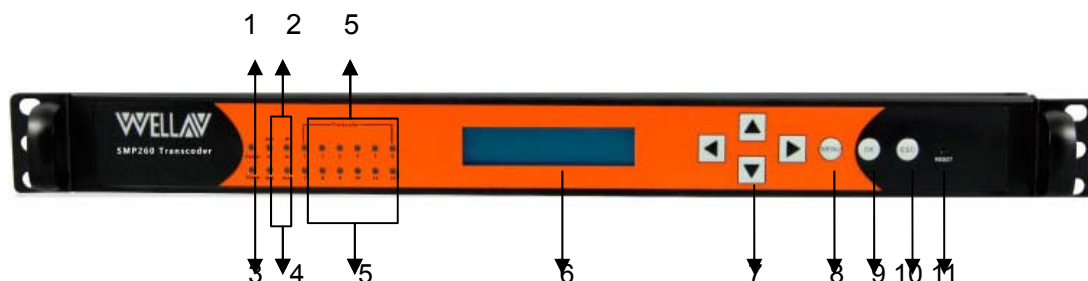
Pic-4.2

Item No.	Functionality
1	Power status indicator
2	ASI/IP input status indicator
3	Alarm status indicator

4	ASI/IP output status indicator
5	Transcoding status indicator
6	LED displaying screen
7	KEY PADS, including Up/Down/Left/Right arrow keys
8	Menu. To enter the menu and the quit function of the sub menus.
9	OK. To confirm the operation in the setup.
10	ESC. The quit function of the menu.
11	Reset. To reboot the equipment.

4.2   Rear Panel

SMP260 Encoder-SDI/CVBS

Pic-4-3

Item No.	Functionality
1	SDI/CVBS IN (total 6 SDI/CVBS inputs on this model.)
2	ASI IN
3	Balance/Unbalance Audio In
4	ASI OUT
5	MANAGEMENT: 100BaseTX,RJ45
6	TS/IP IN/OUT
7	POWER

REMARKS   **There 6 same SDI/CVBS ports and 6 same Balance/Unbalance port in the equipment.**

SMP260 Encoder-HDMI
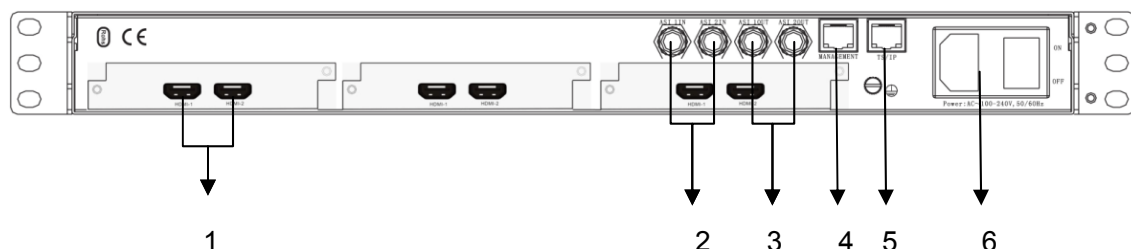
Pic-4-4

Item No.	Functionality
1	HDMI IN (total 12 HDMI inputs on this model.)
2	ASI IN

3	ASI OUT
4	MANAGEMENT: 100BaseTX, RJ45
5	TS/IP IN/OUT
6	POWER

SMP260 Transcoder
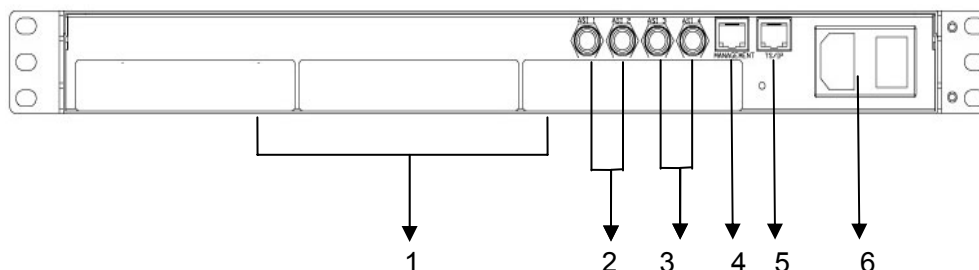
Pic-4-5

Item No.	Functionality
1	Equipped transcoding modules
2	ASI IN
3	ASI OUT
4	MANAGEMENT: 100BaseTX, RJ45
5	TS/IP IN/OUT
6	POWER

5. Installation Instruction

5.1   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.**
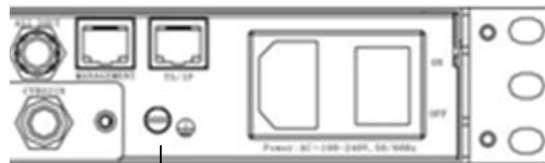
PIC-5-1

PIC-5.1-1 Grounding Jackscrew (must be connected to the rack housing)

To mount the SMP260 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.
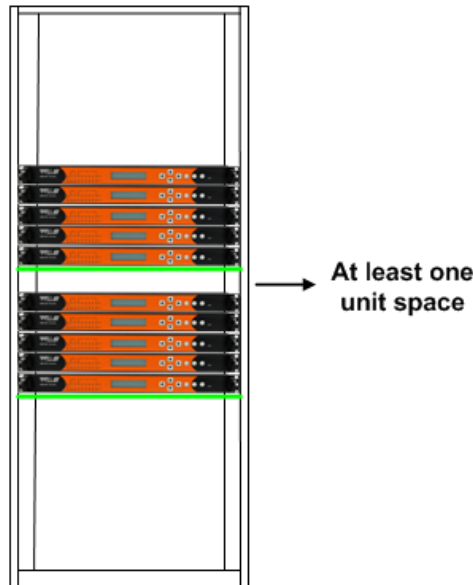
PIC-5-2

5.2 Wiring Connection

1

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.

Follow the below connection diagram to set up cable connection:
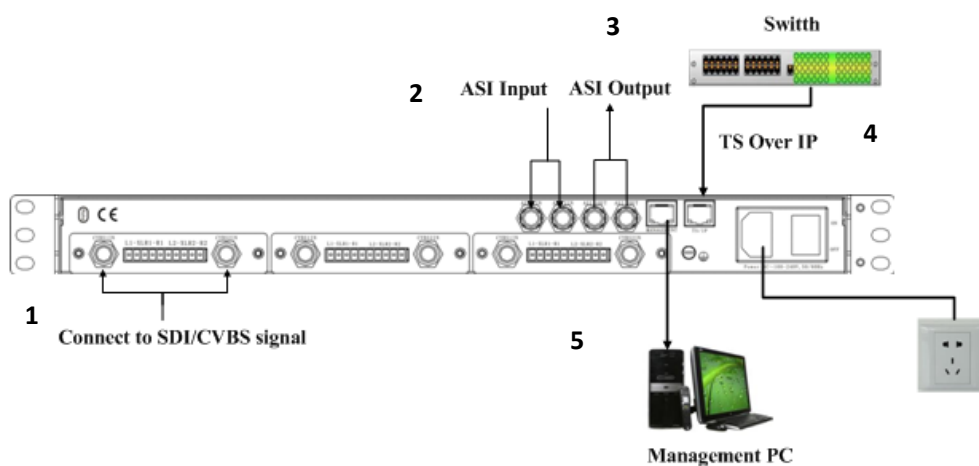
PIC-3

● Set up cable connection for input signal: either the SDI/CVBS input (area 1), ASI input (area 2) or TS/IP input (area 4)

- Set up cable connection for output signal: either through ASI (area 3) or TS/IP (area 4)

- Set up connection for network management control: shown in area 5.

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.**

TIPS **The TS/IP port can work for input and output simultaneously. User only needs to connect one RJ45 cable to the TS/IP port of the device.**

5.3   <u>Power Connection</u>

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.**

6. Operation Instructions
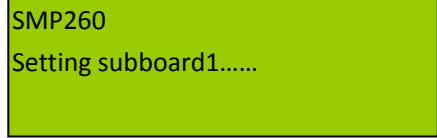
6.1 Powering Up & Initializations

REMARKS **Before powering-up the device, make sure that all cabling is correctly connected (refer to chapter 5.2). The device is correctly connected to the power inlet and grounded.**

Switch on the equipment through the back power switch, the unit is powered up and start the initialization.

The LCD screen is lighted up, and display information as following:

```
SMP260
Setting subboard1……
```

The initialization takes about 20 seconds to complete.

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

TIPS **The input/output indicator LEDs turn (red? Off?..) after successful initialization because of signal unlocking. After configuration on the device, corresponding LEDs shall show correct status.**

6.2 Network Connection Setup

6.2.1 Navigation Keys Operation Instruction

TIPS **Use the 6 navigation keys on front panel: Up / Down / Left / Right / Menu / Ok to enter the configuration menu.**

- **Enter "Menu":**
  - Press "***MENU***" button to enter main menu.

- **Exit Menu/Back to parent Menu**

  - Upon completion of configuration settings, press "**_MENU_**" button until you go back to the Parent Menu.

  - You can also go back to Parent Menu directly by pressing "**_ESC_**" button once.

- **Enter Sub-Menu**

  - Press **_MENU_** button to enter main menu.

  - Select a sub-menu by pressing arrow **_UP_** and arrow **_DOWN_** button.

  - Press **_OK_** button on the selected sub-menu.

- **To change parameter**

  - Step 1: Enter main menu by pressing **_MENU_** button.

  - Step 2: Scroll sub-menu by pressing arrow **_UP_** and arrow **_DOWN_** button, and press **_OK_** button to change the selected sub-menu.

  - Step 3: To change parameter settings, press arrow **_RIGHT_** and arrow **_LEFT_** button to move the cursor in which change must be made.

  - Press arrow **_UP_** button and arrow **_DOWN_** to input / select an appropriate setting, then press **_OK_** button to save.

6.2.2 Check Out and Change the Default IP Address

- Step 1: check out the IP on the LCD screen.

- Step 2: use the button on the front panel to change the IP, gateway and subnet mask. The gateway should be the same as the management PC's. The subnet mask should be the same as the management PC's s. The IP and the server's IP should be in the same section.

- Step 3: reboot the device to take effect.

- Step 4: ping the new IP on PC to check whether the SMP260 can connect to the management PC.

6.2.3 Configuration through NMS

REMARKS **Accessing the equipment through NMS can be very convenient for remote configuration of the equipment. Relative to the front panel settings, NMS operation can provide a more user-friendly man-machine interface, and less limits in space. For**

quick installation, NMS operation is highly recommended. In this installation guide, operation instruction is based on NMS style. For front panel operation instruction, please refer to product user manual.

- Install the NMS Tool

  - Unpack the accessory CD, and put it on a PC CD/DVD driver;

  - Copy the NMS program on the CD to any folder of the management PC;

  - Use mouse to double click the NMS icon and run the NMS program.

NMS_V1.6.1_SVN19...
MNG MFC Application
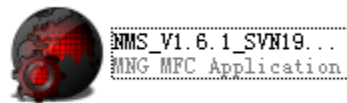
- First Time Log On

  - For first time log on, User Name and Password are required. Default User Name and Password are "**admin**".

PIC-6-1

  - Choose "Remember Me" if user wants to directly log on the NMS without inputting the user name and password.
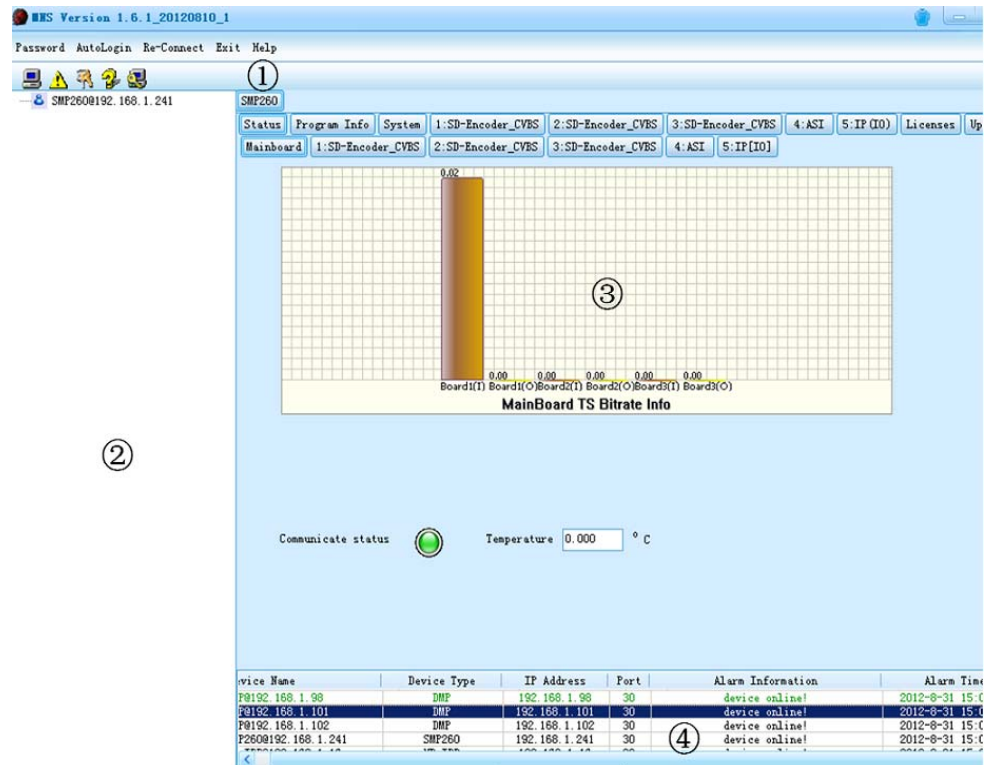
  - Select "Login" to log on the device.

TIPS　Possible reasons for unsuccessful log on:

- IP address/ network mask/gateway don't match with the management PC's

- User name/password is wrong

- Wrong NMS version

● Main Interface Introduction

After successful log on, the following screen will display:

Pic-6-2

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

(1) Toolbar. It includes shortcut to change password and save setting etc.

(2) Equipment list. If more than a 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.

(4) Event information window.

6.3   Quick Configuration on Key Parameters

6.3.1 Check "Status" tab

"**Status**" tab: by selecting this item, the NMS displays the current system operation data status of the equipment. User can swtich between tab under the "Status" to check the current working status of the equipment

①Different colors of histogram 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.

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

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 may be not updated in time. You need check the network connection and restart the NMS.

6.3.2 Configure parameters of signal input modules

■ CVBS/SDI IN

SD-Encoder_SDI/CVBS (MPEG-2) module

Pic-6-3

Following are the key parameters:

Parameters	Description
Channel	Select a channel to configure its parameters.
Video Source	To select the correct video source for the input.
Audio Source	To select the correct audio source for the input.
Encode Mode	Select CBR or VBR for the encoding mode.
Video Max Encode Rate	To set the Max encode rate for VBR mode. The range of max encode rate is 2000 ~ 15000 Kbps.
Video Min Encode Rate	To set the Min encode rate for VBR mode. The range of min encode rate is 2000 ~ 15000 Kbps. **Note: the min encode rate must be smaller than the max encode rate.**
Video Encode Rate	To set the encode rate for both VBR mode and VBR mode. The range is 2000 ~ 15000 Kbps. **Note: The values of the video encode rate should be between the max encode rate and the mix encode rate in CBR mode.**

| Audio Encode Rate	To choose the encoding bitrate for the audio.
Encode Rate	The total encode rate of video and audio contents. Calculated automatically by the software.
Audio Mode	To select the audio mode
Frame Rate	To select correct frame rate according to the input source. The frame rate should be the same as that of input source.
GOP Size	To edit the GOP size

REMARKS **(1) There are four different encoder modules: SD-Encoder_SDI/CVBS (MPEG-2), SD-Encoder-CVBS(MPEG-2), HD/SD-Encoder-SD/CVBS(H.264), HD-Encodr-HDMI(H.264).**

(2)The input paraments configuration of the four encoder modules are similar.

- ASI IN

ASI module

There are four ASI port in the equipment. The default setting is: the port 1&2 is for input; the port 3&4 is for output. User can specify the port to be input or output at any time.
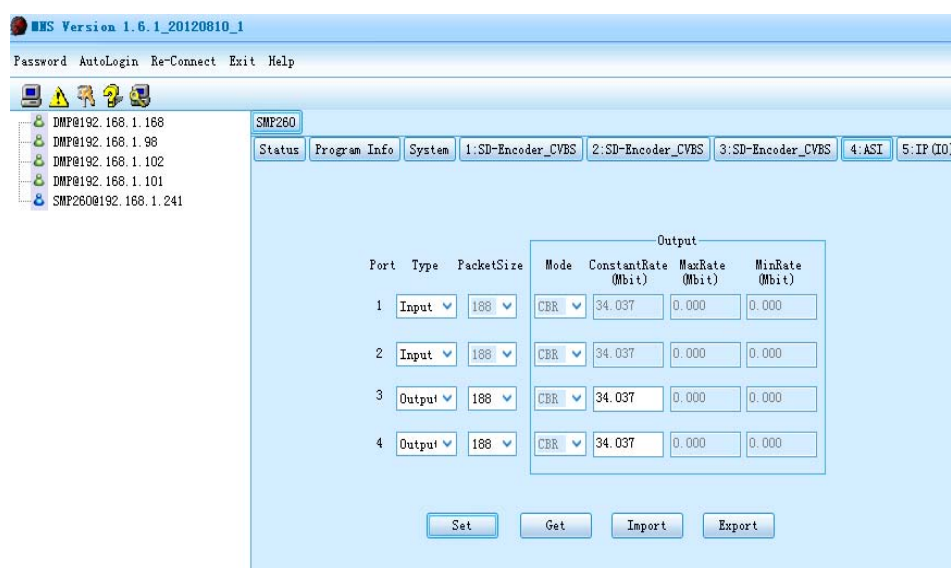
Pic-6-4

Parameters	Description
Type	Set each ASI port to be Input or Output.
Packet Size	Set 188 or 204 packet size for outputs.
Mode	Set ASI port into CBR or VBR for output.
Constant Rate(Mbit)	Set constant bit rate for ASI output.
Max Rate(Mbit)	Set max bit rate for ASI output.
Min Rate(Mbit)	Set min bit rate for ASI output.

- TS/IP IN

IP module

Pic-6-5

In the 'System' setting menu, user need to set correct parameters for the IP module such as the IP address, subnet Mask, Gateway, etc, so that the module can work normally in the network.

Parameters	Description
IP Address	Set IP address of IP module. The IP address of IP module is used for communication with basic unit of the equipment 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
Speed Mode	Set RJ45 connection speed mode. The speed mode support 100Mbit and 1000Mbit.
IGMP Version	Set IGMP Version for multicast. The IGMP version setting should match the IGMP version of the switch in the network.

IP module-Input

The "Input" setting menu is to set the IP input function for receiving multicast/unicast IP stream.

Pic-3.3-39

Parameters	Description
ChannelSelect	In this 'ChannelSelect', user can select a 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
ColPortMatching	If the output IP stream quality looks not as good as the input stream, user can select to 'Enable' these two options then to enable the FEC function.
RowPortMatching	
FEC Parameter	The bigger values it is, the stronger capabilities it has to correct the data mistakes. But the FECL and FECD should be less than 100.

- Configure parameters of signal output modules

  - ASI OUT

    The ASI output parament configuraion is introduced in page22.

  - IP OUT

IP module-Output

The "Output" setting menu is to set the IP output function for transmitting multicast/unicast IP stream.
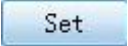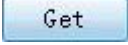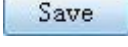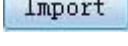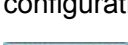
Pic-3.3-40
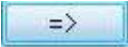
| Parameters	Description
ChannelSelect	In this 'ChannelSelect', user can select a channel to configure its transmitting parameters.
Enable	On: enable the IP transmission function. Off: disable the IP transmission function. **Note: this parameter setting applies to all channels.**
Channel configuration	
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
EncapNumTSPackets	Rang 1~7. (Num 7 is recommended)
TSPacketSize	Select 188/204 TS packet size
TypeofService	Select one service type as your requirement. Type including: Normal, Min delay, Monetary cost, Max reliability, Max Throughput.
Bitrate Parameter	
Mode	Mode includes: CBR/VBR

ConstantRate(Mbit)	Set constant bitrate for output
MaxRate(Mbit)	Set max bitrate for output
MainRate(Mbit)	Set min bitrate for output

6.3.3 Program IN/OUT configuration in "Program Info" tab

Operation Buttons

a) `=>` Transfer button: to transfer the selected stream/PID from the input program window to the output program window.

b) `Set` Set button: to apply the changes to the NMS. The setting will lose if the NMS is close or the equipment is powered off.

c) `Get` To obtain/refresh the current parameters status of the equipment mainboard.

d) `Save` To save the configuration. The saved data can be kept after NMS is closed or the equipment power off.

e) `Import` Import a configuration file.

f) `Export` Export the current settings of the equipment and save as a configuration file.

g) `ClearAll` To eliminate all the settings in the input and output window.
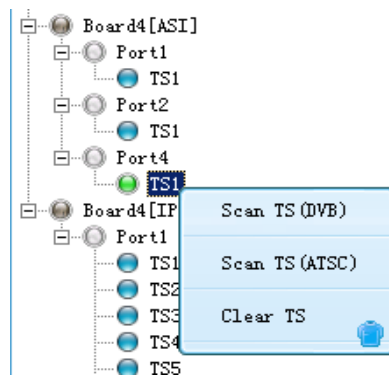
Input program configuration
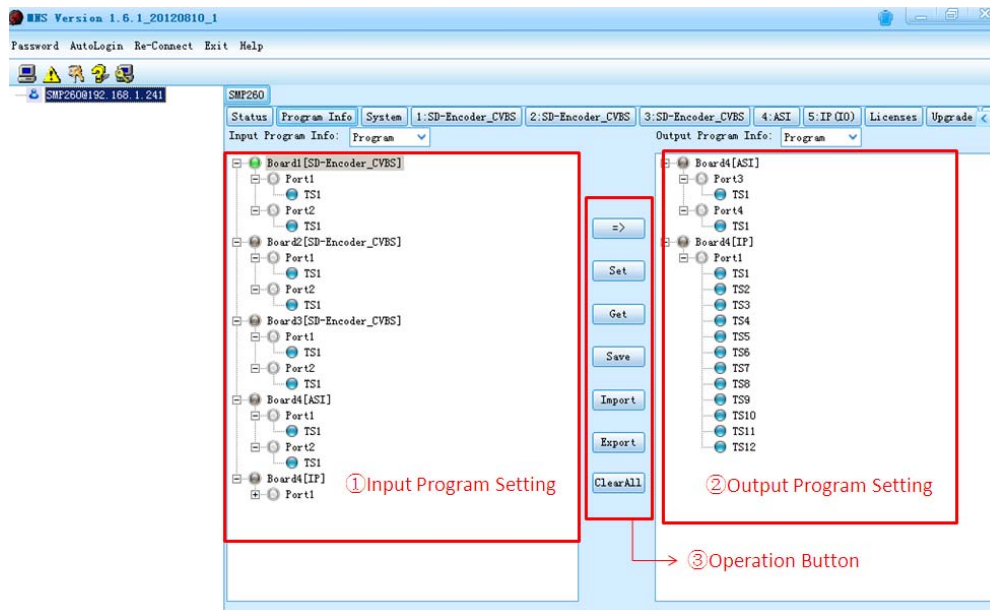
Pic-3.3-20

①Input Program Configuration: 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.
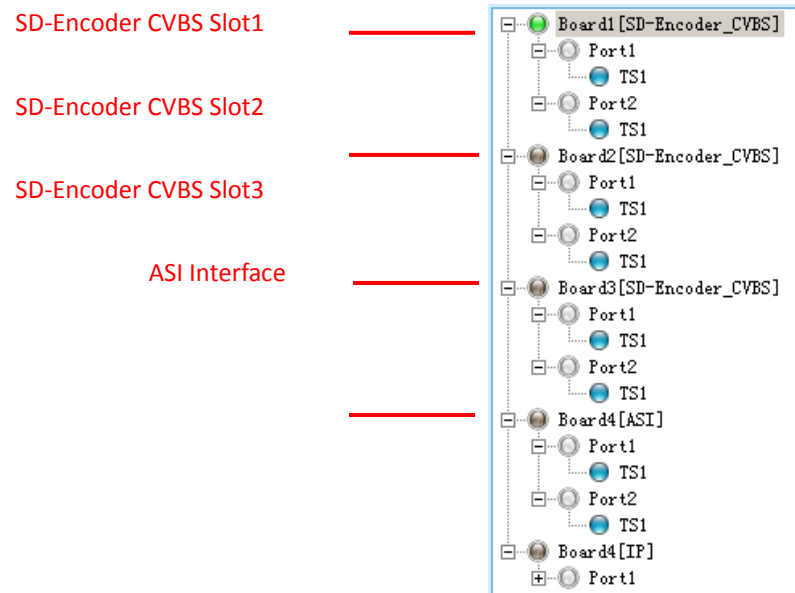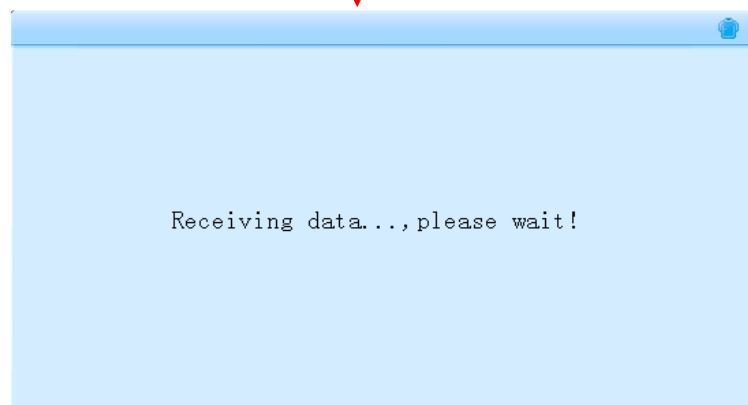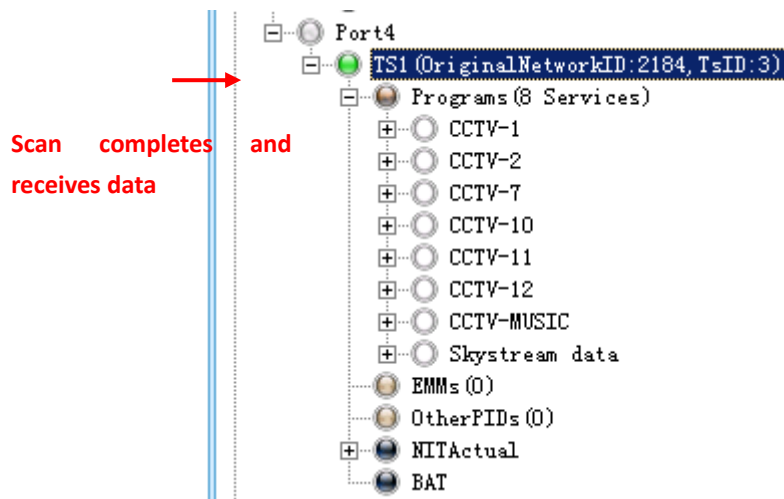

Pic-3.3-21

a) Board1~4 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.

b) For empty slot, no Board No. will be displayed.

c) Port No.: represents each physical port of the inserted module.

d) Scan the input TS: after the parameters of the inserted module are properly configured, select one port which is connected with input stream, and then click the mouse right button and select "Scan TS" menu. All the input stream of that port will be scanned and displayed.

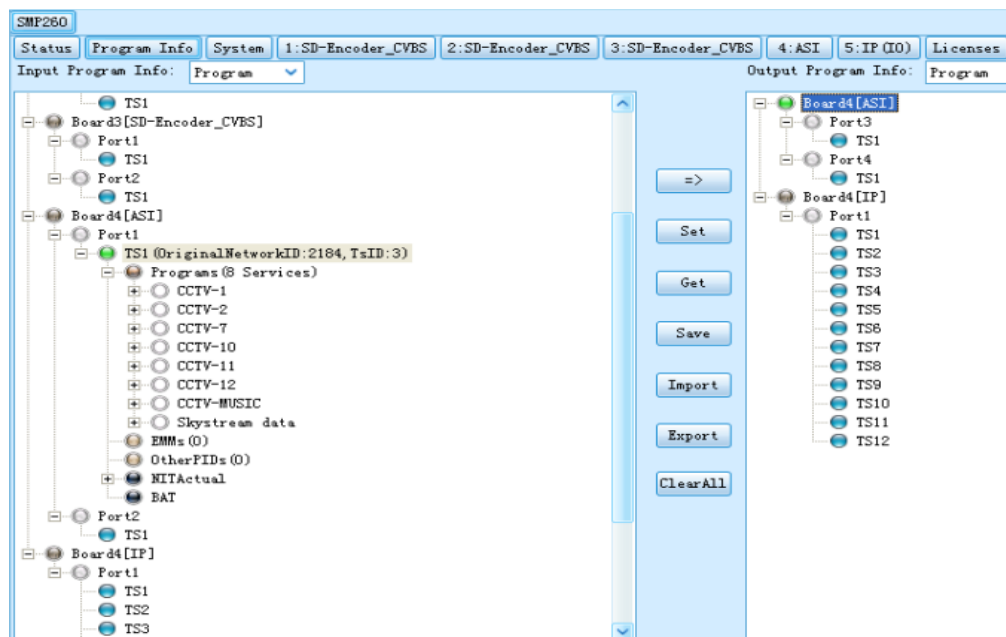**Scan the port that is fed with input stream**

Scan completes and receives data
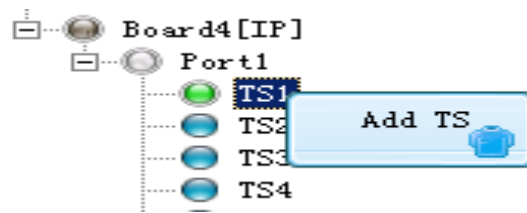
Pic-3.3-22

Output program configuration

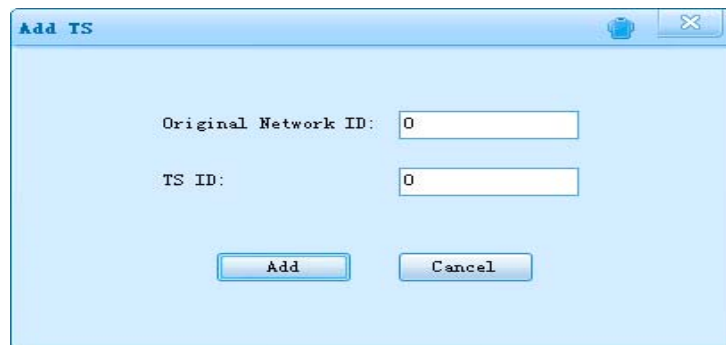Select the port which you want to transmit the output stream.

Pic-3.3-41

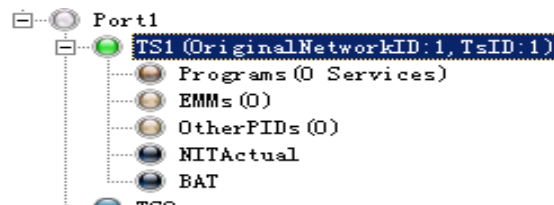■ Select a TS stream, click the mouse right button. In the pop-up menu, select "Add TS".

Pic-3.3-42

■ Input the "Original Network ID" and "TS ID" for the channel, and click the "Add" button.

Pic-3.3-43

The input "Original Network ID" and "TS ID" will be assigned to the selected output TS (channel).
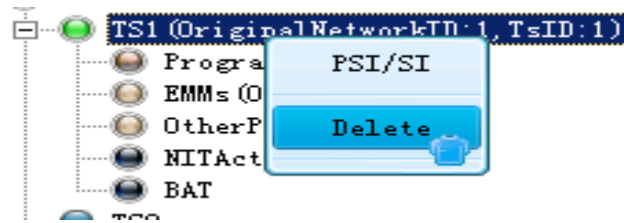

Pic-3.3-44

To change the "Original Network ID" and "TS ID", use the left mouse button to click the TS (channel) name when it is being selected. Then the TS (channel) name will be in editable status.
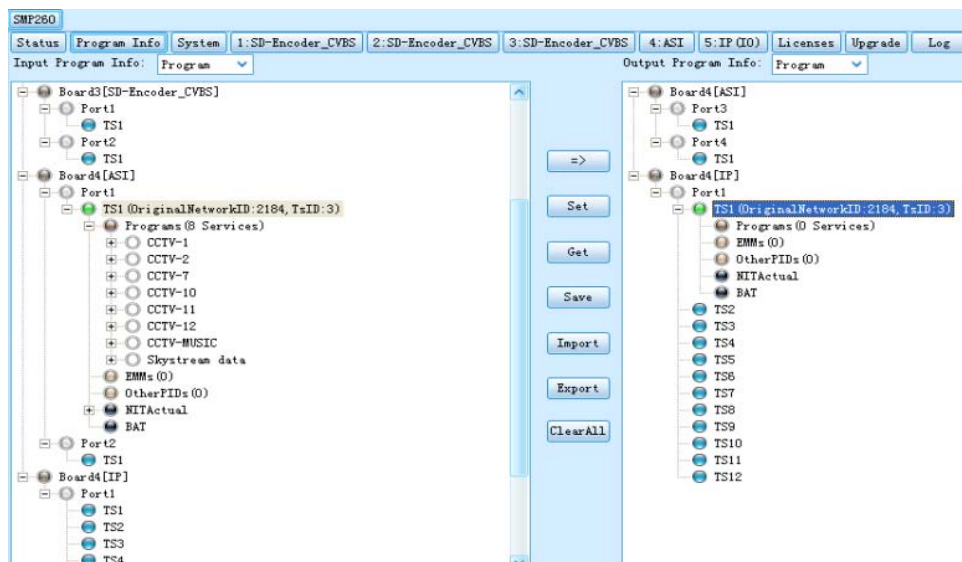

Pic-3.3-45

To delete the inserted "Original Network ID" and "TS ID", click the right mouse

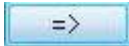button on the TS, and select "Delete".

Pic-3.3-46

■ Select TS which is going to be transmitted on the left hand side "Input Program

Info" window, and select the port, TS (channel) which are going to carry the

transmission on the right hand side "Output Program Info" window.

Pic-3.3-47

■ Click the [=>] button to set transfer of the selected TS from the "Input

Program Info" to the "Output Program Info".
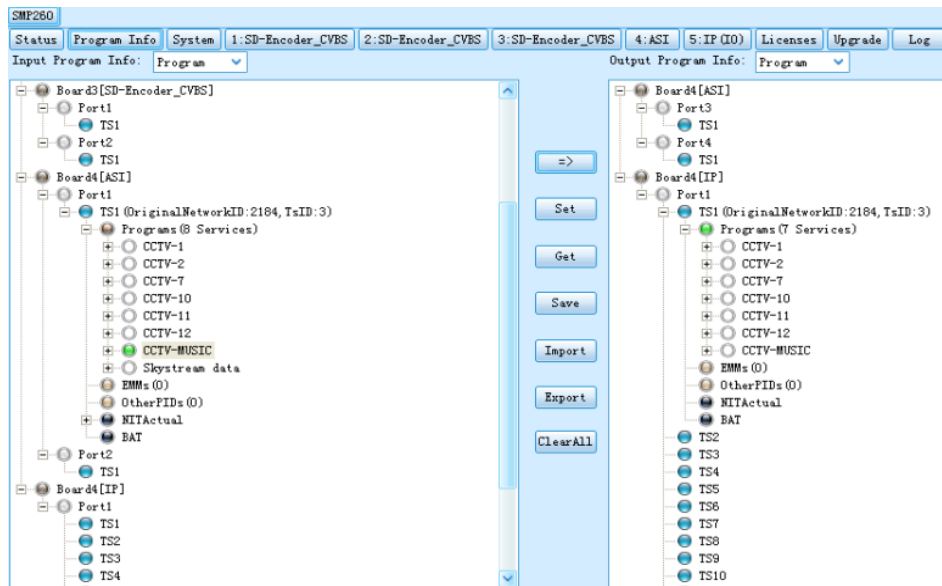
Pic-3.3-48

■ Follow above operation steps, user can set the selected input stream to be transmitted at any assigned output TS (channel).

7. FAQ

Problem	Possible Reasons	What to do
The LCD display on the front panel does not light up.	No power.	Check whether the power cord is plugged into the power socket.
No Signal output	Parameters are not properly configured.	Check the parameters configuration
	No signal	Check the source and other factors that affect the signal reception.
	The cables are not connected	Check the connection and make sure the connection is well.
Cannot have access to the equipment through NMS	IP setting	Check whether the management PC IP and the equipment IP have been set to be in same section.
	Network cable problem	Make sure the cable is good one and connect well to the equipment management port.

8. Terminology

A - Z	
Abbreviation	Specific Meaning
ASI	Asynchronous Serial Interface
BNC	Bayonet Nut Connector
CVBS	Composite Video Broadcast Signal
DVB	Digital Video Broadcast
EPG	Electronic Program Guide
FEC	Forward Error Correction
HD	High Definition
HDMI	High Definition Multimedia Interface
ITU	International Telecommunications Union
MPEG	Moving Pictures Experts Group
PID	Personal Computer Memory Card International Association
RTP	Real-time Transport Protocol
SD	Standard Definition
TS	Transport Stream
UDP	User Datagram Protocol