

SOFTTEL

SFT3107 Tuner Input Multiplexer

User's Manual



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Chapter 1 Product Outline

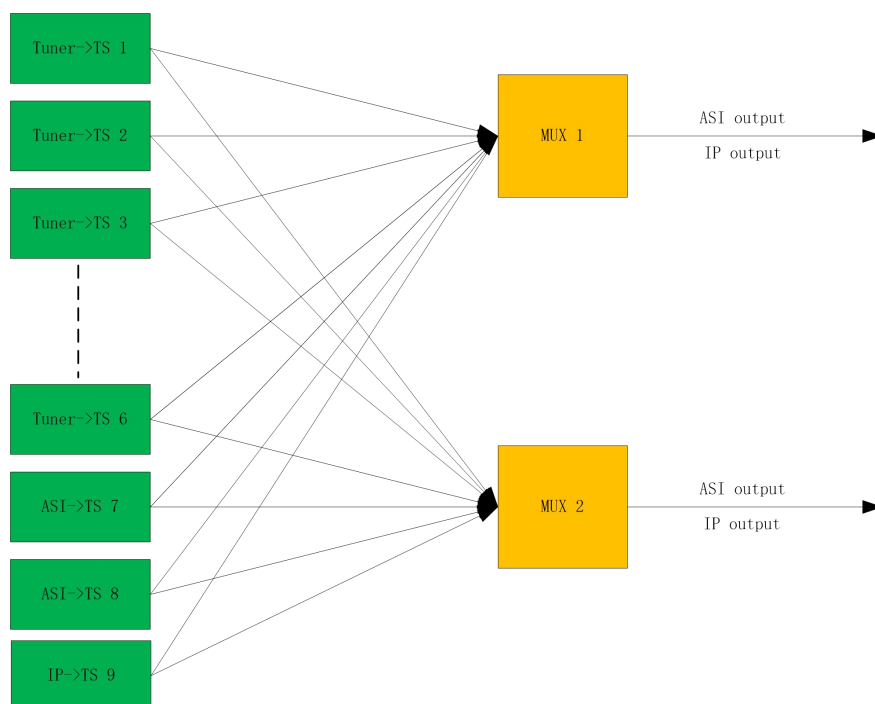
1.1 Outline

SFT3107 Tuner Input Multiplexer is the latest demodulation and multiplexing device for digital TV broadcasting head-end system. Different from normal multiplexer, this multiplexer has 1 IP input, 2 ASI inputs, supports 6 tuner inputs (ISDB-T/DVB-C/S/S2/T/ATSC optional), two separate ASI output ports and one DATA port for two separate gigabit IP outputs. In other words, It can multiplex the RF signals from satellite into the output ports via the 6 tuners, also it can multiplex up to 2 channels ASI input MPTS into the output transport stream (MPTS). In other words, one Tuner Input Multiplexer can work as 6 standalone FTA IRD and two separate ASI output multiplexer. In conclusion, its high integration and cost effective design make this device widely used in the Next Generation of CATV Broadcasting system.

1.2 Features

- Fully complying with ISO13818 and EN300 468 standard
- Integrated demodulating and multiplexing functions
- 2 channels ASI input for re-multiplexing
- 1 IP input over UDP and RTP
- Support accurate PCR adjusting
- Support PID filtering, re-mapping
- Two groups (each group has 2 channels) separate TS outputs
- Support IP output over UDP output as mirror of ASI output (RJ45), GE Port
- Support PSI/SI (PAT and PMT tables) generation and edit
- Huge buffer memory for saving the overflowing code stream
- Supporting to multiplex one program to all outputs
- Network long-distance upgraded
- LCD/keyboard and net management, support NMS/SNMP

1.3 Principle Chart



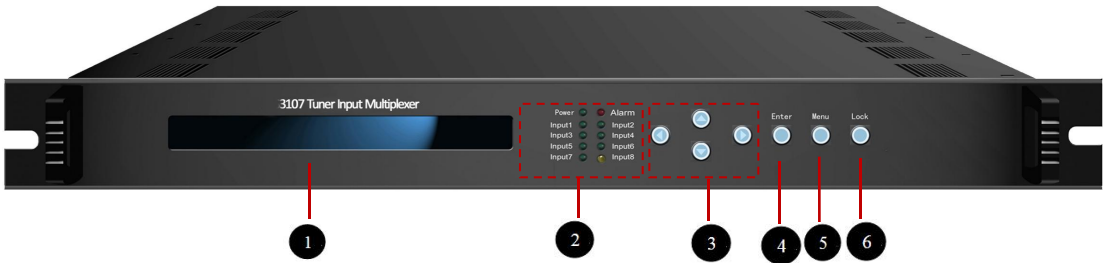
1.4 Specifications

Input interface	1 IP + 2 ASI+6 tuners(DVB-C/DVB-S/DVB-S2/DVB-T/DVB-T2/ISDB/ATSC)	
Re-multiplex	2 channels TS re-multiplex	
	PID re-mapping (auto/manual optional)	
	PCR accurate adjusting	
	PSI/SI (PAT, PMT) tables auto generation and edition (For SFT3107); PSI/SI (PAT, PMT) and PSIP (STT, MGT, VCT) tables auto generation and edition (For SFT3107B)	
Input	Packet format	204/188 self-adaption
Output port	ASI	2 groups separate outputs (each group has 2 channels)
	IP	TS over UDP output as mirror of ASI output(RJ45), GE Port
PID	Output range	0x0000—0x1FFF
	PID transparent	Any PID transparent and mapping achievable
	Amount of output PID per input	64
NMS port	Ethernet port	10/100M
General	Demission(WxLxH)	482mm×410mm×44mm
	Weight	6kg
	Temperature	0~45℃(operation), -20~80℃(storage)
	Power supply	AC 110V±10%, 50/60Hz Or AC 220V±10%, 50/60Hz
	Consumption	18W

1.5 Appearance and description

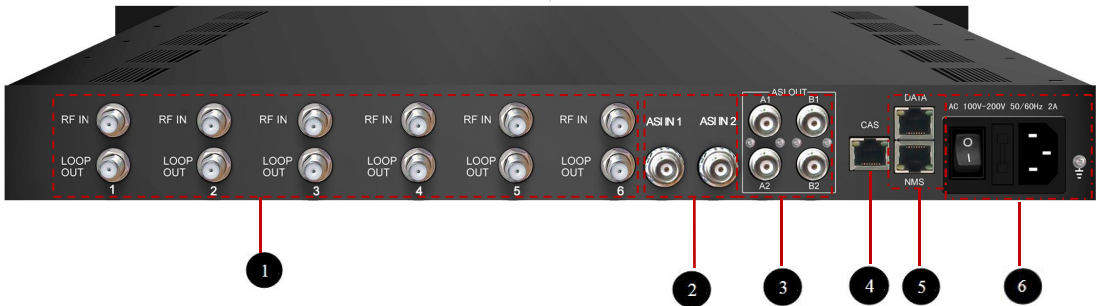
Front panel Illustration:

Indicator area: All the indicators will light on when SFT3107 multiplexer works at its current mode.



1	LCD Display	
2	Indicators	Power Indicator
		Alarm Indicator
		Input 1-6: when the input signal of tuner 1-6 is locked, the lighter is light.
		Input 7-8: when the TS signal of ASI 7-8 is locked, the lighter is light.
3	UP/ DOWN /LEFT/RIGHT Key	
4	ENTER Key	
5	MENU Key	
6	LOCK Key	

Rear panel Illustration:



1	RF IN & LOOP OUT	6 Tuners input and loop out
2	ASI IN	ASI 1: TS input port 1
		ASI 2: TS input port 2
3		ASI output ports: Group A & Group B
4		CAS Port
5		Data port and NMS Ethernet Port (10-100Mbps)
6		Power switch, fuse, socket and Grounding pole

Chapter 2 Installation Guide

2.1 Acquisition Check

When user opens the package of the device, it is necessary to check items according to packing list. Normally it should include the following items:

- SFT3107 Tuner Input Multiplexer
- User's Manual
- ASI Cable
- Power Cord

If any item is missing or mismatching with the list above, please contact local dealer.

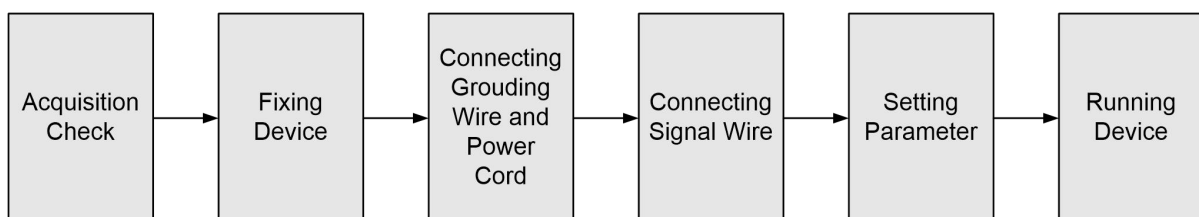
2.2 Installation Preparation

When users install device, please follow the below steps. The details of installation will be described at the rest part of this chapter. Users can also refer rear panel chart during the installation.

The main content of this chapter includes:

- Checking the possible device missing or damage during the transportation
- Preparing relevant environment for installation
- Installing multiplexer
- Connecting signal cables
- Connecting communication port (if it is necessary)

2.2.1 Device's Installation Flow Chart Illustrated as following:



2.2.2 Environment Requirement

Item	Requirement
Machine Hall Space	When user installs machine frame array in one machine hall, the distance between 2 rows of machine frames should be 1.2~1.5m and the distance against wall should be no less than 0.8m.
Machine Hall Floor	Electric Isolation, Dust Free Volume resistivity of ground anti-static material: $1 \times 10^7 \sim 1 \times 10^{10} \Omega$, Grounding current limiting resistance: $1 M\Omega$ (Floor bearing should be greater than 450 Kg/m^2)
Environment Temperature	$5 \sim 40^\circ \text{C}$ (sustainable), $0 \sim 45^\circ \text{C}$ (short time), installing air-conditioning is recommended
Relative Humidity	20%~80% sustainable 10%~90% short time
Pressure	86~105KPa
Door & Window	Installing rubber strip for sealing door-gaps and dual level glasses for window
Wall	It can be covered with wallpaper, or brightness less paint.
Fire Protection	Fire alarm system and extinguisher
Power	Requiring device power, air-conditioning power and lighting power are independent to each other. Device power requires AC power 220V 50Hz. Please carefully check before running.

2.2.3 Grounding Requirement

- All function modules' good grounding is the basis of reliability and stability of devices. Also, they are the most important guarantee of lightning arresting and interference rejection. Therefore, the system must follow this rule.
- ASI cable's outer conductor and isolation layer should keep proper electric conducting with the metal housing of device.
- Grounding conductor must adopt copper conductor in order to reduce high frequency impedance, and the grounding wire must be as thick and short as possible.
- Users should make sure the 2 ends of grounding wire well electric conducted and be antirust.
- It is prohibited to use any other device as part of grounding electric circuit.
- The area of the conduction between grounding wire and device's frame should be no less than 25 mm^2 .

2.2.4 Frame Grounding

All the machine frames should be connected with protective copper strip. The grounding wire should be as short as possible and avoid circling. The area of the conduction between grounding wire and grounding strip should be no less than 25mm².

2.2.5 Device Grounding

Connecting the device's grounding rod to frame's grounding pole with copper wire.

2.3 Wire's Connection

The grounding wire conductive screw is located at the right end of rear panel, and the power switch, fuse, power supply socket is just beside ,whose order goes like this, power switch is on the left ,power supply socket is on the right and the fuse is just between them.

- Connecting Power Cord

User can insert one end into power supply socket, while insert the other end to AC power.

- Connecting Grounding Wire

When the device is solely connected to protective ground, it should adopt independent way, say, share the same ground with other devices. When the device adopts united way, the grounding resistance should be smaller than 1Ω.

Caution:

Before connecting power cord to SFT3107 multiplexer, user should set the power switch to “OFF”.

2.4 Signal Cable Connection

The signal connections include the connection of input signal cable and the connection of output signal cable. The details are as follows:

2.4.1 ASI In and ASI out connection:

- ASI Input Connection

User can find ASI input port on the device according to connector mark described in the rear panel illustration, and then connect the ASI cable (in the accessories). One end is connected to the Multiplexer's ASI input port, while the other end is connected to Encoder's ASI output port

or ASI output port of other equipment.



- **ASI Output Connection**

User can find ASI output port on the device according to connector mark described in the rear panel illustration, and then connect the ASI cable (in the accessories); one end is connected to the Multiplexer's ASI output port and the other end to the Modulator's ASI input port or ASI input of other equipment. Multiplexer's ASI cable illustrated as follows:



- **2.4.3 RF IN and LOOP OUT connection:**

Users can find the RF IN and LOOP OUT interface on the device according to the connector mark described on the rear panel illustration, and then connect the cable. One end is connected to the RF IN interface of the tuner multiplexer while the other end is connected to the satellite signal source equipment or LOOP OUT interface of the previous satellite receiver when several satellite receivers are series connection. As follows:



- **RF In and loop out cable illustration:**



- Network cable illustration:



Chapter 3 Operation

SFT3107 Tuner Input multiplexer's front panel is user operation interface. The detailed operations go as follows:

Keyboard Function Description:

ENTER: Activating the parameters which need modifications, or confirming the change after modification.

MENU: To cancel presently entered value, resume previous setting, return to previous menu.

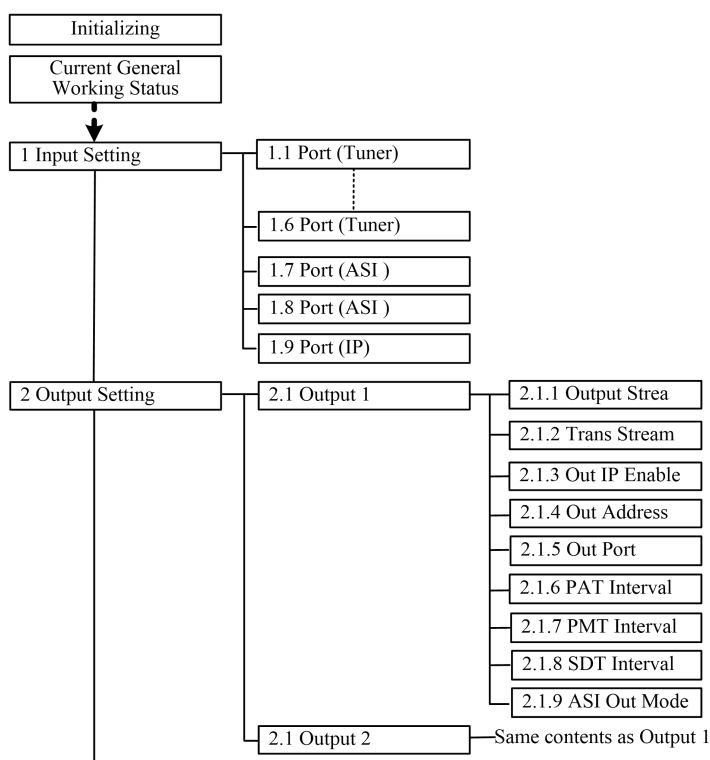
LEFT/RIGHT: To move the “►” to choose or set the parameters.

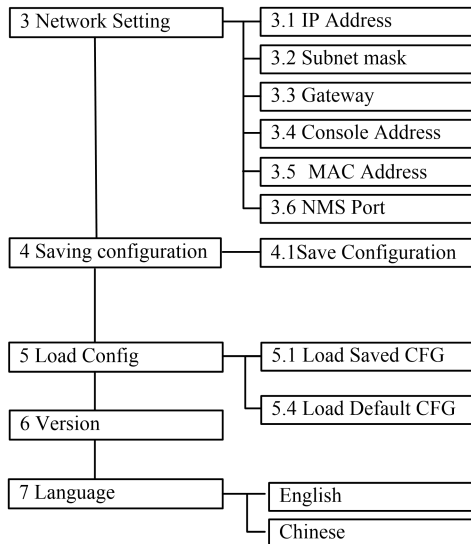
UP/DOWN: To modify activated parameter or page up/down when parameter is inactivated.

LOCK: To Lock the screen / cancel the lock state. After pressing lock key, the system will question the users to save present setting or not. If not, the LCD will display the current configuration state.

At the page of 5.2 “Load default CFG”, user can firstly press “ENTER” key, consequently system resumes factory parameter setting.

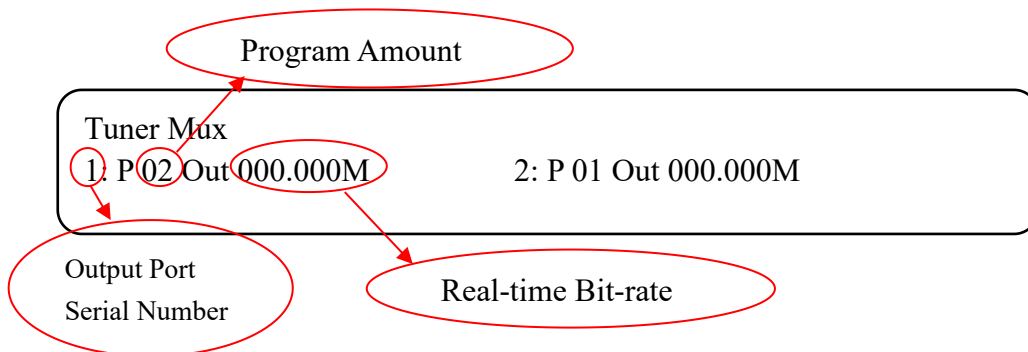
Class Tree of LCD Menu:





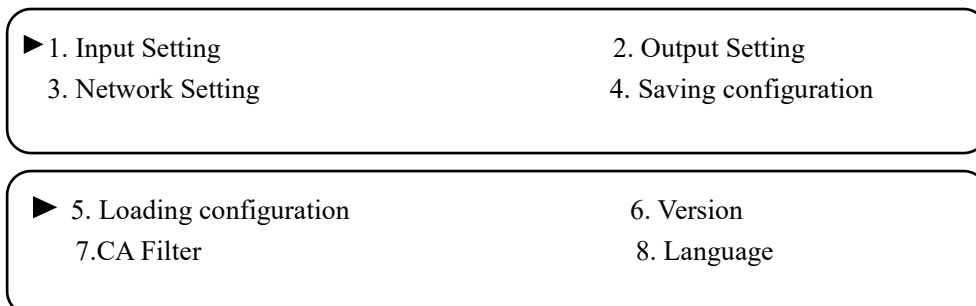
3.1 Initializing

After switching on the multiplexer, the LCD will display the device name in the first row, while the output program amount and real-time bit-rate of both output ports are displayed in the second row.



3.2 General setting

By pressing “LOCK” key to enter the main menu, user can enter the following pages:



The option with “▶” is the current selection, users can press the ENTER key to enter the specified submenu to modify the device parameter.

3.2.1 Input Setting

User can press “ENTER” key to enter into the menu of Input Setting when this menu is marked with ►. It shows as bellow:

► 1.1 Port (DVB-S2) 1.3 Port (DVB-S2)	1.2 Port (DVB-S2) 1.4 Port (DVB-S2)
► 1.5 Port (DVB-S2) 1.7 Port (ASI)	1.6 Port (DVB-S2) 1.8 Port (ASI)
► 1.9 Port (IP)	

The three-page menu from 1.1 to 1.9 represents the 6 tuner input ports, 2 ASI input ports and 1 IP input of this multiplexer. User can multiplex the input programs from any port to output either output port A or port B, or output ports both A and B.

3.2.1.1 Tuner Input (DVB -S2)

User pressing the “ENTER” key, the device will analyze the input TS or signal and then display the program list at the submenu 1.1.1-1.1.6.

► 1.1.1 Prog Parse 1.1.3 LNB Freq Set	1.1.2 Sat Freq Set 1.1.4 Symbol Rate
1.1.5 LNB voltage	1.1.6 22 KHz Switch

By pressing the “ENTER” key, user can enter the submenu of 1.1.1 Program Parse.

1.1.1 Prog Parse Prog1 CCTV 1	Port 1 Prog 4 No *A B AB	“A” and “B” refer to the two output channels
----------------------------------	-----------------------------	--

At the submenu 1.1.1, the first row displays the port number and the program amount. For example, Port 1 means the signal comes from port 1 and the “Prog 4” means the quantity of the

program is 4.

Also user can check and set the satellite frequency, LNB frequency and symbol rate at the corresponding submenus “1.1.2”, “1.1.3” “1.1.4”.

- 1) To move the underline through LEFT/RIGHT keys.
- 2) To modify the value of underlined character through UP/DOWN keys

1.1.2 Sat Freq Set
03840 MHz

1.1.3 LNB Freq Set
05150 MHz

1.1.4 Symbol Rate
27.500 Msp/s

At the submenu 1.1.5, user can select the LNB voltage from the 3 options shown below by moving LEFT/RIGHT keys and pressing ENTER to confirm.

1.1.5 LNB voltage
V (13V) *H (18V) OFF (0V)

At the submenu 1.1.6, user can decide whether to enable or disable the 22 KHz Switch.

1.1.6 22 KHZ Switch
*OFF ON

P.S.: The descriptions of 1.2-1.6 Port (DVB-S2) signal input are the same.

3.2.1.2 ASI Input

At the submenu 1.7.1, the first row displays the port number and the program amount. For example, Port 7 means the TS stream comes from port 7 and the “Prog 3” means the quantity of the programs is 3.

1.7.1 Prog Parse Port7 Prog 3
Prog1 CCTV 1 *NO A B AB

P.S.: The descriptions of 1.8 Port (ASI) signal input are the same.

3.2.1.3 IP Input

1.9.1 Prog Parse	Port 9 Prog 6			
Prog1 CCTV 2	*NO	A	B	AB

At the submenu 1.9.1, the first row displays the port number and the program amount. For example, Port 9 means the TS stream comes from port 9 and the “Prog 6” means the quantity of the programs is 6.

Also user can set IP address, protocol type and IGMP enable at the corresponding submenus “1.9.2”, “1.9.3” “1.9.4”.

- 1) To move the underline through LEFT/RIGHT keys.
- 2) To modify the value of underlined character through UP/DOWN keys

1.9.2 IP Addr
<u>2</u> 24.002.002.002

1.9.3 Protocol Type
<u>0</u> 1234

1.9.4 IGMP Enable		
OFF	*V2	V3

3.2.2 Output Setting

User can press “ENTER” key to enter into the menu of Output Setting.

2.1 Output 1	2.2 Output 2
--------------	--------------

3.2.2.1 Output 1

User can set the parameters of ASI and IP output under this submenu.

2.1.1 Output Stream	2.1.2 Trans Stream
2.1.3 Out IP Enable	2.1.4 Out Address

2.1.5 Out Port	2.1.6 PAT Interval
2.1.7 PMT Interval	2.1.8 SDT Interval

2.1.9 ASI Out Mode

➤ Output Stream

At this menu, user can set the total output bit-rate which includes the effective bit-rate of multiplexed programs from all input ports and the bit-rate of stuffed null pockets.

2.1.1 Output Stream
054.000 Mbps

➤ Trans Stream ID

This is a 16-bit field which serves as a label for identification of the out TS. The value ranges from 0 to 0xFFFF.

2.1.2 Trans Stream ID
00000

➤ Out IP Enable

At this submenu, user can decide whether to enable or disable IP output and set output protocol.

2.1.3 Out IP Enable
OFF *UDP RTP/RTSP

➤ Out Address

2.1.4 Out Address
224.002.002.003

User can check and set the IP output address at this submenu.

➤ Output Port

User can check and set the IP output port at this submenu.

2.1.5 Output Port
01001

➤ PAT Interval/ PMT Interval/ SDT Interval/ ASI Out Mode

At this submenu, user can set PAT/PMT/SDT Interval and ASI out mode parameters.

2.1.6 PAT Interval
*100 200 300 400

2.1.7 PMT Interval
100 *200 300 400

2.1.8 SDT Interval
100 200 300 *400

2.1.9 ASI Out Mode
*byte packet

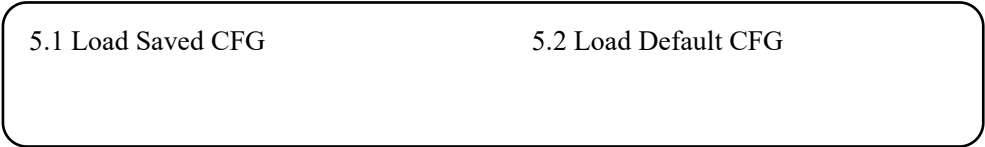
P.S.: The description of 2.2 Output 2 is the same with 2.1.

3.2.3 Network Setting

User can press “ENTER” key to enter into below menus of the Network Setting and modify the parameters under its corresponding submenu in the same way explained above.

3.1 IP Address
192.168.000.136

10/100M IP Setting

A screenshot of a menu with two options: "5.1 Load Saved CFG" and "5.2 Load Default CFG".

5.1 Load Saved CFG

5.2 Load Default CFG

User can restore the device into the last saved configuration by choosing the menu 5.1 “Load Saved CFG”, and also user can restore the device into factory configuration by choosing the menu 5.2 “Load Default CFG”.

3.2.6 Version

User can check the device’s hardware version and software version at this submenu:

A screenshot of a submenu showing hardware and software versions: "HW X.X" and "SW X.X".

HW X.X SW X.X

3.2.7 CA Filter

User can select to turn on/off CA Filter function at this submenu:

A screenshot of a submenu with two options: "Off" and "*On".

Off

*On

3.2.7 Language

User can select the needed language at this submenu:

A screenshot of a submenu with two options: "*ENGLISH" and "中文".

*ENGLISH

中文

Chapter 4 NMS Setting

Network Management System Profile

Network management system is applied to digital TV equipment operation, controlling and management and parameters setting, etc. It centralizes digital TV equipment through network.

4.1 Installation

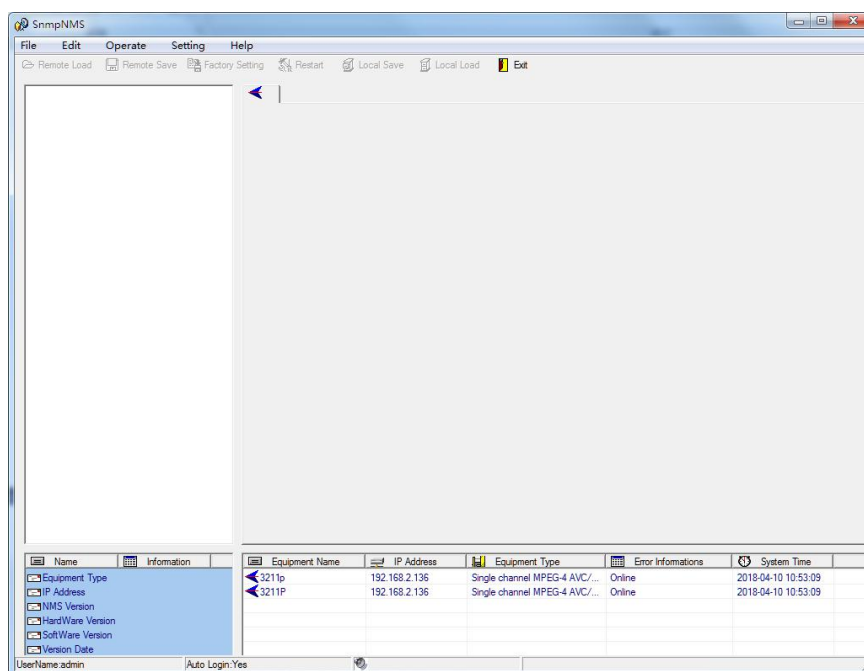
The software doesn't need special installation. User can just copy "Network Management Software X.XXY.exe" to the specified directory (X.XX is version number, Y represents language. For example: the version number of network management software 4.01E.exe is 4.01 English version). When the network management software is running, it will generate two files as follows:

- Network management software X.XXY. log (It preserves the log file.)
- Info. Bin (It's the user configuration file.)

4.2 Software Operation

4.2.1 Main Interface

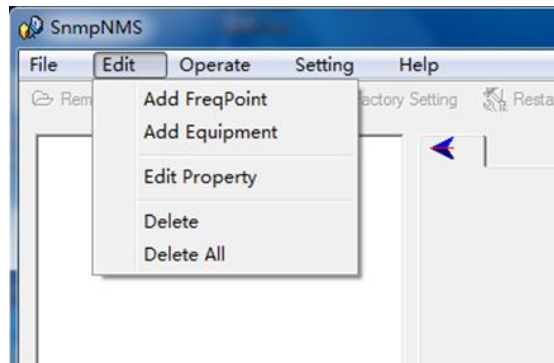
Executing the NMS software, user will come to the main interface as follow:



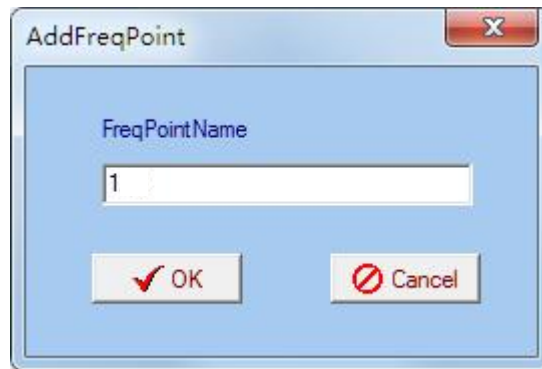
User can create a device node tree in the left column by adding, modifying and deleting the device node. This software provides a powerful node operation function, and the user can edit

various parameters in the device tree for management and classification.

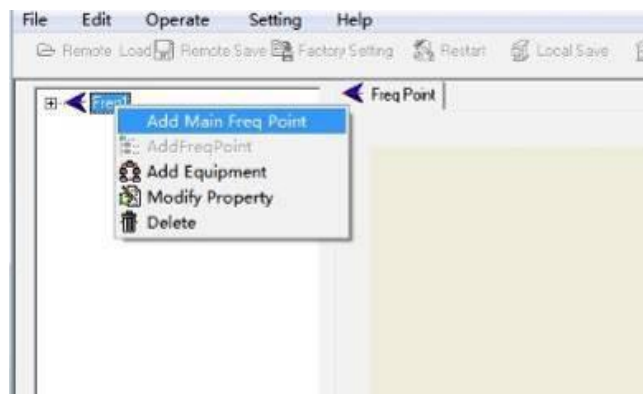
4.2.2 Adding Frequency Point



The Add Freq Point dialog box pops up when the user clicks the Add Freq Point item in the Edit pull down menu on the menu row. The device will confirm the given frequency while user clicks OK.



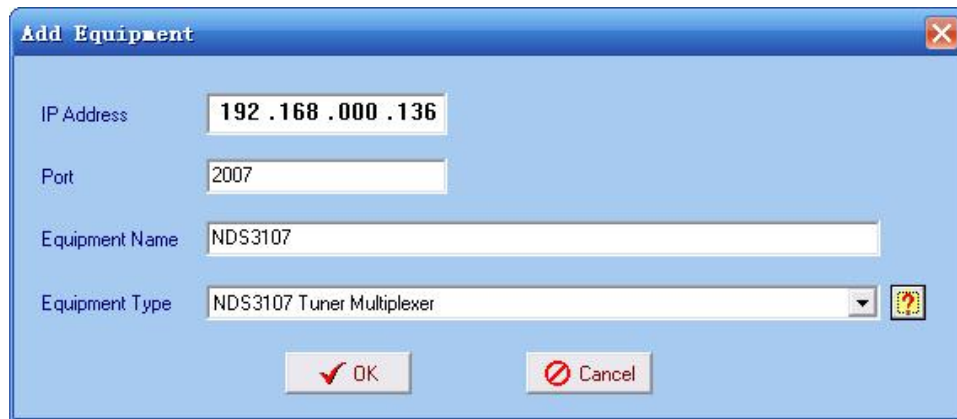
User can also click right mouse key to pop up the short-cut menu in device tree or in the left blank column, then the corresponding dialog box will pop up by choosing Add Main Freq Point. The device will confirm the given frequency while user clicks OK.



4.2.3 Adding Equipment under Given Frequency Point

User should choose the frequency point in advance, and then the dialog box of Add Equipment will pop up when user clicks “Add Equipment” item in the Edit pull down menu on the menu row.

4.2.4 Edit Equipment Interface



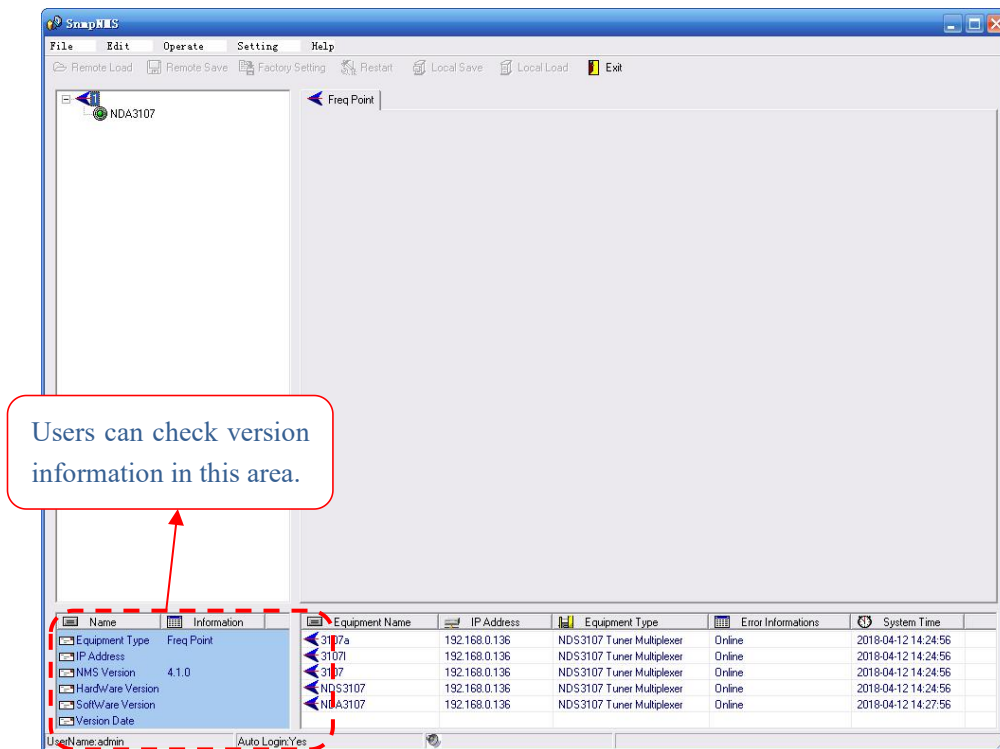
The 'Add Equipment' dialog box contains the following fields and controls:

- IP Address:** Text field with value '192.168.000.136'
- Port:** Text field with value '2007'
- Equipment Name:** Text field with value 'NDS3107'
- Equipment Type:** Drop-down menu with value 'NDS3107 Tuner Multiplexer' and a search icon (magnifying glass) to its right.
- Buttons:** 'OK' (with a checkmark icon) and 'Cancel' (with a red X icon).

User should follow the steps as below:

- Inputting the device IP address (the default IP address is 192.168.0.136)
- Inputting the device port number
- Inputting the equipment name
- Choosing the connected equipment type in drop down list of Equipment Type by clicking the “▼” in the above dialog box or clicking “?” to auto search.

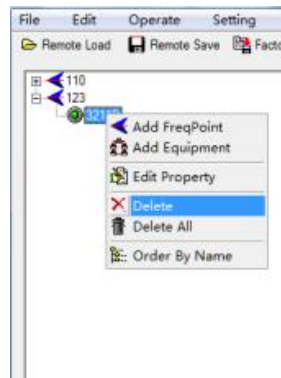
The indicator light will turn green if the device is properly connected.



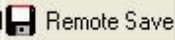
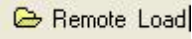
4.2.5 Delete Equipment

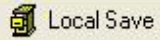
User can choose the equipment to be deleted in the left column, and then click the “delete” item

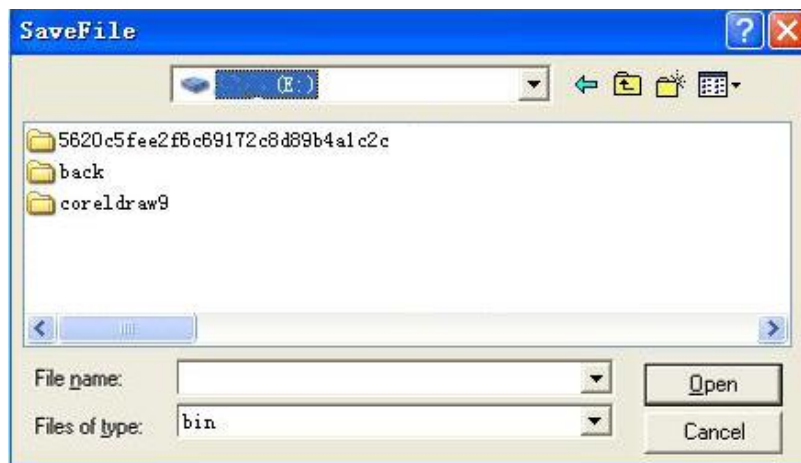
in the drop down menu which appears by clicking the right mouse key.



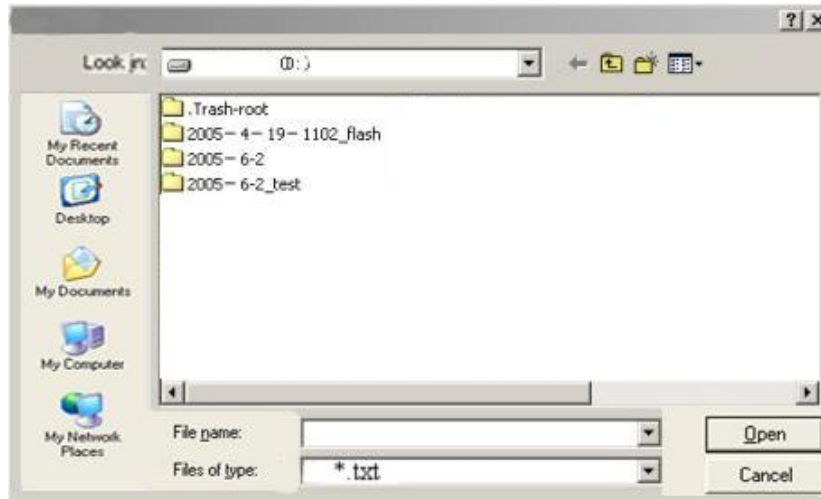
4.2.6 Save Configuration

After finishing all the parameters setting, user can click  Remote Save button on the toolbar to save the modifications to the device's flash, while user can also reload the saved parameters from device's flash and refresh the device's parameters setting according to the loaded values by clicking .

Alternatively, user can also click the  Local Save button on the toolbar to popup the “save file” dialog box, which gives prompts to save all the device's parameters as binary files in the computer's hard disk.



Similarly, user can choose to click the  Local Load button on the toolbar to popup the read file dialog box, to read the stored binary file and set the device's parameters according to the loaded binary files.



4.3 SFT3107 Tuner Input Multiplexer Operation

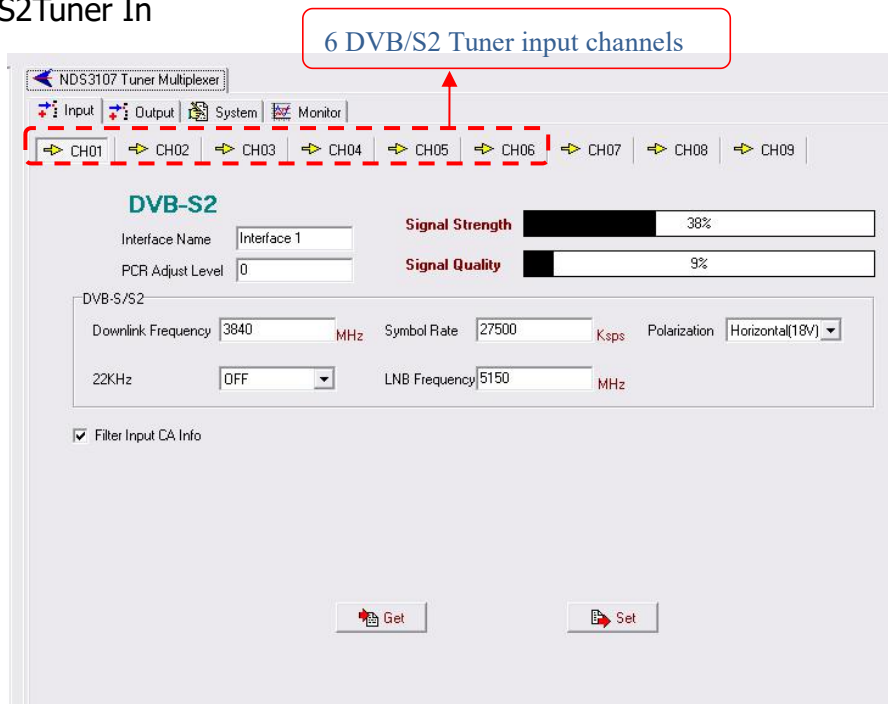
User can choose the Tuner Input Multiplexer in the device tree;

Set: making the current parameters, which shows in the NMS software, activate.

Get: reading the current device's activating parameters and showing them on NMS software.

4.3.1 Input

➤ DVB-S/S2Tuner In



- Frequency

The satellite frequency is satellite signal downlink frequency. The frequency is decided by satellite. Users can search the frequency on website. If the frequency is changed, there will be notifications for the change.

- Symbol Rate

The DVB-S/-S2 symbol rate ranges from 1Msymbol/s to 45 Msymbol/s.

- **Polarization**

The Polarization can be vertical (13V) and horizontal (18V)

- **22KHz**

By switching “ON” and “OFF” on the pull-down list, users can switch the satellite which provides signal input.

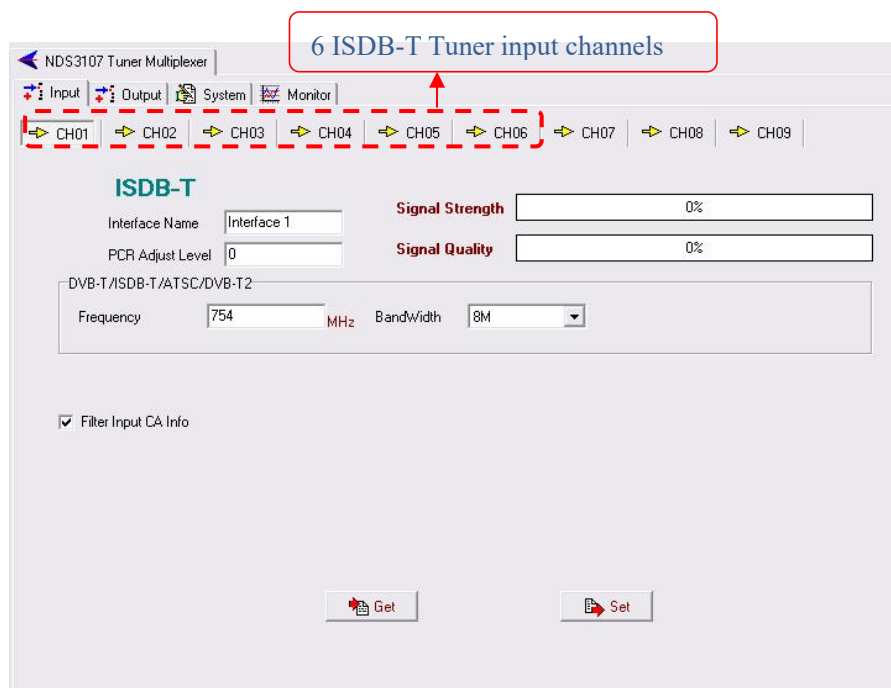
- **LNB Frequency**

Users have four LNB frequency choices: 5150MHz, 9750 MHz, 10600 MHz and 11300 MHz.

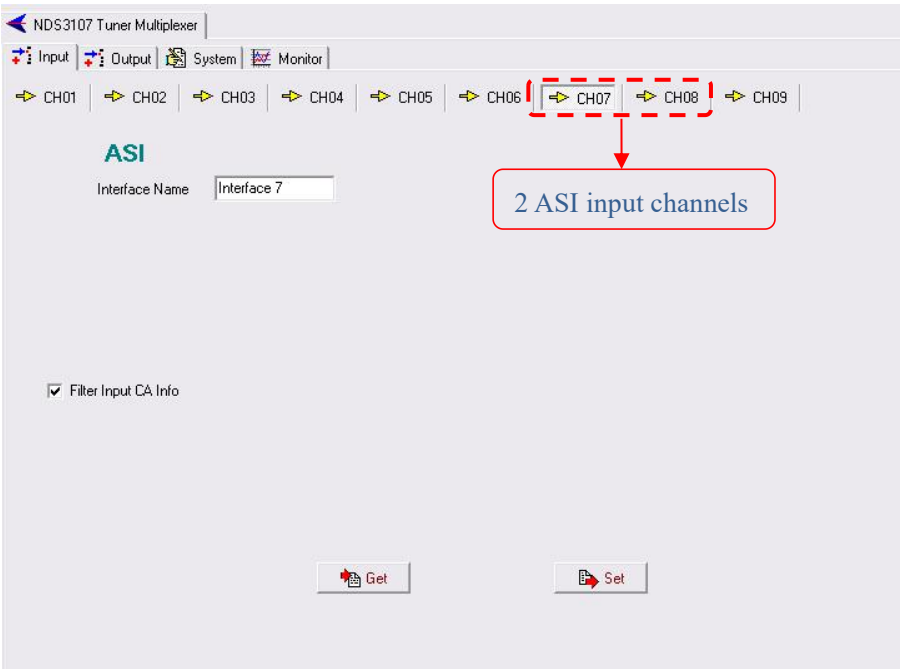
Users should select one of them to input. Before inputting, users should select one LNB frequency from the four choices and minus it from the satellite frequency. If the result does not locate in range 950MHz~2150MHz, then users should select the other one to make calculation.

If the result locates in range 950MHz~2150MHz, then the selected LNB frequency is the right choice selected and it can be input here.

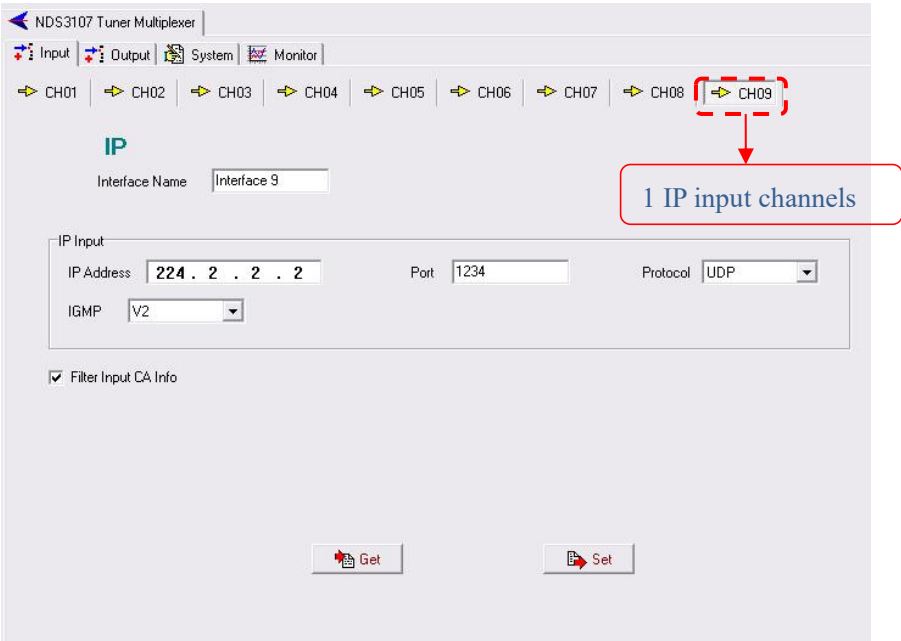
➤ **ISDB-T**



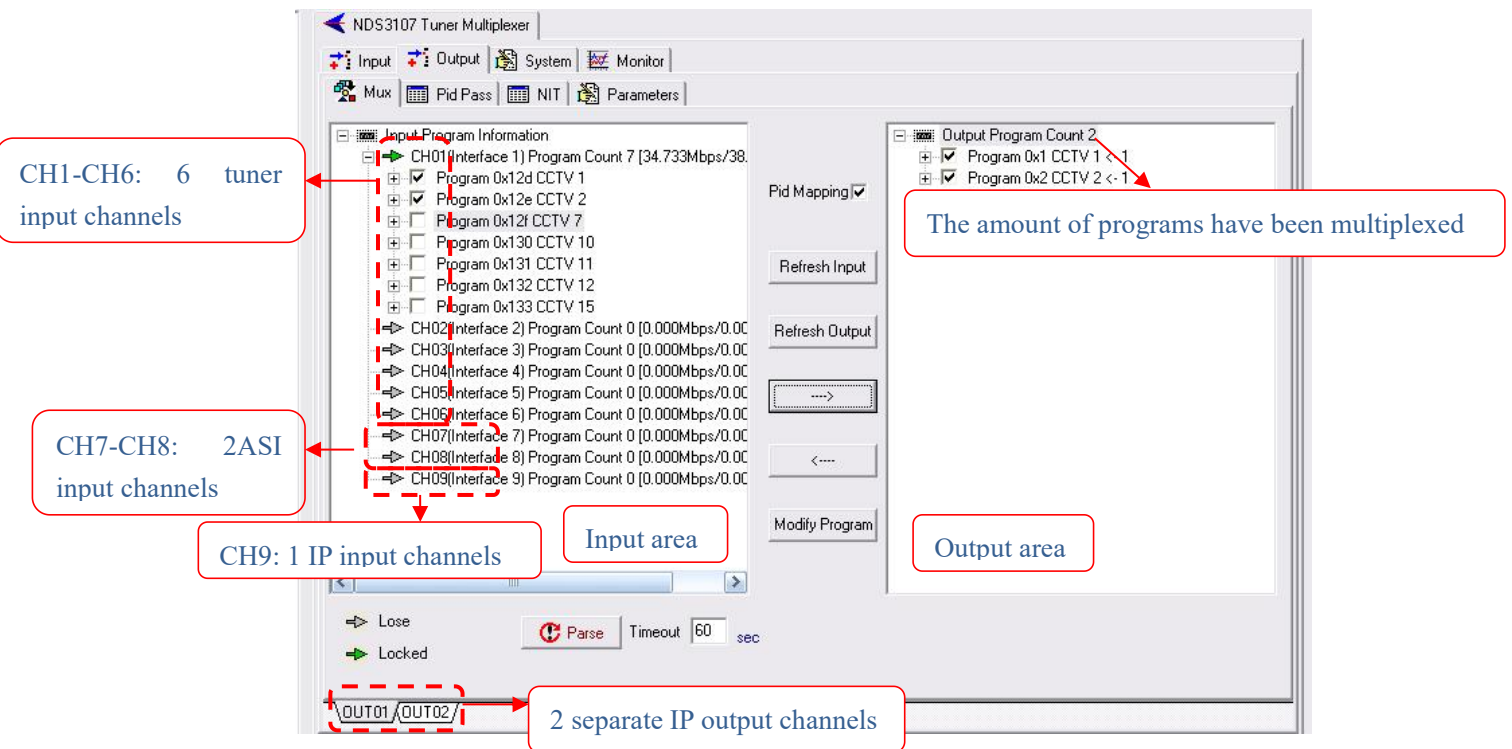
➤ **ASI In**



➤ IP In



4.3.2 Output
4.3.2.1 Multiplexing Setting



The programs in the left column represent all input programs and the ports they come from. The programs in the right column represent the output programs and from which port they are from. The CH1-CH9 represent the 9 input Ports (6 Tuner Input port, 2 ASI input port and 1 IP input port). User can analyze the programs of each input port and multiplex those programs to the output channels 1 or 2. Moreover, user can modify the output programs' Program Name, PMT, PCR, video, audio PID.

 : Input channel parsing

Timeout 60 sec : The parsing overtime value

☒ Pid Mapping : PID mapping selecting

 : To refresh the inputting terminal and get the inputting information

 : To refresh the outputting terminal and get the outputting information

 : Multiplex the input programs to the output channels after selecting the target program with ☒.

 : Cancel the multiplexed programs in output area.

Modify Program

: To modify the output programs' Program Name, PMT, PCR, video, or audio PID as needed. To modify program information, user can select the target program in output part first and click this button to pop up a dialog box as below:

Program Information

Description	Type	Value
Program Number(0x)		1
Program Name		CCTV 1
PMT PID(0x)		20
PCR PID(0x)		21
Service Type(0x)		1
Service Provider		CCTV
MPEG2 Video(0x)	2	22
MPEG2 Audio(0x)	4	23

Type: Value:  **Modify**

 **Submit**  **Cancel**

Select the target item and input the new value in the box below, then click  and

 Submit to effect the modification.

4.3.2.2 PID Pass

[illegible]

In some occasions, there are some PIDs which won't belong to any program, such as EPG, NIT tables, and so on, but user just wants to pass them through the multiplexing module without

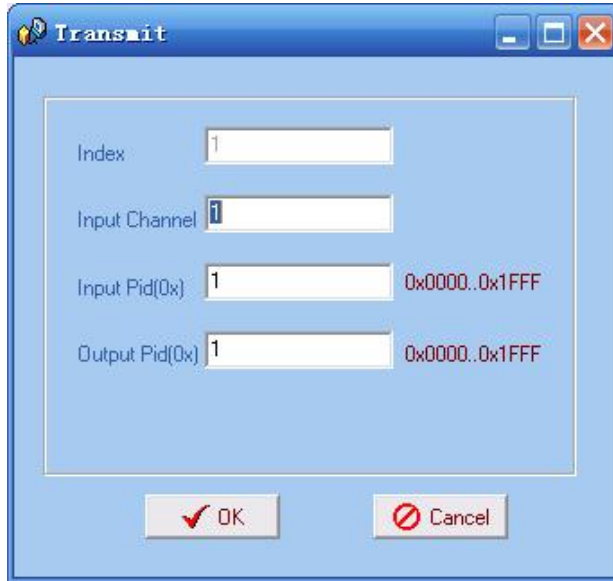
changing anything. So, “PID pass” should be provided to Multiplexer. This is the main purpose of this function.

➤ **Get** 

To read the “PID Transparent Transport” from device

➤ **Add** 

Click this to add a PID into the “PID pass”. A dialog box will pop out as below:



The dialog box titled "Transmit" contains the following fields and controls:

- Index:** A text box containing the value "1".
- Input Channel:** A text box containing the value "1".
- Input Pid(0x):** A text box containing the value "1", with a range indicator "0x0000..0x1FFF" to its right.
- Output Pid(0x):** A text box containing the value "1", with a range indicator "0x0000..0x1FFF" to its right.
- Buttons:** "OK" and "Cancel" buttons at the bottom.

- **Input Channel Number**

There are total 9 input ports for the multiplexer. User should specify where the data PID comes from.

- **Input PID and Output PID**

The Input (Old) PID is the PID number in the TS from given Port. The correspondent output (New) PID number could be same as input PID number while it could be different if a PID remapping is needed.

The added PID will show in the chart as below:

Ch Number	Input PID(0x)	Output PID(0x)
0x0001	0x0103	0x0103

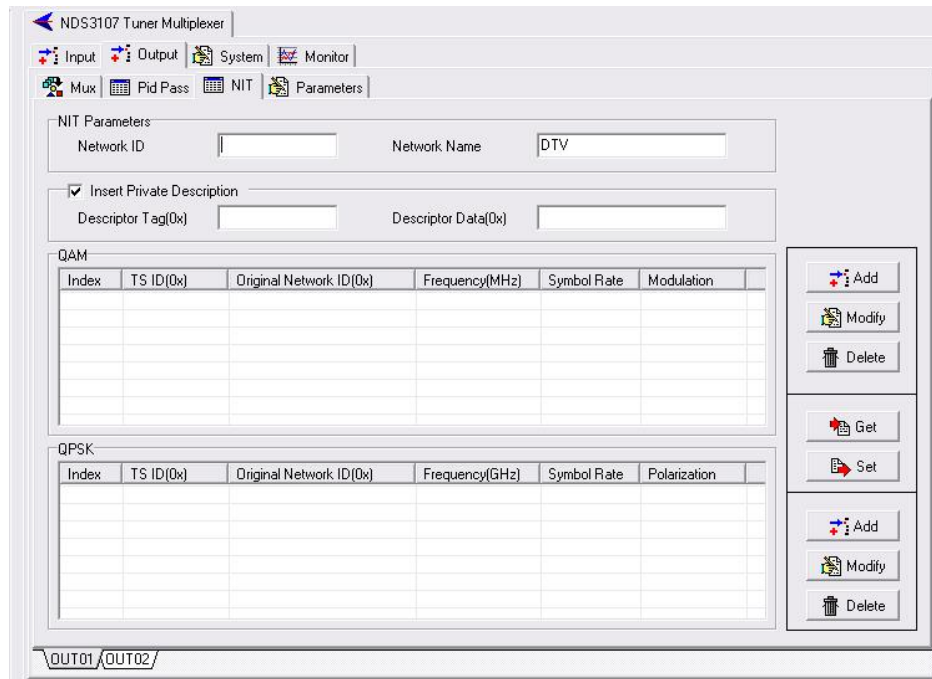
➤ **Delete** 

User can click the selected PID and then click “delete” button to delete a transparent pass PID from the “PID Transparent Transport”.

➤ **Modify** 

User can click the selected PID and then click “modify” button to modify a transparent pass PID’s information in the “PID Pass”.

4.3.2.3 NIT Insertion



NIT: Network Information Table.

NIT table is a very important table for describing the network and TS.

SFT3107 Tuner Input multiplexer has the function of editing a NIT on condition that the NIT

Insertion was set as Enable in 4.3.2.4 Output Parameters



➤ NIT Parameters

User can set the network ID and network name in the field.

Network ID: the parameter describes the output TS’s network ID

This is a 16-bit field which serves as a label to identify the delivery system, about which the NIT informs, from any other delivery system. Allocations of the value of this field are found in TR 101 162

Network Name: the parameter describes the output TS’s network name

Private Descriptor: this checkbox will allow user to insert the private descriptor into the output TS. The private descriptor includes two parts. One is Descriptor Tag, and the other is Descriptor Data.

Descriptor Tag: The descriptor tag is an 8-bit field which identifies each descriptor. Those values with MPEG-2 normative meaning are described in ISO/IEC 13818-1 [18].

Descriptor Data: The Descriptor Data is the detailed information of the private description. The descriptor data can be filled manually in this box.

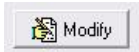


: Users can add the cable transmission descriptor in this Add button, and it will pop up the following dialogue box.

The NIT Operation dialog box contains the following fields and controls:

- Index: 1
- TS ID(0x): 1
- Original Network ID(0x): 1
- Frequency: 100 MHz
- Symbol Rate: 6.875 MBound
- Modulation: 16QAM (dropdown menu)
- OK button (checked)
- Cancel button

QAM					
Index	TS ID(0x)	Original Network ID(0x)	Frequency(MHz)	Symbol Rate	Modulation
1	1	1	100	6.875	16QAM



: The modify button will trigger a modify window and allow user to modify the selected items in the NIT table.

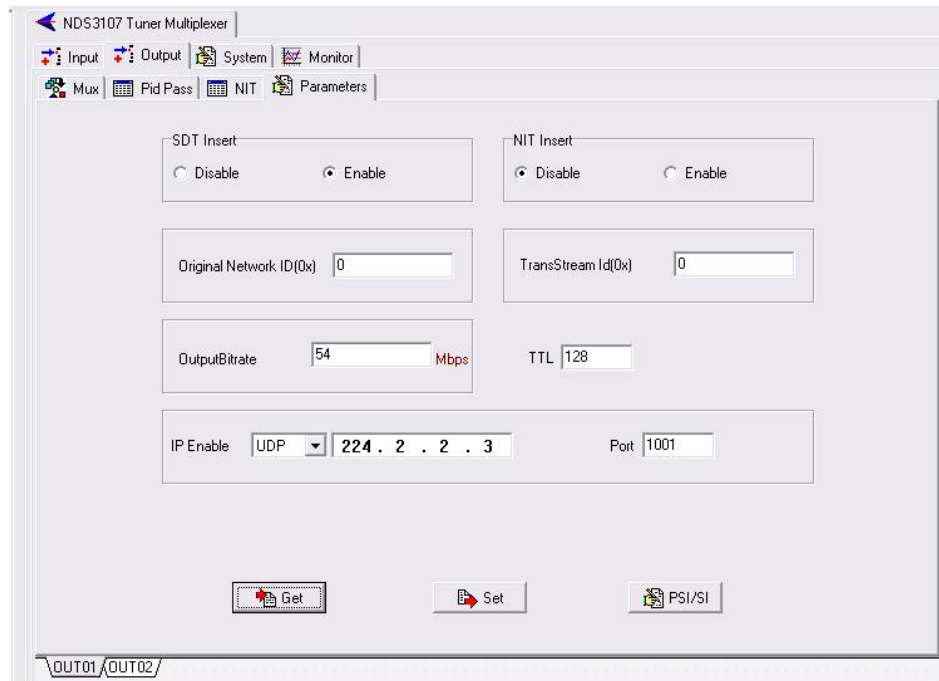


: The “Delete” button will remove the selected items in the NIT table.



: The set button will send the NIT table to the chosen output Port.

4.3.2.4 Parameters



➤ TS ID

User can set a 16-bit TS ID at this field which serves as a label for identification of the out TS. The value ranges from 0 to 0xFFFF.

➤ SDT Insertion

User can decide whether to insert the SDT table in the output TS at this field.

➤ Original Network ID

➤ NIT Insertion

User can decide whether to insert the NIT table in the output TS at this field. If enabled, then user can insert the NIT in the tag.

➤ Output (Total) Bit-rate

User can set the total output bit-rate at this field. The value of this bit-rate includes the following, the effective bit-rate of multiplexed programs from all input ports and the bit-rate of stuffed null pockets.

➤ IP Output Address

User can set the output IP address at this field.

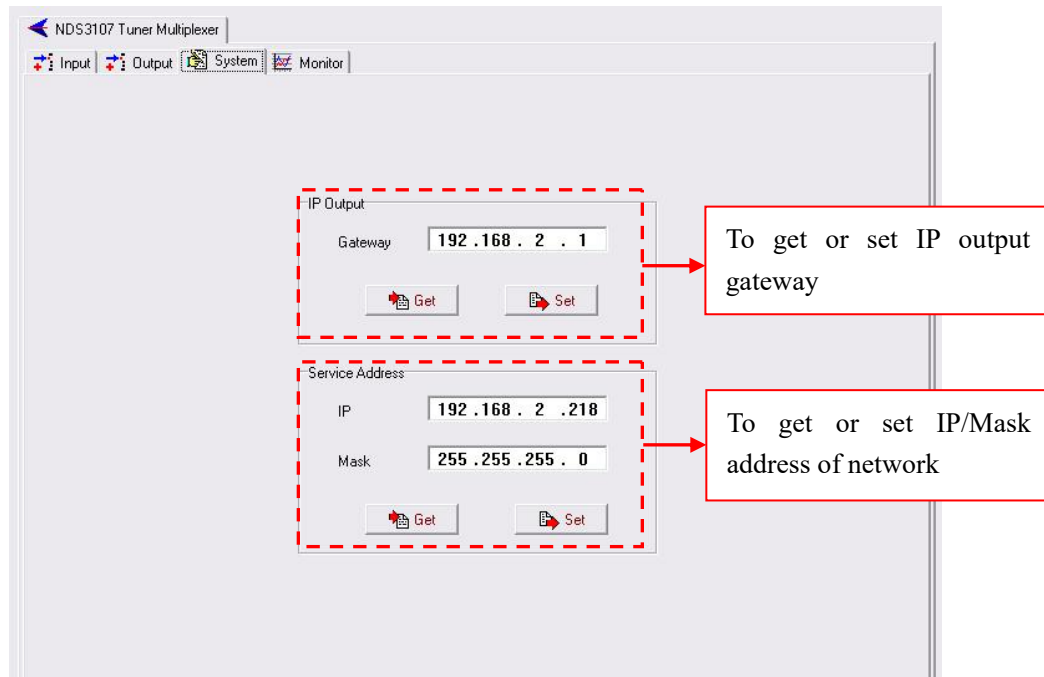
➤ Output Port

User can set the IP output port here.

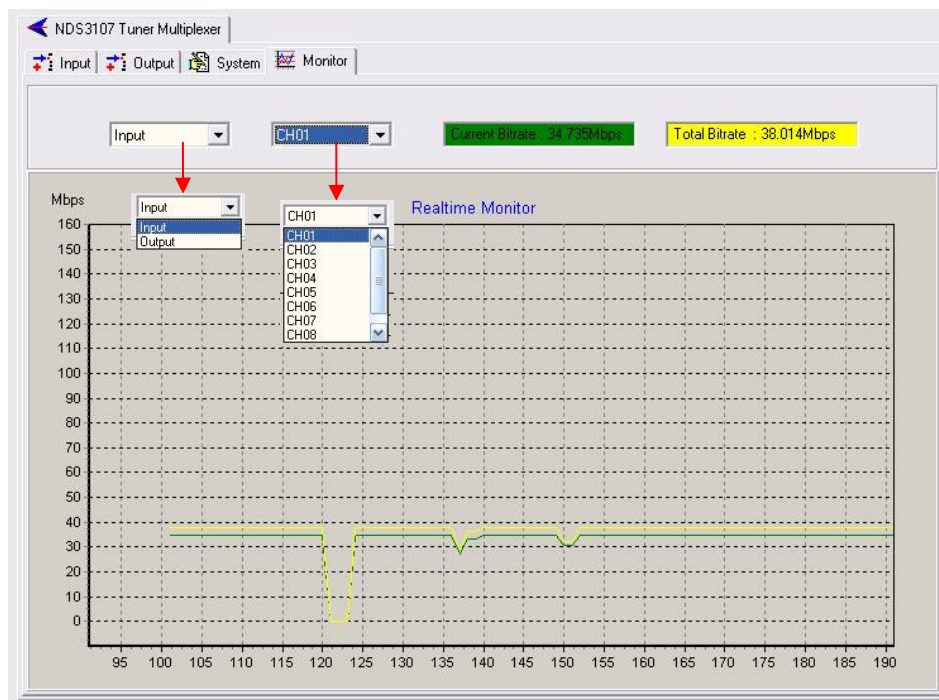
➤ IP Enable

User can decide whether to enable or disable the IP output at this filed.

4.3.3 System



4.3.4 Monitor



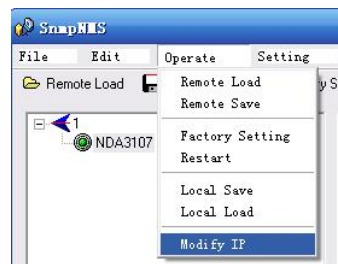
The real-time total bit-rate (yellow line) and effective bit-rate (green line) of input and output stream will be directly displayed at this chart. User can also clearly observe real-time total and effective bit-rate changing on the following dynamic trend chart.

4.3 Other Settings

4.4.1 Difference between Set and Remote Save

In many cases during the configuration of parameters in NMS, users save the modified configuration by clicking “Set”, in which way the configuration can only be saved temporarily and will restore the last saved configuration if the device reboots. To save the configuration permanently, it is required to operate through “Remote Save” on the toolbar explained in 4.2.6. This is the difference between “Set” and “Remote Save”.

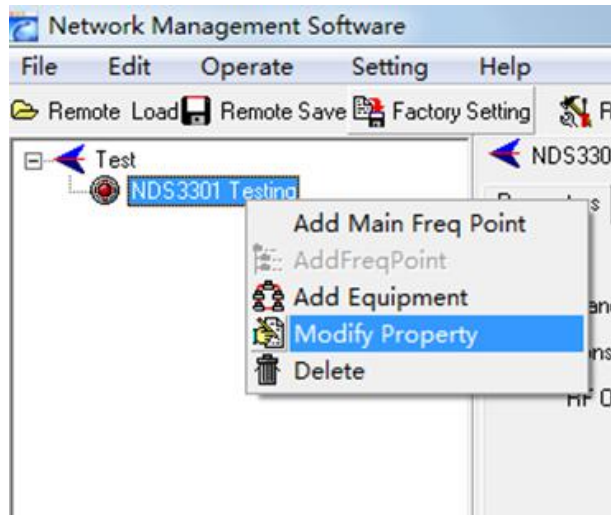
4.4.2 IP Modification

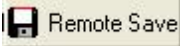


Users can click **Operate** and select **Modify IP** in the drop down list, and a dialog box presents itself as shown below. Users input the new IP Address for the device and click Modify button to confirm.



Users can note the indicator light turns red (see below), which signifies the equipment has disconnected. Users then can refer to below prompts to edit the property by inputting the new IP to re-connect the equipment.

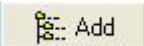


After finishing all the parameters setting, user should click  button on the toolbar to save the modifications to the device's flash.

4.4.3 User Add

When logging in, user will note that the default user name is **admin** and no password. User can add users and passwords as needed.



User clicking “Setting” in the menu bar and selecting “User Setting” in the pull-down list, the below dialog box will pop out as shown below. Select the “Edit Information” by marking the check box with “√”, user can input the new username and new password as prompts below. It is required to click  to add the new user and then click  to save the new setting.

User Setting

UserNameadmin

PassWord

☒ Auto Login

☐ Edit Information

Choose Useradmin

PassWord

New UserNameadmin

New PassWord

Confirm PassWord

Add

Edit

Delete

OK

Cancel

Chapter 5 Web NMS Operation

Users can control set SFT3107's configuration not only from front buttons and LCD, but also from computer by connecting the device to web NMS Port. User should ensure that the computer's IP address is different from this device's IP address; otherwise, it would cause IP conflict.

5.1 login

The default IP address of this device is **192.168.0.136**.

Connect the PC (Personal Computer) and the device with net cable, and use ping command to confirm they are on the same network segment.

I.G. the PC IP address is 192.168.99.252, we then change the device IP to 192.168.99.xxx (xxx can be 0 to 255 except 252 to avoid IP conflict).

Use web browser to connect the device with PC by inputting the multiplexer's IP address in the browser's address bar and press Enter.

It displays the Login interface as Figure-1. Input the Username and Password (Both the default Username and Password are "admin".) and then click "LOGIN" to start the device setting.

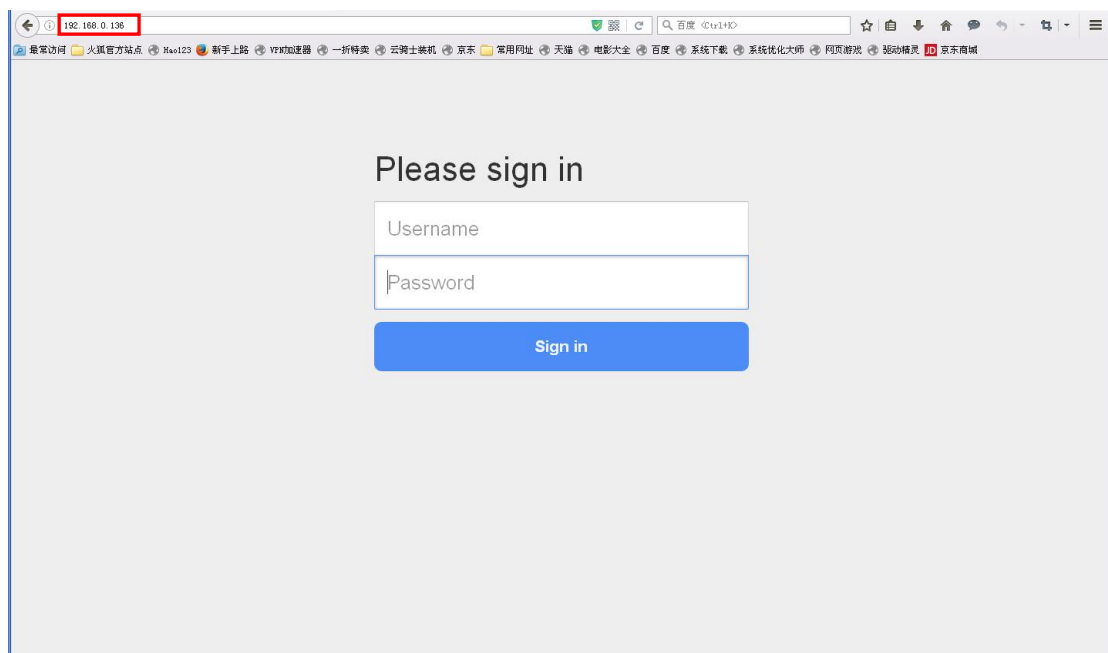


Figure-1

5.2 Operation

5.2.1 Status

When we confirm the login, it displays the status interface as Figure-2.

The Status interface displays system information and channel status. The **System** section shows: Made On: Mar 16 2018, 10:03:50; Uptime: 0 h 7 m 52 s; HW Version: 4.2; SW Version: 1.0. The **Inputs** table lists 9 channels with their interfaces, TS Lock status, and bitrates. The **Outputs** table lists 2 channels with their interfaces and bitrates.

#	Interface	TS Lock	Bitrate (Act/Max Mbps)
1	Chan 1	●	34.733/38.015
2	Chan 2	●	0/0
3	Chan 3	●	0/0
4	Chan 4	●	0/0
5	Chan 5	●	0/0
6	Chan 6	●	0/0
7	Chan 7	●	34.73/38.014
8	Chan 8	●	34.73/38.014
9	Chan 9	●	28.889/39.999

#	Interface	Bitrate
1	Chan 1	0
2	Chan 2	0

Annotations: A red box highlights the System information. A blue box notes: "Users can check the system information." A red box highlights the Inputs table. A blue box notes: "Channel 1-6 are corresponding to the 6 tuner ports; Channel 7-8 are corresponding to the 2 ASI ports; Channel 9 is corresponding to the IP port." A red box highlights the Outputs table. A blue box notes: "This device support 2 output channel."

Figure-2

5.2.2 Input

Clicking "Input", it will display the interface as Figure-3/4 where users can set input channels' parameters.

The Input interface shows a list of channels with their status and parameters. A red box highlights the first six channels (CHAN1-6) which are DVB-S2 tuners. A blue box notes: "DVB-S2 Tuner". A red box highlights the last three channels (CHAN7-9) which are ASI and IP ports. A blue box notes: "This device support 2 output channel." Two pop-up windows are shown: "Tuner Set" for Channel 1 (DVB-S2) and "Tuner Set" for Channel 7 (ASI). The Channel 1 window shows parameters: Sat Freq (3840 MHz), LNB Freq (5150 MHz), Symbol Rate (27500 Ksymb), Polarization (Horizontal[18V]), 22 kHz (OFF), and Sweep Range (0 KHz). The Channel 7 window shows parameters: IP Address (224.2.2.2), Port (1234), Protocol (UDP), and IGMP (V2).

Interface	Status	Sat Freq	Symbol Rate	LNB Freq	Polarization	Actions
7 CHAN1	Signal Quality: 9% Signal Strength: 38% Freq Offset: 0 M	3840 MHz	27500 Ksps	5150 MHz	Horizontal[18V]	Modify
7 CHAN2	Signal Quality: 0% Signal Strength: 0% Freq Offset: 0 M	3840 MHz	27500 Ksps	5150 MHz	Horizontal[18V]	Modify
7 CHAN3	Signal Quality: 0% Signal Strength: 0% Freq Offset: 0 M	3840 MHz	27500 Ksps	5150 MHz	Horizontal[18V]	Modify
7 CHAN4	Signal Quality: 0% Signal Strength: 0% Freq Offset: 0 M	3840 MHz	27500 Ksps	5150 MHz	Horizontal[18V]	Modify
7 CHAN5	Signal Quality: 0% Signal Strength: 0% Freq Offset: 0 M	3840 MHz	27500 Ksps	5150 MHz	Horizontal[18V]	Modify
7 CHAN6	Signal Quality: 0% Signal Strength: 0% Freq Offset: 0 M	3840 MHz	27500 Ksps	5150 MHz	Horizontal[18V]	Modify
0 CHAN7	ASI					Modify
0 CHAN8	ASI					Modify
1 CHAN9	IP Address: 224.2.2.2 Port: 1234 Protocol: UDP IGMP: V2					Modify

Figure-3

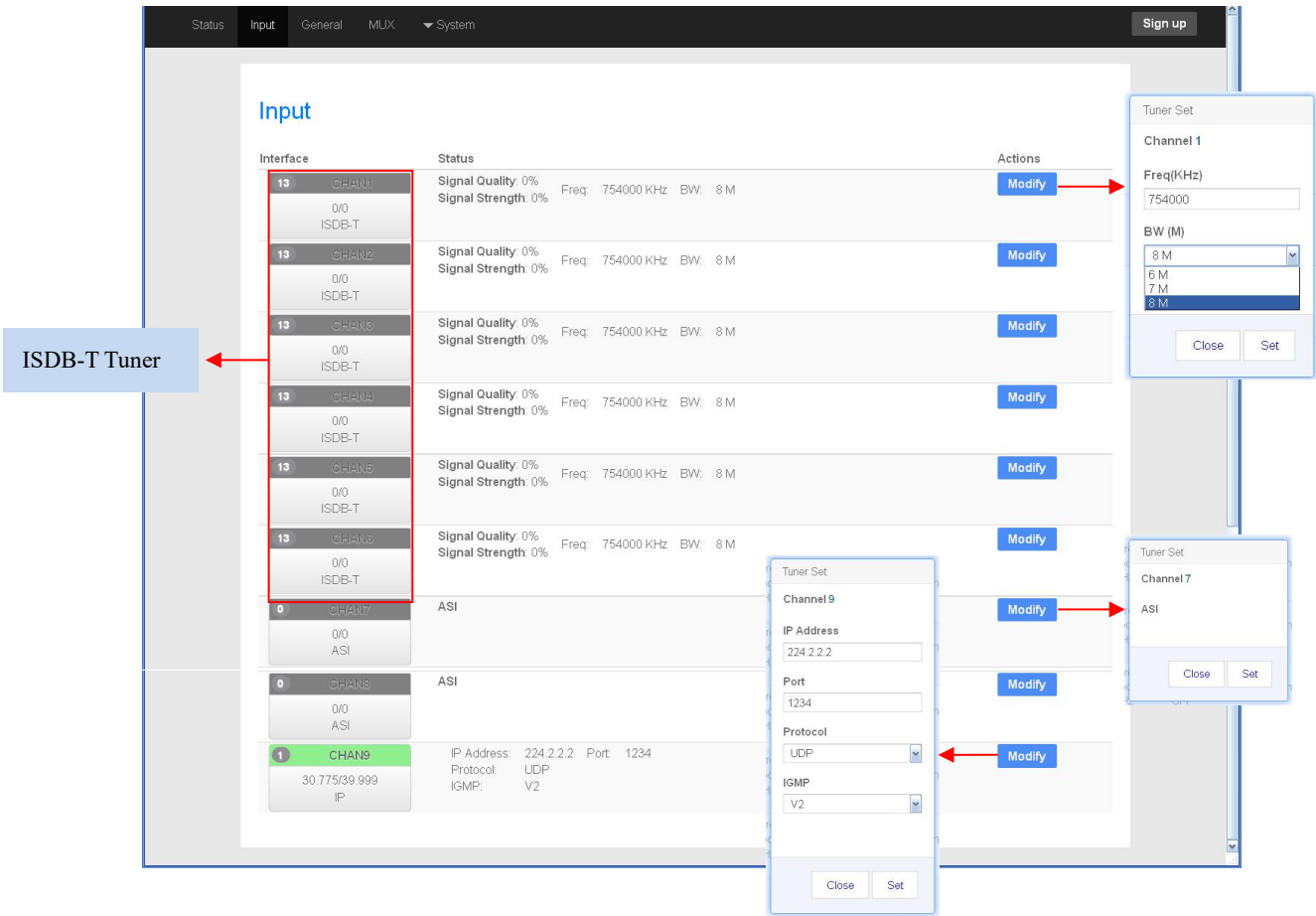


Figure-4

5.2.3 General

Clicking “General”, it will display the interface as Figure-5 where users can set the 2 output channels parameters. The interface and setting principle of Chan2 is same as Chan1.

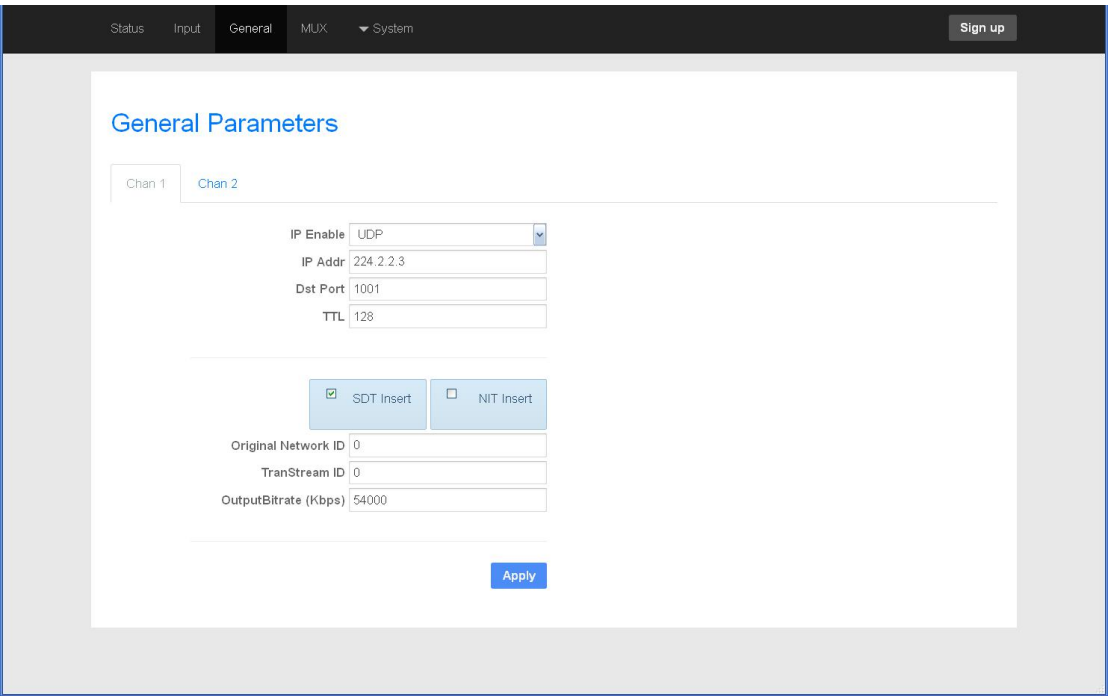


Figure-5

5.2.4 Mux

Clicking “Mux”, it will display the interface Figure-6 where user can select the TS stream to output. Clicking one channel in input area and then click “Parse” to parse the selected program, it will display all the programs of the selected channel as Figure-7.

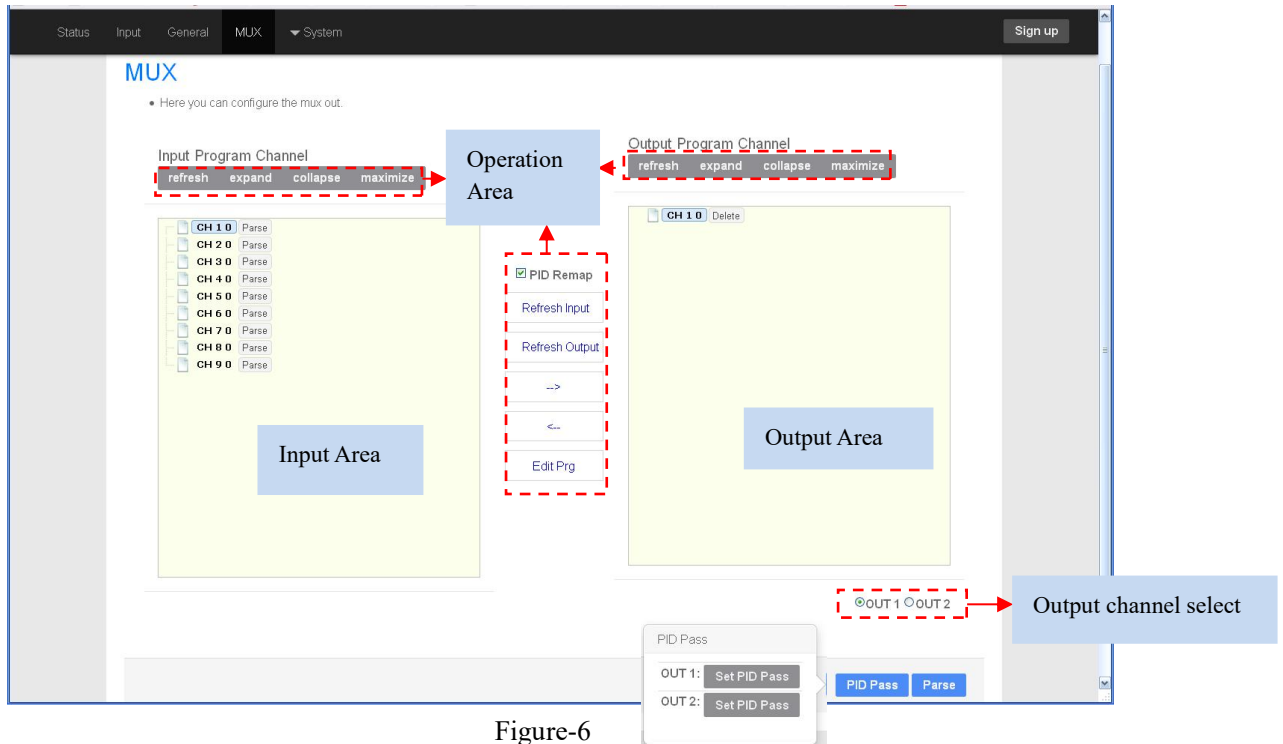


Figure-6

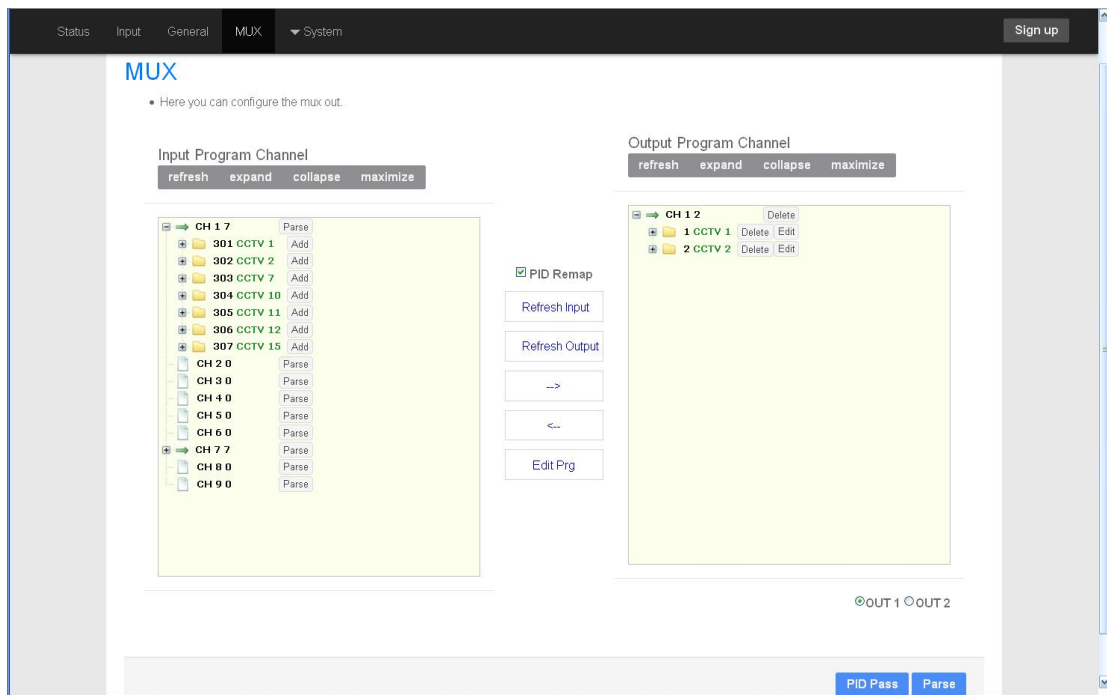


Figure-7

Configure 'Input Area' and 'Output Area' with buttons in 'Operation Area'. Instructions are as below:



To refresh the input program information



To refresh the output program information



Select one input program first and click this button to transfer the selected program to the right box to output.



Similarly, user can cancel the multiplexed programs from the right box.



Select one input program first and click this button to transfer the selected program to the right box to output.



Similarly, user can cancel the multiplexed programs from the right box.



To refresh the input or output program information



To expand the programs detail



To fold all input channels or output channels



To maximize the input area interface of output area interface.



To enable/disable the PID pass

Program Modification:

The multiplexed program information can be modified by clicking or , it will trigger a dialog box (Figure-7) where users can input new information.

Figure-7

Input new data and click 'Apply' button at last to confirm the modification.

PID pass adding:

Clicking **PID Pass**, it will trigger a dialog box (Figure-8) where users can add PID pass and set parameters of the two output channels.

Index	Channel	Input Port	Input PID	Output PID
NEXT	1		0x1	0x1

Figure-8

5.2.5 System

➤ Config

Clicking “Config”, it will display the interface as Figure-9 where users can save/restore/back up/upload configuration and factory set.

Figure-9

➤ Network

Clicking “Network”, it will display the interface as Figure-10 where users can set network parameters.

The screenshot shows the 'Network' configuration page. At the top, there is a navigation bar with tabs: Status, Input, General, MUX, and System (selected). A 'Sign up' button is in the top right corner. The main content area has a title 'Network' in blue. Below the title, there are several input fields and a 'Service IP' section. The 'IP Address' field contains '192.168.0.136'. Below it, a note says: 'The manage address, use this address to visit the manage web. The format is xxx.xxx.xxx.xxx (like as 192.168.0.1). After set the IP address, you must use the new address to visit the manage web.' The 'Subnet Mask' field contains '255.255.255.0'. Below it, a note says: 'General is 255.255.255.0, it is must the same in a local area network.' The 'Default Gateway' field contains '192.168.0.1'. Below it, a note says: 'If the device is in different net segment, you must set the gateway.' The 'Web Listen Port' field contains '80'. Below it, a note says: '(0-65535) After saving restart valid'. To the right, the 'Service IP' section has three fields: 'IP Addr' (192.168.2.218), 'Submask' (255.255.255.0), and 'Gateway' (192.168.2.1). At the bottom right, there are two buttons: 'Get' and 'Apply'.

Figure-10

➤ Password

Clicking “Password”, it will display the interface as Figure-11 where to set the login account and password for the web NMS.

The screenshot shows the 'Password' configuration page. At the top, there is a navigation bar with tabs: Status, Input, General, MUX, and System (selected). A 'Sign up' button is in the top right corner. The main content area has a title 'Password' in blue. Below the title, there is a 'Note' section: 'Modify the login name and password to make the device safely. If forget the name or password, you can reset it by keyboard in menu 5.5. The default login name and password is "admin". Also please note the capital character and lowercase character.' Below the note, there are four input fields: 'Current Username' (admin), 'Current Password' (masked with dots), 'New Username', 'New Password', and 'Confirm New Password'. At the bottom right, there is an 'Apply' button.

Figure-11

Chapter 6 Troubleshooting

SOFTEL's ISO9001 quality assurance system has been approved by CQC organization. For guaranteeing the products' quality, reliability and stability, all SOFTEL products pass the testing and inspection before products are shipped out factory. The testing and inspection scheme already covers all the Optical, Electronic and Mechanical criteria which have been published by SOFTEL. To prevent potential hazard, please strictly follow the operation conditions.

Preventive Measures

- Installing the device at the place in which environment temperature is between 0 to 45 °C
- Making sure good ventilation for the heat-sink on the rear panel and other heat-sink bores if necessary
- Checking the input AC within the power supply working range and the connection is correct before switching on device
- Checking the RF output level varies within tolerant range if it is necessary
- Checking all signal cables have been properly connected
- Frequently switching on/off device is prohibited; the interval between every switching on/off must be greater than 10 seconds.

Conditions need to unplug the power cord

- Power cord or socket damaged.
- Any liquid flowed into device.
- Any stuff causes circuit short
- Device in damp environment
- Device was suffered from physical damage
- Longtime idle.
- After switching on and restoring to factory setting, device still cannot work properly.
- Maintenance needed

Chapter 7 Packing list

- SFT3107 Tuner Input Multiplexer
- User's manual
- ASI Cable
- Power Cord