GALAXIA

HIGH DENSITY DIGITAL HEADEND

User Guide

V 1.2

Revision History

Date	Version	Description	Author
05/08/2022	1.0	First Release	SB
14/02/2023	1.1	First Revision	MZ
09/03/2023	1.2	Second Revision	MZ

This guide contains some symbols to call your attention.

 DANGER	The DANGER symbol calls your attention to a situation that, if ignored, may cause physical harm to the user.
 CAUTION	The CAUTION symbol calls your attention to a situation that, if ignored, may cause damage to our product.
 NOTE	The NOTE symbol calls your attention to important information.
 TIP	The TIP symbol calls your attention to additional information that, if followed, can make procedures more efficient.
 Red Arrow	The Red Arrow symbols point to important details mention the context above or below an image.
Blue Arrow	The Blue Arrow symbol indicates the motion path of an item in an operation step.
 Thick Arrow	The thick Arrow symbol calls your attention to a series of operation steps mentioned in the context.

This guide also contains the following text conventions.

Bold Italic	The bold Italic text indicates a button to click, an item in the drop-down menu to select, or a certain item in the UI.

Safety Instructions

- Read these instructions
- Keep these instructions
- Follow all instructions
- Heed all warnings
- Do not use this unit near water
- Only use a damp cloth to clean chassis
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat
- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions
- This unit is grounded through the power cord grounding conductor. To avoid electrocution, do not remove the power cord before the outlet is switched off or unplugged. If the plug does not fit into your outlet, consult an electrician for replacement of the outlet
- Route power cords and other cables so that they are not likely to be damaged
- Only use attachments/accessories specified by the manufacturer
- Do not wear hand jewelry or watch when troubleshooting high current circuits
- Do not work on the system during periods of lightning
- Refer all servicing to qualified service personnel. Servicing is required when this unit has been damaged in any way
- **Damage Requiring Service**: Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
  - When the power-supply cord or plug is damaged
  - If liquid has been spilled, or objects have fallen into the product
  - If the product has been exposed to rain or water
  - If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of the controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation
  - If the product has been damaged in any way
- **Replacement parts**: When replacement parts are required, be sure the service technician uses replacement parts specified by the manufacturer. Unauthorized part substitutions made may result in fire, electric shock or other hazards

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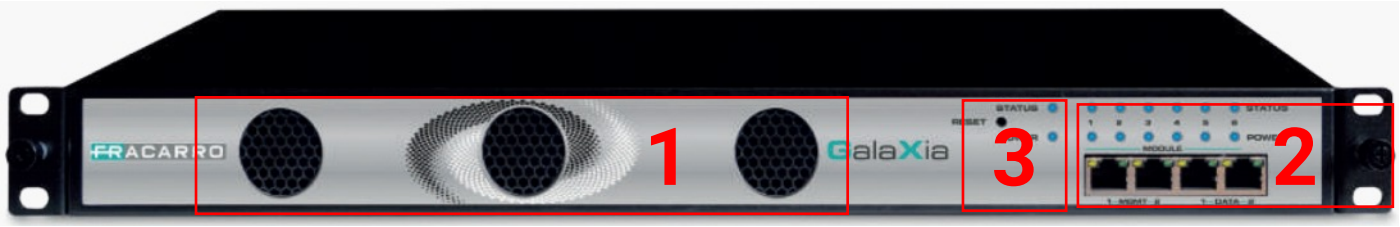
1 Chassis Overview

1.1 Front Panel

GALAXIA High Density Digital Headend is a new professional High Level media platform which focuses on distribute contents on Hospitality market.

With powerful embedded Gigabit switch, optional encoder modules and multi-mode receiver and modulator modules, it has been preconfigured to meet all the major video delivery requirements of signal receiving, descrambling, encoding, multiplexing, modulation and IP processing depending on a variety of models.

Due to its compact design, powerful functions, and low operational cost, it's a perfect choice for commercial video delivery applications for hotel, campus, hospital, MDU and more kinds of cable TV and IPTV systems, where massive programs are required to be processed.



1. Cooling ventilation
2. 4x RJ45 ports for management and for TS over IP (IPTV in and IPTV out)
3. Status, Power Indicators and Reset button

1.2 Back Panel

I. 6 Hot-swappable modules

II. Dual Power Supply

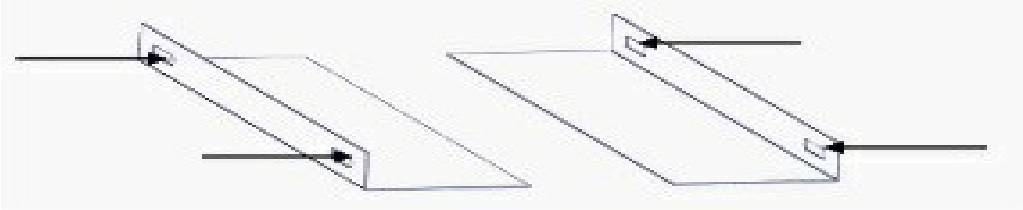
III. Ground

2 Installation

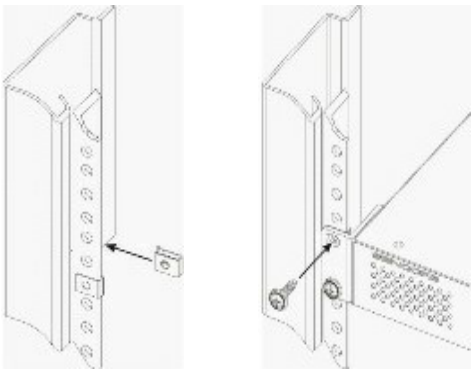
2.1 Rack Installation

The GALAXIA HEADEND is designed to be mounted in a standard 19” rack. It takes 1RU of rack space. To install it into a rack, please use the following steps:

1. Determine the desired position in the rack for the GALAXIA HEADEND. Make sure that the air intake on the top of the unit and the exhausts on the back of the unit will not be blocked.



2. Install the brackets at desired position if there’s no supporting plate in the rack.
3. Insert the rack mount clips into place over the mounting holes in the rack.
4. Slide the GALAXIA HEADEND into the position in the rack.
5. Secure the chassis to the rack by installing the four supplied screws through the front mounting holes and tightening.



2.2 AC Power Connection

Please only use the supplied 3-pole power cord or one with equal specifications. NEVER tamper with or remove the grounding pin. This could cause damage the GALAXIA HEADEND, the personnel, or the property. Make sure the power outlet is switched off before plug or unplug the power cable from the panel of GALAXIA HEADEND.

When you take the equipment from a cold condition into a much warmer and humid condition, the equipment should be acclimated to the warm and humidity condition for at least 30 minutes. Powering up a non-acclimated unit may lead to shortcut or other damage to electronic components.

A professional UPS system is recommended for better performance of your content distribution system.

3 Module Overview

3.1 GALAXIA HEADEND Chassis and Baseboard (*)

GALAXIA HEADEND	Basic Function
GX-BOX-DP Chassis Baseboard	Up to 120 inputs & 120 outputs IP channel, dual power supply

3.2 Receiver Modules (*)

Module	Description
GX-4C2CI-BP-00	4 Channel DVB-C receiving and descrambling module with 1 RF female connector and 2 CI slots
GX-4S2CI-BP-01	4 Channel DVB-S/S2/S2X receiving and descrambling module with 2 RF connectors and 2 CI slots
GX-4S2FTA-BP-01	4 Channel DVB-S/S2/S2X (FTA) receiving module with 4 RF connectors
GX-4T2CI-BP-00	4 Channel DVB-T/T2 receiving and descrambling module with 1 RF connector and 2 CI slots

3.3 Encoder Modules (*)

Module	Description
GX-4HDMI-BP-R01	4 Channel HDMI HD encoder, supports H 264 HD/SD, MPEG1L2, AAC (optional), AC3 (optional), supports overlay OSD subtitles, station logo, two-dimensional code, does not support interlaced video signals input

3.4 Modulator Modules (*)

Module	Description
GX-BP-16C-R00	Supports modulating 16 non-adjacent channels with 1 RF female port for modulating output and 1 RJ45 network port is reserved for future use
GX-BP-8T-R01A	Supports up to 8 adjacent frequencies modulating with 1 RF female connector for output

3.5 Function Modules

Module	Description
GX-2CI-BP-00	Scrambling & descrambling module with 2 CI slots. It supports almost all kinds of CAM card descrambling and the number of descrambled services is defined by the CAM card. It supports descrambling services which are multiplexed from different IP/RF channels or modules.

(*) Definitive specifications and module list may change without notice.

4 GALAXIA Web GUI

4.1 Web GUI Overview

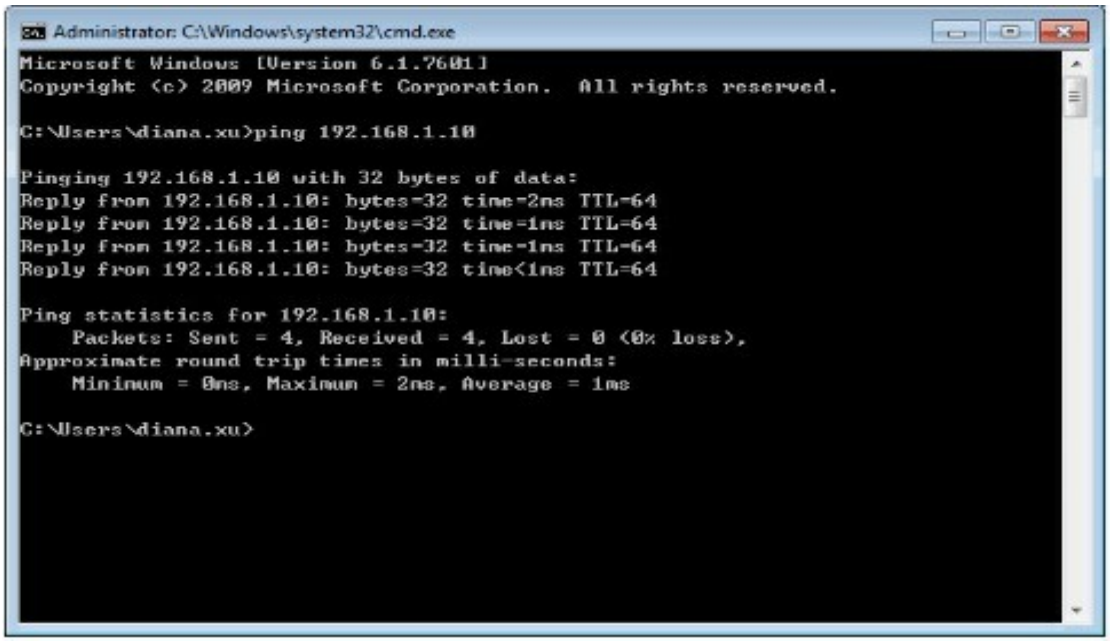
4.1.1 Connect the Management Port

Factory network settings of the Management Port:

- IP address 192.168.1.10
- Subnet Mask 255.255.255.0
- Gateway 192.168.1.254

Take the following steps to access the Web GUI in a browser.

- Connect laptop/computer to GALAXIA HEADEND management port directly.
- Set the IP address of the laptop/computer in the same network segment with the GALAXIA HEADEND Baseboard IP address. GALAXIA HEADEND will occupy up to 7 IP addresses if it's fully loaded as each module has its own IP address including the baseboard. ***Please avoid possible IP address conflict between management PC and GALAXIA HEADEND unit.***
- Check the physical connection by ping command.

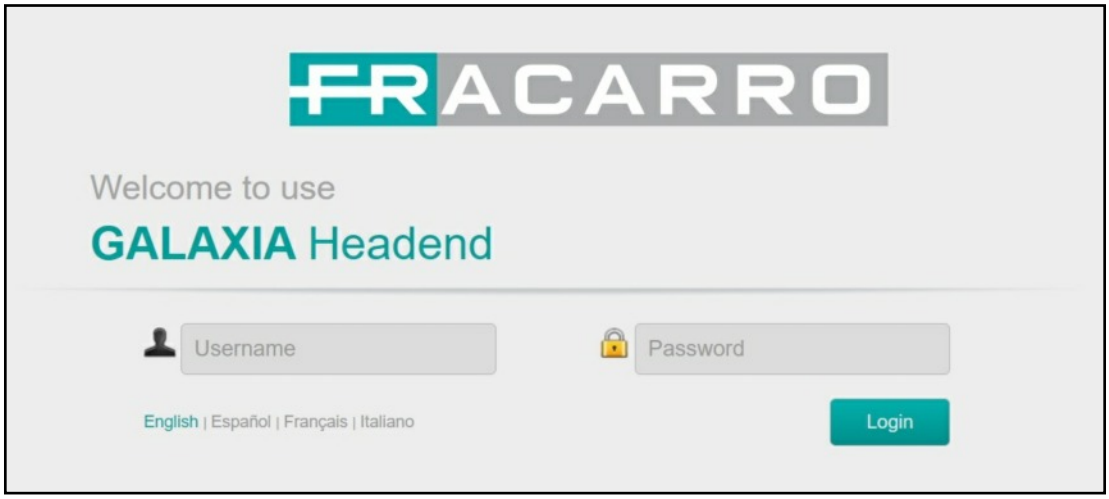


GALAXIA HEADEND has an embedded gigabit switch inside the chassis. You can use it as a switch to connect other devices together. The four network ports are respectively used for management and data transmission. From left to right, port 1 and port 2 are used for management; port 3 and port 4 are used for data transmission. A good method of checking IP output is to play the IP streams using VLC player directly.

If you want to connect a switch between GALAXIA HEADEND and PC or other devices, this switch should support IGMP V2 and IGMP snooping function. If the switch you used is not configured properly, it could cause some network issue.

4.1.2 Logging into the Web GUI

Enter the GALAXIA HEADEND Baseboard IP address into the URL field of any recommended browsers (IE8 or later, Firefox, and Google Chrome) to access the login page. The default user name and password are both **admin**. Click ***Login*** to log into the GUI.



- In this window it is also possible to change the language of the Web GUI

4.2 Status

Status > Device Status

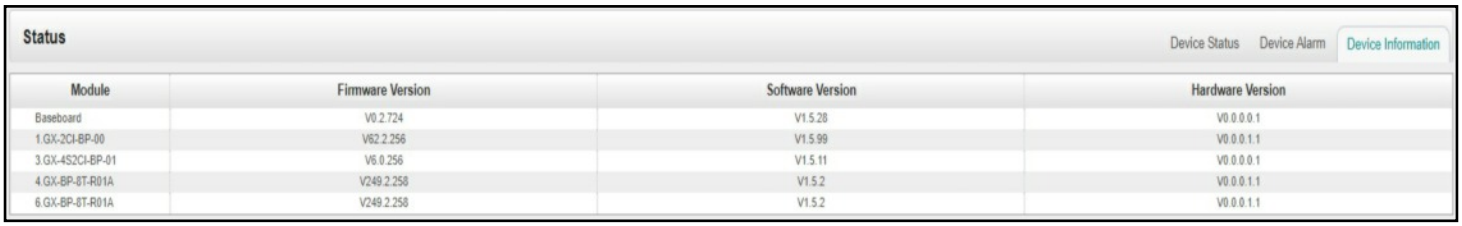
After a successful login, you will always enter the status overview page, where you can check the device status of:

a. Module List: it shows the module(s) inserted
b. Device host operating status, running status of fans and other status display options
c. Menu Bar and time display

We use only IE, Firefox and Chrome for testing procedures. If you use other browsers, like Microsoft Edge, you may encounter incomplete UI layouts, and configure setting in these browsers may lead to errors.

Status > Device Information

Device Information page shows the firmware version, software version, hardware version of baseboard and each inserted module.

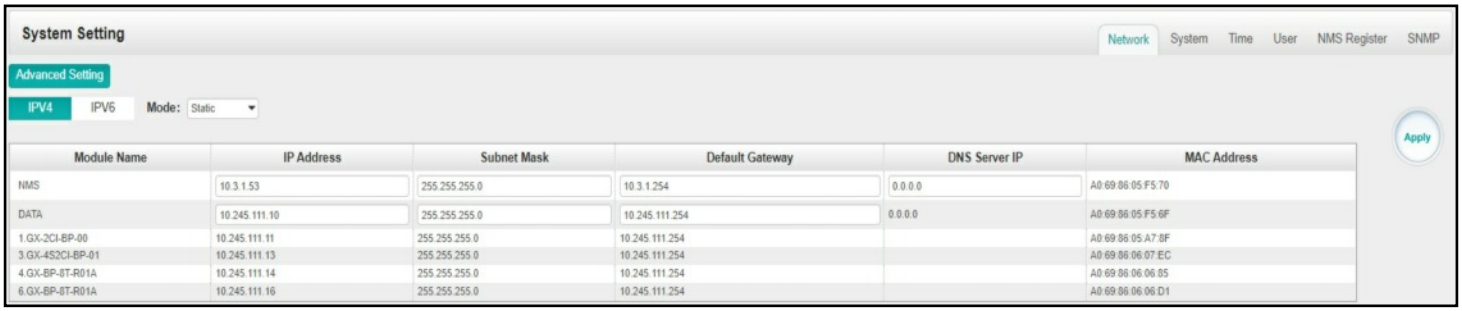


4.3 System Setting

Click the ***System Setting*** on the top right corner to enter the system setting page where you can find ***Network, Time Setting, System Manage*** and ***Password***.

System Setting > Network

In ***Network*** page you can assign a static IP address to GALAXIA HEADEND's baseboard. Click the ***Apply*** button on the right side to make the change take effect.

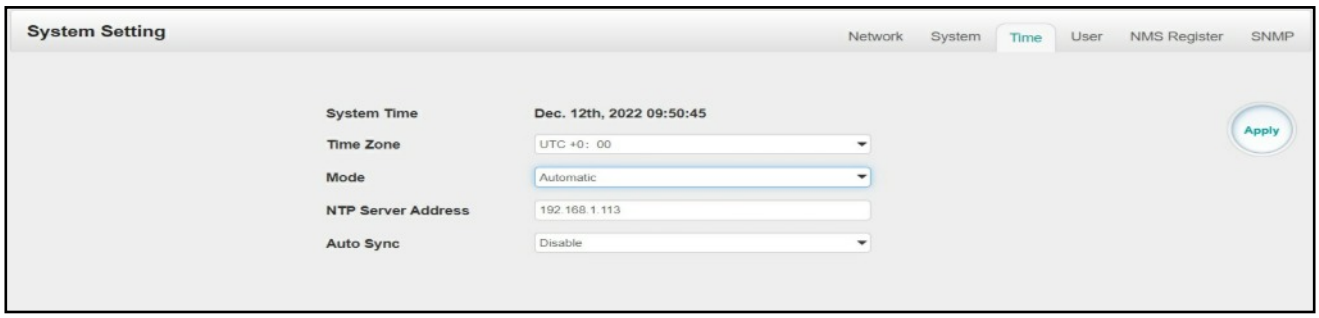


Note to avoid IP conflict when you set the baseboard IP address, The occupied IP section will be displayed in this page on the top blue area.

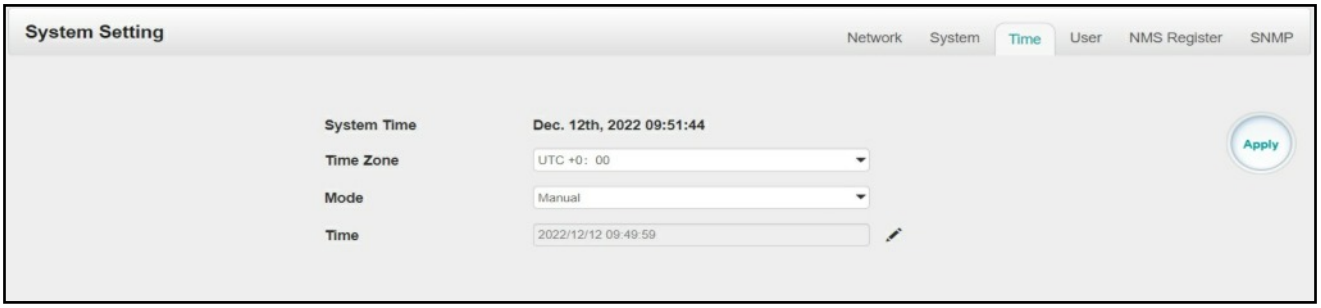
System Setting > Time

In ***Time*** page you can see the current system time, change ***Time Zone***, choose system time ***Mode*** (Manual or Automatic), enable/disable ***Auto Sync*** and modify ***NTP Server Address*** in Automatic mode or change the current system ***Time*** in Manual mode. Click the ***Apply*** button on the right side to make the change take effect.

- ***Automatic*** mode

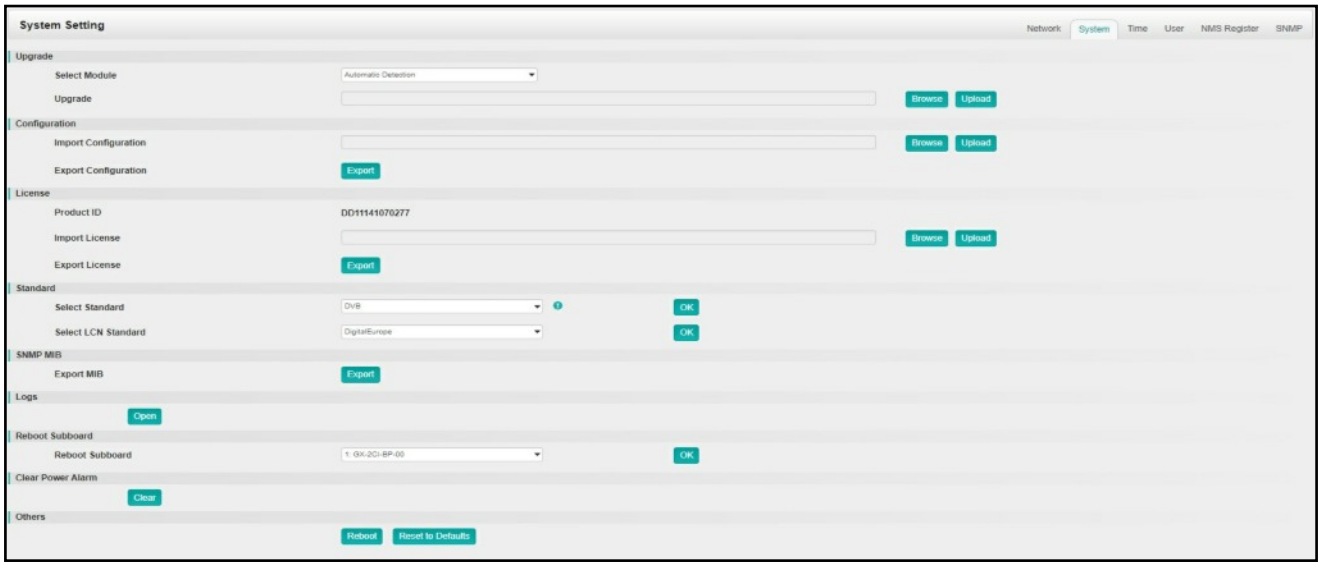


- ***Manual*** mode



System Setting > System

In ***System*** page you can do an upgrade, import or export configuration, import or export license (only for baseboard), reboot the whole unit, restore it to factory setting (only for baseboard), export log and clear log (only for baseboard).

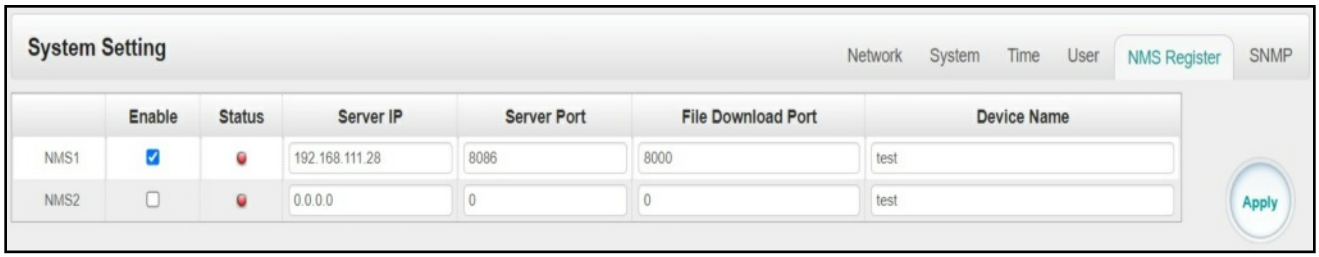


System Setting > Password

In ***Password*** page you can reset login password.

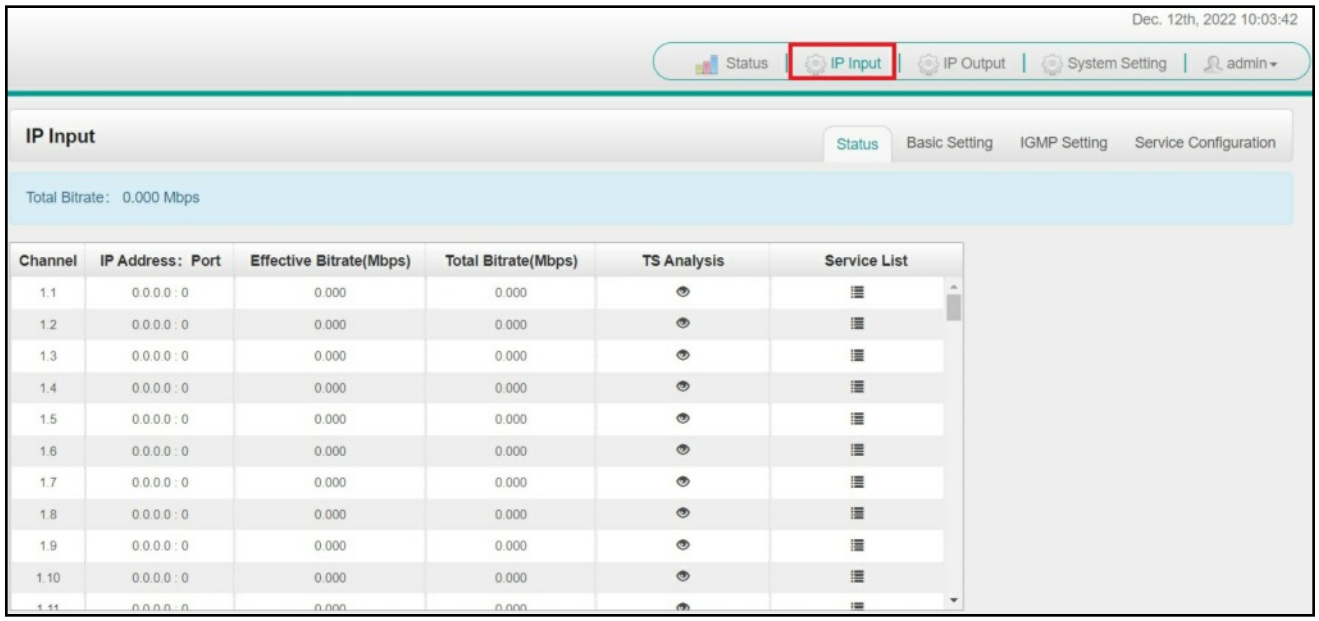
System Setting > NMS Register

NMS, unified network management, is a remote management tool.



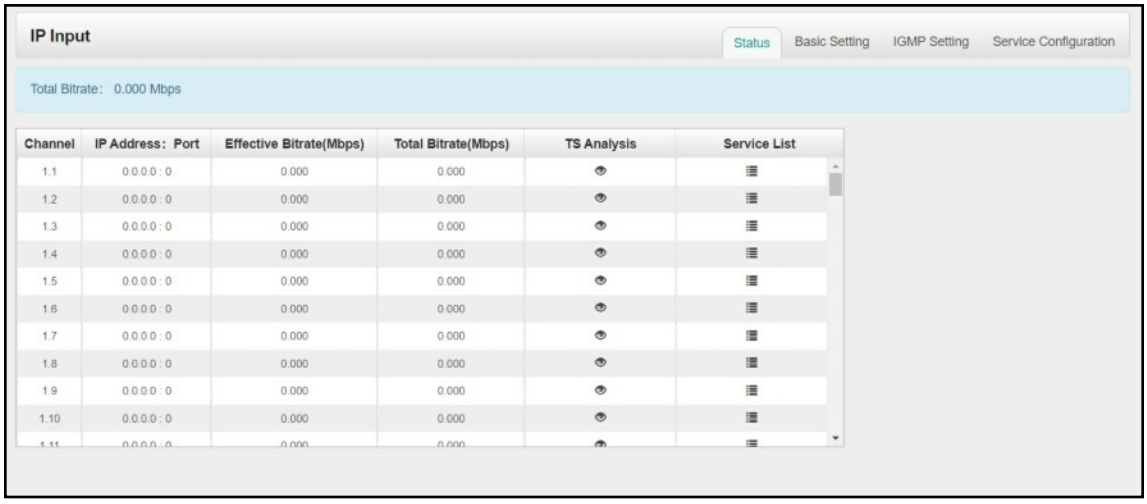
4.4 IP Input

Click the ***IP Input*** on the top line to go into IP input page where you can see ***Status, Basic Setting*** and ***Service Configuration***.



IP Input > Status

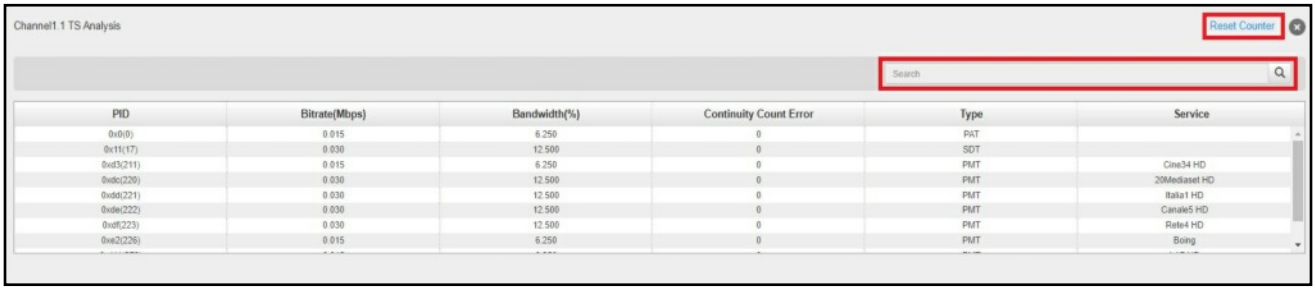
In this page, you can check each channel Total Bit Rate, Effective Bit Rate, TS Analysis and Service List.



Click the icon in the ***TS Analysis*** list to see the TS analyzing result of this channel. Click the icon ( ) in the ***Service List*** to see the Services of each channel.

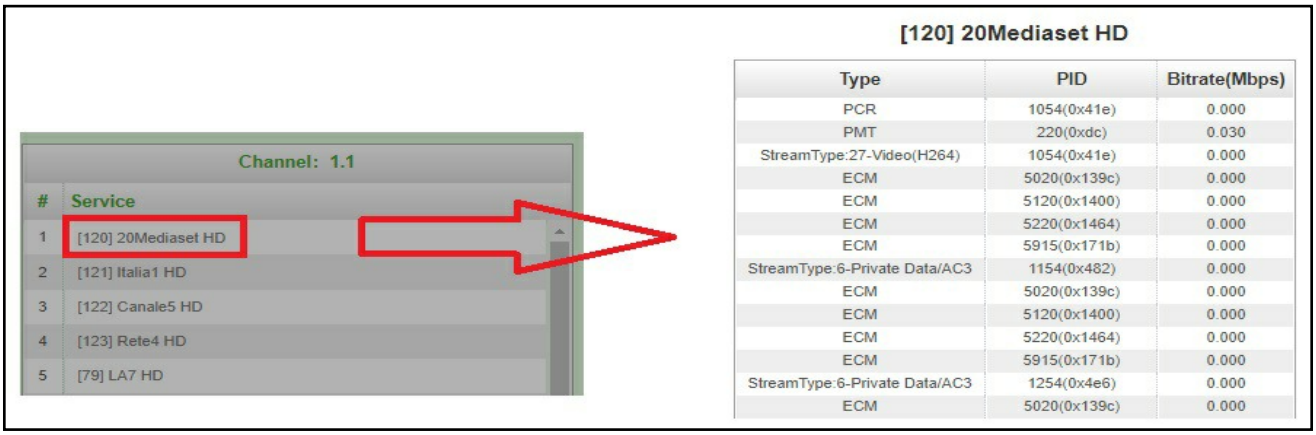
- TS Analysis

Click ***Reset Counter*** button to clear continuity count errors and restart counting. Fill in the search bar with the key words of PID / Bit rate / bandwidth / table type / service name in the search bar to get the info you want.



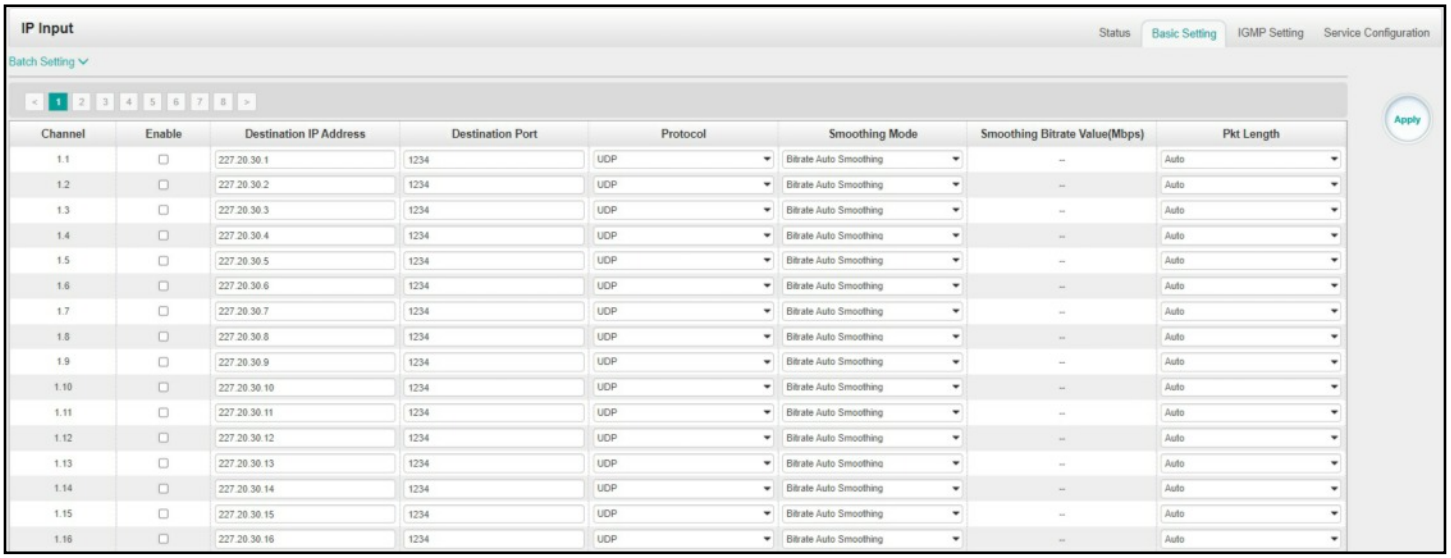
- Service List

Click a service name to check the detailed info of this service.



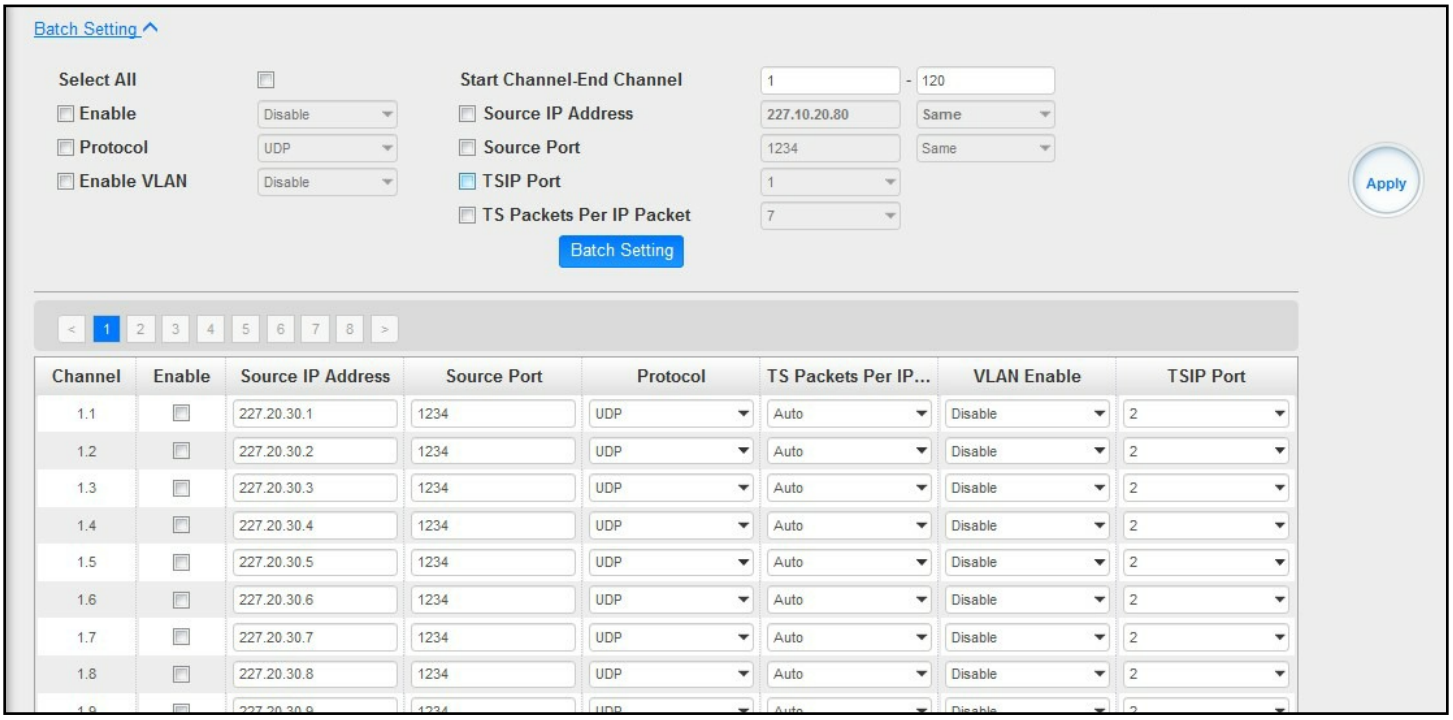
IP Input > Settings

Here you can configure IP input parameters: ***Source IP Address***, ***Source Port***, ***Protocol*** (UDP/RTP), ***TS Packets Per IP Packet***, ***VLAN Enable***, and ***TSIP Port***. Click ***Apply*** to make the setting take effect.



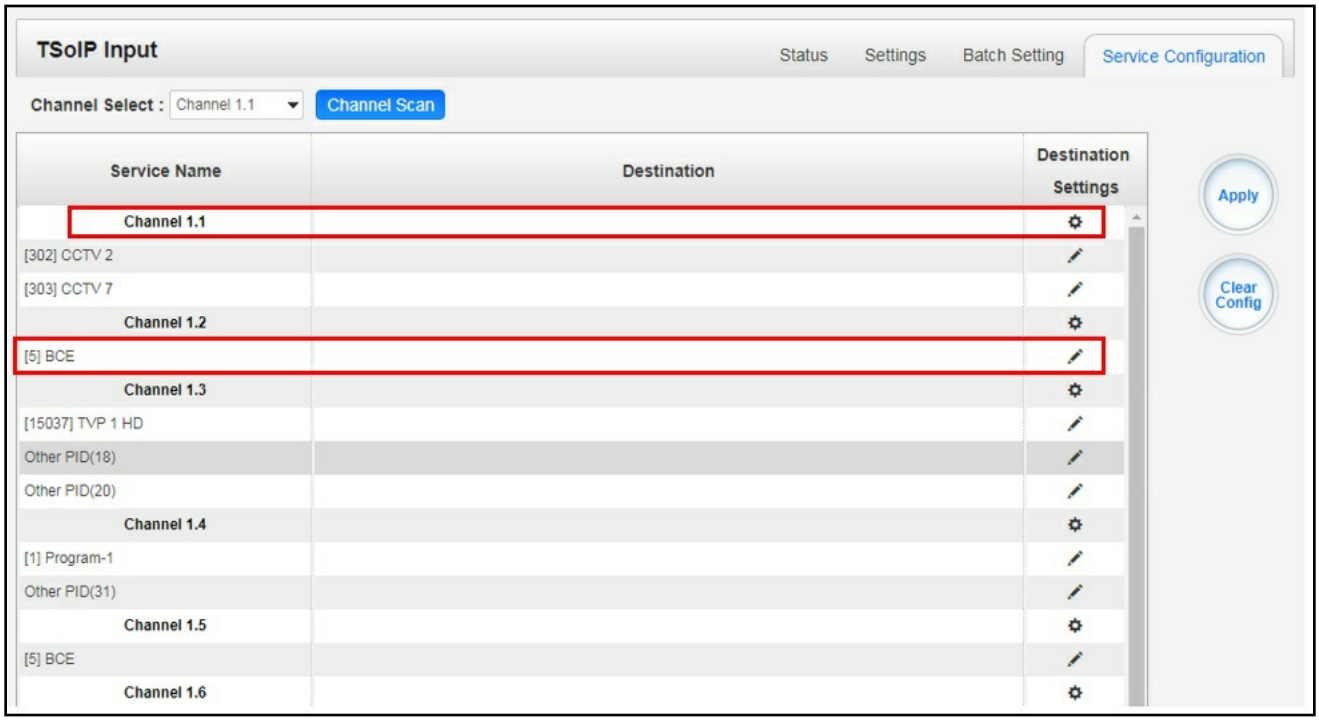
If you want to configure a batch of channels, please click “Batch Setting”.

To set the IP input parameters in batch, you can check the boxes before parameters you need then choose/modify the values. Click ***Apply*** to make the setting take effect.



IP Input > Service Configuration

To stream an input source, you can configure the destination in this page.



- Multiplex or Bypass stream: Click the setting icon ( ), check the output module, and then you can set the output channel of this stream. After you select bypass mode, this output channel will be occupied only by this stream and when you set other stream output channels, this channel will not be available in this time.
- Multiplex services: You should click the service line setting icon ( ) to make the certain service output from certain channel combining with other services. The operation you can refer to multiplex stream output.

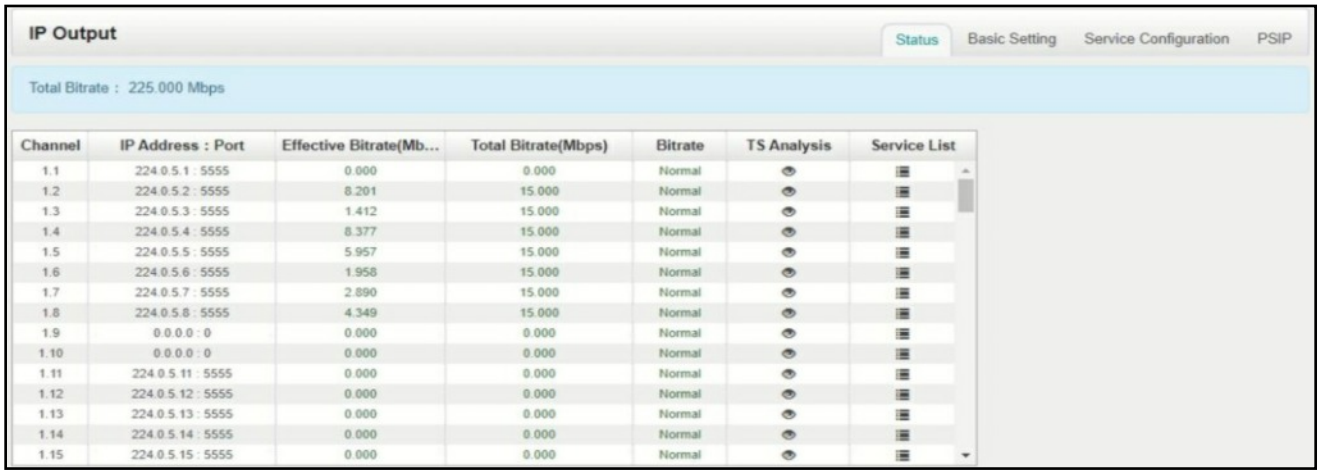
After setting output destination, click ***Apply*** to make it take effect. The destination channel will be displayed in the channel/service line. And you can also click ***Clear Config*** to clear all of the configuration.

There is a channel scan button (Channel Scan) on top. Normally the input service list of each channel will load itself on this page, but when you change the input source, the list could not refresh immediately. You can refresh the changed channels manually by selecting the channel and clicking the channel scan button.

4.5 IP Output

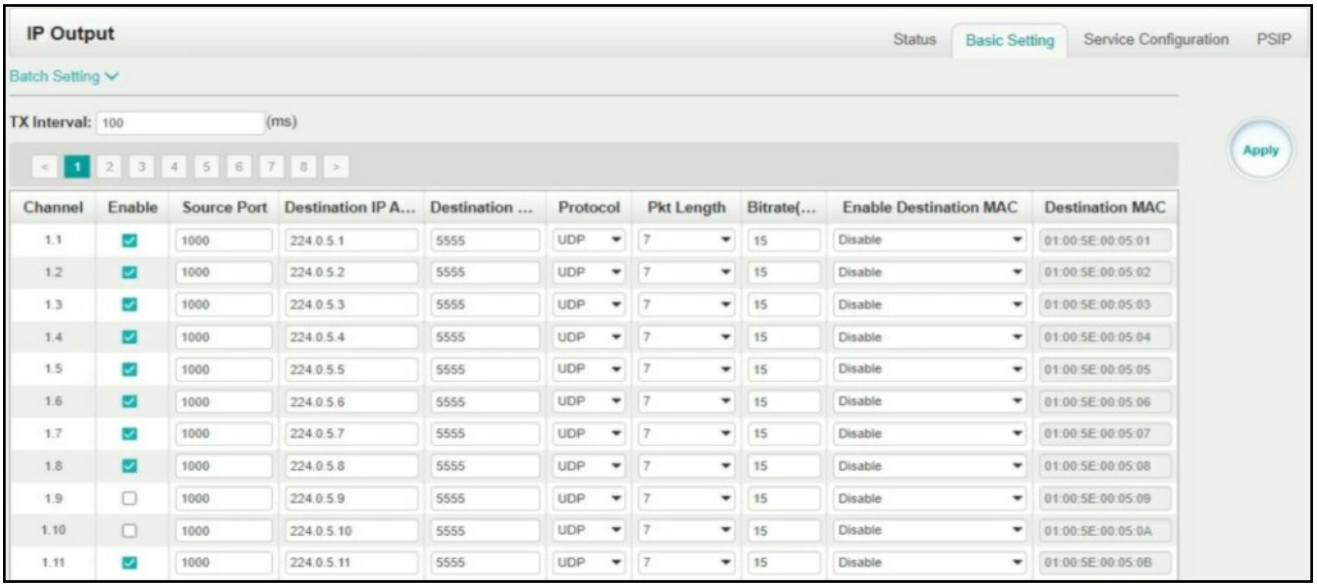
TSIP Output > Status

The IP output status information you can check on this page is similar as that of IP input. The TS analysis and service list function are also available.



IP Output > Settings

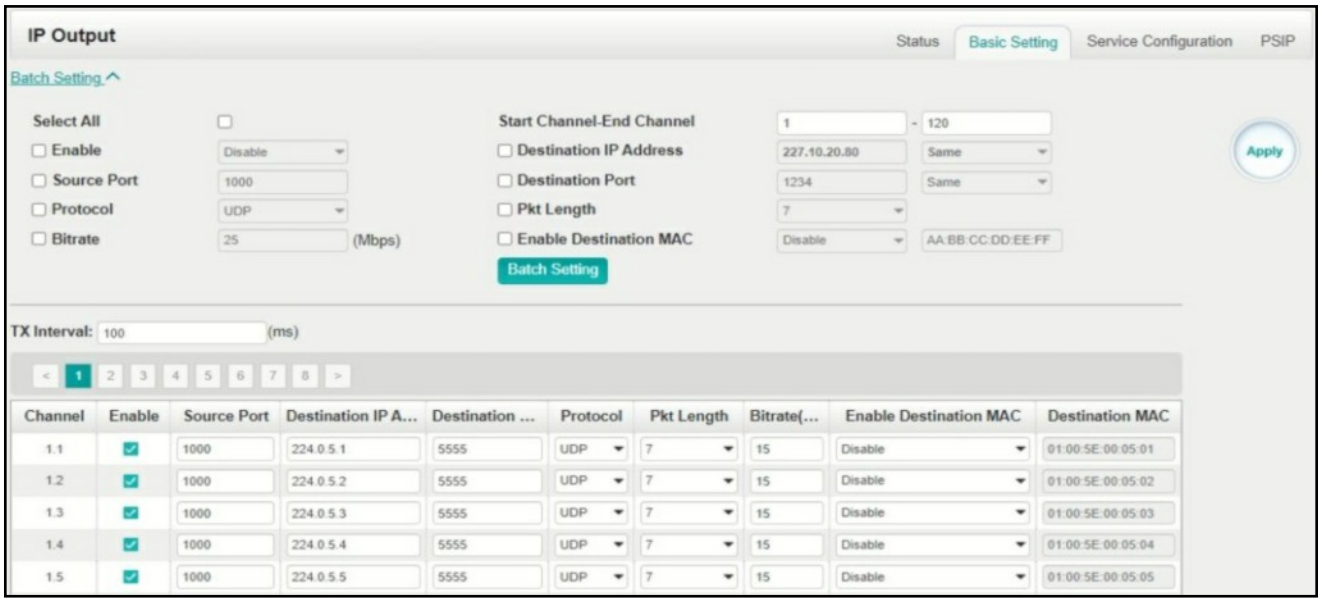
Setting IP output channels is also similar to Setting IP input.



- Multicast output setting: You should fill the fit multicast IP addresses as output in the ***Destination IP Address*** box. ***Please avoid IP conflict among baseboard, encoder modules (see encoder modules page) and other devices when you set the multicast output.***
- Unicast output setting: You should fill the unicast receiving end's IP addresses in the ***Destination IP Address*** box.
- Destination MAC: Normally you do not need to enable the Destination MAC switch. Only in some specific case where the unicast stream cannot be received due to unknown reasons, you can enable Destination MAC and fill in the correct receiver MAC in instead of using unicast IP addresses.

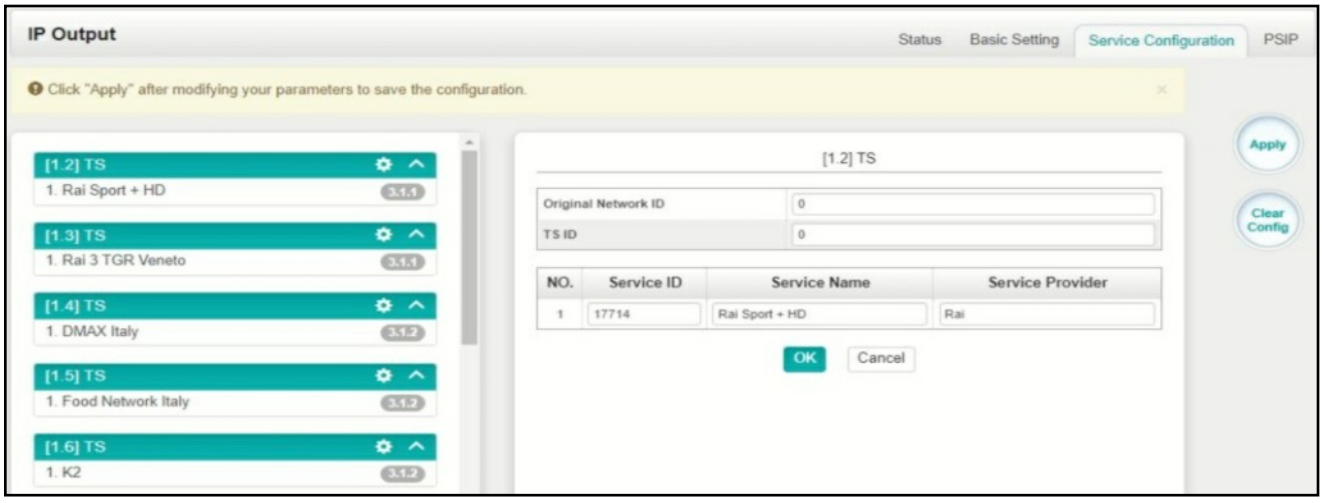
Constant Rate of any output channel/TS/port ought to be set manually about 2 Mbps higher than the ***Effective Bitrates*** in the corresponding output channel/TS/port, since the ***Effective Bitrates*** might fluctuate a little bit. If you set the ***Constant Rate*** much higher that the ***Effective Bitrates***, there will be lots of null packets in the output transport stream.

If you want to configure a batch of channels, please click "*Batch Setting*".
Batch Setting of IP output channels is also similar to that of setting IP input.



IP Output > Service Configuration

You can make configuration for output services and TS.



- Ts setting: Click TS line (the blue area) to configure Original Network ID, TS ID and each Service ID, Service Name and Service Provider.
- NIT setting: Please refer to **GX-BP-16C-R00** module.

4.6 Admin

Click ***Admin*** and you can choose to set password or to log out.

5 Module Configuration

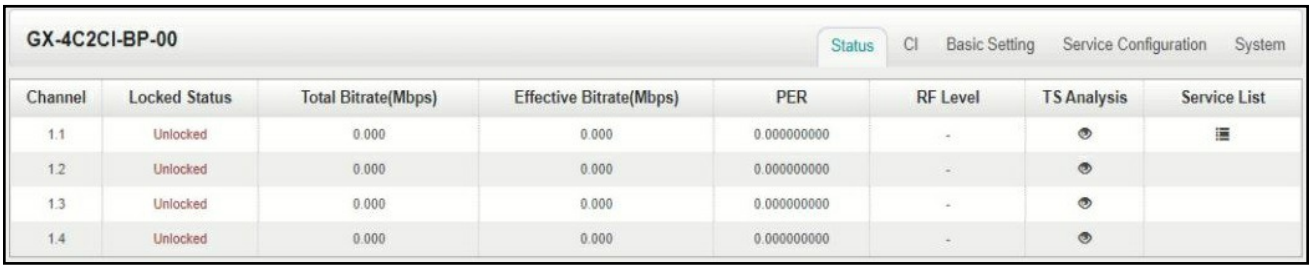
5.1 Receiver Modules

5.1.1 GX-4C2CI-BP-00

GX-4C2CI-BP-00 is a 4-channel DVB-C receiving and descrambling module with 1 RF female connector and 2 CI slots. It can receive 4 RF channels signal simultaneously and support 2 CAM cards for descrambling the desired programs.

Click ***GX-4C2CI-BP-00*** in the Module List then go to GX-4C2CI-BP-00 module page.

GX-4C2CI-BP-00 > Status

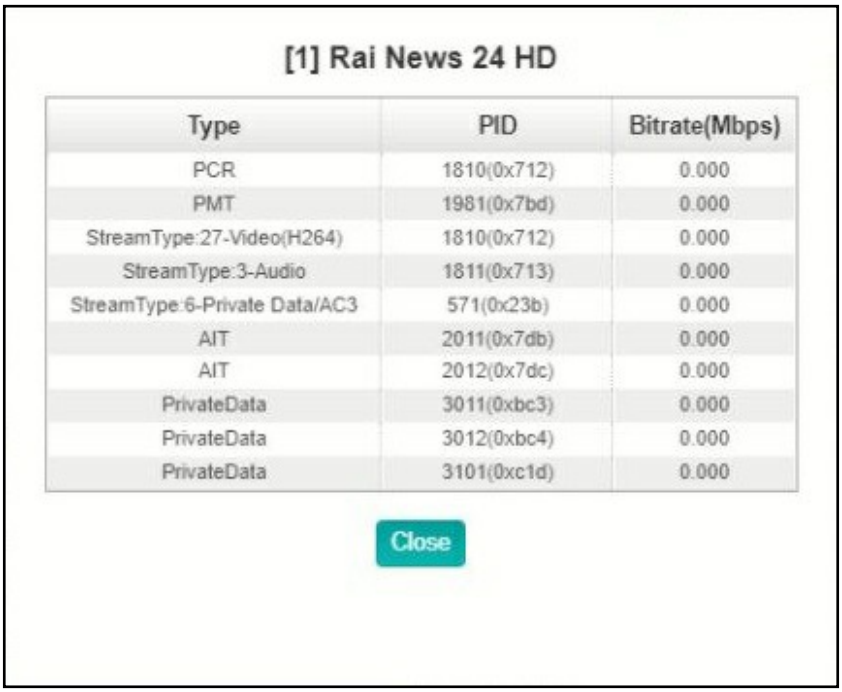


Channel	Locked Status	Total Bitrate(Mbps)	Effective Bitrate(Mbps)	PER	RF Level	TS Analysis	Service List
1.1	Unlocked	0.000	0.000	0.000000000	-		
1.2	Unlocked	0.000	0.000	0.000000000	-		
1.3	Unlocked	0.000	0.000	0.000000000	-		
1.4	Unlocked	0.000	0.000	0.000000000	-		

Click ***TS Analysis*** of each channel, you can see TS Bitrate Analysis. Click ***Reset Counter*** to reset the Continuity Count Error counter. In Search bar, you can input key words or numbers, such as PIDs, Type or Service, for a quickly search.

Click the icon to check service information of all the inputs.

You can check program details by clicking the program item.

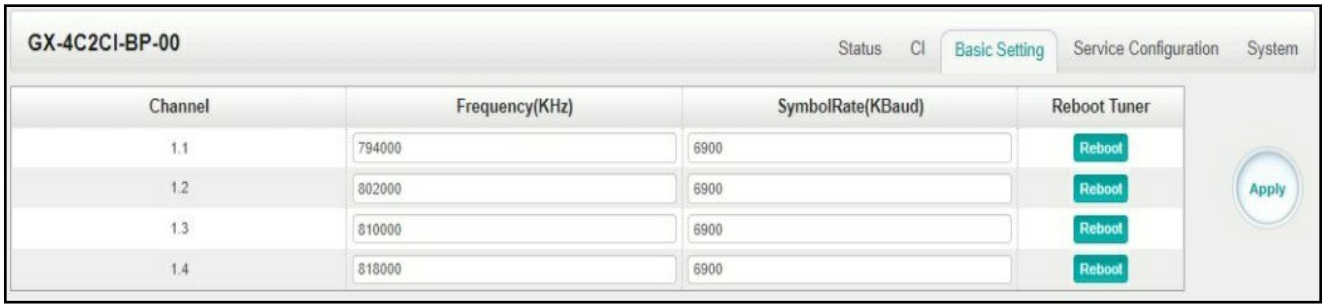


GX-4C2CI-BP-00 > CI

For the encrypted services received on GX-4C2CI-BP-00 module receiver, CI slot is needed to decrypt and re-broadcast the services. The GX-4C2CI-BP-00 has 2 CAM slots and can decrypt services depending on the capability of the CAM module and Smart Card. You can select the CAM Max Bit Rate from 48Mbps to 108Mbps in pull-down list depending on the total effective bitrate of services you want to decrypt and from the maximum bitrate manageable from the Professional CAM.

Click the ***Apply*** button on the right side to make the change takes effect.

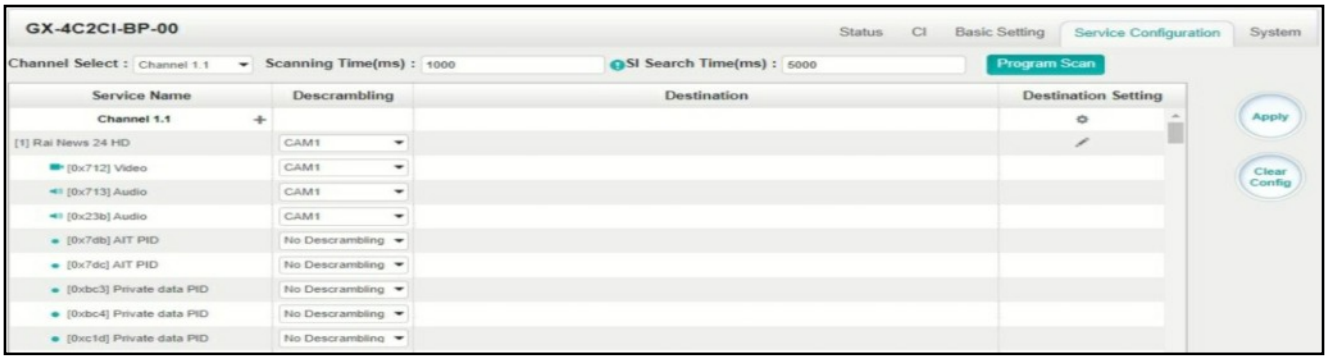
GX-4C2CI-BP-00 > Basic Settings



Name	Range
Frequency (Khz)	47000 ~ 862000
Symbol Rate (Ksym/s)	3600 ~ 6950

Click the ***Apply*** button on the right side to make the change takes effect.

GX-4C2CI-BP-00 > Service Configuration

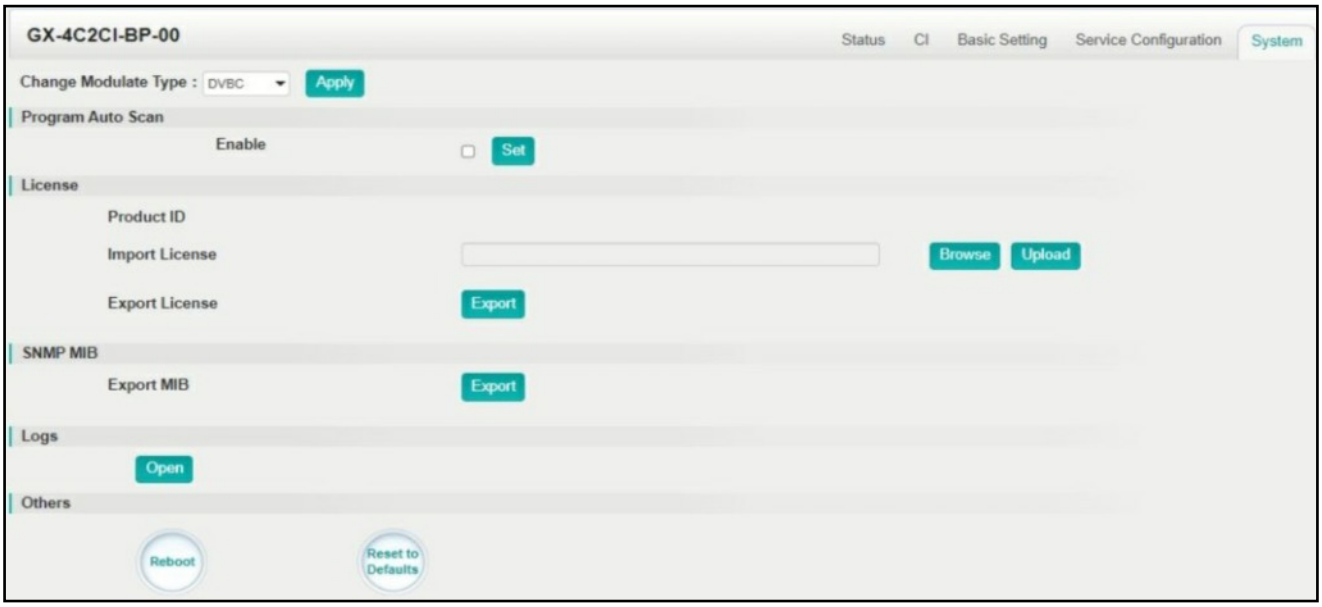


Service Configuration page is where you can manage the received services and output them to their designated interface. The configuration of all modules in GALAXIA HEADEND is mostly the same.
First, you need to scan the port on each LOCKED TS. Each port might be scanned automatically or needed to be scanned manually when its source is changed.
After scanning each channel, you can start to configure the services. You need to click ***Apply*** button after you configure service to CAM for descrambling, otherwise the descrambling configuration will not be saved. Then you can choose the services to be routed, you can output each service by clicking the icon and below "Destination Settings". You can route a whole stream or a service(s) from the input channel toward the available output channels (IP or RF). Two types of routing are possible.

1. **Bypass mode.** In this mode, you can route a whole input transport stream towards an IP or RF output which will be occupied only by this stream. Any attempt of routing other stream/service towards this channel will be an error. This mode can only be set by clicking the icon on the TS.
2. **Multiplex mode** is the counter part of the bypass mode. This mode allows the administrator to perform the following operations:
   a. Route a single service towards an output channel to create SPTS.
   b. Route services towards a single output channel to create MPTS.
   c. Route service/s AND stream/s from multiple channels towards a single output channel to create MPTS.

In ***Descrambling Settings*** there are CAM1, CAM2, No Descrambling to choose. Click ***Apply*** or ***Clear Config*** button on the right side to make the change take effect or clear all configurations.

GX-4C2CI-BP-00 > System



On ***System*** page you can choose the modulation type as DVB-C or DTMB Mode. Besides you can also perform ***Import/Export License***, ***Reboot*** the module, ***Restore the unit to factory defaults*** and ***Log Export*** &***Clear***.

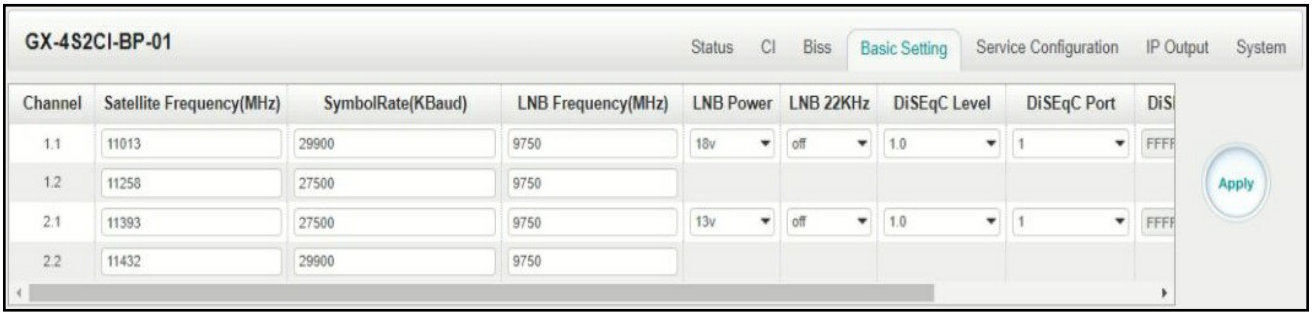
The **AUTO SCAN PROGRAM** option, present in some firmware versions, is a function that allows you to track any changes introduced by the respective broadcaster and which could occur in the programs received from the input tuners, such as changes in the video and audio PIDs, the change of the PMT or the change of status (from FREE program to encrypted program and vice versa).

5.1.2 GX-4S2CI-BP-01

GX-4S2CI-BP-01 is a 4-channel DVB-S/S2/S2X receiving and descrambling module with 2 RF connectors and 2 CI slots, each RF connector with 2 transponders receiving.

Service configuration is very similar to GX-4C2CI-BP-00 (DVB-C receiver module). ***Status***, ***CI Status*** and ***System*** operation, refer to GX-4C2CI-BP-00 module section.

GX-4S2CI-BP-01 > Basic Settings



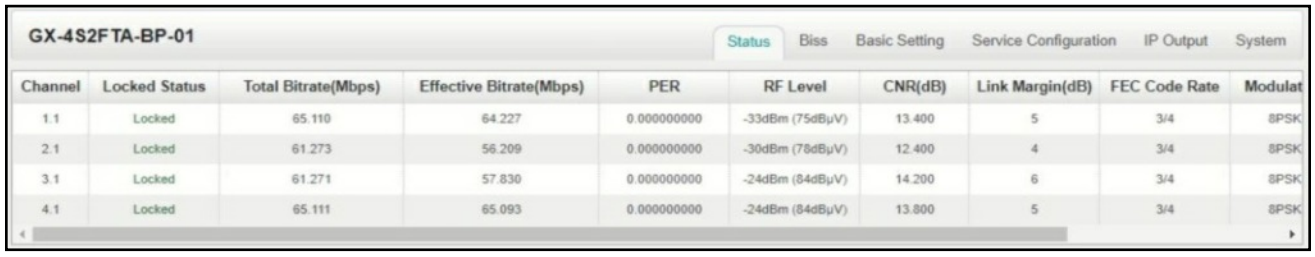
Channel 1.1 and 1.2 share power supply with each other via LNB-1. Channel 2.1 and 2.2 share power supply via LNB-2.

Name	Range
Satellite Frequency (Khz)	950000 ~ 21500000
Symbol Rate (KBaud)	1000 ~ 45000
LNB Frequency (Khz)	950000 ~ 21500000
LNB Power	Off / 13V / 18V
LNB 22 Khz	Off / 22 Khz

5.1.3 GX-4S2FTA-BP-01

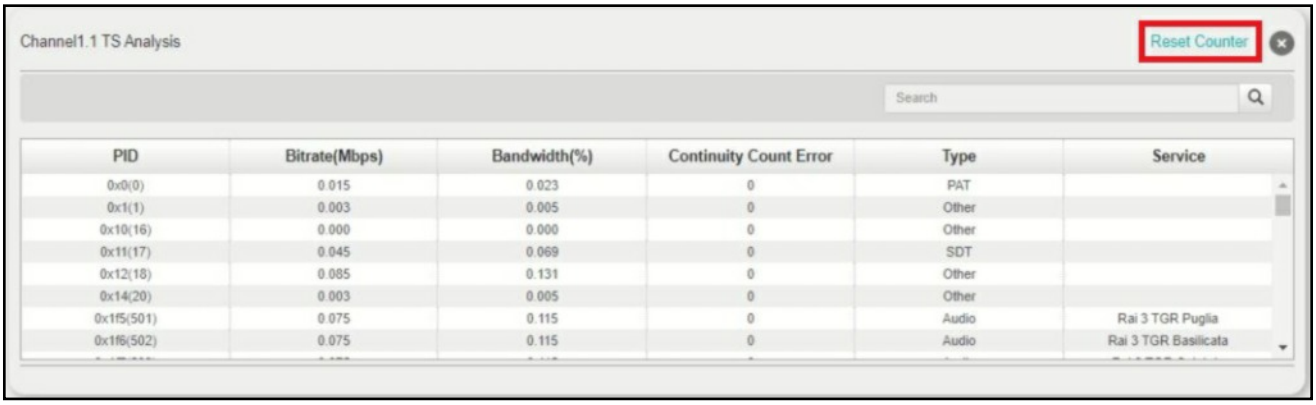
GX-4S2FTA-BP-01 is a 4-channel DVB-S/S2/S2X FTA receiving module with 4 RF connectors and 4 LNBs that are independently powered. S2 supports up to 32APSK, S2X supports up to 64APSK.

GX-4S2FTA-BP-01 > Status



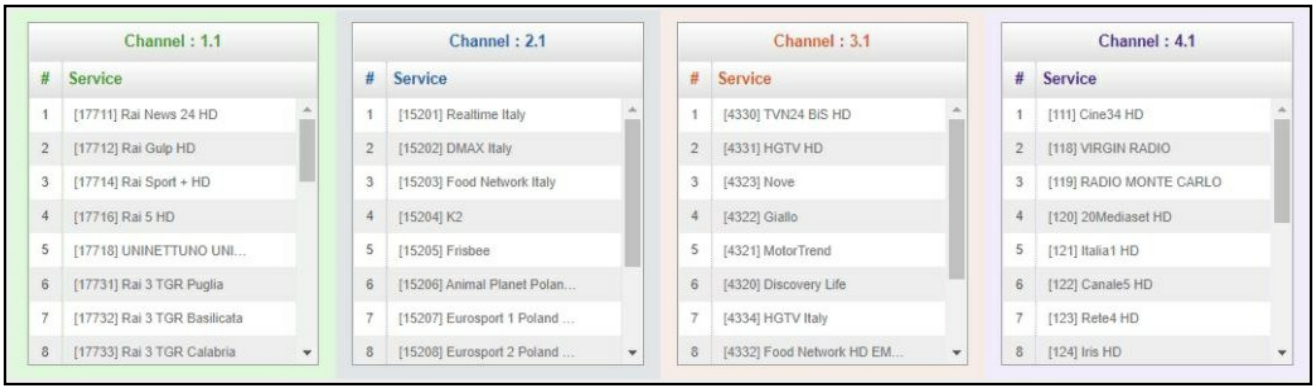
Channel	Locked Status	Total Bitrate(Mbps)	Effective Bitrate(Mbps)	PER	RF Level	CNR(dB)	Link Margin(dB)	FEC Code Rate	Modulat
1.1	Locked	65.110	64.227	0.000000000	-33dBm (75dBμV)	13.400	5	3/4	8PSK
2.1	Locked	61.273	56.209	0.000000000	-30dBm (78dBμV)	12.400	4	3/4	8PSK
3.1	Locked	61.271	57.830	0.000000000	-24dBm (84dBμV)	14.200	6	3/4	8PSK
4.1	Locked	65.111	65.093	0.000000000	-24dBm (84dBμV)	13.800	5	3/4	8PSK

Click ***TS Analysis*** of each channel, you can see TS Bitrate Analysis. Click ***Reset Counter*** to reset the Continuity Count Error counter. In Search bar, you can input key words or numbers, such as PIDs, Type or Service, for a quickly search.



PID	Bitrate(Mbps)	Bandwidth(%)	Continuity Count Error	Type	Service
0x0(0)	0.015	0.023	0	PAT	
0x1(1)	0.003	0.005	0	Other	
0x10(16)	0.000	0.000	0	Other	
0x11(17)	0.045	0.069	0	SDT	
0x12(18)	0.085	0.131	0	Other	
0x14(20)	0.003	0.005	0	Other	
0x1f5(501)	0.075	0.115	0	Audio	Rai 3 TGR Puglia
0x1f6(502)	0.075	0.115	0	Audio	Rai 3 TGR Basilicata

Click the icon ☰ to check service information of all the inputs.



Channel : 1.1	
#	Service
1	[17711] Rai News 24 HD
2	[17712] Rai Gulp HD
3	[17714] Rai Sport + HD
4	[17716] Rai 5 HD
5	[17718] UNINETTUNO UNI...
6	[17731] Rai 3 TGR Puglia
7	[17732] Rai 3 TGR Basilicata
8	[17733] Rai 3 TGR Calabria

Channel : 2.1	
#	Service
1	[15201] Realtime Italy
2	[15202] DMAX Italy
3	[15203] Food Network Italy
4	[15204] K2
5	[15205] Frisbee
6	[15206] Animal Planet Polan...
7	[15207] Eurosport 1 Poland ...
8	[15208] Eurosport 2 Poland ...

Channel : 3.1	
#	Service
1	[4330] TVN24 BiS HD
2	[4331] HGTV HD
3	[4323] Nove
4	[4322] Giallo
5	[4321] MotorTrend
6	[4320] Discovery Life
7	[4334] HGTV Italy
8	[4332] Food Network HD EM...

Channel : 4.1	
#	Service
1	[111] Cine34 HD
2	[118] VIRGIN RADIO
3	[119] RADIO MONTE CARLO
4	[120] 20Mediaset HD
5	[121] Italia1 HD
6	[122] Canale5 HD
7	[123] Rete4 HD
8	[124] Iris HD

You can check program details by clicking the program item.

GX-4S2FTA-BP-01 > Setting

Channel 1.1, 1.2, 1.3 and 1.4, 4 LNBs are independently powered.

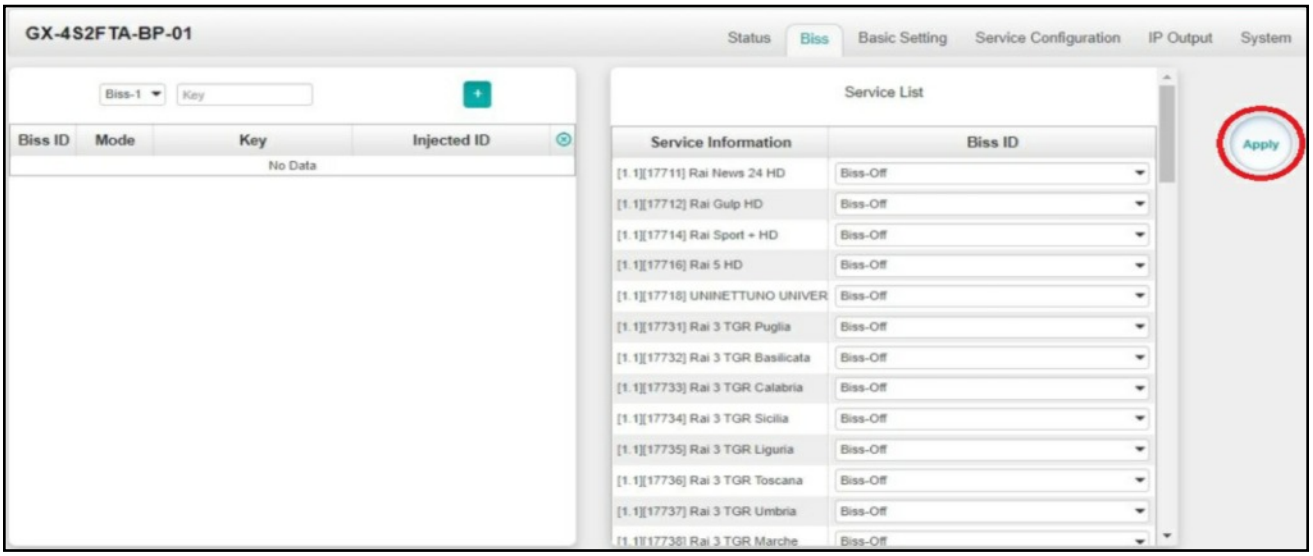
Name	Range
Satellite Frequency (Mhz)	950 ~ 14500
Symbol Rate (KBaud)	1000 ~ 45000
LNB Frequency (Mhz)	0 ~ 13550
LNB Power	Off / 13V / 18V
LNB 22 Khz	Off / 22 Khz

The absolute value of the difference between the Satellite Frequency and the LNB Frequency must be in the range [950, 2150].

Click the **Apply** button on the right side to make the changes made take effect.

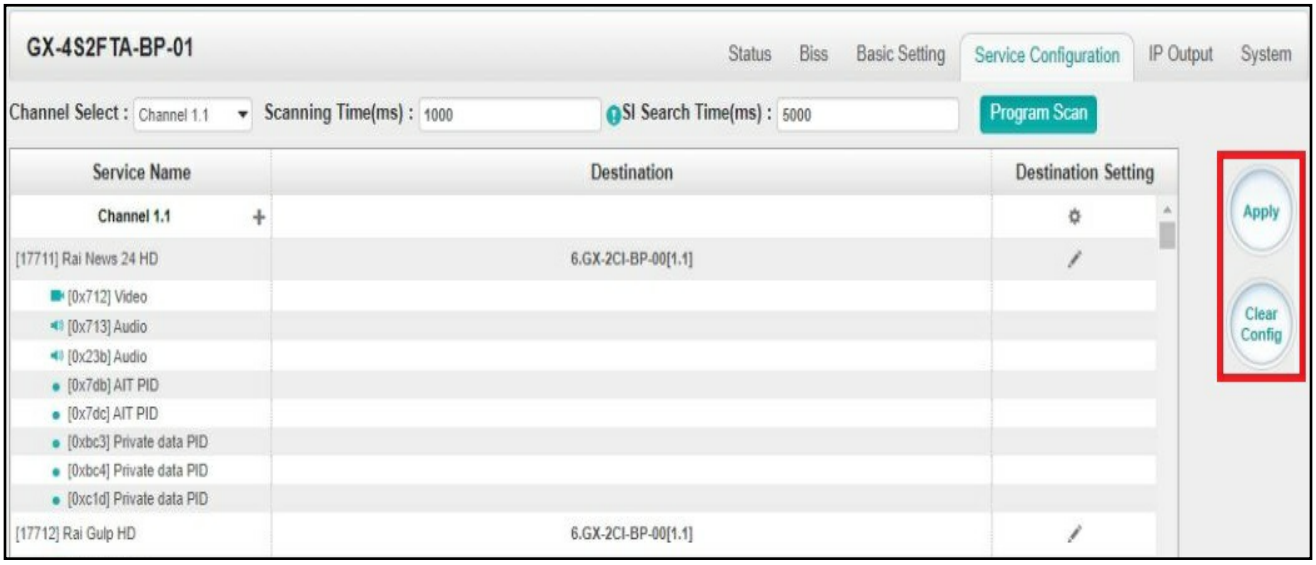
GX-4S2FTA-BP-01 > Biss

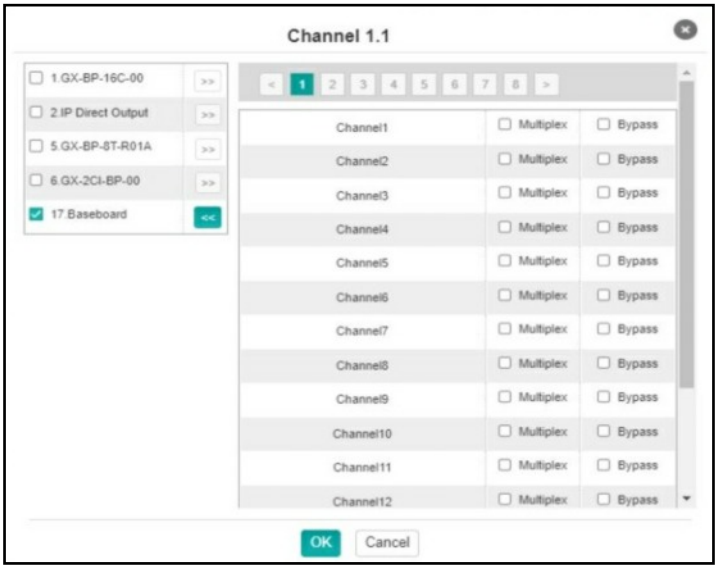
Here you can create **Biss ID**, including **Mode**, **Key** and **Injected ID**. And you can check the Service Information in the **Service List**, then select **Biss ID / Biss-Off** for the services.



Click the **Apply** button on the right side to make the changes made take effect.

GX-4S2FTA-BP-01 > Service Configuration





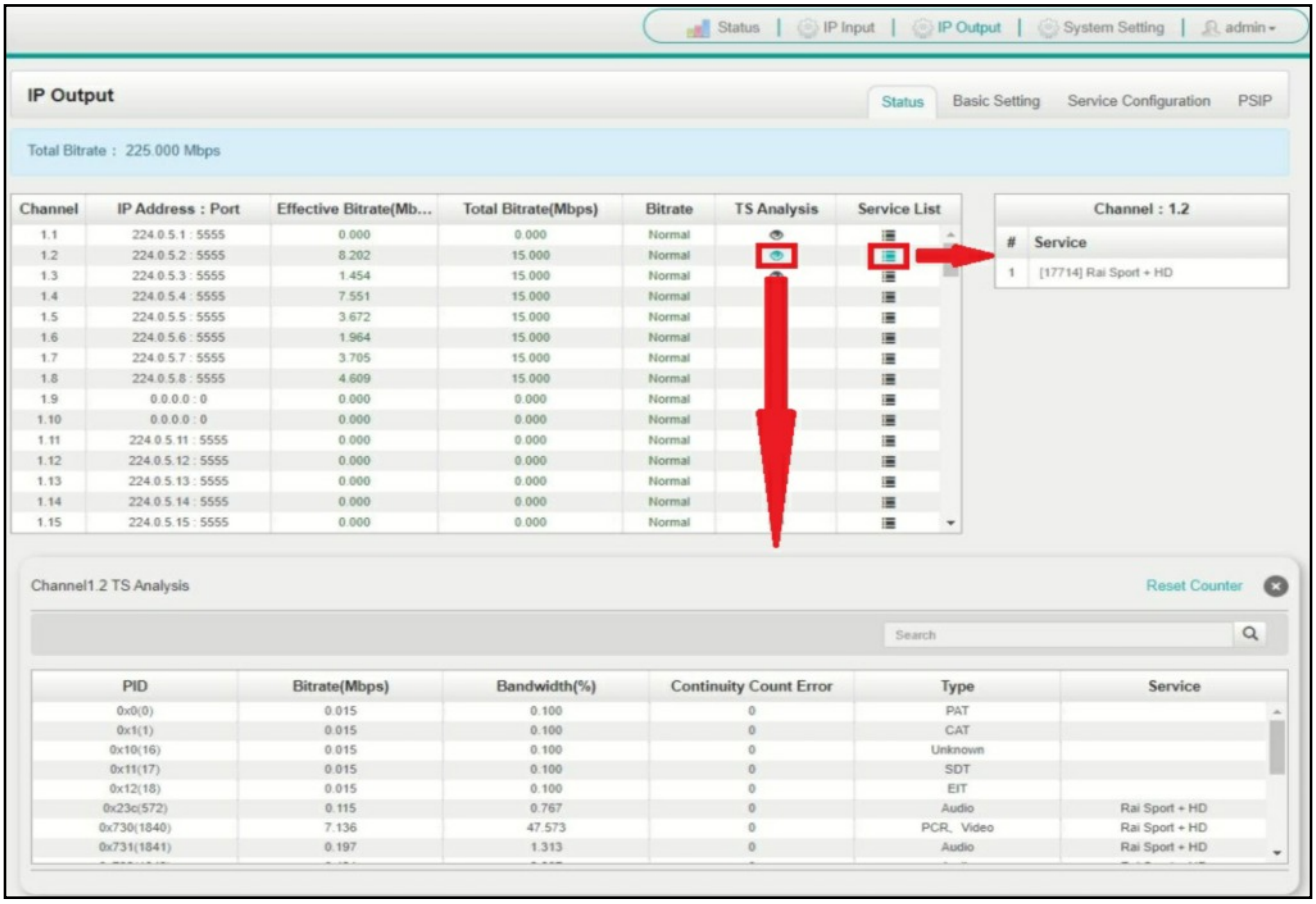
Click the **Apply** or **Clear Config** button on the right side to make the changes made take effect or clear all configuration.

- Scanning Time (ms):1000~5000. Please try to increase this value if service name is not present, while it will slow down scanning process.

GX-4S2FTA-BP-01 > IP Output

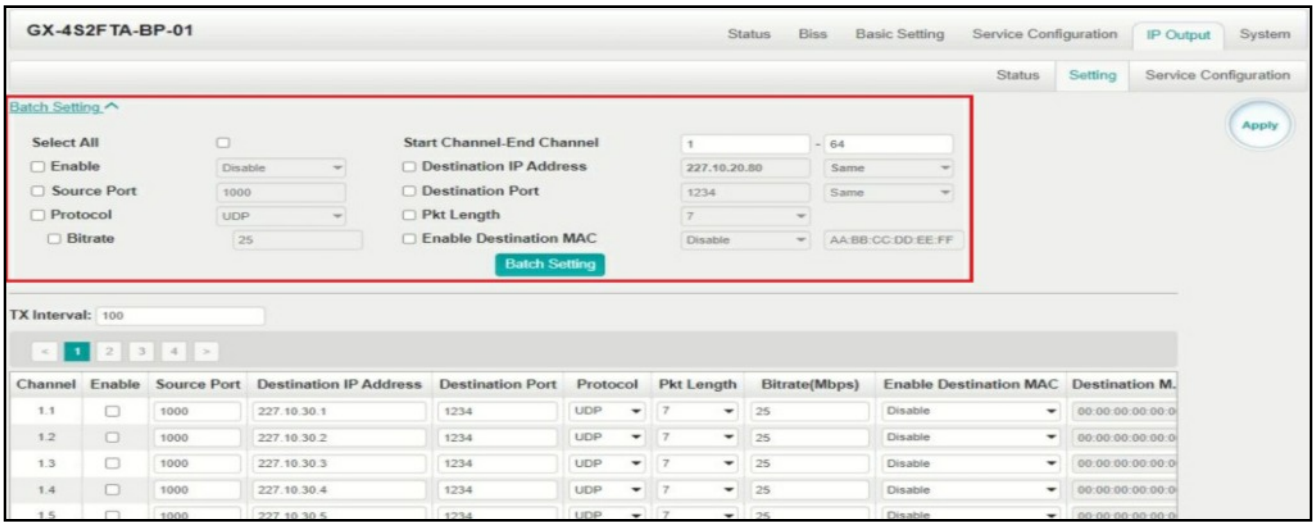
This feature enables you to output S2 services directly without involving baseboard processing. No baseboard resources will be consumed in this way.

IP Output > Status>This page shows detailed status of each channel. The TS Analysis and Service List here have the same function to those on the Status page. See the image below for reference.



IP Output > Settings On this page, there are three tabs where you can modify the multicast IP, ports and parameters of IP Output. There is also Batch Setting. The destination IP address can be multicast IP address or unicast IP address.

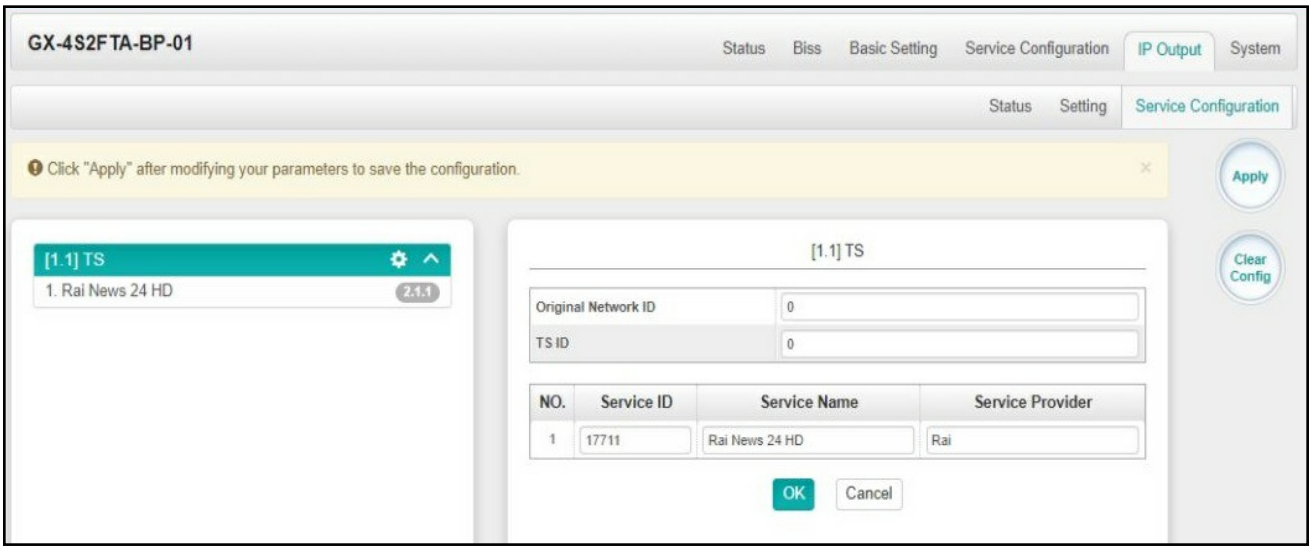
There are 64 IP output channels. Mark the Enable checkbox in front of each channel. Input the correct Multicast/Unicast IP address, port and appropriate output bitrate, and select a correct output protocol.
Click ***Apply*** to make the changes take effect.
Batch Setting is where you can input the IP output parameters in batch. See the image below for reference.

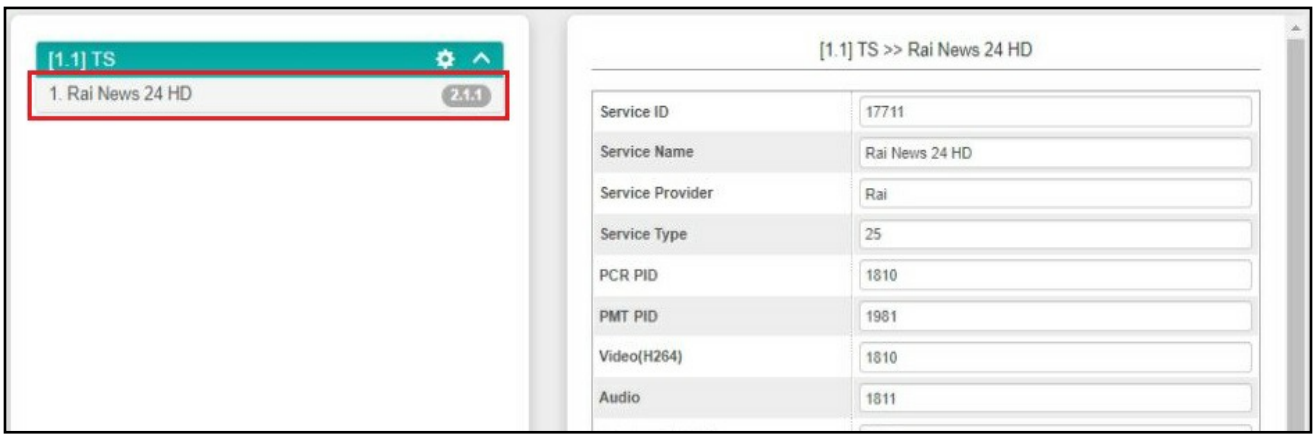


If you want to use IP output channels in the receiver module and baseboard IP output channel at the same time, you should avoid multicast IP address conflict. If there are two identical IP addresses enabled concurrently, both the multicast transport streams will be affected.

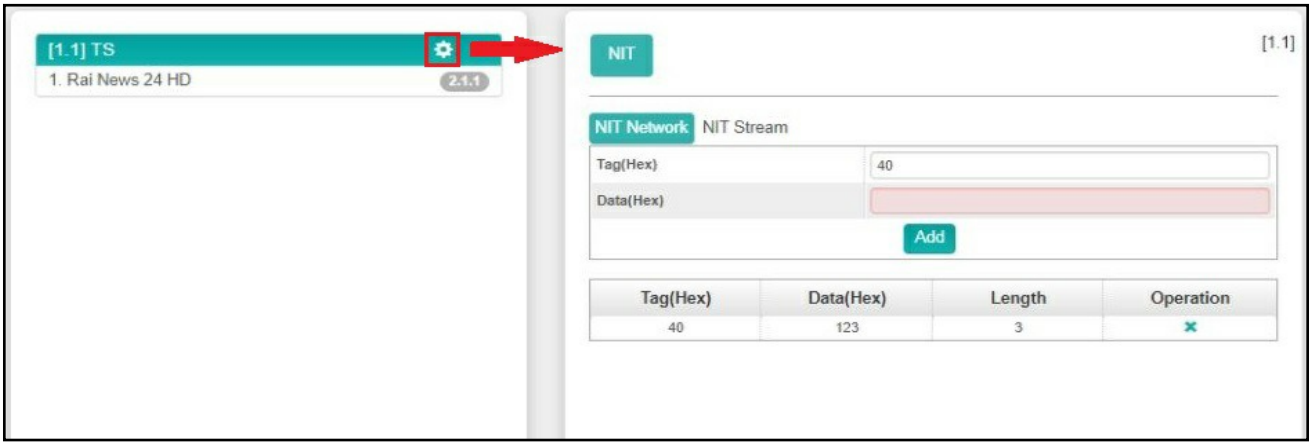
IP Output > Service Configuration Users can make configuration for output services.

- TS setting: Click TS line (the green area) to make the modification of Original Network ID, TS ID and each Service ID, Service Name, and Service Provider, etc.





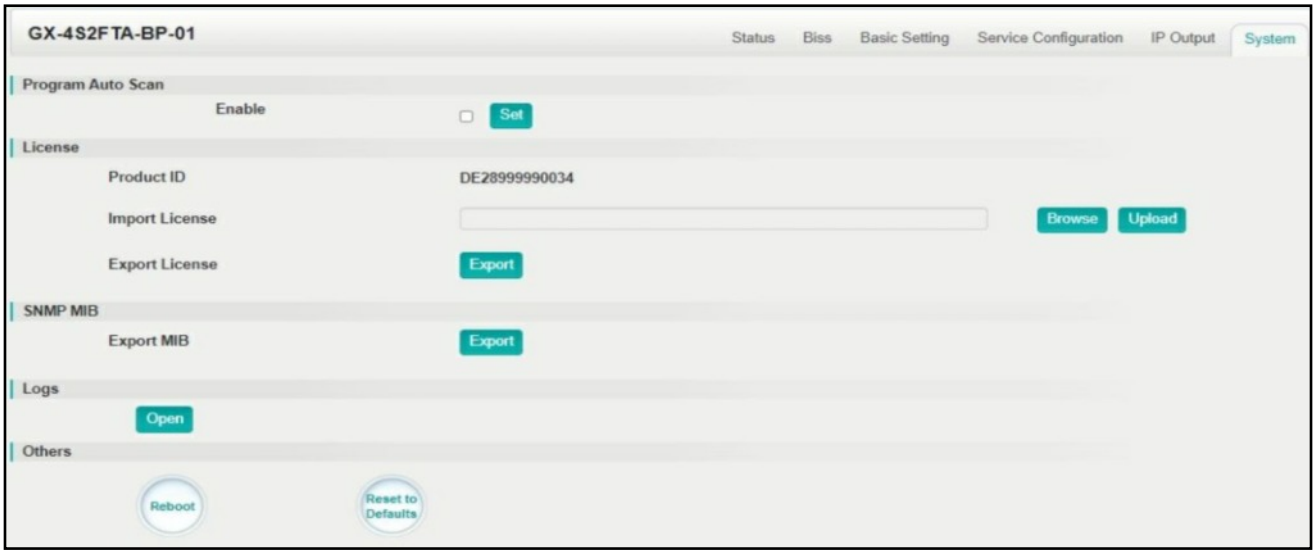
- TS setting: Click TS line (the green area) to configure Original Network ID, TS ID and each Service ID, Service Name, and Service Provider, etc.
- NIT setting: Click the icon to modify NIT Network and NIT Stream.



GX-4S2FTA-BP-01 > System

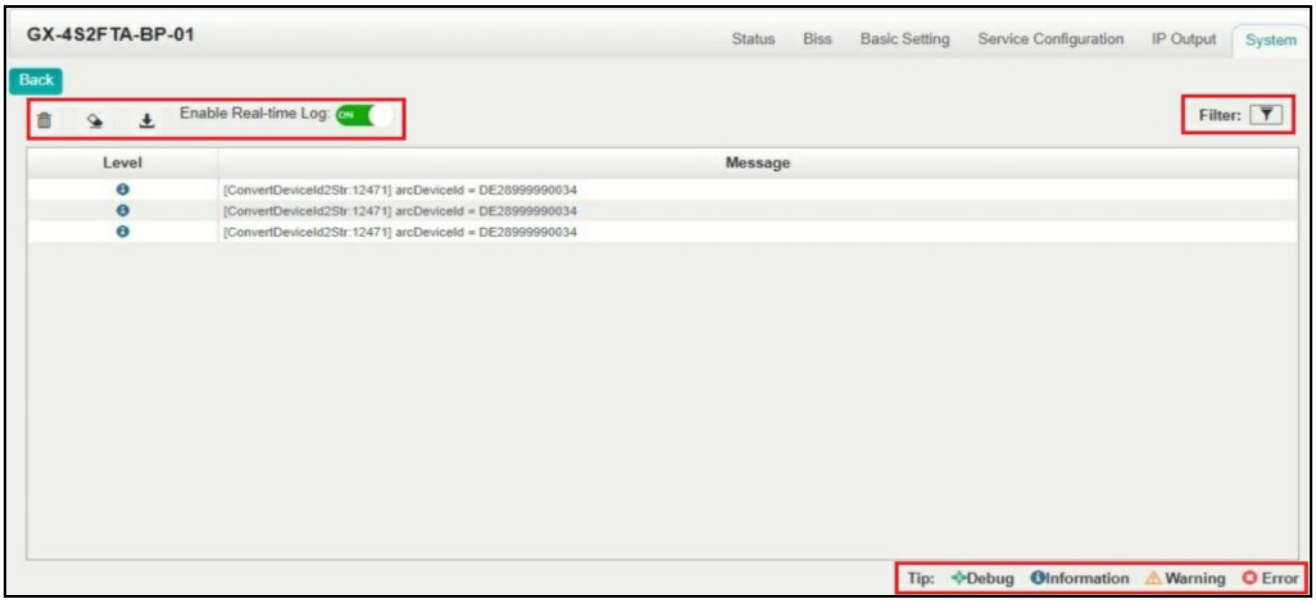
On ***System*** page you can import/export ***License***, export SNMP MIB **files**, ***Reboot*** module, restore ***factory default settings*** and manage ***logs***.

The **AUTO SCAN PROGRAM** option, present in some firmware versions, is a function that allows you to track any changes introduced by the respective broadcaster and which could occur in the programs received from the input tuners, such as changes in the video and audio PIDs, the change of the PMT or the change of status (from FREE program to encrypted program and vice versa).



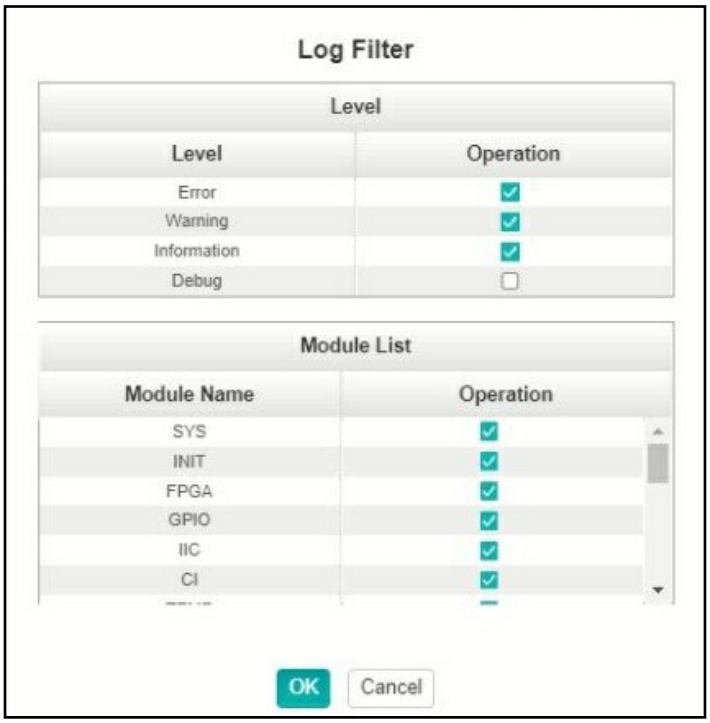
Log Manage This page shows the logs of the module. If there are issues encountered on this module, exporting the logs will help R&D team to analyze and fix them.

Turn on ***Enable Real-time Log*** switch, see the real time log messages and the security level of each message below.



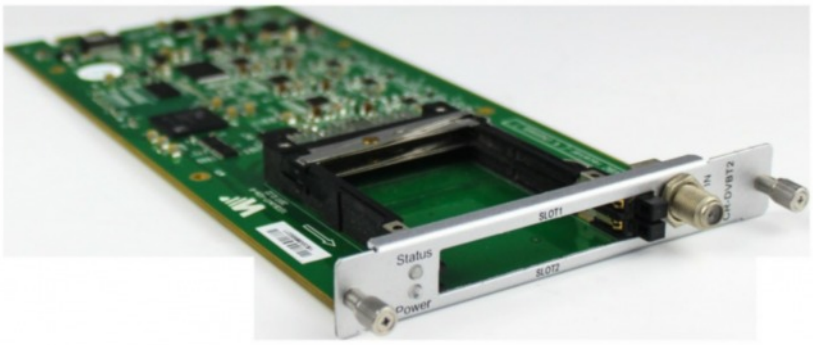
- Click  to clear all log messages on the screen.
- Click  to delete all log information.
- Click  to export log information.
- Click  to filter desired log messages.

Clicking the filter icon, you can simply select what logs to be included.



5.1.4 GX-4T2CI-BP-00

GX-4T2CI-BP-00 is a 4-channel DVB-T/T2 receiving and descrambling module with 1 RF connector and 2 CI slots.



Module configuration is very similar to GX-4C2CI-BP-00 (DVB-C receiver module).

GX-4T2CI-BP-00 > Basic Setting

Name	Range
Frequency (Khz)	47000 ~ 862000
Bandwidth (Mbps)	6 / 7 / 8 M

Click the ***Apply*** button on the right side to make the change takes effect.

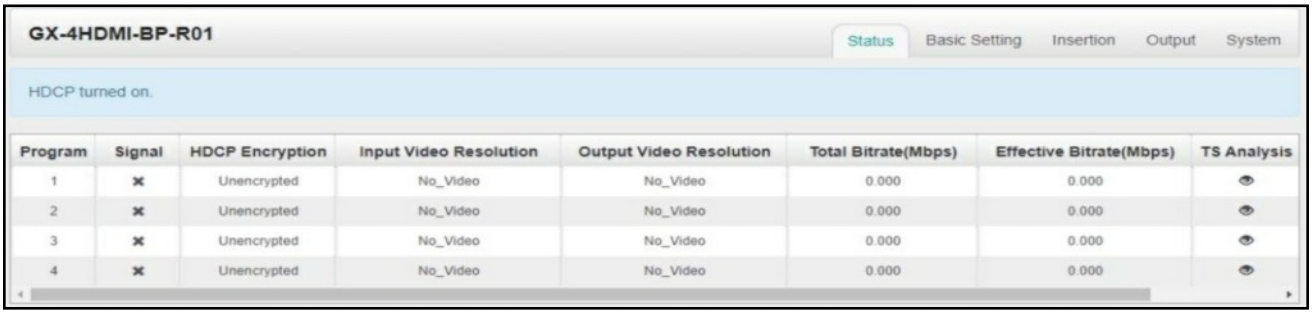
Status, CI, Service Configuration and ***System,*** please refer to GX-4C2CI-BP-00 (DVB-C receiver module).

5.2 Encoder Modules

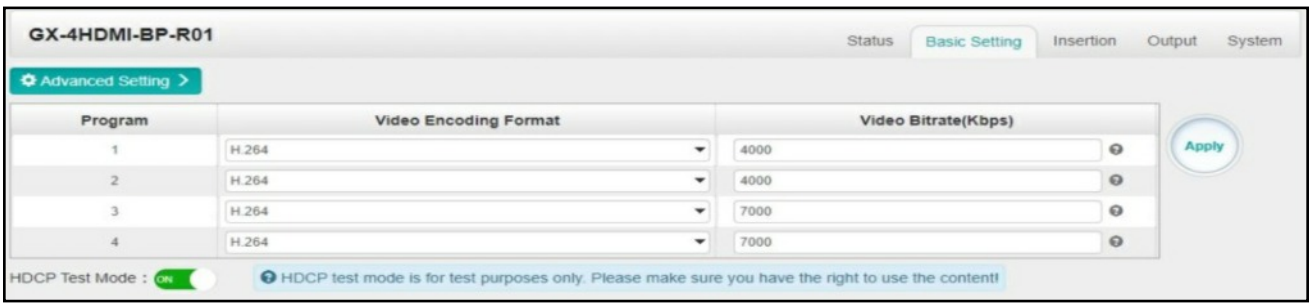
5.2.1 GX-4HDMI-BP-R01

GX-4HDMI-BP-R01 is a 4-channel HDMI input encoder which supports H.264 HD/SD or MPEG-2 SD encoding. The module supports MPEG1-L2, AAC and AC3 audio encoding.

GX-4HDMI-BP-R01 > Status

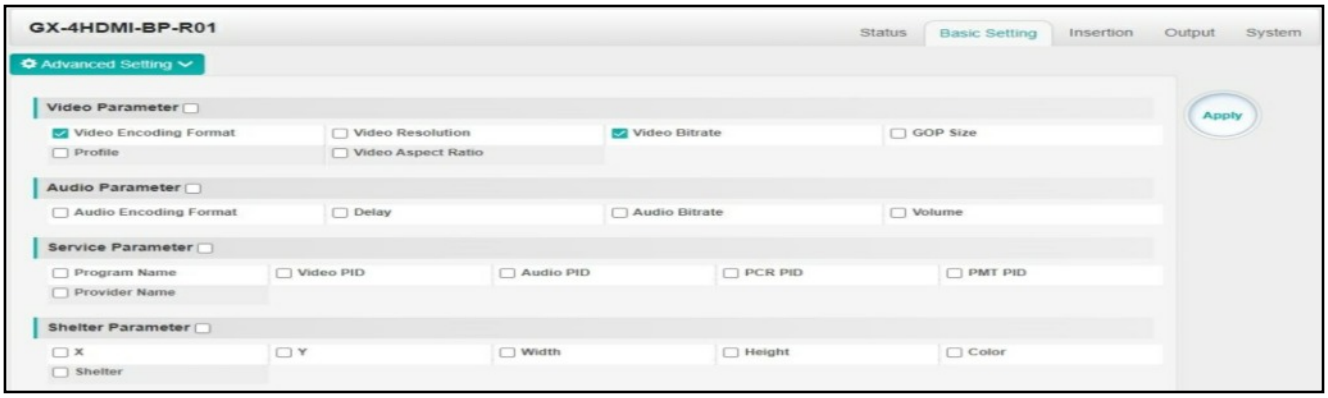


GX-4HDMI-BP-R01 > Basic Setting



Click ***Advanced Setting*** to see all parameters you can modify and check what specific parameters you want to set and see.

Click the ***Apply*** button on the right side to make the change takes effect.

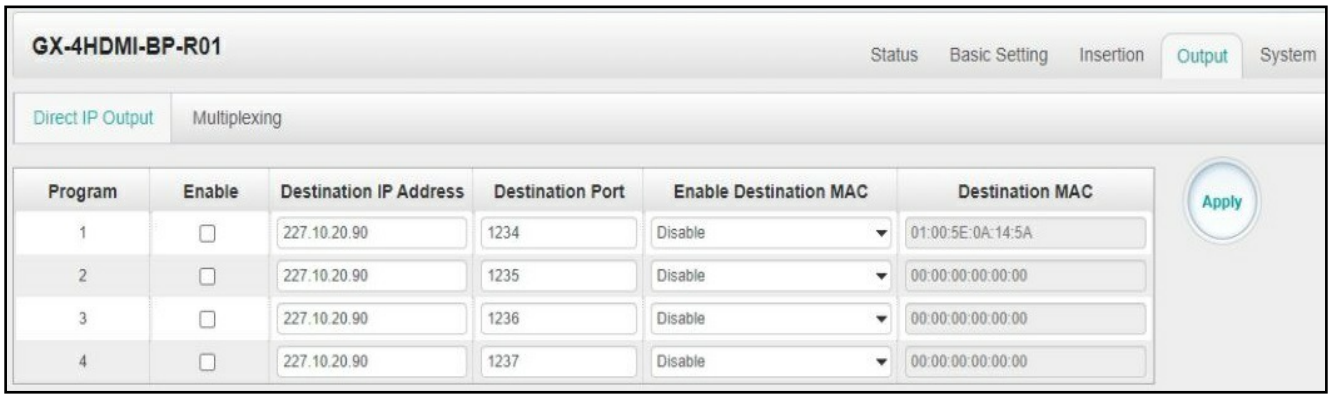


Setting range:

Video Encode Settings	Range	Video Encode Settings	Range
Video Type	H264 MPEG2	GOP Close	Disable / Enable
Video Bitrate (Kbps)	600 ~ 20000	PCR2 PID	32 ~ 8190
Video Mode	CBR, VBR	PMT PID	32 ~ 8190
Video Max Bitrate (Kbps)	20000	Service Name	Lenght is 1 ~ 16
Video Min Bitrate (Kbps)	0	Service Provider Name	Lenght is 1 ~ 16
Video Resolution	Auto, 1920x1080_60i, 1920x1080_50i, 1920x1080_ 30p, 1920x1080_ 25p, 1080x720_60p, 1080x720_50p, 720x480_60i, 720x576_50i	VLC Mode	CABAC CAVLC
Video Frame Bitrate	Auto 59.94/29.97	Profile	HIGH MAIN
Video PID	32 ~ 8190	Level	3.0, 3.1, 3.2 4.0, 4.1, 4.2
GOP Structure	IPPB, IPPP, IBP	Video Aspect Ratio	Auto 16/9_LetterBox 16/9_CutOff 4/3_PillarBox 4/3_CutOff
GOP Size	6 ~ 63		

Audio Encode Settings	Range	Audio Encode Settings	Range
Encoding Type	AC3 MPEG1_Layer2 MPEG2_AAC MPEG4_AAC	Audio Sampling Bitrate (Khz)	48
Audio Mode	Dual Channel Mono Stereo	Audio PID	32 ~ 8190
Encoding Bitrate (Kbps)	128 ~ 384 (AC3) 64 ~ 384 (MPEG1_Layer2) 32 ~ 384 (MPEG2_AAC/ MPEG4_AAC)	Volume	0 ~ 8

GX-4HDMI-BP-R01 > Output



If you want to use IP output channel in the encoder module and the baseboard IP module at the same time, you should avoid a multicast IP address conflict. If there are two same IP addresses enabled meantime, all the multicast videos will be affected.

- ***Destination IP Address*** and ***Destination Port:*** Using for multicast IP addresses or unicast IP addresses and ports.
- ***Enable Destination MAC:*** Generally, you do not need to enable this option. This is reserved for exceptional cases where the unicast stream cannot be received with unicast IP addresses. You can enable destination MAC and streaming out by setting Destination MAC.

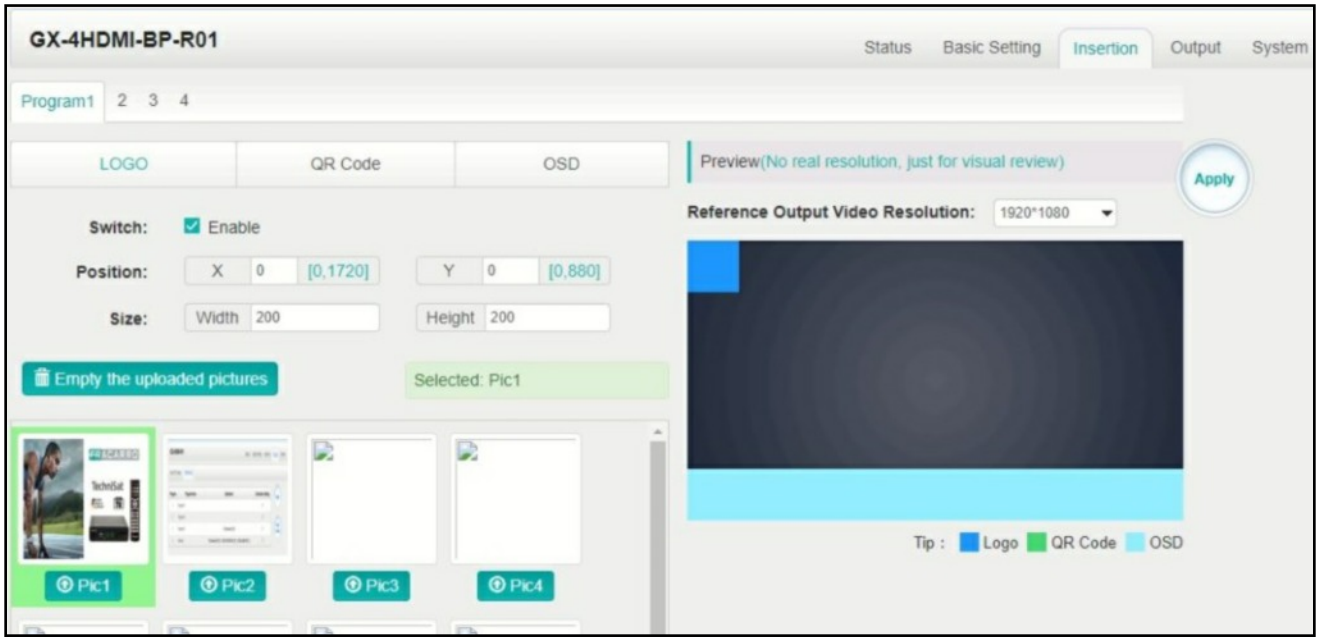
To use **Multiplexing mode on service level**

1. Click on the pencil icon There will always be a Baseboard selection for the IP output and other Output options depending on the modules inserted.
2. Select the correct Output and Channel you want to output the Service to.
3. Check Multiplex for the Channel you want to output through. You can output multiple services in the same channel or output the same service in multiple channels.

GX-4HDMI-BP-R01 > Insertion

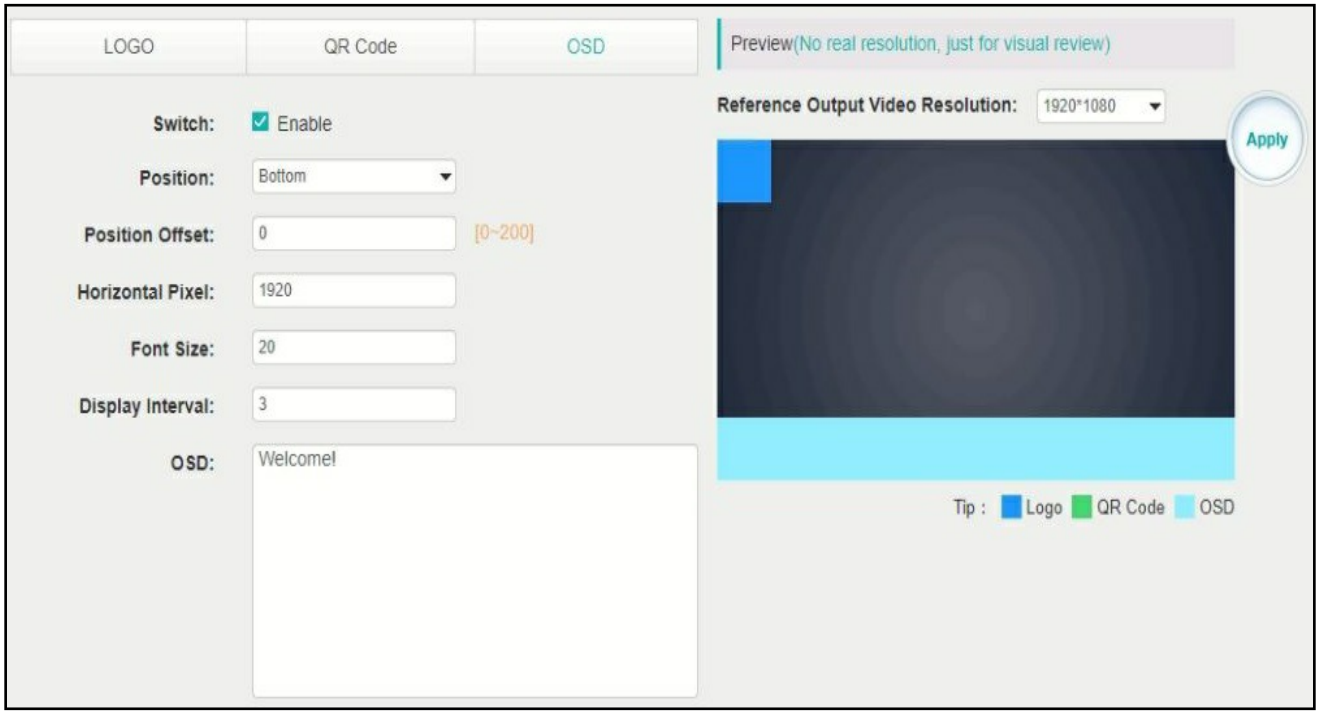
You should choose a pro first before you set Insertion.

- LOGO setting: you can upload several pictures at the same time, and pick one to show on the screen. The field of the selected picture will turn green.



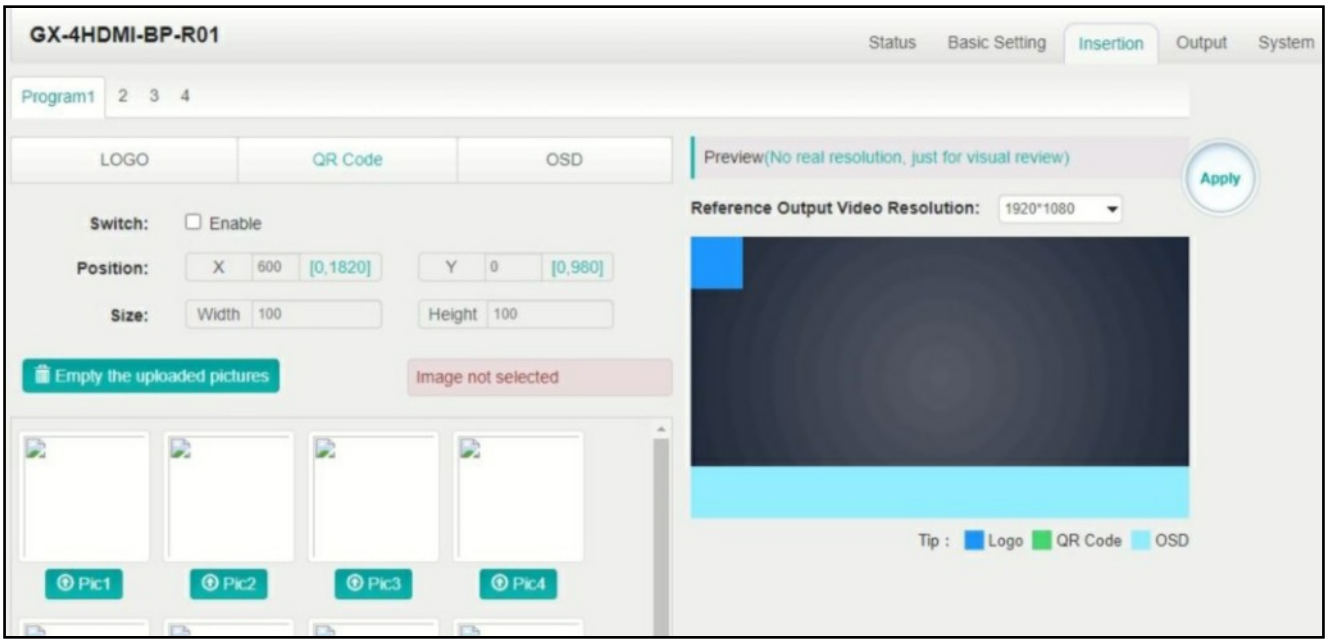
LOGO Parameter	Range	LOGO Parameter	Range
Position X	0 ~ 1920 (Dual)	Position Y	0 ~ 1080 (Dual)
Size width	0 ~ 1920 (Dual)	Size Height	0 ~ 1080 (Dual)

- OSD setting:



OSD Parameter	Range	OSD Parameter	Range
Position	Bottom / Top / Middle	Position Offset	-200 ~ 200
Horizontal Pixel	10 ~ 1920	Scrolling Speed	1 ~ 20
Front Color	White / Black / Blue / Green / Red / Yellow	Front Size	0 ~ 100
Display Interval	0 ~ 100		

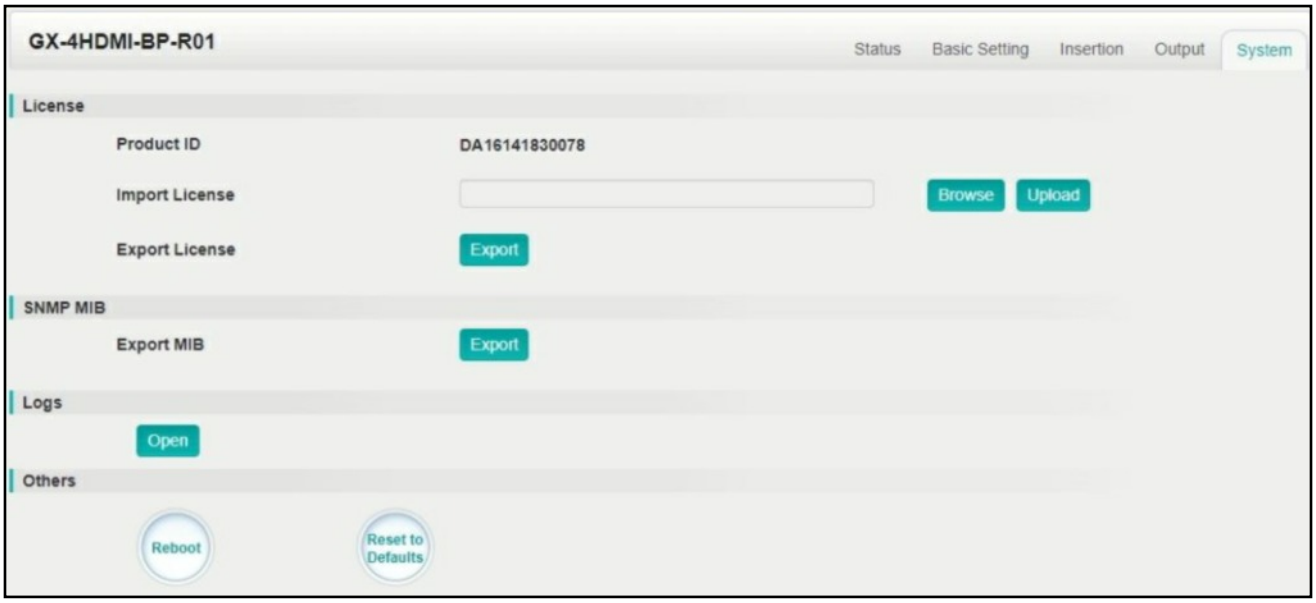
- **QR Code setting**: QR Code picture picking method is same as LOGO setting.



QR Code Parameter	Range	QR Code Parameter	Range
Position X	0 ~ 1920 (Dual)	Position Y	0 ~ 1080 (Dual)
Size width	0 ~ 1920 (Dual)	Size Height	0 ~ 1080 (Dual)

GX-4HDMI-BP-R01 > System

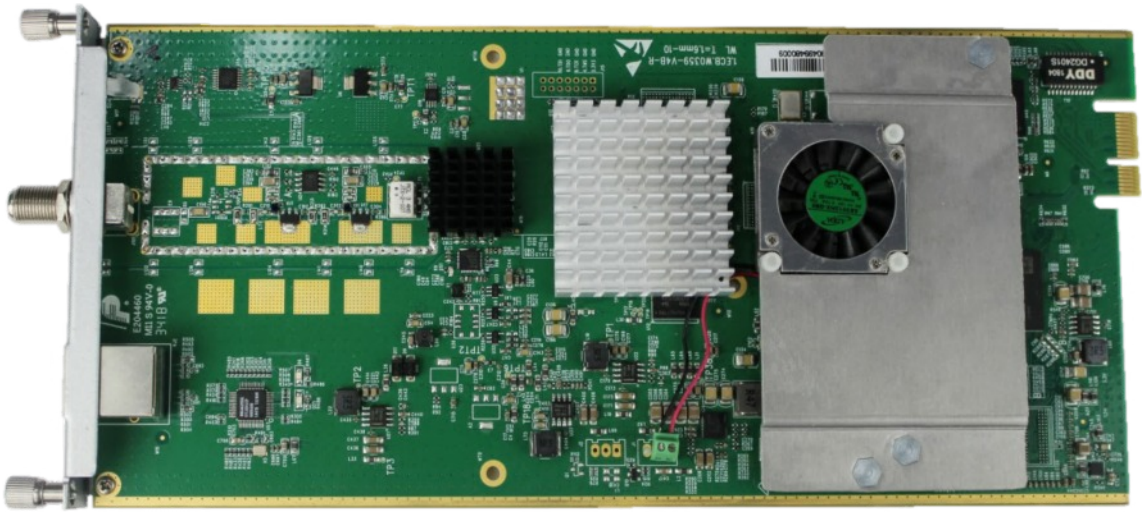
Please refer to GX-4C2CI-BP-00 (DVB-C receiver module).



5.3 Modulation Output Modules

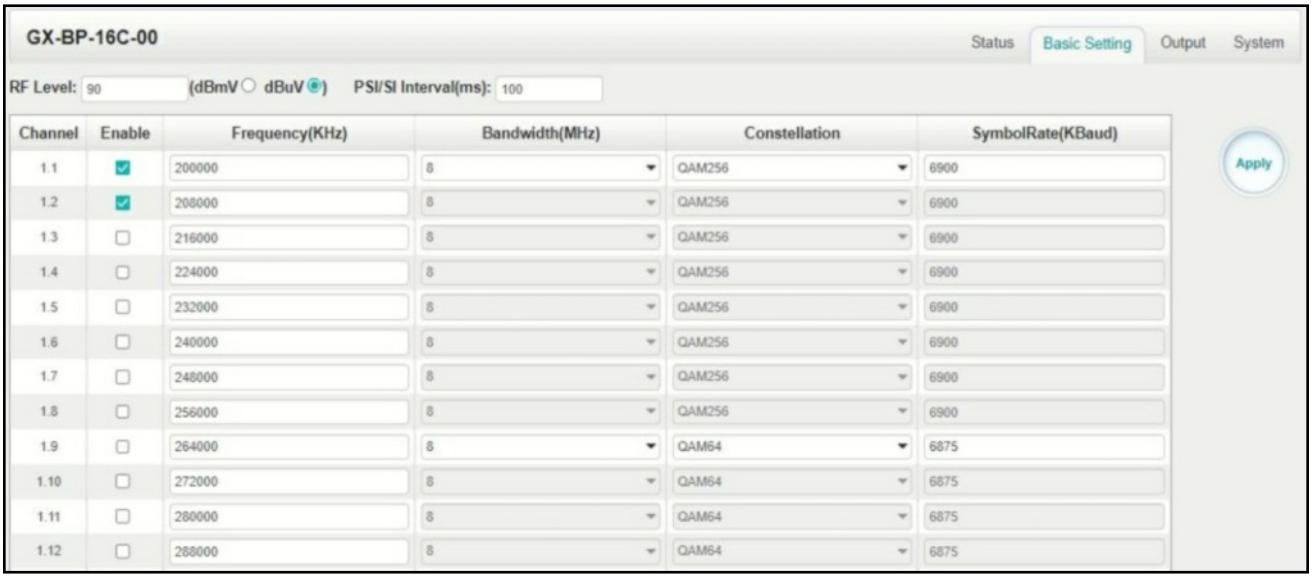
5.3.1 GX-BP-16C-R00

GX-BP-16C-R00 module supports modulating 16 non-adjacent or channels with 1 RF female port for modulating output and 1 RJ45 network port is reserved for future use.



GX-BP-16C-R00 > *Basic Setting*

This page is where you can modify or set the frequency for the RF modulation. GX-BP-16C-R00 has 16 non-adjacent channels.



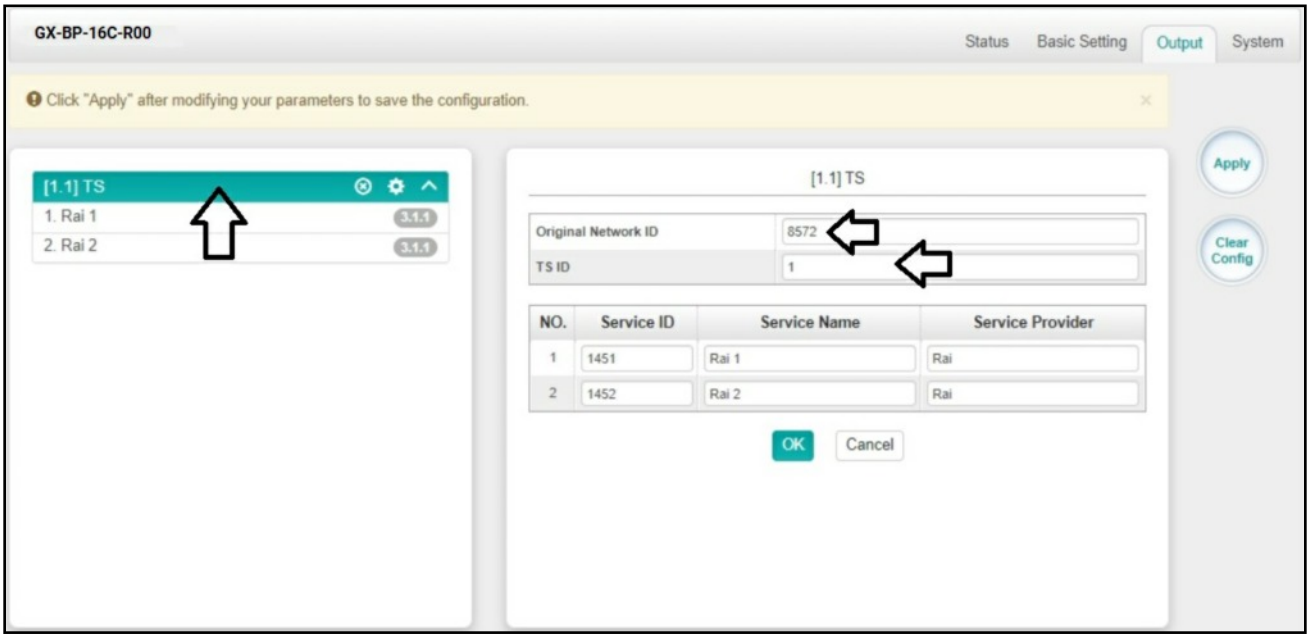
Click the ***Apply*** button on the right side to make the change takes effect.

Name	Range	Name	Range
Bandwidth	6M, 7M, 8M	RF Level	0 ~ 63 (dBµV) 60 ~ 123 (dBµV)
Symbol Rate (KBaud)	4400 ~ 6956	Frequency (KHz)	48000 ~ 858000
PSI / SI Interval (ms)	50 ~ 10000	Constellation	QAM 16 / 32 / 64 / 128 / 256

GX-BP-16C-R00 > *Output*

In the OUTPUT menu of the module to be configured, all the programs grouped by T.S. (Tranport Stream) value will be displayed. See following image.

1) Set the **Original Network ID** value compliant with the value used in the country of use of the control panel and a unique TS ID value for each T.S. Confirm with OK.

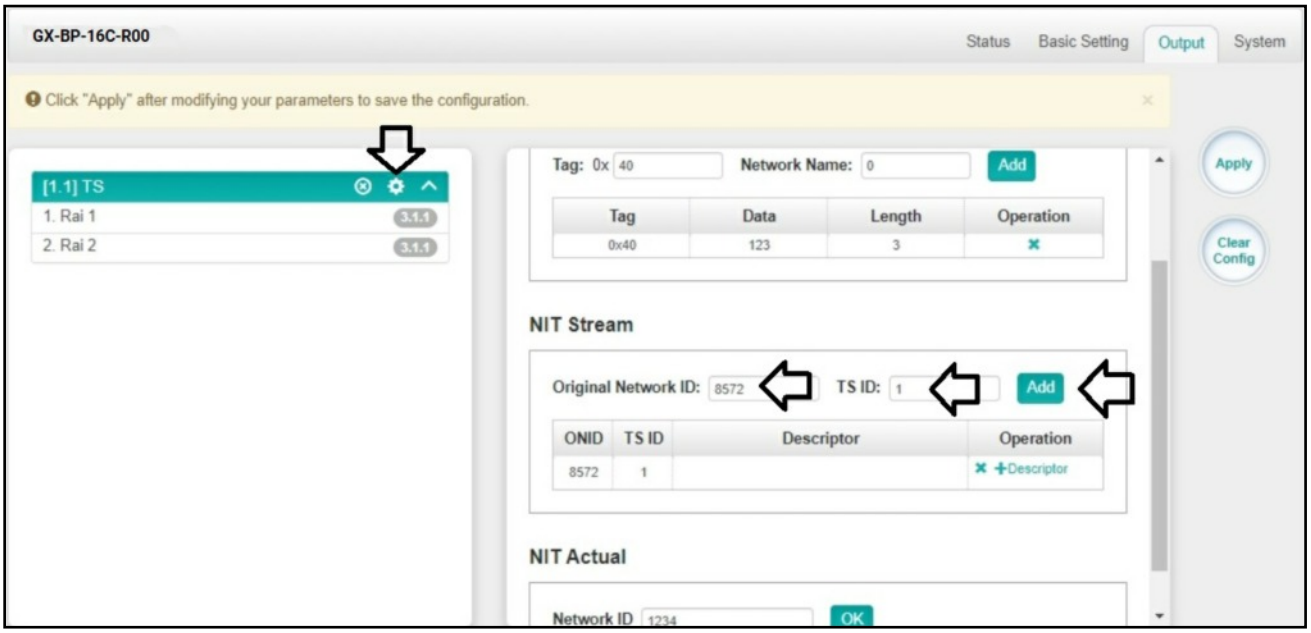


This operation will be performed for each T.S. distributed and visible in the section on the left side.

NOTE. Below is a summary table of the most commonly used ONID values, but reference must be made to the values specified by the standards of the country in which the control unit is used.

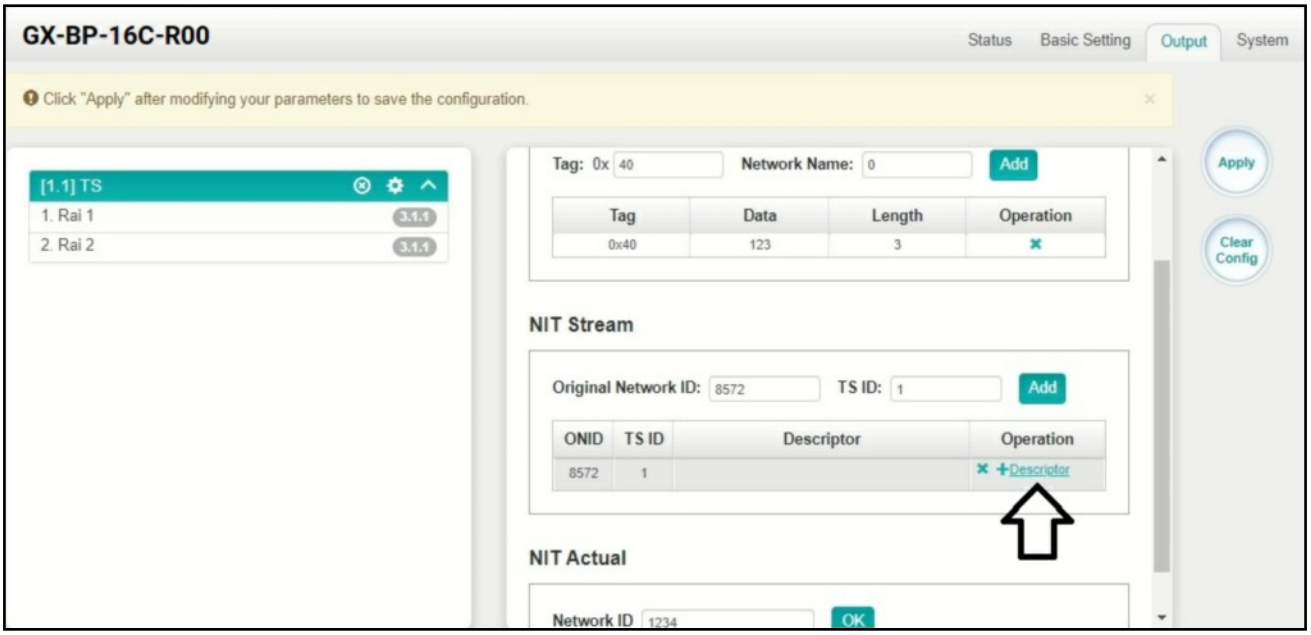
COUNTRY	Original Network ID	Transport Stream ID	Private Data Specifier Descriptor
ITALIA	8572	12289	40
FRANCE	8442	8442	40
GERMANY	8468	12289	40
UK	9018	12290	9018
AUSTRALIA	8228	8228	9018
FRANSAT	8442	8442	40
OFF	8572	12289	40

2) Set the **NIT Stream** values within each single T.S. in distribution. Add **Original Network ID**, add **TS ID** and confirm with ADD operation.

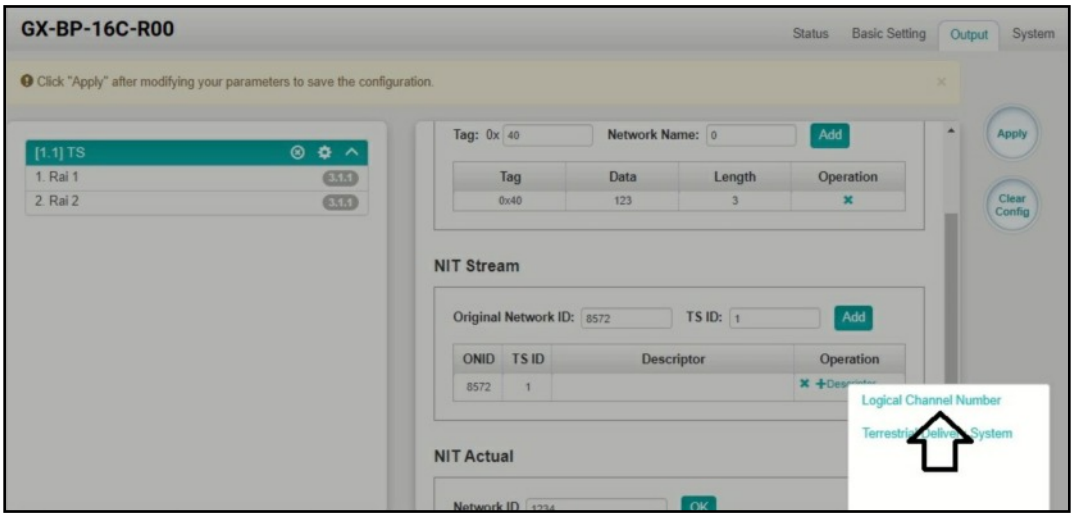


This operation will be performed for each T.S. distributed and visible in the section on the left side.

3) Select **Descriptors**



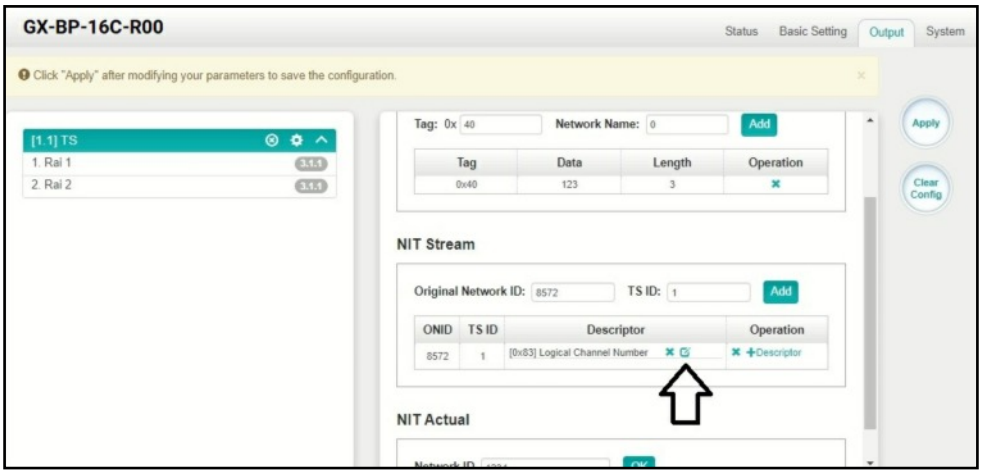
4) Select Logical Channel Number



5) Set the **desired LCN** value and select with the check mark the programs for which you want to distribute the LCN value in the output transport stream. Confirm with OK.

This operation will be performed for each T.S. distributed.

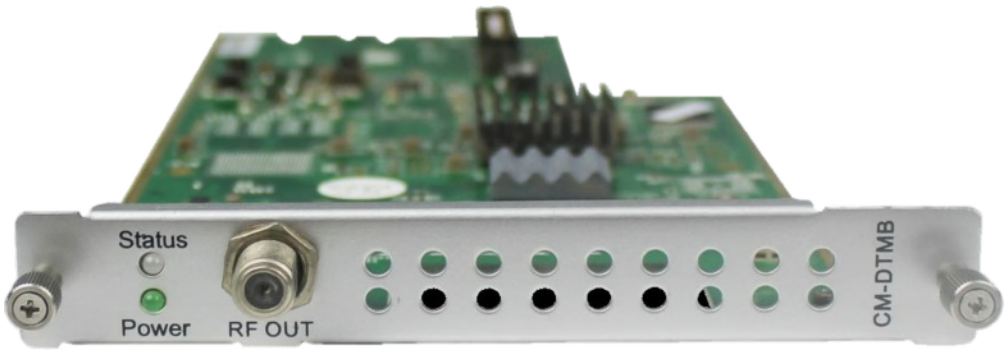
6) Select the **modify** menu if you wish to check or modify the previously set LCN values.



This operation will be carried out if necessary for each T.S. Distributed.

5.3.2 GX-BP-8T-R01A

GX-BP-8T-R01A module supports up to 8 adjacent frequencies modulating with 1 RF female connector for output.



Module configuration is similar to IP Setting.

GX-BP-8T-R01A > *Basic Setting*

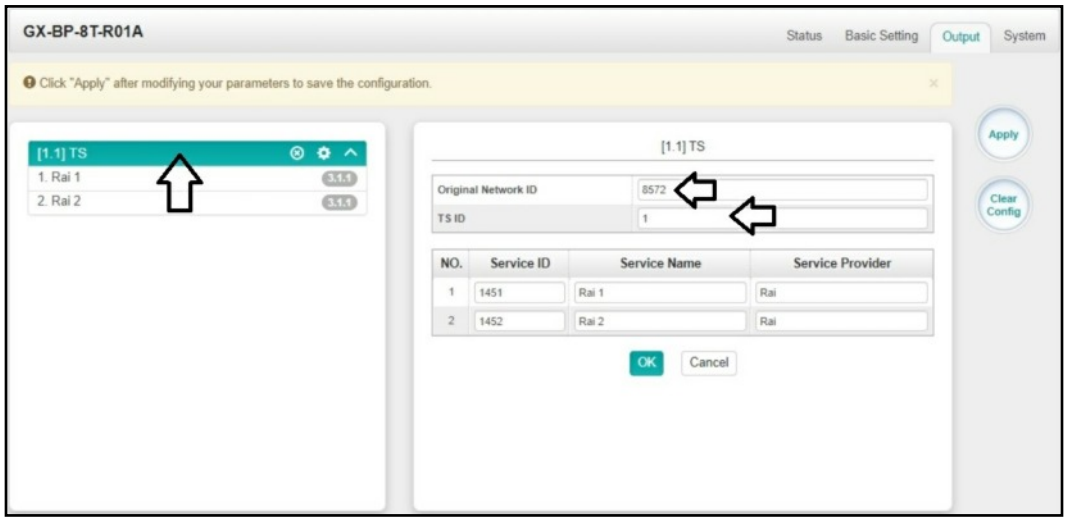
Click the ***Apply*** button on the right side to make the change takes effect.

Name	Range	Name	Range
Bandwidth	6M, 7M, 8M	RF Level	0 ~ 31.5 (dBμV) 60 ~ 91.5 (dBμV)
Frequency (KHz)	48000 ~ 862000		

GX-BP-8T-R01A > *Output*

In the OUTPUT menu of the module to be configured, all the programs grouped by T.S. (Tranport Stream) value will be displayed. See following image.

1) Set the **Original Network ID** value compliant with the value used in the country of use of the control panel and a unique TS ID value for each T.S. Confirm with OK.

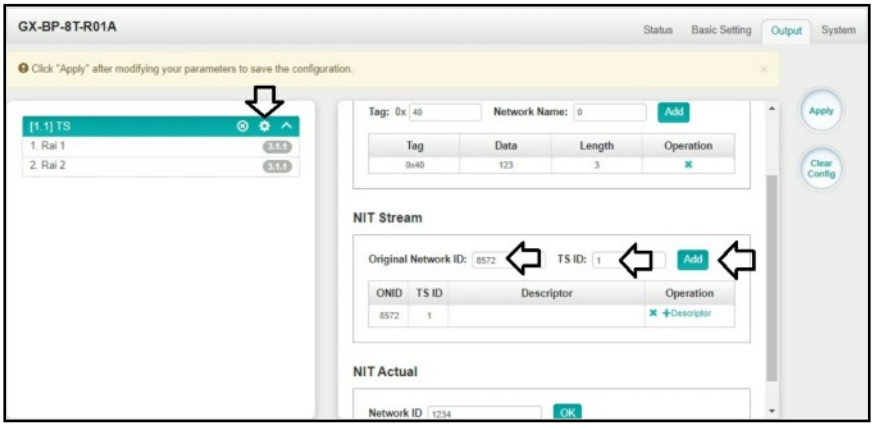


This operation will be performed for each T.S. distributed and visible in the section on the left side.

NOTE. Below is a summary table of the most commonly used ONID values, but reference must be made to the values specified by the standards of the country in which the control unit is used.

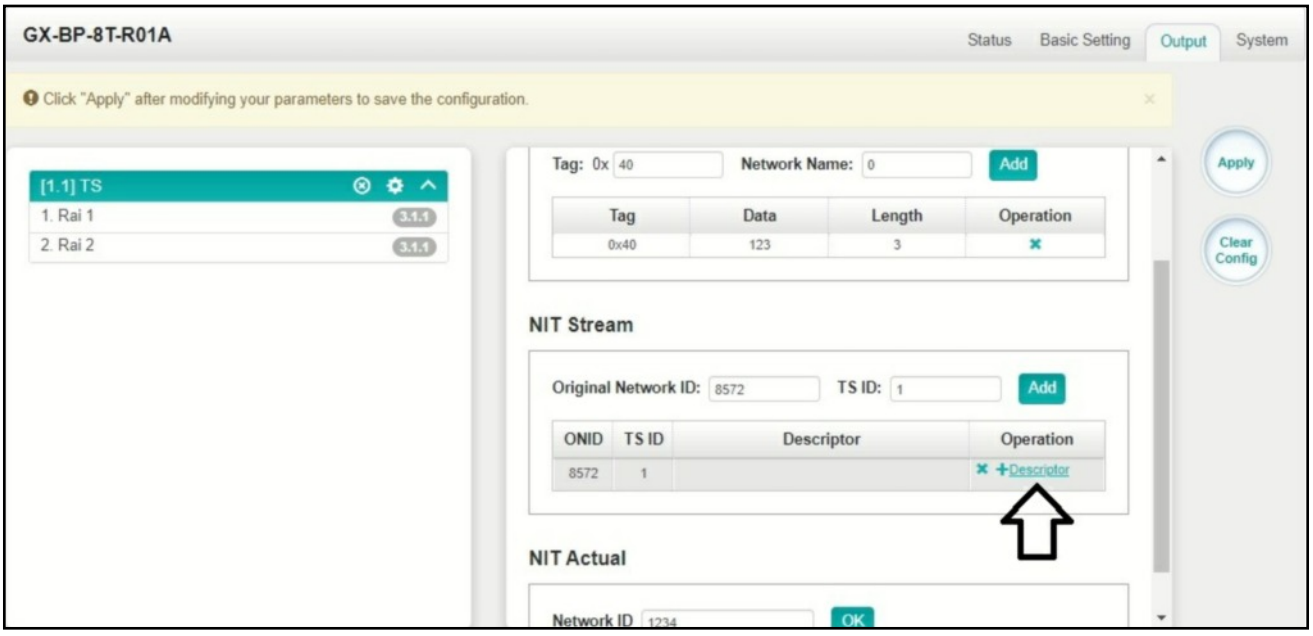
COUNTRY	Original Network ID	Transport Stream ID	Private Data Specifier Descriptor
ITALIA	8572	12289	40
FRANCE	8442	8442	40
GERMANY	8468	12289	40
UK	9018	12290	9018
AUSTRALIA	8228	8228	9018
FRANSAT	8442	8442	40
OFF	8572	12289	40

2) Set the **NIT Stream** values within each single T.S. in distribution. Add **Original Network ID**, add **TS ID** and confirm with ADD operation.

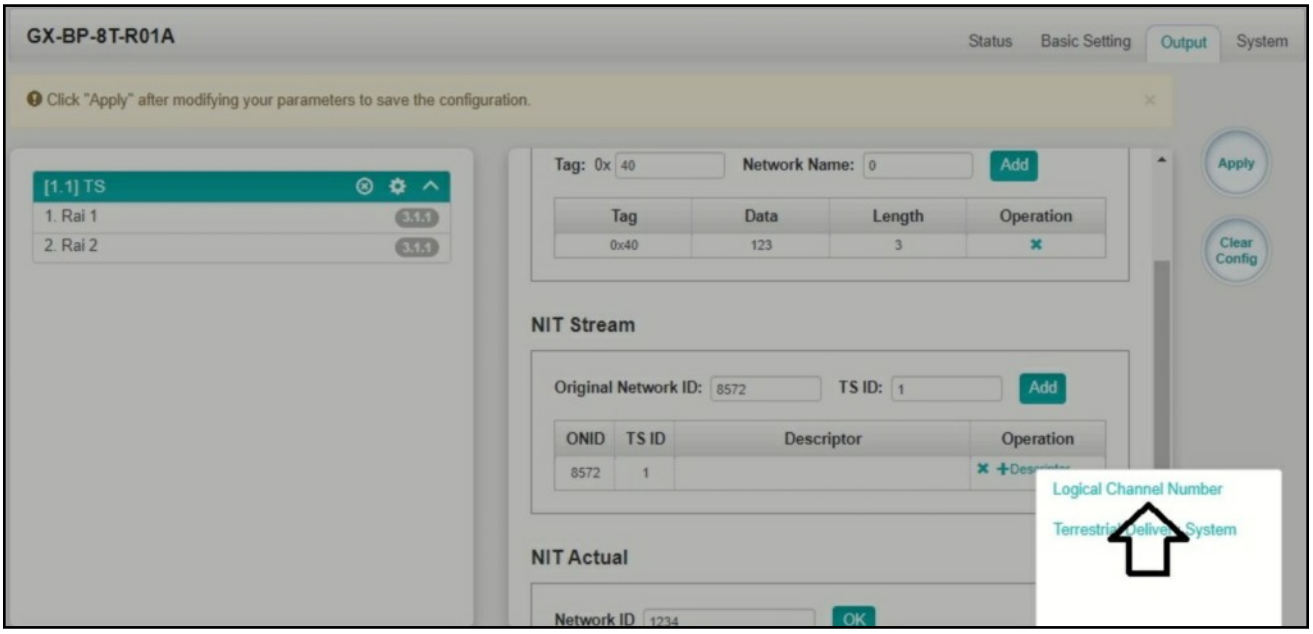


This operation will be performed for each T.S. distributed and visible in the section on the left side.

3) Select **Descriptors**



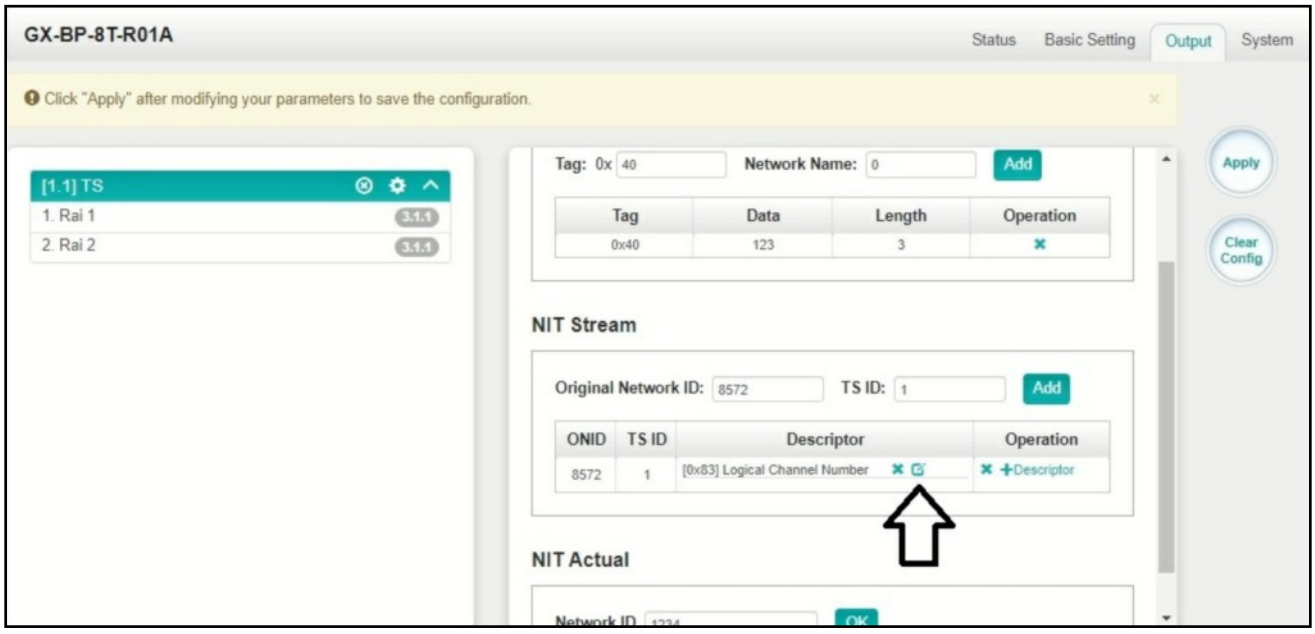
4) Select Logical Channel Number



5) Set the **desired LCN** value and select with the check mark the programs for which you want to distribute the LCN value in the output transport stream. Confirm with OK.

This operation will be performed for each T.S. distributed.

6) Select the **modify** menu if you wish to check or modify the previously set LCN values.



This operation will be carried out if necessary for each T.S. Distributed.

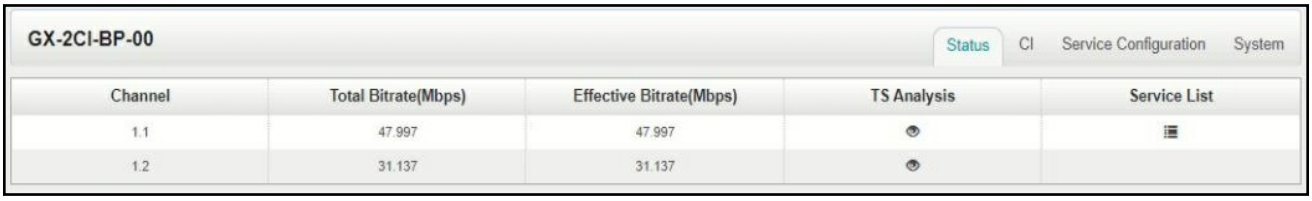
5.4 Function Modules

5.4.1 GX-2CI-BP-00

GX-2CI-BP-00 is a descrambling module with 2 CI slots. It supports almost all kinds of CAM card descrambling and the number of descrambled services is defined by the CAM card. It supports descrambling services which are multiplexed from different IP/RF channels or modules.

GX-2CI-BP-00 > Status

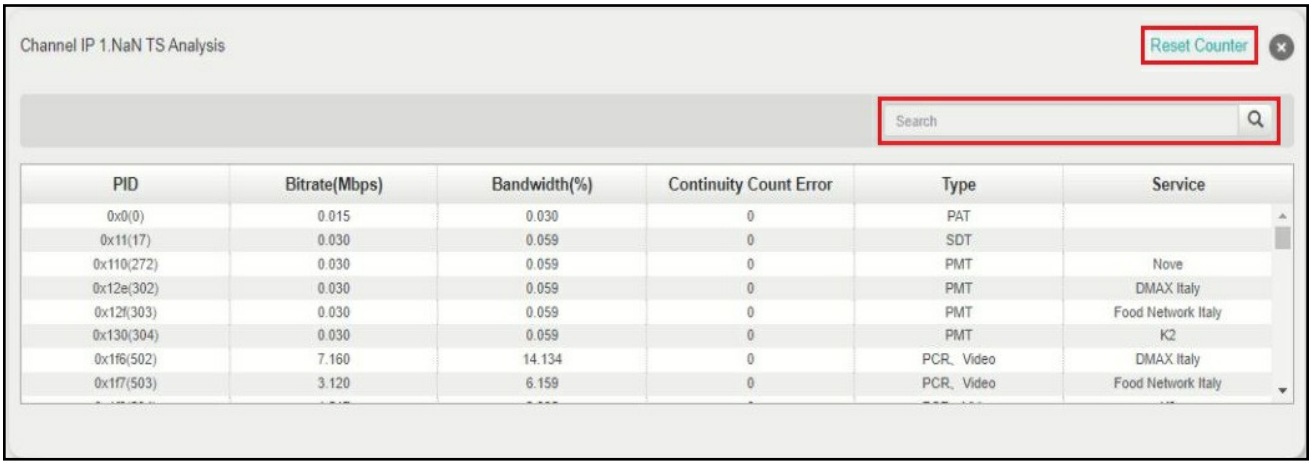
Status shows the total bitrate and effective bitrate of each channel. It also supports TS analysis and service list.



Click the icon ( ) in the ***TS Analysis*** list to see the TS analyzing result of this channel. Click the icon ( ) in the ***Service List*** to see the Services of each channel.

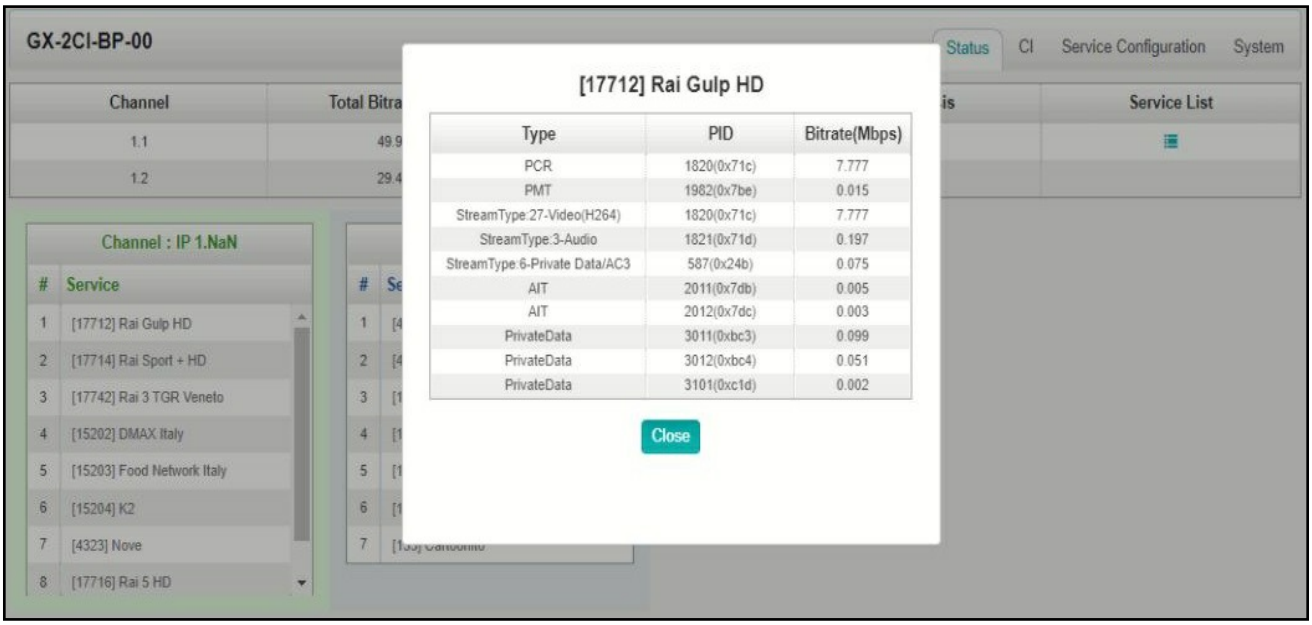
- TS Analysis

Click ***Reset Counter*** button to clear continuity count errors and restart counting. Fill in the search bar with the key words of PID / Bit rate / bandwidth / table type / service name in the search bar to get the info you want.



- Service List

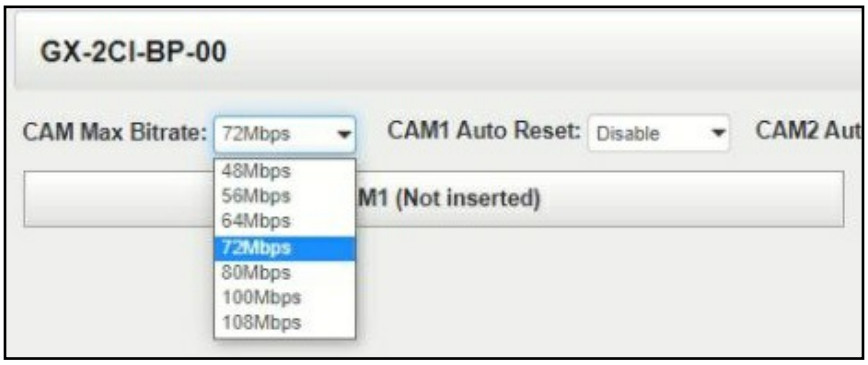
Click a service name to check the detailed info of this service.

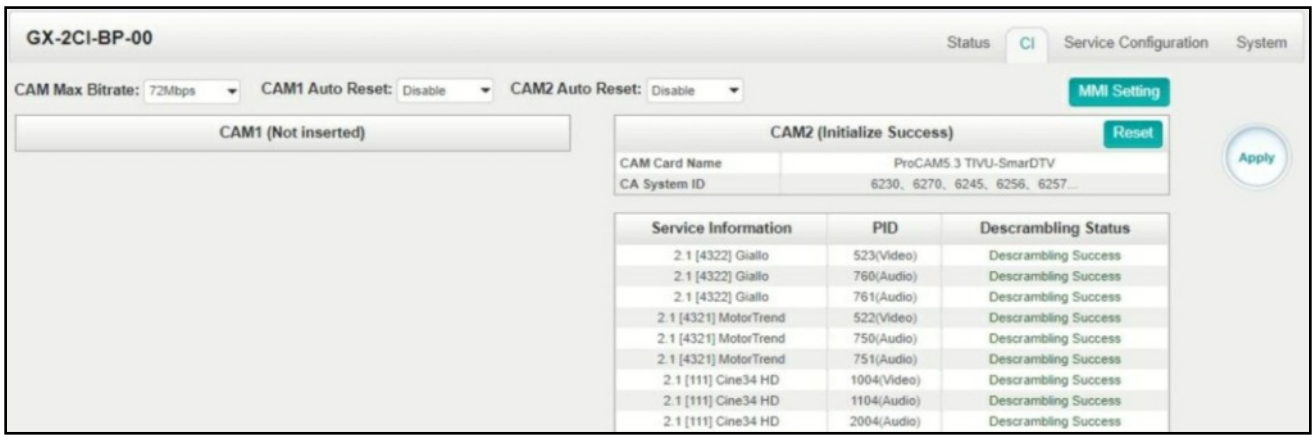


GX-2CI-BP-00 > CI

CI page not only shows the CAM card name and CA system ID, but also shows the service PID, service information and descrambling status.

CAM Max Bitrate is from 48Mbps to 108Mbps, which you can choose in the pull-down list.



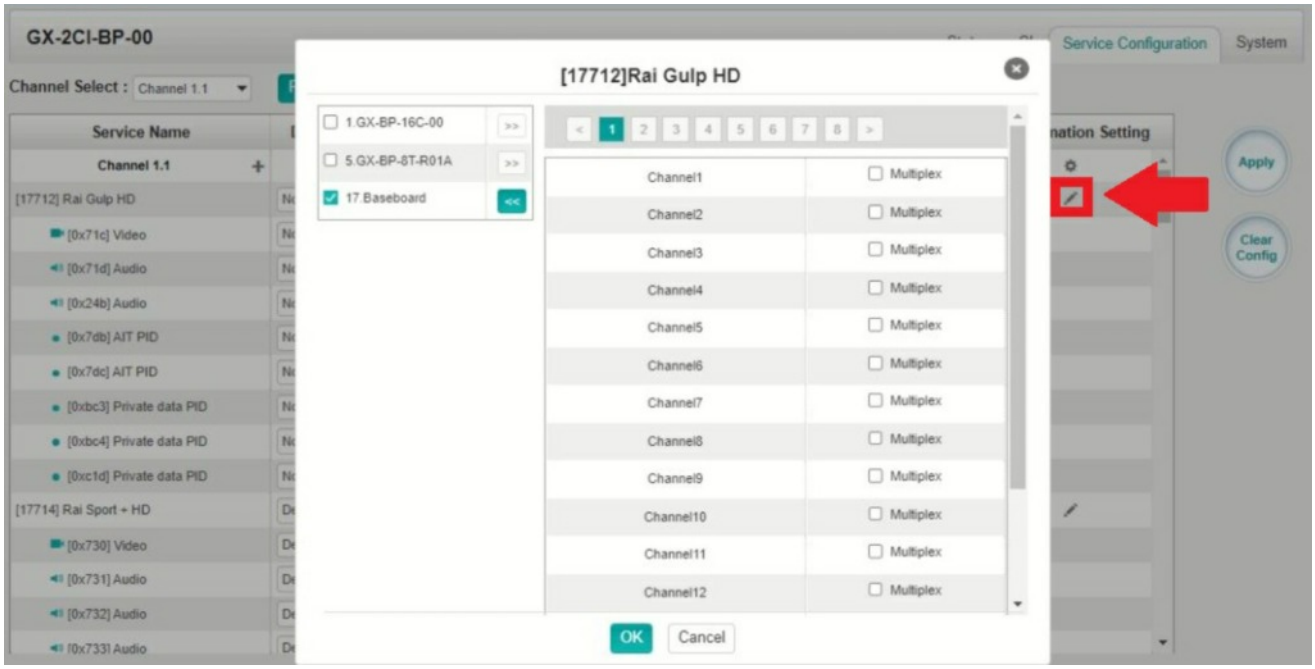


Click ***Reset*** to reboot the CAM card. Click the ***Apply*** button on the right side to make the change takes effect.

GX-2CI-BP-00 > Service Configuration

When this module is licensed to scramble, on this page, you can set the output destination of all services.

When this module is licensed to descramble, on this page, you can select the descrambled services and set the output destination of all services.



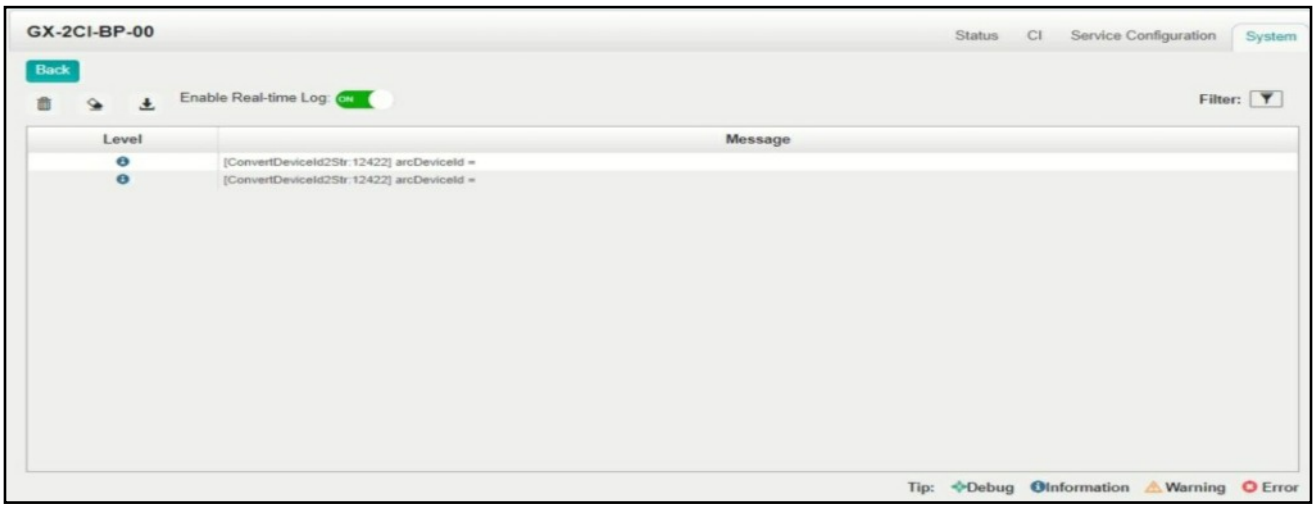
Click the ***Apply*** button on the right side to make the change takes effect.

Click ***Clear Config*** to clear all configurations.

GX-2CI-BP-00 > System

On ***System*** page you can import/export ***License***, ***Reboot*** module, ***Factory Reset*** and manage ***Logs***.

- Turn on ***Enable Real-time Log*** switch to see the real time log message and the security level of each message below.



- Click  to clear all log messages on the screen.
- Click  to delete all log information.
- Click  to export log information.
- Click  to filter desired log messages.

Clicking the filter icon, you can simply select what logs to be included.

6 Appendices

Appendix A - Abbreviations

8VSB	Vestigial sideband modulation with 8 discrete amplitude levels
16VSB	Vestigial sideband modulation with 16 discrete amplitude levels
AAC	Advanced Audio Coding
AC-3	Also know as Dolby Digital
ASI	Asynchronous Serial Interface
ATSC	Advanced Television Systems Committee
AV	Audio Video
BAT	Bouquet Association Table
BER	Bit Error Ratio
Bit Rate	The rate at which the compressed bit stream is delivered
BNC	British Naval Connector
CAM	Conditional Access Module
CAT	Conditional Access Table
CAT6	Category 6 - Cable standard for gigabit Ethernet
CBR	Constant Bitrate
CI	Common Interface
CVBS	Composite Video Broadcast Signal
CC	Closed Caption
dB	Decibel
DVB	Digital Video Broadcasting
EIT	Event Information Table
EPG	Electronic Program Guide
FEC	Forward Error Correction
GOP	Group of Pictures
HD	High Definition
HDCP	High-bandwidth Digital Content Protection
HDMI	High Definition Multimedia Interface
I/O	Input / output
Kbps	1000 bits per second
LCN	Logical Channel Number
LNB	Low Noise Block

LO	Local Oscillator
Mbps	1,000,000 bits per second
MER	Modulation Error Ratio
MIB	Management Information Base
MPTS	Multi-program Transport Stream
NIT	Network Information Table
OFDM	Orthogonal Frequency Division Multiplexing
PAT	Program Association Table
PCR	Program Clock Reference
PID	Packet Identifier
PMT	Program Map Table
PSI	Program Specific Information
PSU	Power Supply Unit
QAM	Quadrature Amplitude Modulation
QPSK	Quadrature Phase Shift Keying
SD	Standard Definition
SDI	Serial Digital Interface
SDT	Service Description Table
SI	Service Information
SNMP	Simple Network Management Protocol
SNR	Signal Noise Ratio
SPTS	Single Program Transport Stream
TDT	Time and Date Table
TS	Transport Stream
VBR	Variable Bitrate

SAFETY WARNINGS

The product can only be installed by qualified personnel in compliance with local safety laws and regulations. Fracarro Radioindustrie is free from all civil and criminal responsibility due to breaches of current legislation derived from the improper use of the product by the installer, user or third parties.
The product must be used in full compliance with the instructions given in this manual, in order to protect the operator against all possible injury and the product from being damaged.

Installation warnings

The product must not be exposed to water drips and must be installed indoors inside in dry places.
Damp and condensation drops could damage the product. Consequently, always wait for the product to be perfectly dry before use.
Handle with care.
Knocks could damage the product. Leave plenty of space around the product to ensure sufficient ventilation.
High temperatures or overheating could compromise the product functions and life.
Do not install the product above or close to sources of heat, in dusty atmospheres or when it could be exposed to corrosive substances.
If the product is installed on the wall, use proper expansion bolts suitable to the fixing support.
The wall and the fixing support must be able to bear at least 4 times the equipment weight.
Attention: to avoid being hurt, the unit must be mounted to the wall/floor according to the installation instructions.
The unit must be connected to the ground electrode of the antenna system, in compliance with the EN60728-11 standard.
The earth screw is indicated with the symbol ⏚
It is important to observe the provisions of the EN 60728-11 standard and not connect this screw to the power supply earth line.
Never look inside the optical connectors of the product. Laser radiation is not visible to the naked eye and serious long-term damage could be caused.
Ensure that any optical transmitter lasers are turned off before working on the split optical connectors.


Ground symbol of the antenna system

General warnings

In the event of a malfunctioning, do not try to fix the product as the guarantee would be invalidated.
Although the information given in this manual has been prepared carefully and thoughtfully, Fracarro Radioindustrie S.r.l. reserves the right to modify it without notice and to improve and/or modify the product described in this manual.
See the website www.fracarro.com to have information relevant to the technical support and product guarantee.

EUROPEAN DIRECTIVES CONFORMITY

CONFORMITY TO EUROPEAN LAWS

Fracarro declares that the product complies with directive 2014/30/UE, 2014/35/UE and 2011/65/UE. The full text of the EU declaration of conformity is available on the following website ce.fracarro.com

USER'S INFORMATION **Disposal of Old Electrical & Electronic Equipment (applicable in the European Union and other European countries with separate collection system)**	
	This symbol on the product or on its packaging indicates that this product shall not be treated as household waste. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. The recycling of materials will help to conserve natural resources. For more detailed information about recycling of this product, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

Guaranteed by

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