

GALAXIA

HIGH DENSITY DIGITAL HEADEND



User Guide

V 1.3

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
27/03/2023	1.3	Third 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

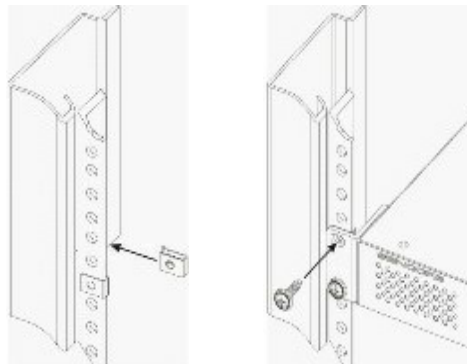
2.1 Rack Installation

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

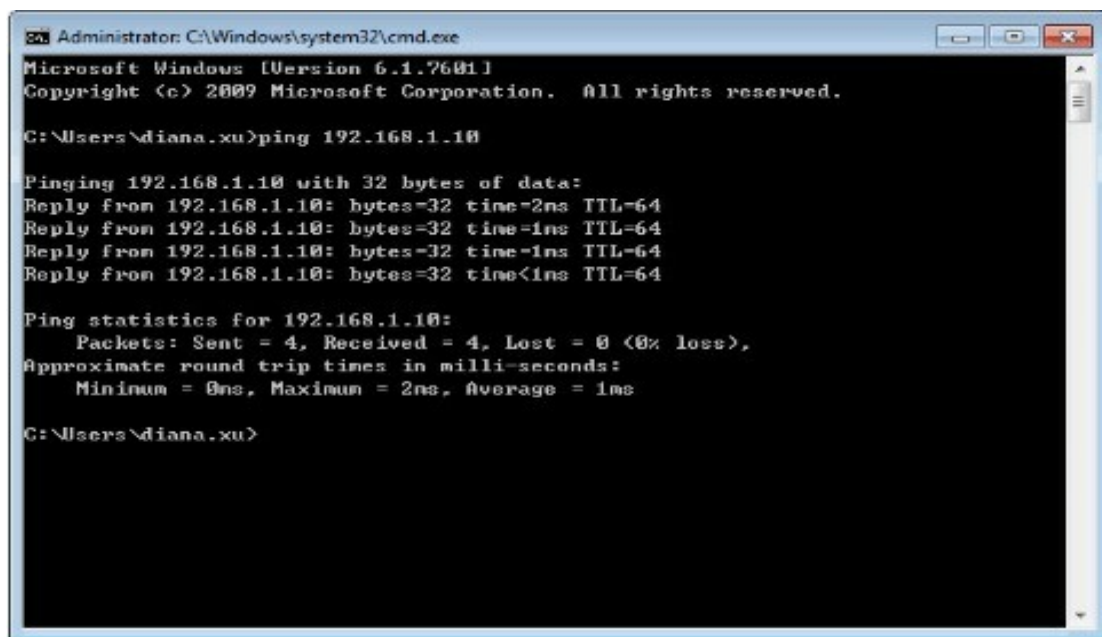
4.1.1 Connect the Management Port

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.



```
Administrator: C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\diana.xu>ping 192.168.1.10

Pinging 192.168.1.10 with 32 bytes of data:
Reply from 192.168.1.10: bytes=32 time=2ms TTL=64
Reply from 192.168.1.10: bytes=32 time=1ms TTL=64
Reply from 192.168.1.10: bytes=32 time=1ms TTL=64
Reply from 192.168.1.10: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 2ms, Average = 1ms

C:\Users\diana.xu>
```



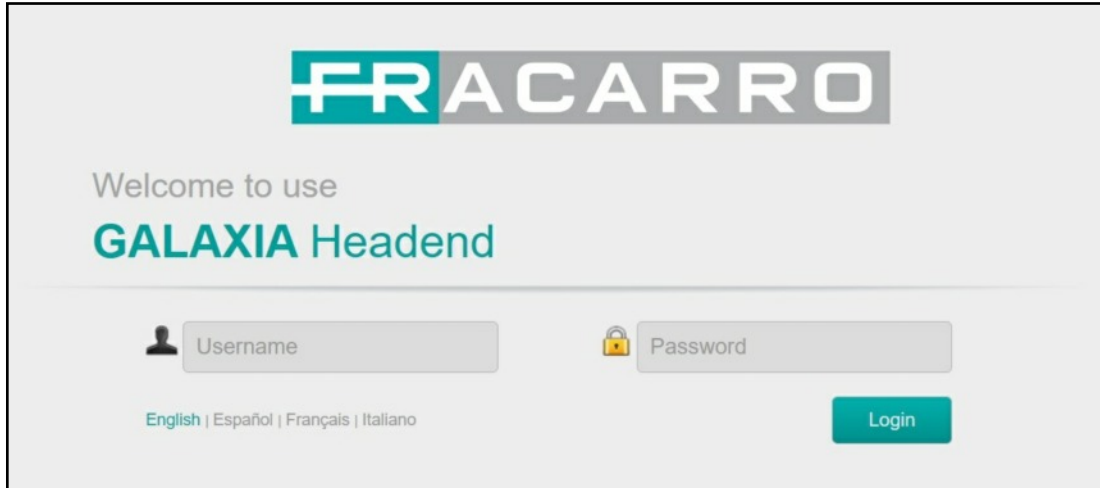
GALAXIA HEADEND has an embedded gigabit switch inside the chassis. You can use it as a switch to connect other devices together. The four network ports are respectively used for management and data transmission. From left to right, port 1 and port 2 are used for management; port 3 and port 4 are used 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.



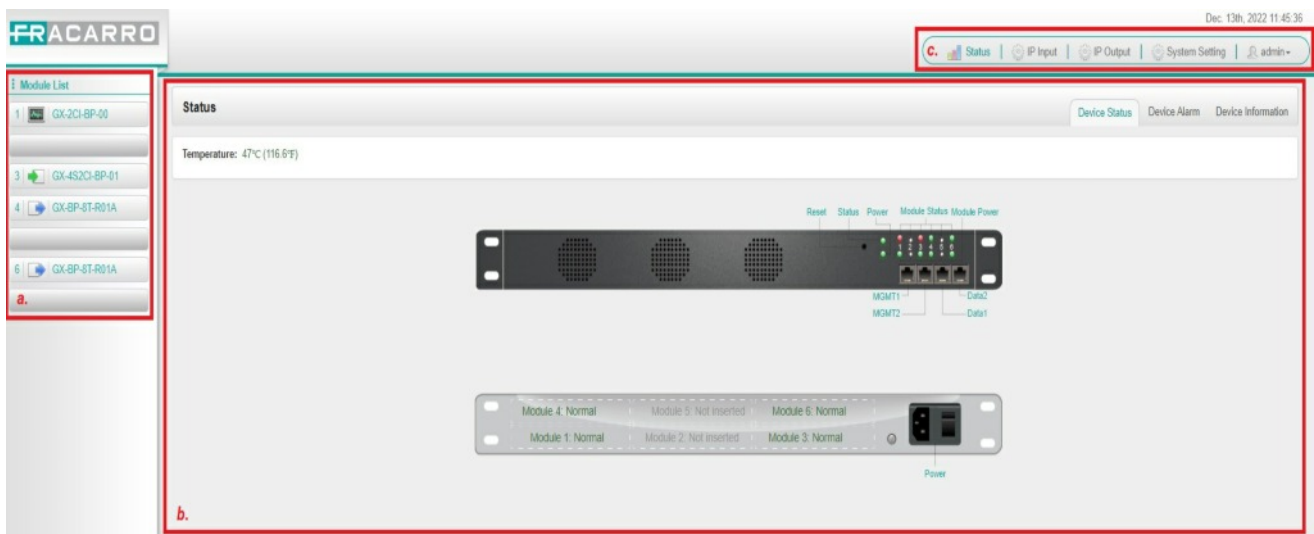
- In this window it is also possible to change the language of the Web GUI

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:

- Module List: it shows the module(s) inserted
- Device host operating status, running status of fans and other status display options
- 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.

Status				Device Status	Device Alarm	Device Information
Module	Firmware Version	Software Version	Hardware Version			
Baseboard	V0.2.724	V1.5.28	V0.0.0.1			
1.GX-2CI-BP-00	V62.2.256	V1.5.99	V0.0.0.1.1			
3.GX-4S2CI-BP-01	V6.0.256	V1.5.11	V0.0.0.1			
4.GX-BP-BT-R01A	V249.2.258	V1.5.2	V0.0.0.1.1			
6.GX-BP-BT-R01A	V249.2.258	V1.5.2	V0.0.0.1.1			

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.

System Setting						Network	System	Time	User	NMS Register	SNMP
Advanced Setting											
IPv4											
Mode: Static											
Module Name	IP Address	Subnet Mask	Default Gateway	DNS Server IP	MAC Address						
NMS	10.3.1.53	255.255.255.0	10.3.1.254	0.0.0.0	A0:69:86:05:F5:70						
DATA	10.245.111.10	255.255.255.0	10.245.111.254	0.0.0.0	A0:69:86:05:F5:6F						
1.GX-2CI-BP-00	10.245.111.11	255.255.255.0	10.245.111.254		A0:69:86:05:A7:8F						
3.GX-4S2CI-BP-01	10.245.111.13	255.255.255.0	10.245.111.254		A0:69:86:06:07:EC						
4.GX-BP-BT-R01A	10.245.111.14	255.255.255.0	10.245.111.254		A0:69:86:06:06:05						
6.GX-BP-BT-R01A	10.245.111.16	255.255.255.0	10.245.111.254		A0:69:86:06:06:D1						



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

System Setting Network System **Time** User NMS Register SNMP

System Time Dec. 12th, 2022 09:50:45

Time Zone UTC +0: 00

Mode Automatic

NTP Server Address 192.168.1.113

Auto Sync Disable

Apply

• **Manual** mode

System Setting Network System **Time** User NMS Register SNMP

System Time Dec. 12th, 2022 09:51:44

Time Zone UTC +0: 00

Mode Manual

Time 2022/12/12 09:49:59

Apply

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 Network **System** Time User NMS Register SNMP

Upgrade

Select Module Automatic Detection

Upgrade Browse Upload

Configuration

Import Configuration Browse Upload

Export Configuration Export

License

Product ID DD11141070277

Import License Browse Upload

Export License Export

Standard

Select Standard DVB OK

Select LCN Standard DigitalEurope OK

SNMP MIB

Export MIB Export

Logs

Open

Reboot Subboard

Reboot Subboard 1: 0X-20:BP-00 OK

Clear Power Alarm

Clear

Others

Reboot Reset to Defaults

System Setting > Password

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

Password

Current Password

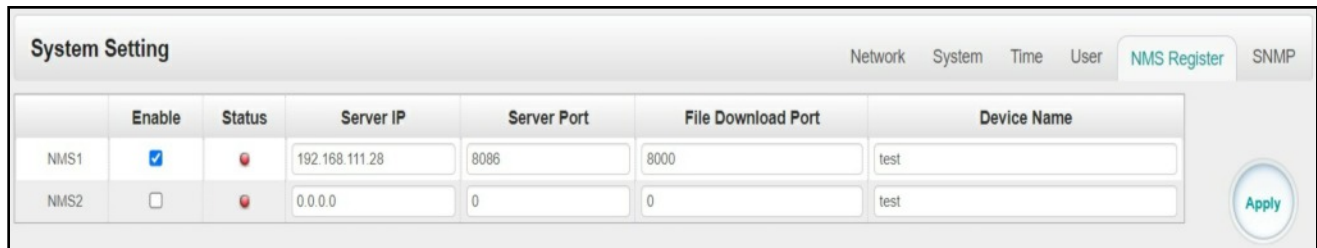
New Password

Confirm Password

OK Cancel

System Setting > NMS Register

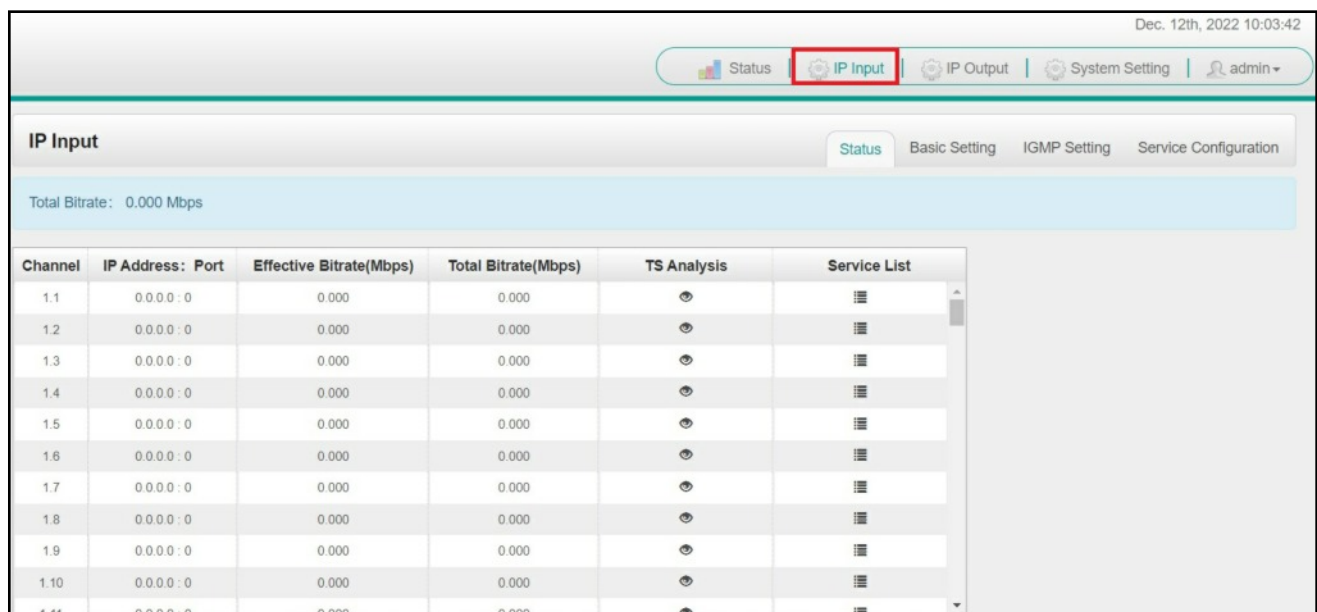
NMS, unified network management, is a remote management tool.



	Enable	Status	Server IP	Server Port	File Download Port	Device Name
NMS1	☒		192.168.111.28	8086	8000	test
NMS2	☐		0.0.0.0	0	0	test

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**.



Channel	IP Address: Port	Effective Bitrate(Mbps)	Total Bitrate(Mbps)	TS Analysis	Service List
1.1	0.0.0.0 : 0	0.000	0.000		
1.2	0.0.0.0 : 0	0.000	0.000		
1.3	0.0.0.0 : 0	0.000	0.000		
1.4	0.0.0.0 : 0	0.000	0.000		
1.5	0.0.0.0 : 0	0.000	0.000		
1.6	0.0.0.0 : 0	0.000	0.000		
1.7	0.0.0.0 : 0	0.000	0.000		
1.8	0.0.0.0 : 0	0.000	0.000		
1.9	0.0.0.0 : 0	0.000	0.000		
1.10	0.0.0.0 : 0	0.000	0.000		

IP Input > Status

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

IP Input Status Basic Setting IGMP Setting Service Configuration

Total Bitrate: 0.000 Mbps

Channel	IP Address: Port	Effective Bitrate(Mbps)	Total Bitrate(Mbps)	TS Analysis	Service List
1.1	0.0.0.0:0	0.000	0.000	👁	☰
1.2	0.0.0.0:0	0.000	0.000	👁	☰
1.3	0.0.0.0:0	0.000	0.000	👁	☰
1.4	0.0.0.0:0	0.000	0.000	👁	☰
1.5	0.0.0.0:0	0.000	0.000	👁	☰
1.6	0.0.0.0:0	0.000	0.000	👁	☰
1.7	0.0.0.0:0	0.000	0.000	👁	☰
1.8	0.0.0.0:0	0.000	0.000	👁	☰
1.9	0.0.0.0:0	0.000	0.000	👁	☰
1.10	0.0.0.0:0	0.000	0.000	👁	☰
1.11	0.0.0.0:0	0.000	0.000	👁	☰

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.

Channel 1 TS Analysis Reset Counter

Search

PID	Bitrate(Mbps)	Bandwidth(%)	Continuity Count Error	Type	Service
0x000	0.015	6.250	0	PAT	
0x111	0.030	12.500	0	SDT	
0x021	0.015	6.250	0	PMT	Cine34 HD
0x020	0.030	12.500	0	PMT	20Mediaset HD
0x021	0.030	12.500	0	PMT	Italia1 HD
0x022	0.030	12.500	0	PMT	Canale5 HD
0x023	0.030	12.500	0	PMT	Rete4 HD
0x026	0.015	6.250	0	PMT	Boing

• Service List

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

Channel: 1.1

#	Service
1	[120] 20Mediaset HD
2	[121] Italia1 HD
3	[122] Canale5 HD
4	[123] Rete4 HD
5	[79] LA7 HD

[120] 20Mediaset HD

Type	PID	Bitrate(Mbps)
PCR	1054(0x41e)	0.000
PMT	220(0xdc)	0.030
StreamType:27-Video(H264)	1054(0x41e)	0.000
ECM	5020(0x139c)	0.000
ECM	5120(0x1400)	0.000
ECM	5220(0x1464)	0.000
ECM	5915(0x171b)	0.000
StreamType:6-Private Data/AC3	1154(0x482)	0.000
ECM	5020(0x139c)	0.000
ECM	5120(0x1400)	0.000
ECM	5220(0x1464)	0.000
ECM	5915(0x171b)	0.000
StreamType:6-Private Data/AC3	1254(0x4e6)	0.000
ECM	5020(0x139c)	0.000

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.

IP Input

Status Basic Setting IGMP Setting Service Configuration

Batch Setting

1 2 3 4 5 6 7 8

Channel	Enable	Destination IP Address	Destination Port	Protocol	Smoothing Mode	Smoothing Bitrate Value(Mbps)	Pkt Length
1.1	☐	227.20.30.1	1234	UDP	Bitrate Auto Smoothing	--	Auto
1.2	☐	227.20.30.2	1234	UDP	Bitrate Auto Smoothing	--	Auto
1.3	☐	227.20.30.3	1234	UDP	Bitrate Auto Smoothing	--	Auto
1.4	☐	227.20.30.4	1234	UDP	Bitrate Auto Smoothing	--	Auto
1.5	☐	227.20.30.5	1234	UDP	Bitrate Auto Smoothing	--	Auto
1.6	☐	227.20.30.6	1234	UDP	Bitrate Auto Smoothing	--	Auto
1.7	☐	227.20.30.7	1234	UDP	Bitrate Auto Smoothing	--	Auto
1.8	☐	227.20.30.8	1234	UDP	Bitrate Auto Smoothing	--	Auto
1.9	☐	227.20.30.9	1234	UDP	Bitrate Auto Smoothing	--	Auto
1.10	☐	227.20.30.10	1234	UDP	Bitrate Auto Smoothing	--	Auto
1.11	☐	227.20.30.11	1234	UDP	Bitrate Auto Smoothing	--	Auto
1.12	☐	227.20.30.12	1234	UDP	Bitrate Auto Smoothing	--	Auto
1.13	☐	227.20.30.13	1234	UDP	Bitrate Auto Smoothing	--	Auto
1.14	☐	227.20.30.14	1234	UDP	Bitrate Auto Smoothing	--	Auto
1.15	☐	227.20.30.15	1234	UDP	Bitrate Auto Smoothing	--	Auto
1.16	☐	227.20.30.16	1234	UDP	Bitrate Auto Smoothing	--	Auto

Apply

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.

Batch Setting

Select All

☐ Enable
 ☐ Protocol
 ☐ Enable VLAN

Start Channel-End Channel

☐ Source IP Address
 ☐ Source Port
 ☒ TSIP Port
 ☐ TS Packets Per IP Packet

1 - 120

227.10.20.80

1234

1

7

Same

Same

Batch Setting

Apply

1 2 3 4 5 6 7 8

Channel	Enable	Source IP Address	Source Port	Protocol	TS Packets Per IP...	VLAN Enable	TSIP Port
1.1	☒	227.20.30.1	1234	UDP	Auto	Disable	2
1.2	☒	227.20.30.2	1234	UDP	Auto	Disable	2
1.3	☒	227.20.30.3	1234	UDP	Auto	Disable	2
1.4	☒	227.20.30.4	1234	UDP	Auto	Disable	2
1.5	☒	227.20.30.5	1234	UDP	Auto	Disable	2
1.6	☒	227.20.30.6	1234	UDP	Auto	Disable	2
1.7	☒	227.20.30.7	1234	UDP	Auto	Disable	2
1.8	☒	227.20.30.8	1234	UDP	Auto	Disable	2
1.9	☒	227.20.30.9	1234	UDP	Auto	Disable	2

IP Input > Service Configuration

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

TSolP Input Status Settings Batch Setting **Service Configuration**

Channel Select : Channel 1.1 **Channel Scan**

Service Name	Destination	Destination Settings
Channel 1.1		
[302] CCTV 2		
[303] CCTV 7		
Channel 1.2		
[5] BCE		
Channel 1.3		
[15037] TVP 1 HD		
Other PID(18)		
Other PID(20)		
Channel 1.4		
[1] Program-1		
Other PID(31)		
Channel 1.5		
[5] BCE		
Channel 1.6		

Apply
Clear Config

- 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.

Channel 1.1

☐ 1 GX-BP-16C-00 >>
☐ 5 GX-BP-8T-R01A >>
☐ 6 GX-2CI-BP-00 >>
☒ 17 Baseboard <<

Channel	Multiplex	Bypass
Channel1	☐	☒
Channel2	☐	☐
Channel3	☐	☐
Channel4	☐	☐
Channel5	☐	☐
Channel6	☐	☐
Channel7	☐	☐
Channel8	☐	☐
Channel9	☐	☐
Channel10	☐	☐
Channel11	☐	☐

OK **Cancel**

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						
Total Bitrate : 225.000 Mbps						
Channel	IP Address : Port	Effective Bitrate(Mb...	Total Bitrate(Mbps)	Bitrate	TS Analysis	Service List
1.1	224.0.5.1 : 5555	0.000	0.000	Normal	👁	📋
1.2	224.0.5.2 : 5555	8.201	15.000	Normal	👁	📋
1.3	224.0.5.3 : 5555	1.412	15.000	Normal	👁	📋
1.4	224.0.5.4 : 5555	8.377	15.000	Normal	👁	📋
1.5	224.0.5.5 : 5555	5.957	15.000	Normal	👁	📋
1.6	224.0.5.6 : 5555	1.958	15.000	Normal	👁	📋
1.7	224.0.5.7 : 5555	2.890	15.000	Normal	👁	📋
1.8	224.0.5.8 : 5555	4.349	15.000	Normal	👁	📋
1.9	0.0.0.0 : 0	0.000	0.000	Normal	👁	📋
1.10	0.0.0.0 : 0	0.000	0.000	Normal	👁	📋
1.11	224.0.5.11 : 5555	0.000	0.000	Normal	👁	📋
1.12	224.0.5.12 : 5555	0.000	0.000	Normal	👁	📋
1.13	224.0.5.13 : 5555	0.000	0.000	Normal	👁	📋
1.14	224.0.5.14 : 5555	0.000	0.000	Normal	👁	📋
1.15	224.0.5.15 : 5555	0.000	0.000	Normal	👁	📋

IP Output > Settings

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

IP Output									
Batch Setting ▾									
TX Interval: 100 (ms)									
< 1 2 3 4 5 6 7 8 >									
Channel	Enable	Source Port	Destination IP A...	Destination ...	Protocol	Pkt Length	Bitrate(...	Enable Destination MAC	Destination MAC
1.1	☒	1000	224.0.5.1	5555	UDP ▾	7 ▾	15	Disable ▾	01:00:5E:00:05:01
1.2	☒	1000	224.0.5.2	5555	UDP ▾	7 ▾	15	Disable ▾	01:00:5E:00:05:02
1.3	☒	1000	224.0.5.3	5555	UDP ▾	7 ▾	15	Disable ▾	01:00:5E:00:05:03
1.4	☒	1000	224.0.5.4	5555	UDP ▾	7 ▾	15	Disable ▾	01:00:5E:00:05:04
1.5	☒	1000	224.0.5.5	5555	UDP ▾	7 ▾	15	Disable ▾	01:00:5E:00:05:05
1.6	☒	1000	224.0.5.6	5555	UDP ▾	7 ▾	15	Disable ▾	01:00:5E:00:05:06
1.7	☒	1000	224.0.5.7	5555	UDP ▾	7 ▾	15	Disable ▾	01:00:5E:00:05:07
1.8	☒	1000	224.0.5.8	5555	UDP ▾	7 ▾	15	Disable ▾	01:00:5E:00:05:08
1.9	☐	1000	224.0.5.9	5555	UDP ▾	7 ▾	15	Disable ▾	01:00:5E:00:05:09
1.10	☐	1000	224.0.5.10	5555	UDP ▾	7 ▾	15	Disable ▾	01:00:5E:00:05:0A
1.11	☒	1000	224.0.5.11	5555	UDP ▾	7 ▾	15	Disable ▾	01:00:5E:00:05:0B

- 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 than 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.

Channel	Enable	Source Port	Destination IP A...	Destination ...	Protocol	Pkt Length	Bitrate...	Enable Destination MAC	Destination MAC
1.1	☒	1000	224.0.5.1	5555	UDP	7	15	Disable	01:00:5E:00:05:01
1.2	☒	1000	224.0.5.2	5555	UDP	7	15	Disable	01:00:5E:00:05:02
1.3	☒	1000	224.0.5.3	5555	UDP	7	15	Disable	01:00:5E:00:05:03
1.4	☒	1000	224.0.5.4	5555	UDP	7	15	Disable	01:00:5E:00:05:04
1.5	☒	1000	224.0.5.5	5555	UDP	7	15	Disable	01:00:5E:00:05:05

IP Output > Service Configuration

You can make configuration for output services and TS.

NO.	Service ID	Service Name	Service Provider
1	17714	Rai Sport + HD	Rai

- 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

GX-4C2CI-BP-00							
				Status	CI	Basic Setting	Service Configuration
System							
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.

Channel1.1 TS Analysis Reset Counter

Search

PID	Bitrate(Mbps)	Bandwidth(%)	Continuity Count Error	Type	Service
0x94(148)	0.000	0.000	0	Other	
0xc1(193)	0.010	0.026	2	EMM	
0xc6(198)	0.000	0.000	1	Other	
0x101(257)	0.000	0.000	0	Other	
0x102(258)	0.018	0.047	4	PMT	CCTV 2
0x103(259)	0.019	0.050	1	PMT	CCTV 7
0x104(260)	0.018	0.047	4	PMT	CCTV 10
0x105(261)	0.016	0.042	3	PMT	CCTV 11

Tips:

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

Channel : 1.1		Channel : 1.2		Channel : 1.3		Channel : 1.4	
#	Service	#	Service	#	Service	#	Service
1	[1] Rai News 24 HD	1	[1] Rai 1 HD	1	[1] Cine34 HD	1	[1] 27Twentyseven HD
2	[2] Rai Gulp HD	2	[2] Rai 2 HD	2	[2] 20Mediaset HD	2	[2] MotorTrend
3	[3] Rai Sport + HD	3	[3] Rai 3 HD	3	[3] Italia1 HD	3	[3] Giallo
4	[4] Rai 5 HD	4	[4] Rai 4 HD	4	[4] Canale5 HD	4	[4] Nove
5	[5] Rai 3 TGR Veneto			5	[5] Iris HD	5	[5] HGTV Italy

You can check program details by clicking the program item.

[1] Rai News 24 HD

Type	PID	Bitrate(Mbps)
PCR	1810(0x712)	0.000
PMT	1981(0x7bd)	0.000
StreamType:27-Video(H264)	1810(0x712)	0.000
StreamType:3-Audio	1811(0x713)	0.000
StreamType:6-Private Data/AC3	571(0x23b)	0.000
AIT	2011(0x7db)	0.000
AIT	2012(0x7dc)	0.000
PrivateData	3011(0xbc3)	0.000
PrivateData	3012(0xbc4)	0.000
PrivateData	3101(0xc1d)	0.000

Close

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

Channel	Frequency(KHz)	SymbolRate(KBaud)	Reboot Tuner
1.1	794000	6900	Reboot
1.2	802000	6900	Reboot
1.3	810000	6900	Reboot
1.4	818000	6900	Reboot

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 Name	Descrambling	Destination	Destination Setting
[1] Rai News 24 HD	CAM1		
[0x712] Video	CAM1		
[0x713] Audio	CAM1		
[0x23b] Audio	CAM1		
[0x7db] AIT PID	No Descrambling		
[0x7dc] AIT PID	No Descrambling		
[0xbc3] Private data PID	No Descrambling		
[0xbc4] Private data PID	No Descrambling		
[0xc1d] Private data PID	No Descrambling		

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.

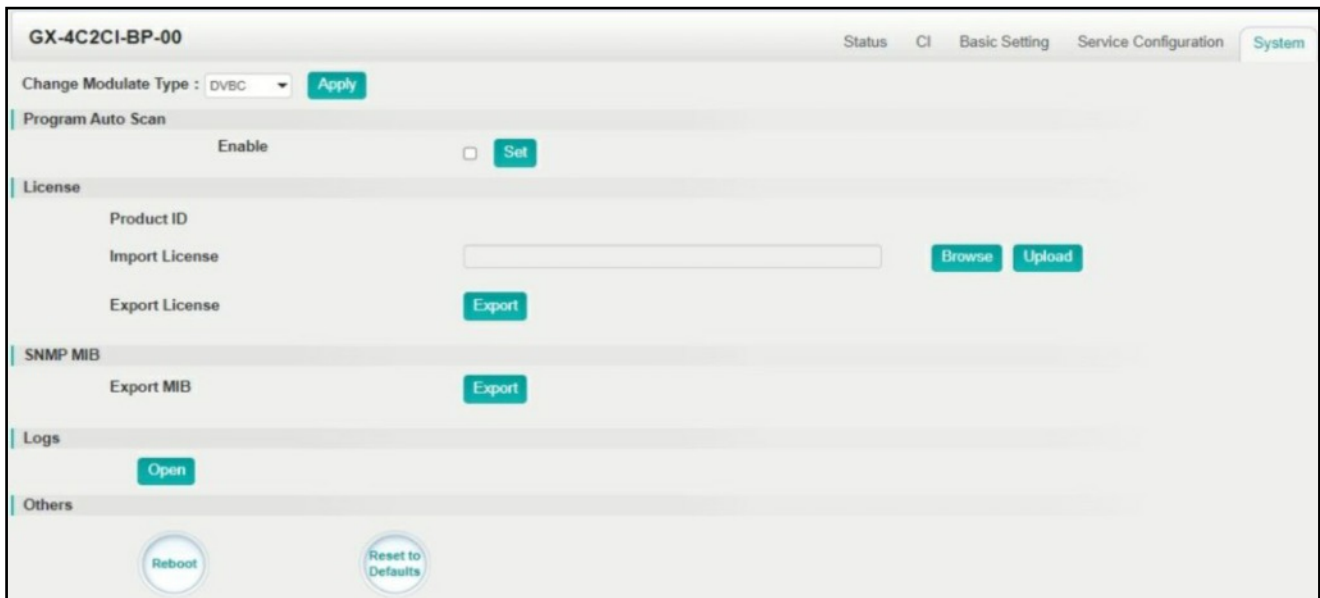
First, you need to scan the port on each LOCKED TS. Each port might be scanned automatically or needed to be scanned manually when its source is changed.

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

GX-4S2CI-BP-01									
Status CI Biss Basic Setting Service Configuration IP Output System									
Channel	Satellite Frequency(MHz)	SymbolRate(KBaud)	LNB Frequency(MHz)	LNB Power	LNB 22KHz	DiSEqC Level	DiSEqC Port	DiS	
1.1	11013	29900	9750	18v	off	1.0	1	FFFF	Apply
1.2	11258	27500	9750						
2.1	11393	27500	9750	13v	off	1.0	1	FFFF	
2.2	11432	29900	9750						

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

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	0.00000000	-33dBm (75dBuV)	13.400	5	3/4	8PSK
2.1	Locked	61.273	56.209	0.00000000	-30dBm (78dBuV)	12.400	4	3/4	8PSK
3.1	Locked	61.271	57.830	0.00000000	-24dBm (84dBuV)	14.200	6	3/4	8PSK
4.1	Locked	65.111	65.093	0.00000000	-24dBm (84dBuV)	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.

Channel 1.1 TS Analysis					
					Reset Counter
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	
0x115(501)	0.075	0.115	0	Audio	Rai 3 TGR Puglia
0x116(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		Channel : 2.1		Channel : 3.1		Channel : 4.1	
#	Service	#	Service	#	Service	#	Service
1	[17711] Rai News 24 HD	1	[15201] Realtime Italy	1	[4330] TVN24 BIS HD	1	[111] Cine34 HD
2	[17712] Rai Gulp HD	2	[15202] DMAX Italy	2	[4331] HGTV HD	2	[118] VIRGIN RADIO
3	[17714] Rai Sport + HD	3	[15203] Food Network Italy	3	[4323] Nove	3	[119] RADIO MONTE CARLO
4	[17716] Rai 5 HD	4	[15204] K2	4	[4322] Giallo	4	[120] 20Mediaset HD
5	[17718] UNINETTUNO UNI...	5	[15205] Frisbee	5	[4321] MotorTrend	5	[121] Italia1 HD
6	[17731] Rai 3 TGR Puglia	6	[15206] Animal Planet Polan...	6	[4320] Discovery Life	6	[122] Canale5 HD
7	[17732] Rai 3 TGR Basilicata	7	[15207] Eurosport 1 Poland ...	7	[4334] HGTV Italy	7	[123] Rete4 HD
8	[17733] Rai 3 TGR Calabria	8	[15208] Eurosport 2 Poland ...	8	[4332] Food Network HD EM...	8	[124] Iris HD

You can check program details by clicking the program item.

GX-4S2FTA-BP-01 > Setting

Channel	Satellite Frequency(MHz)	SymbolRate(KBaud)	LNB Frequency(MHz)	LNB Power	LNB 22KHz	DiSEqC Level	DiSEqC Port
1.1	11013	29900	9750	18v	off	1.0	1
2.1	11250	27500	9750	18v	off	1.0	1
3.1	11393	27500	9750	13v	off	1.0	1
4.1	11432	29900	9750	13v	off	1.0	1

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.

Biss ID	Mode	Key	Injected ID
No Data			

Service Information	Biss ID
[1.1][17711] Rai News 24 HD	Biss-Off
[1.1][17712] Rai Gulp HD	Biss-Off
[1.1][17714] Rai Sport + HD	Biss-Off
[1.1][17716] Rai 5 HD	Biss-Off
[1.1][17718] UNINETTUNO UNIVER	Biss-Off
[1.1][17731] Rai 3 TGR Puglia	Biss-Off
[1.1][17732] Rai 3 TGR Basilicata	Biss-Off
[1.1][17733] Rai 3 TGR Calabria	Biss-Off
[1.1][17734] Rai 3 TGR Sicilia	Biss-Off
[1.1][17735] Rai 3 TGR Liguria	Biss-Off
[1.1][17736] Rai 3 TGR Toscana	Biss-Off
[1.1][17737] Rai 3 TGR Umbria	Biss-Off
[1.1][17738] Rai 3 TGR Marche	Biss-Off

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

GX-4S2FTA-BP-01 > Service Configuration

GX-4S2FTA-BP-01

Status Biss Basic Setting **Service Configuration** IP Output System

Channel Select : Channel 1.1 Scanning Time(ms) : 1000 SI Search Time(ms) : 5000 Program Scan

Service Name	Destination	Destination Setting
Channel 1.1 +		
[17711] Rai News 24 HD	6.GX-2CI-BP-00[1.1]	
[0x712] Video		
[0x713] Audio		
[0x23b] Audio		
[0x7db] AIT PID		
[0x7dc] AIT PID		
[0xbc3] Private data PID		
[0xbc4] Private data PID		
[0xc1d] Private data PID		
[17712] Rai Gulp HD	6.GX-2CI-BP-00[1.1]	

Apply Clear Config

Channel 1.1

1.GX-BP-16C-00 2.IP Direct Output 5.GX-BP-ST-R01A 6.GX-2CI-BP-00 17.Baseboard

Channel	Multiplex	Bypass
Channel1		
Channel2		
Channel3		
Channel4		
Channel5		
Channel6		
Channel7		
Channel8		
Channel9		
Channel10		
Channel11		
Channel12		

OK Cancel

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

Status Biss Basic Setting **Service Configuration** IP Out

Channel Select : Channel 1.1 Scanning Time(ms) : 1000 SI Search Time(ms) : 5000 Program Scan

Service Name	Destination	Destination Setting
Channel 1.1 +		
[17711] Rai News 24 HD	6.GX-2CI-BP-00[1.1]	

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

Total Bitrate : 225.000 Mbps

Channel	IP Address : Port	Effective Bitrate(Mb...	Total Bitrate(Mbps)	Bitrate	TS Analysis	Service List
1.1	224.0.5.1 : 5555	0.000	0.000	Normal		
1.2	224.0.5.2 : 5555	8.202	15.000	Normal		
1.3	224.0.5.3 : 5555	1.454	15.000	Normal		
1.4	224.0.5.4 : 5555	7.551	15.000	Normal		
1.5	224.0.5.5 : 5555	3.672	15.000	Normal		
1.6	224.0.5.6 : 5555	1.964	15.000	Normal		
1.7	224.0.5.7 : 5555	3.705	15.000	Normal		
1.8	224.0.5.8 : 5555	4.609	15.000	Normal		
1.9	0.0.0.0 : 0	0.000	0.000	Normal		
1.10	0.0.0.0 : 0	0.000	0.000	Normal		
1.11	224.0.5.11 : 5555	0.000	0.000	Normal		
1.12	224.0.5.12 : 5555	0.000	0.000	Normal		
1.13	224.0.5.13 : 5555	0.000	0.000	Normal		
1.14	224.0.5.14 : 5555	0.000	0.000	Normal		
1.15	224.0.5.15 : 5555	0.000	0.000	Normal		

Channel : 1.2

#	Service
1	[17714] Rai Sport + HD

Channel 1.2 TS Analysis

Reset Counter

PID	Bitrate(Mbps)	Bandwidth(%)	Continuity Count Error	Type	Service
0x0(0)	0.015	0.100	0	PAT	
0x1(1)	0.015	0.100	0	CAT	
0x10(16)	0.015	0.100	0	Unknown	
0x11(17)	0.015	0.100	0	SDT	
0x12(18)	0.015	0.100	0	EIT	
0x23c(572)	0.115	0.767	0	Audio	Rai Sport + HD
0x730(1840)	7.136	47.573	0	PCR, Video	Rai Sport + HD
0x731(1841)	0.197	1.313	0	Audio	Rai Sport + HD

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.

GX-4S2FTA-BP-01 Status Biss Basic Setting Service Configuration **IP Output** System

Status Setting Service Configuration

Batch Setting ^

Select All ☐ Enable ☐ Source Port ☐ Protocol ☐ Bitrate

Start Channel-End Channel 1 ~ 64

☐ Destination IP Address 227.10.20.80 Same

☐ Destination Port 1234 Same

☐ Pkt Length 7

☐ Enable Destination MAC Disable AA-BB-CC-DD-EE-FF

Batch Setting

TX Interval: 100

Channel	Enable	Source Port	Destination IP Address	Destination Port	Protocol	Pkt Length	Bitrate(Mbps)	Enable Destination MAC	Destination MAC
1.1	☐	1000	227.10.30.1	1234	UDP	7	25	Disable	00:00:00:00:00:00
1.2	☐	1000	227.10.30.2	1234	UDP	7	25	Disable	00:00:00:00:00:00
1.3	☐	1000	227.10.30.3	1234	UDP	7	25	Disable	00:00:00:00:00:00
1.4	☐	1000	227.10.30.4	1234	UDP	7	25	Disable	00:00:00:00:00:00
1.5	☐	1000	227.10.30.5	1234	UDP	7	25	Disable	00:00:00:00:00:00



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.

GX-4S2FTA-BP-01 Status Biss Basic Setting Service Configuration **IP Output** System

Status Setting Service Configuration

Click "Apply" after modifying your parameters to save the configuration.

[1.1] TS 1. Rai News 24 HD 2.1.1

[1.1] TS

Original Network ID 0

TS ID 0

NO.	Service ID	Service Name	Service Provider
1	17711	Rai News 24 HD	Rai

OK Cancel

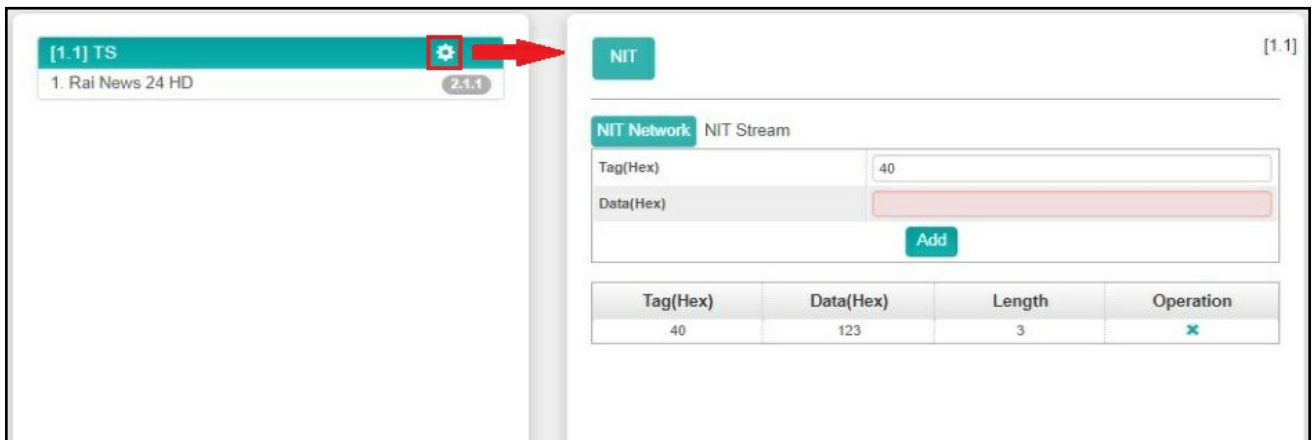
Apply Clear Config

[1.1] TS 1. Rai News 24 HD 2.1.1

[1.1] TS >> Rai News 24 HD

Service ID	17711
Service Name	Rai News 24 HD
Service Provider	Rai
Service Type	25
PCR PID	1810
PMT PID	1981
Video(H264)	1810
Audio	1811

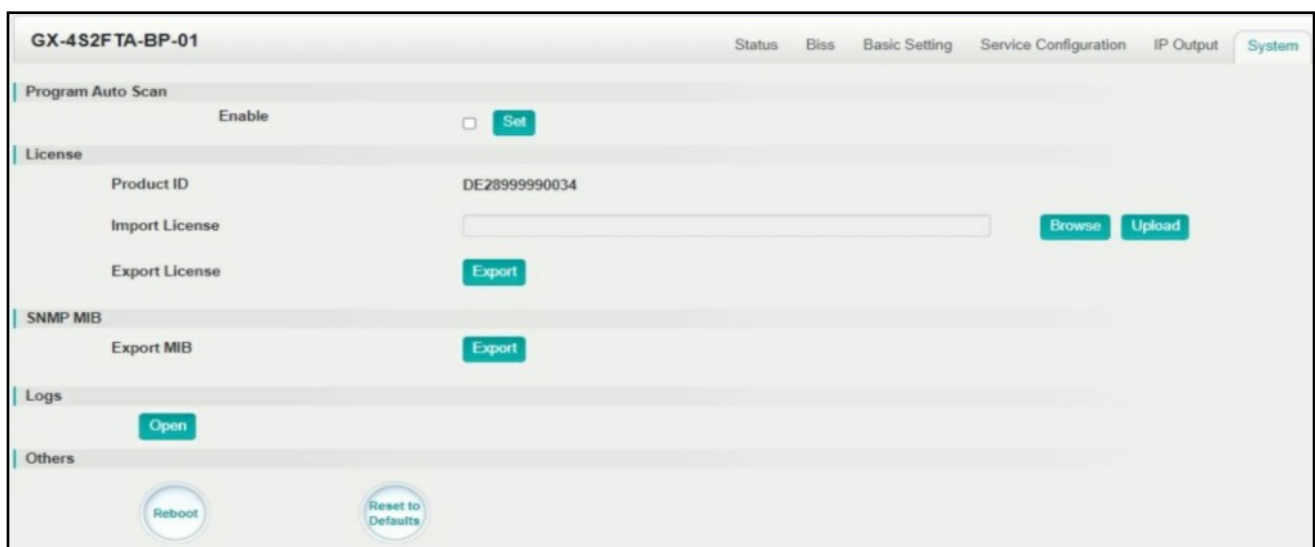
- TS setting: Click TS line (the green area) to configure Original Network ID, TS ID and each Service ID, Service Name, and Service Provider, etc.
- NIT setting: Click the icon  to modify NIT Network and NIT Stream.



GX-4S2FTA-BP-01 > System

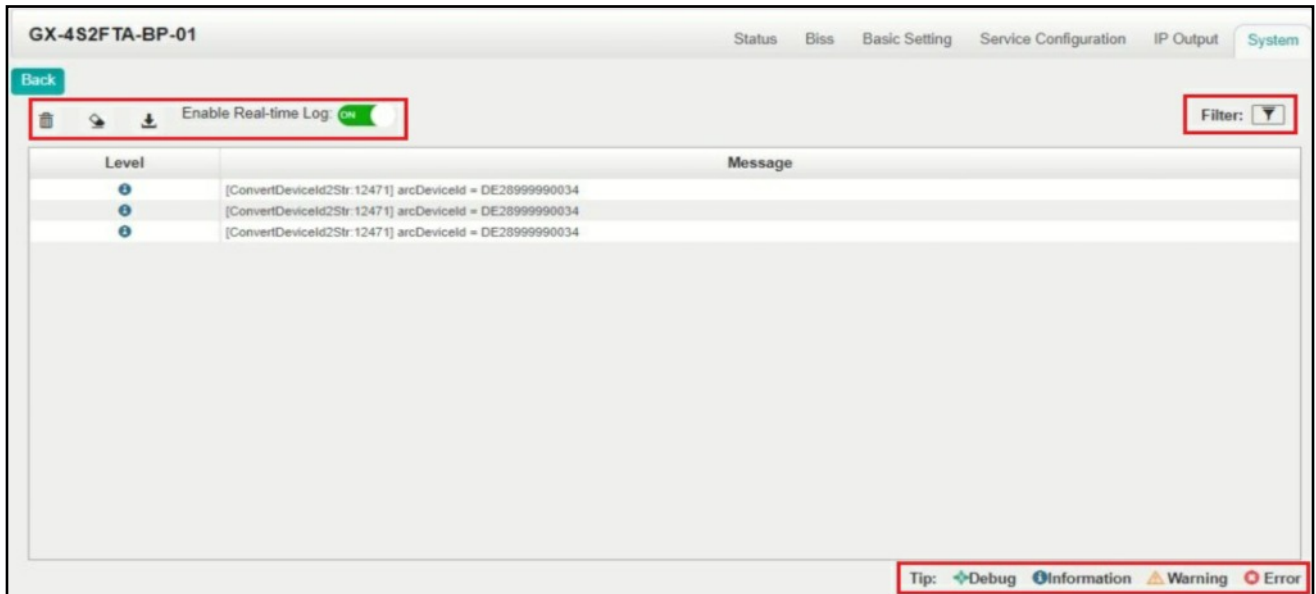
On **System** page you can import/export **License**, export SNMP MIB files, **Reboot** module, restore **factory default settings** and manage **logs**.

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

GX-4T2CI-BP-00

Status

CI

Basic Setting

Service Configuration

System

T2 MI: ☐

Channel	Frequency(KHz)	Bandwidth(MHz)	PLP ID	Reboot Tuner
1.1	538000	8	0	Reboot
1.2	546000	8	0	Reboot
1.3	554000	8	0	Reboot
1.4	562000	8	0	Reboot

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							
Status Basic Setting Insertion Output System							
HDCP turned on.							
Program	Signal	HDCP Encryption	Input Video Resolution	Output Video Resolution	Total Bitrate(Mbps)	Effective Bitrate(Mbps)	TS Analysis
1	✖	Unencrypted	No_Video	No_Video	0.000	0.000	👁
2	✖	Unencrypted	No_Video	No_Video	0.000	0.000	👁
3	✖	Unencrypted	No_Video	No_Video	0.000	0.000	👁
4	✖	Unencrypted	No_Video	No_Video	0.000	0.000	👁

GX-4HDMI-BP-R01 > Basic Setting

GX-4HDMI-BP-R01		
Status Basic Setting Insertion Output System		
Advanced Setting >		
Program	Video Encoding Format	Video Bitrate(Kbps)
1	H.264	4000
2	H.264	4000
3	H.264	7000
4	H.264	7000

HDCP Test Mode : ☒ ON

HDCP test mode is for test purposes only. Please make sure you have the right to use the content!

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

GX-4HDMI-BP-R01
Status Basic Setting Insertion **Output** System

Direct IP Output Multiplexing

Program	Enable	Destination IP Address	Destination Port	Enable Destination MAC	Destination MAC
1	☐	227.10.20.90	1234	Disable	01:00:5E:0A:14:5A
2	☐	227.10.20.90	1235	Disable	00:00:00:00:00:00
3	☐	227.10.20.90	1236	Disable	00:00:00:00:00:00
4	☐	227.10.20.90	1237	Disable	00:00:00:00:00:00

Apply



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.

GX-4HDMI-BP-R01 Status Basic Setting Insertion **Output** System

Direct IP Output **Multiplexing**

Program	Program Name	Destination	Destination Setting
1	Simone	1.GX-BP-8T-R01A[1.4] 17.Baseboard[1.4]	
2	Luca		
3	Emanuele		
4	technical		

Apply

Clear Config

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.

GX-4HDMI-BP-R01 Status Basic Setting **Insertion** Output System

Program1 2 3 4

- 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.

GX-4HDMI-BP-R01 Status Basic Setting **Insertion** Output System

Program1 2 3 4

LOGO QR Code OSD

Preview(No real resolution, just for visual review)

Reference Output Video Resolution: 1920*1080

Switch: ☒ Enable

Position: X 0 [0,1720] Y 0 [0,880]

Size: Width 200 Height 200

Empty the uploaded pictures

Selected: Pic1

Pic1 Pic2 Pic3 Pic4

Tip : ■ Logo ■ QR Code ■ OSD

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:

LOGO

QR Code

OSD

Preview(No real resolution, just for visual review)

Reference Output Video Resolution: 1920*1080

Apply

Switch: ☒ Enable

Position: Bottom

Position Offset: 0 [0~200]

Horizontal Pixel: 1920

Font Size: 20

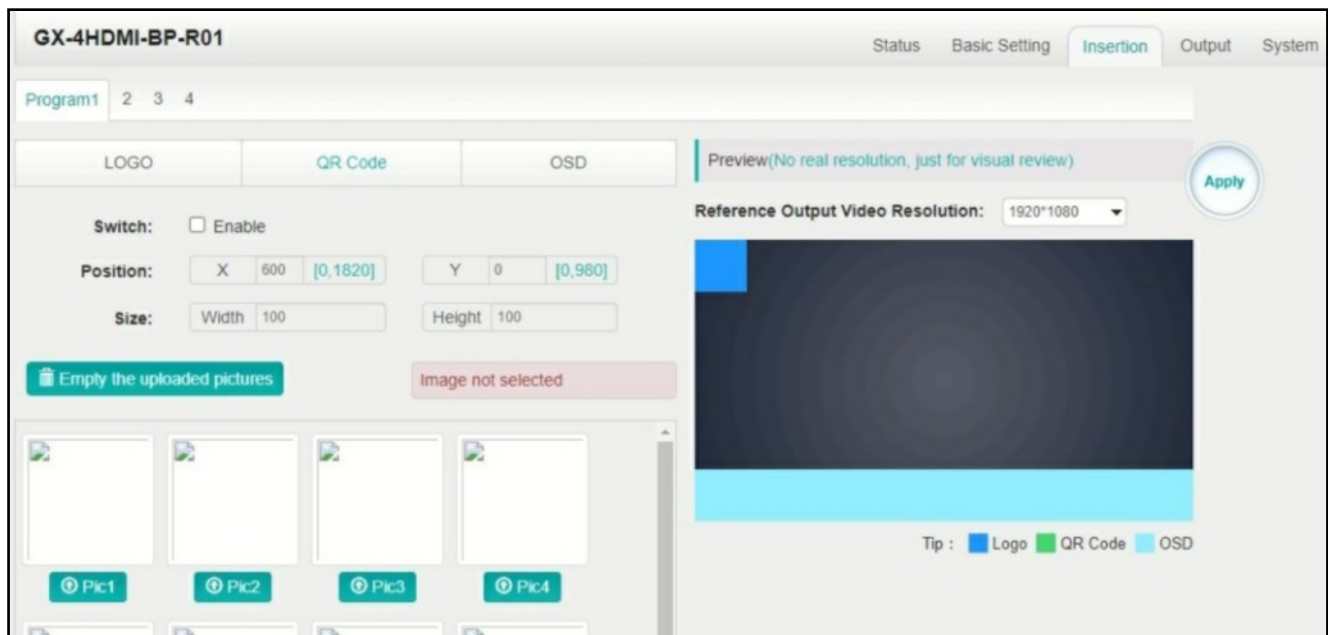
Display Interval: 3

OSD: Welcome!

Tip : Logo QR Code OSD

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		

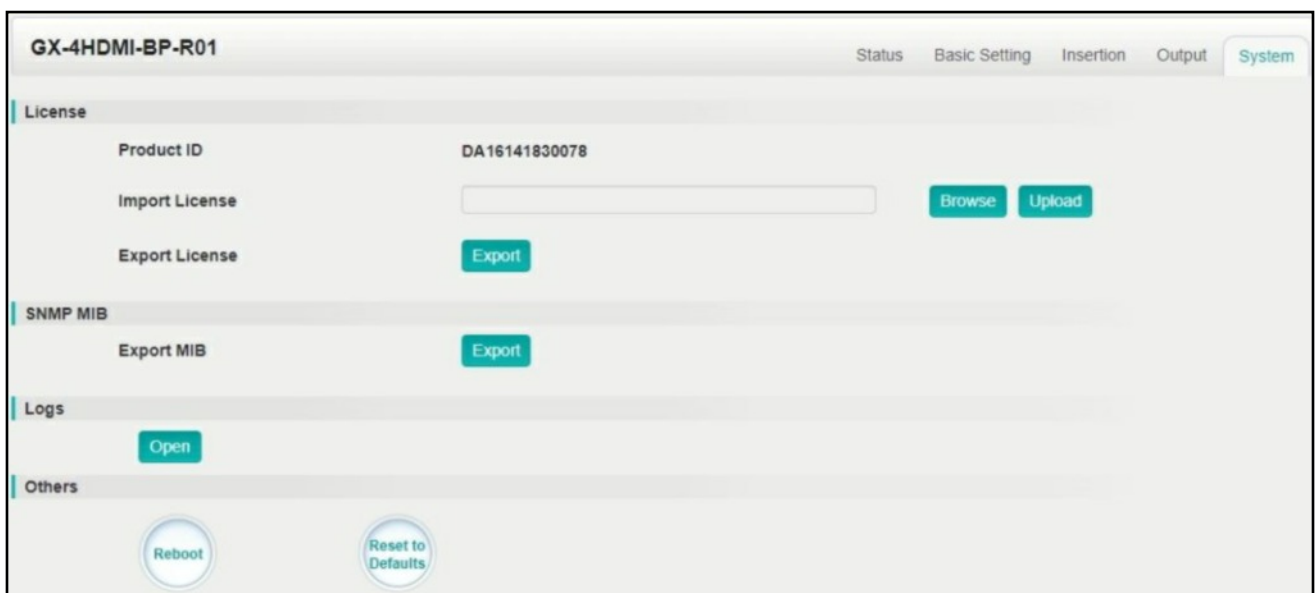
- **QR Code setting:** QR Code picture picking method is same as LOGO setting.



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

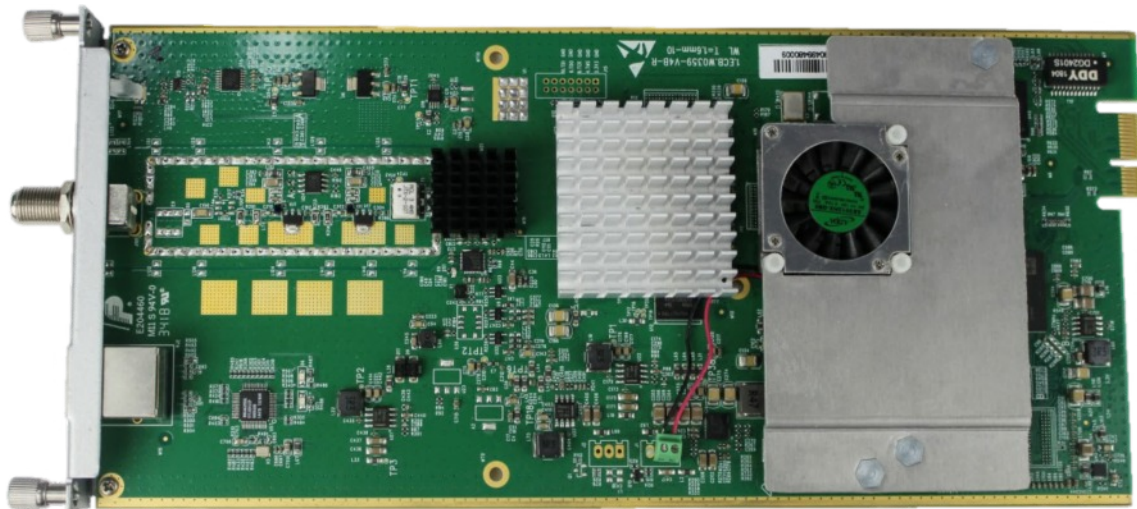
Please refer to GX-4C2CI-BP-00 (DVB-C receiver module).



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.

GX-BP-16C-00
Status
Basic Setting
Output
System

RF Level: 90 (dBmV dBuV)
PSI/SI Interval(ms): 100

Channel	Enable	Frequency(KHz)	Bandwidth(MHz)	Constellation	SymbolRate(KBaud)
1.1	☒	200000	8	QAM256	6900
1.2	☒	208000	8	QAM256	6900
1.3	☐	216000	8	QAM256	6900
1.4	☐	224000	8	QAM256	6900
1.5	☐	232000	8	QAM256	6900
1.6	☐	240000	8	QAM256	6900
1.7	☐	248000	8	QAM256	6900
1.8	☐	256000	8	QAM256	6900
1.9	☐	264000	8	QAM64	6875
1.10	☐	272000	8	QAM64	6875
1.11	☐	280000	8	QAM64	6875
1.12	☐	288000	8	QAM64	6875

Apply

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. (Transport 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.

NO.	Service ID	Service Name	Service Provider
1	1451	Rai 1	Rai
2	1452	Rai 2	Rai

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.

Click "Apply" after modifying your parameters to save the configuration.

[1.1] TS

1. Rai 1	3.1.1
2. Rai 2	3.1.1

Tag: 0x 40 Network Name: 0 **Add**

Tag	Data	Length	Operation
0x40	123	3	✕

NIT Stream

Original Network ID: 8572 TS ID: 1 **Add**

ONID	TS ID	Descriptor	Operation
8572	1		✕ +Descriptor

NIT Actual

Network ID 1234 **OK**

Apply Clear Config

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

3) Select **Descriptors**

Click "Apply" after modifying your parameters to save the configuration.

[1.1] TS

1. Rai 1	3.1.1
2. Rai 2	3.1.1

Tag: 0x 40 Network Name: 0 **Add**

Tag	Data	Length	Operation
0x40	123	3	✕

NIT Stream

Original Network ID: 8572 TS ID: 1 **Add**

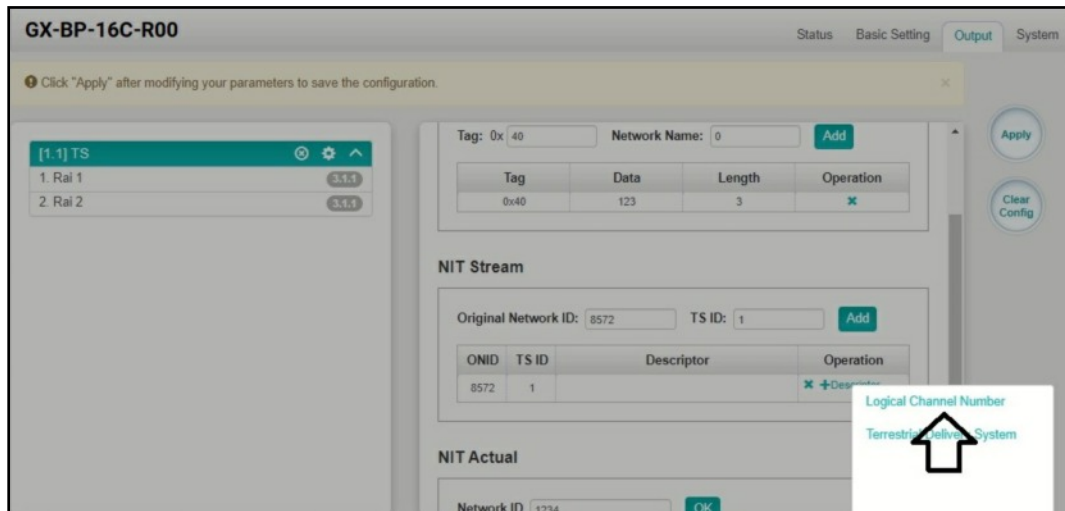
ONID	TS ID	Descriptor	Operation
8572	1		✕ +Descriptor

NIT Actual

Network ID 1234 **OK**

Apply Clear Config

4) Select Logical Channel Number

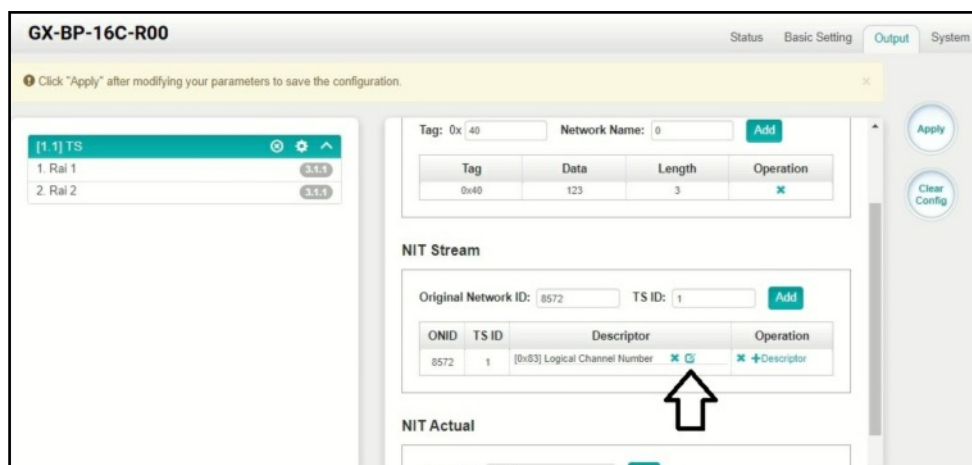


5) Set the **desired LCN** value and select with the check mark the programs for which you want to distribute the LCN value in the output transport stream. Confirm with OK.



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

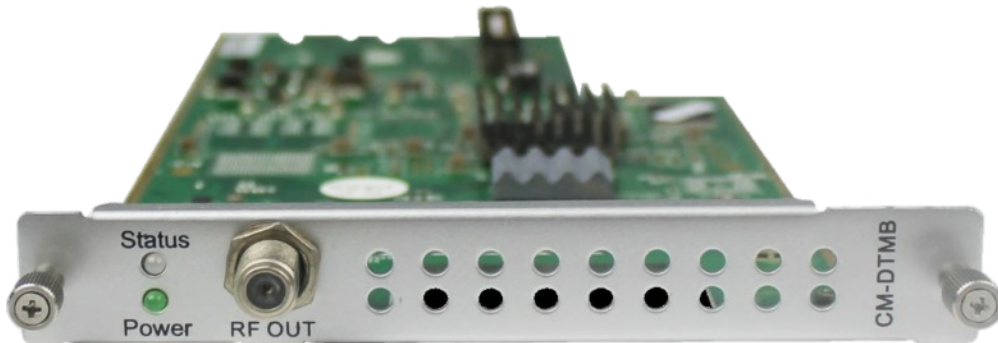
6) Select the **modify** menu if you wish to check or modify the previously set LCN values.



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

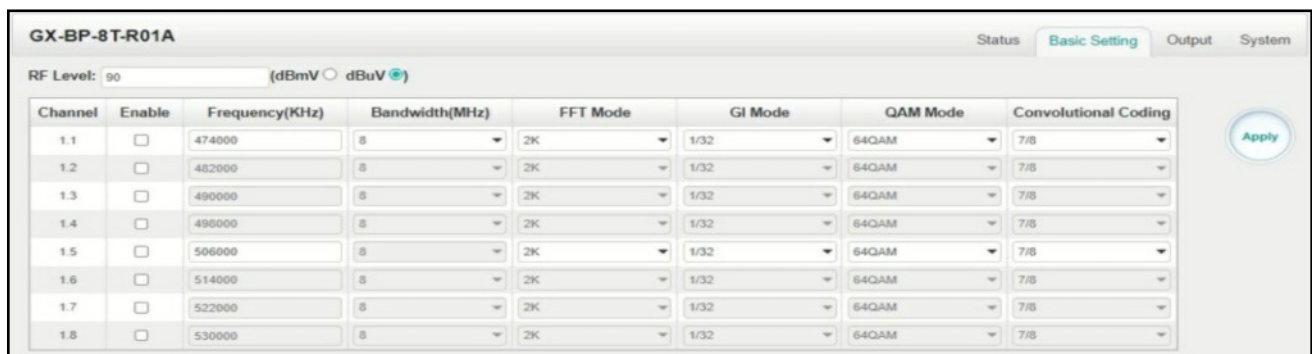
5.3.2 GX-BP-8T-R01A

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



Channel	Enable	Frequency(KHz)	Bandwidth(MHz)	FFT Mode	GI Mode	QAM Mode	Convolutional Coding
1.1	☐	474000	8	2K	1/32	64QAM	7/8
1.2	☐	482000	8	2K	1/32	64QAM	7/8
1.3	☐	490000	8	2K	1/32	64QAM	7/8
1.4	☐	498000	8	2K	1/32	64QAM	7/8
1.5	☐	506000	8	2K	1/32	64QAM	7/8
1.6	☐	514000	8	2K	1/32	64QAM	7/8
1.7	☐	522000	8	2K	1/32	64QAM	7/8
1.8	☐	530000	8	2K	1/32	64QAM	7/8

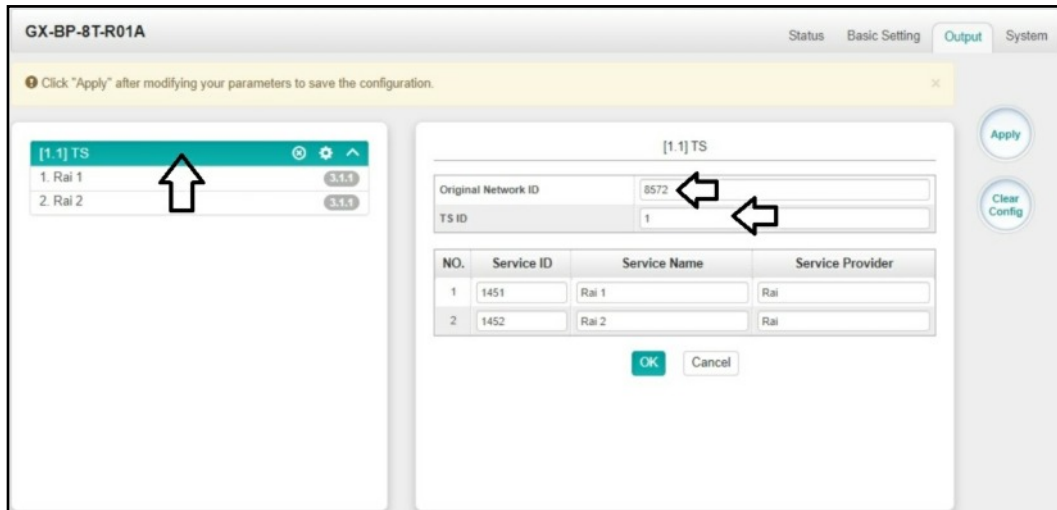
Click the **Apply** button on the right side to make the change takes effect.

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. (Transport 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

NOTE. In some countries (for example France) it is necessary to set the NIT to a fixed value, to do this go to the PSIP page and enable the option for each individual channel.



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.

Click "Apply" after modifying your parameters to save the configuration.

Tag: 0x40 Network Name: 0 Add

Tag	Data	Length	Operation
0x40	123	3	✖

NIT Stream

Original Network ID: 8572 TS ID: 1 Add

ONID	TS ID	Descriptor	Operation
8572	1		✖ +Descriptor

NIT Actual

Network ID: 1234 OK

Specify the desired NIT value in the **NIT Actual** section and confirm with **APPLY**

Click "Apply" after modifying your parameters to save the configuration.

NIT Stream

Original Network ID: 0 TS ID: 0 Add

ONID	TS ID	Descriptor	Operation
			No Data

NIT Actual

Network ID: 8442 Version Number: 30 OK

Apply

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

3) Select **Descriptors**

Click "Apply" after modifying your parameters to save the configuration.

Tag: 0x40 Network Name: 0 Add

Tag	Data	Length	Operation
0x40	123	3	✖

NIT Stream

Original Network ID: 8572 TS ID: 1 Add

ONID	TS ID	Descriptor	Operation
8572	1		✖ +Descriptor

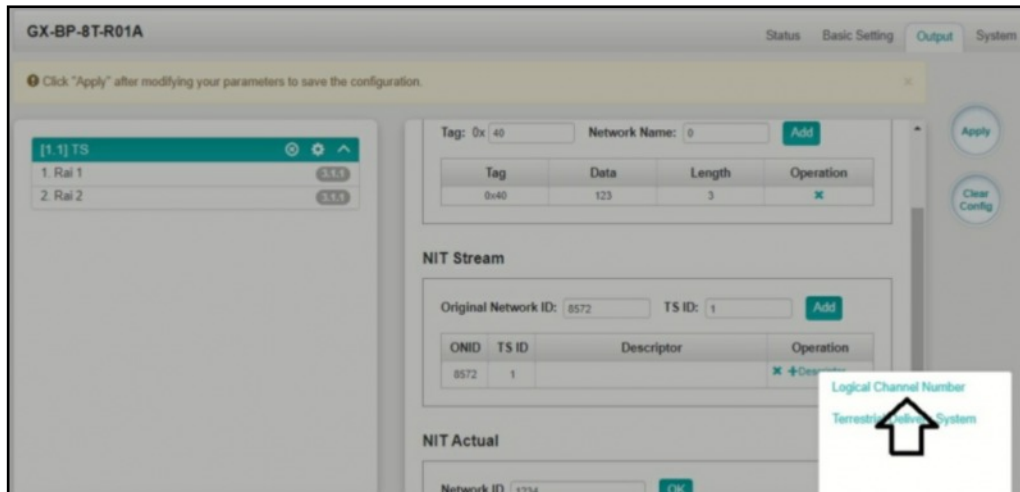
NIT Actual

Network ID: 1234 OK

Apply

Clear Config

4) Select Logical Channel Number

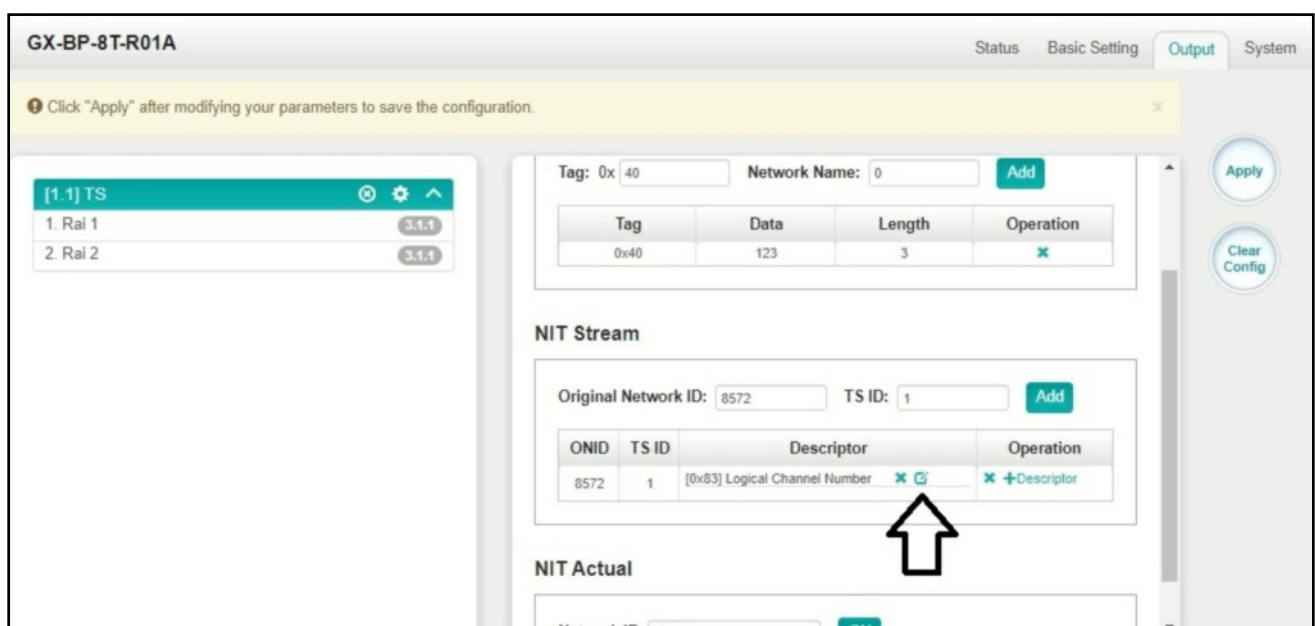


5) Set the **desired LCN** value and select with the check mark the programs for which you want to distribute the LCN value in the output transport stream. Confirm with OK.



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.

GX-2CI-BP-00				
		Status CI Service Configuration System		
Channel	Total Bitrate(Mbps)	Effective Bitrate(Mbps)	TS Analysis	Service List
1.1	47.997	47.997		
1.2	31.137	31.137		

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.

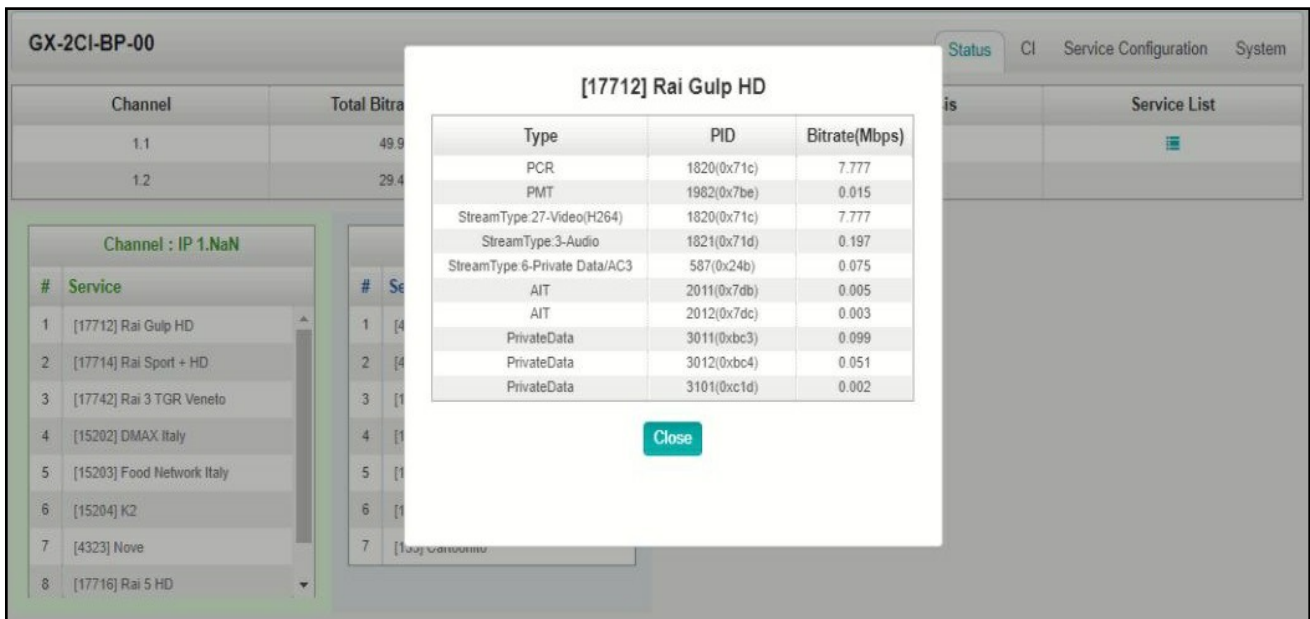
- TS Analysis

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.

Channel IP 1.NaN TS Analysis					
					Reset Counter ✕
Search					
PID	Bitrate(Mbps)	Bandwidth(%)	Continuity Count Error	Type	Service
0x0(0)	0.015	0.030	0	PAT	
0x11(17)	0.030	0.059	0	SDT	
0x110(272)	0.030	0.059	0	PMT	Nove
0x12e(302)	0.030	0.059	0	PMT	DMAX Italy
0x12f(303)	0.030	0.059	0	PMT	Food Network Italy
0x130(304)	0.030	0.059	0	PMT	K2
0x1f6(502)	7.160	14.134	0	PCR, Video	DMAX Italy
0x1f7(503)	3.120	6.159	0	PCR, Video	Food Network Italy

- Service List

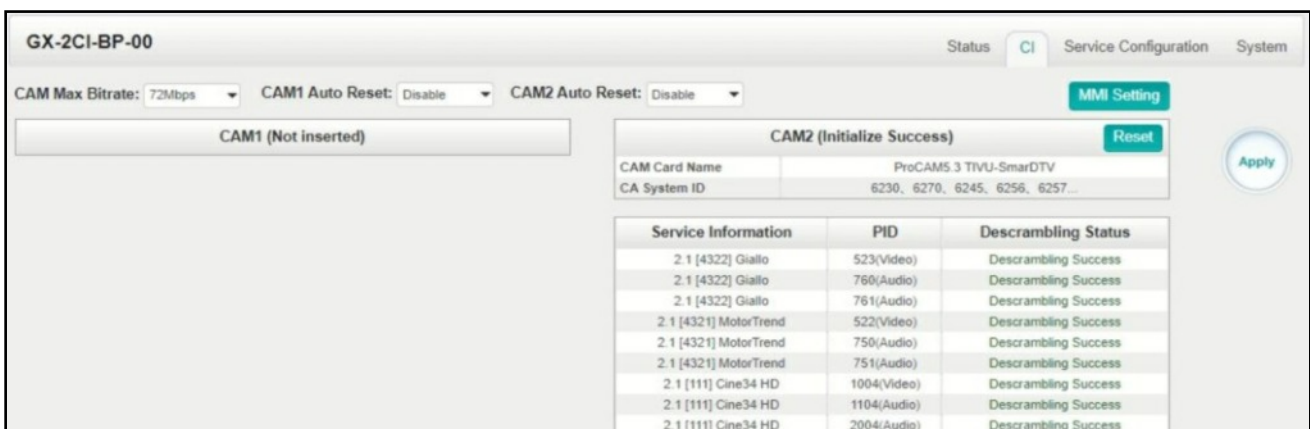
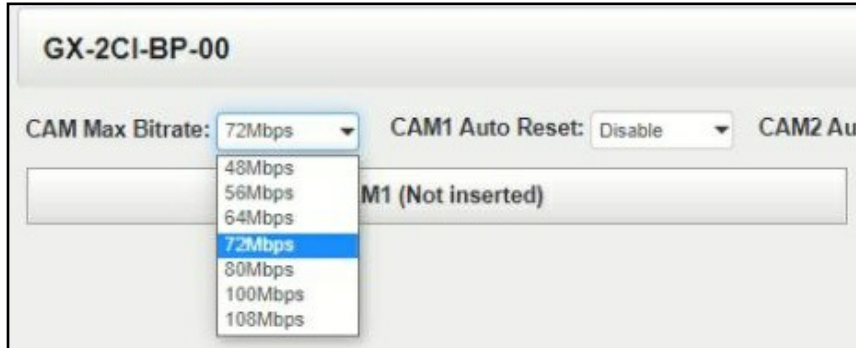
Click a service name to check the detailed info of this service.



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.



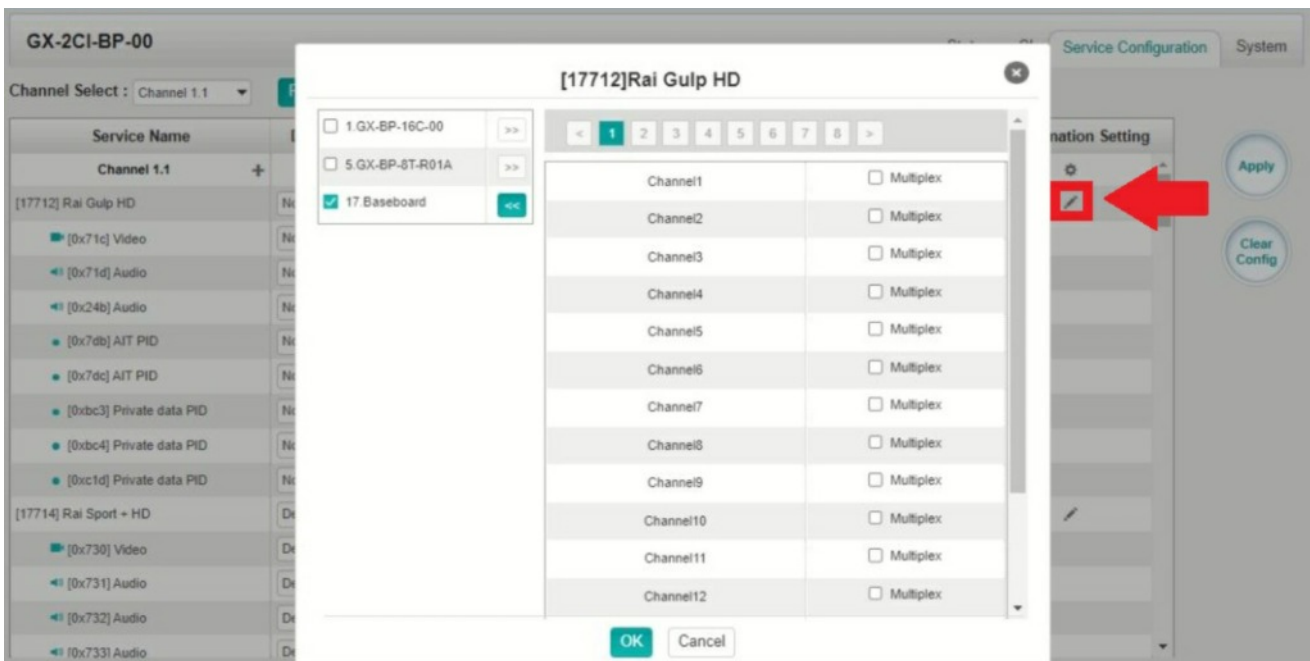
Click **Reset** to reboot the CAM card. Click the **Apply** button on the right side to make the change takes effect.

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.

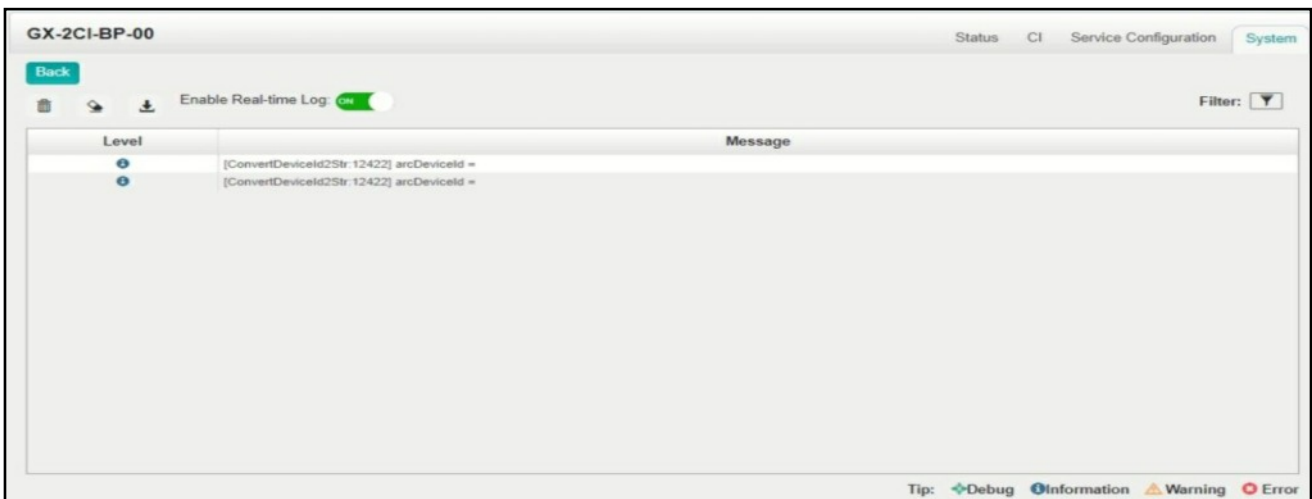
Click **Clear Config** to clear all configurations.

GX-2CI-BP-00 > System



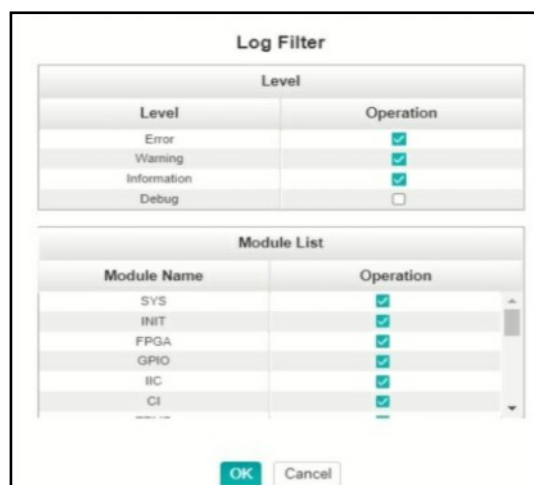
On **System** page you can import/export **License**, **Reboot** module, **Factory Reset** and manage **Logs**.

- 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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