



# OmniHub 6/6D

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## User Manual



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
## **About Sencore**

Sencore is an engineering leader in the development of high-quality signal transmission solutions for the broadcast, cable, satellite, IPTV, telecommunications, and professional audio/video markets. The company's world-class portfolio includes video delivery products, system monitoring and analysis solutions, and test and measurement equipment, all designed to support system interoperability and backed by best-in-class customer support. Sencore meets the rapidly changing needs of modern media by ensuring the efficient delivery of high-quality video from the source to the home. For more information, visit [www.sencore.com](http://www.sencore.com)

## Revision History

Date	Version	Description	Author
06/27/19	1.1	Initial Release	JTF
12/06/19	1.2	Add New Modules	EH
05/24/20	1.3	Update UI and add new modules	RS
07/26/20	1.4	Update descrambling configuration descriptions	SW
31/3/2023	1.5	Add CMP Chassis and daughter boards power consumption.	Fr
30/1/2024	1.6	Update Safety Instructions	RF
20/3/2024	1.7	Update Appendix	JS
23/3/2024	1.8	Update the information of Appendix A-Power Consumption	SW

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 import 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 serial of operation steps mentioned in the context.

This guide also contains the following text conventions.



# Safety Instructions

- Read these instructions
- Keep these instructions
- Heed all warnings
- Follow all instructions
- Do not use this apparatus near water
- Clean only with dry cloth
- Do not block any ventilation openings. Install the unit in accordance with the manufacturer's instructions
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat
- Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer.
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
- Do not expose this apparatus to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the apparatus.
- To completely disconnect this apparatus from the AC Mains, disconnect the power supply cord plug from the AC receptacle.
- The mains plug of the power supply cord shall remain readily operable.
- **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 dropped or damaged in any way.
  - The product exhibits a distinct change in performance.
- **Replacement Parts:** When replacement parts are required, be sure the service technician uses replacement parts specified by Sencore, or parts having the same operating characteristics as the original parts. Unauthorized part substitutions made may result in fire, electric shock or other hazards.


- While user is upgrading the module/chassis, the devices could not be power off. Meanwhile, user's PC should have stable network connect to CMP while upgrading until it finishes. If the module could not finish the upgrade due to incidental interruption, there is a risk that the devices would be damaged and probably would be needed to send back to us for repairing.
- Do not open the chassis if getting no instructions and approval from manufacturer in warranty.

## SAFETY PRECAUTIONS

**There is always a danger present when using electronic equipment.**

Unexpected high voltages can be present at unusual locations in defective equipment and signal distribution systems. Become familiar with the equipment that you are working with and observe the following safety precautions.

- Every precaution has been taken in the design of your product to ensure that it is as safe as possible. However, safe operation depends on you the operator.
- Always be sure your equipment is in good working order. Ensure that all points of connection are secure to the chassis and that protective covers are in place and secured with fasteners.
- Never work alone when working in hazardous conditions. Always have another person close by in case of an accident.
- Always refer to the manual for safe operation. If you have a question about the application or operation email [ProCare@Sencore.com](mailto:ProCare@Sencore.com)
- **WARNING** – To reduce the risk of fire or electrical shock never allow your equipment to be exposed to water, rain or high moisture environments. If it is exposed to a liquid, remove power safely (at the breaker) and send your equipment to be serviced by a qualified technician.
- To reduce the risk of shock the power supply must be connected to a mains socket outlet with a protective earthing connection.
- For the mains plug the main disconnect and should remain readily accessible and operable at all times.
- When utilizing DC power supply, the power supply **MUST** be used in conjunction with an over-current protective device rated at 50 V, 5 A, type: Slow-blow, as part of battery-supply circuit.
- To reduce the risk of shock and damage to equipment, it is recommended to ground the unit to the installation's rack, the vehicle's chassis, the battery's negative terminal, and/or earth ground.

** Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.**

## Package Contents

The following is a list of the items should be contained:

1. OmniHub 6 chassis
2. OmniHub 6 software
3. AC power cables
4. Breakout or adapter cables depending on option modules

If any of these items were omitted from the packaging please email [ProCare@Sencore.com](mailto:ProCare@Sencore.com) to obtain a replacement.

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# Section 1 Overview



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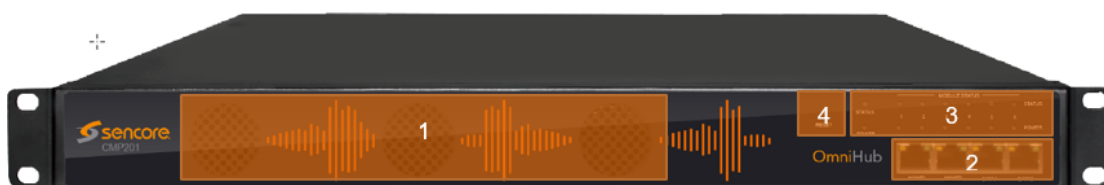
## 1.1 Product Overview

OmniHub 6/6D is a compact, highly integrated and flexible solutions that focuses on both cost-effective commercial TV market and traditional DTV market. Thanks to the benefits of high-density, strong-performance and large-flexibility, OmniHub 6/6D can meet all the major video delivery requirements of receiving, descrambling, encoding, multiplexing, modulation, and IP processing of signal in one unit.

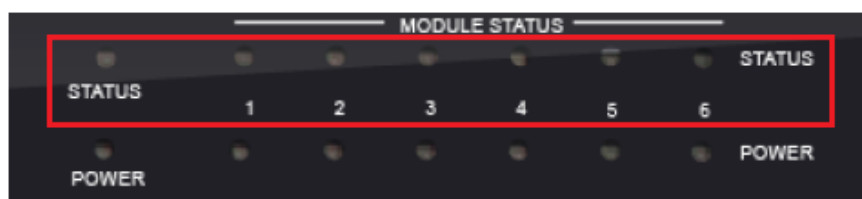
With optional commercial/broadcast encoder, multi-mode receiver and modulator module, it can be configured flexibly to meet any video delivery requirements. Due to its compact design and powerful function, it can be widely used at hotel, hospital, communities, clubs, campuses and or other places with DTV headend, where massive programs are required to be processed in a cost-effective way. OmniHub 6/6D provides a straight-forward web interface accessible via all major browsers and complete control of the unit. Every OmniHub 6/6D is shipped with the software suite pre-loaded on appropriate hardware. There are optional input and output configurations that will change the physical connectors available on the chassis.

## 1.2 Front Panel Overview

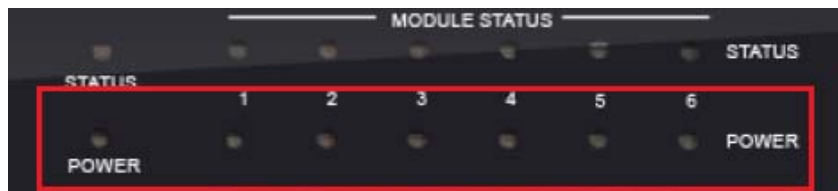
As a 1RU unit, on the front panel, OmniHub 6 has exhaust fans, ports for data and management, and LED for the status of the unit. See the image below for the reference of the OmniHub 6 front panel.



1. Vent holes for cooling intake
2. Four 1GbE RJ45 ports: two for management and two for MPEG over IP purposes
3. Status indicators of the chassis and modules



Power indicators of the chassis and modules

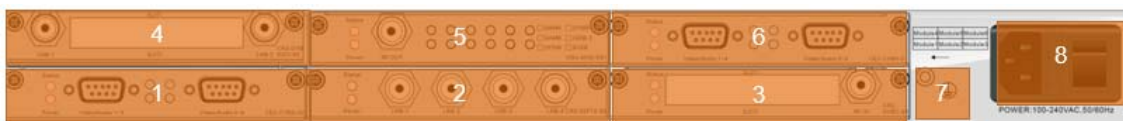


4. Reset Button

## 1.3 Rear Panel Overview

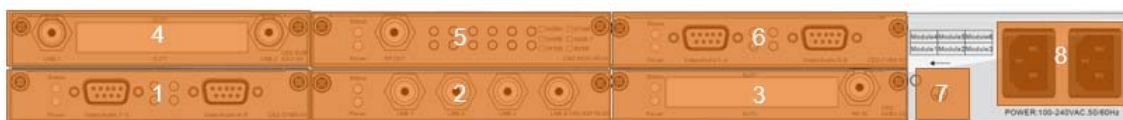
The OmniHub 6 has multiple options for the backplane configuration. Device can be ordered with Single Power Supply (order number – OmniHub 6) or Dual Power Supply (order number – OmniHub 6D).

Rear panel of the device with single power supply:



1. Slot no.1 for the option module
2. Slot no.2 for the option module
3. Slot no.3 for the option module
4. Slot no.4 for the option module
5. Slot no.5 for the option module
6. Slot no.6 for the option module
7. Ground
8. Single Power Supply

Rear panel of the device with dual power supply:



1. Slot no.1 for the option module
2. Slot no.2 for the option module
3. Slot no.3 for the option module
4. Slot no.4 for the option module
5. Slot no.5 for the option module
6. Slot no.6 for the option module
7. Ground
8. Dual Power Supply

## 1.4 Option Module Overview

This describes the OmniHub 6/6D platform and all available modules that can expand the functionality of the OmniHub 6/6 platform.

OmniHub 6 chassis	Description
<b>OmniHub 6</b>	1RU chassis, Single PSU, 4xGbE ports, 14 LEDs and six hot swappable slots
<b>OmniHub 6D</b>	1RU chassis, Dual PSU, 4xGbE ports, 14 LEDs and six hot swappable slots



<b>OH-AC3-AAC-4CH</b>	AC3 (2-channel stereo audio) and AAC license per 4 channels encoder module
<b>OH-AC3-AAC-8CH</b>	AC3 (2-channel stereo audio) and AAC license per 8 channels encoder module

Receiver Modules	Description
<b>OHR6-DVBC-00</b>	4 channel DVB-C Annex A/C/DTMB receiving module, 1 RF input connector with 4 tuners and 2 CI slots
<b>OHR6-DVBC-ISDBT-01</b>	4 channel DVB-C Annex B/ISDBT receiving module, 1 RF input connected with 4 tuners and 2 CI slots
<b>OHR6-DVBS2CI-00</b>	4 channel DVB-S2 receiving module, 2 input connectors each with 2 transponders receiving, with 2 CI slots and independent power supplies for each LNB.
<b>OHR6-DVBS2FTA-00</b>	4 channel DVB-S2 receiving module, 4 input connectors. Independent power supplies for LNB 1 and 3 only.
<b>OHR6-DVBS2FTA-00A</b>	8 channel DVB-S2 receiving module, another interface card added on OHR6-DVBS2FTA-00, each module occupies 2 slots.
<b>OHR6-DVBS2FTA-01</b>	4 channel DVB-S2/S2X receiving module (QPSK, 8PSK, 64APSK), 4 input connectors (LNB1/2/3/4), Independent power supplies for each LNB.
<b>OHR6-8VSB-00</b>	4 channel 8VSB receiving module, 4 input connectors with 4 tuners.
<b>OHR6-DVBT2CI-00</b>	4 channel DVB-T/T2 receiving module, 1 input connected with 4 tuners and 2 CI slots.

Encoder Modules	Description
<b>OHE6-HDMI-00</b>	4 channel HDMI encoding module, supports H.264 HD/SD, MPEG-2 SD, MPEG1L2, and optional AC3/AAC.
<b>OHE6-HDMI-R01</b>	4 channel HDMI encoding module, supports H.264 HD/SD, MPEG-2 SD, MPEG1L2, and optional AC3/AAC. Support OSD subtitle, logo picture and

	QR code overlay
<b>OHE6-HDMI-02</b>	2 channel HDMI encoding module, supports H.264 HD/SD, MPEG-2 SD, MPEG1L2, optional AC3/AAC, and supports CC input.
<b>OHE6-HDMI-02C</b>	2 channel HDMI encoding module, supports H.264 HD/SD, MPEG-2 SD, MPEG1L2, optional AC3/AAC and supports CC and analog audio input.
<b>OHE6-HDMI-05</b>	4 channel HDMI encoding module, supports H.264/H.265 HD/SD, MPEG-2 SD, MPEG1L2, optional AC3/AAC, and support OSD subtitle, logo picture and QR code overlay.
<b>OHE6-HDMI-05</b>	8 channel HDMI encoding module, supports H.264/H.265 HD/SD, MPEG-2 SD, MPEG1L2, optional AC3/AAC, and support OSD subtitle, logo picture and QR code overlay, each module occupies 2 slots,
<b>OHE6-HDMI-06</b>	<p>4-channel HDMI high-definition encoding board (broadcast level), support H.264 HD/SD, support B frame, MPEG1L2 (support), AAC (optional), AC3 (optional), support superimposed OSD subtitles, logo, two-dimensional Code.</p> <p>H.265 supports up to 4 channels of 1080@p60 input and output; H.264 supports up to 4 channels of 1080@i50/60 input and 4 channels of 1080@p25/30 output</p>
<b>OHE6-CVBS-00</b>	6 channel CVBS encoding module, supports H.264/MPEG-2 SD, MPEG1L2.
<b>OHE-CVBS-03</b>	2-channel CVBS standard definition encoding board, support H.264/MPEG-2 SD, CC, MPEG1L2, AC3 (support), AAC (support)
<b>OHE6-CVBS-R01</b>	8 channel CVBS encoding module, supports H.264, MPEG1L2.
<b>OHE6-CVBS-R01A</b>	16 channel CVBS encoding module, supports H.264, MPEG1L2, the modules occupy 2 slots.

<b>OHE6-SDI-00</b>	2 channel SDI encoder bitrate supports H.264/MPEG-2 HD/SD, MPEG1L2, AAC and AC3 are optional, and supports CC and analog audio input.
Modulator Module	Description
<b>OHM6-QAMA-R00</b>	16 channel QAM modulator module, Annex A/C, non-adjacent output, and 1 RF female port for output
<b>OHM6-QAMB-R00</b>	16 channel QAM modulator module, Annex B, non-adjacent output, and 1 RF female port for output
<b>OHM6-QAMA-R01</b>	4 channel QAM modulator module, Annex A/C, adjacent output, and 1 RF female port for output
<b>OHM6-QAMA-R01A</b>	8 channel QAM modulation module, Annex A/C, adjacent output, and 1 RF female port for output
<b>OHM6-QAMB-R01</b>	4 channel QAM modulation module, Annex B, adjacent output, and 1 RF female port for output
<b>OHM6-QAMB-R01A</b>	8 channel QAM modulation module, Annex B, adjacent output, and 1 RF female port for output
<b>OHM6-OFDM-R01</b>	4 channel OFDM modulation module, adjacent output, and 1 RF female port for output
<b>OHM6-OFDM-R01A</b>	8 channel OFDM modulation module, adjacent output, and 1 RF female port for output.
<b>OHM6-ISDBT-R01</b>	4 channel ISDBT modulation module, adjacent output, and 1 RF female port for output.
<b>OHM6-ISDBT-R01A</b>	8 channel ISDBT modulation module, adjacent output, and 1 RF female port for output
<b>OHM6-8VSB-R01</b>	4 channel 8VSB (ATSC) modulation module, adjacent output, and 1 RF female port for output

<b>OHM6-8VSB-R01A</b>	8 channel 8VSB 9ATSC) modulation module, adjacent output, and 1 RF female port for output.
Function Modules	Description
<b>OHP6-EAS-00</b>	EAS processing module, supports EAS triggering by analogue EAS input and Digital EAS input.
<b>OHP6-CAM-00</b>	CAM processing module supports 2 independent CI Card slots, support Xcrypt CA scramble, compatible with mainstream CAM cards, and support mainstream CAS decryption
<b>OHP6-EIT-00</b>	EIT processing module, supports up to 16TS per module

# Section 2 Installation

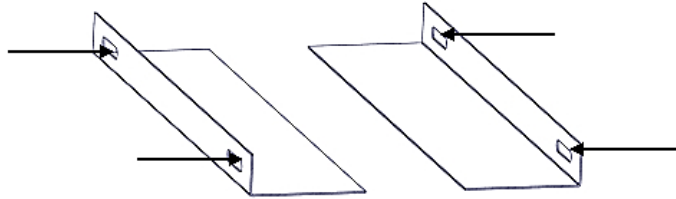


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2.1 RACK INSTALLATION .....	错误！未定义书签。
2.2 AC POWER CONNECTION .....	错误！未定义书签。

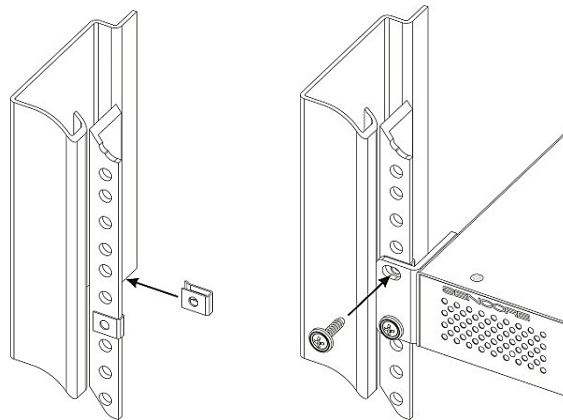
## 2.1 Rack Installation

The OmniHub 6/6D 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:

- Determine the desired position in the rack for the OmniHub 6/6D. Make sure that the air intake on the front of the unit and the exhausts on the back of the unit will not be blocked.
- Install the brackets at the desired position if there's no supporting plate in the rack.



- Insert the rack mount clips into the place over the mounting holes in the rack.
- Slide the OmniHub 6/6D into the position in the rack.
- Secure the chassis to the rack by installing the four supplied screws through the front mounting holes and tightening.



## 2.2 AC Power Connection

The Dual Redundant option allows the OmniHub 6/6D to be powered by two separate supplies either operating 110V or 220V systems. The power supply will automatically detect the system it is connected to. To hook up the power use the following steps:

- Locate the power cords that are contained. Please only use the supplied 3-prong power connector or one with equal specifications. NEVER tamper with or remove the grounding pin. This could cause damage to OmniHub 6/6D, personnel, or property.
- Plug the female end of the power cords into the front of the unit.
- Locate a protected outlet to plug the male ends of the power cables into.



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.

# Section 3 Web Interface Operation



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## 3.1 OmniHub 6/6D Web Interface Overview

### 3.1.1 Connecting to the Management Port

OmniHub 6/6D has an embedded gigabit switch. The four network ports are respectively used for managing and data reception/streaming over IP network. From left to right, port 1 and port 2 are used for management purposes and, port 3 and port 4 are used for IP reception/streaming.

If an external IP switch needs to be installed between OmniHub 6/6D and other headend devices, this switch should support IGMP V2 and IGMP snooping function.

### 3.1.2 Logging into the OmniHub 6/6D Web Interface

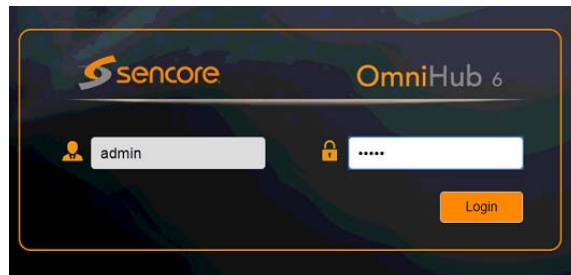
To open the OmniHub 6/6D web interface use one of the following supported browsers and navigate to the unit's IP address:

- Firefox
- Google Chrome

Factory network settings of the Management Port:

- IP address: 192.168.1.10
- Subnet Mask: 255.255.255.0
- Gateway: 192.168.1.254



The user will need to login to the web interface. The default **username/password** are **admin/admin**. Click the login button to login to the web interface.



## 3.2 Status Overview

After a successful login, a welcome screen is displayed. The welcome screen allows you to navigate to:

1. Module List shows the module(s) installed inside the chassis
2. Settings buttons: status, system settings, IP inputs, IP outputs, admin
3. Device host operation status



At any time, the user can return to the welcome screen by clicking the Status  Status button and then Device Status  Device Information button. Below are two pictures displaying different Status

### 3.2.1 Status

This Menu allows the user to access the following:

- Device Status
- Device Information

**Device Status** will show once you login to the OmniHub 6/6 web interface as shown in the picture above. It also shows the front and rear-view image of OmniHub 6/6 with friendly label that show the status of each module connected in the 6 slots.

**Device Information** page shows the firmware version, software version, and hardware version of the baseboard and every module physically installed. You can access Device Information Status page by clicking the button  Status and then the button  Device Information.

Status			
Device Status			Device Information
Module	Firmware Version	Software Version	Hardware Version
Baseboard	V0.2.586	V1.4.23	V1.0.1
2.OHR-DVBC-01	V46.3.256	V1.4.15	V0.1.0
3.OHM-QAMB-R01	V65.2.258	V1.4.7	V0.0.1
4.OHE-CVBS-00	V0.0.565	V1.4.4	V0.1.0
5.OHE-HDMI-01	V0.0.574	V1.4.4	V0.0.1
6.OHE-HDMI-R01	V0.0.574	V1.4.4	V1.1.1

### 3.2.2 System Setting

This menu allows you to configure:

- Network
- Time
- System
- Password
- SNMP

**Network** tab allows you to assign a static IP address to the OmniHub 6/6D mainboard only. IP addresses for boards/modules will be assigned automatically based on the address set for the chassis. To avoid IP address conflicts when you set the baseboard IP address, observe occupied IP sections displayed on this page in the top blue area.

**System Setting**

Network Time System Password SNMP


Advanced Setting

Module Name	IP Address	Subnet Mask	Default Gateway	MAC Address	DNS Server IP
Baseboard	192.168.1.10	255.255.255.0	192.168.1.1	A0:69:86:01:D8:0C	0.0.0.0

Apply

**Tips**

1. When multiple equipments are connected to the same switch, please make sure to change the default baseboard IP address and internal IP address of baseboard / modules " + "at advanced setting to avoid IP conflict.
2. The IP conflict of baseboard / modules between different equipments will cause loading failure of modules for some equipments.
3. When the subnet of Internal Baseboard IP address is changed, the IP address of modules will follow the subnet change automatically.

Click the button  on the right side for the changes to take effect.

**Time** tab allows you to check the current system time, change the time zone, choose system time Mode (Manual or Automatic), enable/disable Auto Sync and modify NTP Server Address in Automatic mode and change the current system Time in Manual mode.

Network Time System Password SNMP

System Time Jun. 19th, 2019 13:07:41

Time Zone UTC +00: 00

Mode Manual

Time 2019/06/19 13:07:30

Apply

Network Time System Password SNMP

System Time Jun. 19th, 2019 13:11:07


Time Zone UTC +00: 00

Mode Automatic


NTP Server Address 192.168.1.113

Auto Sync Disable


Apply

Click the button  on the right side for the changes to take effect.


**System** tab allows you to do upgrade, import or export configuration, import or export licenses (*only baseboard*), reboot the whole unit, restore to factory default (*only baseboard*) and export logs and clear log (*only baseboard*).

Click the button  on the right side for the changes to take effect.

**Password** tab allows you to change the login password.

Click the button  on the right side for the changes to take effect.

**SNMP** tab is for you to disable or enable the SNMP function.

Click the button  on the right side for the changes to take effect.

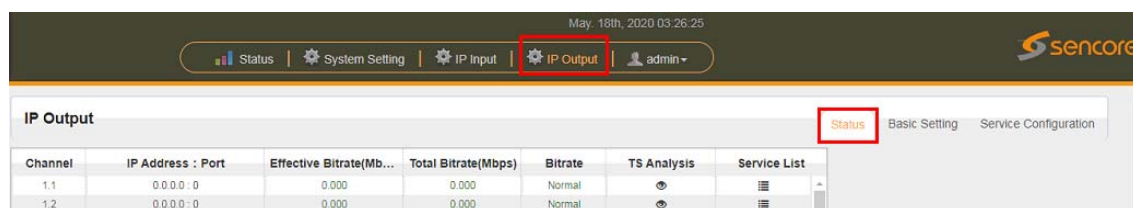
### 3.2.3 IP Input


This menu allows you to configure and access the IP input:

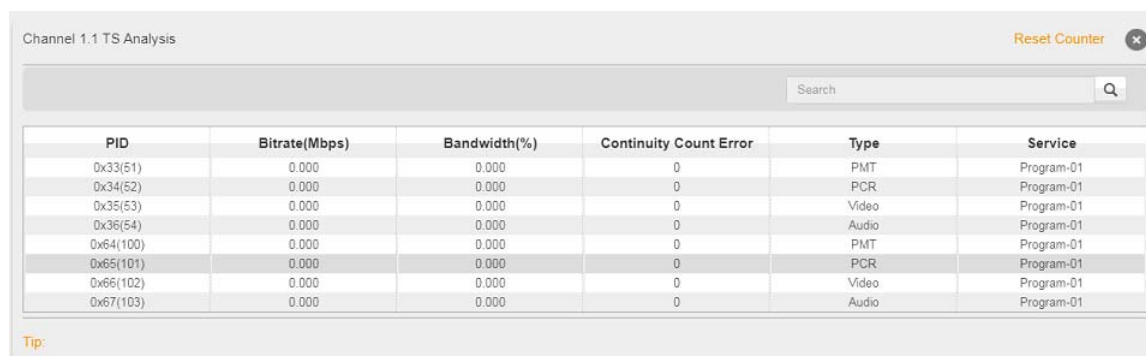
- Status
- Basic Settings
- Service Configuration


**Status** tab displays a table of Channels with IP Address, IP Port, Effective Bitrate, Total Bitrate, TS Analysis and Service List for each IP input stream. OmniHub-16 IP input has a total of 120 channels which means it can accommodate 120 IP address multicast. Once a channel is enabled, the IP address and IP port configured for the channel will appear in the table. If the

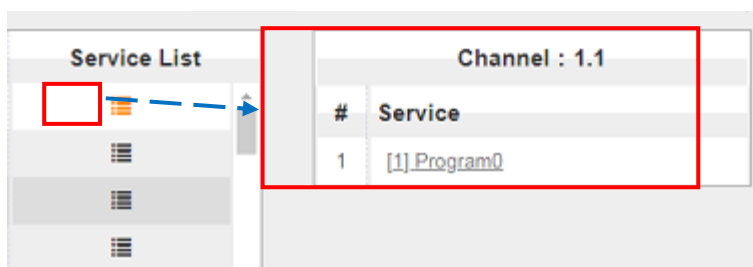
source multicast is good, there will be a value under the total bitrate and effective bitrate showing the actual bitrate of the transport stream.



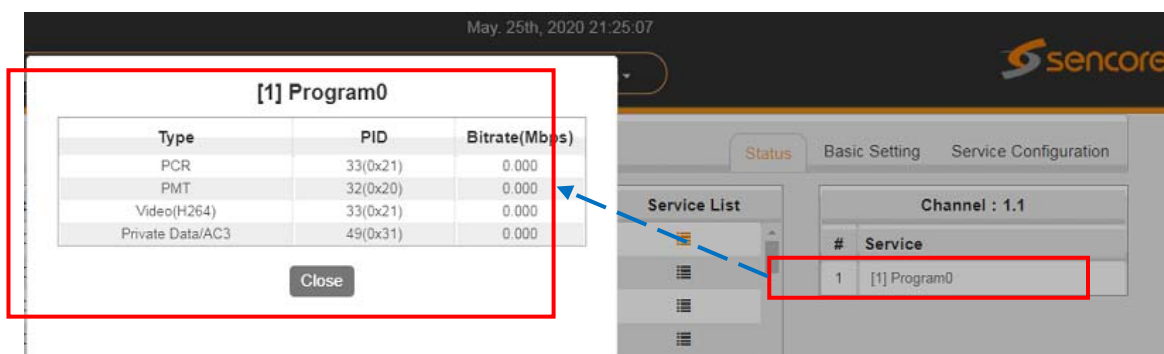
Clicking  under TS Analysis button will display the information on the structure of the transport stream.



Clicking  under Service List will display information on the services included in the transport stream. A list of services in the TS will be shown as the picture below.



Clicking on the service in the list will display its detailed information: PCR, PMT, Video and Audio PID and Bitrate. See the picture below



**Basic Settings** tab displays the configuration page of the IP input. You can enable the TS and set the input IP Address, IP port and Protocol of the source multicast.

The screenshot shows the 'IP Input' configuration page with the 'Basic Setting' tab selected. A 'Batch Setting' button is visible at the top left. Below it is a table with 6 columns: Channel, Enable, Destination IP Address, Destination Port, Protocol, and TS Packets Per IP Packet. The table contains 6 rows of data.



Channel	Enable	Destination IP Address	Destination Port	Protocol	TS Packets Per IP Packet
1.1	<input checked="" type="checkbox"/>	239.192.0.200	10000	UDP	Auto
1.2	<input checked="" type="checkbox"/>	239.192.0.201	10000	UDP	Auto
1.3	<input checked="" type="checkbox"/>	239.192.0.202	10000	UDP	Auto
1.4	<input checked="" type="checkbox"/>	239.192.0.203	10000	UDP	Auto
1.5	<input type="checkbox"/>	227.20.30.5	1234	UDP	Auto
1.6	<input type="checkbox"/>	227.20.30.6	1234	UDP	Auto

To enter many IP addresses for the inputs, click the Batch Setting button and fill in the following fields. You can only set the source when the IP addresses are in a consecutive order.

The screenshot shows the 'Batch Setting' dialog box. It has a 'Select All' checkbox, an 'Enable' dropdown (set to 'Disable'), and a 'Protocol' dropdown (set to 'UDP'). There are also checkboxes for 'Destination IP Address', 'Destination Port', and 'TS Packets Per IP Packet'. The 'Start Channel-End Channel' is set to '1 - 120'. The 'Destination IP Address' is '227.10.20.80', 'Destination Port' is '1234', and 'TS Packets Per IP Packet' is '7'. An 'Apply' button is on the right.

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

**Service Configuration** tab displays the configuration page where you can manage the received services and output them to their designated interface. Configuration steps for IP input and all receiving and encoding modules in OmniHub 6/6D are mostly the same.

First, you need to **Channel Scan** the port on each TS with LOCKED signal status. Each port might be scanned automatically or need to be scanned when its source signal is replaced. After scanning each channel, you can output each transport stream or service by clicking the icon  and  below "Destination Settings". You can route the whole stream or a service/s from the input channel toward the available output channel (IP or RF). Two types of routing are possible.

1. **Bypass mode.** In this mode, routes can only be done when outputting a whole input transport stream towards an output TS channel - this cannot be done when outputting a single service only. Bypass mode activation will not allow other services from other input TS to be mixed in the current TS output. Any attempts of routing other stream/services towards this channel will result in *"this channel won't be available at this time"*.
2. **Multiplex mode** is used to create a new SPTS or MPTS. This mode allows the administrator to perform the following operation:
  - a. Routes a single service towards an output channel to create SPTS
  - b. Routes 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.

**IP Input** Status Basic Setting **Service Configuration**

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

Service Name	Destination	Destination Setting
Channel 1.1 +	1.CP-EAS-00[1.1]	⚙️
[1] Program0		✎
Channel 1.2 +	1.CP-EAS-00[1.1]	⚙️
[1] Program0		✎
PID 17 (Other PID)		✎
PID 31 (Other PID)		✎
Channel 1.3 +	1.CP-EAS-00[1.2]	⚙️
[1] Program0		✎
PID 16 (Other PID)		✎
PID 17 (Other PID)		✎

Apply  
Clear Config

*Service Configuration page interface*

Channel Select : Channel 1.1 Channel Scan

Service Name	Destination	Destination Settings
Channel 1.1 +	Bypass / Multiplex the whole stream	⚙️
[1007] Program0		✎
PID 17 (Other PID)	Multiplex particular service	✎
Channel 1.2 +		⚙️
[1007] Program0		✎

Apply  
Clear Config

To use **Bypass** or **multiplex mode on stream level**, click the icon ⚙️. When a new window appears, select the output stream/channel where the stream will be bypassed or multiplexed.

☒ 3.OHM-QAM-B-R01 ⏪

Channel	Multiplex	Bypass
Channel1	<input checked="" type="checkbox"/> Multiplex	<input checked="" type="checkbox"/> Bypass
Channel2	<input type="checkbox"/> Multiplex	<input type="checkbox"/> Bypass
Channel3	<input type="checkbox"/> Multiplex	<input type="checkbox"/> Bypass
Channel4	<input type="checkbox"/> Multiplex	<input type="checkbox"/> Bypass

To use **Multiplexing mode on service level** click on pencil icon ✎ on the right side in the line with the proper service. Then select the output stream (channel) where the service will be multiplexed.

☒ 3.OHM-QAM-B-R01 ⏪

Channel	Multiplex
Channel1	<input checked="" type="checkbox"/> Multiplex
Channel2	<input type="checkbox"/> Multiplex
Channel3	<input type="checkbox"/> Multiplex
Channel4	<input type="checkbox"/> Multiplex

Do not forget to click the Apply button on the right side to make the change take effect.



To clear the whole routing table click Clear Config button.

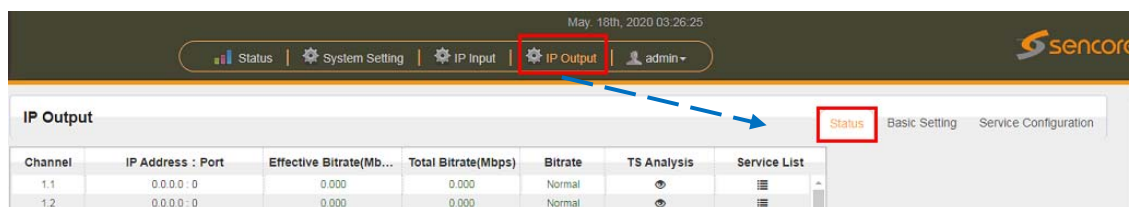
💡 There is a channel scan button **Channel Select:** Channel 1.1 **Channel Scan** on the top. Normally the input service list of each channel will be loaded in this page automatically, but when you change the input source, you should refresh the changed channel manually by selecting the channel and clicking **Channel Scan** button.

### 3.2.4 IP Output

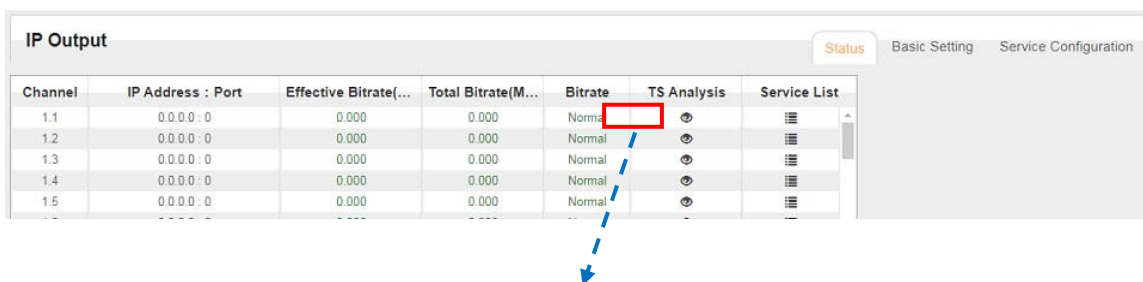
This menu allows you to configure and access the IP output:

- Status
- Basic Settings
- Service Configuration

**Status** tab displays the table of Channels, IP Address, IP port, Effective Bitrate, Total Bitrate, Bitrate Status (Normal/Overload), TS Analysis and Service List for each IP output stream. OmniHub 6/6D IP output has a total of 120 channels which means it can output 120 multicast IP addresses. Once a channel is enabled, the IP address and IP port configured on the channel will appear in the table. If there are services output in the channel, the status will display the effective and total bitrate. Total bitrate is the set maximum bitrate set and the effective bitrate is the actual bitrate of the service/s. If the actual bitrate is higher than the total bitrate, Bitrate status will display “overload” which indicates some errors in the channel.




Clicking the icon under the TS Analysis button will display the information on the structure of the transport stream.





Channel 1.1 TS Analysis					
<div> <div>Search</div> <div>Q</div> </div>					
PID	Bitrate(Mbps)	Bandwidth(%)	Continuity Count Error	Type	Service
0x0(0)	0.015	0.025	127	PAT	
0x30(48)	0.015	0.025	119	PMT	KELO
0x31(49)	11.771	19.618	127	PCR - Video	KELO
0x33(51)	0.015	0.025	57	PMT	KELO
0x34(52)	0.395	0.658	127	Audio	KELO
0x35(53)	0.198	0.330	76	Audio	KELO
0x36(54)	11.771	19.618	127	PCR - Video	KELO
0x37(55)	0.395	0.658	127	Audio	KELO

Clicking  under Service List will display information on the services included in the transport stream. This will display the list of services in a TS as shown in the picture below.

Status		Settings	Service Configuration
Service List		Channel : 1.1	
#	Service		
1	[3] KELO		
2	[4] UTV		
3	[5] ION		
4	[6] Escape		
5	[1] Program0		
6	[2] KELO		

Clicking on the service name in the list will display the detailed information of the service: PCR, PMT, Video and Audio PID and Bitrate as shown in the picture below.

[4] UTV	
Source : 1.1.1	
Type	PID
PCR PID	65
PMT PID	64
Video PID	65(Video(MPEG2))
Audio PID	68(Audio(AC3))
Close	

**Basic Settings** tab displays the configuration page of the IP output. You can enable the TS and set the output IP Address, IP port and Protocol of the Destination IP multicast.

IP Output

Status **Basic Setting** Service Configuration

Batch Setting ▾

TX Interval: 100

< 1 2 3 4 5 6 7 8 >

Channel	Enable	Source Port	Destination IP...	Destinatio...	Protocol	TS Pack...	Bitrate(...	Enable Destination...	Destination MAC
1.1	<input checked="" type="checkbox"/>	1000	227.10.20.1	1234	UDP ▾	7 ▾	15	Disable ▾	00:00:00:00:00:00
1.2	<input checked="" type="checkbox"/>	1000	227.10.20.2	1234	UDP ▾	7 ▾	15	Disable ▾	00:00:00:00:00:00
1.3	<input checked="" type="checkbox"/>	1000	227.10.20.3	1234	UDP ▾	7 ▾	15	Disable ▾	00:00:00:00:00:00
1.4	<input type="checkbox"/>	1000	227.10.20.4	1234	UDP ▾	7 ▾	15	Disable ▾	00:00:00:00:00:00
1.5	<input type="checkbox"/>	1000	227.10.20.5	1234	UDP ▾	7 ▾	15	Disable ▾	00:00:00:00:00:00

Apply

To enter many IP addresses, use the Batch Setting **Batch Setting ▾** button and fill in the following fields. You can only set the destination IP address when the IP addresses are in a consecutive order

Batch Setting ^

Select All ☐

☐ Enable Disable ▾

☐ Source Port 1000

☐ Protocol UDP ▾

☐ Bitrate 25

Start Channel-End Channel 1 - 120

☐ Destination IP Address 227.10.20.80 Same ▾

☐ Destination Port 1234 Same ▾

☐ TS Packets Per IP Packet 7 ▾

☐ Enable Destination MAC Disable ▾ AA:BB:CC:DD:EE:FF

Batch Setting

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


**Service Configuration** tab display the page where you can check/edit output TS or services that are part of output IP streams. Streams can originates either from IP input, receiver modules or encoder modules. In picture below, clicking the area marked as “click here”, you can make changes to the transport stream, i.e.:

- edit Original Network ID
- edit TS ID
- edit Service ID, Service Name and Service Provider
- edit PID ID for other PIDs

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

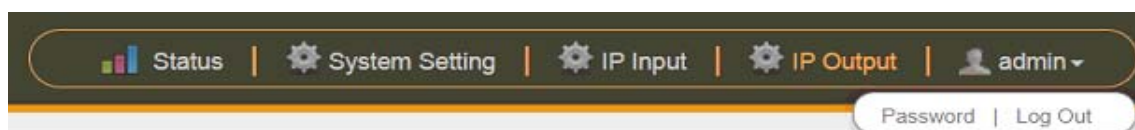
In picture below, clicking the area marked as “click here”, the user can make changes to particular service(s), i.e.:

- edit Service ID, service name and service provider
- edit PCR, PMT PIDs
- edit Elementary Stream PIDs (video, audio/s)
- edit Logical Channel Number

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

## 3.2.5 Admin

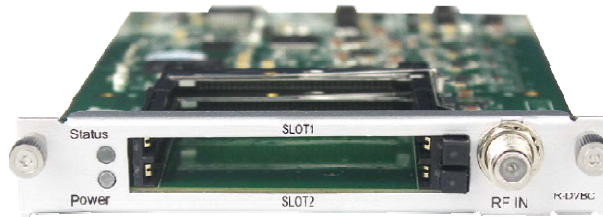
Click **Admin** and you can choose to go into Password setting page or Log Out.



## 3.3 Receiver Modules

### 3.3.1 OHR6-DVBC-00

OHR6-DVBC-00 is a 4-channel DVBC receiving and descrambling module with 1 RF female connector and 2 CI slots. It can receive 4 DVBC signals simultaneously and support 2 CAM cards for descrambling.



### 3.3.1.1 Module Status

By selecting the OHR6-DVBC-00 on the module list, you will be automatically redirected to the Status page of the module. This will display the channels from 1.1 to 1.4 that represent the 4 input -channels of the module. Once a channel is connected to the source and configured with correct parameters. The status of the channel will display 'locked' and you can see the values of the total bitrate and the actual bitrate.

OHR-DVBC-00							
				Status	CI	Basic Setting	Service Configuration
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	-		

Total Bit rate in Mbps shows the bitrate of receiving signals of each channel with LOCKED status, while the Effective Bit Rate in Mbps shows its actual bitrate. RF Level of the input signal will show you the level of each locked channel.

Clicking under TS Analysis will display the information on the structure of the transport stream as shown in the picture below.

Channel 1.1 TS Analysis					
					Reset Counter
Search					
PID	Bitrate(Mbps)	Bandwidth(%)	Continuity Count Error	Type	Service
0x33(51)	0.000	0.000	0	PMT	Program-01
0x34(52)	0.000	0.000	0	PCR	Program-01
0x35(53)	0.000	0.000	0	Video	Program-01
0x36(54)	0.000	0.000	0	Audio	Program-01
0x64(100)	0.000	0.000	0	PMT	Program-01
0x65(101)	0.000	0.000	0	PCR	Program-01
0x66(102)	0.000	0.000	0	Video	Program-01
0x67(103)	0.000	0.000	0	Audio	Program-01

Clicking under Service List will display information on the services included in the transport stream. This will display the list of services in a TS as shown in the picture below.

Service List		Channel : 1.1	
#	Service		
1	[1] Program0		

Clicking on the service name in the list will display the detailed information of the service: PCR, PMT, Video and Audio PID and Bitrate as shown in the picture below.

Channel1.1		Channel1.2		Channel1.3		Channel1.4	
#	Service	#	Service	#	Service	#	Service
1	[302] CCTV 2	1	[1] CNAI PAL	1	[1] India News HARYAI	1	[1] td HD Phx Infonews Ct
2	[303] CCTV 7	2	[2] CNAI NTSC	2	[2] India News RAJAST	2	[2] td HD Phx Chinese Ch
3	[304] CCTV 10	3	[1001] TVB8	3	[3] India News	3	[3] td HD Phx HK Channel
4	[305] CCTV 11	4	[1003] CETV	4	[4] LTV		
5	[306] CCTV 12			5	[5] Delhi News		
6	[307] CCTV 15			6	[6] India News UP/UK		
				7	[7] India News MP		
				8	[8] NEWS X		

### [302] CCTV 2

PID	Type	Bitrate(Mbps)
8190	PCR	0.045
258	PMT	0.018
513	StreamType:2-Video(MPEG2)	5.198
660	StreamType:4-Audio	0.262

## 3.3.1.2 Module CI

For the encrypted services received on OHR6-DVBC-00 module receiver, CI slot is needed to decrypt and re-broadcast the services. The OHR6-DVBC-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 at.

OHR-DVBC-00

Status

CI

Basic Setting

Service Configuration

System

CAM Max Bitrate: 72Mbps

CAM1 Auto Reset: Disable

CAM2 Auto Reset: Disable

MMI Setting

CAM1 (Not inserted)

CAM2 (Not inserted)

Apply


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

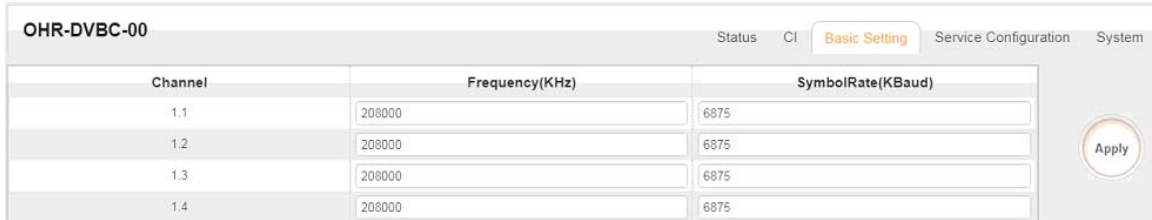
## 3.3.1.3 Module Settings

In this page you can input the parameters of the source signal. For DVBC input, it only needs to have the Frequency and Symbol Rate of the source. The range of the Frequency and Symbol Rate to be input on this page shows on the table below.

Name	Range
------	-------

<b>Frequency (KHz)</b>	48000~862000
<b>Symbol Rate (KBaud)</b>	3000~7000



When the parameters are set, click on  and check in the Status page if the corresponding channel status is LOCKED.




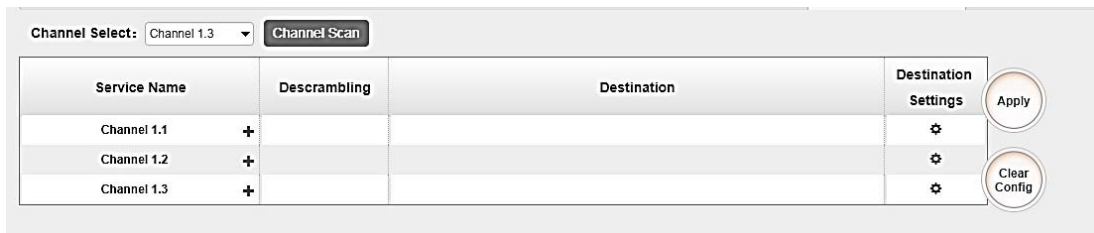
Channel	Frequency(KHz)	SymbolRate(KBaud)
1.1	208000	6875
1.2	208000	6875
1.3	208000	6875
1.4	208000	6875




### 3.3.1.4 Module Service Configurations

Service Configuration page is where you can manage the received services and output them to their designated interface. The configuration for all modules in OmniHub 6/6D is mostly 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 as 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 can only be done when you click 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.







Service Name	Descrambling	Destination	Destination Settings
Channel 1.1	+		
Channel 1.2	+		
Channel 1.3	+		




To use **Bypass** or **Multiplexing mode on stream level**:

1. Click on the (cog) icon . There were always have 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 stream to.
3. Check Multiplex or Bypass on the Channel you want to output



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

Destination	Destination Settings
Bypass or Multiplex Stream	
	
Multiplex a service	
	




**Channel 1.1**

<input checked="" type="checkbox"/> 12.CM-QAMB-R01A		Channel1	<input type="checkbox"/> Multiplex	<input checked="" type="checkbox"/> Bypass
<input type="checkbox"/> 14.CM-QAMB-R01		Channel2	<input type="checkbox"/> Multiplex	<input type="checkbox"/> Bypass
<input type="checkbox"/> 17.Baseboard		Channel3	<input type="checkbox"/> Multiplex	<input type="checkbox"/> Bypass
		Channel4	<input type="checkbox"/> Multiplex	<input type="checkbox"/> Bypass
		Channel5	<input type="checkbox"/> Multiplex	<input type="checkbox"/> Bypass
		Channel6	<input type="checkbox"/> Multiplex	<input type="checkbox"/> Bypass

To use **Multiplexing mode on service level**:

1. Click on  (pencil) icon. There will be always 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 on Multiplex on the channel you want to output. You can output multiple service in one channel or output one service to multiple channels
4. Click the Apply button  on the right side to make the change takes effect.

**[1]Program0**

<input type="checkbox"/> 12.CM-QAMB-R01A		Channel1	<input checked="" type="checkbox"/> Multiplex
<input checked="" type="checkbox"/> 14.CM-QAMB-R01		Channel2	<input checked="" type="checkbox"/> Multiplex
<input type="checkbox"/> 17.Baseboard		Channel3	<input type="checkbox"/> Multiplex
		Channel4	<input checked="" type="checkbox"/> Multiplex



To clear the whole routing table click  button.



There is a channel scan button **Channel Select:** Channel 1.1 **Channel Scan** on top. Normally the input service list of each channel will show on this page, but when you change the input source, you should refresh the changed channels manually by selecting the channel and clicking **Channel Scan** button.

### 3.3.1.5 Module System Operation

In **System Operation** tab, you can choose the modulation type as DVBC Mode or DTMB Mode. Here you can also perform the following tasks:



**OHR-DVBC-00**

Change Modulate Type : DVBC ▼ Apply

**License**

Import License

Export License Export

**SNMP MIB**

Export MIB Export

**Logs**

Open

**Others**

Reboot Reset to Defaults

- Import / Export License
- Log Manage
- Reboot
- Factory Default the unit

### 3.3.2 OHR6-DVBC-ISDBT-01

OHR6-DVBC-ISDBT-01 is a 4-channel DVBC Annex B/ISDBT receiving and descrambling module with 1 RF female connector and 2 CI slots. The module can receive signals via 4 RF channels simultaneously and support 2 CAM cards for descrambling. Configuration of the module is very much similar to that of OHR6-DVBC-00. For configuration of this module, please refer to page 30 to 35.

**OHR-DVBC-01** Status CI Basic Setting Service Configuration System

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

**OHR-DVBC-01** Status CI Basic Setting Service Configuration System

Change Modulate Type : ANNEXB ▼ Apply

**License**

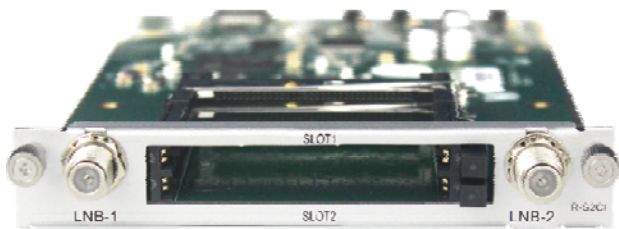
Import License  Browse Upload

Export License Export



3.3.3 OHR6-DVBS2CI-00

OHR6-DVBS2CI-00 is a 4-channel DVB-S/S2 receiving and descrambling module with 2 RF connectors and 2 CI slots, each RF connector can connect with 2 transponders. The module has independent power supplies for each LNB. For Status and CI pages, please refer to OHR6-DVBC-00 module section on page 30 to 32.



3.3.2.1 Module Settings

On the Parameter Settings page of OHR6-DVBS2CI-00 you can input information of the source signal. The table below show the parameter range of each field. For the LNB power, Channel 1.1 and 1.2 share power with each other from LNB-1, Channel 2.1 and 2.2 share power with each other from LNB-2.

Channel	Enable	Satellite Frequency(MHz)	SymbolRate(KBaud)	LNB Frequency(MHz)	LNB Power	LNB 22KHz
1.1	<input checked="" type="checkbox"/>	3840	27500	5150	off	off
1.2	<input type="checkbox"/>	3840	6875	5150		
2.1	<input type="checkbox"/>	3840	6875	5150	off	off
2.2	<input type="checkbox"/>	3840	6875	5150		

Name	Range
Satellite Frequency (KHz)	950000~2150000
Symbol Rate (KBaud)	1000~45000
LNB Frequency (KHz)	950000~21500000
LNB Power	Off/13V/18V
LNB 22KHz	Off/22KHz

3.3.4 OHR6-DVBS2FTA-00/00A

OHR6-DVBS2FTA-00 is a 4channel DVB-S/S2 receiving module with 4RF connectors. The module supports internal signal pass through from one tuner to the others, while OHR6-DVBS2FTA-00A is the combination of 2 OHR6-DVBS2FTA-00 modules, it occupies 2 slots on the OmniHub 6/6D chassis and has an 8-channel DVBS-S2 receiving module with 8 RF connectors.



OHR6-DVBS2FTA-00



OHR6-DVBS2FTA-00A

OHR6-DVBS2FTA has a similar Status interface to OHR6-DVBS2CI. Differences between the 2 modules: 1) the number of received satellite signals (4/8 Satellite). 2) DVBS2CI can decrypt services using CAM module and Smart Card, while the DVBS2FTA use BISS decryption.

Channel	Locked Status	Total Bitrate(Mbps)	Effective Bitrate(Mbps)	RF Level	TS Analy...	Service List
1.1	Unlocked	0.000	0.000	-	👁	📺
2.1	Unlocked	0.000	0.000	-	👁	📺
3.1	Unlocked	0.000	0.000	-	👁	📺
4.1	Unlocked	0.000	0.000	-	👁	📺

The parameters for each port in Module Settings are also same with those of the OHR6-DVBS2CI and Service Configuration is same with that of OHR6-DVBC-00. Please refer to page 32 to 34 for the configuration manual.

### 3.3.5 OHR-DVBS2FTA-01/01A

OHR-DVBS2FTA-01 is a 4-channel DVB-S/S2 receiving module with 4RF connectors. The module supports internal signal pass through from one tuner to the others, while OHR-DVBS2FTA-01A is the combination of 2 OHR-DVBS2FTA-01 modules, it occupies 2 slots on the OmniHub 16 chassis and has an 8-channel DVBS-S2 receiving module with 8 RF connectors. S2X supports up to 64APSK



OHR-DVBS2FTA-01



OHR-DVBS2FTA-01A

OHR-DVBS2FTA has a similar Status interface to OHR-DVBS2CI. Differences between the 2 modules: 1) the number of received satellite signals (4/8 Satellite). 2) DVBS2CI can decrypt services using CAM module and Smart Card, while the DVBS2FTA use BISS decryption.

Channel	Locked Status	Total Bitrate(Mbps)	Effective Bitrate(Mbps)	PER	RF Level	CNR(dB)	Link Margin(...)	FEC Code Rate	Modulation	TS Analy...	Service List
1.1	Locked	130.159	7.500	0.000000000	-34dBm (74dBuV)	24.000	5	11/15	64APSK	👁	📺
2.1	Unlocked	0.000	0.000	0.000000000	-	0.000	0	1/2		👁	📺
3.1	Unlocked	0.000	0.000	0.000000000	-	0.000	0	1/2		👁	📺
4.1	Unlocked	0.000	0.000	0.000000000	-	0.000	0	1/2		👁	📺

The main difference between OHR-DVBS2FTA-00/00A and OHR-DVBS2FTA-01/01A is the LNB power supply. OHR-DVBS2FTA-01/01A has 4 different power supply unlike OHR-DVBS2FTA-00/00A that has only 2.

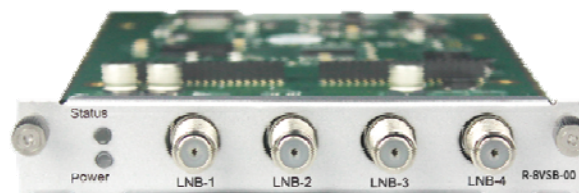
Channel	Satellite Frequency(MHz)	SymbolRate(KBaud)	LNB Frequency(MHz)	LNB Power	LNB 22KHz	DiSEqC Level	DiSEqC Port	...
1.1	3840	9500	5150	off	off	Disable	1	F
2.1	12750	25000	10600	18v	off	Disable	1	F
3.1	12750	25000	10600	13v	off	Disable	1	F
4.1	12750	25000	10600	off	off	Disable	1	F

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

Name	Range
Satellite Frequency (MHz)	950~14500
Symbol Rate (KBaud)	1000~45000
LNB Frequency (MHz)	0~13550
LNB Power	Off/13v/18v
LNB 22KHz	Off/22KHz

### 3.3.6 OHR6-8VSB-00

OHR6-8VSB-00 is a 4-channel 8VSB receiving module with 4 RF connectors. Picture below shows the front plate of the 8VSB module.




Module specification:

- 4 RF female connectors
- Frequency range: 50 – 860MHz
- Bandwidth: 6MHz
- Modulation: 8VSB
- Signal Level: -80dBm ~ -20dBm

#### 3.3.6.1 Module Status

Status page will display when you select the OHR6-8VSB-00 in the channel list. This shows the Channel Number, Locked Status, Total Bit Rate, Effective Bit Rate, TS Analysis and Service List for each 8VSB input stream. Once the channel is connected to the source and is set with the correct parameters. The status of the channel will display 'locked' and you can see the total bitrate and actual bitrate. Total Bit rate in Mbps shows the bitrate of receiving signals of each channel with LOCKED status, while the Effective Bit Rate in Mbps shows the actual bitrate of each receiving Channel. RF Level of the input signal will show you the level of each locked channel.

Channel	Locked Status	Total Bitrate(Mbps)	Effective Bitrate(Mbps)	RF Level	TS Analysis	Service List
1.1	Unlocked	0.000	0.000	-		
2.1	Unlocked	0.000	0.000	-		
3.1	Unlocked	0.000	0.000	-		
4.1	Unlocked	0.000	0.000	-		


Clicking the icon  under TS Analysis will display the information on the structure of the transport stream as shown in the picture below.


Channel 1.1 TS Analysis Reset Counter

Search

PID	Bitrate(Mbps)	Bandwidth(%)	Continuity Count Error	Type	Service
0x33(51)	0.000	0.000	0	PMT	Program-01
0x34(52)	0.000	0.000	0	PCR	Program-01
0x35(53)	0.000	0.000	0	Video	Program-01
0x36(54)	0.000	0.000	0	Audio	Program-01
0x64(100)	0.000	0.000	0	PMT	Program-01
0x65(101)	0.000	0.000	0	PCR	Program-01
0x66(102)	0.000	0.000	0	Video	Program-01
0x67(103)	0.000	0.000	0	Audio	Program-01

Tip:

Clicking the icon  under Service List will display information on the services included in the transport stream as shown in the picture below.

Service List		Channel : 1.1
		# Service
		1 [1] Program0

Clicking on the service name in the list will display the detailed information of the service: PCR, PMT, Video and Audio PID and Bitrate as shown in the picture below.

Channel1.1		Channel1.2		Channel1.3		Channel1.4	
#	Service	#	Service	#	Service	#	Service
1	[302] CCTV 2	1	[1] CNAI PAL	1	[1] India News HARYAI	1	[1] td HD Phx Infonews Ct
2	[303] CCTV 7	2	[2] CNAI NTSC	2	[2] India News RAJAS1	2	[2] td HD Phx Chinese Ch
3	[304] CCTV 10	3	[1001] TVB8	3	[3] India News	3	[3] td HD Phx HK Channel
4	[305] CCTV 11	4	[1003] CETV	4	[4] LTV		
5	[306] CCTV 12			5	[5] Delhi News		
6	[307] CCTV 15			6	[6] India News UP/UK		
				7	[7] India News MP		
				8	[8] NEWS X		

### [302] CCTV 2

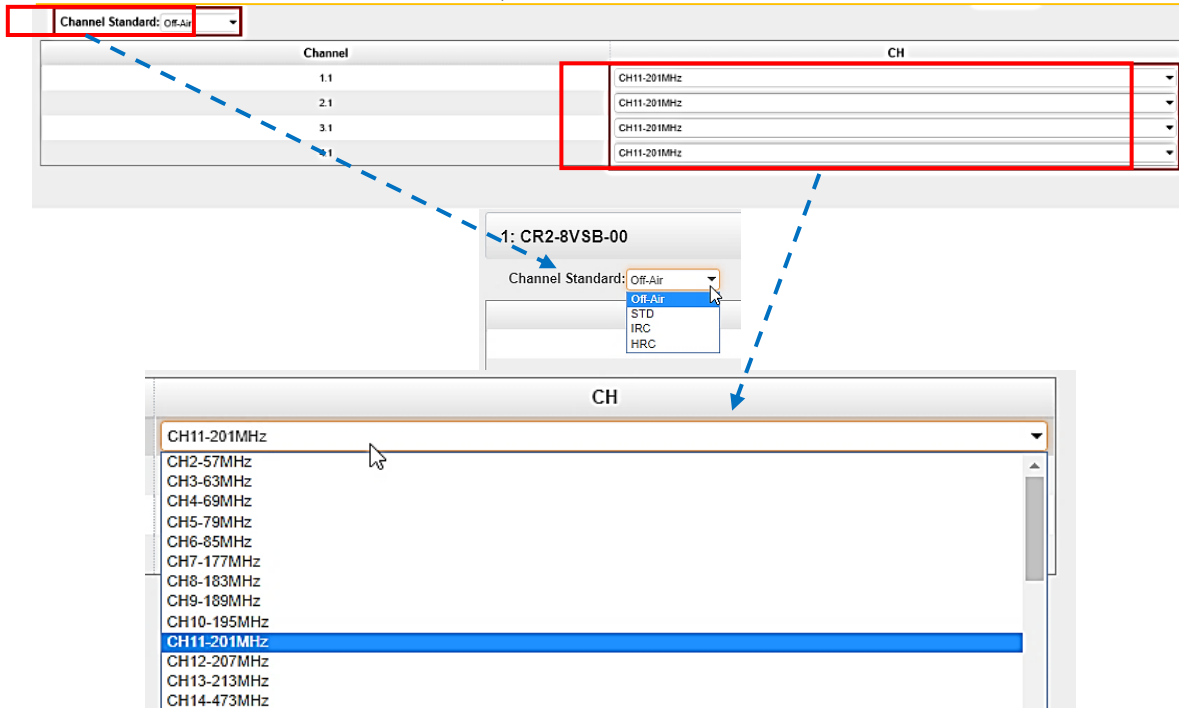
PID	Type	Bitrate(Mbps)
8190	PCR	0.045
258	PMT	0.018
513	StreamType:2-Video(MPEG2)	5.198
660	StreamType:4-Audio	0.262

## 3.3.6.2 Module Settings

To make configuration changes in the context of the channel plan and the receiving frequency of a specific RF input, select the appropriate receiving module and then click on the **Settings** tab. The channel plan and frequency of a specific receiver can be selected using drop-down lists.



Table below presents supported channel plans.

Channel Plan	Frequency of RF Channels
<b>Off-Air</b>	CH2 57MHz, CH3 63MHz, CH4 69MHz~CH67 791MHz, CH68797MHz, CH69 803MHz
<b>STD</b>	CH2 57MHz, CH363MHz, CH4 69MHz~ CH133 849MHz, CH134855MHz, CH135 861MHz
<b>IRC</b>	CH2 57MHz, CH3 63MHz, CH4 69MHz ~ CH133 849MHz, CH134, 855MHz, CH135 861MHz
<b>HRC</b>	CH2 55.75MHz, CH3 61.75MHz, CH4 67.75MHz~ CH133847.75MHz, CH134 853.75MHz, CH135 859.75MHz



### 3.3.6.3 Modules Service Configuration

Service Configuration tab displays the configuration page where you can manage the received services and output them to their designated interface. Configuration steps for IP input and all receiving and encoding modules in OmniHub 6/6D are mostly the same. First, you need to scan the port of each TS with LOCKED signal status. Each port might be scanned automatically or need to be scanned manually one at a time when its source signal is replaced.

After scanning each channel, you can output each transport stream or service by clicking the icon  and  below “Destination Settings”. You can route the whole stream or a service/s from the input channel toward the available output channel (IP or RF). Two types of routing are possible

1. **Bypass mode.** In this mode, routes can only be done when outputting a whole input transport stream towards an output TS channel, this cannot be done when outputting a single service only. Bypass mode activation will not allow other services from other input

TS to be mixed in the current TS output. Any attempts of routing other streams/services towards this channel will result in *“this channel won’t be available at this time”*.

2. **Multiplex mode** is used to create a new SPTS or MPTS. 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.

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

Service Name	Destination	Destination Setting
Channel 1.1	1.CP-EAS-00[1.1]	
[1] Program0		
Channel 1.2	1.CP-EAS-00[1.1]	
[1] Program0		
PID 17 (Other PID)		
PID 31 (Other PID)		
Channel 1.3	1.CP-EAS-00[1.2]	
[1] Program0		
PID 16 (Other PID)		
PID 17 (Other PID)		
Channel 1.4	1.CP-EAS-00[1.2]	
[1] Program0		
PID 17 (Other PID)		

Apply    Clear Config

Service Configuration page interface

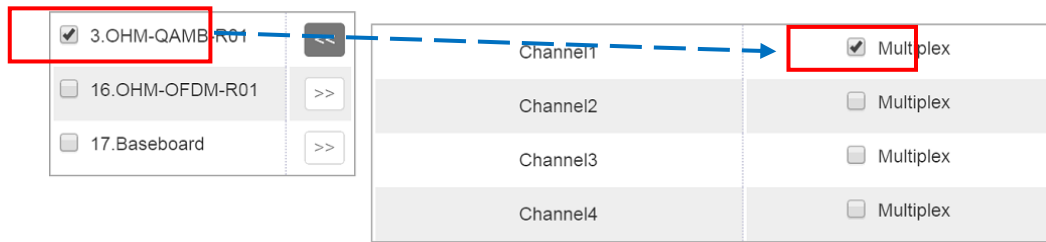
Destination	Destination Settings
Bypass or Multiplex Stream	
Multiplex a service	


To use **Bypass** or **multiplex mode on stream level**, click the icon . When a new window appears, select the output stream/channel where the stream will be bypassed or multiplexed.

3.OHM-QAM-B-R01    16.OHM-OFDM-R01    17.Baseboard


Channel	Multiplex	Bypass
Channel1		<input checked="" type="checkbox"/>
Channel2	<input type="checkbox"/>	<input type="checkbox"/>
Channel3	<input type="checkbox"/>	<input type="checkbox"/>
Channel4	<input type="checkbox"/>	<input type="checkbox"/>

To use **Multiplexing mode on service level** click on the pencil icon on the right side in the line with the proper service. Then select the output stream (channel) where the service will be multiplexed.



Do not forget to click the Apply button  on the right side to make the change takes effect.

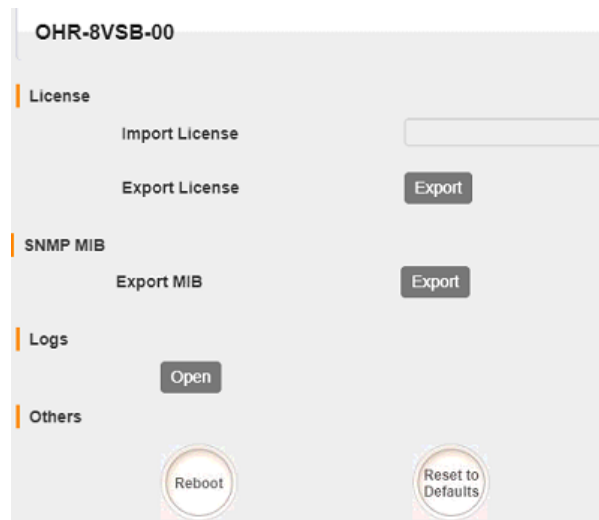
 To clear the whole routing table, click  button.

 There is a channel scan button **Channel Select:** Channel 1.1 **Channel Scan** on top. Normally the input service list of each channel will show on this page, but when you change the input source, you should refresh the changed channels manually by selecting the channel and clicking **Channel Scan** button.

### 3.3.6.4 Modules System

**System** tab allows you to perform the following tasks:

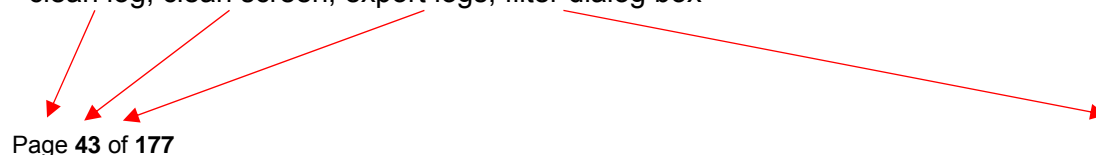
- Import / export license
- Log manages
- Reboot
- Factory Default



To open the log management menu, click on the **Open** button. The newly opened menu allows you to enable / disable logging.

After login is enabled, additional control buttons will be displayed:

- clean log, clean screen, export logs, filter dialog box







Filter

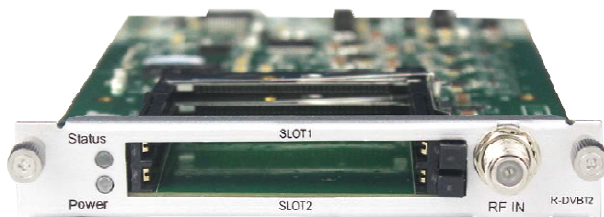
Level	
Level	Operation
Error	<input checked="" type="checkbox"/>
Warning	<input checked="" type="checkbox"/>
Information	<input checked="" type="checkbox"/>
Debug	<input type="checkbox"/>

Module List	
Module Name	Operation
SYS	<input checked="" type="checkbox"/>
PARAMS	<input checked="" type="checkbox"/>
UPGRADE	<input checked="" type="checkbox"/>
TSPROCESS	<input checked="" type="checkbox"/>
SIPROCESS	<input checked="" type="checkbox"/>
LICENSE	<input checked="" type="checkbox"/>

### 3.3.7 OHR6-DVBT2CI-00

OHR6-DVBT2CI-00 is a 4-channel DVBT/T2 receiving and descrambling module with 1 RF female connector and 2 CI slots. It can receive signals via 4 RF channels simultaneously and support 2 CAM cards descrambling.



#### 3.3.7.1 Module Status

By selecting the OHR6-DVBT2CI-00 in the module list, you will be automatically be redirected to the status page of the module. It shows the Chanel 1.1 to 1.4 that corresponds for the 4 input channels of the module. Locked Status of each channel shows the signals if these channels are locked or unlocked. If the signal is good, there will be values of Total Bitrate and Effective Bitrate.



15: CR-DVBT2-00						
<div> Status CI Settings Service Configuration System Operation </div>						
Channel	Locked Status	Total Bit Rate(Mbps)	Effective Bit Rate(Mbps)	RF Level	TS Analysis	Service List
1.1	Unlocked	0.000	0.000	0dBm (108dBμV)		
1.2	Unlocked	0.000	0.000	0dBm (108dBμV)		
1.3	Unlocked	0.000	0.000	0dBm (108dBμV)		
1.4	Unlocked	0.000	0.000	0dBm (108dBμV)		

Total Bit rate in Mbps shows the receiving bitrate of each channel with the LOCKED status. Effective Bit Rate in Mbps which shows the actual bitrate of each receiving channel. RF Level of the input signal will show you the level of each locked channel.

Clicking under the TS Analysis will display the information on the structure of the transport stream as shown in the picture below.

Channel 1.1 TS Analysis					
<div> Reset Counter </div>					
PID	Bitrate(Mbps)	Bandwidth(%)	Continuity Count Error	Type	Service
0x33(51)	0.000	0.000	0	PMT	Program-01
0x34(52)	0.000	0.000	0	PCR	Program-01
0x35(53)	0.000	0.000	0	Video	Program-01
0x36(54)	0.000	0.000	0	Audio	Program-01
0x64(100)	0.000	0.000	0	PMT	Program-01
0x65(101)	0.000	0.000	0	PCR	Program-01
0x66(102)	0.000	0.000	0	Video	Program-01
0x67(103)	0.000	0.000	0	Audio	Program-01

Clicking under Service List will display information of the services included in the transport stream as shown in the picture below.

Service List		Channel : 1.1	
#	Service	#	Service
1	[1] Program0		

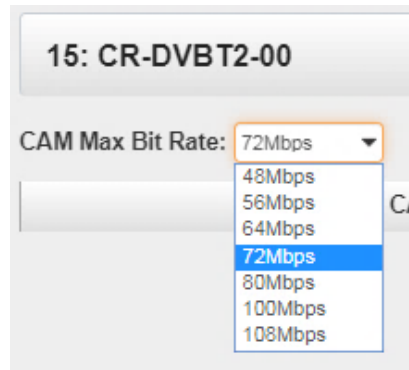
Clicking on the service name under the service will display the detailed information of the service: PCR, PMT, Video and Audio PID and Bitrate as shown in the picture below.

Channel1.1		Channel1.2		Channel1.3		Channel1.4	
#	Service	#	Service	#	Service	#	Service
1	[302] CCTV 2	1	[1] CNAI PAL	1	[1] India News HARYAI	1	[1] td HD Phx Infonews Ct
2	[303] CCTV 7	2	[2] CNAI NTSC	2	[2] India News RAJAST	2	[2] td HD Phx Chinese Ch
3	[304] CCTV 10	3	[1001] TVB8	3	[3] India News	3	[3] td HD Phx HK Channel
4	[305] CCTV 11	4	[1003] CETV	4	[4] LTV		
5	[306] CCTV 12			5	[5] Delhi News		
6	[307] CCTV 15			6	[6] India News UP/UK		
				7	[7] India News MP		
				8	[8] NEWS X		

### 【302】 CCTV 2

PID	Type	Bitrate(Mbps)
8190	PCR	0.045
258	PMT	0.018
513	StreamType:2-Video(MPEG2)	5.198
660	StreamType:4-Audio	0.262

CAM Max Bit Rate (48Mbps to 108Mbps) can be chosen in a pull-down list.



### 3.3.7.2 Module Settings

To input parameters of the source you want to receive in OHR6-DVBT2-00, click Settings and input the Frequency and Bandwidth. The tables below show the range of Frequency and Bandwidth for the settings parameters..

Name	Range
<b>Frequency (KHz)</b>	48000~862000
<b>Bandwidth (MHz)</b>	6, 7, 8

Channel	Frequency(KHz)	Bandwidth(MHz)
1.1	474000	8
1.2	482000	8
1.3	490000	8
1.4	498000	8

### 3.3.7.3 Module Service Configuration

For Service Configuration and System Operation please refer to OHR6-DVBC-00 module on page 33 to 34.

In Descrambling Settings there are CAM1, CAM2 and No Descrambling options. Select the correct CAM to decrypt the service and click Apply to make the change take effect or Clear Config button on the right side to clear all configuration.

\*You need to click **Apply** button after you configure service to CAM for descrambling, otherwise the descrambling configuration will not be saved.

Channel Select: Channel 1.1

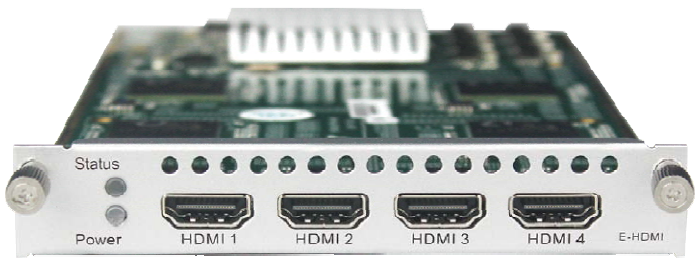
Channel Scan

Service Name		Descrambling
Channel 1.1	+	
[1] LipSync_1080i		No Descrambling
Channel 1.2	+	No Descrambling
Channel 1.3	+	CAM1
Channel 1.4	+	CAM2

### 3.4 Encoder Modules

#### 3.4.1 OHE6-HDMI-00/R01

OHE6-HDMI-00/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.



##### 3.4.1.1 Module Status

Module Status for HDMI encoder shows the Bitrate of each port when an HDMI source is connected. Video resolution of the source video will also appear in the status. Other details in status are HDCP encryption, Video Bitrate and Audio Bitrate.

OHE6-HDMI-00								
HDCP turned off								
Program	Signal	HDCP Encryption	Video Resolution	Video Bitrate(Mbps)	Audio Bitrate(Mbps)	Total Bitrate(Mbps)	Effective Bitrate(Mbps)	TS Analy
1	✓	Unencrypted	No_Video	0.000	0.000	0.000	0.000	👁
2	✓	Unencrypted	No_Video	0.000	0.000	0.000	0.000	👁
3	✓	Unencrypted	No_Video	0.000	0.000	0.000	0.000	👁
4	✓	Unencrypted	No_Video	0.000	0.000	0.000	0.000	👁

OHE6-HDMI-00

OHE-HDMI-R01

StatusBasic SettingInsertionOutputSystem

HDCCP turned on

Program	Signal	HDCCP Encryption	Input Video Resolution	Output Video Resolution	Total Bitrate(Mbps)	Effective Bitrate(Mbps)	TS Analysis	Prog
1	✖	Unencrypted	No_Video	No_Video	0.000	0.000	👁	Pro
2	✖	Unencrypted	No_Video	No_Video	0.000	0.000	👁	Pro
3	✖	Unencrypted	No_Video	No_Video	0.000	0.000	👁	Pro
4	✖	Unencrypted	No_Video	No_Video	0.000	0.000	👁	Pro

OHE6-HDMI-R01

Clicking 👁 under the TS Analysis will display the information on the structure of the transport stream as shown in the picture below.

Channel 1.1 TS Analysis

Reset Counter

Search

PID	Bitrate(Mbps)	Bandwidth(%)	Continuity Count Error	Type	Service
0x33(51)	0.000	0.000	0	PMT	Program-01
0x34(52)	0.000	0.000	0	PCR	Program-01
0x35(53)	0.000	0.000	0	Video	Program-01
0x36(54)	0.000	0.000	0	Audio	Program-01
0x64(100)	0.000	0.000	0	PMT	Program-01
0x65(101)	0.000	0.000	0	PCR	Program-01
0x66(102)	0.000	0.000	0	Video	Program-01
0x67(103)	0.000	0.000	0	Audio	Program-01

Tip:

3.4.1.2 Module Basic Settings

Basic Settings for both OHE6-HDMI-00 and OHE6-HDMI-R01 are the same. Here you can modify the Video, Audio and Service Parameters. Click **Advanced Setting** to see all parameters you can modify and check specific parameters you want to set and see.

⚙️ Advanced Setting >

Program	Video PID	Audio PID	PCR PID	PMT PID	Program Name	Provider Name
1	<input type="text" value="102"/>	<input type="text" value="103"/>	<input type="text" value="101"/>	<input type="text" value="100"/>	<input type="text" value="Program-1"/>	<input type="text" value="Encoder"/>
2	<input type="text" value="202"/>	<input type="text" value="203"/>	<input type="text" value="201"/>	<input type="text" value="200"/>	<input type="text" value="Program-2"/>	<input type="text" value="Encoder"/>
3	<input type="text" value="302"/>	<input type="text" value="303"/>	<input type="text" value="301"/>	<input type="text" value="300"/>	<input type="text" value="Program-3"/>	<input type="text" value="Encoder"/>
4	<input type="text" value="402"/>	<input type="text" value="403"/>	<input type="text" value="401"/>	<input type="text" value="400"/>	<input type="text" value="Program-4"/>	<input type="text" value="Encoder"/>

HDCCP Test Mode: ☒

🔔 HDCCP test mode is for test purposes only. Please make sure that you have rights for the content!

Apply



Video Parameter	Range	Video Parameter	Range
Video Encoding Format	H264, MPEG2	Profile	HIGH MAIN
Video Bitrate (Kbps)	600~20000	GOP Size	6~63
Video Resolution	Auto 1920×1080_60i 1920×1080_50i 1920×1080_30p 1920×1080_25p 1080×720_60p 1080×720_50p 720×480_60i 720×576_50i	Video Aspect Ratio	Auto 16x9_LetterBox 16x9_CutOff 4x3_PillarBox 4x3_CutOff

Audio Parameter	Range	Audio Parameter	Range
Audio Encoding Format	AC3 MPEG1_Layer2 MPEG2_AAC MPEG4_AAC	Audio Bitrate (Kbps)	128~384 (AC3) 64~384(MPEG1_Layer2) 32~384(MPEG2_AAC/ MPEG4_AAC)
Delay	Dual Channel Mono Stereo	Volume	0~8

OHE-HDMI-R01 is basically the same

with OHE-HDMI-00 except a few differences on the parameter setting range.

Service Parameter	Range	Service Parameter	Range
Program Name	Length is 1~16	Audio PID	32~8190
Provider Name	Length is 1~16	PCR PID	32~8190
Video PID	32~8190	PMT PID	32~8190

OHE-HDMI-R01 Status Basic Setting Insertion Output System

⚙️ Advanced Setting >

Program	Video Encoding Format	Video Bitrate(Kbps)
1	H.264	8000
2	H.264	8000
3	H.264	8000
4	H.264	8000

Apply

HDCP Test Mode : ON HDCP test mode is for test purposes only. Please make sure that you have rights for the content!

⚙️ Advanced Setting ▾

Video Parameter ☐

☒ Video Encoding Format
 ☐ Video Resolution
 ☒ Video Bitrate
 ☐ GOP Size
 ☐ Profile
 ☐ Video Aspect Ratio

Audio Parameter ☐

☐ Audio Encoding Format
 ☐ Delay
 ☐ Audio Bitrate
 ☐ Volume

Service Parameter ☐

☐ Program Name
 ☐ Video PID
 ☐ Audio PID
 ☐ PCR PID
 ☐ PMT PID
 ☐ Provider Name

Shelter Parameter ☐

☐ X
 ☐ Y
 ☐ Width
 ☐ Height
 ☐ Color
 ☐ Shelter

Video Parameter	Range	Video Parameter	Range
Video Type	H264	Profile	HIGH MAIN
Video Resolution	Auto, 1920×1080_60i , 1920×1080_50i , 1920×1080_30p , 1920×1080_25p , 1080×720_60p , 1080×720_50p , 720×480_60i , 720×576_50i	GOP Size	1~60
Video Bitrate (Kbps)	600~12000	Video Aspect Ratio	16x9 (HD) 4x3 (SD)


Audio Encoder Details	Range	Audio Encoder Details	Range
Audio Type	MPEG1_Layer2 AC3 AAC	Volume (dB)	-20~20
Delays (ms)	-2000~2000	Audio Bit rate (Kbps)	32~192 (MPEG1_Layer2 / AAC) 96~192 (AC3)

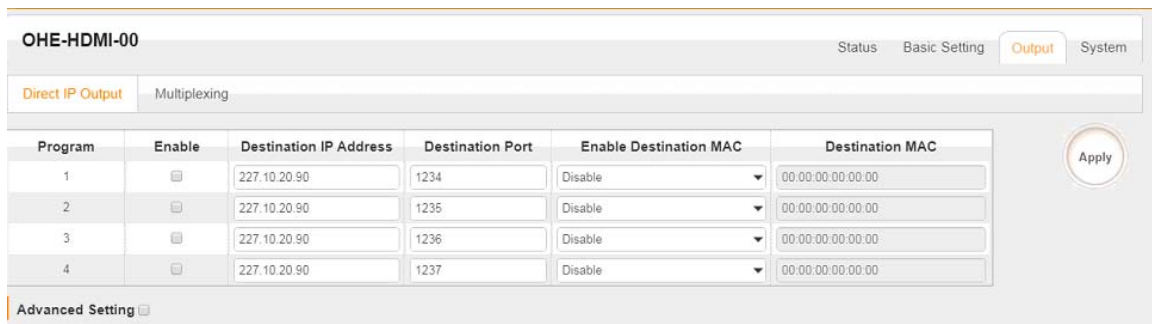
Shelter Parameters	Range	Shelter Parameters	Range
Shelter	Enable/Disable	X	0~1920 (Dual)
Y	0~1080 (Dual)	Width	2~1920 (Dual)
Height	2~1080 (Dual)	Color	White/Black/Blue/Green/Red

### 3.4.1.3 Output

For the Output, both models have direct IP output and multiplexing. But only OHE6-HDMI-R01 has RTMP output settings.

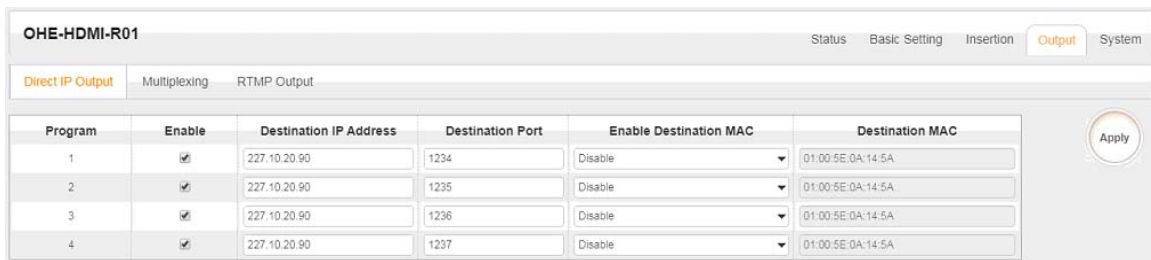
Direct IP output is specifically for encoding a single program and outputting it directly to IP. This setting will not occupy multicast bandwidth baseboard.

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



Program	Enable	Destination IP Address	Destination Port	Enable Destination MAC	Destination MAC
1	<input type="checkbox"/>	227.10.20.90	1234	Disable	00:00:00:00:00:00
2	<input type="checkbox"/>	227.10.20.90	1235	Disable	00:00:00:00:00:00
3	<input type="checkbox"/>	227.10.20.90	1236	Disable	00:00:00:00:00:00
4	<input type="checkbox"/>	227.10.20.90	1237	Disable	00:00:00:00:00:00

OHE6-HDMI-00



Program	Enable	Destination IP Address	Destination Port	Enable Destination MAC	Destination MAC
1	<input checked="" type="checkbox"/>	227.10.20.90	1234	Disable	01:00:5E:0A:14:5A
2	<input checked="" type="checkbox"/>	227.10.20.90	1235	Disable	01:00:5E:0A:14:5A
3	<input checked="" type="checkbox"/>	227.10.20.90	1236	Disable	01:00:5E:0A:14:5A
4	<input checked="" type="checkbox"/>	227.10.20.90	1237	Disable	01:00:5E:0A:14:5A

OHE6-HDMI-R01

- **Destination IP Address and Destination Port:** 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 when the unicast stream cannot be received with the unicast IP addresses. You can enable destination MAC and streaming out by setting Destination MAC.
- **Advance Setting (only available in OHE6-HDMI-00):**

**Advance Settings** ☒

Enable the second eth: ☒





IP Address	Subnet Mask	Default Gateway	MAC Address
192.168.131.45	255.255.255.0	192.168.131.254	A0:69:86:02:42:C7

The second eth is reserved to output IP streams in an another different VLAN. Enabling the second eth and set **IP Address**, **Subnet Mask**, **Default Gateway** in the same segment of the Unicast IP (the another different VLAN), you can output the Unicast stream to the another VLAN.

Direct IP Output

Multiplexing

RTMP Output

#	Service Name	Destination	Destination Setting
1	[1] Program-01		
2	[1] Program-02		
3	[1] Program-03		
4	[1] Program-04		

#### To use **Multiplexing mode on service level**

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

Direct IP Output   Multiplexing   **RTMP Output**

Program	Enable	FMS URL	Stream Name	Port	Encrypt	User Name	Password	Status
1	<input type="checkbox"/>	rtmp://172.16.1.254/live	live_stream0	1935	Disable ▼	admin	admin	Connection Fa
2	<input type="checkbox"/>	rtmp://172.16.1.254/live	live_stream1	1935	Disable ▼	admin	admin	Connection Fa
3	<input type="checkbox"/>	rtmp://172.16.1.254/live	live_stream2	1935	Disable ▼	admin	admin	Connection Fa
4	<input type="checkbox"/>	rtmp://172.16.1.254/live	live_stream3	1935	Disable ▼	admin	admin	Connection Fa

To use RTMP output to configure streaming to any website capable of receiving RTMP, it is necessary to create a new stream instance on the intended receiving platform and enter the corresponding URL and port.

#### 3.4.1.4 Insertion (only available in the OHE6-HDMI-R01 module)

You should choose a channel first before you set Insertion.

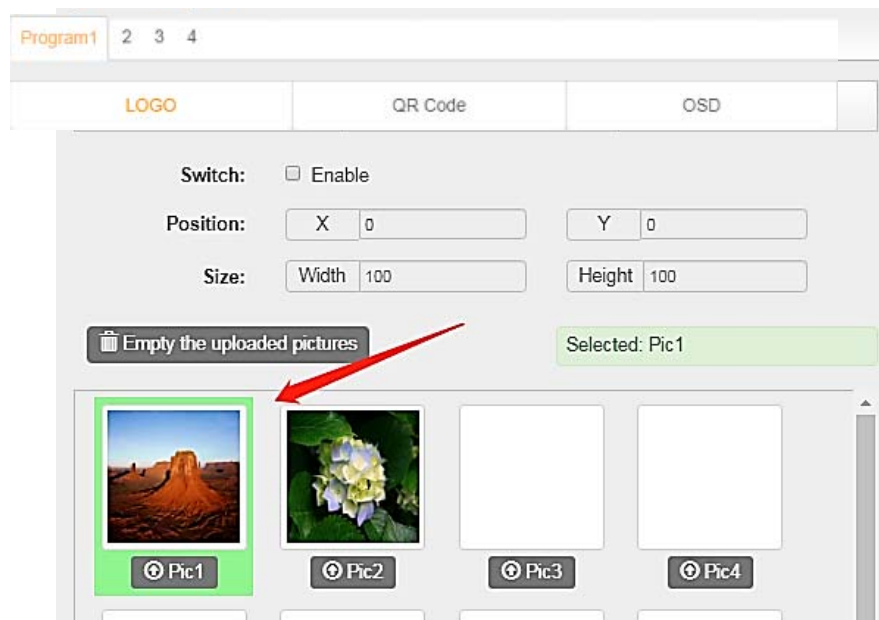
**OHE-HDMI-R01**      Status   Basic Setting   **Insertion**   Output   System

**Program1**   2   3   4

LOGO      QR Code      OSD



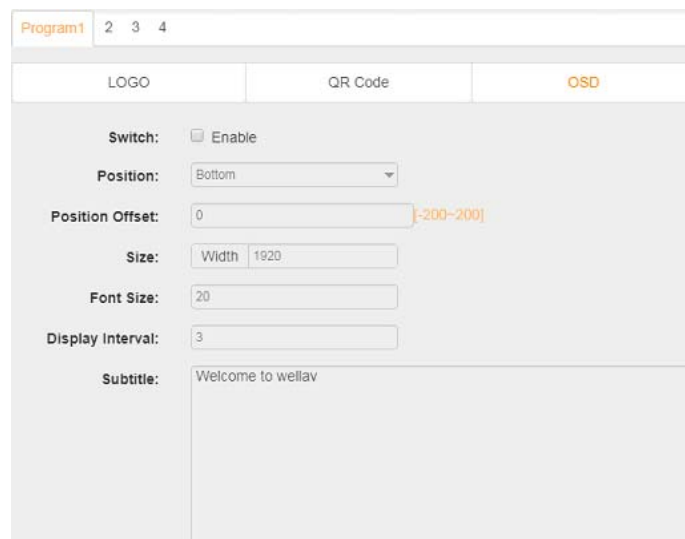
- **LOGO setting:** you can upload several pictures at the same time, and pick one to show on the screen. When you click the one you want to show that picture field will turn green.



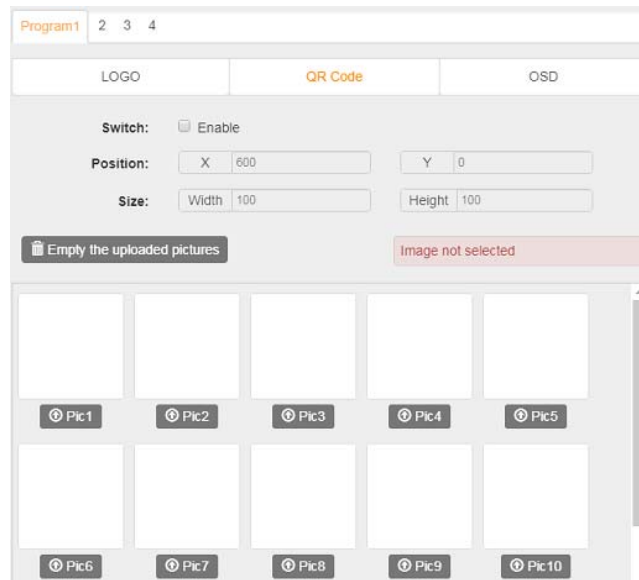
LOGO Parameter	Range	LOGO Parameter	Range
Position X	0~1920 (Dual)	Position Y	0~1080 (Dual)
Size width	0~1920 (Dual)	Size Height	0~1080 (Dual)

- **Subtitle setting:**

Subtitle Parameter	Range	LOGO Parameter	Range
Position	Bottom/Top/Middle	Size width	0~1920 (Dual)
Size Height	0~1080 (Dual)	Front	0~100



- **QR Code setting:** QR Code picture selection is same with LOGO setting.

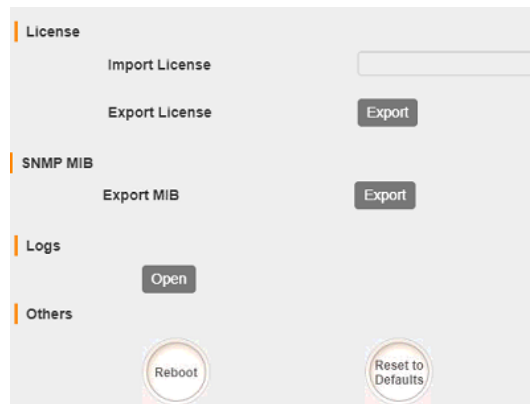


LOGO Parameter	Range	LOGO Parameter	Range
Position X	0~1920 (Dual)	Position Y	0~1080 (Dual)
Size width	0~1920 (Dual)	Size Height	0~1080 (Dual)

### 3.4.1.5 System

**System** tab allows you to perform the following tasks:

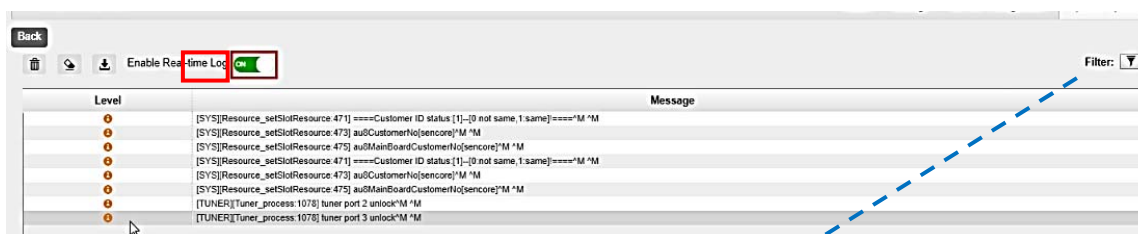
- Import / export license
- Log manages
- Reboot
- Factory Default



To open the log management menu, click on the **Open** button. The newly opened menu allows you to enable / disable logging.

After login is enabled, additional control buttons will be displayed:

- clean log, clean screen, export logs, filter dialog box



### Filter

Level	
Level	Operation
Error	<input checked="" type="checkbox"/>
Warning	<input checked="" type="checkbox"/>
Information	<input checked="" type="checkbox"/>
Debug	<input type="checkbox"/>

Module List	
Module Name	Operation
SYS	<input checked="" type="checkbox"/>
PARAMS	<input checked="" type="checkbox"/>
UPGRADE	<input checked="" type="checkbox"/>
TSPROCESS	<input checked="" type="checkbox"/>
SIPROCESS	<input checked="" type="checkbox"/>
LICENSE	<input checked="" type="checkbox"/>

## 3.4.2 OHE6-HDMI-02

OHE6-HDMI-02 is a 2-channel HDMI encoder which supports H.264 HD/SD or MPEG-2 HD/SD encoding with 2-channel RCA for CC input. The module supports MPEG1-L2, AAC and AC3 audio encoding.



### 3.3.5.1 Module Status

Module Status for the HDMI encoder shows the Bitrate of each port when an HDMI source is connected. The Status for OHE6-HDMI-02 is the same with OHE6-HDMI-00. The differences are the number of channels shown in the status and some other parameters for example, OHE6-HDMI-00 doesn't have Audio2 Bitrate and the input/output video resolution.

OHE-HDMI-02							
				Status	Basic Setting	Output	EAS Setting
HDCP turned off							
Program	Signal	HDCP Encryption	Input Video Resolution	Output Video Resolution	Video Bitrate(Mbps)	Audio1 Bitrate(Mbps)	Audio2 Bitrate(Mbps)
1	✖	Unencrypted	No_Video	No_Video	0.000	0.000	off
2	✖	Unencrypted	No_Video	No_Video	0.000	0.000	off

### 3.4.2.2 Module Basic Settings

Click **Advanced Setting** to see all parameters you can modify and check specific parameters you want to set and see. Click the **Apply** button on the right side to make the change take effect.

OHE-HDMI-02

StatusBasic SettingOutputEAS SettingSystem

Basic ParametersAdvance Parameters

Advanced Setting >

Program	Input Source Type	Video Encoding Format	Video Bitrate(Kbps)
1	HDMI	MPEG2	10000
2	HDMI	MPEG2	10000

HDCP Test Mode : ON HDCP test mode is for test purposes only. Please make sure that you have rights for the content!

Apply

Advanced Setting

Apply

Video Parameter

☒ Video Encoding Format
 ☐ Video Resolution
 ☒ Video Bitrate
 ☐ Video Mode

☐ GOP Structure
 ☐ GOP Size
 ☐ Closed Caption
 ☐ Profile

☐ Level
 ☐ Video Aspect Ratio

Audio Parameter

☐ Audio Source
 ☐ Audio Encoding Format
 ☐ AAC Format
 ☐ Audio Bitrate

☐ Volume

Service Parameter

☐ Video PID
 ☐ Audio PID
 ☐ PCR PID
 ☐ PMT PID

☐ Program Name
 ☐ Provider Name

Video Parameter	Range	Video Parameter	Range
Video Encoding Format	H264, MPEG2	GOP Size	12~48
Video Resolution	Auto, 1920×1080_60i , 1920×1080_50i , 1920×1080_30p , 1920×1080_25p , 1080×720_60p , 1080×720_50p , 720×480_60i , 720×576_50i	Level	Level_3.0 Level_3.1 Level_3.2 Level_4.0 Level_4.1 Level_4.2
Video Bitrate (Kbps)	100 and 18000	Profile	High, Main, Baseline
Video Mode	CBR	Closed Caption	Enable, Disable

<b>GOP Structure</b>	IBBP, IPPP, IBP	<b>Video Aspect Ratio</b>	Auto 16x9 4x3
----------------------	-----------------	---------------------------	---------------------

<b>Audio Encoder Details</b>	<b>Range</b>	<b>Audio Encoder Details</b>	<b>Range</b>
<b>Audio Encoding Format</b>	AC3 AC3_Passthrough MPEG1_Layer2 MPEG2_AAC MPEG4_AAC AAC_HE_V2	<b>Audio Bitrate (Kbps)</b>	128~384 (AC3) 64~384(MPEG1_Layer2) 64~384(MPEG2_AAC/ MPEG4_AAC) 32~384 (AAC_HE_V2)
<b>Audio Source</b>	HDMI	<b>Volume (dB)</b>	0~8
<b>AAC Format</b>	ADTS, LATM		

<b>Service Parameter</b>	<b>Range</b>	<b>Service Parameter</b>	<b>Range</b>
Program Name	String between 1~31	Audio PID	32~8190
Provider Name	String between 0~31	PCR PID	32~8190
Video PID	32~8190	PMT PID	32~8190

The OHE6-HDMI-02 module supports two sets of audio and video input. Each set includes 1 HDMI port/1 component port and 1 analog port. It supports dual audio encoding per channel. Dual audio all come from HDMI input with the same content and the encoding format can be the same or different.

### 3.4.2.3 Module Output

Direct IP output is specifically for encoding a single program and outputting it directly to IP. This setting will not occupy multicast bandwidth of the baseboard.



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

**OHE-HDMI-02**
Status
Basic Setting
Output
EAS Setting
System

**Direct IP Output**
Multiplexing

Program	Enable	Destination IP Address	Destination Port	Enable Destination MAC	Destination MAC
1	<input checked="" type="checkbox"/>	227.10.20.90	1234	Disable	00:00:00:00:00:00
2	<input type="checkbox"/>	227.10.20.90	1235	Disable	00:00:00:00:00:00


Apply

Program	Enable	Destination IP Address	Destination Port	Enable Destination MAC	Destination MAC
1	<input checked="" type="checkbox"/>	227.10.20.90	1234	Disable	00:00:00:00:00:00
2	<input checked="" type="checkbox"/>	227.10.20.90	1235	Disable	00:00:00:00:00:00

- **Destination IP Address** and **Destination Port**: 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 when the unicast stream cannot be received by with the 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  (pencil) icon. There will always be a BaseBoard selection for the IP output and other Output options depending on the module inserted.
2. Select the correct Output and Channel you want to output the service to.
3. Check Multiplex on the channel you want to outputt. You can output multiple services to one channel or output one service to multiple channels.

### 3.4.2.4 EAS Settings

When the EAS source is triggered, the Audio and Video from the encoder will be replaced by the Audio and Video from the EAS module.

On this page, you need to input the EAS Source Multicast Address, Command port and Data port. This information can be seen on the EAS page.

EAS Source Multicast Address: 227.10.50.60		Command Port: 1235	Data Port: 1234
Program	Program Name	Status	EAS Override: <input checked="" type="checkbox"/>
1	Program-1	Not Paved	<input checked="" type="checkbox"/>
2	Program-2	Not Paved	<input checked="" type="checkbox"/>

### 3.4.2.5 System

**System** tab allowsyou to perform the following tasks:

- Import / export license
- Log manages
- Reboot
- Factory Default

License

Import License

Export License Export

SNMP MIB

Export MIB Export

Logs

Open

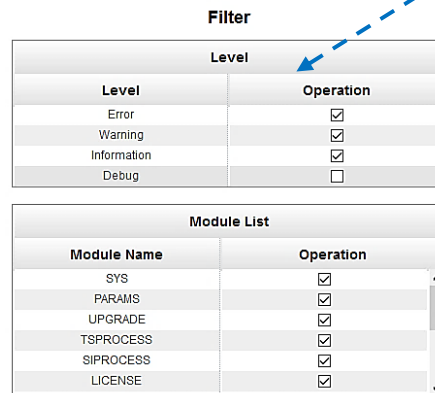
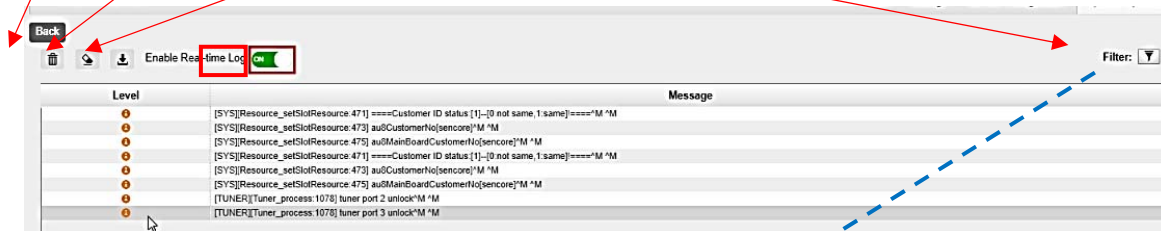
Others

Reboot

Reset to Defaults

To open the log management menu, click on the **Open** button. The newly opened menu allows you to enable / disable logging.

After login is enabled, additional control buttons will be displayed:  
 - clean log, clean screen, export logs, filter dialog box



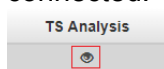
### 3.4.3 OHE6-HDMI-02C

OHE6-HDMI-02C is a 2-channel HDMI or component HD encoder. It supports H.264 / MPEG-2 HD/SD, MPEG1L2, AAC (optional), AC3 (optional) audio, CC subtitle and analog audio input.



#### 3.4.3.1 Module Status

Module Status for HDMI-02C encoder shows the Bitrate of each port when an HDMI source is connected. Video resolution of the source video will also appear on the status. Clicking on the



button will display information on the structure of the transport stream. This will show more details about the Service in the channel depending on the parameters you set on the Module Setting.

HDCP turned off							
Program	Signal	HDCP Encryption	Input Video Resolution	Output Video Resolution	Video Bitrate(Mbps)	Audio1 Bitrate(Mbps)	Audio2 Bitrate(Mbps)
1	✖	Unencrypted	No_Video	No_Video	0.000	0.000	off
2	✖	Unencrypted	No_Video	No_Video	0.000	0.000	off

### 3.4.3.2 Module Basic Settings

In module Setting, there are Basic and Advanced parameters.

In Basic Parameters, here you can edit or modify Video parameters (resolution, GOP, etc.), audio parameters (bitrate, volume, etc.) and service parameters (PID of Video, audio, PMT etc.)

Click **Advanced Setting** to see all parameters you can modify and check specific parameters you want to set and see. Click the Apply button on the right side to make the changes take effect.

Basic Parameters

Advance Parameters

⚙️ Advanced Setting ▼

Video Parameter

☒ Video Encoding Format
 ☐ Video Resolution
 ☒ Video Bitrate
 ☐ Video Mode

☐ GOP Structure
 ☐ GOP Size
 ☐ Closed Caption
 ☐ Profile

☐ Level
 ☐ Video Aspect Ratio

Audio Parameter

☐ Audio Source
 ☐ Audio Encoding Format
 ☐ AAC Format
 ☐ Audio Bitrate

☐ Volume

Service Parameter

☐ Video PID
 ☐ Audio PID
 ☐ PCR PID
 ☐ PMT PID

☐ Program Name
 ☐ Provider Name

Click **Advanced Setting** in the line to set encoding parameters.

Video Parameter	Range	Video Parameter	Range
<b>Video Encoding Format</b>	H264, MPEG2	<b>GOP Size</b>	12~48
<b>Video Resolution</b>	Auto, 1920×1080_60i , 1920×1080_50i , 1920×1080_30p , 1920×1080_25p , 1080×720_60p , 1080×720_50p , 720×480_60i , 720×576_50i	<b>Level</b>	Level_3.0 Level_3.1 Level_3.2 Level_4.0 Level_4.1 Level_4.2
<b>Video Bitrate (Kbps)</b>	100 and 18000	<b>Profile</b>	High, Main, Baseline
<b>Video Mode</b>	CBR	<b>Closed Caption</b>	Enable, Disable
<b>GOP Structure</b>	IBBP, IPPP, IBP	<b>Video Aspect Ratio</b>	Auto 16x9 4x3

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Audio Encoder Details	Range	Audio Encoder Details	Range
<b>Audio Encoding Format</b>	AC3 AC3_Passthrough MPEG1_Layer2 MPEG2_AAC MPEG4_AAC AAC_HE_V2	<b>Audio Bitrate (Kbps)</b>	128~384 (AC3) 64~384(MPEG1_Layer2) 64~384(MPEG2_AAC/ MPEG4_AAC) 32~384 (AAC_HE_V2)
<b>Audio Source</b>	HDMI, Analog	<b>Volume (dB)</b>	0~8
<b>AAC Format</b>	ADTS, LATM		

Service Parameter	Range	Service Parameter	Range
Program Name	String between 1~31	Audio PID	32~8190
Provider Name	String between 0~31	PCR PID	32~8190
Video PID	32~8190	PMT PID	32~8190

The OHE6-HDMI-02C module supports two sets of audio and video input in total. Each set includes 1 HDMI port/1 component port and 1 analog port.

**If the video comes from HDMI, there are three options for encoding dual audio:**

1. One audio comes from HDMI and the other comes from analog; the encoding format can be the same or different.
2. Dual audio all come from HDMI with the same content and the encoding format can be the same or different.
3. Dual audio all come from the analog input with the same content and the encoding format can be the same or different.

**If the video comes from the component, there is only one choice for encoding dual audio:**

Dual audio all come from the analog input with the same content and the encoding format can be the same or different.

### 3.4.4.3 IP Output

This feature is specifically for encoding a single program and outputting it directly to IP. It will not occupy multicast bandwidth of the baseboard.








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

- **Destination IP Address and Destination Port:** 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 when the unicast stream cannot be received using unicast IP addresses. You can enable destination MAC and streaming out by setting Destination MAC.

Direct IP Output		Multiplexing			
Program	Enable	Destination IP Address	Destination Port	Enable Destination MAC	Destination MAC
1	<input type="checkbox"/>	227.10.20.90	1234	Disable	00:00:00:00:00:00
2	<input type="checkbox"/>	227.10.20.90	1235	Disable	00:00:00:00:00:00

To use **Multiplexing mode on service level**:

1. Click on  (pencil) icon. There will always be a BaseBoard selection for the IP output and other Output options depending on the module inserted.
2. Select the correct Output and Channel you want to output the service to.
3. Check Multiplex on the channel you want to output. You can output multiple services to one channel or output one service to multiple channels.

Direct IP Output		Multiplexing	
#	Service Name	Destination	Destination Setting
1	[1] Program-01		
2	[1] Program-02		
3	[1] Program-03		
4	[1] Program-04		

### 3.4.3.4 EAS Settings

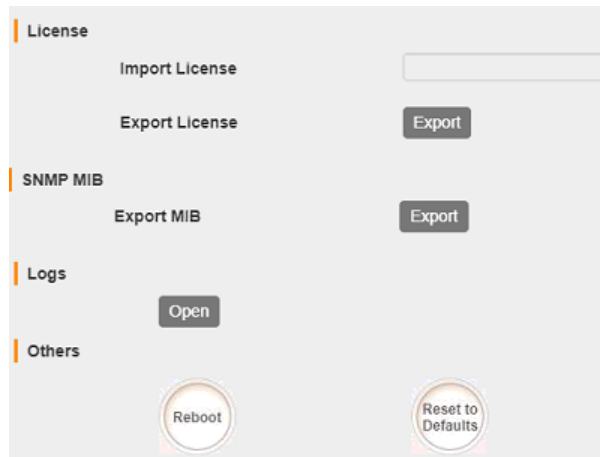
When the EAS source is triggered, the Audio and Video from the encoder will be replaced by the Audio and Video from the EAS module.

EAS Source Multicast Address: 235.1.1.100		Command Port: 10000	Data Port: 10001
Program	Program Name	Status	EAS Override: <input checked="" type="checkbox"/>
1	Program-1	Not Paved	<input checked="" type="checkbox"/>
2	Program-2	Not Paved	<input checked="" type="checkbox"/>

### 3.4.3.5 System Operation

**System** tab allows you to perform the following tasks:

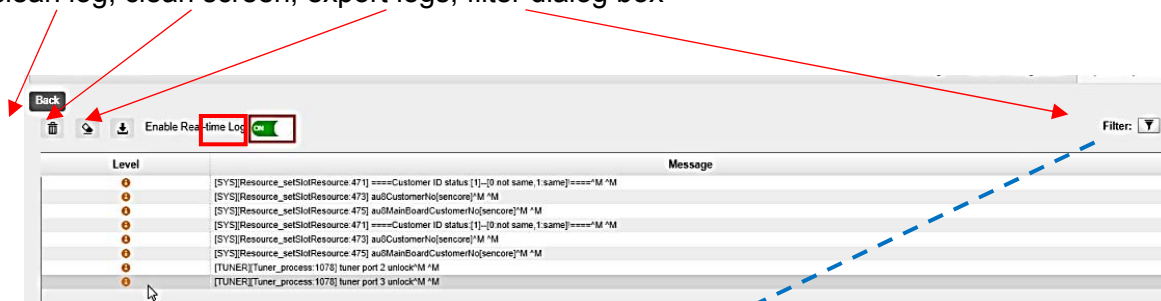
- Import / export license
- Log manages
- Reboot
- Factory Default



To open the log management menu, click on the **Open** button. The newly opened menu allows you to enable / disable logging.

After login is enabled, additional control buttons will be displayed:

- clean log, clean screen, export logs, filter dialog box



**Filter**

Level	
Level	Operation
Error	<input checked="" type="checkbox"/>
Warning	<input checked="" type="checkbox"/>
Information	<input checked="" type="checkbox"/>
Debug	<input type="checkbox"/>

Module List	
Module Name	Operation
SYS	<input checked="" type="checkbox"/>
PARAMS	<input checked="" type="checkbox"/>
UPGRADE	<input checked="" type="checkbox"/>
TSPROCESS	<input checked="" type="checkbox"/>
SIPROCESS	<input checked="" type="checkbox"/>
LICENSE	<input checked="" type="checkbox"/>

### 3.4.4 OHE6-HDMI-05/05A

OHE6-HDMI-05/05A module is a 4/8 - channel HDMI encoding module that supports H.264. This supports AC3 and AAC via license and supports OSD Subtitle, logo picture and QR code overlay. OHE6-HDMI-05 occupies 1 slot in the chassis and OHE6-HDMI-05A occupies 2 slots in OmniHub 6/6D chassis.



### 3.4.4.1 Module Status

Like other Hdmi encoder module. The Status of OHE6-HDMI-05/05A shows the Bitrate, input and output Resolution, TS analysis and Service List on each channel as shown in the image below.

OHE-HDMI-05A								
<div> <div>Status</div> <div>Basic Setting</div> <div>Insertion</div> <div>Output</div> <div>System</div> </div>								
HDCP turned on								
Program	Signal	HDCP Encryption	Input Video Resolution	Output Video Resolution	Total Bitrate(Mbps)	Effective Bitrate(Mbps)	TS Analysis	Prog
1	✗	Unencrypted	No_Video	No_Video	0.000	0.000	👁	Pro
2	✗	Unencrypted	No_Video	No_Video	0.000	0.000	👁	Pro
3	✗	Unencrypted	No_Video	No_Video	0.000	0.000	👁	Pro
4	✗	Unencrypted	No_Video	No_Video	0.000	0.000	👁	Pro
5	✗	Unencrypted	No_Video	No_Video	0.000	0.000	👁	Pro
6	✗	Unencrypted	No_Video	No_Video	0.000	0.000	👁	Pro
7	✗	Unencrypted	No_Video	No_Video	0.000	0.000	👁	Pro
8	✗	Unencrypted	No_Video	No_Video	0.000	0.000	👁	Pro

### 3.4.4.2 Module Basic Settings

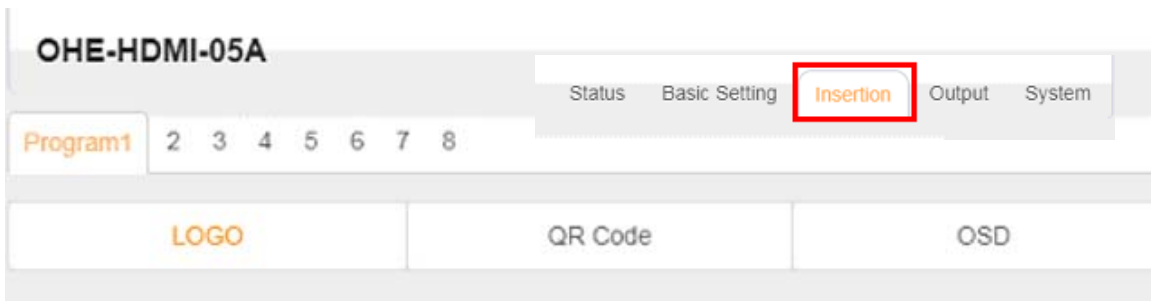
This page allows you to modify the Video, Audio and Service Parameters. Click **Advanced Settings** to see all parameters you can modify and check specific parameters you want to set and see. Click the **Apply** button on the right side to make the change take effect.

OHE-HDMI-05A			Status	Basic Setting	Insertion	Output	System
<div> <div>Advanced Setting &gt;</div> </div>							
Program	Video Encoding Format	Video Bitrate(Kbps)					
1	H 264	8000					
2	H 264	8000					
3	H 264	8000					
4	H 265	5000					
5	H 264	8000					
6	H 264	8000					
7	H 264	8000					
8	H 264	8000					
<div> <div> HDCP Test Mode : <span>ON</span> </div> <div> HDCP test mode is for test purposes only. Please make sure that you have rights for the content! </div> </div>							

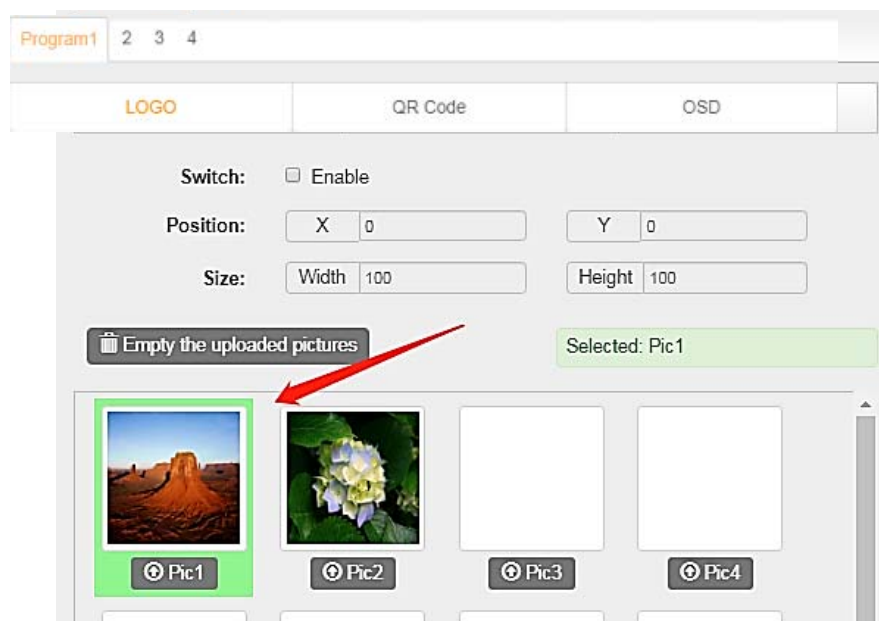
Apply

### 3.4.4.3 Module Insertion Settings

You should choose a channel first before you set Insertion.



- **LOGO setting:** you can upload several pictures at the same time, and pick one to show on the screen. When you click the one you want to show that picture field 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)

- **Subtitle setting:**

Subtitle Parameter	Range	LOGO Parameter	Range
Position	Bottom/Top/Middle	Size width	0~1920 (Dual)
Size Height	0~1080 (Dual)	Front	0~100

Program1 2 3 4

LOGO QR Code **OSD**

Switch: ☒ Enable

Position: Bottom

Position Offset: 0 [-200~200]

Size: Width 1920

Font Size: 20

Display Interval: 3

Subtitle: Welcome to wellav

- **QR Code setting:** QR Code picture selection is same to LOGO setting.

Program1 2 3 4

LOGO **QR Code** OSD

Switch: ☒ Enable

Position: X 600 Y 0

Size: Width 100 Height 100

Empty the uploaded pictures Image not selected


Pic1 Pic2 Pic3 Pic4 Pic5

Pic6 Pic7 Pic8 Pic9 Pic10

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)

### 3.4.4.4 Module IP Output

This feature is specifically for encoding a single program and outputting directly to IP. It will not occupy multicast bandwidth of baseboard.

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

OHE-HDMI-05A

Status Basic Setting Insertion **Output** System

Direct IP Output Multiplexing

Program	Enable	Destination IP Address	Destination Port	Enable Destination MAC	Destination MAC
1	<input type="checkbox"/>	227.20.20.95	1234	Disable	01:00:5E:14:14:5F
2	<input type="checkbox"/>	227.10.20.90	1235	Disable	00:00:00:00:00:00
3	<input type="checkbox"/>	227.10.20.90	1236	Disable	00:00:00:00:00:00
4	<input checked="" type="checkbox"/>	227.10.20.90	1237	Disable	01:00:5E:0A:14:5A
5	<input type="checkbox"/>	227.10.20.90	1238	Disable	00:00:00:00:00:00
6	<input type="checkbox"/>	227.10.20.90	1239	Disable	00:00:00:00:00:00
7	<input type="checkbox"/>	227.10.20.90	1240	Disable	00:00:00:00:00:00
8	<input type="checkbox"/>	227.10.20.90	1241	Disable	00:00:00:00:00:00

Apply

- **Destination IP Address and Destination Port:** 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 when the unicast stream cannot be received with using unicast IP addresses. You can enable destination MAC and streaming out by setting Destination MAC.

Direct IP Output **Multiplexing**

There are unapplied settings, please click the apply button to apply your settings!

Program	Program Name	Destination	Destination Setting
1	Program-01	3.OHM-OFDM-R01[1.1]	
2	Program-02		
3	Program-03		
4	Program-04		

Apply

Clear Config

To use **Multiplexing mode on service level:**

1. Click on (pencil) icon. There will always be a BaseBoard selection for the IP output and other Output options depending on the module inserted.
2. Select the correct Output and Channel you want to output the service to.
3. Check Multiplex on the channel you want to output. You can output multiple services to one channel or output one service to multiple channels.

OHE6-HDMI-05/05A module is a 4/8 - channel HDMI encoding module that supports H.264. This supports AC3 and AAC via license and supports OSD Subtitle, logo picture and QR code overlay. OHE6-HDMI-05 occupies 1 slot in the chassis and OHE6-HDMI-05A occupies 2 slots in OmniHub 6/6D chassis.



### 3.4.4.1 Module Status

Like other Hdmi encoder module. The Status of OHE6-HDMI-05/05A shows the Bitrate, input and output Resolution, TS analysis and Service List on each channel as shown in the image below.

OHE-HDMI-05A								
<div> Status Basic Setting Insertion Output System </div>								
HDCP turned on								
Program	Signal	HDCP Encryption	Input Video Resolution	Output Video Resolution	Total Bitrate(Mbps)	Effective Bitrate(Mbps)	TS Analysis	Prog
1	✗	Unencrypted	No_Video	No_Video	0.000	0.000	👁	Pro
2	✗	Unencrypted	No_Video	No_Video	0.000	0.000	👁	Pro
3	✗	Unencrypted	No_Video	No_Video	0.000	0.000	👁	Pro
4	✗	Unencrypted	No_Video	No_Video	0.000	0.000	👁	Pro
5	✗	Unencrypted	No_Video	No_Video	0.000	0.000	👁	Pro
6	✗	Unencrypted	No_Video	No_Video	0.000	0.000	👁	Pro
7	✗	Unencrypted	No_Video	No_Video	0.000	0.000	👁	Pro
8	✗	Unencrypted	No_Video	No_Video	0.000	0.000	👁	Pro

### 3.4.4.2 Module Basic Settings

This page allows you to modify the Video, Audio and Service Parameters. Click **Advanced Settings** to see all parameters you can modify and check specific parameters you want to set and see. Click the **Apply** button on the right side to make the change take effect.

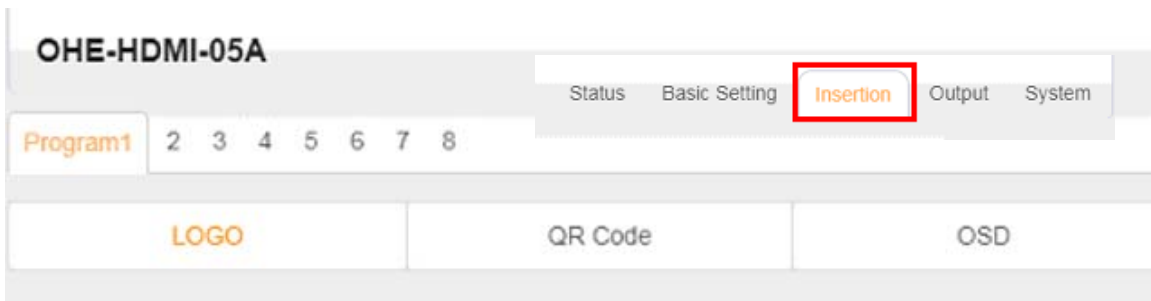
OHE-HDMI-05A			Status	Basic Setting	Insertion	Output	System
<div> Advanced Setting &gt; </div>							
Program	Video Encoding Format	Video Bitrate(Kbps)					
1	H.264	8000					
2	H.264	8000					
3	H.264	8000					
4	H.265	5000					
5	H.264	8000					
6	H.264	8000					
7	H.264	8000					
8	H.264	8000					
<div> HDCP Test Mode : <span>ON</span> HDCP test mode is for test purposes only. Please make sure that you have rights for the content! </div>							

Apply

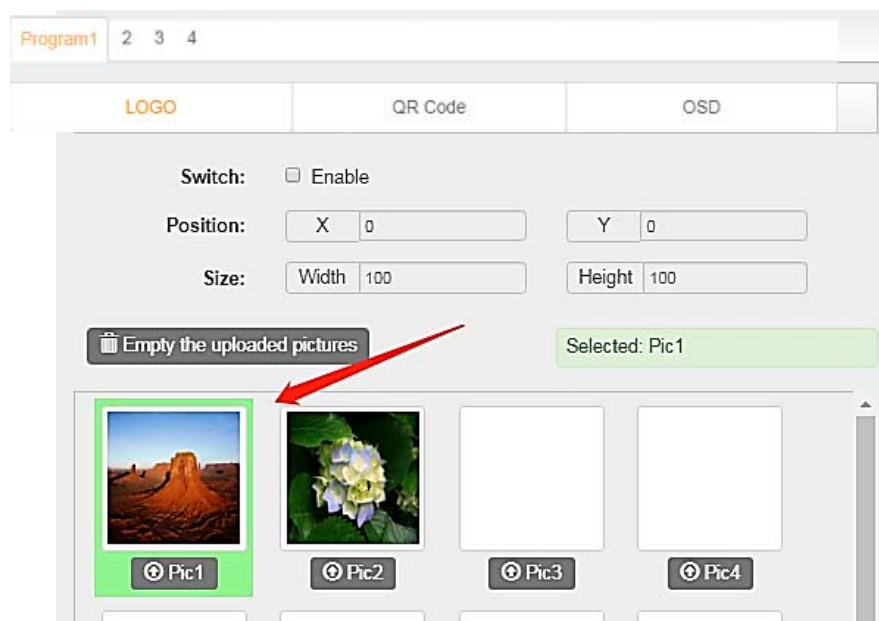
### 3.4.4.3 Module Insertion Settings



You should choose a channel first before you set Insertion.



- **LOGO setting:** you can upload several pictures at the same time, and pick one to show on the screen. When you click the one you want to show that picture field 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)

- **Subtitle setting:**

Subtitle Parameter	Range	LOGO Parameter	Range
Position	Bottom/Top/Middle	Size width	0~1920 (Dual)
Size Height	0~1080 (Dual)	Front	0~100

Program1 2 3 4

LOGO QR Code **OSD**

Switch: ☒ Enable

Position: Bottom

Position Offset: 0 [-200~200]

Size: Width 1920

Font Size: 20

Display Interval: 3

Subtitle: Welcome to wellav

- **QR Code setting:** QR Code picture selection is same to LOGO setting.

Program1 2 3 4

LOGO **QR Code** OSD

Switch: ☒ Enable

Position: X 600 Y 0

Size: Width 100 Height 100

Empty the uploaded pictures Image not selected


Pic1 Pic2 Pic3 Pic4 Pic5

Pic6 Pic7 Pic8 Pic9 Pic10

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)

### 3.4.4.4 Module IP Output

This feature is specifically for encoding a single program and outputting directly to IP. It will not occupy multicast bandwidth of baseboard.

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

OHE-HDMI-05A Status Basic Setting Insertion **Output** System

Direct IP Output Multiplexing

Program	Enable	Destination IP Address	Destination Port	Enable Destination MAC	Destination MAC
1	<input type="checkbox"/>	227.20.20.95	1234	Disable	01:00:5E:14:14:5F
2	<input type="checkbox"/>	227.10.20.90	1235	Disable	00:00:00:00:00:00
3	<input type="checkbox"/>	227.10.20.90	1236	Disable	00:00:00:00:00:00
4	<input checked="" type="checkbox"/>	227.10.20.90	1237	Disable	01:00:5E:0A:14:5A
5	<input type="checkbox"/>	227.10.20.90	1238	Disable	00:00:00:00:00:00
6	<input type="checkbox"/>	227.10.20.90	1239	Disable	00:00:00:00:00:00
7	<input type="checkbox"/>	227.10.20.90	1240	Disable	00:00:00:00:00:00
8	<input type="checkbox"/>	227.10.20.90	1241	Disable	00:00:00:00:00:00

Apply

- **Destination IP Address and Destination Port:** 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 when the unicast stream cannot be received with using unicast IP addresses. You can enable destination MAC and streaming out by setting Destination MAC.

Direct IP Output Multiplexing

There are unapplied settings, please click the apply button to apply your settings!

Program	Program Name	Destination	Destination Setting
1	Program-01	3.OHM-OFDM-R01[1.1]	
2	Program-02		
3	Program-03		
4	Program-04		

Apply

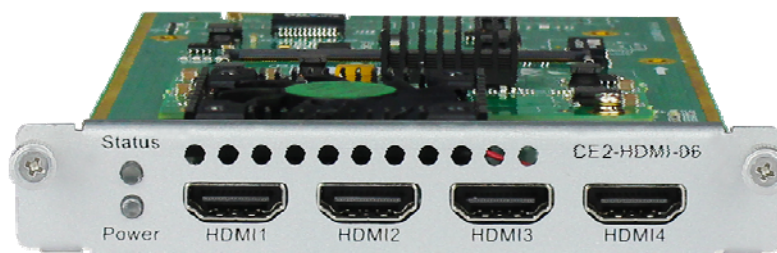
Clear Config

To use **Multiplexing mode on service level:**

- Click on (pencil) icon. There will always be a BaseBoard selection for the IP output and other Output options depending on the module inserted.
- Select the correct Output and Channel you want to output the service to.
- Check Multiplex on the channel you want to output. You can output multiple services to one channel or output one service to multiple channels.

### 3.4.5 OHE6-HMDI-06

OHE6-HDMI-06 module is a 4-channel HDMI high-definition encoding board, support H.264 HD/SD, support B frame, MPEG1L2 (support), AAC (optional), AC3 (optional), support superimposed OSD subtitles, logo, two-dimensional Code. H.265 supports up to 4 channels of 1080@p60 input and output; H.264 supports up to 4 channels of 1080@i50/60 input and 4 channels of 1080@p25/30 output. OHE6-HDMI-06 occupies 1 slot in OmniHub 16 chassis.



### 3.4.5.1 Module Status

Like other Hdmi encoder module. The Status of OHE6-HDMI-06 shows the Bitrate, input and output Resolution, TS analysis and Service List and Program Name on each channel as shown in the image below.

OHE-HDMI-06								
		Status	Basic Setting	Insertion	Output	System		
Program	Signal	HDCP Encryption	Input Video Resolution	Output Video Resolution	Total Bitrate(Mbps)	Effective Bitrate(Mbps)	TS Analysis	Program Name
1	✓	Unencrypted	1920x1080_60p	1920x1080_30p	0.000	0.000	👁	Sencore
2	✗	Unencrypted	No_Video	No_Video	0.000	0.000	👁	Program-02
3	✗	Unencrypted	No_Video	No_Video	0.000	0.000	👁	Program-03
4	✗	Unencrypted	No_Video	No_Video	0.000	0.000	👁	Program-04

### 3.4.5.2 Module Basic Settings

This page allows you to modify the Video, Audio and Service Parameters. Click **Advanced Settings** to see all parameters you can modify and check specific parameters you want to set and see. Click the **Apply** button on the right side to make the change take effect.

OHE-HDMI-06			
		Status	Basic Setting
Advanced Setting >		Insertion	Output
		System	
Program	Video Encoding Format	Video Bitrate(Kbps)	Program Name
1	H.264	8000	Sencore
2	H.264	8000	Program-02
3	H.264	8000	Program-03
4	H.264	8000	Program-04

Apply

Video Encode Settings		Range	Video Encode Settings		Range
Video Type	H.264 , H.265		Video PID	32~8190	
Video Bitrate (Kbps)	600~12000		PCR PID	32~8190	
GOP Structure	IPPP/IBBP		PMT PID	32~8190	
Video Resolution	Auto ,		Program Name	Length is 1~31	
		Manual (Horizontal			
		Pixels: 160~1920, Vertical			

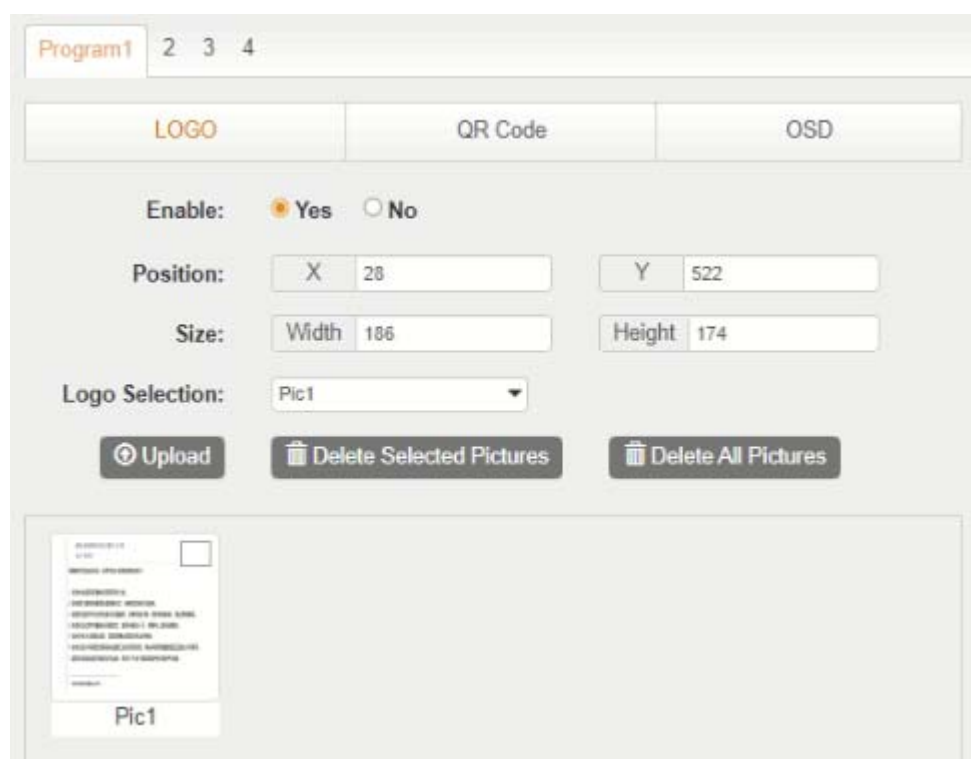
	Pixels: 120~1080,		
	Framerate: 24~60, Scan		
	Type: Progressive)		
Video Aspect	Automatic , 16×9 (SD) , 4	Provider Name	Length is 0~31
Ratio	×3 (SD)		
Profile	MAIN , HIGH		

### 3.4.5.3 Module Insertion Settings

You should choose a channel first before you set Insertion.



- **LOGO setting:** you can upload several pictures at the same time, and pick one to show on the screen. When you click the one you want to show that picture field will turn green.



LOGO Parameter	Range	LOGO Parameter	Range
Position X	0~1092 (Dual)	Position Y	0~546 (Dual)
Size width	0~1080 (Dual)	Size Height	0~1080 (Dual)

- **Subtitle setting:**

Subtitle Parameter	Range	LOGO Parameter	Range
Position X	0~1080(Dual)	Size width	0~1920 (Dual)
Position Y	0~1080(Dual)	Front	0~100
Size Height	0~1080 (Dual)	Front Color	White/Black/ Blue/Green/ Red/Yellow

Program1 2 3 4

LOGO QR Code **OSD**

Enable: ☒ Yes ☐ No

Position: X 240 Y 10

Horizontal Pixel: 836 [0-960]

Font Color: Green

Font Size: 100

Subtitle: Welcome to Sencore! [0~1024]

- **QR Code setting:** QR Code picture selection is same to LOGO setting.

LOGO Parameter	Range	LOGO Parameter	Range
Position X	0~1096 (Dual)	Position Y	0~546(Dual)
Size width	0~1080 (Dual)	Size Height	0~1080 (Dual)

### 3.4.5.4 Module IP Output

This feature is specifically for encoding a single program and outputting directly to IP. It will not occupy multicast bandwidth of baseboard.



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

Program	Enable	Destination IP Address	Destination Port	Enable Destination MAC	Destination MAC
1	<input checked="" type="checkbox"/>	227.10.20.34	1234	Disable	01:00:5E:0A:14:22
2	<input type="checkbox"/>	227.10.20.90	1235	Disable	00:00:00:00:00:00
3	<input type="checkbox"/>	227.10.20.90	1236	Disable	00:00:00:00:00:00
4	<input type="checkbox"/>	227.10.20.90	1237	Disable	00:00:00:00:00:00

- **Destination IP Address** and **Destination Port**: 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 when the unicast stream cannot be received with using unicast IP addresses. You can enable destination MAC and streaming out by setting Destination MAC.

Direct IP Output
Multiplexing

There are unapplied settings, please click the apply button to apply your settings!

Program	Program Name	Destination	Destination Setting
1	Program-01	3.OHM-OFDM-R01[1.1]	
2	Program-02		
3	Program-03		
4	Program-04		

Apply
Clear Config

To use **Multiplexing mode on service level:**

1. Click on (pencil) icon. There will always be a BaseBoard selection for the IP output and other Output options depending on the module inserted.
2. Select the correct Output and Channel you want to output the service to.
3. Check Multiplex on the channel you want to output. You can output multiple services to one channel or output one service to multiple channels.

### 3.4.5 OHE6-SDI-01

OHE-SDI-01 module supports 2 CH of H.264/AVC HD/SD (up to 1080p60) or MPEG-2 HD/SD (up to 1080i60) encoding via SDI/CVBS input, audio via phoenix connector. MPEG1-L2, AAC and AC3 audio encoding are available with optional licenses, 2×BNC. Supports CC Subtitles.



OHE-SDI-01

#### 3.4.5.1 Module Status

Status page for OHE-SDI-01 shows the following parameters: Signal Status, Input Video Resolution, Output Video Resolution, Video Bitrate, Audio Bitrate, Audio2 Bitrate, Total Bitrate, Effective Bitrate, TS analysis and Program Name. The following parameters will display values once a good SDI source is connected.

SDI-01SDI-00								
Program	Signal	Input Video Resolution	Output Video Resolution	Video Bitrate(Mbps)	Audio1 Bitrate(Mbps)	Audio2 Bitrate(Mbps)	Total Bitrate(Mbps)	Effective Bitrate
1	✗	No_Video	No_Video	0.000	0.000	off	0.000	0.000
2	✗	No_Video	No_Video	0.000	0.000	off	0.000	0.000



### 3.4.5.2 Module Basic Settings

The Setting for SDI/CVBS has Basic and Advanced Parameters. Basic Parameters are the same with the other Encoder Parameters where we can modify the Video, Audio and Service Parameters as shown in the picture below.

OHE-SDI-01 Status Basic Setting Output System

Basic Parameters

Advanced Setting >

Program	Input Source Type	Video Encoding Format	Video Bitrate(Kbps)
1	SDI	MPEG2	10000
2	SDI	MPEG2	10000

Apply

Advanced parameters will display the list of parameters that you can enable and modify.

Basic Parameters

Advanced Setting ▾

Video Parameter

Audio Parameter

Service Parameter

Program	Input Source Type	Video Encoding Format	Video Bitrate(Kbps)	Audio1:PID	Audio2:PID	Video PID	Program Name
1	SDI	MPEG2	10000	103	104	101	Program-1
2	SDI	MPEG2	10000	203	204	201	Program-2

Video Parameter	Range	Video Parameter	Range
Video Encoding Format	H264, MPEG2	GOP Size	12~48
Video Resolution	Auto, 1920×1080_60i , 1920×1080_50i , 1920×1080_30p , 1920×1080_25p , 1080×720_60p , 1080×720_50p , 720×480_60i , 720×576_50i	Level	Level_1.0 Level_1B Level_1.1 Level_1.2 Level_1.3 Level_2.0 Level_2.1 Level_2.2 Level_3.0 Level_3.1 Level_3.2 Level_4.0 Level_4.1 Level_4.2

<b>Video Bitrate (Kbps)</b>	100 ~18000	<b>Profile</b>	High, Main, Baseline
<b>Video Mode</b>	CBR	<b>Closed Caption</b>	Enable, Disable
<b>GOP Structure</b>	IBBP, IPPP, IBP, I	<b>Video Aspect Ratio</b>	Auto 16x9 4x3

Audio Encoder Details	Range	Audio Encoder Details	Range
<b>Audio Encoding Format</b>	AC3 AC3_Passthrough MPEG1_Layer2 MPEG2_AAC MPEG4_AAC	<b>Audio Bitrate (Kbps)</b>	128~384 (AC3) 64~384 (MPEG1_Layer2) 64~384 (MPEG2_AAC/ MPEG4_AAC)
<b>Audio Source</b>	SDI1 SDI2 SDI3 SDI4 Analog	<b>Volume (dB)</b>	-20~20
<b>AAC Format</b>	ADTS, LATM		

Service Parameter	Range	Service Parameter	Range
Program Name	String between 1~31	Audio PID	32~8190
Provider Name	String between 0~31	PCR PID	32~8190

### 3.4.5.3 IP Output

This feature is specifically for encoding single program and outputting directly to IP. It will not occupy multicast bandwidth of the baseboard.



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

SDI-01DI-00
Status Basic Setting **Output** System

Direct IP Output Multiplexing

Program	Enable	Destination IP Address	Destination Port	Enable Destination MAC	Destination MAC
1	<input type="checkbox"/>	227.10.20.90	1234	Disable	00:00:00:00:00:00
2	<input type="checkbox"/>	227.10.20.90	1235	Disable	00:00:00:00:00:00

Apply

- **Destination IP Address and Destination Port:** 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 when the unicast stream cannot be received by with the unicast IP addresses. You can enable destination MAC and streaming out by setting Destination MAC.

The second eth is reserved to output IP streams in an another different VLAN. Enabling the second eth and set **IP Address**, **Subnet Mask**, **Default Gateway** in the same segment of the Unicast IP (the another different VLAN), you can output the Unicast stream to the another VLAN.

**OHE-SDI-01** Status Basic Setting **Output** System

Direct IP Output **Multiplexing**

Program	Program Name	Destination	Destination Setting
1	Program-1		
2	Program-2		

To use **Multiplexing mode on service level**:

1. Click on (pencil) icon. There will always be a BaseBoard selection for the IP output and other Output options depending on the module inserted.
2. Select the correct Output and Channel you want to output the service to.
3. Check Multiplex on the channel you want to output. You can output multiple services to one channel or output one service to multiple channels.

### 3.4.6 OHE6-CVBS-00/R01/R01A

**OHE6-CVBS-00/03/R01/R01A** is a 6/8/16-channel CVBS encoder with 2/2/4 DB15 connectors (for 3/4/4-channel respectively). It supports H.264/MPEG-2 SD encoding and MPEG1-L2, AAC (optional) and AC3 (optional) audio. One difference of the two modules is, OHE6-CVBS-R01 has insertion features while OHE6-CVBS-00 doesn't have.



OHE6-CVBS-00/R01(6/8 CH)



OHE6-CVBS-R01A (16 CH)

Like all other modules. OHE6-CVBS Status shows the bitrate of each channel and you can check the TS Analysis and Service List here. See picture below.

OHE-CVBS-00							Status	Basic Setting	Output	System
Program	Video Resolution	Video Bitrate(Mbps)	Audio Bitrate(Mbps)	Total Bitrate(Mbps)	Effective Bitrate(Mbps)	TS Analysis	Program Name			
1	No_Video	0.000	0.000	0.000	0.000	👁	Program-1 ⓘ			
2	No_Video	0.000	0.000	0.000	0.000	👁	Program-2 ⓘ			
3	No_Video	0.000	0.000	0.000	0.000	👁	Program-3 ⓘ			
4	No_Video	0.000	0.000	0.000	0.000	👁	Program-4 ⓘ			
5	No_Video	0.000	0.000	0.000	0.000	👁	Program-5 ⓘ			
6	No_Video	0.000	0.000	0.000	0.000	👁	Program-6 ⓘ			

OHE-CVBS-R01							Status	Basic Setting	Insertion	Output	System
Program	Video Resolution	Total Bitrate(Mbps)	Effective Bitrate(Mbps)	TS Analysis	Program Name						
1	No_Video	0.000	0.000	👁	Program-01 ⓘ						
2	No_Video	0.000	0.000	👁	Program-02 ⓘ						
3	No_Video	0.000	0.000	👁	Program-03 ⓘ						
4	No_Video	0.000	0.000	👁	Program-04 ⓘ						
5	No_Video	0.000	0.000	👁	Program-05 ⓘ						
6	No_Video	0.000	0.000	👁	Program-06 ⓘ						
7	No_Video	0.000	0.000	👁	Program-07 ⓘ						
8	No_Video	0.000	0.000	👁	Program-08 ⓘ						

### 3.4.6.1 Module Basic Settings

OHE-CVBS-R01

StatusBasic SettingInsertionOutputSystem

⚙️ Advanced Setting >

Program	Video Encoding Format	Video Bitrate(Kbps)
1	H.264	4000
2	H.264	4000
3	H.264	4000
4	H.264	4000
5	H.264	4000
6	H.264	4000
7	H.264	4000
8	H.264	4000

Apply

Click **Advanced Setting** to see all parameters you can modify and check specific parameters you want to set and see. Click the **Apply** button on the right side to make the change take effect.

⚙️ Advanced Setting

Video Parameter

☒ Video Encoding Format
 ☐ GOP Size
 ☐ Brightness

☒ Video Bitrate
 ☐ Profile
 ☐ Contrast

☐ Video Input Format
 ☐ Saturation
 ☐ Chrominance

Audio Parameter

☐ Audio Encoding Format
 ☐ Delay
 ☐ Audio Bitrate
 ☐ Audio Sampling Rate
 ☐ Volume

Service Parameter

☐ Program Name
 ☐ Video PID
 ☐ Audio PID
 ☐ PCR PID
 ☐ PMT PID
 ☐ Provider Name

Apply

Click **Advanced Setting** in the line to set encoding parameters.

Video Parameter	Range	Video Parameter	Range
Video Input Format	NTSC, PAL	Brightness	0~100
Video Encoding Format	H264	Contrast	0~100
Video Bitrate (Kbps)	600~6000	Saturation	0~100
GOP Size	1~60	Chrominance	0~100
Profile	HIGH MAIN		

Audio Parameter	Range	Audio Parameter	Range
Audio Encoding Format	MPEG1_Layer2	Audio Bitrate (Kbps)	32~192
Audio Sampling Rate (KHz)	48	Volume (dB)	-20~20
Delay (ms)	-2000~2000		

Service Parameter	Range	Service Parameter	Range
Program Name	String between 1~31	Audio PID	32~8190
Provider Name	String between 0~31	PCR PID	32~8190
Video PID	32~8190	PMT PID	32~8190

### OHE6-CVBS-R01/R01A>Settings

OHE6-CVBS-R01 module has 8 channels with 2 DB15 connectors and OHE6-CVBS-R01A module has 16 channels with 4 DB15 connectors. Their configuration is almost the same as OHE6-CVBS-00, except a few differences on parameter setting range.

Advanced Setting

Video Parameter

☒ Video Encoding Format
☐ GOP Size
☐ Brightness

☒ Video Bitrate
☐ Profile
☐ Contrast

☐ Video Input Format
☐ Saturation
☐ Chrominance

Audio Parameter

☐ Audio Encoding Format
☐ Delay
☐ Audio Bitrate
☐ Audio Sampling Rate
☐ Volume

Service Parameter

☐ Program Name
☐ Video PID
☐ Audio PID
☐ PCR PID
☐ PMT PID

☐ Provider Name

Shelter Parameter

☐ X
☐ Y
☐ Width
☐ Height
☐ Color

☐ Shelter

Apply

Video Parameter	Range	Video Parameter	Range
Video Input Format	NTSC, PAL	Brightness	0~100
Video Encoding Format	H264	Contrast	0~100
Video Bitrate (Kbps)	600~6000	Saturation	0~100
GOP Size	1~60	Chrominance	0~100
Profile	HIGH		

	MAIN		
--	------	--	--

Audio Parameter	Range	Audio Parameter	Range
Audio Encoding Format	MPEG1_Layer2	Audio Bitrate (Kbps)	32~192
Audio Sampling Rate (KHz)	48	Volume (dB)	-20~20
Delay (ms)	-2000~2000		

Service Parameter	Range	Service Parameter	Range
Program Name	String between 1~31	Audio PID	32~8190
Provider Name	String between 0~31	PCR PID	32~8190
Video PID	32~8190	PMT PID	32~8190

Shelter Parameters	Range	Shelter Parameters	Range
Shelter	Enable/Disable	X	0~800 (Dual)
Y	0~600 (Dual)	Width	10~800 (Dual)
Height	10~800 (Dual)	Color	White/Black/Blue/Green/Red

### 3.4.6.2 Module Output

Direct IP output is specifically for encoding single program and outputting directly to IP. It will not occupy multicast bandwidth of the baseboard.




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

- **Destination IP Address and Destination Port:** 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 when the unicast stream cannot be received by with the unicast IP addresses. You can enable destination MAC and streaming out by setting Destination MAC.

The second eth is reserved to output IP streams in another different VLAN. Enabling the second eth and set **IP Address**, **Subnet Mask**, **Default Gateway** in the same segment of the Unicast IP (the another different VLAN), you can output the Unicast stream to the another VLAN.

Direct IP Output <b>Multiplexing</b> RTMP Output			
#	Service Name	Destination	Destination Setting
1	[1] Program-01		
2	[1] Program-02		
3	[1] Program-03		
4	[1] Program-04		

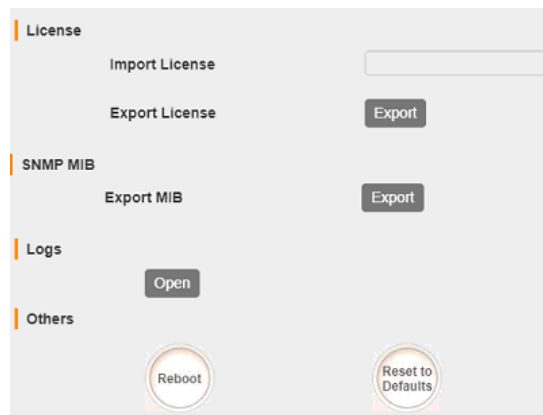
To use **Multiplexing mode on service level:**

1. Click on  (pencil) icon. There will always be a BaseBoard selection for the IP output and other Output options depending on the module inserted.
2. Select the correct Output and Channel you want to output the service to.
3. Check Multiplex on the channel you want to output. You can output multiple services to one channel or output one service to multiple channels.

### 3.4.6.3 System Operation

**System** tab allows you to perform the following tasks:

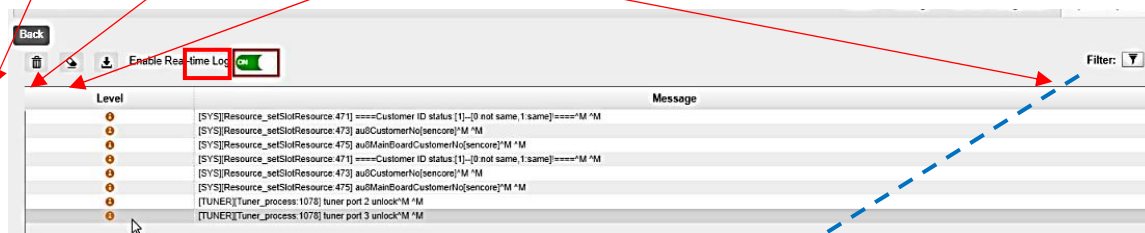
- Import / export license
- Log manages
- Reboot
- Factory Default



To open the log management menu, click on the **Open** button. The newly opened menu allows you to enable / disable logging.

After login is enabled, additional control buttons will be displayed:

- clean log, clean screen, export logs, filter dialog box



### Filter

Level	
Level	Operation
Error	<input checked="" type="checkbox"/>
Warning	<input checked="" type="checkbox"/>
Information	<input checked="" type="checkbox"/>
Debug	<input type="checkbox"/>

Module List	
Module Name	Operation
SYS	<input checked="" type="checkbox"/>
PARAMS	<input checked="" type="checkbox"/>
UPGRADE	<input checked="" type="checkbox"/>
TSPROCESS	<input checked="" type="checkbox"/>
SIPROCESS	<input checked="" type="checkbox"/>
LICENSE	<input checked="" type="checkbox"/>

## 3.5 Modulation Modules

### 3.5.1 OHM6-QAMA-00/R00

OHM6-QAM-00 / R00 / R01 / R01A module supports modulating 16 non-adjacent channels with 1 RF port and 1 RJ45 network port that is reserved for future use. QAM A and B share the same Hardware but Different Software. If you need to change the Module from A to B, please contact your local support for assistance.



#### 3.5.1.1 Module Status

Status of QAMA6-00 shows the Total Bitrate of a TS and the Effective bitrate, with which you can monitor if the output programs will overflow in a certain TS. Since the Modulator produces a lot of heat, the Module is also designed to automatically powered off when the temperature is higher than 74 degrees Celsius (165.2 degrees Fahrenheit). The status page for all Output modules of OmniHub 6/6D are mostly the same with each other and with all other modules. You will notice there is not much difference in every link on the status page. See OHR6-DVBC-00 on page 30 for reference.



Channel	Effective Bitrate(Mbps)	Total Bitrate(Mbps)	Bitrate	TS Analysis	Service List
1.1	0.000	0.000	Normal		
1.2	0.000	0.000	Normal		
1.3	0.000	0.000	Normal		
1.4	0.000	0.000	Normal		
1.5	0.000	0.000	Normal		
1.6	0.000	0.000	Normal		
1.7	0.000	0.000	Normal		
1.8	0.000	0.000	Normal		
1.9	0.000	0.000	Normal		
1.10	0.000	0.000	Normal		
1.11	0.000	0.000	Normal		
1.12	0.000	0.000	Normal		
1.13	0.000	0.000	Normal		
1.14	0.000	0.000	Normal		
1.15	0.000	0.000	Normal		

### 3.5.1.2 Module Basic Settings

This page is where you can modify or set the frequency for the RF modulation. OHM6-QAMA-R00 has 16 non-adjacent channels while OHM6-QAMA-R01 has 4 adjacent channels both at single port.

RF Level:  (dBmV ☒ dBuV ☐)    PSI/SI Interval(ms):

Channel	Enable	Frequency(KHz)	Bandwidth(MHz)	Constellation	SymbolRate(KBaud)
1.1	<input type="checkbox"/>	<input type="text" value="200000"/>	<input type="text" value="8"/>	<input type="text" value="QAM64"/>	<input type="text" value="6875"/>
1.2	<input type="checkbox"/>	<input type="text" value="208000"/>	<input type="text" value="8"/>	<input type="text" value="QAM64"/>	<input type="text" value="6875"/>
1.3	<input type="checkbox"/>	<input type="text" value="216000"/>	<input type="text" value="8"/>	<input type="text" value="QAM64"/>	<input type="text" value="6875"/>
1.4	<input type="checkbox"/>	<input type="text" value="224000"/>	<input type="text" value="8"/>	<input type="text" value="QAM64"/>	<input type="text" value="6875"/>

Click the Apply button  on the right side for the changes to take effect.

Name	Range	Name	Range
<b>QAM Mode</b>	ANNEX A/ ANNEX B	<b>RF level</b>	0~63
<b>Bandwidth</b>	6M, 7M, 8M	<b>Frequency (KHz)</b>	48000~858000
<b>Symbol Rate (KBaud)</b>	4400~6956	<b>Constellation</b>	QAM16/32/64/128 /256
<b>PSI/SI Interval (ms)</b>	50~10000		

### 3.5.1.3 Module Output

QAM Output will be different from the Receiver and Encoder module. Since the QAM module is an output module like IP output, all service configured in receiver, encoder and IP input will be seen here.

Every Channel in QAM output has Original Network ID and TS ID. It is important to identify the TS ID properly. Labeling the TS will help you to monitor your output services. It is also important for creating NIT for LCN and Cable Descriptors.

When you click on the Service Settings, this is the screen you will see first.

NO.	Service ID	Service Name	Service Provider
1	1	Program0	Program0

OK Cancel

On the Left side, you will see the list of TS where there are output services. If the TS or Channels are enabled but no Service Output, it will not be listed here.

You will also see the Original Network ID and TS ID where you can modify the details and below will be the list of the service in the Selected TS. Initially, TS 1 is selected when you first select the Service Configuration tab.

Clicking on the Program name under the TS will show the Programs Basic Parameter where you can modify each detail.

[1.1] TS >> Program0

Service ID	1
Service Name	Program0
Service Provider	Program0
Service Type	2
PCR PID	4097
PMT PID	4096
Video(H264)	4113
Audio	4352

OK Cancel

Clicking on the icon  will show you the NIT setting where you can create and add NIT Network and NIT Stream.

NIT [1.1]

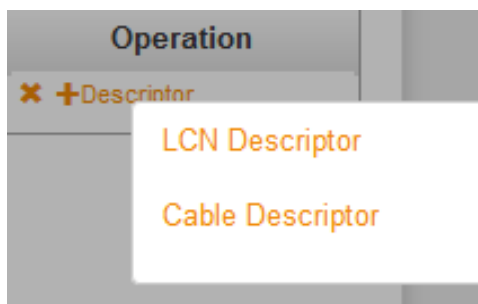
NIT Network NIT Stream

Tag(Hex)	40
Data(Hex)	

Add

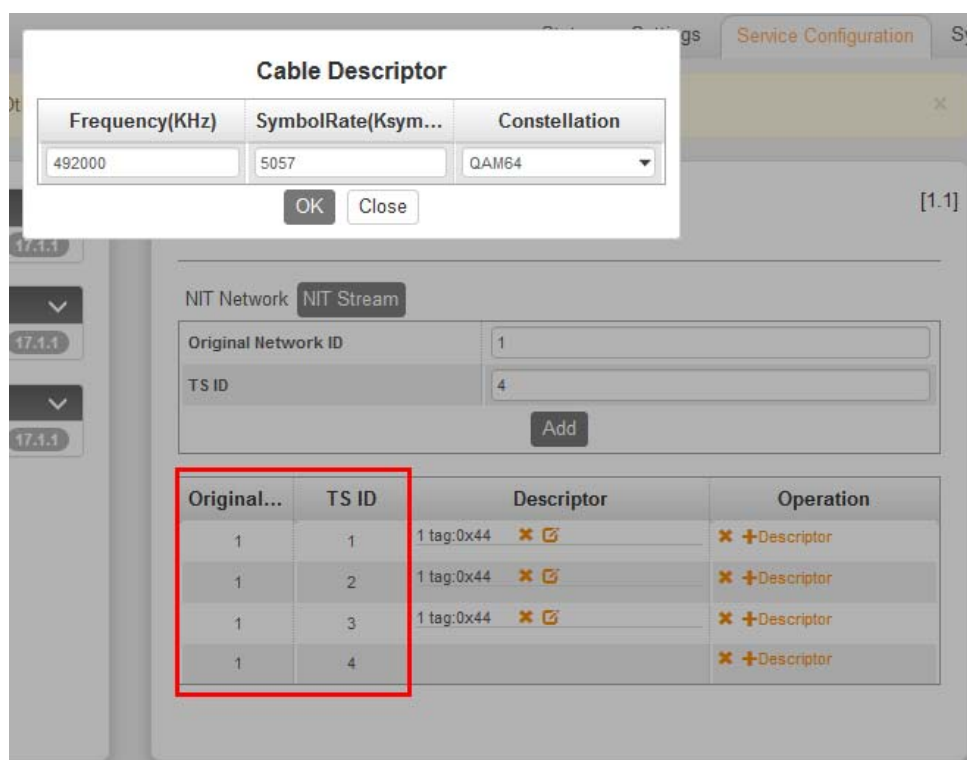
Tag(Hex)	Data(Hex)	Length	Operation
40	313233	3	✗

For NIT Stream, you can create Cable Descriptor and Logical Channel Number LCN. You need to Add and Input first the correct Original Network ID and TS ID. Once it is done, click on the plus icon “+” under Operation and select the Descriptor you want to add.



For Cable Descriptor, this is used for the STB to scan all configured frequencies on the network given that the STB triggering Frequency is set where the NIT frequency is created. e.g., If the NIT is created in TS ID 10 with frequency 539MHz and 5057Kbaud Symbol rate, the STB “Autosearch Setup” or setting should have the same parameters for Frequency and Symbol rate.

One important information is to know in what frequency and TS you want to create the Cable Descriptor. Once you know the frequency, you need to create the TSID currently used. If you have 4 frequency outputs on the Network, you need to create 4 TSID as shown below. Just input the correct Frequency on each TS and add. Repeat the procedure until all the Frequencies are added.



LCN or Logical Channel Number are created in the same way with Cable Descriptor. On 1 frequency, you will add NIT Stream and create multiple TSID. Here you will add the LCN on each TSID.

To add the LCN:

1. Click LCN Descriptor and see a small window appear.
2. Click Select Service on the upper right corner and select the program name. Make sure that the name is on the correct TS where you are adding the LCN to.
3. Input the Channel number you want that program to appear. Note that the STB sorting settings should be also in LCN. STB has other sorting settings like By Name, By Frequency, By Service ID, By LCN, etc.

**LCN**

Select Service

Service ID	LCN	Visible Service Flag	
			+

**Service List**

TS	Service ID	Service Name	
1.1	1	Program0	<input checked="" type="checkbox"/>
1.2	1	Program0	<input type="checkbox"/>
1.3	1	Program0	<input type="checkbox"/>

**LCN**

Select Service

Service ID	LCN	Visible Service Flag	
1	100	Visible	+

### 3.5.2 OHM6-QAMA-R01/R01A

OHM6-QAMA-R01 and OHM6-QAMA-R01A are 4 channel and 8 channel modulators. They share the same hardware but have different software. For the Status, Settings, Service Configuration and System Operation, please refer to previous module OHM6-QAMA-00/R00 at page 74 to 77.

### 3.5.3 OHM6-QAMB-00/R00

OHM6-QAMB-00 / R00 module supports up to 16 non-adjacent frequencies modulating with 1 RF female connector for output.



### 3.5.3.1 Module Status

Please see OHR6-DVBC-00 on page 30 for reference. See also the image for QAMB Status.

Channel	Total Bit Rate(Mbps)	Effective Bit Rate(Mbps)	Bit Rate	TS Analysis	Service List
1.1	38.810	0.073	Normal		
1.2	0.000	0.000	Normal		
1.3	0.000	0.000	Normal		
1.4	0.000	0.000	Normal		
1.5	0.000	0.000	Normal		
1.6	0.000	0.000	Normal		
1.7	0.000	0.000	Normal		
1.8	0.000	0.000	Normal		

### 3.5.3.2 Module Basic Settings

This page allows you to type in the output parameter for the QAM required by the network.

RF Level (dBmV): 
PSI/SI Interval(ms): 
Channel Standard:

Channel	Enable	Channel No.	Bandwidth(MHz)	Constellation	SymbolRate(KBaud)
1.1	<input checked="" type="checkbox"/>	CH2-57MHz	6	QAM256	5361
1.2	<input type="checkbox"/>	CH3-63MHz	6	QAM256	5361
1.3	<input type="checkbox"/>	CH4-69MHz	6	QAM256	5361
1.4	<input type="checkbox"/>	CH5-79MHz	6	QAM256	5361
1.5	<input type="checkbox"/>	CH6-85MHz	6	QAM256	5361

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

Name	Range	Name	Range
Bandwidth (MHz)	6	Channel Standard	US cable/STD/IIRC/HRC
Symbol Rate (KBaud)	5056.941 (QAM 64) 5360.537 (QAM 256)	RF level	15~48 (dBmV)
PSI/SI Interval (ms)	50~10000	Constellation	QAM 64/256
Channel No.	Up to Channel Standard		

### 3.5.3.3 Module Output

Service Configuration for QAMB are very simple compared to QAMA. You can edit the Original network ID and TSID to the correct label. You can also edit the Service parameter like Service ID, Name, Provider, PID, etc.,

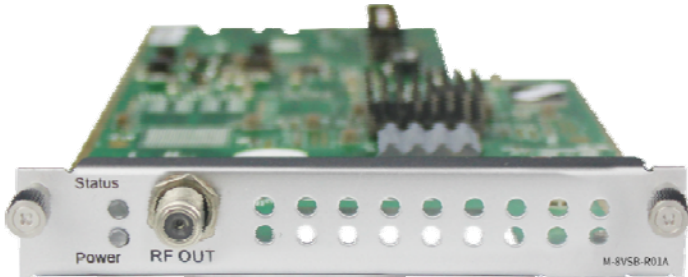
System operation of OHM6-QAMB are same with other modules. See page 74 to 77 for reference.

3.5.4 OHM6-QAMB-R01/R01A

OHM6-QAMB-R01 is a 4 channel QAM B Modulator module while OHM6-QAMB-R01A is an 8 channel QAM B modulator. The Status, Setting Service Configuration and System Operation for these two modules are same with the OHM6-QAM-00/R00. See page 74 to 77 for reference.

3.5.5 OHM6-8VSB-R01/R01A

OHM6-8VSB-R01A module supports up to 4/8 adjacent frequencies modulating with 1 RF connector for output.



Please see QAM configuration on page 74 for reference

3.5.5.1 Module Basic Settings

RF Level: 30 (dBmV ☒ dBuV ☐)    PSI/SI Interval(ms): 100    Channel Standard: OFF-AIR ▼

Channel	Enable	Frequency
1.1	<input checked="" type="checkbox"/>	CH2-57MHz
1.2	<input checked="" type="checkbox"/>	CH2-57MHz
1.3	<input checked="" type="checkbox"/>	CH2-57MHz
1.4	<input checked="" type="checkbox"/>	CH2-57MHz

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

Name	Range	Name	Range
RF level (dBmV)	28~48	PSI/SI Interval (ms)	50~10000
Channel Standard	OFF-AIR, STD, IRC, HRC	Channel - Frequency	CH2 - 57MHz ~ CH69 – 803MHz

3.5.5.2 Module Output

TS setting: Please refer to IP output service configuration on page 26 for reference. Select the modulation mode: Analog, SCTE\_Mode 1, SCTE\_Mode 2, or ATSC (8VSB).

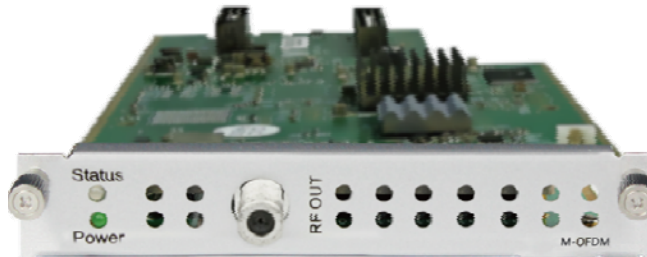
### [1.1] TS

Original Network ID	<input type="text" value="0"/>		
TS ID	<input type="text" value="0"/>		
Modulation Mode	<div>ATSC ( 8 VSB) ▼</div> <div>             Analog              SCTE_Mode 1              SCTE_Mode 2  <b>ATSC ( 8 VSB)</b> </div>		
NO.	Service ID	Se	Encoder
1	<input type="text" value="1"/>	Program-02	

OK Cancel

## 3.5.6 OHM6-OFDM-R01/R01A

OHM6-OFDM-R01 / R01A module supports up to 4/8 adjacent frequencies modulating with 1 RF female connector for output. The status for the OHM6-OFDM is like in OHM6-QAMA and another modulator module. It will show Lock Status of each channel when the signal is stable.



Channel	Effective Bitrate(Mbps)	Total Bitrate(Mbps)	Bitrate	TS Analysis	Service List
1.1	0.001	23.751	Normal	👁	⋮
1.2	0.000	0.000	Normal	👁	⋮
1.3	0.000	0.000	Normal	👁	⋮
1.4	0.000	0.000	Normal	👁	⋮

### 3.5.6.1 Module Basic Settings

For the Settings of OHM6-OFDM-R01

Channel	Enable	Frequency(KHz)	Bandwidth(MHz)	FFT Mode	GI Mode	QAM Mode	Convolutional Coding
1.1	<input checked="" type="checkbox"/>	<input type="text" value="755143"/>	<input type="text" value="6"/>	<input type="text" value="2K"/>	<input type="text" value="1/32"/>	<input type="text" value="64QAM"/>	<input type="text" value="7/8"/>
1.2	<input checked="" type="checkbox"/>	<input type="text" value="761143"/>	<input type="text" value="6"/>	<input type="text" value="2K"/>	<input type="text" value="1/32"/>	<input type="text" value="64QAM"/>	<input type="text" value="7/8"/>
1.3	<input checked="" type="checkbox"/>	<input type="text" value="767143"/>	<input type="text" value="6"/>	<input type="text" value="2K"/>	<input type="text" value="1/32"/>	<input type="text" value="64QAM"/>	<input type="text" value="7/8"/>
1.4	<input checked="" type="checkbox"/>	<input type="text" value="773143"/>	<input type="text" value="6"/>	<input type="text" value="2K"/>	<input type="text" value="1/32"/>	<input type="text" value="64QAM"/>	<input type="text" value="7/8"/>

Module Settings is where you can input the source parameters. Once it's done, click on Apply for the changes to take effect and check on the Status of the channel that the signal is Locked.

Name	Range	Name	Range
Bandwidth	6M, 7M, 8M	RF level	0~31.5 (dBmV) 60~91.5 (dBuV)



<b>Frequency (KHz)</b>	48000~862000		
------------------------	--------------	--	--

### 3.5.6.2 Module Output

Configuration of the OFDM module is like the configuration of OHM6-QAMA-00/R00. You can also change the Original Network ID, TSID, Service Name, PID and create LCN Descriptor and Cable Descriptor. For more details, please check OHM6-QAMA-00 on page 74 for reference.

OHM-OFDM-R01A

Status Basic Setting **Output** System

Please click "Apply" after modifying parameters. Otherwise, new configuration can not be saved.

[1.1] TS

1. Program-1

17.1.1

2. Program-1

1.1.1

3.

1.1.1

[1.5] TS

1. Program-1

17.1.1

[1.1] TS

Original Network ID

0

TS ID

0

Modulation Mode

ATSC (8 VSB)

NO.	Service ID	Service Name	Service Provider
1	1	Program-1	Encoder
2	2	Program-1	Encoder
3	3		

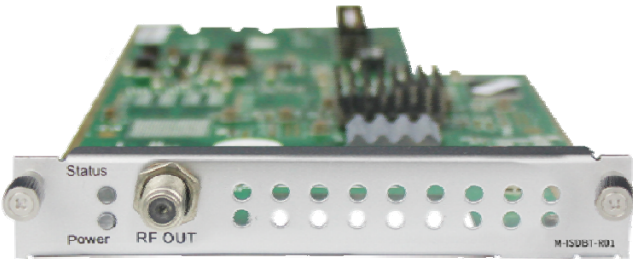
Other PIDs

Apply

Clear Config

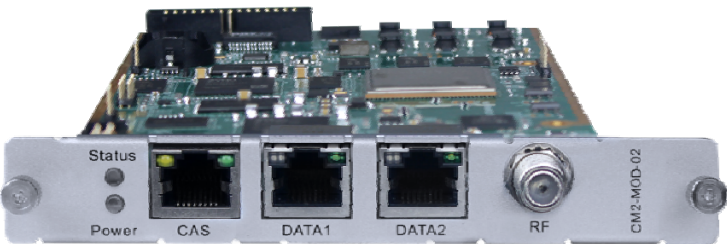
### 3.5.7 OHM6-ISDBT-R01/R01A

OHM6-ISDBT-R01/R01A module supports up to 4/8 adjacent frequencies modulating with 1 RF female connector for output.



### 3.5.8 OHM6-MOD2

OHM6-MOD-02 is a 32-channel QAM-A modulation output module with 2 gigabit IP input ports (single port supports 256-channel input), 1 CAS interface (RJ45) supporting scrambling and 1 RF output interface supporting up to 32 QAM-A non-adjacent frequencies modulating with independent constellation mode configuration.





### 3.1.1.1 Module Status

The Status page contains status information of IP Input, Modulation Output and IP Output.


**IP Input** > OHM6-MOD-02 has 1024 IP input channels. Those channels are divided into two RJ45 ports, each of which has 512 IP input channels. Clicking **Port 1**, you can obtain status information of the 256 channels, such as input source IP address and port number, total bitrate (Mbps) and effective bitrate (Mbps). The TS analysis and Service List button of each channel allow you to check their individual detailed information. See the image below for reference.

512 channels in port 1























OHM-MOD-02					
Status Basic Setting Multiplexing System					
IP Input Modulation Output IP Output					
Port 1 Port 2					
Total Bitrate Sum : 17.791 Mbps					
Channel	IP Address : Port	Effective Bitrate(Mbps)	Total Bitrate(Mbps)	TS Analysis	Service List
1.1	239.192.0.207 : 10000	2.686	2.800		
1.2	239.192.0.200 : 10000	9.691	14.991		
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		

512 channels in port 2

OHM-MOD-02					
Status Basic Setting Multiplexing System					
IP Input Modulation Output IP Output					
Port 1 Port 2					
Total Bitrate Sum : 17.791 Mbps					
Channel	IP Address : Port	Effective Bitrate(Mbps)	Total Bitrate(Mbps)	TS Analysis	Service List
1.502	0.0.0.0 : 0	0.000	0.000		
1.503	0.0.0.0 : 0	0.000	0.000		
1.504	0.0.0.0 : 0	0.000	0.000		
1.505	0.0.0.0 : 0	0.000	0.000		
1.506	0.0.0.0 : 0	0.000	0.000		
1.507	0.0.0.0 : 0	0.000	0.000		
1.508	0.0.0.0 : 0	0.000	0.000		
1.509	0.0.0.0 : 0	0.000	0.000		
1.510	0.0.0.0 : 0	0.000	0.000		
1.511	0.0.0.0 : 0	0.000	0.000		
1.512	0.0.0.0 : 0	0.000	0.000		

Clicking the eye icon , you can know all the PIDs of this TS, such as PAT, CAT, PCR, Video Audio and PCR PID. See the image below for reference.

Total Bitrate Sum : 17.785 Mbps

Channel	IP Address : Port	Effective Bitrate(Mbps)	Total Bitrate(Mbps)	TS Analysis	Service List
1.1	239.192.0.207 : 10000	2.686	2.800		
1.2	239.192.0.200 : 10000	8.948	14.985		
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		























Channel 1.1 TS Analysis Reset Counter

Search

PID	Bitrate(Mbps)	Bandwidth(%)	Continuity Count Error	Type	Service
0x0(0)	0.025	0.893	0	PAT	
0x1020(4128)	0.025	0.893	0	PMT	
0x1022(4130)	2.499	89.250	0	PCR, Video	
0x1023(4131)	0.135	4.821	0	Audio	

If the input stream has multiple programs, you can click the icon below “Service List” to see all the services in this stream. See the image below for reference.

Total Bitrate Sum : 17.782 Mbps

Channel	IP Address : Port	Effective Bitrate(Mbps)	Total Bitrate(Mbps)	TS Analysis	Service List
1.1	239.192.0.207 : 10000	2.686	2.800		
1.2	239.192.0.200 : 10000	9.834	14.982		
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		

Channel : 1.1

#	Service
1	[1]

You can also check details of a service by clicking the Service Name.

Total Bitrate Sum : 17.781 Mbps

Channel	IP Address : Port
1.1	239.192.0.207 : 10000
1.2	239.192.0.200 : 10000
1.3	0.0.0.0 : 0
1.4	0.0.0.0 : 0
1.5	0.0.0.0 : 0
1.6	0.0.0.0 : 0
1.7	0.0.0.0 : 0
1.8	0.0.0.0 : 0
1.9	0.0.0.0 : 0
1.10	0.0.0.0 : 0
1.11	0.0.0.0 : 0

[1]

Type	PID	Bitrate(Mbps)
PCR	4130(0x1022)	2.498
PMT	4128(0x1020)	0.026
Video(H264)	4130(0x1022)	2.498
Audio	4131(0x1023)	0.137

Close

Channel 1.1

#	Service
1	[1]

TS Analysis	Service List
👁	📺
👁	📺
👁	📺
👁	📺
👁	📺
👁	📺
👁	📺
👁	📺
👁	📺
👁	📺
👁	📺

**Modulation Output** > OHM6-MOD-02 status shows the Modulation output. Just like the IP Input, this shows the total bitrate and effective bitrate of the 32 channels respectively. The TS Analysis and Service List have the same function as in the IP input. The Status also shows the current temperature of the unit on the upper left corner. See image below for reference.

OHM-MOD-02 Status Basic Setting Multiplexing System

IP Input Modulation Output IP Output

Total Bitrate Sum : 76.030 Mbps

Temperature: 35°C (95°F) Tip: The module will stop RF output when the temperature reaches or exceeds 74 degrees Celsius(165.2 degrees Fahrenheit)

Channel	Effective Bitrate(Mbps)	Total Bitrate(Mbps)	Bitrate	TS Analysis	Service List
1.1	11.743	38.015	Normal	👁	📺
1.2	9.078	38.015	Normal	👁	📺
1.3	0.000	0.000	Normal	👁	📺
1.4	0.000	0.000	Normal	👁	📺
1.5	0.000	0.000	Normal	👁	📺
1.6	0.000	0.000	Normal	👁	📺
1.7	0.000	0.000	Normal	👁	📺
1.8	0.000	0.000	Normal	👁	📺
1.9	0.000	0.000	Normal	👁	📺
1.10	0.000	0.000	Normal	👁	📺
1.11	0.000	0.000	Normal	👁	📺
1.12	0.000	0.000	Normal	👁	📺
1.13	0.000	0.000	Normal	👁	📺
1.14	0.000	0.000	Normal	👁	📺
1.15	0.000	0.000	Normal	👁	📺
1.16	0.000	0.000	Normal	👁	📺
1.17	0.000	0.000	Normal	👁	📺

Channel 1.1 TS Analysis

PID	Bitrate(Mbps)	Bandwidth(%)	Continuity Count Error	Type	Service
0x0(0)	0.015	0.039	12	PAT	
0x10(16)	0.015	0.039	0	NIT	
0x11(17)	0.015	0.039	0	SDT, BAT	
0x20(32)	0.000	0.000	18	Audio	HBO FAMILY HD
0x21(33)	0.000	0.000	45	Audio	HBO FAMILY HD

**IP Output** > OHM6-MOD-02 status also shows the IP output. Just like the IP Input, this shows the total bitrate and effective bitrate of the 16 channels respectively. The TS Analysis and Service List have the same function as in the IP input. See image below for reference.

OHM6-MOD-02

Status Basic Setting Multiplexing System

IP Input Modulation Output IP Output

Port 1

Total Bitrate Sum : 76.045 Mbps

Channel	IP Address : Port	Effective Bitrate(Mbps)	Total Bitrate(Mbps)	Bitrate	TS Analysis	Service List
1.1	224.20.20.1 : 1234	12.386	38.027	Normal		
1.2	224.20.20.2 : 1234	9.721	38.018	Normal		
1.3	0.0.0.0 : 0	0.000	0.000	Normal		
1.4	0.0.0.0 : 0	0.000	0.000	Normal		
1.5	0.0.0.0 : 0	0.000	0.000	Normal		
1.6	0.0.0.0 : 0	0.000	0.000	Normal		
1.7	0.0.0.0 : 0	0.000	0.000	Normal		
1.8	0.0.0.0 : 0	0.000	0.000	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	0.0.0.0 : 0	0.000	0.000	Normal		
1.12	0.0.0.0 : 0	0.000	0.000	Normal		
1.13	0.0.0.0 : 0	0.000	0.000	Normal		
1.14	0.0.0.0 : 0	0.000	0.000	Normal		
1.15	0.0.0.0 : 0	0.000	0.000	Normal		
1.16	0.0.0.0 : 0	0.000	0.000	Normal		

IP Input   Modulation Output   IP Output						
Port 1						
Total Bitrate Sum : 76.032 Mbps						
Channel	IP Address : Port	Effective Bitrate(M...	Total Bitrate(Mb...	Bitrate	TS Analysis	Service List
1.1	224.20.20.1 : 1234	12.600	38.016	Normal		
1.2	224.20.20.2 : 1234	9.935	38.016	Normal		
1.3	0.0.0.0 : 0	0.000	0.000	Normal		
1.4	0.0.0.0 : 0	0.000	0.000	Normal		
1.5	0.0.0.0 : 0	0.000	0.000	Normal		
1.6	0.0.0.0 : 0	0.000	0.000	Normal		
1.7	0.0.0.0 : 0	0.000	0.000	Normal		
1.8	0.0.0.0 : 0	0.000	0.000	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	0.0.0.0 : 0	0.000	0.000	Normal		
1.12	0.0.0.0 : 0	0.000	0.000	Normal		
1.13	0.0.0.0 : 0	0.000	0.000	Normal		
1.14	0.0.0.0 : 0	0.000	0.000	Normal		
1.15	0.0.0.0 : 0	0.000	0.000	Normal		
1.16	0.0.0.0 : 0	0.000	0.000	Normal		

### 3.1.1.2 Module Basic Setting

OHM6-MOD-02 Basic Setting is where you can input the parameters for IP Input, Modulation Output and IP Output.

**IP Input-Parameter Setting**> On this page, there are three tabs where you can modify the multicast IP, port and parameter of IP Input. There are **Port 1**, **Port 2**, and **Batch Setting**. The input can accept Multicast or Unicast and support MPTS and SPTS.

Port 1 and Port 2 have same interface. It shows the 512 channels. Check the box under **Enable** to enable a channel. Input the correct Multicast/Unicast IP address and IP port, and select the correct Protocol for the source IP. Once done, click **Apply** for the changes to take effect. See the image below for reference.

OHM-MOD-02

Status **Basic Setting** Multiplexing System

IP Input Modulation Output IP Output

Port 1 Port 2

Batch Setting ▾

< 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 > >>

Channel	Enable	Destination IP Address	Destination Port	Protocol	VLAN Enable	VLAN ID
1.1	<input checked="" type="checkbox"/>	239.192.0.207	10000	UDP	Disable	1
1.2	<input checked="" type="checkbox"/>	239.192.0.200	10000	UDP	Disable	1
1.3	<input type="checkbox"/>	227.10.20.3	1234	UDP	Disable	1
1.4	<input type="checkbox"/>	227.10.20.4	1234	UDP	Disable	1
1.5	<input type="checkbox"/>	227.10.20.5	1234	UDP	Disable	1
1.6	<input type="checkbox"/>	227.10.20.6	1234	UDP	Disable	1
1.7	<input type="checkbox"/>	227.10.20.7	1234	UDP	Disable	1
1.8	<input type="checkbox"/>	227.10.20.8	1234	UDP	Disable	1
1.9	<input type="checkbox"/>	227.10.20.9	1234	UDP	Disable	1
1.10	<input type="checkbox"/>	227.10.20.10	1234	UDP	Disable	1

Apply

Batch Setting is where users can input the IP input parameters in batch. See the image below for reference.

IP Input Modulation Output IP Output

Port 1 Port 2

Batch Setting ^

Select All ☐ Start Channel-End Channel 1 ~ 512

☐ Enable Disable ☐ Destination IP Address 227.10.20.80 Same

☐ Protocol UDP ☐ Destination Port 1234 Same

☐ Enable VLAN Disable ☐ VIAN ID 1

Batch Setting

Apply

Channel	Enable	Destination IP Address	Destination Port	Protocol	VLAN Enable	VIAN ID
1.1	<input checked="" type="checkbox"/>	239.192.0.207	10000	UDP	Disable	1
1.2	<input checked="" type="checkbox"/>	239.192.0.200	10000	UDP	Disable	1
1.3	<input type="checkbox"/>	227.10.20.3	1234	UDP	Disable	1
1.4	<input type="checkbox"/>	227.10.20.4	1234	UDP	Disable	1

**Modulation Output-Parameter Setting** On this page, you can enable channels as you need and input the Frequency (KHz), QAM Mode, Symbol Rate (KBaud) and RF Level Gain (dBmV) to have an output.

OHM-MOD-02 Status Basic Setting Multiplexing System

IP Input Modulation Output IP Output

Batch Setting ^

RF Level(dBuV): 105 PSI/SI Interval(ms): 100

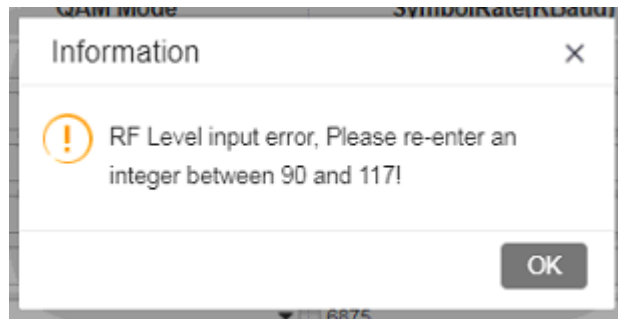
Apply

Channel	Enable	Frequency(KHz)	QAM Mode	SymbolRate(KBaud)	RF Level Gain (dBmV)
1.1	<input checked="" type="checkbox"/>	474000	QAM64	6875	0
1.2	<input checked="" type="checkbox"/>	482000	QAM64	6875	0
1.3	<input type="checkbox"/>	216000	QAM64	6875	0
1.4	<input type="checkbox"/>	224000	QAM64	6875	0
1.5	<input type="checkbox"/>	232000	QAM64	6875	0
1.6	<input type="checkbox"/>	240000	QAM64	6875	0
1.7	<input type="checkbox"/>	248000	QAM64	6875	0
1.8	<input type="checkbox"/>	256000	QAM64	6875	0
1.9	<input type="checkbox"/>	264000	QAM64	6875	0
1.10	<input type="checkbox"/>	272000	QAM64	6875	0
1.11	<input type="checkbox"/>	280000	QAM64	6875	0
1.12	<input type="checkbox"/>	288000	QAM64	6875	0

Here are the range parameters of the above info.

Parameter	Range
Frequency (KHz)	47000 ~ 999000
QAM Mode	QAM16, QAM32, QAM64, QAM128, QAM256
Symbol Rate (KBaud)	3600 and 6952
RF Level Gain (dBmV)	-10 ~ 0
(The value must be a number multiple of 0.5)	
RF Level (dBuV)	90~117
PSI/SI Interval (ms)	50 ~ 10000

You can also set the RF level in a range of 90 to 117 as shown in the image below.



Batch Setting is where you can input the modulation parameters in batch. See the image below for reference.

Batch Setting

Select All ☐ Start Channel-End Channel 1 - 32

☐ Enable Disable ☐ Start Frequency 48000

☐ Bandwidth 7 ☐ QAM Mode QAM32

☐ SymbolRate 6875

Batch Setting

RF Level(dBuV): 117 PSI/SI Interval(ms): 1000

Channel	Enable	Frequency(KHz)	QAM Mode	SymbolRate(KBaud)	RF Level Gain (dBmV)
1.1	<input checked="" type="checkbox"/>	474000	QAM64	6875	0
1.2	<input checked="" type="checkbox"/>	482000	QAM64	6875	0
1.3	<input type="checkbox"/>	216000	QAM64	6875	0
1.4	<input type="checkbox"/>	224000	QAM64	6875	0
1.5	<input type="checkbox"/>	232000	QAM64	6875	0
1.6	<input type="checkbox"/>	240000	QAM64	6875	0

**IP Output-Parameter Setting** On this page, there are three tabs where you can modify the multicast IP, port and parameter of IP Output. There are **Port 1**, **Port 2** and **Batch Setting**. The output can accept Multicast or Unicast and support MPTS and SPTS. Port 1 shows the 16 channels. Check the box under Enable to enable a channel. Input the correct Multicast/Unicast IP address, IP port and appropriate output bitrate, and select the correct Protocol for the output IP. Once done, click **Apply** for the changes to take effect. See the image below for reference.



OHM-MOD-02 Status **Basic Setting** Multiplexing System

IP Input Modulation Output **IP Output**

Port 1

Batch Setting ▾

< 1 >

Channel	Enable	Source Port	Destination IP Address	Destination Port	Protocol	Pkt Length	Enable Destination MAC	Destination MAC
1.1	<input checked="" type="checkbox"/>	1000	224.20.20.1	1234	UDP ▾	7 ▾	Disable ▾	01:00:5E:14:14:01
1.2	<input checked="" type="checkbox"/>	1000	224.20.20.2	1234	UDP ▾	7 ▾	Disable ▾	01:00:5E:14:14:02
1.3	<input type="checkbox"/>	1000	224.20.20.3	1234	UDP ▾	7 ▾	Disable ▾	00:00:00:00:00:00
1.4	<input type="checkbox"/>	1000	224.20.20.4	1234	UDP ▾	7 ▾	Disable ▾	00:00:00:00:00:00
1.5	<input type="checkbox"/>	1000	224.20.20.5	1234	UDP ▾	7 ▾	Disable ▾	00:00:00:00:00:00
1.6	<input type="checkbox"/>	1000	224.20.20.6	1234	UDP ▾	7 ▾	Disable ▾	00:00:00:00:00:00
1.7	<input type="checkbox"/>	1000	224.20.20.7	1234	UDP ▾	7 ▾	Disable ▾	00:00:00:00:00:00
1.8	<input type="checkbox"/>	1000	224.20.20.8	1234	UDP ▾	7 ▾	Disable ▾	00:00:00:00:00:00
1.9	<input type="checkbox"/>	1000	224.20.20.9	1234	UDP ▾	7 ▾	Disable ▾	00:00:00:00:00:00

Apply

Batch Setting is where you can input the IP output parameters in batch. See the image below for reference.

IP Input Modulation Output **IP Output**

Port 1

Batch Setting ^

Select All ☐

☐ Enable Disable ▾

☐ Source Port 1000

☐ Protocol UDP ▾

Start Channel-End Channel 1 - 16

☐ 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

Apply

< 1 >

Channel	Enable	Source Port	Destination IP Address	Destination Port	Protocol	Pkt Length	Enable Destination MAC	Destination MAC
1.1	<input checked="" type="checkbox"/>	1000	224.20.20.1	1234	UDP ▾	7 ▾	Disable ▾	01:00:5E:14:14:01
1.2	<input checked="" type="checkbox"/>	1000	224.20.20.2	1234	UDP ▾	7 ▾	Disable ▾	01:00:5E:14:14:02
1.3	<input type="checkbox"/>	1000	224.20.20.3	1234	UDP ▾	7 ▾	Disable ▾	00:00:00:00:00:00

### 3.1.1.3 Multiplexing

Multiplexing has four tabs: **Source**, **Service Configuration**, **SI Table Setting** and **PID Transmission**. Here you can set to output services from IP Input to Modulation Output. Click **Multiplexing** to see 32 modulation output channels. Select a channel you want to configure and you will see **Source** setting of this channel.



**OHM-MOD-02** Status Basic Setting **Multiplexing** System

Output Channel

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16  
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

Source Service Configuration SI Table Setting PID Transmission

Port 1 Port 2

1-32 33-64 65-96 97-128 129-160 161-192 193-224 225-256 257-288 289-320 321-352 353-384 385-416 417-448 449-480 481-512

Please tick the input channel to get the source of the program ☐ Select All

☒ 1.1 ☒ 1.2 ☐ 1.3 ☐ 1.4 ☐ 1.5 ☐ 1.6 ☐ 1.7 ☐ 1.8 ☐ 1.9 ☐ 1.10 ☐ 1.11 ☐ 1.12 ☐ 1.13 ☐ 1.14 ☐ 1.15 ☐ 1.16  
☐ 1.17 ☐ 1.18 ☐ 1.19 ☐ 1.20 ☐ 1.21 ☐ 1.22 ☐ 1.23 ☐ 1.24 ☐ 1.25 ☐ 1.26 ☐ 1.27 ☐ 1.28 ☐ 1.29 ☐ 1.30 ☐ 1.31 ☐ 1.32

Scanning Time(ms) : 1000 Set

Source ☐ ECM/EMM Filter

☒ [1.2] 239.192.0.200:10000 ☐ Bypass  
☒ [218] HBO FAMILY HD  
☒ [1.1] 239.192.0.207:10000 ☐ Bypass  
☒ [1]

RF Output[1] 474000KHz 6875Kbaud

Source	Service Name
1 1.1	[1] HAPPY
2 1.2	[218] HBO FAMILY HD

Apply Clear Config

**Multiplexing-Source**> Source is where you select a source for output. You can chose **Port 1** or **Port 2** for the source. Each port is divided into 16 groups to complete 512 channels. Select a Port and you can see service lists of Group and Channel as shown below.

**OHM-MOD-02** Status Basic Setting **Multiplexing** System

Output Channel

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16  
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

Source Service Configuration SI Table Setting PID Transmission

Port 1 Port 2

1-32 33-64 65-96 97-128 129-160 161-192 193-224 225-256 257-288 289-320 321-352 353-384 385-416 417-448 449-480 481-512

Please tick the input channel to get the source of the program ☐ Select All

☒ 1.1 ☒ 1.2 ☐ 1.3 ☐ 1.4 ☐ 1.5 ☐ 1.6 ☐ 1.7 ☐ 1.8 ☐ 1.9 ☐ 1.10 ☐ 1.11 ☐ 1.12 ☐ 1.13 ☐ 1.14 ☐ 1.15 ☐ 1.16  
☐ 1.17 ☐ 1.18 ☐ 1.19 ☐ 1.20 ☐ 1.21 ☐ 1.22 ☐ 1.23 ☐ 1.24 ☐ 1.25 ☐ 1.26 ☐ 1.27 ☐ 1.28 ☐ 1.29 ☐ 1.30 ☐ 1.31 ☐ 1.32

Scanning Time(ms) : 1000 Set

Source ☐ ECM/EMM Filter

☒ [1.2] 239.192.0.200:10000 ☐ Bypass  
☒ [218] HBO FAMILY HD  
☒ [1.1] 239.192.0.207:10000 ☐ Bypass  
☒ [1]

RF Output[1] 474000KHz 6875Kbaud

Source	Service Name
1 1.1	[1] HAPPY
2 1.2	[218] HBO FAMILY HD

Apply Clear Config

To output the service on the Modulation Output, you can simply put a tick in the box beside the service you want to output. You can output multiple Service from different Source channels or bypass the TS to Modulation output.

Scanning Time(ms) : 1000 Set

Source ☐ ECM/EMM Filter

☒ [1.2] 239.192.0.200:10000 ☐ Bypass  
☒ [218] HBO FAMILY HD  
☒ [1.1] 239.192.0.207:10000 ☐ Bypass  
☒ [1]

RF Output[1] 474000KHz 6875Kbaud

Source	Service Name
1 1.1	[1] HAPPY
2 1.2	[218] HBO FAMILY HD

To Output the TS by Bypass mode, you can simply check the **Bypass** box of the TS. You can only bypass 1 TS and cannot output other services from different channel sources. Bypass mode allows you to keep the input signal automatically be redirected to Modulation output without re-scanning the input or transferring it to output.

Scanning Time(ms) : 1000 Set

Source ☐ ECM/EMM Filter

[1,2] 239.192.0.200:10000 [218] HBO FAMILY HD ☒ Bypass

[1,1] 239.192.0.207:10000 [1] ☐ Bypass

RF Output[4] 224000KHz 6875KBaud

[Bypass]Source

[1,2] 239.192.0.200:10000

**Multiplexing-Service Configuration**> After output the services from IP input to Modulation output, you can now edit the Service ID and other PID on the output. Click on the Service Configuration to see this page, it shows the output service on this channel only.

OHM-MOD-02 Status Basic Setting **Multiplexing** System

Output Channel

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

Source **Service Configuration** SI Table Setting PID Transmission

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

Output EditTS NIT BAT

	Source	Service Name
1	1.1	[801]HAPPY
2	1.2	[802]HBO FAMILY HD

Apply Clear Config

You can click the Name of the service and it will show a table where you can modify some information of the service like Service ID, Service Name, Service Provider, PCR PMT AUDIO and Video PID. Click **OK** for the changes to take effect.

Output EditTS NIT BAT

	Source	Service Name
1	1.1	[801]HAPPY
2	1.2	[802]HBO FAMILY HD

[1,1] TS >> HAPPY

	Original Value	Value
Service ID	1	801
Service Name		HAPPY
Service Provider		
PCR PID	4130	4130
PMT PID	4128	4128
Video(H264)	4130	4130
Audio	4131	4131

OK Cancel

Here you can also edit the Original Network ID and TS ID of the Modulation Output.

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

Output EditTS NIT BAT

	Source	Service Name
1	1.1	[801]HAPPY
2	1.2	[802]HBO FAMILY HD

[1,1] TS

Original Network ID 129

TS ID 1

NO.	Service ID	Service Name	Service Provider
1	801	HAPPY	
2	802	HBO FAMILY HD	

OK Cancel

Here you can also edit NIT and create NIT Network for the OTA upgrade.

Output

EditTSNITBAT

	Source	Service Name
1	1.1	[001]HAPPY
2	1.2	[002]HBO FAMILY HD

NIT Network

NIT Stream

NIT Actual

Tag(Hex)

40

Network Name

a1

Add

Tag(Hex)	Data(Hex)	Length	Operation
40	123	3	X

Still in NIT, you can also create NIT Streams and generate LCN for channel lists and Cable Descriptor for frequency auto search.

Output

EditTSNITBAT

	Source	Service Name
1	1.1	[001]HAPPY
2	1.2	[002]HBO FAMILY HD

NIT Network

NIT Stream

NIT Actual

Original Network ID

0

TS ID

0

Add

Original ...	TS ID	Descriptor	Operation
129	1	1 tag 0x44	X
		2 tag 0x83	X
129	2	1 tag 0x44	X
		2 tag 0x83	X
129	3	1 tag 0x44	X

Logical Channel Number

Cable Delivery System

For the LCN Descriptor: input the Service ID and the LCN for the channel line-up of the services.

For the Cable Descriptor: input the correct frequency and Symbol Rate for the corresponding TS output. Cable descriptor depends on the setup you use. Mostly, Cable descriptor is created for 1 TS only. Some configuration need to be created in each TS.

Still in NIT, you can also create NIT Other.

Output

EditTSNITBAT

	Source	Service Name
1	1.1	[001]HAPPY
2	1.2	[002]HBO FAMILY HD

NIT Network

NIT Stream

NIT Actual

Network ID

1234

Version Number

1

OK

Here you can also create BAT

Output

EditTSNITBAT

	Source	Service Name
1	1.1	[001]HAPPY
2	1.2	[002]HBO FAMILY HD

[1.1] BAT

Bouquet Id

Bouquet Name

Add

Bouquet Id	Bouquet Name	Operation
No Data		

**Multiplexing-SI Table Setting>** This page is to choose whether to insert/generate the SI tables or Copy the SI tables from the input streams.

Output Channel

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26

27

28

29

30

31

32

Source

Service Configuration

SI Table Setting

PID Transmission

Output [1.1]

☒ PAT Insert

☒ CAT Insert

☒ SDT Insert

☒ TDT Insert

☐ TOT Insert

☒ BAT Insert

☒ NIT Insert

☒ PMT Insert

☐ EIT Shared

☐ CAT Shared

☐ SDT Shared

☐ TDT Shared

☐ TOT Shared

☐ BAT Shared

☐ NIT Shared

Source

[1.1]:239.192.0.207 : 10000

OK

**Multiplexing-PID Transmission>** This page is to transmit the input PID to Output on the PID required by the system.

Output Channel

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26

27

28

29

30

31

32

Source

Service Configuration

SI Table Setting

PID Transmission

Input

Input PID

Output PID

Delete

No Data

Input

1.1

Input PID

32

Output PID

32

Add

Delete All

Apply

Clear Config

3.1.1.4 Scrambling

OHM6-MOD-02 Scramble is where you can encrypt a service on the Modulation Output. Scrambler can be connected 6 different CAS simultaneously. There are seven tabs on this page namely Service Scrambling and CAS1 to CAS6. 6 CAS tabs have the same interface. Input the correct CA parameters on this page and make sure the ECMG and EMMG are connected GREEN. Some CA will provide a Super CAS ID with 8 digits. This is a combination of the 4-digit CAS System ID and 4-digit of ECMG Sub System ID.

**Service Scrambling**> On this page, you can encrypt a service in the Modulation Output. Select a channel for output and you will see a service list. If you simulcrypt 6 different CA, select one of them for encryption as you need, then select the CA ID of the service. Click **Apply** to finish setting.

NO.	SERVICE	CAS1	CAS2	CAS3	CAS4	CAS5	CAS6	Batch Setting
1	[CH-1] > [801]:HAPPY	None	None	None	None	None	None	Batch Setting
2	[CH-1] > [802]:HBO FAMILY HD	None	None	None	None	None	None	Batch Setting

The Modulation Output Channel will only list the enabled channels but not all 32 channels. If the channels and CA ID to be used are arranged in a chronological order, you can use **Batch Setting** for faster encryption. This is advisable if you have 10 or more services in a single channel for output. See the image below for reference.

Output Channel Scrambled service: 0

1 2 All

---

**Service Scrambling Setting** Batch Setting ^

When the number of programs exceeds the number of CASs that can be allocated, the CAS setting will repeat.

Select Batch Setting Parameter	Auto Assign	Start Service Number ~ End Service Number
<input type="checkbox"/> Scrambling <input type="checkbox"/> Enable		
<input type="checkbox"/> CAS1 <span style="margin-left: 20px;">None</span>	<input type="checkbox"/>	<div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"> Start Service Number   End Service Number   <span style="float: right;">OK</span> </div>
<input type="checkbox"/> CAS2 <span style="margin-left: 20px;">None</span>	<input type="checkbox"/>	
<input type="checkbox"/> CAS3 <span style="margin-left: 20px;">None</span>	<input type="checkbox"/>	
<input type="checkbox"/> CAS4 <span style="margin-left: 20px;">None</span>	<input type="checkbox"/>	
<input type="checkbox"/> CAS5 <span style="margin-left: 20px;">None</span>	<input type="checkbox"/>	
<input type="checkbox"/> CAS6 <span style="margin-left: 20px;">None</span>	<input type="checkbox"/>	

### 3.1.1.5 System

OHM6-MOD-02 System is composed of two sub menus namely **Network** and **License**.

**Network**> Here you can modify the IP Address, Subnet Mask and Gateway for each port of the module, except for the address of the module itself. This also shows the MAC Address of each port of the module. See the image below for reference.

OHM-MOD-02 Status Basic Setting Multiplexing **System**

Network License

Port	IP Address	Subnet Mask	Gateway	MAC Address	Link Speed	Link Status
NMS	192.168.1.21	255.255.255.0	192.168.1.254	A0:59:98:AA:00:01	auto	link down
CAS	192.168.2.10	255.255.255.0	192.168.2.254	A0:59:98:AA:00:02	auto	link down
DATA1	192.168.3.10	255.255.255.0	192.168.3.254	A0:59:98:AA:00:03	auto	1000full
DATA2	192.168.4.10	255.255.255.0	192.168.4.254	A0:59:98:AA:00:04	auto	link down

Apply

**License**> Here you can import/export **license**, reboot module, **restore factory default settings** and **manage logs**.

OHM-MOD-02 Status Basic Setting Multiplexing **System**

Network License

Program Auto Scan

☐ Enable ☐ Set

License

Product ID   
Import License  Browse Upload  
Export License  Export

Logs

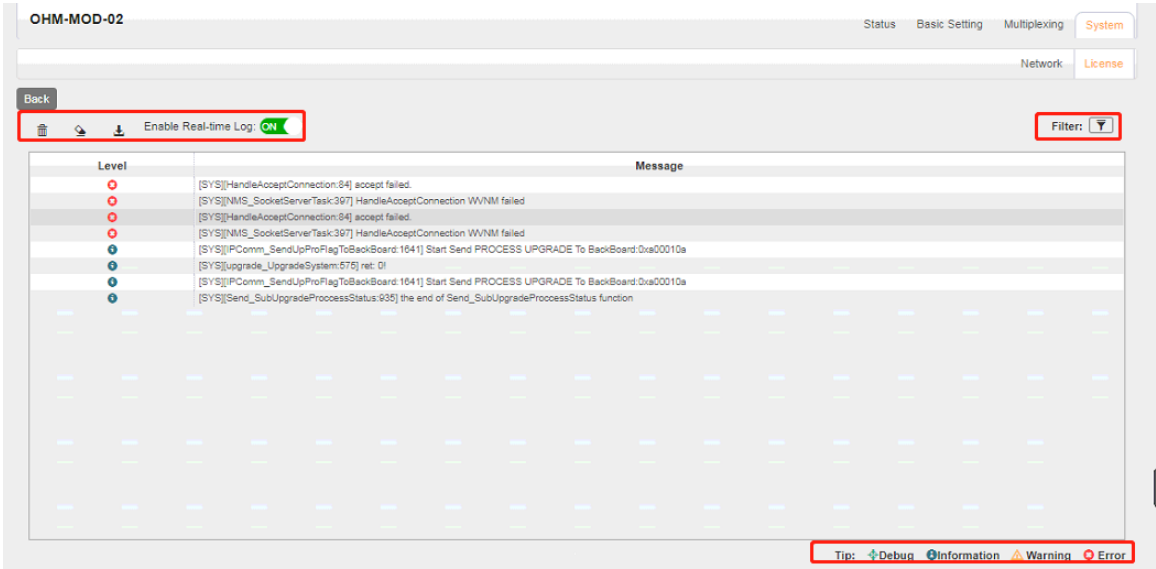
SNMP MIB





Export MIB  Export

Others

**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 to see the real time log messages and the severity 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.

**Log Filter**

Level	
Level	Operation
Error	<input checked="" type="checkbox"/>
Warning	<input checked="" type="checkbox"/>
Information	<input checked="" type="checkbox"/>
Debug	<input type="checkbox"/>

Module List	
Module Name	Operation
SYS	<input checked="" type="checkbox"/>
PARAMS	<input checked="" type="checkbox"/>
UPGRADE	<input checked="" type="checkbox"/>
TSPPROCESS	<input checked="" type="checkbox"/>
SIPPROCESS	<input checked="" type="checkbox"/>
LICENSE	<input checked="" type="checkbox"/>
SOCKET	<input checked="" type="checkbox"/>

### 3.5.7.1 Module Basic Settings

After inputting the parameters in the Modules Settings, always click the **Apply** button on the right side to make the change take effect. Make sure the Signal is locked on the Module Status page.

RF Level:  (dBmV ☒ dBuV ☐)

Channel	Enable	Frequency(KHz)	Bandwidth(MHz)	FFT Mode	GI Mode	QAM Mode	Convolutional ...	Segment Mode
1.1	<input checked="" type="checkbox"/>	<input type="text" value="474000"/>	<input type="text" value="6"/>	<input type="text" value="2K"/>	<input type="text" value="1/4"/>	<input type="text" value="64QAM"/>	<input type="text" value="7/8"/>	<input type="text" value="Full Seq"/>
1.2	<input type="checkbox"/>	<input type="text" value="480000"/>	<input type="text" value="6"/>	<input type="text" value="2K"/>	<input type="text" value="1/4"/>	<input type="text" value="64QAM"/>	<input type="text" value="7/8"/>	<input type="text" value="Full Seq"/>
1.3	<input type="checkbox"/>	<input type="text" value="486000"/>	<input type="text" value="6"/>	<input type="text" value="2K"/>	<input type="text" value="1/4"/>	<input type="text" value="64QAM"/>	<input type="text" value="7/8"/>	<input type="text" value="Full Seq"/>
1.4	<input type="checkbox"/>	<input type="text" value="492000"/>	<input type="text" value="6"/>	<input type="text" value="2K"/>	<input type="text" value="1/4"/>	<input type="text" value="64QAM"/>	<input type="text" value="7/8"/>	<input type="text" value="Full Seq"/>

Name	Range	Name	Range
Bandwidth (MHZ)	6M	RF level	90~110
Frequency (KHz)	48000~862000	FFT Mode	2K
GI Mode	1/4, 1/8, 1/16, 1/32	RF Level Gain (dB)	45~55
QAM Mode	QPSK 16QAM 64QAM	Convolutional Coding	1/2, 2/3, 3/4, 5/6, 7/8

### 3.5.7.2 Module Output



RF Level: 40 (dBmV ☒ dBuV ☐)

Channel	Enable	Frequency(KHz)	Bandwidth(MHz)	FFT Mode	GI Mode	QAM Mode	Convolutional ...	Segment Mode
1.1	<input checked="" type="checkbox"/>	474000	6	2K	1/4	64QAM	7/8	Full Seq
1.2	<input type="checkbox"/>	480000	6	2K	1/4	64QAM	7/8	Full Seq
1.3	<input type="checkbox"/>	486000	6	2K	1/4	64QAM	7/8	Full Seq
1.4	<input type="checkbox"/>	492000	6	2K	1/4	64QAM	7/8	Full Seq

- TS setting: Please refer to IP output service configuration on page 30.
- LCN setting: You need to add NIT stream of all frequencies in the base TS (frequency). It is used for your STB to automatically search and identify all the TS (frequencies) LCN information.
- Check or reset each TS (frequency) Original Network ID and TS ID, which should be different in each TS.
- Fill the Original Network ID and TS ID of each TS (frequency) in the field of the base TS (frequency) and then click Add to create a NIT stream of this TS (frequency).
- Click the “+” icon of Descriptor and add the TS Information Descriptor in. Then fill in the correct parameters and click OK. (This operation should be set on Modulator module only)

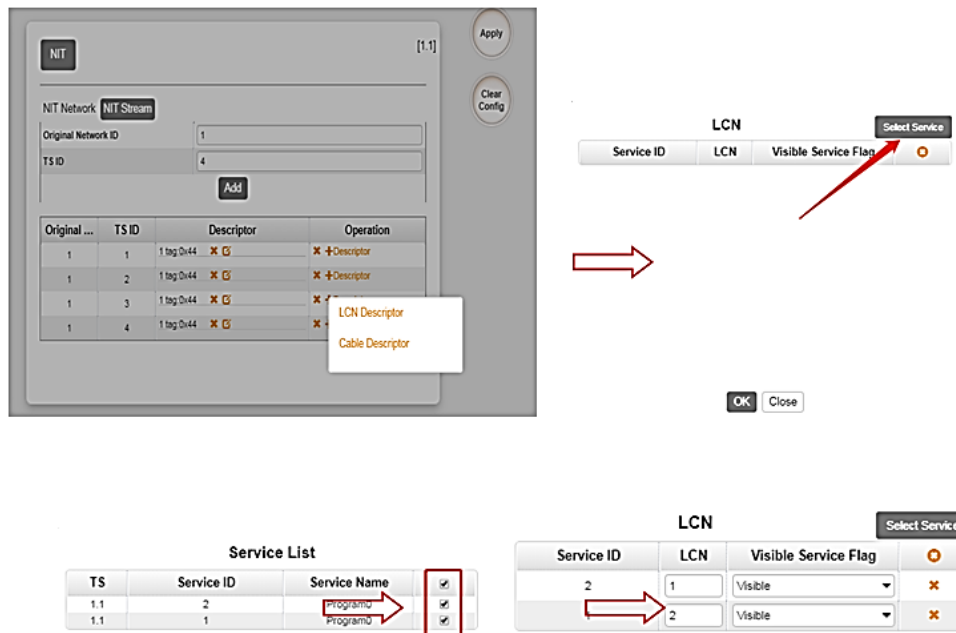
**TS Information Descriptor**

Remote Key ID [0, 255]

TS Name

Trans Info Type [0, 255]

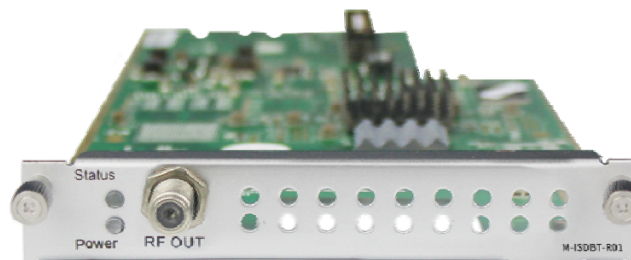
- Click the “+” icon of Descriptor and add the LCN Descriptor. Then check all the programs which are contained in this frequency. Then set program LCN.



- Do same operations to add next TS (frequency) until NIT streams of all the frequencies have been included. Lastly click Apply button to let all configuration take effect. Then searching programs in your STB, you will get all programs in order of LCN which you set.

### 3.5.8

OHM6-ISDBT-R01/R01A module supports up to 4/8 adjacent frequencies modulating with 1 RF female connector for output.



### 3.5.7.1 Module Basic Settings

After inputting the parameters in the Modules Settings, always click the **Apply** button on the right side to make the change take effect. Make sure the Signal is locked on the Module Status page.

RF Level: 40 (dBmV ☒ dBuV ☐)

Channel	Enable	Frequency(KHz)	Bandwidth(MHz)	FFT Mode	GI Mode	QAM Mode	Convolutional ...	Segment Mode
1.1	<input checked="" type="checkbox"/>	474000	6	2K	1/4	64QAM	7/8	Full Seq
1.2	<input type="checkbox"/>	480000	6	2K	1/4	64QAM	7/8	Full Seq
1.3	<input type="checkbox"/>	486000	6	2K	1/4	64QAM	7/8	Full Seq
1.4	<input type="checkbox"/>	492000	6	2K	1/4	64QAM	7/8	Full Seq

Name	Range	Name	Range
<b>Bandwidth (MHZ)</b>	6M	<b>RF level</b>	90~110
<b>Frequency (KHz)</b>	48000~862000	<b>FFT Mode</b>	2K
<b>GI Mode</b>	1/4, 1/8, 1/16, 1/32	<b>RF Level Gain (dB)</b>	45~55
<b>QAM Mode</b>	QPSK 16QAM 64QAM	<b>Convolutional Coding</b>	1/2, 2/3, 3/4, 5/6, 7/8

### 3.5.7.2 Module Output

RF Level: 40 (dBmV ☒ dBuV ☐)

Channel	Enable	Frequency(KHz)	Bandwidth(MHz)	FFT Mode	GI Mode	QAM Mode	Convolutional ...	Segment Mode
1.1	<input checked="" type="checkbox"/>	474000	6	2K	1/4	64QAM	7/8	Full Seq
1.2	<input type="checkbox"/>	480000	6	2K	1/4	64QAM	7/8	Full Seq
1.3	<input type="checkbox"/>	486000	6	2K	1/4	64QAM	7/8	Full Seq
1.4	<input type="checkbox"/>	492000	6	2K	1/4	64QAM	7/8	Full Seq

- TS setting: Please refer to IP output service configuration on page 30.
- LCN setting: You need to add NIT stream of all frequencies in the base TS (frequency). It is used for your STB to automatically search and identify all the TS (frequencies) LCN information.
- Check or reset each TS (frequency) Original Network ID and TS ID, which should be different in each TS.
- Fill the Original Network ID and TS ID of each TS (frequency) in the field of the base TS (frequency) and then click Add to create a NIT stream of this TS (frequency).
- Click the “+” icon of Descriptor and add the TS Information Descriptor in. Then fill in the correct parameters and click OK. (This operation should be set on Modulator module only)

**TS Information Descriptor**

Remote Key ID [0, 255]

TS Name

Trans Info Type [0, 255]

- Click the “+” icon of Descriptor and add the LCN Descriptor. Then check all the programs which are contained in this frequency. Then set program LCN.

The first screenshot shows the NIT configuration window. The 'Original Network ID' is 1 and 'TS ID' is 4. The 'Add' button is highlighted. A dropdown menu is open, showing 'LCN Descriptor' and 'Cable Descriptor'. The second screenshot shows the 'LCN' window with a 'Select Service' button. The third screenshot shows the 'Service List' table with a red box around the 'Program' column and a red arrow pointing to the 'Program' column. The fourth screenshot shows the 'LCN' window with a red arrow pointing to the 'Service ID' column.

Original ...	TS ID	Descriptor	Operation
1	1	1 tag Dn44	✗ +Descriptor
1	2	1 tag Dn44	✗ +Descriptor
1	3	1 tag Dn44	✗ +Descriptor
1	4	1 tag Dn44	✗ +Descriptor

Service ID	LCN	Visible Service Flag	
2	1	Visible	✗
2	2	Visible	✗

TS	Service ID	Service Name	
1.1	2	Program	✗
1.1	1	Program	✗

- Do same operations to add next TS (frequency) until NIT streams of all the frequencies have been included. Lastly click Apply button to let all configuration take effect. Then searching programs in your STB, you will get all programs in order of LCN which you set.

## 3.6 Function Modules

### 3.6.1 OHP6-ASI

CP-ASI-00 module is an ASI module that has 5 bidirectional ASI ports. Each port can be defined as either ASI input port or ASI output port. It supports different TS stream formats of 188/204 bytes packet length and Byte/Packet stream mode with up to 150Mbps TS stream bitrate.



Click **OHP-ASI-00** in the Module List to reach OHP-ASI-00 module page.

### 3.5.9.1 Module Status

OHP-ASI-00							
<div>StatusBasic SettingASI InputASI OutputSystem</div>							
Channel	Input/Output	Locked Status	Effective Bitrate(Mbps)	Total Bitrate(Mbps)	Bitrate	TS Analysis	Service Li
1.1	Input	Locked	0.000	35.968	--		
1.2	Input	Unlocked	0.000	0.000	--		
1.3	Output	--	0.000	36.001	Normal		
1.4	Output	--	0.000	36.000	Normal		
1.5	Output	--	0.000	36.000	Normal		

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

Channel1.5 TS Analysis						
<div>Reset Counter</div>						
<div>Search</div>						
PID	Bitrate(Mbps)	Bandwidth(%)	Continuity Count Error	Type	Service	
0x0(0)	0.015	0.042	6	PAT		
0x33(51)	0.045	0.125	127	Other		
0x100(256)	8.852	24.611	127	PCR, Video		
0x101(257)	0.175	0.487	127	Audio		
0x1000(4096)	0.015	0.042	6	PMT		
0x1ff(5187)	0.033	0.092	39	Other		

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

Channel : 1.5	
#	Service
1	

You can check program details by clicking the program item.

[1]		
Type	PID	Bitrate(Mbps)
PCR	256(0x100)	8.210
PMT	4096(0x1000)	0.015
StreamType:27-Video(H264)	256(0x100)	8.210
StreamType:3-Audio	257(0x101)	0.077
Close		

### 3.5.9.2 Module Setting

OHP-ASI-00 Status **Basic Setting** ASI Input ASI Output System

Channel	Input/Output	Total Bitrate(Mbps)
1.1	Output	36
1.2	Output	36
1.3	Input	--
1.4	Output	10
1.5	Input	--

Apply

Name	Range
Total Bitrate (Mbps)	4.1 - 180

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

### 3.5.9.3 ASI Input

OHP-ASI-00 Status Basic Setting **ASI Input** ASI Output System


Channel Select : Channel 1.3 Scanning Time(ms) : 1000 Program Scan

Service Name	Destination	Destination Setting
Channel 1.5		⚙️
[1]		✍️
PID 51 (Other PID)		✍️
PID 8187 (Other PID)		✍️

Apply  
Clear Config

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 available.

#### To use **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.

#### To use **Multiplex mode**

This mode allows the administrator to perform the following operations:

1. Route a single service towards an output channel to create SPTS.
2. Route services towards a single output channel to create MPTS.
3. Route service(s) AND stream/s from multiple channels towards a single output channel to create MPTS.

### 3.3.23.4 ASI Output

OHP-ASI-00

Status Basic Setting ASI Input **ASI Output** System

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

[1.1] TS

1. Program1 15.1.5

[1.2] TS

1. Program2 15.1.5

[1.4] TS

1. Program3 15.1.5

[1.1] TS

Original Network ID 0

TS ID 0

NO.	Service ID	Service Name	Service Provider
1	1	Program1	

Other PIDs

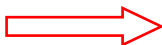
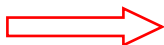
51 8187

OK Cancel

Apply

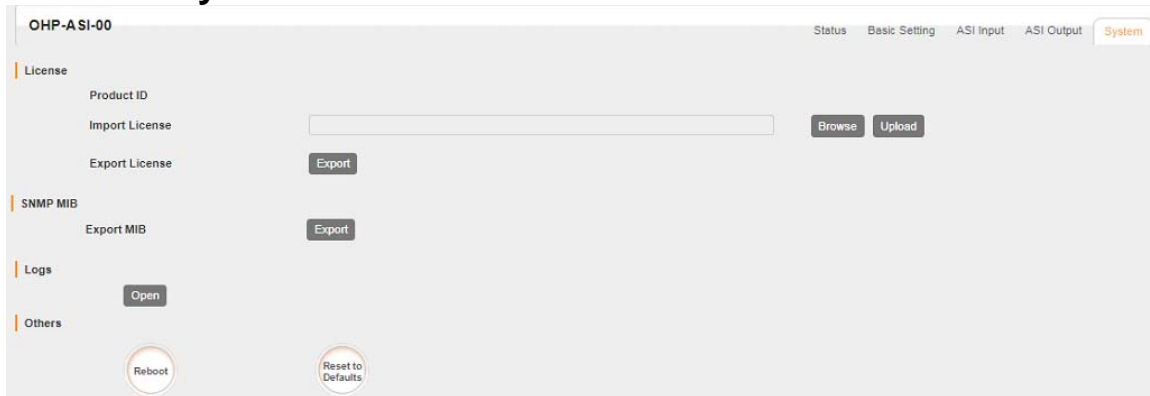
Clear Config

- TS setting: Please refer to IP Output service configuration on baseboard IP output.
- LCN setting: You need to add NIT streams of all frequencies to the base TS (frequency), which is for your STB to automatically search and identify all the TS (frequencies) LCN information.
  - Check or reset Original Network ID and TS ID of each TS (frequency). Each TS should have different IDs.
  - Fill the Original Network ID and TS ID of each TS (frequency) in the field of the base TS (frequency) and then click **Add** to create a NIT stream for this TS (frequency).
  - Click **+Descriptor** then **LCN Descriptor** to check all the programs which are contained in this frequency. Then set programs LCN.



- Repeat the operations to add next TS (frequency) until NIT streams of all the frequencies have been included. Finally click **Apply** to let all configuration take effect. Then searching programs in your STB, you will get all programs in the order of LCN you set.

### 3.5.9.5 System



On **System** page you can choose to:

- Import/Export license
- Export SNMP/MIB
- Manage logs
- Reboot the unit
- Restore the unit to factory defaults

## 3.6.2 OHP6-EAS

The OHP6-EAS-00 module provides the ability to interrupt Encoder playback and switch to an external transport stream. This feature is for the US market and requires the OmniHub chassis to be set for ATSC standard. A common application of Emergency Alert Systems is for Broadcast and Audio Muting.

The trigger switched video content on the Encoders can be sensed using a DC contact closure or the SCTE-18 EAS standard over ASI/IP when the EAS is “Paved” or actively replacing the encoder outputs.



### 3.6.1.1 Module Settings



Below is an example of the EAS module configuration settings with some additional descriptions. Click the **Apply** button on the right side of the EAS settings page to make the change take effect.

EAS Source Setting	
EAS Signal Input:	Digital(IP)
EAS Program Input:	AV
Trigger Mode:	Normally Open

*EAS Signal Input* is where you select how the module senses the trigger:

- Digital – Trigger is provided via IP (SCTE-18 Broadcast Standard)
- Analog – Trigger is provided as DC voltage to the EAS Control connector

*EAS Program Input.* Here you can select where the content originates from.

- AV – Content is provided as RCA/Analog AV inputs to EAS built in the encoder
- ASI – Content is provided as ASI with MPEG Transport Stream

Command Input Setting	
PID:	1
IP Address:	192.1.1.100
IP Port :	5050

*Command Input Settings.* You specify the incoming PID, IP, and Port of the SCTE-18 triggers over the Ethernet cable. The **IP EAS IN** RJ45 Ethernet port on the module is where this information must be received.

Encoder Setting	
Video Type:	Mpeg-2
Audio Type:	Mpeg4-AAC
Video Bitrate (Kbps):	5000
Audio Bitrate (Kbps):	320
Volume:	10

*Encoder Settings.* This section is for the RCA / Analog-AV inputs. When the takeover content is provided in this fashion it must be encoded to MPEG “.TS” Transport Stream data. The Video, Audio, and Bitrate settings are used to configure the format.

IP Output Setting

Note: Don't take up the UDP multicast address,avoid the IP conflict.If you want to modify them ,you need to modify other subboards synchronously.

Editable:

Enable

IP Address:

227.10.50.60

Command Port:

1235

Data Port:

1234

### IP Output Settings

You can configure the command sent from the EAS module to the encoders. The settings applied here must match in the EAS tab of each Encoder Module.

Table of all parameters in the EAS module:

Name	Range	Name	Range
Command Input Setting			
<b>EAS Signal Input</b>	Digital (IP) Analogue (Dry Contact)	<b>EAS Program Input</b>	ASI AV
<b>Trigger Mode</b>	Normally Open Normally Closed		
Encoder Setting			
<b>Video Type</b>	H.264, MPEG-2	Audio Type	AC3, Mpeg-1 Layer 2 Mpeg2-AAC, Mpeg4-AAC
<b>Video Bit rate (Kbps)</b>	1500~20000	Audio Bitrate (Kbps)	128, 192, 256, 384
<b>Volume</b>	-10~10		

Example of the EAS module Status Page:

EAS Status	
EAS Status:	Digital Locked
AV Input	
Video Resolution:	720x576_50i
Encoder Status	
Total Bit Rate:	8.190 Mbps
Effective Bit Rate:	7.709 Mbps
Video Resolution:	720x576_50i
ASI Input	
Signal Lock:	Locked
Total Bit Rate:	8.578 Mbps
Effective Bit Rate:	8.441 Mbps
Program Scan Status:	Normal
IP Output	
Total Bit Rate:	8.655 Mbps
Video Bit Rate:	6.172 Mbps
Audio Bit Rate:	0.251 Mbps
Effective Bit Rate:	7.726 Mbps
Version Info	
Firmware Version:	V0.2.0
Software Version:	V0.0.32
Hardware Version:	V0.0.0

### 3.6.2 OHP6-CAM-00

OHP6-CAM-00 is used to decrypt and encrypt services. It has 2 independent CI card slots that are compatible with mainstream CAM cards but support only Xcrypt CAM CAS for encryption and supports mainstream CAS decryption.



#### 3.6.2.1 Module Status

Click the name of OHP6-CAM-00 in the module list to view its Status page. This page will show you the status of each channel and the bitrate of each service. See OHR6-DVBC-00 on page 30 to 35 for reference

13: CP-CAM-00				
		Status	CI	Service Configuration
		System Operation		
Channel	Total Bitrate(Mbps)	Effective Bitrate(Mbps)	TS Analysis	Service List
1.1	5.443	5.443	👁	📺
1.2	5.443	5.443	👁	📺

Note that this module has scrambling and descrambling functions. To choose which function you want to use, go to System Operation and select the CAM mode.

13: CP-CAM-00

Change CAM Mode

Descrambling  
Scrambling  
Descrambling

Apply

License

### 3.6.2.2 CI

You can output the received encrypted services in DVBS2, DVBC, ISDT, etc. to OHP6-CAM-00 to decrypt the service and rebroadcast it to QAM, OFDM, IP, etc. The CI page will show you the list of the successfully-decrypted services in the channel.

13: CP-CAM-00

CAM Max Bitrate: 72Mbps

CAM1 (Initialize Success)

Reset

CAM Card Name	CAMCAS-XCRYPT
CA System ID	19152

PID

Service Information

Descrambling Status

13: CP-CAM-00

Status

CI

Service Configuration

System Operation

CAM Max Bitrate: 72Mbps

MMI Settings

CAM1 (Initialize Success)

Reset

CAM Card Name	CAMCAS-XCRYPT
CA System ID	19152

PID

Service Information

Descrambling Status

CAM2 (Not inserted)

Apply

### 3.6.2.3 Service Configuration

For the Service Configuration, you can select Descrambling or No Descrambling for a service before output. To configure the service to output, please refer to service configuration procedures of other modules.

\*You need to click **Apply** button after you configure service to Descrambling, otherwise the descrambling configuration will not be saved.

Channel Select : Channel 1.1

Channel Scan

Service Name	Descrambling	Destination	Destination Settings
Channel 1.1			
[1] Program-1	No Descrambling		

3.6.3 OHP6-EIT-00

OHP6-EIT-00 is a function enabled by default on the modulator and disabled in all IP output channels of the baseboard. This is only used when a certain service has wrong EIT information or the total output TS with EIT enabled exceeds the maximum limit of the 16 for each EIT module or an IP output channel that requires an EIT output.

3.6.3.1 Module Status

Status display the EIT enabled module and the list of service that enabled EIT.

OHP-EIT-00

StatusModule SettingSystem

EIT Enabled Module	Channel	Service Name	Service ID	Source
Baseboard	CH1	Program	1→1	Slot 11:OHP-EIT-00
3.OHM-OFDM-R01		Program	2→2	Slot 11:OHP-EIT-00

3.6.3.2 Module Setting

You just need to click the checkbox to enable or disable EIT function of relative TS streams or services.

OHP-EIT-00

StatusModule SettingSystem

EIT Enabled Module

Baseboard

3.OHM-OFDM-R01

EIT Enable/Disable Control

[CH1]

Tips

1. EIT function is enabled by default on modulator module and disabled on all IP output channels of baseboard.

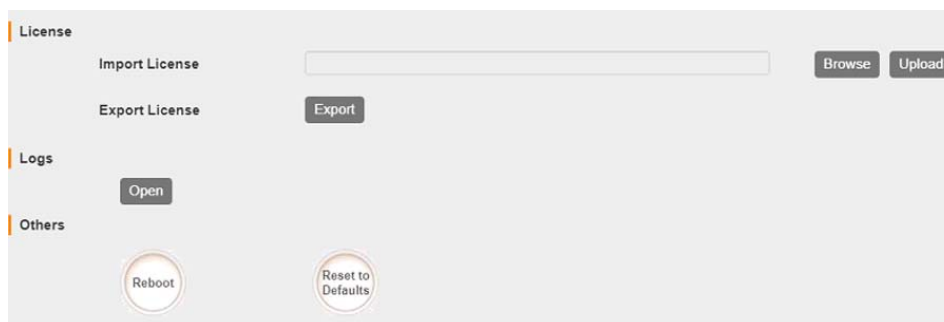
2. EIT Enable/Disable Control is only used when certain service has wrong EIT information or the total output TS with EIT enabled exceed the maximum limit of 16 for each EIT module or an IP output channel requires an EIT output.

3. Click checkbox to enable or disable EIT function of relative TS stream or service.

Apply

3.6.3.3 Module System

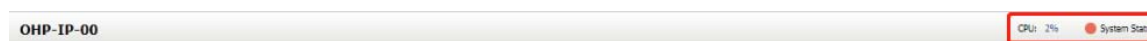
System is for you to upgrade license of the board when needed. Here you can also check logs, reboot and reset the unit to factory default.



### 3.6.4 OHP6-IP-00

OHP6-IP-00 is an IP module that supports multiple network protocols such as UDP/RTP/HLS/SRT/Zixi. The module has 1 internal GbE port, 3 external GbE ports, 1 USB port and 1 Mini-HDMI port. The GbE ports will be used for IP stream input and output while USB ports and Mini-HDMI port will be used for OS installation. With OHP-IP-00 module, you are able to output any program streams via different network protocols or receive any network streams and convert to RF signal for further transmission.

#### 3.6.4.1 Module Status



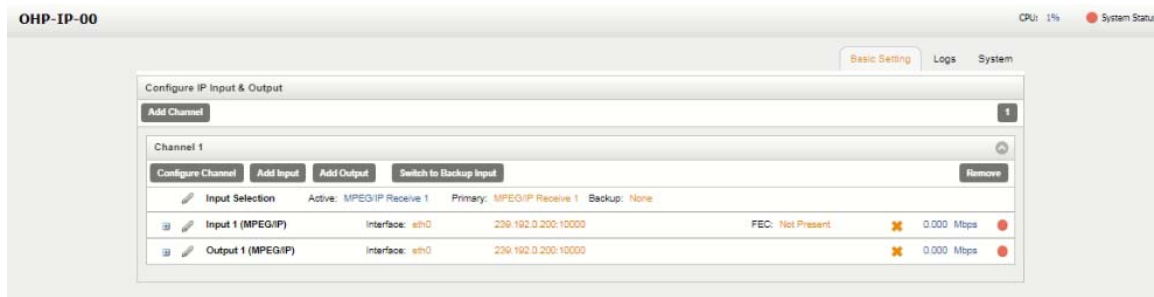
The CPU status ( CPU: 1% ) is shown as a percentage. It reflects the amount of processing capacity that is currently being used.

The System Status ( ● System Status ) which reports the current status of the system. Green indicates the system operation is good while Red indicates there is some detail about the system that is currently in Alarm condition. A Red condition prompts the user to seek further information about the Alarm condition by viewing the Logs tab.

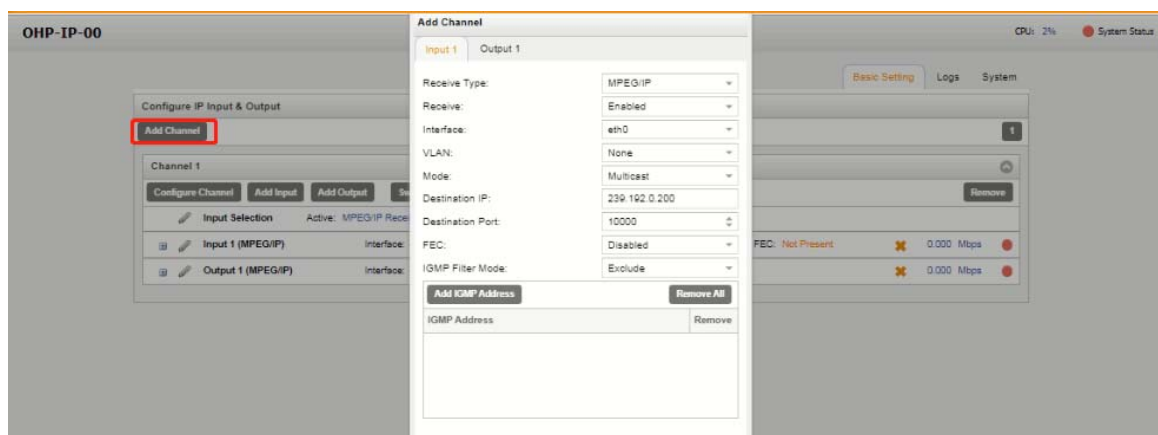
#### 3.6.4.2 Module Settings

The Basic Settings Tab is used to configure the video processing details. This will include signal direction (transmit, receive or both), addresses to be received or delivered to and labeling of the gateways to help the user distinguish gateways from one another.

The number of available gateways will depend upon the license key that is applied.



## Adding a Channel



Click on the **Add Channel** button in the upper left area of the page to create a new or additional gateway. This will open a configuration window and allow the user to define the 'Alias' or label for the gateway; the receive and/or transmit addresses

The configuration window that opens will provide the user with two tabs: Input and Output.

The Input tab(s) is where the user will define the details for the stream to be received and any IGMP filtering. The Output tab(s) will define the details for the stream(s) to be sent out of this gateway.

## Input Settings

This menu is used to configure IP receive settings for MPEG/IP, SRT, Zixi, HLS, Seamless RTP (SMPTE 2022-7 for Hitless Switching). Based upon the type of protocol the user selects, the available configuration settings will adapt to provide the best fit.

Three settings that are common to all protocols are "Receive", which can be set to Enabled or Disabled, "Interface", which can be set to eth0, eth1, eth2 or Internal (options may change depending on the number of interfaces and user defined interface name) and "VLAN", which will filter incoming streams for VLAN tags.

Add Channel

Input 1

Output 1

Receive Type:

MPEG/IP

Receive:

Enabled

Interface:

eth0

VLAN:

None

Mode:

Multicast

Destination IP:

239.192.0.200

Destination Port:

10000

FEC:

Disabled

IGMP Filter Mode:

Exclude

Add IGMP Address

Remove All

IGMP Address

Remove

### Universal Input Settings

*Note: when the “Receive” option is enabled for a given protocol (MPEG/IP, SRT, Zixi, HLS, Seamless RTP), the gateway will be capable of receiving incoming bitrate for that protocol. When using multiple receive instances on the same gateway, the “Receive” setting will not engage the newly configured receive instance as the active input by itself. To configure the additional receive as the active input, please review **“Configuring Active Inputs and Failover”***

### MPEG/IP Receive Settings

The figure below shows the options available when the “Receive Type” is set to “MPEG/IP”.



Add Channel

Input 1

Output 1

Receive Type:

MPEG/IP

Receive:

Enabled

Interface:

eth0

VLAN:

None

Mode:

Multicast

Destination IP:

239.192.0.200

Destination Port:

10000

FEC:

Disabled

IGMP Filter Mode:

Exclude

Add IGMP Address

Remove All



IGMP Address

Remove

## MPEG/IP Receive Settings


Settings	Range	Description
<b>Mode</b>	Multicast Unicast	Multicast setting allows the unit to receive multicast streams. Multicast streams originate from the IP range 224.0.0.0 – 239.255.255.255. Unicast allows the unit to receive unicast streams. Unicast streams originate directly from a source device.
<b>Destination IP</b>	224.0.0.0 – 239.255.255.255	This setting is only available when receiving a multicast stream. This is the address the unit will attempt to join.
<b>Destination Port</b>	0 - 65535	This is the UDP port the source device is sending to. This is the only setting required to receive a unicast stream but is also required for multicast.

<b>FEC</b>	Enabled Disabled	Sets the port to accept FEC on the incoming MPEG/IP stream
<b>IGMP Filter Mode</b>	Exclude Include	Used on networks supporting IGMPv3. If this setting is set to Exclude, any streams originating from the user defined IP addresses will be included in the IGMP messages and the network will not forward these streams to the device. If this setting is set to Include, any streams originating from the user defined IP addresses will be included in the IGMP messages and the network will only forward these streams to the device.

Click the  icon by the MPEG/IP input to view information about the incoming stream. Clicking the  icon will hide the IP statistics.



**MPEG/IP Receive Statistics**

The  button is used to reset all the statistics for incoming IP packets and establish a new point of reference.

### SRT Receive Settings

The figure below shows the options available when the “Receive Type” is set to “SRT”.

Add Channel

☒ Input 1
☐ Output 1

Receive Type:

SRT

Receive:

Enabled

Interface:

eth0

VLAN:

None

Call Mode:

Caller

Remote Host:

1.0.0.2

Remote Port:

10000

Local Port Mode:

Auto

Local Port:

10000

Discovery Timeout (seconds):

3

Latency (ms):



20

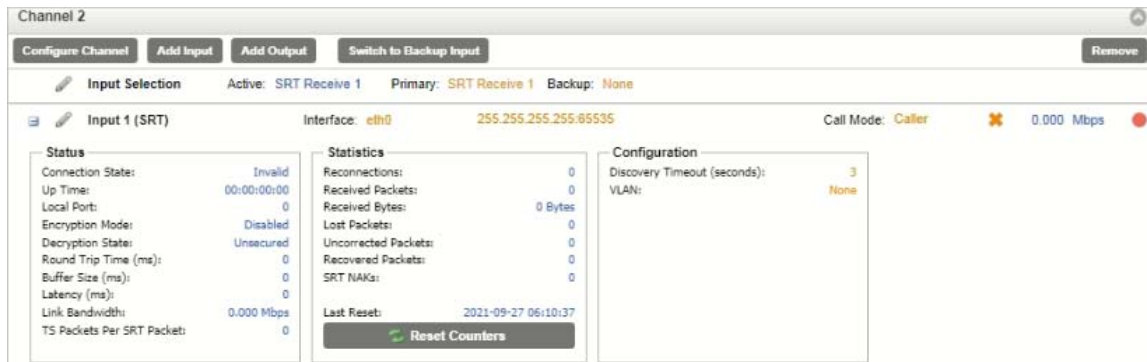
Passphrase:

\*\*\*\*\*

## SRT Receive Settings

Settings	Range	Description
Call Mode	Caller Listener Rendezvous	Defines the 'handshake' mechanism to be used when establishing connection.
Remote Host	xxx.xxx.xxx.xxx	Defines the IP address of the stream on the remote device
Remote Port	0-65535	Defines the port of the stream on the remote devices
Local Port Mode	Auto Manual	In Auto mode, the local port number will be assigned automatically In Manual mode, the local port number will be defined by the user
Local Port	1-65535	Defines the local port number
Discovery Timeout (seconds)	1 – 100, use 0 for infinite	Defines the length of time to wait for the stream to be discovered
Latency (ms)	1-8000	Defines buffer size in milliseconds
Passphrase	10 – 79 characters	Defines the encryption passphrase


Click the  icon by the SRT input to view information about the incoming stream. Clicking the  icon will hide the SRT receive statistics.



The screenshot shows the 'Channel 2' configuration window. At the top, there are tabs: 'Configure Channel', 'Add Input', 'Add Output', and 'Switch to Backup Input'. Below these, the 'Input Selection' section shows 'Active: SRT Receive 1', 'Primary: SRT Receive 1', and 'Backup: None'. The 'Input 1 (SRT)' section is expanded, showing the following details:

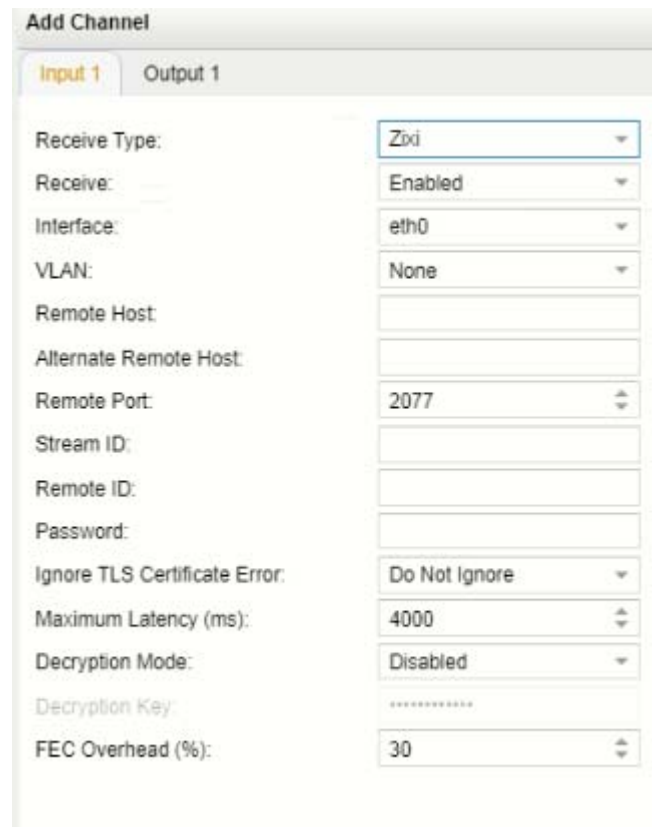
- Status:** Connection State: Invalid, Up Time: 00:00:00:00, Local Port: 0, Encryption Mode: Disabled, Decryption State: Unsecured, Round Trip Time (ms): 0, Buffer Size (ms): 0, Latency (ms): 0, Link Bandwidth: 0.000 Mbps, TS Packets Per SRT Packet: 0.
- Statistics:** Reconnections: 0, Received Packets: 0, Received Bytes: 0 Bytes, Lost Packets: 0, Uncorrected Packets: 0, Recovered Packets: 0, SRT NAKs: 0, Last Reset: 2021-09-27 06:10:37. A 'Reset Counters' button is located below the statistics.
- Configuration:** Discovery Timeout (seconds): 3, VLAN: None.

### SRT Receive Statistics

The  button is used to reset all the statistics for incoming SRT packets and establish a new point of reference.

### Zixi Receive Settings

The figure below shows the options available when the “Receive Type” is set to “Zixi”.





The screenshot shows the 'Add Channel' window with the 'Input 1' tab selected. The 'Receive Type' is set to 'Zixi'. The following settings are visible:

- Receive Type: Zixi (dropdown)
- Receive: Enabled (dropdown)
- Interface: eth0 (dropdown)
- VLAN: None (dropdown)
- Remote Host: (text field)
- Alternate Remote Host: (text field)
- Remote Port: 2077 (spin box)
- Stream ID: (text field)
- Remote ID: (text field)
- Password: (text field)
- Ignore TLS Certificate Error: Do Not Ignore (dropdown)
- Maximum Latency (ms): 4000 (spin box)
- Decryption Mode: Disabled (dropdown)
- Decryption Key: (text field with masked characters)
- FEC Overhead (%): 30 (spin box)

### Zixi Receive Settings

Settings	Range	Description
<b>Remote Host</b>	xxx.xxx.xxx.xxx Domain Name	Defines the host of the remote broadcast using IP address or domain name
<b>Alternate Remote Host</b>	xxx.xxx.xxx.xxx Domain Name	Defines the alternate host of the remote broadcast using IP address or domain name
<b>Remote Port</b>	0 – 65535	Defines the port of the stream on the remote device
<b>Stream ID</b>	User entry	Defines the Zixi stream ID to be received
<b>Remote ID</b>	User entry	Specify the Zixi Broadcaster or Feeder ID that will push the stream
<b>Password</b>	User entry	Provides the password to allow specific Stream ID entered to be received
<b>Ignore TSL certificate Error</b>	Do Not Ignore Ignore	Defines whether to cease or continue processing if TLS Certificate Error is signaled
<b>Maximum Latency (ms)</b>	30 – 10,000	Defines the maximum latency or buffer size (in milliseconds)
<b>Decryption Mode</b>	Disabled AES-128 AES-192 AES-256 Automatic	Defines if a decryption of the received signal is needed, which decryption standard to use, or if the DMG 7000 will automatically detect these
<b>Decryption Key</b>	User entry	Provides the key to allow signal processing if decryption is to be done
<b>FEC Overhead (%)</b>	0 – 50	Defines the amount of static overhead to be used to accommodate FEC

Click the  icon by the Zixi input to view information about the incoming stream. Clicking the  icon will hide the Zixi receive statistics.

Channel 3

Configure Channel

Add Input

Add Output

Switch to Backup Input

Remove

Input Selection

Active: Zixi Receive 1

Primary: Zixi Receive 1

Backup: None

Input 1 (Zixi)

Interface: eth0

Invalid

0.000 Mbps

Status

Connection State: Invalid

Up Time:

Decryption State: Unsecured

Round Trip Time (ms):

Jitter (ms):

TS Packets Per Zixi Packet:

Statistics

Reconnections:

Received Packets:

Received Bytes: Bytes

Dropped Packets:

Not Recovered Packets:

FEC Packets:

FEC Recovered Packets:

ARIQ Packets:

ARIQ Recovered Packets:

ARIQ Duplicate Packets:

ARIQ Requests:

Last Reset: 2021-09-27 06:15:17

Reset Counters

Configuration

Password:

Ignore TLS Certificate Errors: Do Not Ignore


Maximum Latency (ms): 4,000

Decryption Mode: Disabled

FEC Overhead (%): 30

VLAN: None

Zixi Receive Statistics

The  button is used to reset all the statistics for incoming Zixi packets and establish a new point of reference.

HLS Receive Settings

The figure below shows the options available when the “Receive Type” is set to “HLS”

Add Channel

Input 1

Output 1

Receive Type: HLS

Receive: Enabled

Interface: eth0

VLAN: None

HLS Mode: Pull

HLS Network Location:

Apply and Refresh

Profile Name

Bandwidth

Decryption Mode: Disabled

Decryption Key:

Discovery Timeout (seconds): 3

HLS Receive Settings

Settings	Range	Description
----------	-------	-------------

<b>HLS Mode</b>	Push Pull	Determines if the HLS receives through a local or network location
<b>HLS Network Location</b>	User Entry	Defines address of the HLS stream to be received
<b>Profile / Bandwidth</b>	User Selected	After entering an HLS network location and clicking “Apply and Refresh”, a list of available profiles will be displayed
<b>Decryption Mode</b>	Disabled AES 128	Defines if a decryption of the received signal is needed, AES 128 standard
<b>Decryption Key</b>	User Entry	Provides the key to allow signal processing if decryption is to be done
<b>Discovery Timeout (seconds)</b>	1 – 100, use 0 for infinite	Defines the length of time to wait for the stream to be discovered

### Seamless RTP Receive Settings

The figure below shows the options available when the “Receive Type” is set to “Seamless RTP”.

Add Channel

Input 1

Output 1

Receive Type:

Seamless RTP

Receive:

Enabled

Path 1 Interface:

eth0

VLAN:

None

Path 1 Destination IP:

239.192.0.200

Path 1 Destination Port:

10000

Path 1 IGMP Filter Mode:

Exclude

Add IGMP Address

Remove All

IGMP Address

Remove

Path 2 Interface:

eth0

VLAN:

None

Path 2 Destination IP:

239.192.0.200

Path 2 Destination Port:

10000

Path 2 IGMP Filter Mode:

Exclude

Add IGMP Address

Remove All

IGMP Address

Remove

## MPEG/IP Output Settings

The figure shows the options available when the “Transmit Type” is set to “MPEG/IP”.



Configure Channel 1

Input 1

Output 1

Transmit Type:

MPEG/IP

Transmit:

Enabled

Interface:

eth0

VLAN:

None

Destination IP:

239.192.0.200

Destination Port:

10000

Source IP Mode:

Auto

Source IP:

0.0.0.0

Source Port:

3020

Source MAC Mode:

Auto

Source MAC:

00:00:00:00:00:00

TS Packets Mode:

Auto

TS Packets Per IP Packet:

7

Encapsulation:

UDP

**MPEG/IP Output Settings**

Settings	Range	Description
<b>Destination IP</b>	224.0.0.0 – 239.255.255.255	This setting is only available when receiving a multicast stream. This is the address the unit will attempt to join
<b>Destination Port</b>	0 – 65535	This is the UDP port the source device is sending to. This is the only setting required to receive a unicast stream but is also required for multicast
<b>Source IP Mode</b>	Auto Manual	When set to <i>Auto</i> , the source IP address on the output stream will match the corresponding local interface. When set to <i>Manual</i> , a user entered address can be assigned to the output stream
<b>Source IP</b>	xxx.xxx.xxx.xxx	Defines the Source IP address to be assigned to the output stream
<b>Source Port</b>	0 – 65535	Defines the source IP port to be assigned to the output stream
<b>Source MAC Mode</b>	Auto Manual	When set to <i>Auto</i> , the source MAC address of the output stream will match the corresponding local interface. When set to <i>Manual</i> , a user entered address can be

		assigned to the output stream
<b>Source MAC</b>	xx:xx:xx:xx:xx:xx	The user defined MAC for when using Manual MAC Mode
<b>TS Packets Mode</b>	Auto Manual	In <i>Auto</i> mode, the source will define the number of TS packets per IP packet. In <i>Manual</i> mode, the user will define the number of TS packets per IP packet
<b>TS Packets per IP Packet</b>	1-7	The number of TS packets that are contained with a single IP packet. Default is 7. Lowering this value below default increases network overhead
<b>Encapsulation</b>	UDP RTP	Sets the Encapsulation to UDP or RTP

SRT Output Settings

The figure below shows the options available when the “Transmit Type” is set to “SRT”.

Configure Channel 1

Input 1Output 1

Transmit Type:

SRT

Transmit:

Enabled

Interface:

eth0

VLAN:

None

Call Mode:

Caller

Remote Host:

1.0.0.1

Remote Port:

10000

Local Port Mode:

Auto

Local Port:

10000

Discovery Timeout (seconds):

3

Latency (ms):

125

Bandwidth Overhead (%):

25

TS Packets Mode:

Auto

TS Packets Per SRT Packet:

7

Time To Live (hops):

64

Type Of Service:

0

Encryption Mode:

Disabled



Passphrase:

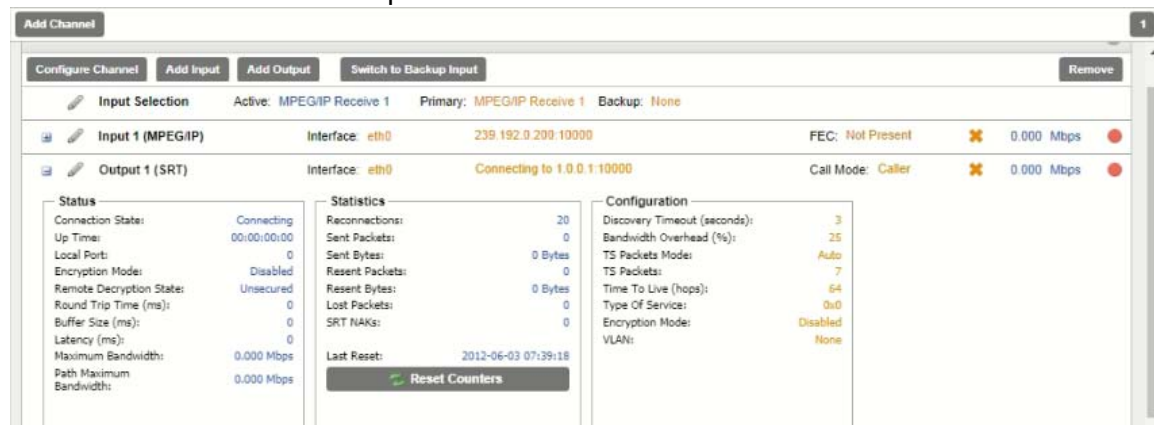
\*\*\*\*\*

SRT Output Settings


Settings	Range	Description
Call Mode	Caller Listener Rendezvous	Defines the ‘handshake’ mechanism to be used when establishing connection.
Remote Host	xxx.xxx.xxx.xxx	Defines the IP address of the stream on the remote device
Remote Port	0 – 65535	Defines the port of the stream on the remote devices
Local Port Mode	Auto Manual	In <i>Auto</i> mode, the local port number will be assigned automatically In <i>Manual</i> mode, the local port number will be defined by the user
Local Port	1 – 65535	Defines the local port number
Discovery Time (seconds)	1 – 100, use 0 for infinite	Defines the length of time to wait for the

		stream to be discovered
<b>Latency (ms)</b>	1 – 8000	Defines buffer size in milliseconds
<b>Bandwidth Overhead (%)</b>	0 – 50	Defines the amount of bandwidth overhead to allow for
<b>TS Packets Mode</b>	Auto Manual	In <i>Auto</i> mode, the source will define the number of TS packets per SRT packet. In <i>Manual</i> mode, the user will define the number of TS packets per SRT packet
<b>TS Packets per SRT Packet</b>	1 – 7	Defines the number of TS packets per SRT packet when mode is <i>Manual</i>
<b>Time To Live (hops)</b>	1 – 254	Defines the number of network devices the transmission is allowed to pass through
<b>Type of Service</b>	0 – 255	Specifies the desired Quality of Service (QoS). This value will be assigned to the Type of Service field of the IP Header for the outgoing stream.
<b>Encryption Mode</b>	Disabled AES-128 AES-256	Defines which encryption standard to use or if the DMG 7000 will automatically detect this.
<b>Passphrase</b>	10 – 79 characters	Defines the encryption passphrase

Click the  icon by the SRT input to view information about the incoming stream. Clicking the  icon will hide the SRT output statistics.



### SRT Output Statistics

The  button is used to reset all the statistics for incoming SRT packets and establish a new point of reference.

### Zixi Output Settings

The figure below shows the options available when the “Transmit Type” is set to “Zixi”.

**Configure Channel 1**

Input 1 **Output 1**

Transmit Type: Zixi

Transmit: Enabled

Interface: eth0

VLAN: None

Remote Host:

Alternate Remote Host:

Remote Port: 2088

Stream ID:

Password:

Ignore TLS Certificate Error: Do Not Ignore

Maximum Latency (ms): 4000

Encryption Mode: Disabled

Encryption Key: .....

Maximum Bitrate (Mbps): 8

FEC Overhead (%): 30

TS Packets Mode: Auto

TS Packets Per Zixi Packet: 7

Bonding Mode: Disabled

Interface ↑	Bandwidth Limit(Mbps)	Priority
-------------	-----------------------	----------

### Zixi Output Settings

Settings	Range	Description
<b>Remote Host</b>	xxx.xxx.xxx.xxx Domain Name	Defines the host of the remote broadcast using an IP address or domain name
<b>Alternate Remote Host</b>	xxx.xxx.xxx.xxx Domain Name	Defines the alternate host of the remote broadcast using an IP address or domain name
<b>Remote Port</b>	0 – 65535	Defines the port of the stream on the remote device
<b>Stream ID</b>	User entry	Defines the Zixi stream ID to be transmitted
<b>Password</b>	User entry	Provides the password to allow specific Stream ID entered to be received
<b>Ignore TLS Certificate Error</b>	Do Not Ignore Ignore	Defines whether to cease or continue processing if TLS Certificate Error is signaled
<b>Maximum Latency (ms)</b>	30 – 10,000	Defines the maximum latency or buffer size (in milliseconds)

<b>Encryption Mode</b>	Disabled AES-128 AES-192 AES-256 Automatic	Defines which encryption standard to use or if the OHP-IP-00 will automatically detect this
<b>Encryption Key</b>	User entry	The key to be used by downstream decryption devices
<b>FEC Overhead (%)</b>	0 – 50	Defines the amount of static overhead to be used to accommodate FEC
<b>TS Packets Mode</b>	Auto Manual	In <i>Auto</i> mode, the source will define the number of TS packets per Zixi packet. In <i>Manual</i> mode, the user will define the number of TS packets per Zixi packet.
<b>TS Packets per Zixi Packet</b>	1 – 7	User defined value for when <i>Manual</i> mode is enabled.
<b>Bonding Mode</b>	Disabled All interfaces One Interface Any Interface	Specifies which interfaces, if any, are to be set to bonding mode.
<b>Interface Bonding Box</b>	Available for One Interface Mode Any Interface Mode	Allows user to define parameters and details about the port(s) when bonding



Zixi transmissions can be configured to use multiple interfaces simultaneously (Port Bonding). By defining the maximum bitrate for that interface, the unit will only send up to that rate on that interface. A Primary and Backup interface may also be chosen if redundant links should be used.

Interface ↑	Bandwidth Limit(Mbps)	Priority
Internal	8	Primary
eth0	8	Primary
eth1	8	Primary
eth2	8	Primary


Interface ↑	Bandwidth Limit(Mbps)	Priority
Internal	8	Primary ▾
eth0	8	Primary
eth1	8	Backup
eth2	8	Primary

### Interface Bonding Boxes


Click the  icon by the Zixi input to view information about the incoming stream. Clicking the  icon will hide the Zixi Output statistics.





**Zixi Output Statistics**

The  button is used to reset all the statistics for incoming Zixi packets and establish a new point of reference.

## Additional Receive Instances

Each gateway can be configured for multiple input instances. To add an additional receive instance, click on the  button in the top left corner of the gateway section. The gateway configuration window will open with a new "Input 2" tab, offering the same settings as the initial input tab.

Removing a channel from the configuration can be done by clicking on the  button located at the right side of the channel ribbon. Any configured input instance can also be removed by clicking on the  button located within the input row. When either of the icons is clicked, the system will prompt the user with confirmation of intent to remove the item from the configuration.

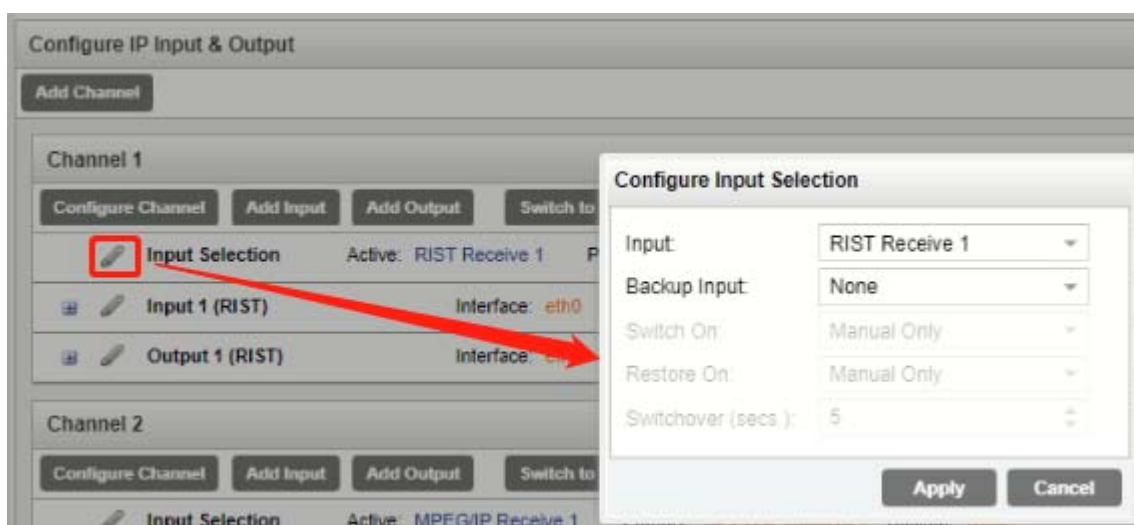
Only one additional input instance can be added, so the option becomes gray as shown below after the second path is added.



**Multiple Input Instances**

## Configuring Active Inputs and Failover

When two input instances are configured, only one of them can be assigned to the output instances. The Input Selection menu is used to determine which receive instance is the primary and backup.



Settings	Range	Description
<b>Input</b>	Input 1 Input 2	Used for both normal operation and input failover settings. During normal operation, this input will be the active input
<b>Backup Input</b>	Input 1 Input 2	During failover operation this input will become the active input. The catalyst for the unit to switch to this input is configured in the following setting.
<b>Switch On</b>	Manual Only TS Sync Loss	Choose the event that triggers the switch from the primary to the backup input
<b>Restore On</b>	Manual Only Primary Input TS Restored Backup Input TS Sync Loss	Choose the event that triggers a switch back to the primary input
<b>Switchover (secs)</b>	1 – 20	The amount of time the gateway must remain in the “Switch On” or “Restore On” state before automatic failover or switchback occurs

Clicking the **Switch to Backup Input** option under the channel will prompt the user for confirmation of intent to change the input instance assigning the output instances to source from input instance 2. Clicking **Switch to Primary Input** will assign the output instances to return to sourcing from input instance 1.



Channel 1					
Configure Channel		Add Input	Add Output	Switch to Backup Input	Remove
Input Selection		Active: RIST Receive 1 Primary: RIST Receive 1 Backup: None			
Input 1 (RIST)	Interface: eth0	255.255.255.255:65535	✖	0.000 Mbps	●
Output 1 (RIST)	Interface: eth0	Connecting to 1.0.0.1:10000 on port 3020	✖	0.000 Mbps	●

## Active Backup Input

### Additional Transmit Instance

The OHP-IP-00 will allow the user to configure a single channel for multiple output paths. To add an additional output path, click on the **Add Output** button in the top left corner of the Channel section. The channel configuration window will open with an additional “Output 2” tab. The new tab will offer the same settings as the initial output tab.





Removing a channel from the configuration can be done by clicking on the **Remove** button located at the right side of the Channel ribbon. Any configured output path can also be removed by clicking on the ✖ button located within the output row that the user wishes to remove. When either of the icons is clicked, the system will prompt the user with confirmation of intent to remove the item from the configuration.

Which input instance the output instances will source from is dependent on the settings.

Channel 1					
Configure Channel		Add Input	Add Output	Switch to Primary Input	Remove
Input Selection		Active: MPEG/IP Receive 2 Primary: RIST Receive 1 Backup: MPEG/IP Receive 2			
Input 1 (RIST)	Interface: eth0	255.255.255.255:65535	✖	0.000 Mbps	●
Output 1 (RIST)	Interface: eth0	Connecting to 1.0.0.1:10000 on port 3020	✖	0.000 Mbps	●
Input 2 (MPEG/IP)	Interface: eth0	239.192.0.200:10000	FEC: Not Present ✖	0.000 Mbps	●
Output 2 (MPEG/IP)	Interface: eth0	239.192.0.202:10000	✖	0.000 Mbps	●

### 3.3.27.3 Logs



Clicking the Logs tab will redirect the user in the Reporting Control Panel. The Reporting control panel in the OHP-IP-00 module will provide the user with a list of active alarms, as well as a means to log the detected events. Active alarms are constantly updated to reflect the real-time state of the unit. Once an error is no longer detected, it will be cleared from the active alarms window. The log files can be used to view alarm and event history. Both the active alarm and event logs can be configured for specific behavior based upon the user's needs.

Basic Setting <b>Logs</b> System			
Reporting Control Panel			
Alarms <b>Logs</b>		Configure	
State	Name	Location	Last Changed
	Transport Stream Not Present	Gateway Receive 1 (Gateway 1)	2012-06-03 07:39:18
	Transport Stream Not Present	Gateway Receive 2 (Gateway 2)	2021-09-27 07:13:27
	RIST Receive Connection Error	Gateway Receive 1 (Gateway 1)	2021-09-27 07:10:28
	RIST Transmit Connection Error	Gateway Transmit 1 (Gateway 1)	2021-09-27 07:10:28

## Alarms

Basic Setting <b>Logs</b> System			
Reporting Control Panel			
<b>Alarms</b> <b>Logs</b>		Configure	
State	Name	Location	Last Changed
	Transport Stream Not Present	Gateway Receive 1 (Gateway 1)	2012-06-03 07:39:18
	Transport Stream Not Present	Gateway Receive 2 (Gateway 2)	2021-09-27 07:13:27
	RIST Receive Connection Error	Gateway Receive 1 (Gateway 1)	2021-09-27 07:10:28
	RIST Transmit Connection Error	Gateway Transmit 1 (Gateway 1)	2021-09-27 07:10:28

Clicking on the Alarms button displays the Active Alarms menu. This list displays all of the active alarms currently being reported by the unit. There are four columns in the log that display different types of information

Alarms	
Column Name	Description
<b>State</b>	<p>This area displays an icon that will signify the importance of the event</p> <p>The  icon means the message is Informational and no error has been detected.</p> <p>The  icon means the message is an Alarm and the unit status has been set to 'Error'</p>
<b>Name</b>	This column displays the description of the detected instance.
<b>Location</b>	This column displays the hardware or function that is experiencing the active error.
<b>Last Changed</b>	<p>This column displays the data and time the error was raised.</p> <p>Timestamps here are determined with the Date and Time settings configured in the Time tab under System Setting of the CMP</p>

	baseboard
--	-----------

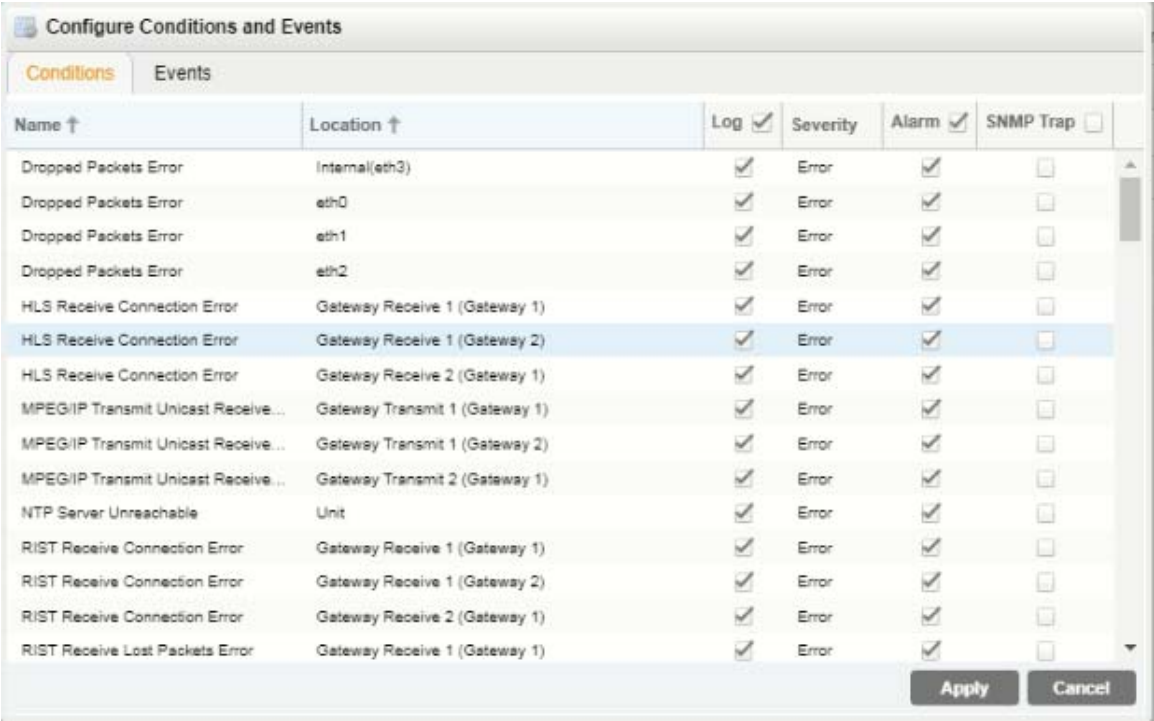
Configuring the Alarms

The OHP-IP-00 module monitoring points are divided into Conditions and Events and are managed separately. Configuration of these is done by clicking on the configuration cog in either the Alarms or Logs window.



Conditions

These instances are monitored within specific hardware and stream processing paths. How the OHP-IP-00 module responds to the detection of the instance can be configured. Three 'checkbox' columns allow the user to define the system response. The checkbox at the top of the column can be used to enable or disable all instances in that column.



Logs	
Column Name	Description
Name	Defines the error message that will be provided if the instance is detected.
Location	This shows the user the specific hardware or stream processing path where the instance is detected.

<b>Log</b>	A checked box defines which instances will be recorded to the log file
<b>Severity</b>	A dropdown box within the row allows the user to define the instance as an Error or Information event.
<b>Alarm</b>	A checked box defines which instances will raise an Alarm condition on the unit. This will cause the Error LED on the front of the unit and in the web client to illuminate.
<b>SNMP Trap</b>	A checked box defines which instances will trigger the OHP-IP-00 to send trap messages.

The APPLY button at the bottom of the window will commit the settings changes to the system, while the CANCEL button will ignore any settings changes and close the configuration window.

## Events

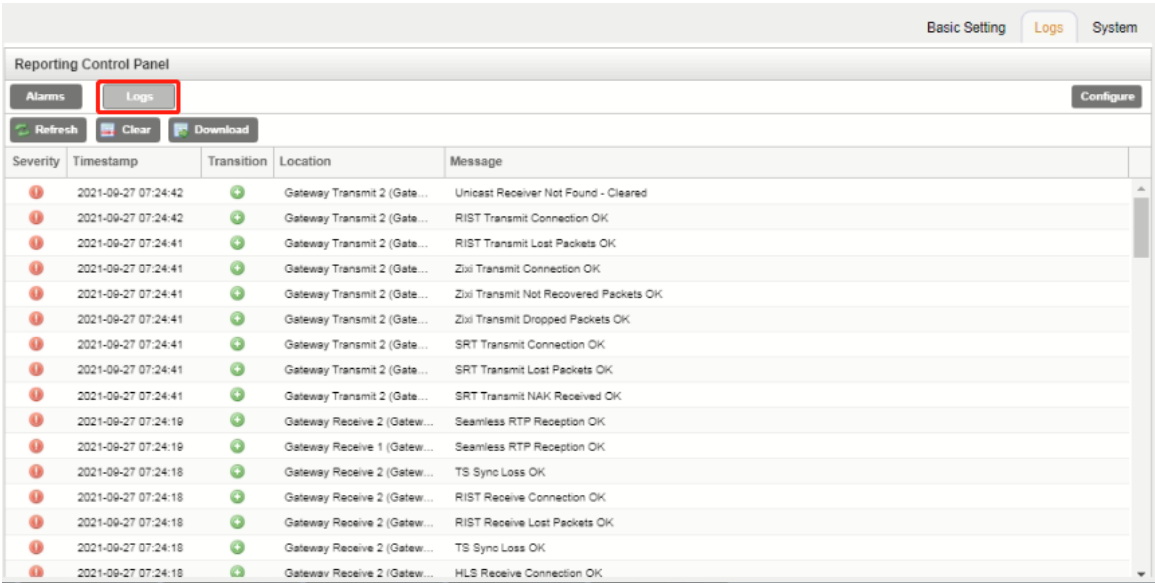
These instances are global to the system because they will have an impact on all hardware and stream processing areas of the OHP-IP-00 module. These instances can only be configured to be recorded in the log file and/or to be sent as SNMP Trap messages.

Name ↑	Location ↑	Log <input checked="" type="checkbox"/>	SNMP Trap <input type="checkbox"/>
Date/Time Changed	Unit	<input checked="" type="checkbox"/>	<input type="checkbox"/>
NTP Updated	Unit	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Software Update Failed	Unit	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Software Update Succeeded	Unit	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Unit Booted	Unit	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Events	
Column Name	Description
<b>Name</b>	Defines the error message that will be provided if the instance is detected.
<b>Location</b>	This will always be "Unit" since these instances are global

<b>Log</b>	A checked box defines which instances will be recorded to the log file.
<b>SNMP Trap</b>	A checked box defines which instances will trigger the OHP-IP-00 module to send a trap message.






Event Logs



The Logs window provides the user a display of the log file and management tools to streamline the data returned. There are three buttons that will manage the log file.

<b>Refresh</b>		Prompts the OHP-IP-00 to update the displayed logs.
<b>Clear</b>		Clears the log file.
<b>Download</b>		Exports the log file as a “.csv” extension file to the pc.

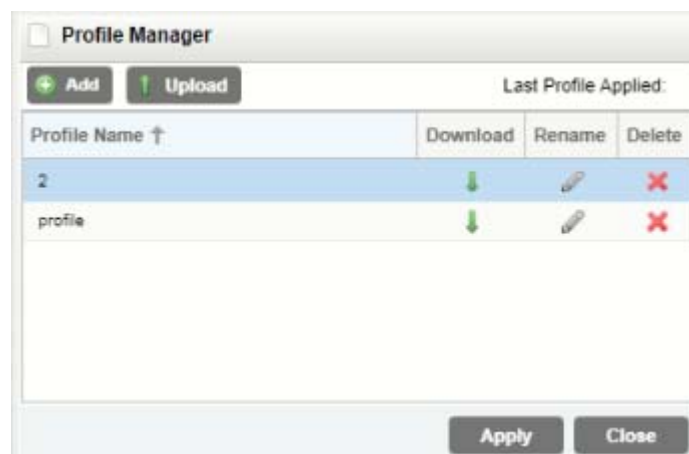
The log file itself is made up of five columns that explain each event, when it occurred, and the area of the system where the event was detected.

Column Name	Description
Severity	The  Info icon means the message is Informational and no error has been detected. The  Error icon means the message is an Alarm and the unit status has been set to 'Error'.
Timestamp	This is the OHP-IP-00 module associated date and time of the instance.
Transition	The  Went Bad icon means the instance entered into an Error state. The  Went Good icon means the instance entered into a Clear state. The  Event icon means a single point instance (such as NTP Time was updated) took place.
Location	Defines the hardware or function that experienced the alarm or event.
Message	This displays the description of the specific path that experienced the instance.

## Configuring the Logs



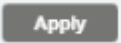



Configuration of the logs will provide the user with the same configuration options as covered in the **Configuration of the Alarms**.

### 3.3.27.4 System Settings



The OHP-IP-00 has the ability to save all configured settings to multiple profiles. Profiles can be saved locally, renamed and saved to external storage to be used on other OHP-IP-00 modules.

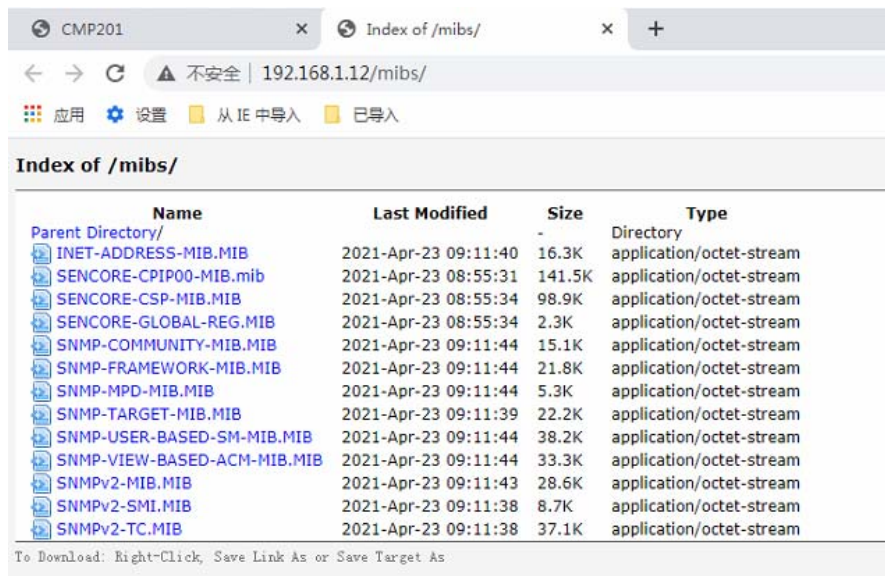
Profiles can be used to quickly and easily change the configuration of the module to suit different inputs and decoding requirements.

<b>Add New Profile</b>		Used to create or add a new profile to the profile list
<b>Upload Profile</b>		Used to upload a profile to the module from the user pc
<b>Apply Profile</b>		Used to apply a profile selected from profile list
<b>Rename Profile</b>		Used to edit the selected profile name
<b>Delete Profile</b>		Used to delete a profile from the profiles list
<b>Download Profile</b>		Used to download a profile selected from the list to the user pc

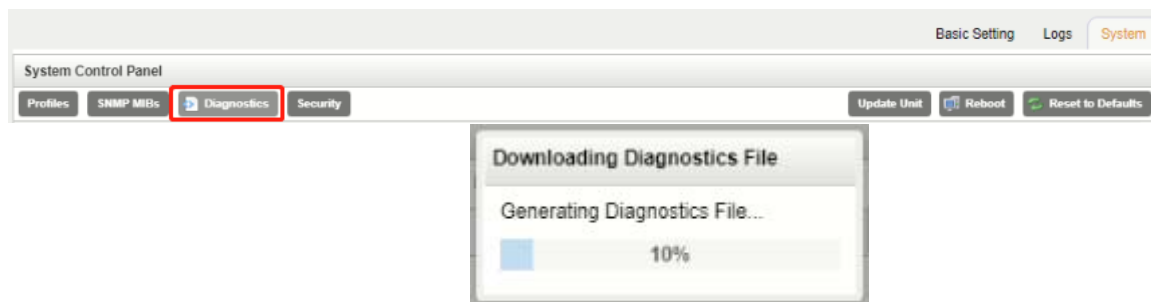
## SNMP MIB files



The SNMP MIB files for the OHP-IP-00 can be obtained by clicking on the SNMP MIBs button at the top of the page. This will open a new tab within the current web browser and give the user a list of all available MIB files. Directions on how to save them to an external storage location are provided at the bottom of the list.



## Diagnostics



The OHP-IP-00 provides the user the ability to take a snapshot of the ALL current unit settings, reported values, active alarms, and the alarm and log file history. This snapshot will be downloaded as an .XML format file that can be attached in an email or opened for viewing. Click the 'Diagnostics' button and a window will open showing the diagnostic file creation progress.

This window is replaced with a download file window when file creation is complete. The user will be asked to 'Open' or 'Save' the file. Selecting the Save option will download the .XML file to the pc 'downloads' location.

## Security










The Security is used to configure self-signed certificate information.


Additionally, using public and private keys, this menu is used to enable DTLS encryption and decryption on RIST receive and transmit instances.

 The image shows a 'Security Manager' window. It has a title bar with a lock icon and the text 'Security Manager'. The main content area is titled 'Certificate Signing Request'. It contains several text input fields: 'Country Name' (filled with 'US'), 'State or Province Name' (filled with 'Delaware'), 'Locality Name' (filled with 'Wilmington'), 'Organization Name' (filled with 'Sencore Inc'), 'Organizational Unit Name' (empty), 'Common Name' (empty), and 'Email Address' (empty). Below these fields is a 'Certificate Signing Request File Name:' label. To the right of this label are four buttons: 'Generate' (grey), 'Download' (blue), 'Delete' (blue), and 'Delete' (blue). At the bottom of the window, there are three more labels: 'Local Certificate File:', 'Local Private Key File:', and 'Remote Certificate File:'. To the right of each label is an 'Upload' button with an upward arrow icon.

## Security Manager Menu



Settings	Range	Description
<b>Name</b>	User entry	Country Name for generated CSR file
<b>State or Province Name</b>	User entry	State/Province Name for generated CSR file
<b>Locality Name</b>	User entry	Locality Name for generated CSR file
<b>Organization Name</b>	User entry	Organization Name for the generated CSR file
<b>Organizational Unit Name</b>	User entry	Organizational Unit Name for the generated CSR file
<b>Common Name</b>	User entry	Common Name for the generated CSR file
<b>Email Address</b>	User entry	Email Address for reference on the generated CSR file
<b>Generate New CSR File</b>		This icon will generate a new Certificate Signing Request file (CSR) using the configured IP from eth0 for the CSR file name. Additionally, the Security Manager will generate a local private key file to be used with the downstream
<b>Download Generate CSR File</b>		This icon will download the locally generated CSR file onto a remote machine
<b>Delete Old CSR File</b>		This icon will delete the locally generated CSR file
<b>Delete Old Local Private Key File</b>		This icon will delete the locally generated private key file
<b>Local Certificate File</b>		Use this icon to upload the local certificate file
<b>Local Private Key File</b>		Use this icon to upload the local private key file
<b>Remote Certificate File</b>		Use this file to upload the remote certificate file

Upon clicking , the system will generate a new CSR file and local private key for use with the downstream receiver.

Certificate Signing Request File Name:	
Generate New CSR File:	<button>Generate</button>
Download Generate CSR File:	<button>Download</button>
Delete Old CSR File:	<button>Delete</button>
Delete Old Local Private Key File:	<button>Delete</button>

Local Certificate File:	<button>Upload</button>
Local Private Key File:	<button>Upload</button>
Remote Certificate File:	<button>Upload</button>

## Updating the System Software

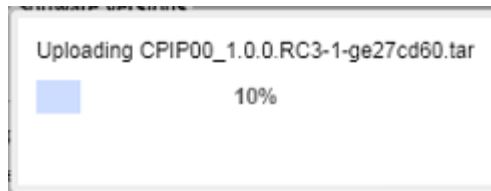




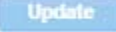
Updates to the OHP-IP-00 are performed through the web interface. A software update file is provided by Wellav and then uploaded to the unit. To request the latest software version or a copy of the release notes please contact our after-sales technical support team. The 'Update Unit' button is in the top right corner of the System Control Panel. When opened this feature will allow the user to advance the software version the OHP-IP-00 operates on, or rollback the software version that the module operates on.

The 'Update Unit' dialog box has two tabs: 'Update' (selected) and 'Rollback'. Under 'Software Versions', it shows 'Current Version: 1.0.2' and 'Uploaded Version: none'. Below this are three buttons: 'Upload Software Update:' (with an 'Upload' button), 'Delete the Uploaded Software:' (with a 'Delete' button), and 'Update Software to Uploaded Version:' (with an 'Update' button). At the bottom are 'Apply' and 'Cancel' buttons.

### Applying software updates

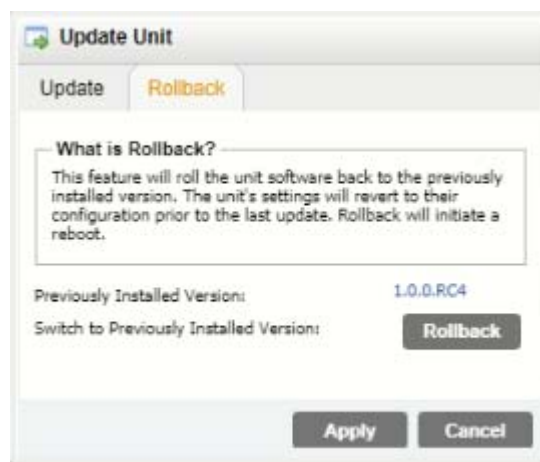
1. Click Upload button and browse to the appropriate software file
2. A progress bar will show uploading status
3. Once the file is uploaded click on Yes when prompted to update
4. The module will reboot after a software update is complete.



Upload Software Update		To upload software updates to OHP-IP-00 module, click this button. The user will be prompted to navigate to an update file. The file will then upload to the module. When completed, the module will prompt the user to either apply the update or cancel
Delete the Uploaded Software		Clicking this button prompts the user to confirm the deletion of the software update from the OHP-IP-00 module. This will also clear the Uploaded Version status of the Software Versions section.
Update Software to Uploaded Version		Clicking the button starts the software update process. The OHP-IP-00 module will prompt the user to confirm the update. Click Yes to continue or No to cancel.

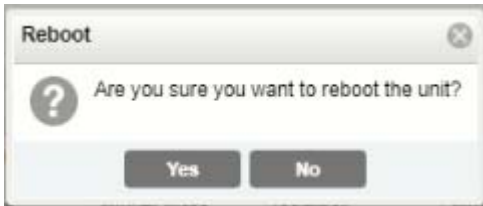
## Rollback Software Updates

The OHP-IP-00 module is capable of reverting back to a previous version of software using the Rollback feature. The OHP-IP-00 accomplishes this by maintaining two separate software images; one is the most current version of software with all current settings and the other is the previous version of software with all of the previous settings. To perform a rollback, click the Update Unit button and then click the Rollback tab. The module will reboot after the rollback process is complete.



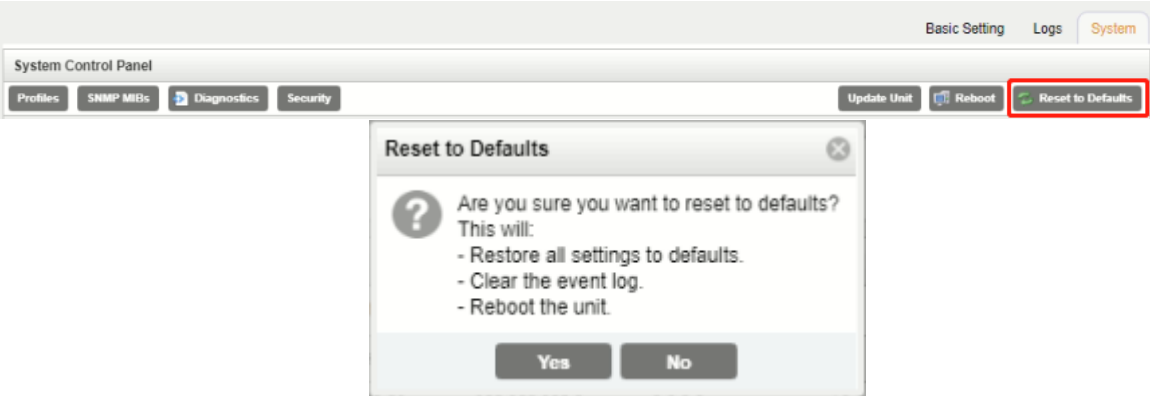
## Reboot the Unit





The OHP-IP-00 module can be rebooted from the web interface System page. The ‘Reboot’ button is located in the top right corner of the System Control Panel. To perform a reboot, click the reboot button. The system will prompt the user to confirm the reboot request. Once confirmed, a status window with a progress bar will open be visible until the reboot is complete and the login window displayed.

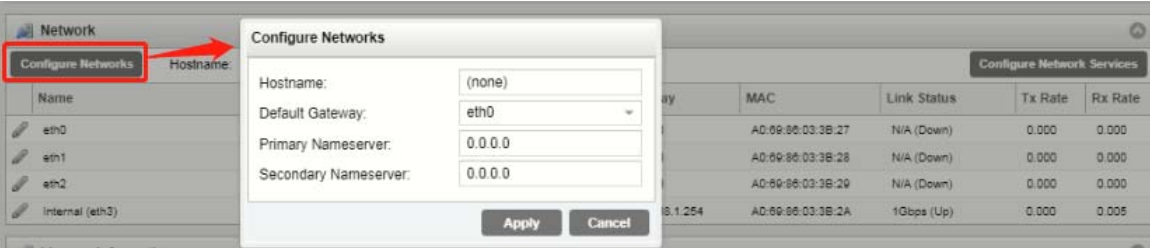
**Reset to Defaults**



The OHP-IP-00 module settings can be reset to factory defaults. All settings will be returned to the factory defaults **except** the network management ports TCP/IP settings. All event logs will be cleared. To reset all settings to default, click the Reset to Defaults button on the System page. The module will prompt the user to confirm the reset.

**Configuring the Unit Networks and VLANs**

The OHP-IP-00 module can be assigned a Hostname and DNS servers. To access this menu, click on the Configure Networks gear icon. Within the window that opens, the user can assign a Hostname to the module, define which physical port (Eth0, Eth1, Eth2, Internal) the Default Gateway will use [The web-interface is accessible from the IP address of either Ethernet port; however, be sure to configure the two ports for separate subnets.], and provide addresses for Primary and Secondary Nameservers.



	Available Selections	Descriptions
--	----------------------	--------------

Setting		
Hostname	Alphanumeric, no spaces allowed	Defines optional system name
Default Gateway	Eth0, Eth1, Eth2, Internal	Defines which physical port gateway address is to be used
Primary Nameserver	xxx.xxx.xxx.xxx	IP address of Primary (DNS) nameserver
Secondary Nameserver	xxx.xxx.xxx.xxx	IP address of Secondary (DNS) nameserver


### Management and Video/IP Ports

Each of the three physical NICs and one internal NIC are identical in every way; either one can be configured for the management or Video/IP networks. As shown below, clicking the gear icon will open the settings for each NIC, including the name of the port, IP address and VLAN options. After finishing changes, click the apply button.



Setting	Available Selections	Descriptions
Interface Name	User Entered (eth0/eth1/eth2/Internal)	User defined port names
Mode	DHCP, Static	DHCP allows network server to provide IP address  Static requires the user to define the IP address to be used
IP Address	xxx.xxx.xxx.xxx	Static mode IP address entry
Subnet Mask	xxx.xxx.xxx.xxx	Static Mode subnet mask entry

<b>Gateway</b>	xxx.xxx.xxx.xxx	Static Mode gateway entry
----------------	-----------------	---------------------------

To add a VLAN to the NIC, click the  icon to bring up the “Add VLAN” menu as shown on the next page.





The "Add VLAN" dialog box contains the following fields:

- VLAN Name: VLAN 1
- VLAN Tag ID: 1
- IP Address: 192.168.1.1
- Subnet Mask: 255.255.255.0
- Gateway: 0.0.0.0

Buttons: OK, Cancel

Setting	Available Selections	Descriptions
<b>VLAN Name</b>	User Entered	User defined VLAN names
<b>VLAN Tag ID</b>	1 - 4094	The VLAN tag to be assigned to outgoing streams and filtered for incoming streams
<b>IP Address</b>	xxx.xxx.xxx.xxx	Static mode IP address entry
<b>Subnet Mask</b>	xxx.xxx.xxx.xxx	Static Mode subnet mask entry
<b>Gateway</b>	xxx.xxx.xxx.xxx	Static Mode gateway entry

After clicking “OK” to finish configuring the newly created VLAN, it will appear on the VLAN list as seen in the figure below. To remove individual VLANs, click the blue  icon in the corresponding row. To remove all created VLANs, click the  button.

### Configuring Network Services

Both Physical NICs can have specific features enabled for functionality or disabled for security.

To configure these settings, click on  the as indicated in the figure below.



The Network configuration bar shows:

- Configure Networks
- Hostname: (none)
- Default Gateway: eth0
- Primary Nameserver: 0.0.0.0
- 

The “Configure Network Services” menu will then be shown. These are the default settings that allow for web access, ICMP contact through pinging and general stream input and output traffic. To enable or disable further settings, click to check the leftmost box as well as the box corresponding to the physical NIC (eth0, eth1, eth2,eth3) in the row of the intended service.

Configure Network Services								
<input type="checkbox"/>	Service ↑	Protocol	Port	eth0 <input type="checkbox"/>	eth1 <input type="checkbox"/>	eth2 <input type="checkbox"/>	eth3 <input type="checkbox"/>	
<input checked="" type="checkbox"/>	HTTP	TCP	80	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	ICMP	ICMP	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	SNMP	UDP	161	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	SNMP Traps	UDP	162	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	SSH	TCP	22	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	Stream I/O	N/A	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	Syslog	UDP	514	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Service	Protocol	Port	Descriptions
HTTP	TCP	80	Allows access to the web interface via browser
ICMP	ICMP	N/A	Allows access to ICMP responses (such as pinging)
SNMP	UDP	161	Allows SNMP GET/SET commands
SNMP Traps	UDP	162	Enables SNMP traps to send upon system change
SSH	TCP	22	Allows for SSH access through port 22
Stream I/O	Unknown	N/A	Enables and disables all stream traffic for the physical interface (Zixi, MPEG/IP, SRT, HLS)
Syslog	UDP	514	Allows configuration of a syslog server for state triggered messages.

### License Information

Certain features of the OHP-IP-00 require licenses in order to be functional. The interface displays all licenses available as well as the following status:

- License Locked or Unlocked
- License is Supported or Unsupported by the installed hardware•

If licenses need to be applied to the module, click Apply License Key button. The menu below will appear where the user can copy and paste the provided license key from Sencore.

# Section 4 Appendices



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## APPENDIX A – Power Consumption

OMNIHUB-16 Power supply	350W
OMNIHUB-6D-02/6RFX-02/6-02 Power supply	400W
OMNIHUB-6/6D/6RFX Power supply	200W
OMNIHUB-6 Chassis	Max.21W
OMNIHUB-6D-02 Chassis	Max.45W
OMNIHUB-6-02 Chassis	Max.44W
OMNIHUB-6D Chassis	Max.23W
OMNIHUB-6RFX Chassis	Max.37W
OMNIHUB-6RFX-02 Chassis	Max.59W
OMNIHUB-16 Chassis	Max.72W
OHR6-DVBC-00:DVBC AnnexA/C	Max.9W
OHR6-DVBC-00:DTMB	Max.9W
OHR6-DVBC-01:DVBC AnnexB	Max.9W
OHR6-DVBC-01:ISDB-T	Max.9W
OHR6-DVBS2FTA-01	Max.38W
OHR6-DVBS2FTA-01A	Max.70W
OHR6-DVBS2CI-01	Max.22W
OHR6-DVBT2CI-00	Max.8W
OHR6-8VSB-00	Max.9.5W
OHM6-8VSB-R01/R01A	4CH: Max.12W; 8CH: Max.14W
OHM6-DTMB-R01/R01A	4CH: Max.12W; 8CH: Max.14W
OHM6-OFDM-R01/R01A	4CH: Max.12W; 8CH: Max.14W
OHM6-QAMB-R01/R01A	4CH: Max.12W; 8CH: Max.14W
OHM6-QAMA-R01/R01A	4CH: Max.12W; 8CH: Max.14W
OHM6-ISDB-T-R01/R01A	4CH: Max.12W; 8CH: Max.14W
OHM6-QAMA-02/02A	Max.41W
OHM6-DTMB-03	Max.23W
OHM6QAMA-03	Max.23W
OHM6-QAMB-03	Max.24W
OHM6-OFDM-03	Max.23W
OHM6-ISDBT-03	Max.23W
OHM6-8VSB-03	Max.23W
OHM6-QAMB-02A	Max.41W
OHM6-QAMA/B-R00	Max.21W

OHE6-HDMI-R01	Max.12W
OHE6-HDMI-02C	Max.17W
OHE6-HDMI-02	Max.17W
OHE6-HDMI-05A	Max.21W
OHE6-HDMI-R05	Max.19W
OHE6-HDMI-06	Max.20W
OHE6-SDI-01	Max.16W
OHE6-CVBS-00	Max.17W
OHE6-CVBS-R01	Max.18W
OHP6-EAS-00	Max.5.5W
OHP6-IP-00	Max.16W
OHP6-IP-02	Max.9W
OHP6-ASI-00	Max.8W
OHP6-CAM-00	Max.6W
OHP6-EIT-00	Max.5W
OHX6-TXS-00	Max.49W
OHD6-SDI-00	Max.25W

Comments: The chassis includes both the baseboard's and fan's

## APPENDIX B - Acronyms and Glossary

<b>AAC</b>	Advanced Audio Coding
<b>AC-3</b>	Also known as Dolby Digital
<b>AES</b>	Audio Engineering Society
<b>ATSC</b>	Advanced Television Systems Committee
<b>AV</b>	Audio Video
<b>BAT</b>	Bouquet Association Table
<b>BER</b>	Bit Error Ratio
<b>Bit Rate</b>	The rate at which the compressed bit stream is delivered
<b>BNC</b>	British Naval Connector
<b>CAM</b>	Conditional Access Module
<b>CAT</b>	Conditional Access Table
<b>CBR</b>	Constant Bitrate
<b>CI</b>	Common Interface
<b>CVBS</b>	Composite Video Broadcast Signal
<b>dB</b>	Decibel
<b>DVB</b>	Digital Video Broadcasting
<b>EAS</b>	Emergency Alert System
<b>EIT</b>	Event Information Table
<b>EPG</b>	Electronic Program Guide
<b>FEC</b>	Forward Error Correction
<b>GOP</b>	Group of Pictures
<b>HD</b>	High Definition
<b>HDCP</b>	High-bandwidth Digital Content Protection
<b>HDMI</b>	High Definition Multimedia Interface



The terms HDMI, HDMI High-Definition Multimedia Interface, and the HDMI Logo are trademarks or registered trademarks of HDMI Licensing Administrator, Inc.

<b>Kbps</b>	1000 bit per second
<b>LED</b>	Light Emitting Diode
<b>LNB</b>	Low-Noise Block
<b>Mbps</b>	1,000,000 bits per second
<b>MER</b>	Modulation Error Ratio
<b>MPEG</b>	Refers to standards developed by the ISO/IEC JTC1/SC29 WG11, Moving Picture Experts Group. MPEG may also refer to the Group.
<b>MPEG-2</b>	Refers to ISO/IEC standards 13818-1 (Systems), 13818-2 (Video), 13818-3 (Audio), 13818-4
<b>MPTS</b>	Multi-program Transport Stream
<b>NIT</b>	Network Information Table
<b>OFDM</b>	Orthogonal Frequency-Division Multiplexing
<b>PAT</b>	Program Association Table
<b>PCR</b>	Program Clock Reference
<b>PID</b>	Packet Identifier
<b>PMT</b>	Program Map Table

<b>PSI</b>	Program Specific Information
<b>PSU</b>	Power Supply Unit
<b>QAM</b>	Quadrature Amplitude Modulation
<b>QPSK</b>	Quadrature Phase-Shift Keying
<b>SD</b>	Standard Definition
<b>SDT</b>	Service Description Table
<b>SI</b>	Service Information
<b>SNMP</b>	Simple Network Management Protocol
<b>SNR</b>	Signal Noise Ration
<b>SPTS</b>	Single Program Transport Stream
<b>TDT</b>	Time and Date Table
<b>TS</b>	Transport Stream
<b>VBR</b>	Variable Bitrate

## APPENDIX C - A Monroe OneNetSE Configuration and Testing

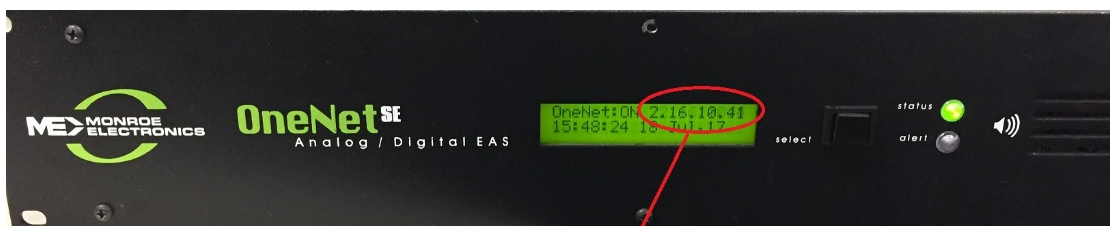
For development and testing purposes, the Monroe OneNetSE will be used to supply the SCTE18 messages and the EAS substitutions audio and video. The Monroe box will need to be configured in a very specific way in order to work with the proposed OmniHub 6/6D EAS features.

### External Configuration

1. The first step is to connect an Ethernet cable to the unit and supply power. Turn on the unit using the switch on the back. The unit is configured for DHCP on the management port. If a static IP needs to be assigned, this will need to be done according to the Monroe manual.
1. Connect the CVBS video and analog-unbalanced audio to an encoder module. Outputs shown in the picture below will be where the video and audio substitutions will come out.



2. Once the unit boots, the front panel display will show the DHCP IP address of the Monroe box. Use this IP address to access the unit with a web browser.



IP Address scrolls across the screen

## Webpage Configuration

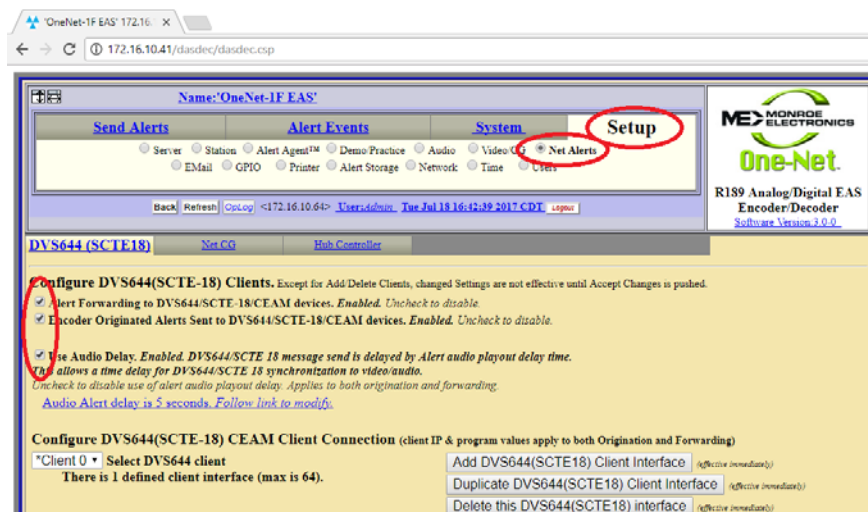
1. The webpage for the Monroe box requires login. The Monroe box has been configured with this login information (The capital "A" in the username is required):

User: Admin

Password: sencore12



2. Once logged into the unit, browse to the Setup tab and select Net Alerts.
3. Configure the DVS644 (SCTE18) settings in the Monroe exactly like what are shown below. **Enable Alert Forwarding and Encoder Originated Alerts to be sent to DVS644/SCTE18 devices.**



4. A DVS644(SCTE-18) CEAM Client Connection should already be configured. If not, click the **Add DVS644(SCTE18) Client Interface** button.
5. Make sure Client 0 is enabled and then input the unicast **or** multicast address into the "Remote Host Unicast or Multicast IP Address" text box. It is suggested the unicast normally be used, so what should be put in this box is the management IP address of the OmniHub 6/6D. It is also possible to input a multicast address (224.x.x.x – 239.x.x.x).

Client 0 Client Interface Name

☒ **ENABLE Client Interface.** *Enabled. Uncheck to disable client.*

172.16.10.64 Remote Host Unicast or Multicast IP Address 0 Details Video OOB ID

5050 Remote Host Port 0 Details Audio OOB ID

0 Multicast TTL (0..200) 0 Details InBand Major Channel

☐ Advanced DSG Delivery. *Disabled.* 0 Details InBand Minor Channel

*Using Standard MPEG2 Transport Stream Delivery.*

*Check to enable Advanced DSG Delivery.*

☐ In-Band. *Disabled. Using Out-Of-Band PID=1FFC.*

*Check to enable In-Band PID=1FFC.*

☒ Send internal EAT control event at EAN,NPT End of Message. *Enabled. NOTE! This may be REQUIRED for ending force tune during EAN and NPT National alerts by some downstream STBs and other SCTE18 receiving devices!.*

☐ Exception Channel List. *Disabled. Check to enable Exception Channels.*

☐ In-Band Details Channel Descriptor (Tag=0x00). *Disabled. Check to enable In-Band Details Channel Descriptor.*

☐ In-Band Exception Channels Descriptor (Tag=0x01). *Disabled. Check to enable In-Band Exception Channels Descriptor.*

☐ Audio File Descriptor (Tag=0x02). *Disabled. Check to enable Audio File Descriptor.*

☐ MPEG Audio Sync Private Descriptor (Tag=0xE1). *Disabled. Check to enable MPEG Audio Sync Private Descriptor.*

☐ NDS Tune Private Descriptor (Tag=0xE8). *Disabled. Check to enable NDS Tune Private Descriptor.*

☐ Generic Private Descriptor. *Disabled. Check to enable Generic Private Descriptor.*

6. Make sure the "Remote Host Port" is configured to be 5050 as this is the default port for SCTE18 messages and it is not planned to have the OmniHub 6/6 listen for SCTE18 messages on any other port.
7. Also make sure the **In-Band** checkbox is disabled. The OmniHub 6/6 will be using the Out-Of-Band PID = 0x1FFC.
8. Another very important configuration is that the **Alert Repeat Control** must be set to "Always repeat alert send" and the **Alert Message Repeat Period** should be set to 6 seconds.

DVS644 (SCTE18) Net.CG Hub Controller

☐ Generic Private Descriptor. *Disabled. Check to enable Generic Private Descriptor.*

Set Alert type priority selection  
(NOTE: EAN are always 15)

Low:3 ▾ Advisories

Low:3 ▾ Tests

Low:3 ▾ Watches

Medium:7 ▾ Warnings

High:11 ▾ Emergencies

High:11 ▾ National Test

☐ NPT initial duration 120 secs. *Disabled.*  
*Will be 0 like EAN.*

☐ Immediate Start. *Disabled. Alert Start Time on Receiving Device based on Encoder Clock Time.*  
*Check to set immediate start time.*

☐ Multiple Language Alert Text. *Disabled.*

Send Alert Text at all priority levels ☒ Alert Text Control

Always repeat alert send ▾ **Alert Repeat Control**

6 **Alert Message Repeat Period(6-60 seconds)**

☒ Decrement SCTE18 Time remaining with each repeat period (incrs sequence num). *Enabled. Does not apply to EAN or 0 duration NPT.*

2 Alert Message Transmission Duplication Count (1-20)

0 Additional Start Delay Time (seconds).

Start Delay == (Audio Delay if enabled) + Additional Time  
DVS644/SCTE 18 message send delay time = 5 seconds.

0 Duration Extension Time (seconds).

Alert Duration == Audio Duration + Extension Time  
(max total is 120 seconds)

☒ All FIPS codes trigger. *Enabled.* All FIPS locations will trigger DVS644/SCTE-18/CEAM device. *Uncheck to choose specific triggering FIPS.*

☒ All EAS codes trigger. *Enabled.* Alerts with any EAS code will trigger DVS644/SCTE18 send. *Uncheck to choose specific triggering EAS Codes.*

9. Click the Accept Changes button and that should be the last of the configuration.

## EAS Testing with Monroe Box

1. To force the Monroe box to do a test and send an SCTE18 message, press the **Select** button on the front panel of the unit **TWO TIMES**.

This will cause the unit to:

- a. Display an EAS screen on the CVBS video output
  - b. Send two SCTE18 messages
  - c. Start playing the alert audio
2. The SCTE18 messages will continue to be sent during the playing of the EAS audio message every 6 seconds. When the EAS audio message playing is finished, the SCTE18 messages will no longer be sent.
  3. When the OmniHub 6/6 receives the first SCTE18 message on the management port, it should trigger it to replace all services on the output with an encoded version of the Monroe video and audio outputs. 15 seconds after the last SCTE18 is received, the OmniHub 6/6 should return all services to their original content.

## APPENDIX D - Specification

### OmniHub 6/6D - Base unit

Includes -	1RU chassis/case, power supply/line cord
Systems -	
Chassis Dimension	445mm x 44mm x 428mm (W x H xD), 1RU
Front Panel	4 Gigabit Ethernet port
Rear Panel	6 Hot Swappable Slot for 6 modules Single/Dual Power Supplies

### Remote Operation/Update Interface -

Type	Ethernet, 10/100
Front Panel Indicators	Link (Green LED). Activity (Amber LED)
Connector	RJ45

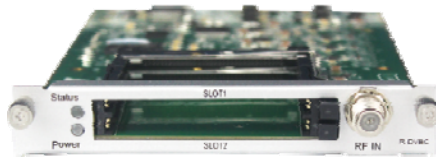
Operating Temperature -	0 to 50°C
Storage Temperature -	-10 ~ 70°C
Operating Humidity -	<95%

### AC Power -

Operating Voltage	100 ~ 240VAC
PSU Max Power	120W
Line Cord	Detachable, 3-prong

### Receiver Module Specification



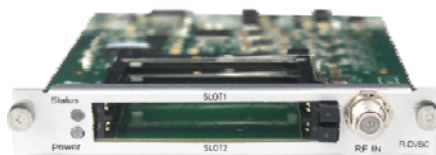


#### DVB-C Receiver

Input	4 channels via 1 RF Female connector
CI	2 x PCMCIA CI slots
CAM	Descrambled channel quantity depends on CAM capability, 2 CAMs could be different
QAM mode	Annex A/C
Frequency Range	47 ~ 862MHz
Bandwidth	6/7/8MHz
Constellation	16QAM / 32QAM / 64QAM / 128QAM / 256QAM
Symbol Rate	3.6 ~ 6.952Ms/s
Signal Level	40~80dBuV
CA system	Supports mainstream CAS

#### DTMB Receiver

Input	4 channels via 1 RF female connector
CI	2 x PCMCIA CI slots
CAM	Descrambled channel quantity depends on CAM capability, 2 CAMs could be different
Modulation Mode	TDS-OFDM
Frequency Range	47~862MHz
Constellation	4QAM-NR / 4QAM / 16QAM / 32QAM / 64QAM
Signal Level	-65~-25dm
CA System	Supports mainstream CAS



#### DVB-C Annex B Receiver

Input	4 channels via 1 RF Female connector
CI	2 x PCMCIA CI slots
CAM	Descrambled channel quantity depends on CAM capability, 2 CAMs could be different
QAM mode	Annex B
Frequency Range	47 ~ 862MHz
Bandwidth	6MHz
Constellation	64QAM, 256QAM
Symbol Rate	5.057Ms/s (64QAM) 5.360Ms/s (256QAM)
Signal Level	40~80dBuV



CA system

Supports mainstream CAS

#### ISDB-T Receiver

Input

4 channels via 1 RF Female connector

CI

2 x PCMCIA CI slots

CAM

Descrambled channel quantity depends on CAM capability, 2 CAMs could be different

Frequency Range

177.143~863.143 MHz

Bandwidth

6/7/8MHz

Constellation

DQPSK, QPSK, 16QAM, 64QAM

FEC

51/2, 2/3, 3/4, 5/6, 7/8, Automatic

Signal Level

-80~-20dBm

CA system

Supports mainstream CAS



#### DVB-S/S2 FTA Receiver

Input

C/Ku Bank, 4 channels via 4 RF female connectors

LNB Power

Independent power supplies for LNB-1 & LNB-3

LNB Current

Max. 400mA

LNB Voltage

13V / 18V

Constellation

QPSK, 8PSK

Frequency Range

950 - 2150MHz

Signal Level

-70~-20dBm

Roll-off Factor

0.15, 0.20, 0.25, 0.35

Symbol Rate

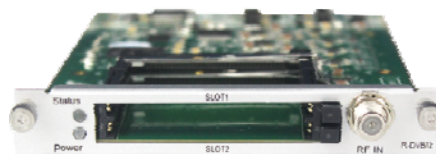
DVB-S: 1~45Msps

DVB-S2: 1~45Msps

FEC

DV-S: 1/2, 2/3, 3/4, 5/6, 7/8

DVB-S2: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10



#### DVB-T/T2 with CI Receiver

Input

4 channels via 4 RF Female connectors

CI

2 x PCMCIA CI slots

CAM

Descrambled channel quantity depends on CAM capability, 2 CAMs could be different

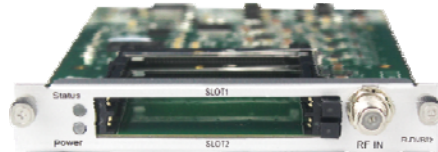
Frequency Range

47 ~ 862MHz

Bandwidth

6/7/8MHz

Constellation	DVB-T: QPSK / 16QAM / 64QAM
Guard Interval	DVB-T2: QPSK / 16QAM / 64QAM / 256QAM
	DVB-T: 1/4, 1/8, 1/16, 1/32
	DVB-T2: 1/4, 1/8, 1/16, 1/32, 1/128, 19/256, 19/128
FFT Size	DVB-T: 2K, 8K
	DVB-T2: 1K, 2k, 4K, 8K, 16k, 32K
Signal Level	-80~-20dBm
CA system	Supports mainstream CAS



#### DVB-S/S2 with CI Receiver Input

	C/Ku Band, 4 channels via 2 RF Female connectors
	CH1 & CH2 via LNB-1
	CH3 & CH4 via LNB-2
LNB Power	Independent power supplies for each LNB
LNB Voltage	13V / 18V
LNB Current	Max. 400mA
CI	2 x PCMCIA CI slots
CAM	Descrambled channel quantity depends on CAM capability, 2 CAMs could be different
Constellation	QPSK, 8PSK
Frequency Range	950 - 2150MHz
Signal Level	-70~-20dBm
Roll-off Factor	0.15, 0.20, 0.25, 0.35
Symbol Rate	DVB-S: 1~45Msps
	DVB-S2: 1~45Msps
FEC	DVB-S: 1/2, 2/3, 3/4, 5/6, 7/8
	DVB-S2: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
CA System	Supports mainstream CAS



#### DVB-S/S2 FTA Receiver Input

	C/Ku Band, 8 channels via 8 RF female connectors
LNB Power	Independent power supplies for LNB-1 & 3, LNB-5 & LNB-7
LNB Current	13V / 18V

LNB Current	Max. 400mA
Constellation	QPSK, 8PSK
Frequency Range	950 - 2150MHz
Signal Level	-70~-20dBm
Roll-off Factor	0.15, 0.20, 0.25, 0.35
Symbol Rate	DVB-S: 1~45Msps DVB-S2: 1~45Msps
FEC	DVB-S: 1/2, 2/3, 3/4, 5/6, 7/8 DVB-S2: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10

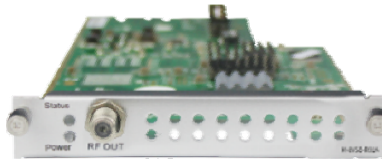


8VSB Receiver	
Input	4 channels via 4 RF Female connectors
Frequency Range	50 - 860MHz
Bandwidth	6MHz
Modulation	8VSB
Signal Level	-80~-20dBm

### Modulator Module Specification



OFDM Modulation	
Output	4/8 frequencies via 1 RF female connector
	75Ω
Standard	ETSI EN 300744
Frequency Range	47 ~ 862MHz
Bandwidth	8MHz
Constellation	QPSK / 16QAM / 64QAM
Guard Intervals	1/4, 1/8, 1/16, 1/32
FFT Size	2K, 8K
Code Rates	1/2, 2/3, 3/4, 5/6, 7/8
Output Level	Max. 105dBuV
MER	≥32dB



### 8VSB Modulation

Output	4/8 frequencies via 1 RF female connector
	75Ω
Standard	ATSC A/35
Frequency Range	50 ~ 860MHz
Bandwidth	6MHz
Constellation	8VSB
Output Level	Max. 105dBμV
MER	≥40dB



### DTMB Modulation

Output	4/8 frequencies via 1 RF female connector
	75Ω
Standard	DTMB GB20600-2006
Frequency Range	47 ~ 862MHz
Constellation	4QAM-NR / 4QAM / 16QAM / 32QAM / 64QAM
Output Level	Max. 105dBμV
MER	>32dB



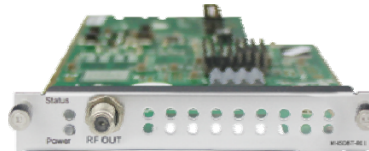
### QAMA Modulation

Output	4/8 frequencies via 1 RF female connector
	75Ω
Standard	ITU-T J.83 Annex A/C
Frequency Range	47 ~ 862MHz
Bandwidth	6/7/8MHz
Constellation	16QAM / 32QAM / 64QAM / 128QAM / 256QAM
Symbol Rate	3.6~6.9Ms/s
Output Level	Max. 105dBμV
MER	≥32dB



### QAMB Modulation

Output	4/8 frequencies via 1 RF female connector 75 $\Omega$
Standard	ITU-T J.83 Annex B
Frequency Range	47 ~ 862MHz
Bandwidth	6/7/8MHz
Constellation	64QAM / 256QAM
Symbol Rate	3.6~6.9Ms/s
Output Level	Max. 105dB $\mu$ V
MER	$\geq$ 32dB



### ISDB-T Modulation

Output	4/8 frequencies via 1 RF female connector, 75 $\Omega$
Standard	ARIB STD-B31
Frequency Range	57 - 860MHz
Bandwidth	6MHz
Constellation	QPSK, 16QAM / 64QAM
Transmission Mode	2K
RS Code	RS (204.188)
FEC	1/2, 2/3, 3/4, 5/6, 7/8
Guard Interval	1/4, 1/8, 1/16, 1/32
Hierarchy Mode	Layer A
Segment Mode	Full Seg
Output Level	Max. 104dB $\mu$ V
MER	$\geq$ 40dB

### Encoder Module Specification



### HDMI Encoder (Commercial)

Input	4 channels via 4 HDMI female connectors (HDMI 1.4)
-------	---

Video	H.264/AVC HD: MP/HP@L4.0/4.1/4.2 SD: MP/HP@L3.0/3.1/3.2
Resolution	SD: 576i50, 480i59.94 HD: 1080p@25/30, 1080i@50/59.94/60, 720p@50/60 *Output supports progressive format only, and resolution support up to 1920*1080p30
Bitrate Control	CBR
Video Bitrate	600 ~ 12,000Kbps
GOP Structure	IPPP
GOP Size	1~99
Aspect Ratio	Automatic or Manual
Audio	MPEG-1 Layer II, AAC (Optional), AC3 (Optional)
Audio Bitrate	32~384Kbps
Audio Mode	Stereo (2.0, including downmix)
Audio Sampling Rate	48KHz
Audio Volume Leveling	-20dB~20dB
OSD Overlay	Text, Image, QR Code



HDMI Encoder (Professional)	
Input	4 channels via 4 HDMI female connectors (HDMI 1.4)
Video	H.264 / AVC HD: MP/HP@L4.0 SD: MP/HP@L3.0 MPEG-2 SD: MP@ML
Resolution	SD: 576i50, 480i59.94 HD: 1080p@25/30/50/59.94/60, 1080i@50/59.94/60, 720p@50/60
Bitrate Control	CBR / VBR
Video Bitrate	1,000 ~ 14,000Kbps
GOP Structure	IBBP, IPPP, IBP
GOP Size	6~63
Aspect Ratio	Automatic or Manual
Audio	MPEG-1 Layer II, AAC (Optional), AC3 (Optional)
Audio Bitrate	32~384Kbps

Audio Mode	Stereo (2.0, including downmix)
Audio Sampling Rate	48KHz
Audio Volume Leveling	-20dB~20dB



HDMI Encoder 02	
Input	2 channels via 2 HDMI or 2 component female connectors (HDMI 1.4)
Video	CC/Component input via DB15 port H.264/AVC HD: MP/HP@L4.0, SD: MP/HP@L3.0 MPEG-2 SD: MP@ML HD: MP@HL
Resolution	SD: 576i50, 480i59.94f HD: 1080p25/30/50/59.94/60, 1080i50/60, 720p50/60 *The maximum output resolution is 1080i60
Bitrate Control	CBR
Video Bitrate	1000 ~ 18,000Kbps
GOP Structure	IBBP, IPPP, IBP
GOP Size	6~63
Audio	MPEG-1 Layer II, AAC (Optional), AC3 (Optional). Support AC2 pass-through and dual audio encoding.
Audio Mode	Stereo (2.0, including downmix)
Sampling Rate	48KHz



HDMI Encoder with CC	
Input	2 channels via 2 HDMI female connectors (HDMI 1.4)
Video	CC via RCA connector H.264/AVC HD: MP/HP@L4.0 SD: MP/HP@L3.0 MPEG-2 SD: MP@ML HD: MP@HL
Resolution	SD: 576i50, 480i59.94 HD: 1080p@25/30/50/59.94/60, 1080i@50/60,

	720p@50/60
	*The maximum output resolution is 1080i60
Bitrate Control	CBR
Video Bitrate	1000 ~ 18,000Kbps
GOP Structure	IBBP, IPPP, IBP
GOP Size	6~63
Audio	MPEG-1 Layer II, AAC (Optional), AC3 (Optional). Support AC3 pass-through and dual audio encoding
Audio Mode	Stereo (2.0, including downmix)
Audio Sampling Rate	48KHz



SDI Encoder	
Input	2 channels via 2 SDI or CVBS SDI or CVBS via BNC connector Audio via phoenix connector
Video	H.264/AVC HD: MP/HP@L4.0, SD: MP/HP@L3.0 MPEG-2 SD: MP@ML HD: MP@HL
Resolution	SD: 576i50, 480i59.94 HD: 1080p@25/30/50/59.94/60, 1080i@50/60, 720p@50/60
	*The maximum output resolution is 1080i60
Bitrate Control	CBR
Video Bitrate	1000 ~ 18,000Kbps
GOP Structure	IBBP, IPPP, IBP
GOP Size	6~63
Audio	MPEG-1 Layer II, AAC (optional), AC3 (optional). Support AC3 pass-through and dual encoding
Audio Mode	Stereo (2.0, including downmix)
Audio Sampling Rate	48KHz



HEVC HDMI Encoder (8-CH)



Input	8 channels via 8 HDMI female connectors (HDMI 1.4)
Video	H.264 / AVC MP/HP@L4.2 H.265 / HEVC MP@L4.1
Resolution	HD: 1080p-29.97 / 30 / 50 / 59.94 / 60 1080i-29.97 / 30 / 50 / 59.94 / 60 720p-50 / 59.94 / 60 SD: 576i-50 576p-50 460i-59.84 / 60 460p-59.84 / 60 *Output supports progressive only, and resolution support up to 1080p30
Bitrate Control	CBR
Video Bitrate	600 ~ 20,000Kbps
GOP Structure	IPPP
GOP Size	1~60
Aspect Ratio	Automatic or Manual
Audio	MPEG-1 Layer II, AAC, AC3
Audio Bitrate	32~192Kbps
Audio Mode	Stereo 2.0
Audio Sampling Rate	48KHz
Audio Volume Leveling	-20dB~20dB
OSD overlay	Text, Image, QR Code



#### HEVC HDMI Encoder (4-CH)

Input	4 channels via 4 HDMI female connectors (HDMI 1.4)
Video	H.264 / AVC MP/HP@L4.2 H.265 / HEVC MP@L4.1
Resolution	HD: 1080p-29.97 / 30 / 50 / 59.94 / 60 1080i-29.97 / 30 / 50 / 59.94 / 60 720p-50 / 59.94 / 60 SD: 576i-50 576p-50 460i-59.84 / 60 460p-59.84 / 60 *Output supports progressive only, and resolution support up to 1080p30
Bitrate Control	CBR
Video Bitrate	600 ~ 20,000Kbps
GOP Structure	IPPP
GOP Size	1~60
Aspect Ratio	Automatic or Manual

Audio	MPEG-1 Layer II, AAC, AC3
Audio Bitrate	32~192Kbps
Audio Mode	Stereo 2.0
Audio Sampling Rate	48KHz
Audio Volume Leveling	-20dB~20dB
OSD overlay	Text, Image, QR Code



#### CVBS Encoder (Commercial)

Input	8 channels via 2 DB15 connectors, each DB15 for 4 channels 2 x RCA-DB15 adaptor cables come along with the module.
Video	H.264/AVC SD: MP/HP@L3.0/3.1/3.2
Resolution	SD: 576i50, 480i59.94
Bitrate Control	CBR
Video Bitrate	600 ~ 6,000Kbps
GOP Structure	IPPP
GOP Size	1~99
Aspect Ratio	Automatic or Manual
Audio	MPEG-1 Layer II
Audio Bitrate	32~384Kbps
Audio Mode	Stereo (2.0, including downmix)
Audio Sampling Rate	48KHz
Audio Volume Leveling	-20dB~20dB
OSD Overlay	Text, Image, QR Code



#### CVBS Encoder (Professional)

Input	6 channels via 2 DB15 connector, each DB15 for 3 channels 2 x RCA-DB15 adaptor cables come along with the module.
Video	H.264/AVC SD: MP/HP@L3 MPEG-2 SD: MP@ML
Resolution	SD: 576i50, 480i59.94
Bitrate Control	CBR
Video Bitrate	1000 ~ 6,000Kbps
GOP Structure	IBBP, IPPP IBP
GOP Size	6~63

Aspect Ratio	Automatic or Manual
Audio	MPEG-1 Layer II
Audio Bitrate	32~384Kbps
Audio Mode	Stereo (2.0, including downmix)
Audio Sampling Rate	48KHz
Audio Volume Leveling	-20dB~20dB



### CVBS Encoder (Professional)

Input	16 channels via 4 DB15 connector, each DB15 for 4 channels 4 x RCA-DB15 adaptor cables come along with the module.
Video	H.264/AVC SD: MP/HP@L3.0/3.1/3.2
Resolution	SD: 576i50, 480i59.94
Bitrate Control	CBR
Video Bitrate	1000 ~ 8,000Kbps
GOP Structure	IPPP
GOP Size	1~99
Aspect Ratio	Automatic or Manual
Audio	MPEG-1 Layer II
Audio Bitrate	32~384Kbps
Audio Mode	Stereo (2.0, including downmix)
Audio Sampling Rate	48KHz
Audio Volume Leveling	-20dB~20dB

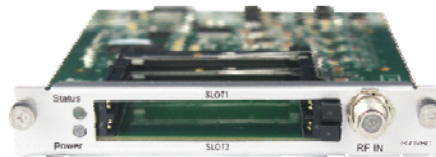
### Function Module Specification



### EAS Processing Module

Input	Digital EAS input (SCTE-18) via 1*RJ45 port Analogue EAS input via 3pin contact closure CVBS input via 1*RCA connector Audio L/R input via 2*RCA connector TS input via 1*BNC connector
Video	H.264 SD: MP/HP@L3.0 MPEG-2 SD: MP @ML (by default)
Resolution	SD: 480i59.94fps
ASI	500Kbps to 100Mbps

Contact Closure	3PIN Connector with dry Contact or 5~12V
RJ45	DC input for EAS trigger 10/100M Ethernet for SCTED-18 digital EAS input
Bitrate Control	CBR
Bitrate	500~8,000Kbps
GOP Structure	IBBP, IPPP, IBP
GOP Size	6~63
Audio	MPEG-1 Layer II, AAC-LC/HE, AC3
Audio Mode	Stereo (2.0, including downmix)
Sampling Rate	48KHz



CI Scrambler/Descrambler	
Standard	EN 50221
Interface	2 x PCMCIA CI Slots
CAM Scrambling	Support Xcrypt CAS
CAM Descrambling	Supports mainstream CAS
	Descrambled channel quantity depends on CAM capability
	2 CAMs could be different

## APPENDIX E - Warranty

Sencore warrants this instrument against defects from any cause, except acts of God and abusive use, for a period of 1 (one) year from date of purchase. During this warranty period, Sencore will correct any covered defects without charge for parts, labor, or recalibration.

## APPENDIX F - Support and Contact information

### 1 Returning for Service or Calibration

The OmniHub 6/6is a delicate piece of equipment and needs to be serviced and repaired by Sencore. Periodically it is necessary to return a product for repair or calibration. In order to expedite this process please carefully read the instructions below.

### 2 RMA Number

Before any product can be returned for service or calibration, an RMA number must be obtained. In order to obtain a RMA number, use the following steps:

1. Contact the Sencore service department by going online to [www.sencore.com](http://www.sencore.com) and select Support.
2. Select Service and Repair from the options given.
3. Fill in the following required information:
  - i. First & Last Name
  - ii. Company

- iii. Email
  - iv. Phone Number
  - v. Ship and Bill to Address
  - vi. Unit Model and Serial Numbers
4. A RMA number will be emailed to you with return instruction shortly after the form is completed.

### **3 Shipping the Product**

Once an RMA number has been issued, the unit needs to be packaged and shipped back to Sencore. It's best to use the original box and packaging for the product but if these are not available, check with the customer service representative for the proper packaging instructions.

Note: DO NOT return any power cables or accessories unless instructed to do so by the customer service representative.