



OmniHub 6RFX-02

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.

Revision History

Date	Version	Description	Author
12/27/18	1.0	First Draft	SW
04/02/19	1.1	Add new modules and new features	DA
05/23/19	1.2	Add new modules	RS
12/06/19	1.3	Add new Modules and new features	EH
05/24/20	1.4	Update UI and add new Modules	RS
07/27/20	1.5	Update Descrambling configuration descriptions	SW
08/17/21	1.6	Add new Modules and new features	AP
03/31/23	1.7	Add CMP Chassis and daughter boards power consumption.	FR
07/14/23	1.8	Update the manual as a whole.	RF

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.

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
- **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 always remain readily accessible and operable.
- 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 6RFX-02 chassis
2. OmniHub 6RFX-02 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 to obtain a replacement.

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Section 1 Overview



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1.1 Product Overview

OmniHub 6RFX-02 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 6RFX-02 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 6RFX-02 provides a straight-forward web interface accessible via all major browsers and complete control of the unit. Every OmniHub 6RFX-02 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 6RFX-02 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 6RFX-02 front panel.



1. Modulation Status and Modulation Power Indicators, Modulation Output Tuner (Only be embedded in Encoder Modulator, Receiver Modulator)
2. Vent holes for cooling intake
3. Reset button and Power LED indicator
4. Status LED indicator
5. 2 RJ45 Management ports
6. 2 RJ45 Data ports

1.3 Rear Panel Overview

The OmniHub 6RFX-02 have exhaust fans at the top of the unit. Please mind not to obstruct the air intake at the front and air exhaust at the top. Device can be ordered with AC3 license (OH-AC3-License) or AAC (OH-AAC-License) which enable AC3/AAC for all HDMI or SDI encoder modules in OmniHub 6RFX-02.



1. Slot 1 for Option Module
2. Slot 2 for Option Module
3. Slot 3 for Option Module
4. Slot 4 for Option Module
5. Slot 5 for Option Module
6. Slot 6 for Option Module
7. Chassis ground
8. Power Supply
9. On/Off switch

1.4 Option Module Overview

This describe the OmniHub 6RFX-02 platform and all available modules that can expand the functionality of the OmniHub 6RFX-02 platform.

OmniHub 6RFX-02 chassis	Description
OmniHub 6RFX-02	1RU chassis, Single PSU, 4xGbE ports, 14 LEDs and six hot swappable slots with 1 XXXX-03 Modulator output in front panel
OH-AC3-AAC-4CH	AC3 (2-channel stereo audio) and AAC license per 4 channels encoder module
OH-AC3-AAC-8CH	AC3 (2-channel stereo audio) and AAC license per 8 channels encoder module
OH6RFX-OFDM-4-License	OFDM modulation output license (4 consecutive TS)
OH6RFX-OFDM-8-License	OFDM modulation output license (8 consecutive TS)
OH6RFX-QAMA-4-License	QAM Annex A/C modulation output license (4 consecutive TS)
OH6RFX-QAMA-8-License	QAM Annex A/C modulation output license (8 consecutive TS)
OH6RFX-QAMB-4-License	QAMB modulation output license (4 consecutive TS)
OH6RFX-QAMB-8-License	QAMB modulation output license (8 consecutive TS)
OH6RFX-8VSB-4-License	8VSB modulation output license (4 consecutive TS)
OH6RFX-8VSB-8-License	8VSB modulation output license (8 consecutive TS)

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

*OHR6-DVBC-00, OHR6-DVBC-ISDBT-01, OHR6-DVBT2CI-00, OHR6-DVBS2CI-01 are Different Hardware but share the same Software.

*OHR6-DVBS2FTA-00, OHR6-DVBS2FTA-00A are Different Hardware but share the same Software.

Encoder Modules	Description
OHE6-HDMI-00	4 channel HDMI encoding module, supports H.264 HD/SD, MPEG-2 SD, MPEG1L2, and optional AC3/AAC.
OHE6-HDMI-R01	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
OHE6-HDMI-02	2 channel HDMI encoding module, supports H.264 HD/SD, MPEG-2 SD, MPEG1L2, optional AC3/AAC, and supports CC input.
OHE6-HDMI-02C	2 channel HDMI encoding module, supports H.264 HD/SD, MPEG-2 SD, MPEG1L2,

	optional AC3/AAC and supports CC and analog audio input.
OHE6-HDMI-05	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.
OHE6-HDMI-05	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,
OHE6-HDMI-06	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. 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-CVBS-00	6 channel CVBS encoding module, supports H.264/MPEG-2 SD, MPEG1L2.
OHE6-CVBS-03	2-channel CVBS standard definition encoding board, support H.264/MPEG-2 SD, CC, MPEG1L2, AC3 (support), AAC (support)
OHE6-CVBS-R01	8 channel CVBS encoding module, supports H.264, MPEG1L2.
OHE6-CVBS-R01A	16 channel CVBS encoding module, supports H.264, MPEG1L2, the modules occupy 2 slots.
OHE6-SDI-00	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
OHM6-QAMA-R00	16 channel QAM modulator module, Annex A/C, non-adjacent output, and 1 RF female port for output
OHM6-QAMB-R00	16 channel QAM modulator module, Annex B, non-adjacent output, and 1 RF female port for output

OHM6-QAMA-R01	4 channel QAM modulator module, Annex A/C, adjacent output, and 1 RF female port for output
OHM6-QAMA-R01A	8 channel QAM modulation module, Annex A/C, adjacent output, and 1 RF female port for output
OHM6-QAMB-R01	4 channel QAM modulation module, Annex B, adjacent output, and 1 RF female port for output
OHM6-QAMB-R01A	8 channel QAM modulation module, Annex B, adjacent output, and 1 RF female port for output
OHM6-OFDM-R01	4 channel OFDM modulation module, adjacent output, and 1 RF female port for output
OHM6-OFDM-R01A	8 channel OFDM modulation module, adjacent output, and 1 RF female port for output.
OHM6-ISDBT-R01	4 channel ISDBT modulation module, adjacent output, and 1 RF female port for output.
OHM6-ISDBT-R01A	8 channel ISDBT modulation module, adjacent output, and 1 RF female port for output
OHM6-8VSB-R01	4 channel 8VSB (ATSC) modulation module, adjacent output, and 1 RF female port for output
OHM6-8VSB-R01A	8 channel 8VSB 9ATSC) modulation module, adjacent output, and 1 RF female port for output.
OHM6-MOD-02	32-channel QAM-A modulation module, 2 gigabit IP input electrical ports, each input port supports 256 channels; 1 CAS interface (RJ45), support scrambling function; 1 RF output interface, support 32-channel QAM-A non-advanced frequency Modulation output, independent constellation mode configuration

*All -R01 model same the same hardware, and all -R01A models share the same model except for the OFDM Module.

Function Modules	Description
OHP6-IP-00	IP protocol conversion module, 3 Gigabit Ethernet ports (1 input and 2 output), 1 HDMI interface, 1 USB interface, support

	UDP/RTP/HLS/SRT protocol mutual conversion
OHP6-ASI-00	5 channels of ASI module, default 3 channels of ASI input and 2 channels of ASI output (the input and output of each port can be set)
OHP6-EAS-00	EAS processing module, supports EAS triggering by analogue EAS input and Digital EAS input.
OHP6-CAM-00	CAM processing module supports 2 independent CI Card slots, support Xcrypt CA scramble, compatible with mainstream CAM cards, and support mainstream CAS decryption
OHP6-EIT-00	EIT processing module, supports up to 16TS per module
OHP6-IP-02	UDP/RTP via Unicast/Multicast 2x RJ45, 100/1000Base-T DATA 1: 128 input & output DATA 2: 120 input & output
Transcode Modules	Description
OHX6-TXS-00	2 Gigabit Ethernet ports, support 1-channel H.265/H264 4K to HD or 5-channel H.265/H.264 HD transcoding or 6-channel H.264/MPEG-2 HD transcoding.

Section 2 Installation

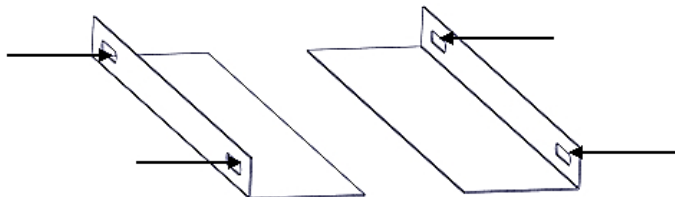


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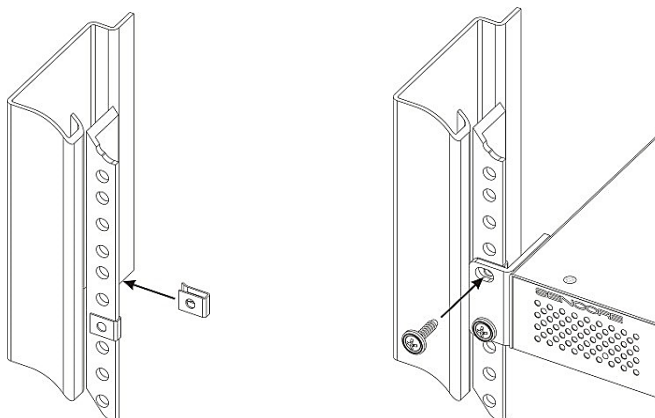
2.1 Rack Installation

The OmniHub 6RFX-02 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 6RFX-02. 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 6RFX-02 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 OmniHub 6RFX-02 is to be powered by supplies with operating 120V or 240V 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 6RFX-02, 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 6RFX-02 Web Interface Overview

3.1.1 Management Port

OmniHub 6RFX-02 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 6RFX-02 and other headend devices, this switch should support IGMP V2 and IGMP snooping function.

3.1.2 Web Interface

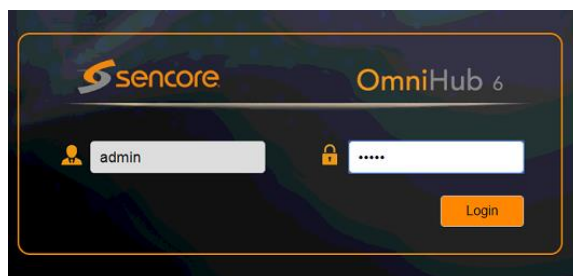
To open the OmniHub 6RFX-02 web interface use one of the following supported browsers and navigate to the unit's IP address:

- 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

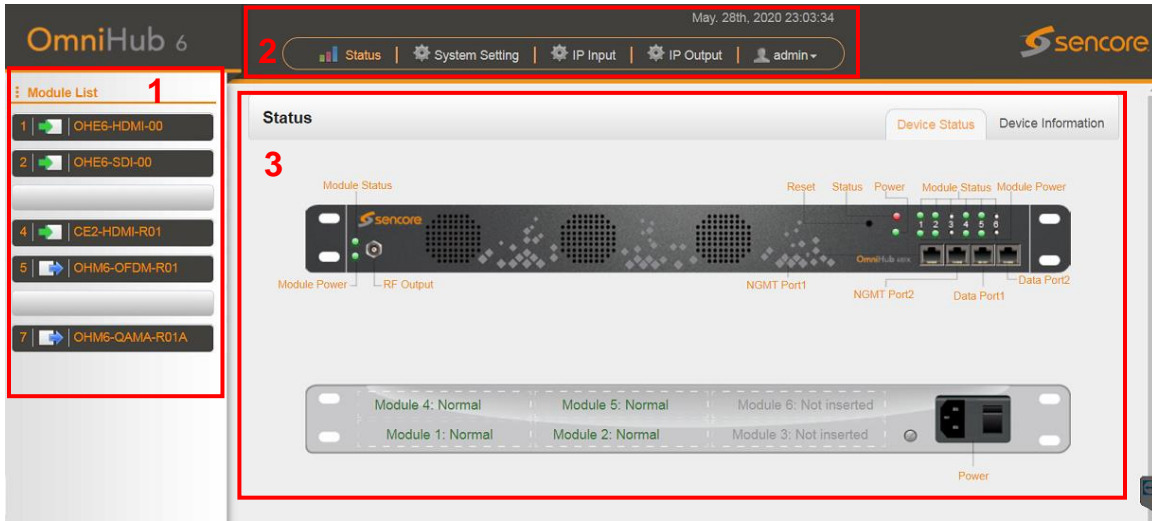
The user will need to login to the web interface. The default **username/ password are admin/admin**. Click the login button to login to the web interface.



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



You can return to the welcome screen by clicking the button **Status** and then button **Device Status**. Above is the picture displaying Status View for OmniHub 6RFX-02 front view.

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 6RFX-02 web interface as shown in the picture above. It also shows the front and rear-view image of OmniHub 6RFX-02 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	V1.4.21	V0.1.0
1.OHE6-HDMI-00	V0.0.0	V1.3.101	V0.0.1
2.OHE6-SDI-00	V20.1.60	V1.4.6	V0.0.1
5.OHM6-OFDM-R01	V62.2.258	V1.4.8	V0.0.1
7.OHM6-QAMA-R01A	V62.2.258	V1.4.12	V0.0.1

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 6RFX-02 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.

Module Name	IP Address	Subnet Mask	Default Gateway	MAC Address	DNS Server IP
Baseboard	192.168.1.10	255.255.255.0	192.168.1.254	A0:69:86:02:90:23	0.0.0.0
1.OHE6-HDMI-00	192.168.1.11	255.255.255.0	192.168.1.254	A0:69:86:01:FE:A3	
2.OHE6-SDI-00	192.168.1.12	255.255.255.0	192.168.1.254	A0:69:86:02:A1:E9	
5.OHM6-OFDM-R01	192.168.1.15	255.255.255.0	192.168.1.254	A0:69:86:02:80:51	
7.OHM6-QAMA-R01A	192.168.1.17	255.255.255.0	192.168.1.254	A0:69:86:02:B2:AC	

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.

Time tab settings:

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

Time Zone: UTC +00: 00

Mode: Manual

Time: 2019/06/19 13:07:30


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

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*).

The screenshot shows the 'System Settings' tab selected in the top navigation bar. The interface is divided into several sections: 'Upgrade' with a 'Select Module' dropdown set to 'Automatic Detection' and an 'Upgrade' button; 'Configuration' with 'Import Configuration' and 'Export Configuration' buttons; 'License' with 'Import License' and 'Export License' buttons; 'Log Manage' with an 'Open' button; and 'Other Operations' with 'Reboot' and 'Factory Default' buttons. Each button section has 'Browse' and 'Upload' buttons next to it.

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

Password tab allows you to change the login password.

The screenshot shows the 'Password' tab selected in the top navigation bar. The interface contains three input fields: 'Current Password', 'New Password', and 'Confirm Password'. An 'Apply' button is located on the right side of the form.

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.

The screenshot shows the 'SNMP' tab selected in the top navigation bar. The interface contains a dropdown menu labeled 'SNMP:' with options 'Enable', 'Disable', and 'Enable'. An 'Apply' button is located on the right side of the form.

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 6RFX-02 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.

Channel	IP Address : Port	Effective Bitrate(Mb...	Total Bitrate(Mbps)	Bitrate	TS Analysis	Service List
1.1	0.0.0.0 : 0	0.000	0.000	Normal		
1.2	0.0.0.0 : 0	0.000	0.000	Normal		

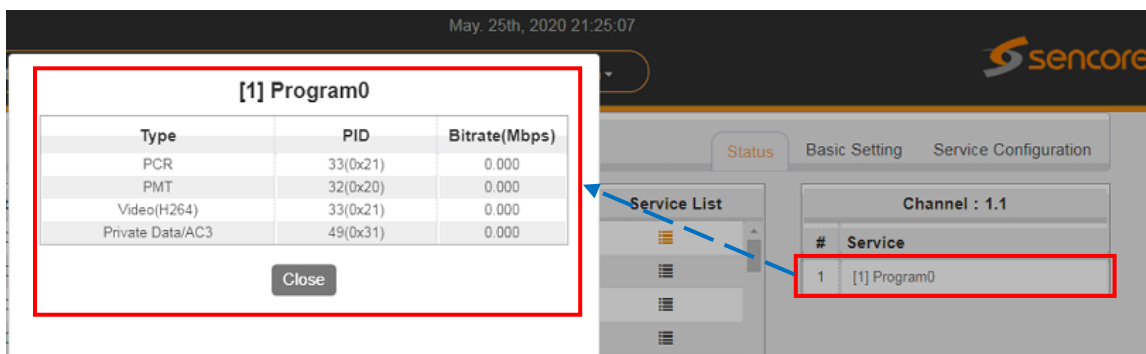
Clicking under TS Analysis button will display the information on the structure of the transport stream.

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

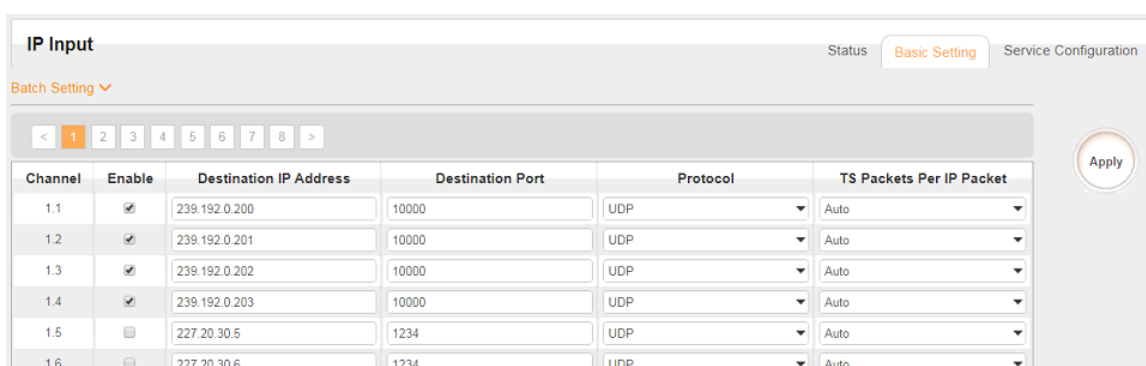
Clicking under Service List will display information on the services included in the transport stream. A list of services in the TS will be shown as the picture below.

Channel : 1.1	
#	Service
1	[1] Program0

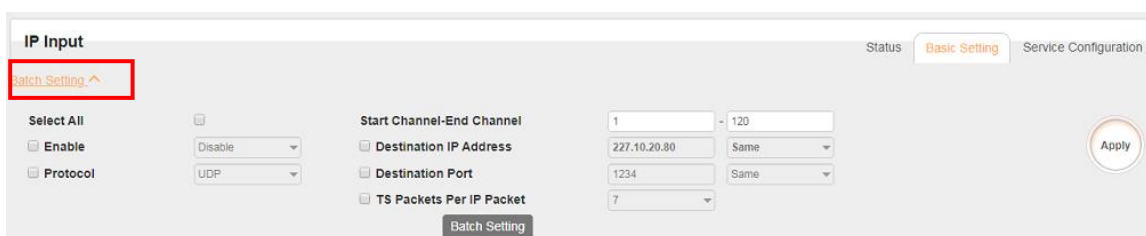
Clicking on the service in the list will display its detailed information: PCR, PMT, Video and Audio PID and Bitrate. See the picture below.




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.





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



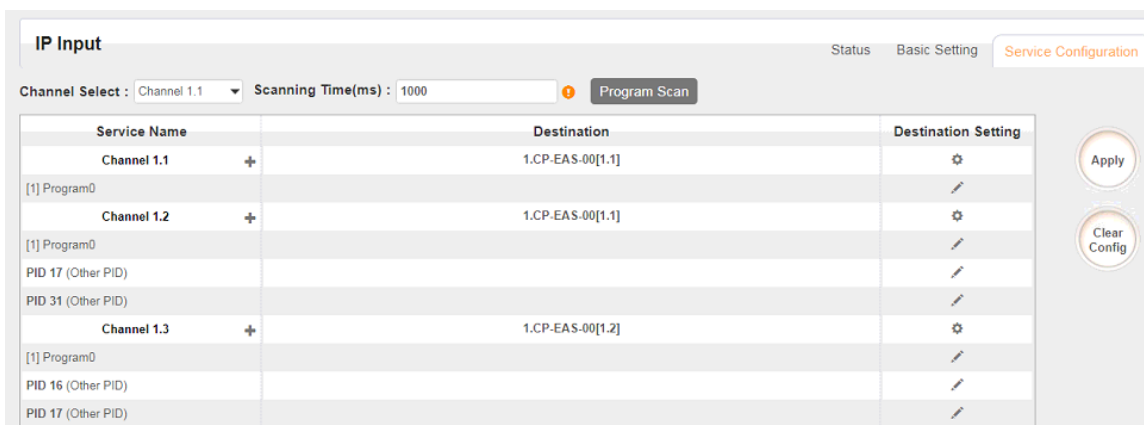
Click the Apply  button on the right side to make the change takes effect.

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 6RFX-02 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.

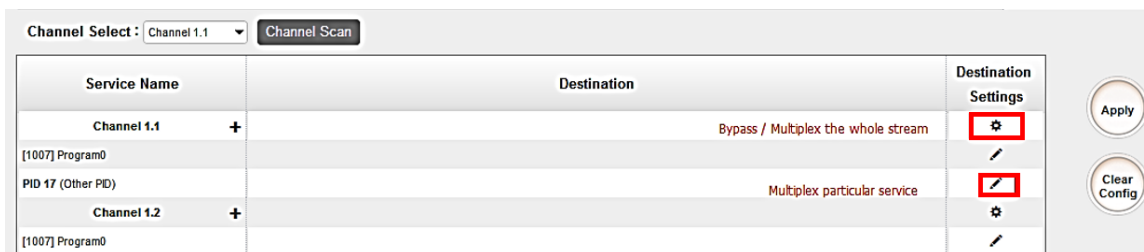
1. **Bypass mode.** In this mode, routes can only be done when outputting a whole input transport stream towards an output TS channel - this cannot be done when outputting a single service only. Bypass mode activation will not allow other services from other input TS to be mixed in the current TS output.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



The interface shows the 'Service Configuration' tab. At the top, there's a 'Channel Select' dropdown set to 'Channel 1.1' and a 'Scanning Time(ms)' input set to '1000'. A 'Program Scan' button is next to it. Below is a table with three columns: 'Service Name', 'Destination', and 'Destination Setting'. The table lists three channels (1.1, 1.2, 1.3) with their respective destinations and settings. To the right of the table are 'Apply' and 'Clear Config' buttons.


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)		

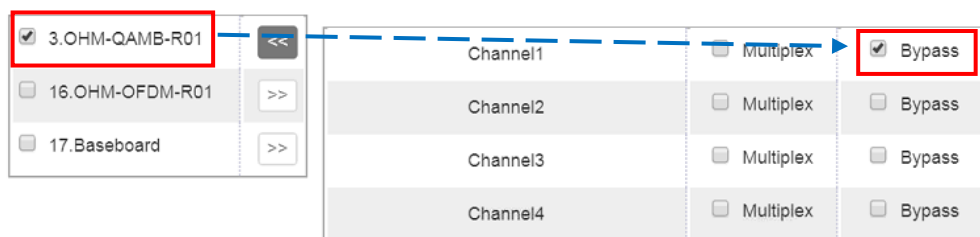
Service Configuration page interface




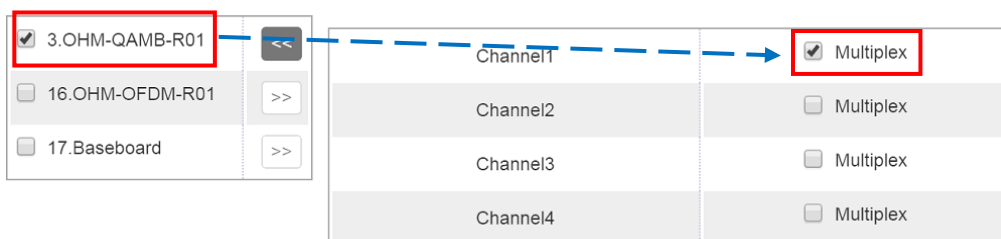
This is a close-up of the 'Destination Setting' column from the previous image. It shows two rows. The first row, for 'Channel 1.1', has the text 'Bypass / Multiplex the whole stream' and a gear icon (highlighted with a red box). The second row, for 'Channel 1.2', has the text 'Multiplex particular service' and a pencil icon (highlighted with a red box). The 'Apply' and 'Clear Config' buttons are visible on the right.


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

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.


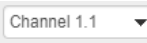



To use **Multiplexing mode on service level** click on pencil icon  on the right side in the line with the proper service. Then select the output stream (channel) where the service will be multiplexed.



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  button.

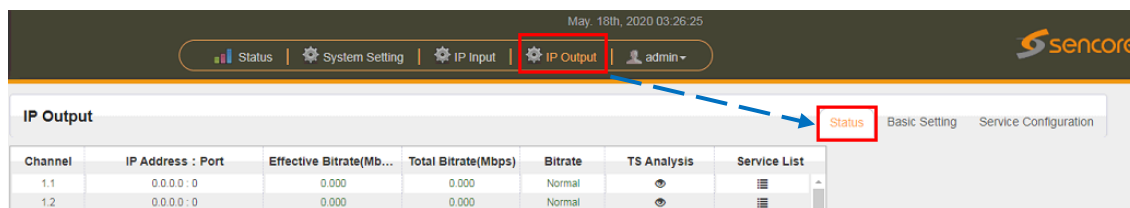
 There is a channel scan button  Channel Select: Channel 1.1  on the top. Normally the input service list of each channel will be loaded in this page automatically, but when you change the input source, you should refresh the changed channel manually by selecting the channel and clicking **Channel Scan**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

3.2.4 IP Output

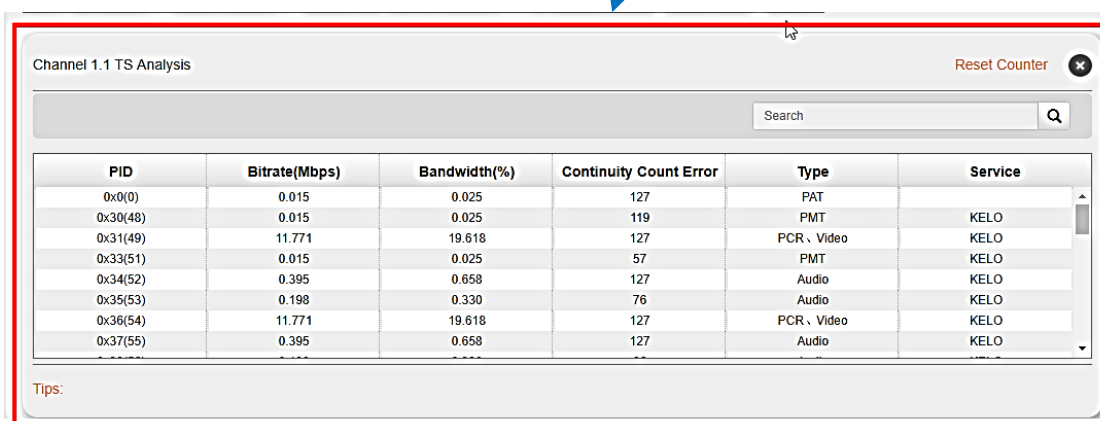
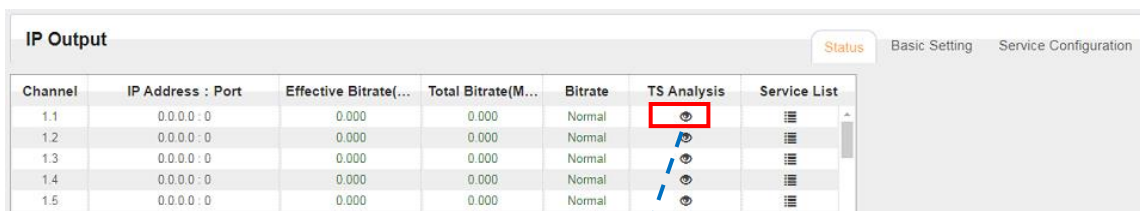
This menu allows you to configure and access the IP output:

- Status
- Basic Settings
- Service Configuration

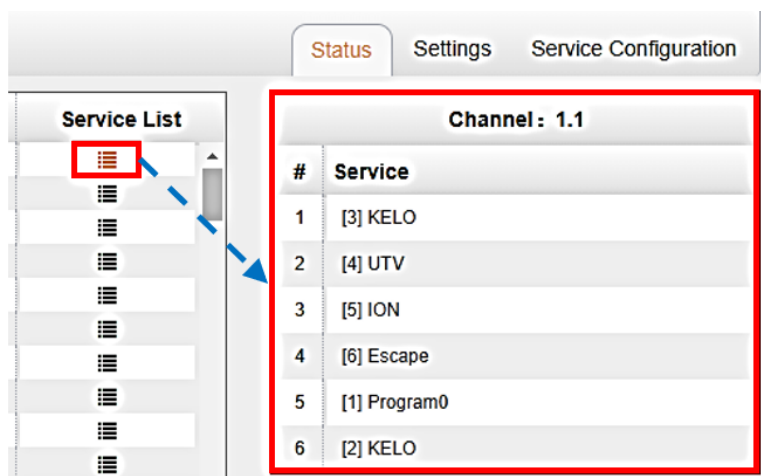
Status tab displays the table of Channels, IP Address, IP port, Effective Bitrate, Total Bitrate, Bitrate Status (Normal/Overload), TS Analysis and Service List for each IP output stream. OmniHub 6RFX-02 IP output has a total of 120 channels which means it can output 120 multicast IP addresses. Once 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.



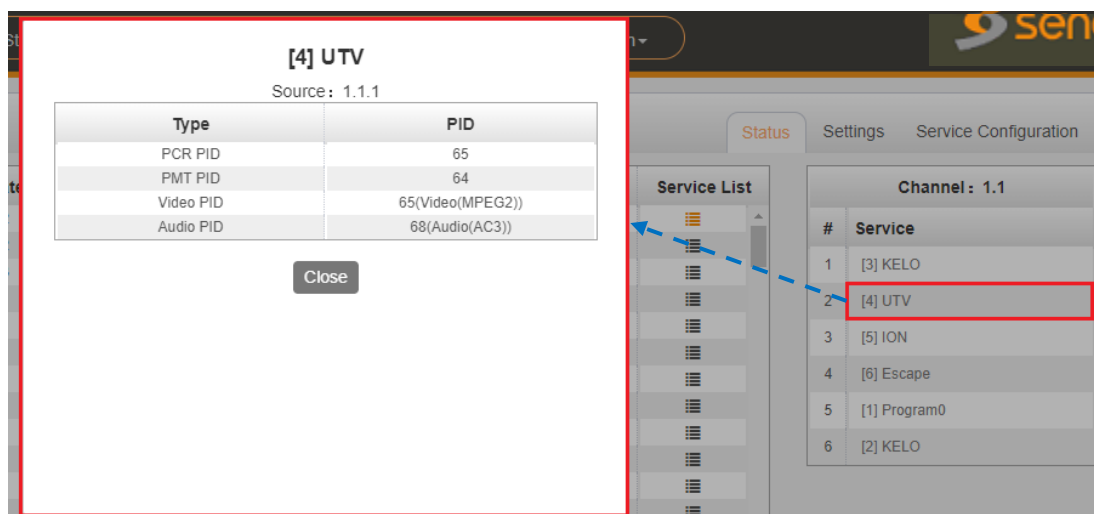
Clicking the icon under the TS Analysis button will display the information on the structure of the transport stream.



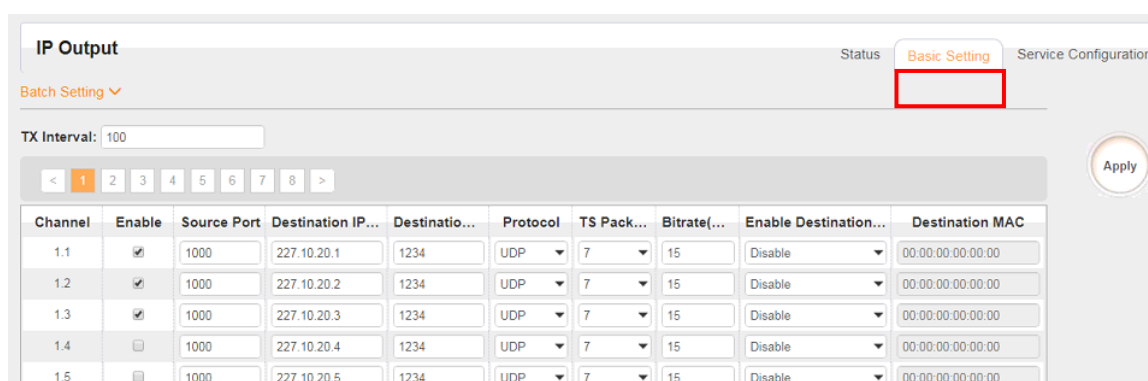
Clicking under Service List will display information on the services included in the transport stream. This will display the list of services in a TS as shown in the picture below.



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.



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.



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

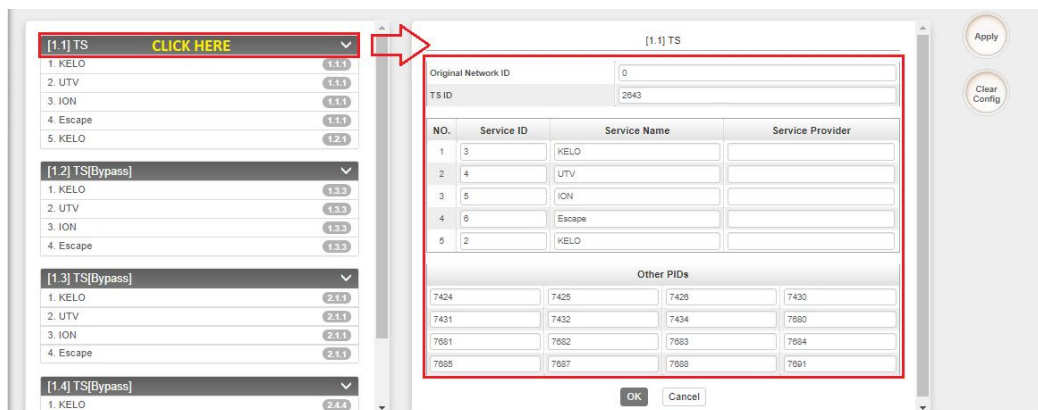


Click the Apply button Apply on the right side to make the change take effect.

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.



NO.	Service ID	Service Name	Service Provider
1	3	KELO	
2	4	UTV	
3	5	ION	
4	6	Escape	
5	2	KELO	

Other PIDs

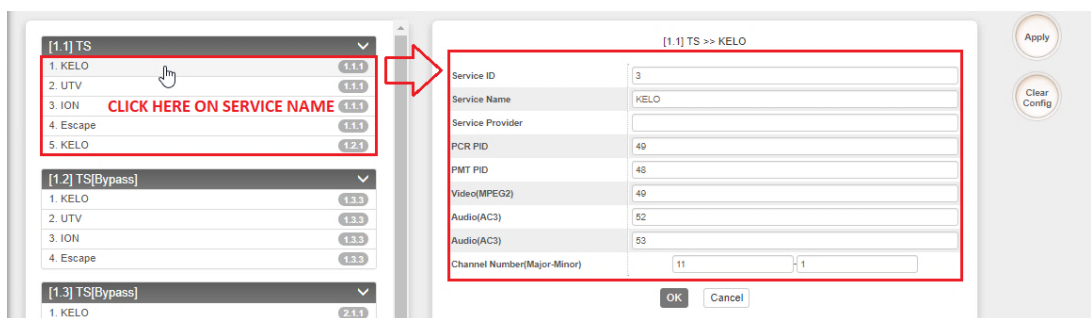
7424	7425	7426	7430
7431	7432	7434	7680
7681	7682	7683	7684
7685	7687	7688	7691

OK Cancel

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.



[1.1] TS >> KELO

Service ID: 3

Service Name: KELO

Service Provider:

PCR PID: 49

PMT PID: 48

Video(MPEG2): 49

Audio(AC3): 52

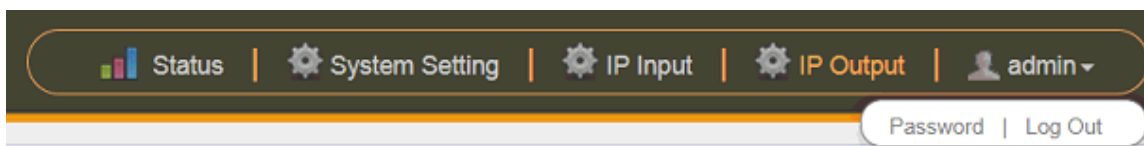
Audio(AC3): 53

Channel Number(Major-Minor): 11-1

OK Cancel

3.2.5 Admin

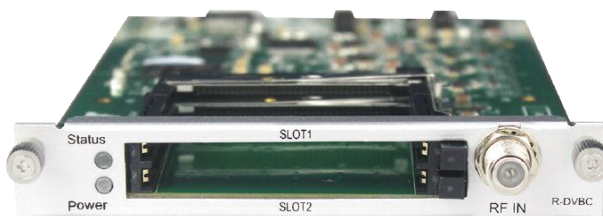
Click **Admin** and you can choose to go into Password setting page or Log Out.



3.3 Receiver Modules

3.3.1 OHR6-DVBC-00

OHR6-DVBC-00 is a 4channel 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
System							
Channel	Locked Status	Total Bitrate(Mbps)	Effective Bitrate(Mbps)	PER	RF Level	TS Analysis	Service List
1.1	Unlocked	0.000	0.000	0.000000000	-	👁	📋
1.2	Unlocked	0.000	0.000	0.000000000	-	👁	
1.3	Unlocked	0.000	0.000	0.000000000	-	👁	
1.4	Unlocked	0.000	0.000	0.000000000	-	👁	

Total Bitrate 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

Tip:

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.

#	Service
1	[302] CCTV 2
2	[303] CCTV 7
3	[304] CCTV 10
4	[305] CCTV 11
5	[306] CCTV 12
6	[307] CCTV 15

#	Service
1	[1] CNAI PAL
2	[2] CNAI NTSC
3	[1001] TVB8
4	[1003] CETV

#	Service
1	[1] India News HARYAI
2	[2] India News RAJAS1
3	[3] India News
4	[4] LTV
5	[5] Delhi News
6	[6] India News UP/UK
7	[7] India News MP
8	[8] NEWS X


#	Service
1	[1] td HD Phx Infonews Ct
2	[2] td HD Phx Chinese Ch
3	[3] td HD Phx HK Channel

[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.

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
Frequency (KHz)	48000~862000
Symbol Rate (KBaud)	3000~7000



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


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 6RFX-02 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.





Channel Select: Channel 1.3 Channel Scan

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

Apply Clear Config

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 ✕

☒ 12.CM-QAMB-R01A <<



☐ 14.CM-QAMB-R01 >>


☐ 17.Baseboard >>

Channel1 → ☐ Multiplex → ☒ Bypass

Channel	Multiplex	Bypass
Channel2	<input type="checkbox"/>	<input type="checkbox"/>
Channel3	<input type="checkbox"/>	<input type="checkbox"/>
Channel4	<input type="checkbox"/>	<input type="checkbox"/>
Channel5	<input type="checkbox"/>	<input type="checkbox"/>
Channel6	<input type="checkbox"/>	<input type="checkbox"/>

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.

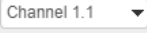
[1]Program0 

<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



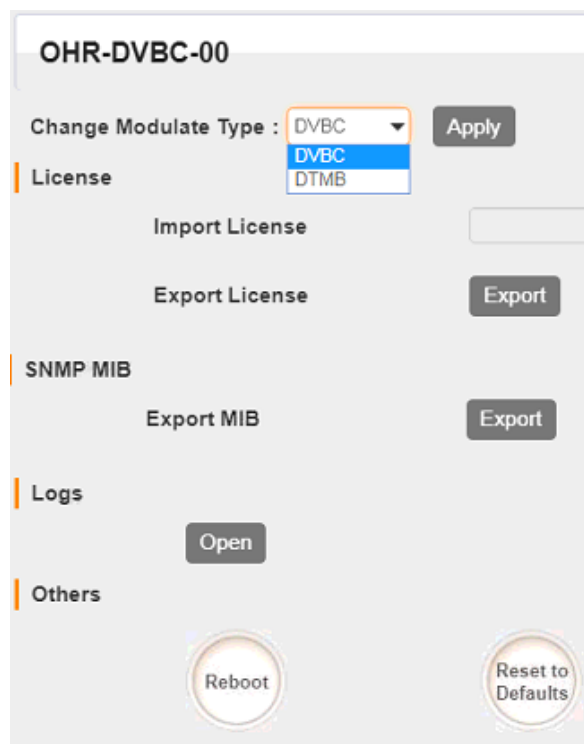
To clear the whole routing table click  button.



There is a channel scan button  Channel Select: Channel 1.1  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:



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

3.3.2 OHR6-DVBC-01

OHR6-DVBC-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.

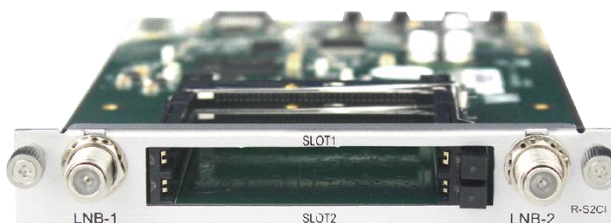
OHR-DVBC-01						
				Status	CI	Basic Setting
				Service Configuration		
				System		
Channel	Locked Status	Total Bitrate(Mbps)	Effective Bitrate(Mbps)	RF Level	TS Analysis	Service List
1.1	Unlocked	0.000	0.000	-	👁	📺
1.2	Unlocked	0.000	0.000	-	👁	
1.3	Unlocked	0.000	0.000	-	👁	
1.4	Unlocked	0.000	0.000	-	👁	



3.3.3 OHR6-DVBS2CI-01

OHR6-DVBS2CI-01 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.



3.3.3.1 Module Settings

On the Parameter Settings page of OHR6-DVBS2CI-01 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 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-00A is the combination of 2 OHR-DVBS2FTA-00 modules, it occupies 2 slots on the OmniHub 16 chassis and has an 8-channel DVBS-S2 receiving module with 8 RF connectors.



OHR-DVBS2FTA-00



OHR-DVBS2FTA-00A

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)	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 OHR-DVBS2CI and Service Configuration is same with that of OHR-DVBC-00. Please refer to page 32 to 34 for the configuration manual.

3.3.5 OHR6-DVBS2FTA-01/01A

OHR6-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 L
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	off	off	Disable	1	F
3.1	12750	25000	10600	18v	off	Disable	1	F
4.1	12750	25000	10600	13v	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

#	Service
1	[302] CCTV 2
2	[303] CCTV 7
3	[304] CCTV 10
4	[305] CCTV 11
5	[306] CCTV 12
6	[307] CCTV 15

Channel1.2

#	Service
1	[1] CNAI PAL
2	[2] CNAI NTSC
3	[1001] TVB8
4	[1003] CETV

Channel1.3

#	Service
1	[1] India News HARYAI
2	[2] India News RAJAST
3	[3] India News
4	[4] LTV
5	[5] Delhi News
6	[6] India News UP/UK
7	[7] India News MP
8	[8] NEWS X

Channel1.4

#	Service
1	[1] td HD Phx Infonews Ct
2	[2] td HD Phx Chinese Ch
3	[3] td HD Phx HK Channel

【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
Off-Air	CH2 57MHz, CH3 63MHz, CH4 69MHz~CH67 791MHz, CH68797MHz, CH69 803MHz
STD	CH2 57MHz, CH363MHz, CH4 69MHz~ CH133 849MHz,CH134855MHz, CH135 861MHz
IRC	CH2 57MHz, CH3 63MHz, CH4 69MHz ~ CH133 849MHz,CH134, 855MHz, CH135 861MHz
HRC	CH2 55.75MHz, CH3 61.75MHz, CH4 67.75MHz~ CH133847.75MHz, CH134 853.75MHz, CH135 859.75MHz

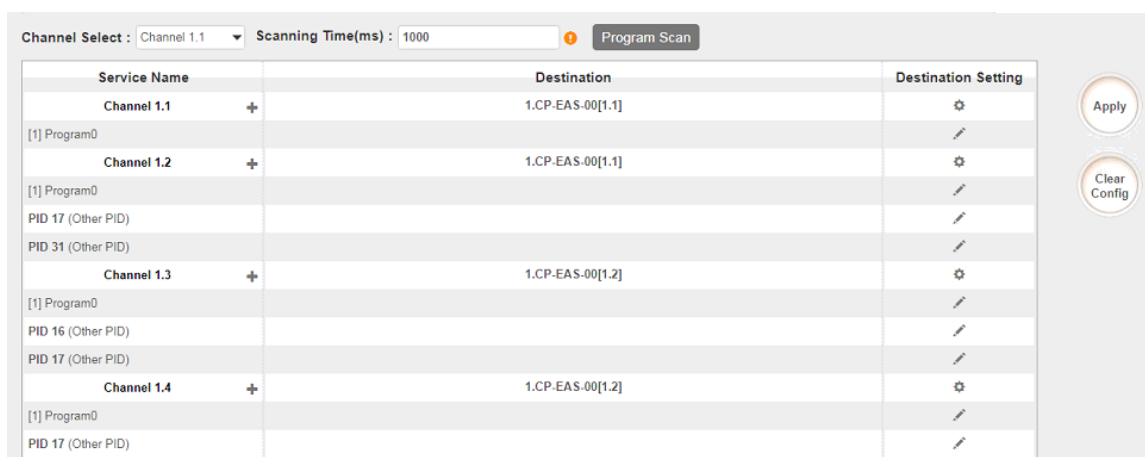
The screenshot shows the 'Channel Standard' dropdown menu with 'Off-Air' selected. The 'CH' dropdown menu is also shown, with 'CH11-201MHz' selected. A dashed blue arrow points from the 'Channel Standard' dropdown to a zoomed-in view of the dropdown menu, which shows 'Off-Air' selected. Another dashed blue arrow points from the 'CH' dropdown to a zoomed-in view of the dropdown menu, which shows 'CH11-201MHz' selected.

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 6RFX-02 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.

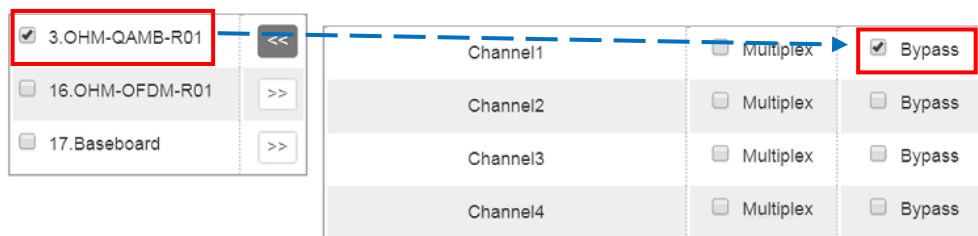



Service Name	Destination	Destination Setting
Channel 1.1 +	1.CP-EAS-00[1.1]	
[1] Program0		
Channel 1.2 +	1.CP-EAS-00[1.1]	
[1] Program0		
PID 17 (Other PID)		
PID 31 (Other PID)		
Channel 1.3 +	1.CP-EAS-00[1.2]	
[1] Program0		
PID 16 (Other PID)		
PID 17 (Other PID)		
Channel 1.4 +	1.CP-EAS-00[1.2]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

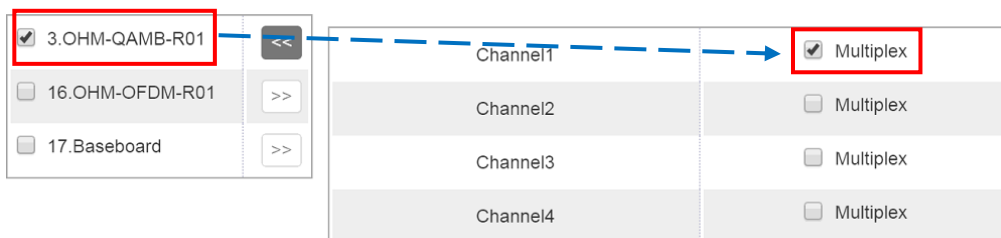
Service Configuration page interface

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.





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.

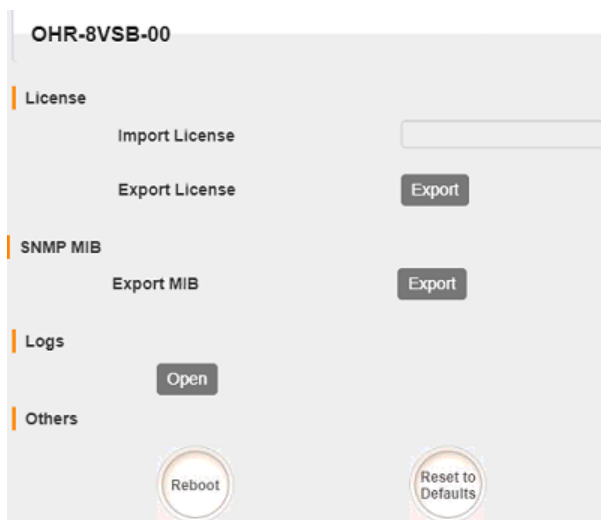
 To clear the whole routing table, click  button.

 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:

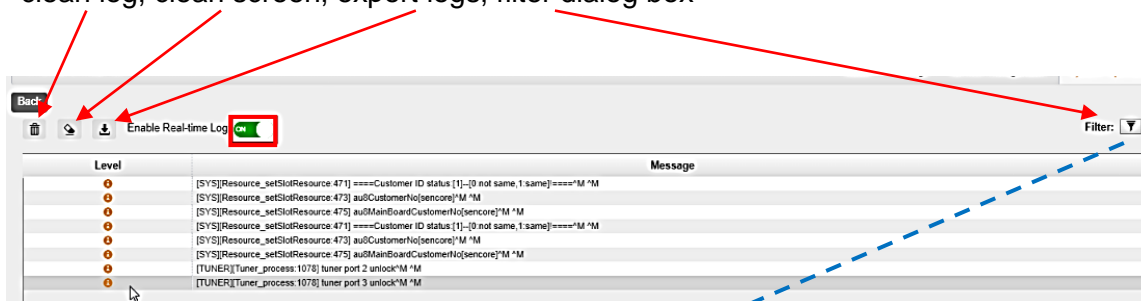
- Import / export license
- Log manages
- Reboot
- Factory Default



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



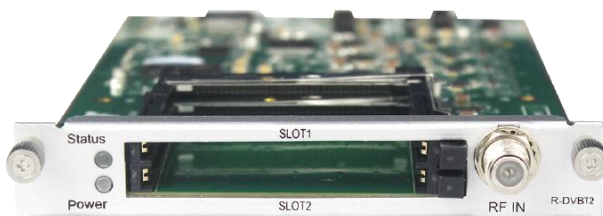
Filter

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 Channel 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						
Status CI Settings Service Configuration System Operation						
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)		

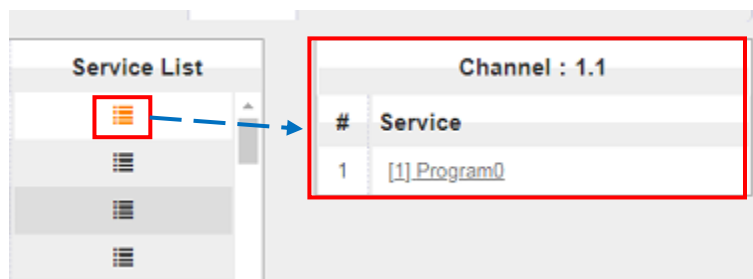
Total Bit rate in Mbps shows the receiving bitrate of each channel with the LOCKED status. Effective Bit Rate in Mbps which shows the actual bitrate of each receiving channel. RF Level of the input signal will show you the level of each locked channel.

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



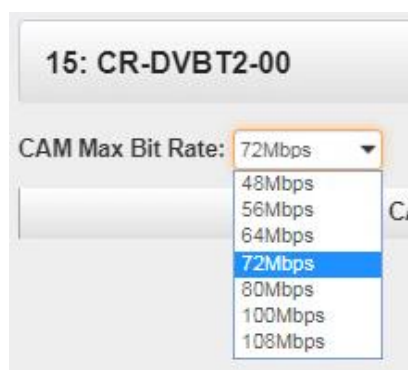
Clicking on the service name under the service will display the detailed information of the service: PCR, PMT, Video and Audio PID and Bitrate as shown in the picture below.



[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
Frequency (KHz)	48000~862000
Bandwidth (MHz)	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.

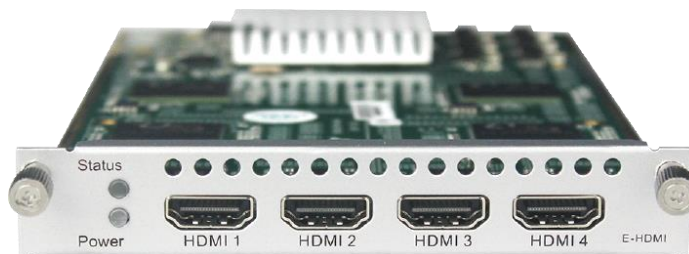
*You need to click **Apply** button after you configure service to CAM for descrambling, otherwise the descrambling configuration will not be saved.

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

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.

OHE-HDMI-00								
HDCP turned off								
Program	Signal	HDCP Encryption	Video Resolution	Video Bitrate(Mbps)	Audio Bitrate(Mbps)	Total Bitrate(Mbps)	Effective Bitrate(Mbps)	TS Analysis
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								
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

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	102	103	101	100	Program-1	Encoder
2	202	203	201	200	Program-2	Encoder
3	302	303	301	300	Program-3	Encoder
4	402	403	401	400	Program-4	Encoder

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

Apply

Advanced Setting ▾

Video Parameter ☐

<input type="checkbox"/> Video Encoding Format	<input type="checkbox"/> GOP Structure	<input type="checkbox"/> VLC Mode
<input type="checkbox"/> Video Bitrate	<input type="checkbox"/> GOP Size	<input type="checkbox"/> Profile
<input type="checkbox"/> Video Frame Rate	<input type="checkbox"/> GOP Close	<input type="checkbox"/> Level
<input type="checkbox"/> Video Resolution	<input type="checkbox"/> Video Encode Reset	<input type="checkbox"/> Video Aspect Ratio

Audio Parameter ☐

<input type="checkbox"/> Audio Encoding Format	<input type="checkbox"/> Audio Mode	<input type="checkbox"/> Audio Bitrate	<input type="checkbox"/> Audio Sampling Rate	<input type="checkbox"/> Volume
<input type="checkbox"/> AAC Format				

Service Parameter ☐

<input type="checkbox"/> Program Name	<input type="checkbox"/> Video PID	<input type="checkbox"/> Audio PID	<input type="checkbox"/> PCR PID	<input type="checkbox"/> PMT PID
<input type="checkbox"/> Provider Name				

Apply

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

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

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

Apply

⚙️ 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,	GOP Size	1~60

	1920x1080_60i , 1920x1080_50i , 1920x1080_30p , 1920x1080_25p , 1080x720_60p , 1080x720_50p , 720x480_60i , 720x576_50i		
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.

OHE-HDMI-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
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

Advanced Setting

Apply

OHE6-HDMI-00

OHE-HDMI-R01

Status Basic Setting Insertion **Output** System

Direct IP Output Multiplexing RTMP Output

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

Apply

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**

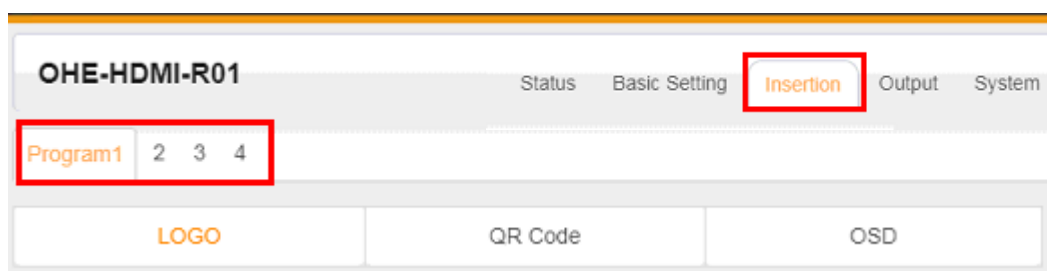
1. Click on (pencil) icon. There will always be a BaseBoard selection for the IP output and other Output option depending on the modules inserted.
2. Select the correct Output and Channel you want to output the Service.
3. Check Multiplex for the Channel you want to output,. You can output multiple services 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 Fail
2	<input type="checkbox"/>	rtmp://172.16.1.254/live	live_stream1	1935	Disable	admin	admin	Connection Fail
3	<input type="checkbox"/>	rtmp://172.16.1.254/live	live_stream2	1935	Disable	admin	admin	Connection Fail
4	<input type="checkbox"/>	rtmp://172.16.1.254/live	live_stream3	1935	Disable	admin	admin	Connection Fail

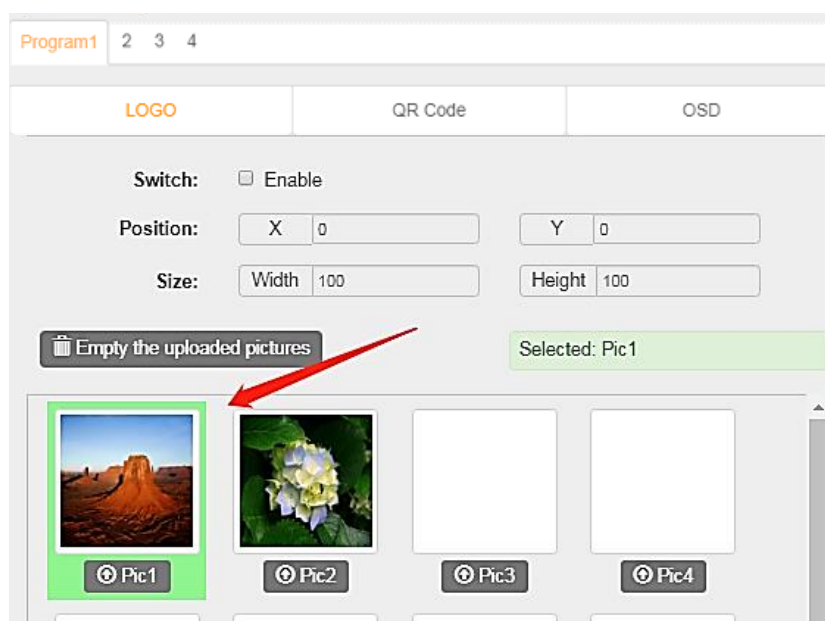
To use RTMP output to configure streaming to any website capable of receiving RTMP, it is necessary to create a new stream instance on the intended receiving platform and enter the corresponding URL and port.

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

You should choose a channel first before you set Insertion.



- **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 with 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)
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3.4.1.5 System

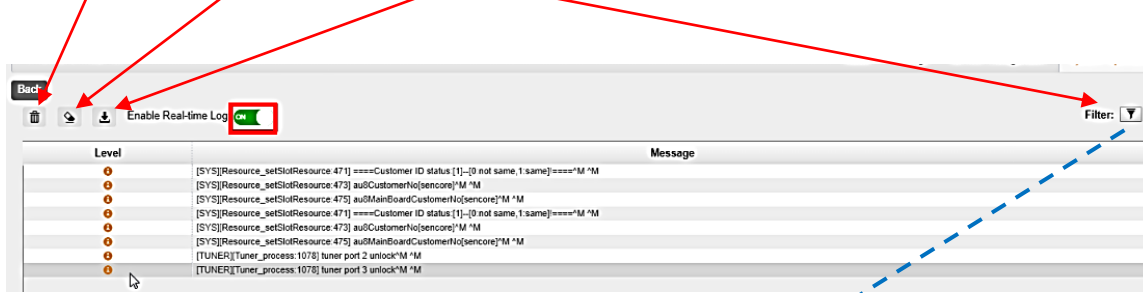
System tab allows you to perform the following tasks:

- 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.



3.4.2.1 Module Status

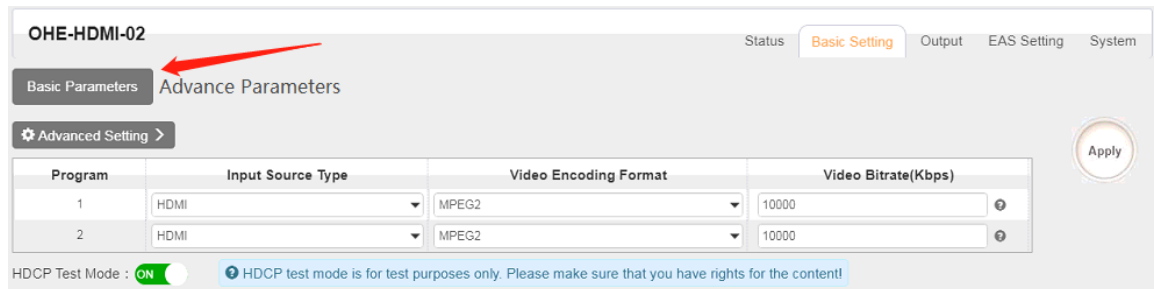
Module Status for the HDMI encoder shows the Bitrate of each port when an HDMI source is connected. The Status for OHE6-HDMI-02 is the same with OHE6-HDMI-00. The differences are the number of channels shown in the status and some other

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

Status Basic Setting Output EAS Setting System

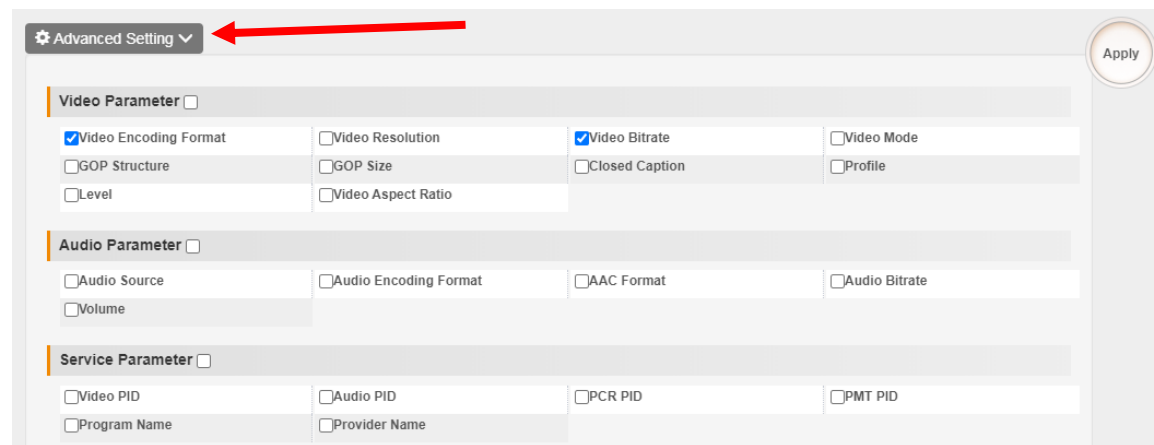
Basic Parameters Advance Parameters

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 ,	Level	Level_3.0 Level_3.1 Level_3.2 Level_4.0 Level_4.1

	1080×720_60p , 1080×720_50p , 720×480_60i , 720×576_50i		Level_4.2
Video Bitrate (Kbps)	100 and 18000	Profile	High, Main, Baseline
Video Mode	CBR	Closed Caption	Enable, Disable
GOP Structure	IBBP, IPPP, IBP	Video Aspect Ratio	Auto 16x9 4x3

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

- **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 output. 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.

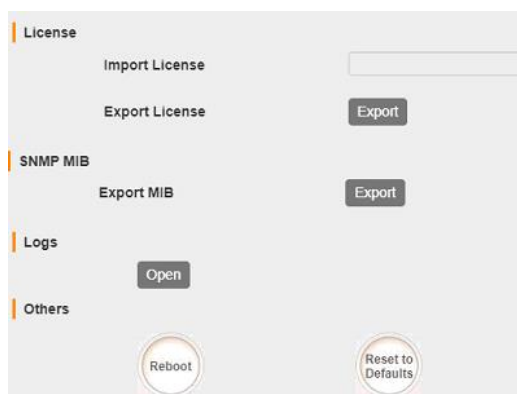
On this page, you need to input the EAS Source Multicast Address, Command port and Data port. This information can be seen on the EAS page.

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 allows you to perform the following tasks:

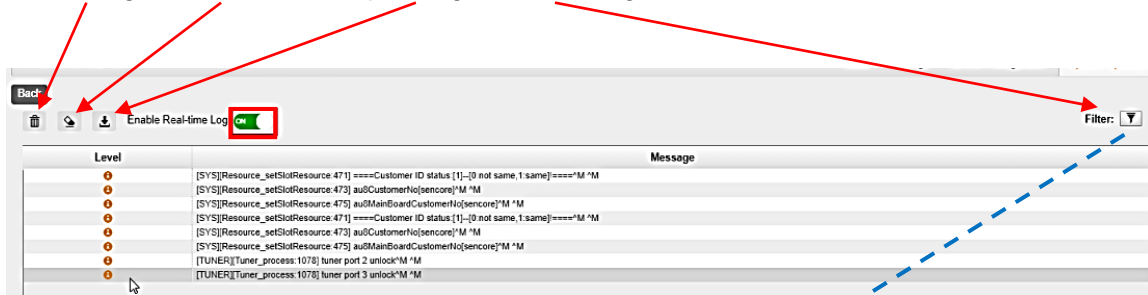
- Import / export license
- Log manages
- Reboot
- Factory Default



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"/>

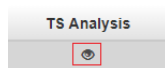
3.4.3 OHE6-HDMI-02C


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.

The screenshot shows the 'Advanced Setting' tab selected. It contains three sections: Video Parameter, Audio Parameter, and Service Parameter. Each section has a list of parameters with checkboxes and input fields.

- 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
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
GOP Structure	IBBP, IPPP, IBP	Video Aspect Ratio	Auto 16x9 4x3

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

3.4.3.3 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

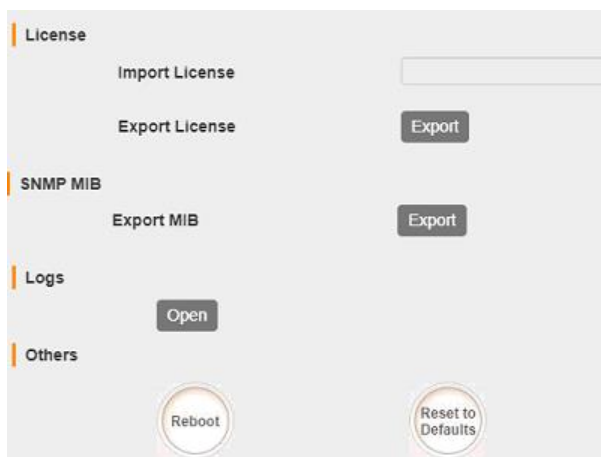
When the EAS source is triggered, the Audio and Video from the encoder will be replaced by the Audio and Video from the EAS module.

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:

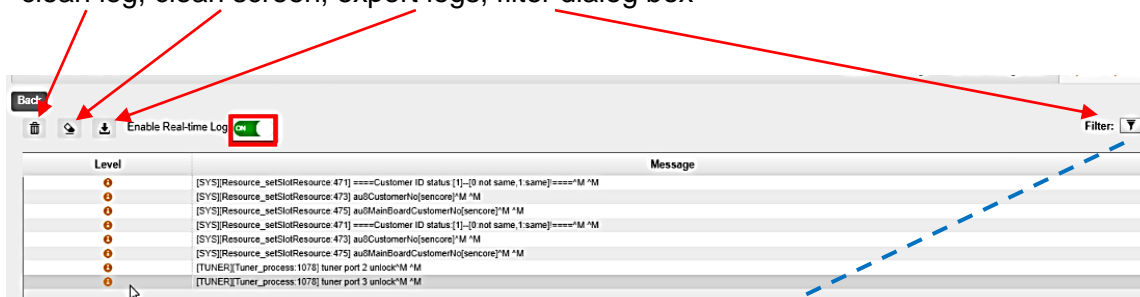
- Import / export license
- Log manages
- Reboot
- Factory Default



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 6RFX-02 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								
					Status	Basic Setting	Insertion	Output System
HDCP turned on								
Program	Signal	HDCP Encryption	Input Video Resolution	Output Video Resolution	Total Bitrate(Mbps)	Effective Bitrate(Mbps)	TS Analysis	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 **Apply** on the right side to make the change take effect.

OHE-HDMI-05A

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.265	5000
5	H.264	8000
6	H.264	8000
7	H.264	8000
8	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!

3.4.4.3 Module Insertion Settings

You should choose a channel first before you set Insertion.

OHE-HDMI-05A

Status Basic Setting **Insertion** Output System

Program1 2 3 4 5 6 7 8

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.

Program1 2 3 4

LOGO QR Code OSD

Switch: ☐ Enable

Position: X 0 Y 0

Size: Width 100 Height 100

Empty the uploaded pictures

Selected: Pic1

Pic1 Pic2 Pic3 Pic4

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.

3.4.5 OHE6-HDMI-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. OHE-HDMI-06 occupies 1 slot in OmniHub 16 chassis.



3.4.5.1 Module Status

Like other Hdmi encoder module. The Status of OHE-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	👁	Sencore①
2	✗	Unencrypted	No_Video	No_Video	0.000	0.000	👁	Program-02 ②
3	✗	Unencrypted	No_Video	No_Video	0.000	0.000	👁	Program-03 ③
4	✗	Unencrypted	No_Video	No_Video	0.000	0.000	👁	Program-04 ④

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.

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

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 , Manual (Horizontal Pixels: 160~1920, Vertical Pixels: 120~1080, Framerate: 24~60, Scan Type: Progressive)		Program Name	Length is 1~31	
Video Aspect Ratio	Automatic , 16×9 (SD) , 4×3 (SD)		Provider Name	Length is 0~31	
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.

Program1 2 3 4

LOGO QR Code OSD

Enable: ☒ Yes ☐ No

Position: X 28 Y 522

Size: Width 186 Height 174

Logo Selection: Pic1

Upload Delete Selected Pictures Delete All Pictures

Pic1

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.

Program1 2 3 4


LOGO **QR Code** OSD

Enable: ☒ Yes ☐ No

Position: X 1096 Y 546

Size: Width 156 Height 134

QR Code Selection: Pic1


Pic1

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.

Program	Program Name	Destination	Destination Setting
1	Program-01	3.OHM-OFDM-R01[1.1]	
2	Program-02		
3	Program-03		
4	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 OHE6-SDI-01

OHE6-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, 2x BNC. Supports CC Subtitles.



OHE-SDI-01

3.4.6.1 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.

OHE-SDI-01								
<div> <div>Status</div> <div>Basic Setting</div> <div>Output</div> <div>EAS Setting</div> <div>System</div> </div>								
Program	Signal	Input Video Resolution	Output Video Resolution	Video Bitrate(Mbps)	Audio1 Bitrate(Mbps)	Audio2 Bitrate(Mbps)	Total Bitrate(Mbps)	Effective Bitrate(Mbps)
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

3.4.6.2 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			
<div> <div>Status</div> <div>Basic Setting</div> <div>Output</div> <div>System</div> </div>			
<div> <div>Basic Parameters</div> <div> <div>Advanced Setting ></div> <div>Apply</div> </div> </div>			
Program	Input Source Type	Video Encoding Format	Video Bitrate(Kbps)
1	SDI	MPEG2	10000
2	SDI	MPEG2	10000

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

Basic 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

Apply

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

Audio Encoder Details	Range	Audio Encoder Details	Range
Audio Encoding Format	AC3 AC3_Passthrough MPEG1_Layer2 MPEG2_AAC MPEG4_AAC	Audio Bitrate (Kbps)	128~384 (AC3) 64~384 (MPEG1_Layer2) 64~384 (MPEG2_AAC/ MPEG4_AAC)

Audio Source	SDI1 SDI2 SDI3 SDI4 Analog	Volume (dB)	-20~20
AAC Format	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

3.4.6.3 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.


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

- **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.

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.

3.4.7 OHE6-CVBS-03/00/R01

OHE6-CVBS-03/00/R01 is a 2/6/8-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-03(2CH)



OHE6-CVBS-00 (6CH)



OHE6-CVBS-R01 (8CH)

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 ⓘ

3.4.7.1 Module Basic Settings

OHE-CVBS-R01

Status Basic Setting Insertion Output System

⚙️ Advanced Setting >

Program	Video Encoding Format	Video Bitrate(Kbps)
1	H.264	4000
2	H.264	4000
3	H.264	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

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

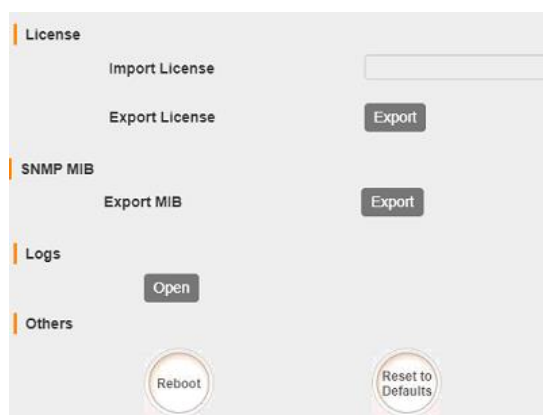
To use **Multiplexing mode on service level**:

1. Click on (pencil) icon. There will always be a BaseBoard selection for the IP output and other Output 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.

3.4.7.3 System Operation

System tab allows you to perform the following tasks:

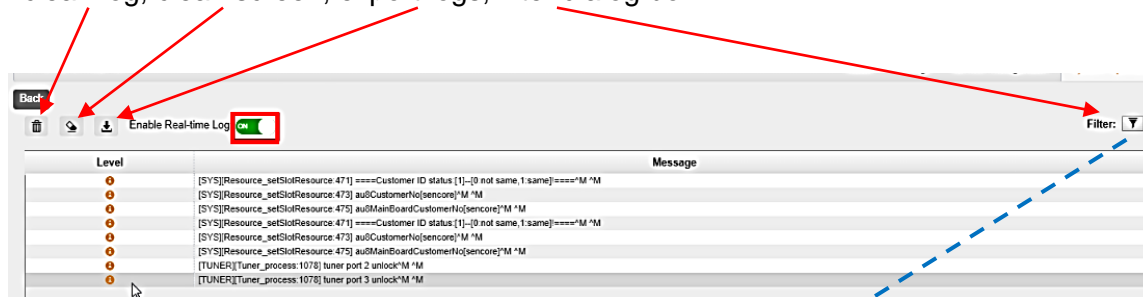
- Import / export license
- Log manages
- Reboot
- Factory Default



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 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 QAMA-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 6RFX-02 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
QAM Mode	ANNEX A/ ANNEX B	RF level	0~63
Bandwidth	6M, 7M, 8M	Frequency (KHz)	48000~858000
Symbol Rate (KBaud)	4400~6956	Constellation	QAM16/32/64/128/256
PSI/SI Interval (ms)	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.

The left panel shows a list of three TS entries, each with a gear icon and a version number (17.1.1). The right panel is the configuration window for [1.1] TS, containing the following fields:

- Original Network ID: 0
- TS ID: 0
- Modulation Mode: ATSC (8 VSB)

Below these fields is a table of services:

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

At the bottom of the right panel are 'OK' and 'Cancel' buttons.

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.

The left panel shows the '1. Program0' entry under [1.1] TS highlighted with a red box. The right panel is the configuration window for [1.1] TS >> Program0, containing the following fields:

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

At the bottom of the right panel are 'OK' and 'Cancel' buttons.

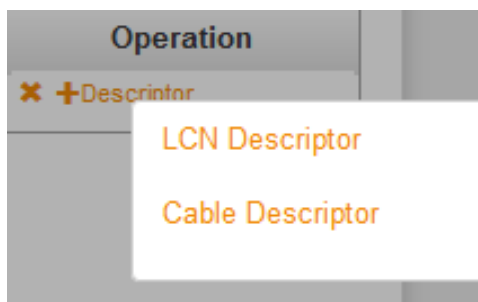
Clicking on the icon  will show you the NIT setting where you can create and add NIT Network and NIT Stream.

The left panel shows the gear icon for [1.1] TS highlighted with a red box. A blue arrow points from this icon to the NIT configuration window on the right. The NIT window is titled '[1.1]' and contains the following sections:

- NIT Network**: A section with 'Tag(Hex)' set to 40 and 'Data(Hex)' set to 313233. Below these is an 'Add' button.
- NIT Stream**: A table with the following data:

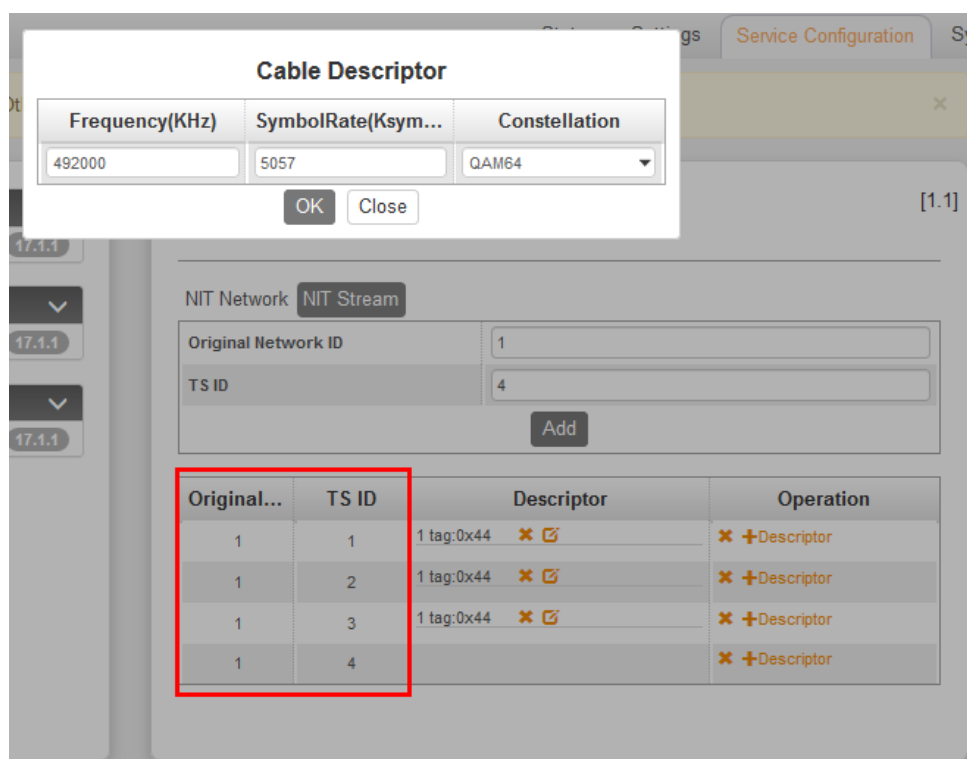
Tag(Hex)	Data(Hex)	Length	Operation
40	313233	3	✗

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	
1	100	Visible	✖

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): 42		PSI/SI Interval(ms): 100		Channel Standard: STD	
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/IRC/ 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.,

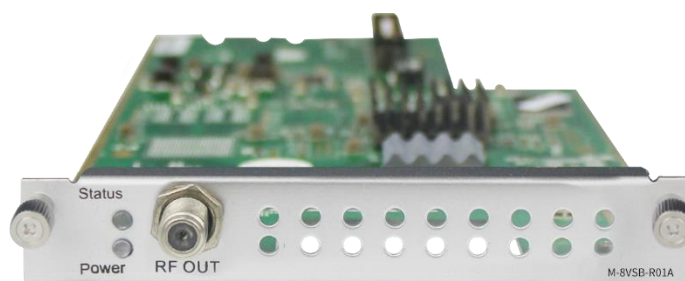
System operation of OHM6-QAMB are same with other modules. See page 74 to 77 for reference.

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 <input checked="" type="radio"/> dBuV <input type="radio"/>)	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 ~ CH 69 – 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> <div>ATSC (8 VSB)</div> <div> Analog SCTE_Mode 1 SCTE_Mode 2 ATSC (8 VSB) </div> </div>		
NO.	Service ID	Service Name	Encoder
1	<input type="text" value="1"/>	Program-02	<input type="text" value="Encoder"/>

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)
Frequency (KHz)	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		

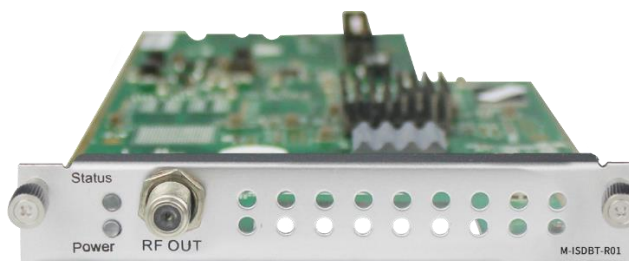
Other PIDs

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.



3.5.7.1 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
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]

OK Close

- 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 screenshot shows the 'NIT' configuration window. It includes fields for 'Original Network ID' (1) and 'TS ID' (4). Below these is a table with columns: 'Original ...', 'TS ID', 'Descriptor', and 'Operation'. The table contains four rows, each with a '1 tag Dv44' descriptor. A context menu is open over the table, showing options: 'LCN Descriptor' and 'Cable Descriptor'. To the right, a smaller window titled 'LCN' shows a 'Service ID' (2) and 'LCN' (1) with a 'Visible Service Flag' set to 'Visible'. A red arrow points from the 'LCN Descriptor' option in the context menu to the 'LCN' window.

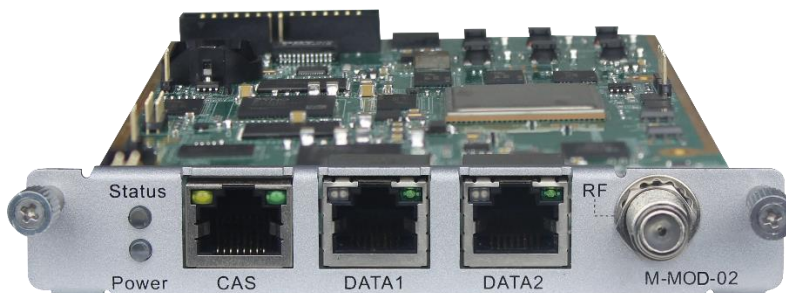
Original ...	TS ID	Descriptor	Operation
1	1	1 tag Dv44	+Descriptor
1	2	1 tag Dv44	+Descriptor
1	3	1 tag Dv44	+Descriptor
1	4	1 tag Dv44	+Descriptor

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

- 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-MOD-02

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.



3.5.8.1 Module Status

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


IP Input > OHM-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























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

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	6.946	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

Channel: 1.1

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

Modulation Output > OHM-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	9.076	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	Effective Bitrate(Mbps)	Total Bitrate(Mbps)	Bitrate	TS Analysis	Service List
1.16	0.000	0.000	Normal		
1.17	0.000	0.000	Normal		
1.18	0.000	0.000	Normal		
1.19	0.000	0.000	Normal		
1.20	0.000	0.000	Normal		
1.21	0.000	0.000	Normal		
1.22	0.000	0.000	Normal		
1.23	0.000	0.000	Normal		
1.24	0.000	0.000	Normal		
1.25	0.000	0.000	Normal		
1.26	0.000	0.000	Normal		
1.27	0.000	0.000	Normal		
1.28	0.000	0.000	Normal		
1.29	0.000	0.000	Normal		
1.30	0.000	0.000	Normal		
1.31	0.000	0.000	Normal		
1.32	0.000	0.000	Normal		

Channel 1.1

#	Service
1	[601] HAPPY
2	[602] HBO FAMILY HD

Channel 1.1 TS Analysis

Reset Counter

Search

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 > OHM-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.

OHM-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	👁	📋

3.5.8.2 Module Basic Setting

OHM-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 ▾

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

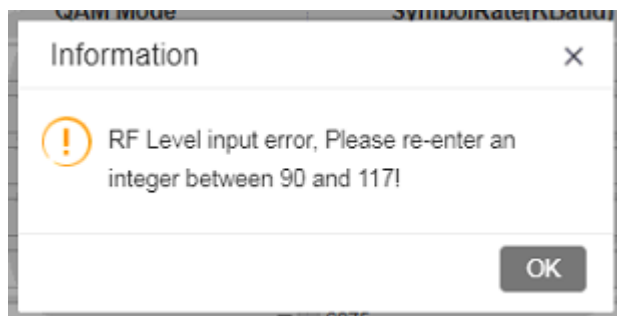
Apply

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

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 ▾

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-FI

Batch Setting

Apply

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

3.5.8.3 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

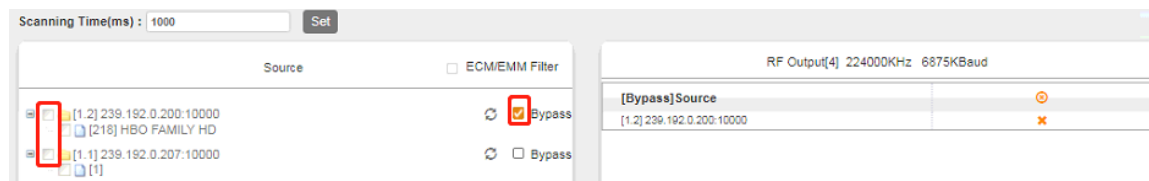
☒ [1.2] 239.192.0.200:10000 ☐ Bypass
☒ [218] HBO FAMILY HD
☒ [1.1] 239.192.0.207:10000 ☐ Bypass
☒ [1]

RF Output[1] 474000KHz 6875KBaud

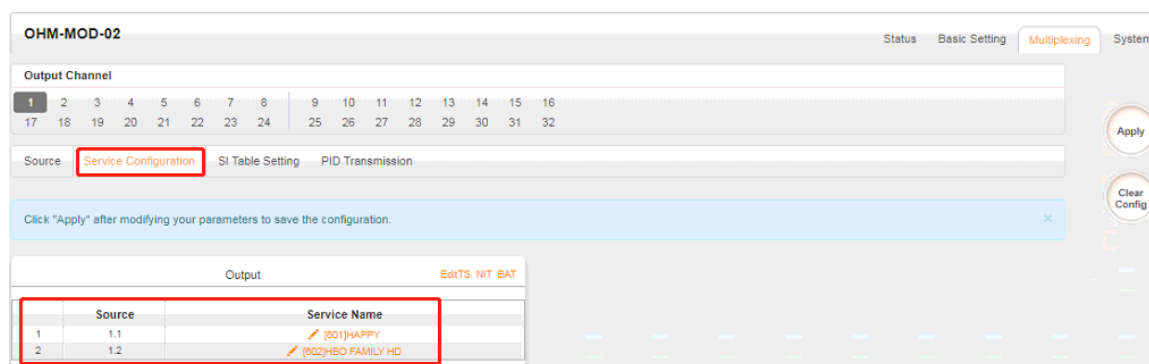
	Source	Service Name	
1	1.1	[1] HAPPY	×
2	1.2	[218] HBO FAMILY HD	×

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

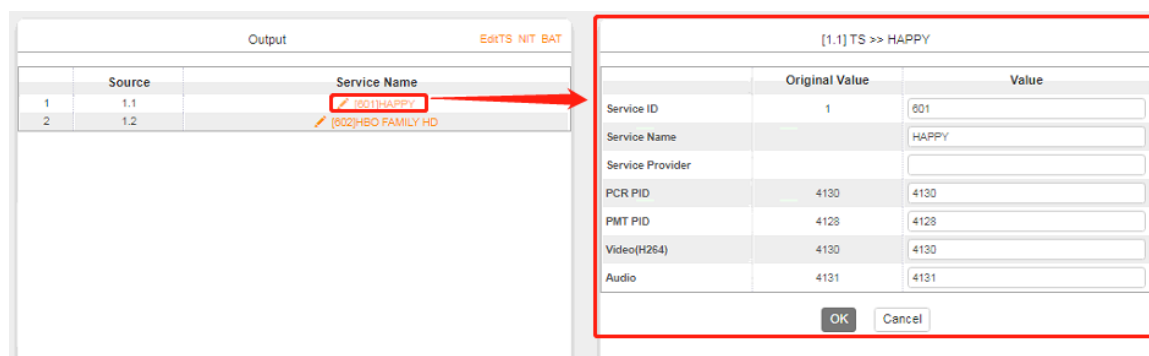
sources. Bypass mode allows you to keep the input signal automatically be redirected to Modulation output without re-scanning the input or transferring it to output.



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.



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.



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

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

[1.1] TS

Original Network ID: 129

TS ID: 1

NO.	Service ID	Service Name	Service Provider
1	001	HAPPY	
2	002	HBO FAMILY HD	

OK Cancel

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

Output

	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: s1

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

	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.

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

Output			Edits	NIT	BAT
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

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

Output			Edits	NIT	BAT
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]

<input checked="" type="checkbox"/> PAT Insert	<input type="checkbox"/> EIT Shared
<input checked="" type="checkbox"/> CAT Insert	<input type="checkbox"/> CAT Shared
<input checked="" type="checkbox"/> SDT Insert	<input type="checkbox"/> SDT Shared
<input checked="" type="checkbox"/> TDT Insert	<input type="checkbox"/> TDT Shared
<input type="checkbox"/> TOT Insert	<input type="checkbox"/> TOT Shared
<input checked="" type="checkbox"/> BAT Insert	<input type="checkbox"/> BAT Shared
<input checked="" type="checkbox"/> NIT Insert	<input type="checkbox"/> NIT Shared
<input checked="" type="checkbox"/> PMT Insert	

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

3.5.8.4 Scrambling

OHM-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
1	[CH-1] > [001]HAPPY	None	None	None	None	None	None
2	[CH-1] > [002]HBO FAMILY HD	None	None	None	None	None	None

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: 1 2 All Scrambled service: 0

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 None	<input type="checkbox"/>	<input type="text"/> Start Service Number <input type="text"/> End Service Number <input type="button" value="OK"/>
<input type="checkbox"/> CAS2 None	<input type="checkbox"/>	
<input type="checkbox"/> CAS3 None	<input type="checkbox"/>	
<input type="checkbox"/> CAS4 None	<input type="checkbox"/>	
<input type="checkbox"/> CAS5 None	<input type="checkbox"/>	
<input type="checkbox"/> CAS6 None	<input type="checkbox"/>	

3.5.8.5 System

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

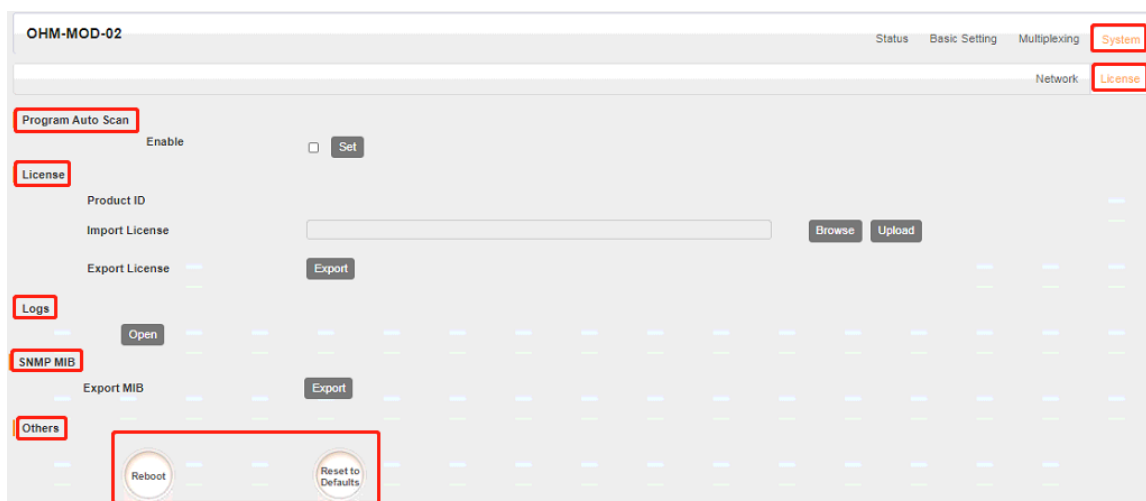
Network> Here you can modify the IP Address, Subnet Mask and Gateway for each port of the module, except for the address of the module itself. This also shows the MAC Address of each port of the module. See the image below for reference.

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	A0:69:96-AA:00:01		
CAS	192.168.2.10	255.255.255.0	192.168.2.254	A0:69:96-AA:00:02	auto	link down
DATA1	192.168.3.10	255.255.255.0	192.168.3.254	A0:69:96-AA:00:03	auto	1000full
DATA2	192.168.4.10	255.255.255.0	192.168.4.254	A0:69:96-AA:00:04	auto	link down

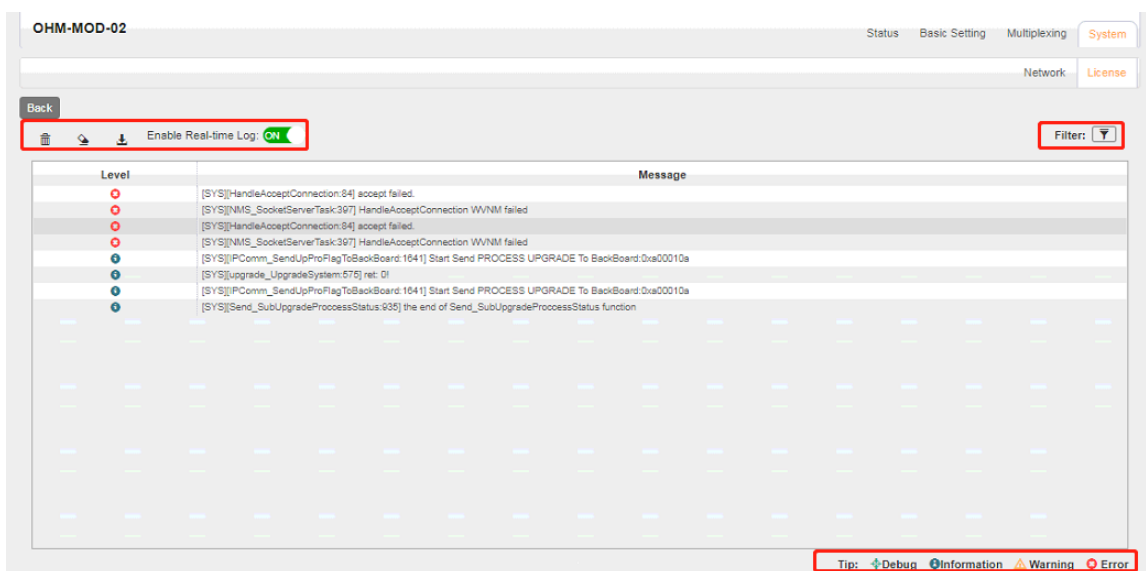
Apply





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



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"/>
TSPROCESS	<input checked="" type="checkbox"/>
SIPROCESS	<input checked="" type="checkbox"/>
LICENSE	<input checked="" type="checkbox"/>
SOCKET	<input checked="" type="checkbox"/>

3.5.9 OHM6-DTMB-03

OHM6-DTMB-03 module supports up to 8 channels of adjacent frequency DTMB modulating board



Module configuration is similar to IP Setting.

OHM6-DTMB-03 >Basic Setting

OHM6-DTMB-03

Status Basic Setting Output PSIP System

Batch Setting ▾

RF Level(dBuV): 40 (dBmV ☒ dBuV ☐
PSI/SI Interval(ms): 100

Channel	Enable	Frequency(KHz)	Constellation Mode	Frame Head Mode	Carrier Mode	RF Level Gain (dB)
1.1	<input type="checkbox"/>	200000	4QAM LDPC 0.4	420 Variable	Single-Carrier	0
1.2	<input type="checkbox"/>	208000	4QAM LDPC 0.4	420 Variable	Single-Carrier	0
1.3	<input type="checkbox"/>	216000	4QAM LDPC 0.4	420 Variable	Single-Carrier	0
1.4	<input type="checkbox"/>	224000	4QAM LDPC 0.4	420 Variable	Single-Carrier	0
1.5	<input type="checkbox"/>	232000	4QAM LDPC 0.4	420 Variable	Single-Carrier	0
1.6	<input type="checkbox"/>	240000	4QAM LDPC 0.4	420 Variable	Single-Carrier	0
1.7	<input type="checkbox"/>	248000	4QAM LDPC 0.4	420 Variable	Single-Carrier	0
1.8	<input type="checkbox"/>	256000	4QAM LDPC 0.4	420 Variable	Single-Carrier	0

Apply

Name	Range	Name	Range
Frequency	48000~862000	RF level Gain(dB)	-10~0
Constellation Mode	4QAM LDPC 0.4/0.6/0.8 16QAM LDPC 0.4/0.6/0.8 32QAM LDPC 0.8 64QAM LDPC 0.4/0.6/0.8	Carrier Mode	Single Carrier
Frame Head Mode	420 Variable 595 Fixed	RF Level (dBuV)	25~60
		PSI/SI Interval	50~10000

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

OHM6-DTMB-03>Service Configuration

- TS setting: Please refer to IP output service configuration.
- 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.

NIT Stream

Original Network ID: 0 TS ID: 0 **Add**

Apply
Clear Config

ONID	TS ID	Descriptor	Operation
0	1	[0x44] Cable Delivery System	
		[0x41] Service List	
		[0x5f] Other	
		[0x83] Logical Channel Number	
0	2	[0x44] Cable Delivery System	
		[0x41] Service List	
		[0x5f] Other	
		[0x83] Logical Channel Number	

Logical Channel Number
Cable Delivery System
Terrestrial Delivery System
Satellite Delivery System
Service List

Logical Channel Number**Add**

TS	Service ID	Service Name	LCN [0, 1023]	Visible Service Flag	<input type="checkbox"/>
1.1	530	STAR Channel	1	Visible	<input type="checkbox"/>
1.1	1501	Yle TV1 HD	2	Visible	<input type="checkbox"/>
1.1	1502	Yle TV2 HD	3	Visible	<input type="checkbox"/>
1.1	3381	C More Max 2 HD	4	Visible	<input type="checkbox"/>
1.1	1503	Yle Teema & Fem HD	5	Visible	<input type="checkbox"/>
1.2	530	STAR Channel	6	Visible	<input type="checkbox"/>
1.2	1501	Yle TV1 HD	7	Visible	<input type="checkbox"/>
1.2	1502	Yle TV2 HD	8	Visible	<input type="checkbox"/>

Service List**Add**

TS	Service ID	Service Name	Service Type	<input type="checkbox"/>
1.1	530	STAR Channel	Advanced Codec HD Digi x	<input type="checkbox"/>
1.1	1501	Yle TV1 HD	Advanced Codec HD Digi x	<input type="checkbox"/>
1.1	1502	Yle TV2 HD	Advanced Codec HD Digi x	<input type="checkbox"/>
1.1	3381	C More Max 2 HD	Advanced Codec HD Digi x	<input type="checkbox"/>

LCN [0, 1023]	Visible Service Flag
1	Visible
2	Visible
3	Visible
4	Visible

- Click **+Descriptor** and **the Cable Descriptor**. Then fill in the correct frequency and symbol rate and choose the correct constellation of the TS (frequency). Then click **OK**. (This operation should be set on Modulator module only).
- You can also add **Terrestrial Delivery System**

Terrestrial Delivery System

Centre Frequency [1, 4294967295](10Hz)

Bandwidth

[Advanced Parameters](#) ▼

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

OHM6-DTMB-03> System

On the **System** page you can **Import/Export License**, **Reboot** module, **Reset to Defaults** and **Manage Logs**.

Channel	Select All <input type="checkbox"/>	PAT Insert	PMT Insert	SDT Insert	NIT Insert	CAT Insert	TDT Insert	TOT Insert
1.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Here in PSIP tab, the user can insert different tables like PAT, PMT, SDT, NIT, TDT, TOT and CAT.

3.5.10 OHM6-QAMA-03

OHM6-QAMA-03 module supports up to 8 channels of adjacent frequency QAM-A/C modulating board.



Module configuration is similar to IP Setting.

OHM6-QAMA-03>Basic Setting

OHM6-QAMA-03

Status Basic Setting Output PSIP System

Batch Setting

RF Level: 40 (dBmV ☒ dBuV ☐ PSI/SI Interval(ms): 100

Channel	Enable	Frequency(KHz)	QAM Mode	SymbolRate(KBaud)	RF Level Gain (dBuV)
1.1	<input checked="" type="checkbox"/>	200000	QAM256	6875	0
1.2	<input checked="" type="checkbox"/>	208000	QAM256	6875	0
1.3	<input checked="" type="checkbox"/>	216000	QAM256	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

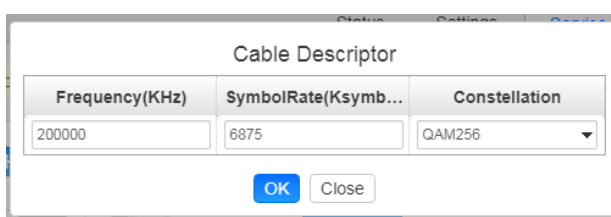
Apply

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

Name	Range	Name	Range
Symbol Rate	3600~3956	RF level gain	-10`~0 (multiple s of 0.5)
Frequency (KHz)	48000~862000	QAM Mode	QAM16/QAM32/QAM64/QAM128/QAM256

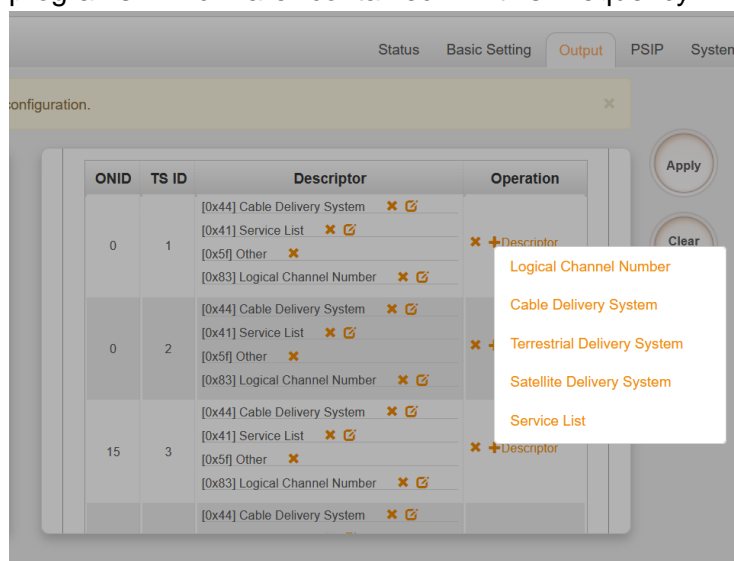
OHM6-QAMA-03>Output

- TS setting: Please refer to IP output configuration.
- LCN setting: You need to add NIT stream of all frequencies in the base TS (frequency) which is used for your STB auto search and identifies 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** and **Cable Descriptor**. Then fill in the correct frequency and symbol rate and choose the correct constellation of the TS (frequency) and then click **OK** (this operation should be set on Modulator module only).



The image shows a 'Cable Descriptor' dialog box with three input fields: 'Frequency(KHz)' containing '200000', 'SymbolRate(Ksymb...' containing '6875', and 'Constellation' set to 'QAM256'. At the bottom are 'OK' and 'Close' buttons.

- Click **+Descriptor** and add the **Logical Channel Number** to check all the programs which are contained in this frequency. Then set programs LCN.



The image shows the 'Output' tab of a configuration window. It contains a table with columns: ONID, TS ID, Descriptor, and Operation. The table lists several descriptors for different ONIDs and TS IDs. A context menu is open over the 'Operation' column, showing options: Logical Channel Number, Cable Delivery System, Terrestrial Delivery System, Satellite Delivery System, and Service List.

ONID	TS ID	Descriptor	Operation
0	1	[0x44] Cable Delivery System	[x] [icon]
		[0x41] Service List	[x] [icon]
		[0x5f] Other	[x]
		[0x83] Logical Channel Number	[x] [icon]
0	2	[0x44] Cable Delivery System	[x] [icon]
		[0x41] Service List	[x] [icon]
		[0x5f] Other	[x]
		[0x83] Logical Channel Number	[x] [icon]
15	3	[0x44] Cable Delivery System	[x] [icon]
		[0x41] Service List	[x] [icon]
		[0x5f] Other	[x]
		[0x83] Logical Channel Number	[x] [icon]

Logical Channel Number Add					
TS	Service ID	Service Name	LCN [0, 1023]	Visible Service Flag	<input type="checkbox"/>
1.1	530	STAR Channel	<input type="text" value="1"/>	Visible ▼	<input type="checkbox"/>
1.1	1501	Yle TV1 HD	<input type="text" value="2"/>	Visible ▼	<input type="checkbox"/>
1.1	1502	Yle TV2 HD	<input type="text" value="3"/>	Visible ▼	<input type="checkbox"/>
1.1	3381	C More Max 2 HD	<input type="text" value="4"/>	Visible ▼	<input type="checkbox"/>
1.1	1503	Yle Teema & Fem HD	<input type="text" value="5"/>	Visible ▼	<input type="checkbox"/>
1.2	530	STAR Channel	<input type="text" value="6"/>	Visible ▼	<input type="checkbox"/>
1.2	1501	Yle TV1 HD	<input type="text" value="7"/>	Visible ▼	<input type="checkbox"/>
1.2	1502	Yle TV2 HD	<input type="text" value="8"/>	Visible ▼	<input type="checkbox"/>

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

3.5.11 OHM6-ISDBT-03

OHM6-ISDBT-03 module supports up to 8 channels of adjacent frequency ISDBT modulating board



OHM6-ISDBT-03>Basic Setting

OHM6-ISDBT-03

Status Basic Setting Output System

Temperature: 33°C (91.4°F)
Tip: The module will automatically power off 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	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		

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

Name	Range	Name	Range
Bandwidth(MHZ)	6M	RF level	25~45dBmV/85~105 dB μ V
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	Convolutional	1/2, 2/3, 3/4, 5/6, 7/8
	16QAM	Coding	
	64QAM		

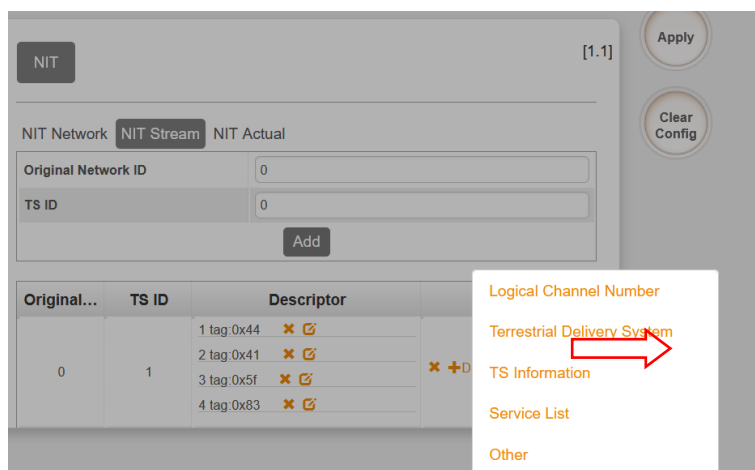
OHM6-ISDBT-03>Output

- TS setting: Please refer to IP output service configuration.
- 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** and **Cable Descriptor**. Fill in the correct frequency and symbol rate and choose the correct constellation of the TS (frequency) and then click OK (this operation should be set on Modulator module only).

Cable Delivery System

Frequency(KHz)	<input type="text" value="234000"/>	[48000,862000]
Symbol Rate(Ksymbol/s)	<input type="text" value="6900"/>	[0,999000]
Modulation	<input type="text" value="256-QAM"/>	
FEC Outer	<input type="text" value="RS(204/188)"/>	
FEC Inner	<input type="text" value="no conv. Coding"/>	

- Click **+Descriptor** and **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 button to let all configuration take effect. Then searching programs in your STB, you will get all programs in the order of LCN you set.

3.5.12 OHM6-OFDM-03

OHM6-OFDM-03 module supports up to 8 channels of adjacent frequency OFDM modulating board.



Module configuration is similar to IP Setting.

OHM6-OFDM-03>Basic Setting

OHM6-OFDM-03

StatusBasic SettingOutputSystem

Temperature: 31°C (87.8°F)
Tip: The module will automatically power off 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	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	👁	📋

OHM6-OFDM-03

StatusBasic SettingOutputSystem

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

Channel	Enable	Frequency(K...	Bandwidth(M...	FFT Mode	GI Mode	QAM Mode	Convolutional Coding	RF Level Gai...
1.1	<input checked="" type="checkbox"/>	200000	6	2K	1/4	16QAM	1/2	0
1.2	<input checked="" type="checkbox"/>	208000	6	2K	1/4	16QAM	1/2	0
1.3	<input checked="" type="checkbox"/>	216000	6	2K	1/4	16QAM	1/2	0
1.4	<input type="checkbox"/>	224000	6	2K	1/4	64QAM	1/2	0
1.5	<input type="checkbox"/>	232000	6	2K	1/4	64QAM	1/2	0
1.6	<input type="checkbox"/>	240000	6	2K	1/4	64QAM	1/2	0
1.7	<input type="checkbox"/>	248000	6	2K	1/4	64QAM	1/2	0
1.8	<input type="checkbox"/>	256000	6	2K	1/4	64QAM	1/2	0

Apply

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

Name	Range	Name	Range
Bandwidth	6M, 7M, 8M	RF level (d buV)	85~120
Frequency (KHz)	48000~862000	FFT Mode	2k
GI Mode	1/4, 1/8, 1/16, 1/32	QAM Mode	QPSK/16QAM/64QAM
Convolutional Coding	1/2, 2/3, 3/4, 5/6, 7/8		

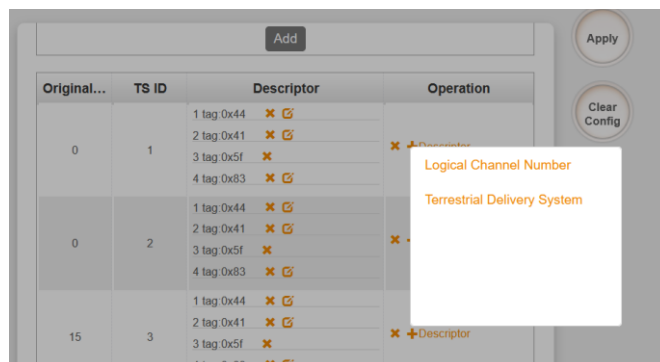
OHM6-OFDM-03>Output

- TS setting: Please refer to IP output configuration.
- LCN setting: You need to add NIT stream of all frequencies in the base TS (frequency) which is used for your STB auto search and identifies 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** and **Cable Descriptor**. Then fill in the correct frequency and symbol rate and choose the correct constellation of the TS (frequency) and then click OK (this operation should be set on Modulator module only).

Cable Delivery System

Frequency(KHz)	<input type="text" value="234000"/>	[48000,862000]
Symbol Rate(Ksymbol/s)	<input type="text" value="6900"/>	[0,999000]
Modulation	<input type="text" value="256-QAM"/>	
FEC Outer	<input type="text" value="RS(204/188)"/>	
FEC Inner	<input type="text" value="no conv. Coding"/>	

- Click **+Descriptor** and add the **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 button to let all configuration take effect. Then searching programs in your STB, you will get all programs in the order of LCN which you set.

3.5.13 OHM6-QAMB-03

OHM6-QAMB-03 module supports up to 4/8 8VSB adjacent frequencies modulating with 1 RF connector for output



Module configuration is similar to IP Setting.

OHM6-QAMB-03>Basic Setting

OHM6-QAMB-03

Status Basic Setting Output PSIP System

Batch Setting ▾

RF Level: 40 (dBmV ☒ dBuV ☐)

PSI/SI Interval(ms): 100

Channel	Enable	Frequency	QAM Mode	SymbolRate(KBaud)	RF Level Gain (dBuV)
1.1	<input type="checkbox"/>	200000	QAM64	6875	0
1.2	<input type="checkbox"/>	208000	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

Apply

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

Name	Range	Name	Range
RF level (1=0.5dB)	15~48	PSI/SI Interval (ms)	50~10000
Channel Standard	OFF-AIR STD IRC SRC	Frequency (KHz)	CH2-57MHz ~ CH69-802MHz

OHM6-QAMB-03 >Output

- TS setting: Please refer to IP output service configuration.
- To use this board, the user need to change the **Standard** to ATSC in **Advance Settings-System Settings**.
- Don't forget to click **APPLY** when you finish configuration.

OHM6-QAMB-03 Status Basic Setting **Output** PSIP System

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

[1.1] TS

1. STAR Channel 6.1.1
2. Yle TV1 HD 6.1.1
3. Yle TV2 HD 6.1.1
4. C More Max 2 HD 6.1.1
5. Yle Teema & Fem HD 6.1.1

[1.1] TS

Original Network ID

TS ID

NO.	Service ID	Service Name	Service Provider
1	530	STAR Channel	STAR Channel
2	1501	Yle TV1 HD	Yle
3	1502	Yle TV2 HD	Yle
4	3381	C More Max 2 HD	CMore
5	1503	Yle Teema & Fem HD	Yle

Other PIDs

Apply Clear Config Add Descript or

The configuration is same with DTMB-03 board

OHM6-QAMB-03> System

OHM6-DTMB-03 Status Basic Setting Output PSIP **System**

License

Product ID

Import License Browse Upload

Export License Export

SNMP MIB

Export MIB Export

Logs

Open

Others

Reboot Reset to Defaults

3.6.1 OHP6-ASI-00

3.6.1.1 Module Status

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.

Channel 1.5 TS Analysis Reset Counter

Search

PID	Bitrate(Mbps)	Bandwidth(%)	Continuity Count Error	Type	Service
0x0(0)	0.015	0.042	8	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	8	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

3.6.1.2 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.

3.6.1.3 ASI Input

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.

3.6.1.4 ASI Output

- 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.

Logical Channel Number ☒ V1 ☐ V2

TS	Service ID	LCN [0, 1023]	Visible Service Flag	
1.1	1	1	Visible	<input checked="" type="checkbox"/>
1.2	1	2	Visible	<input type="checkbox"/>
1.4	1	3	Visible	<input type="checkbox"/>

OK Close

Logical Channel Number ☒ V1 ☐ V2

TS	Service ID	LCN [0, 1023]	Visible Service Flag	
1.1	1	1	Visible	<input checked="" type="checkbox"/>
1.2	1	2	Visible	<input checked="" type="checkbox"/>
1.4	1	3	Visible	<input checked="" type="checkbox"/>

OK Close

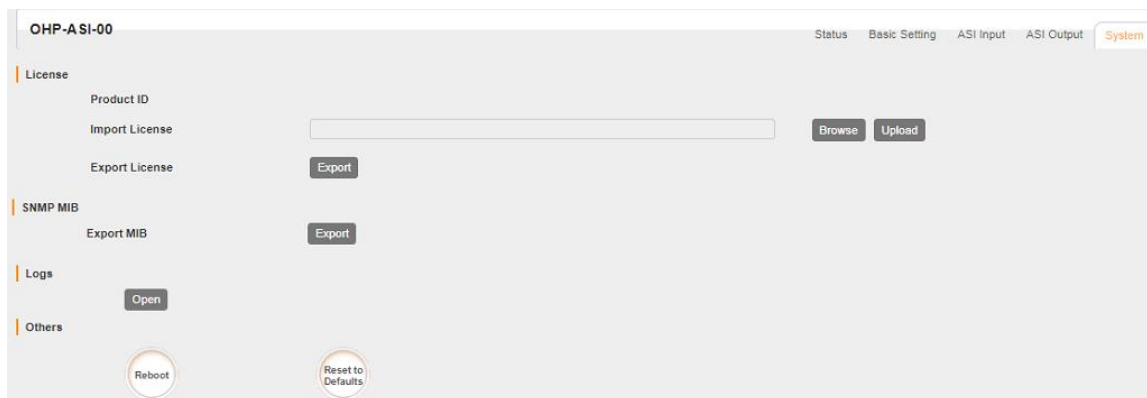
Logical Channel Number ☒ V1 ☐ V2

TS	Service ID	LCN [0, 1023]	Visible Service Flag	
1.1	1	1	Visible	<input checked="" type="checkbox"/>
1.2	1	2	Visible	<input checked="" type="checkbox"/>
1.4	1	3	Visible	<input checked="" type="checkbox"/>

OK Close

- 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.

3.6.1.5 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-00

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



3.6.2.1 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 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			
EAS Signal Input	Digital (IP) Analogue (Dry Contact)	EAS Program Input	ASI AV
Trigger Mode	Normally Open Normally Closed		
Encoder Setting			
Video Type	H.264, MPEG-2	Audio Type	AC3, Mpeg-1 Layer 2 Mpeg2-AAC, Mpeg4-AAC
Video Bit rate (Kbps)	1500~20000	Audio Bitrate (Kbps)	128, 192, 256, 384
Volume	-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

3.6.3 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.



3.6.3.1 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

3.6.3.2 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

CAM1 (Initialize Success)
Reset

CAM Card Name CAMCAS-XCRYPT
CA System ID 19152

CAM2 (Not inserted)

MMI Settings

Apply

PID Service Information Descrambling Status

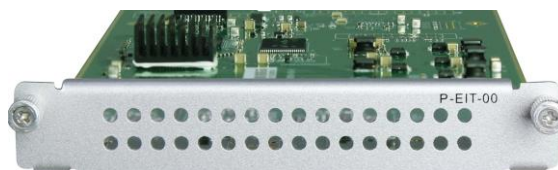
3.6.3.3 Service Configuration

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.

Service Name	Descrambling	Destination	Destination Settings
Channel 1.1			
[1] Program-1	<div> <div>No Descrambling</div> <div>No Descrambling</div> <div>Descrambling</div> </div>		

3.6.4 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.

3.6.4.1 Module Status

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

OHP-EIT-00			
<div> <div>Status</div> <div>Module Setting</div> <div>System</div> </div>			
EIT Enabled Module	Channel	Service Name	Source
Baseboard	CH1	● Program	Slot 11:OHP-EIT-00
3.OHM-OFDM-R01		● Program	Slot 11:OHP-EIT-00

3.6.4.2 Module Setting

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

The screenshot shows the 'OHP-EIT-00' configuration page. On the left, under 'EIT Enabled Module', 'Baseboard' is selected, showing '3 OHM-OFDM-R01'. In the center, the 'EIT Enable/Disable Control' section has a checkbox that is currently unchecked, with '[CH1]' listed below it. On the right, a 'Tips' box contains three instructions: 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. An 'Apply' button is located to the right of the tips box. At the top right, there are tabs for 'Status', 'Module Setting' (which is active), and 'System'.

3.6.4.3 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.

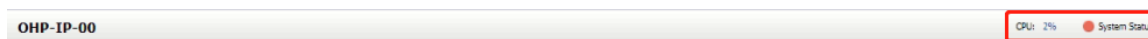
The screenshot shows the 'Module System' interface. It has three main sections: 'License', 'Logs', and 'Others'. In the 'License' section, there is an 'Import License' field with a 'Browse' button and an 'Upload' button, and an 'Export License' button. The 'Logs' section has an 'Open' button. The 'Others' section contains two circular buttons: 'Reboot' and 'Reset to Defaults'.

3.6.5 OHP6-IP-00

OHP-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.



3.5.13.1 Module Status



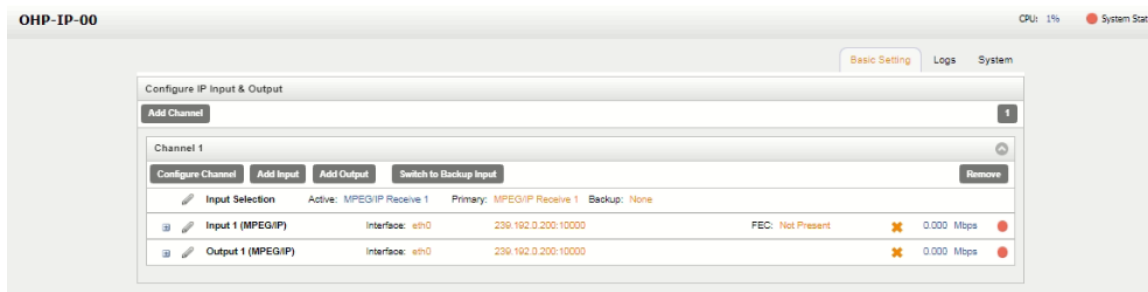
The CPU status (**CPU: 1%**) is shown as a percentage. It reflects the amount of processing capacity that is currently being used.

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.

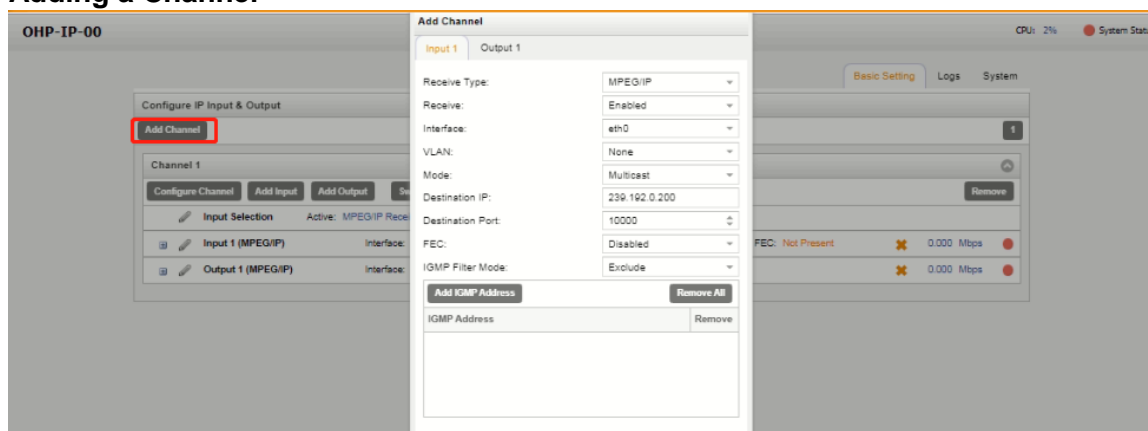
3.5.13.2 Module Settings

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) and RIST inputs. 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 or RIST), 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

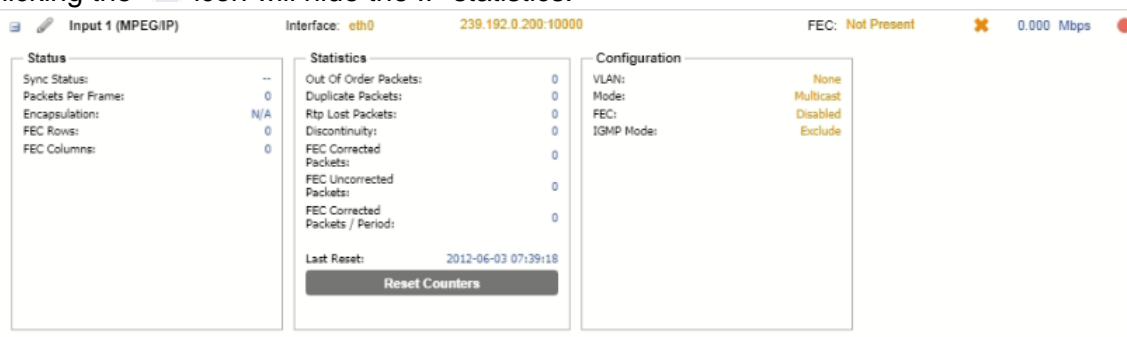
Remove

MPEG/IP Receive Settings


Settings	Range	Description
Mode	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.
Destination IP	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.
Destination Port	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.
FEC	Enabled Disabled	Sets the port to accept FEC on the incoming MPEG/IP stream
IGMP Filter Mode	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

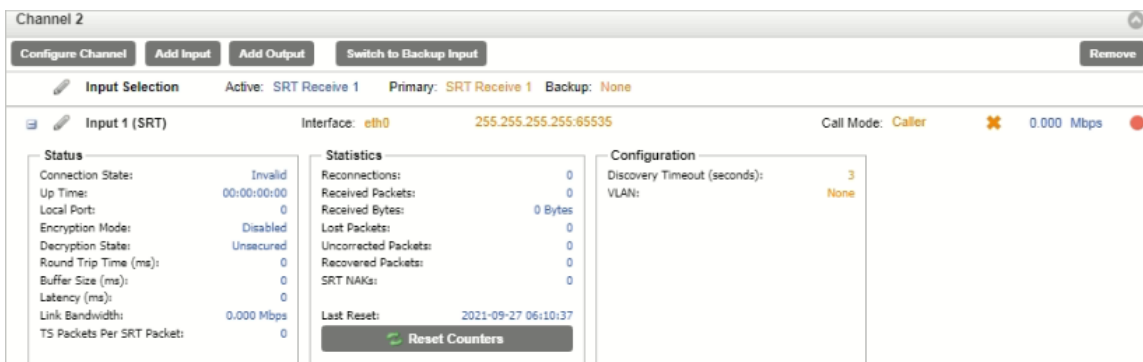
Receive Type: SRT
Receive: Enabled
Interface: eth0
VLAN: None
Call Mode: Caller
Remote Host: 1.0.0.2
Remote Port: 10000
Local Port Mode: Auto
Local Port: 10000
Discovery Timeout (seconds): 3
Latency (ms): 20
Passphrase:

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.



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”.

Add Channel

Input 1 Output 1

Receive Type:

Receive:

Interface:

VLAN:

Remote Host:

Alternate Remote Host:

Remote Port:

Stream ID:

Remote ID:

Password:

Ignore TLS Certificate Error:

Maximum Latency (ms):

Decryption Mode:



Decryption Key:

FEC Overhead (%):


Zixi Receive Settings

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

		milliseconds)
Decryption Mode	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
Decryption Key	User entry	Provides the key to allow signal processing if decryption is to be done
FEC Overhead (%)	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.

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

The screenshot displays the 'Add Channel' configuration window with the 'Input 1' tab selected. The settings for 'Seamless RTP' are as follows:

Field	Value
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

Below the Path 1 settings, there is a section for IGMP addresses with an 'Add IGMP Address' button and a 'Remove All' button. The table below shows the current state of the IGMP address list:

IGMP Address	Remove

The same configuration options and IGMP address section are repeated for Path 2, with the following values:

Field	Value
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

Below the Path 2 settings, there is another section for IGMP addresses with an 'Add IGMP Address' button and a 'Remove All' button. The table below shows the current state of the IGMP address list:

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
Destination IP	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
Destination Port	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
Source IP Mode	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
Source IP	xxx.xxx.xxx.xxx	Defines the Source IP address to be assigned to the output stream
Source Port	0 – 65535	Defines the source IP port to be assigned to

		the output stream
Source MAC Mode	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
Source MAC	xx:xx:xx:xx:xx:xx	The user defined MAC for when using Manual MAC Mode
TS Packets Mode	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
TS Packets per IP Packet	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
Encapsulation	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 1 **Output 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

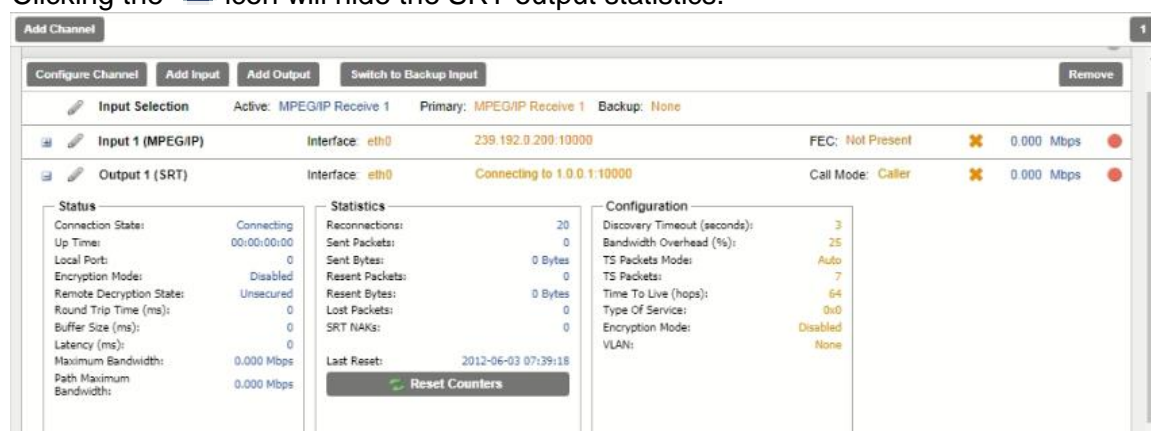
Passphrase: *****

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
Latency (ms)	1 – 8000	Defines buffer size in milliseconds
Bandwidth Overhead (%)	0 – 50	Defines the amount of bandwidth overhead to allow for
TS Packets Mode	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
TS Packets per SRT Packet	1 – 7	Defines the number of TS packets per SRT packet when mode is <i>Manual</i>
Time To Live (hops)	1 – 254	Defines the number of network devices the transmission is allowed to pass through
Type of Service	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.
Encryption Mode	Disabled AES-128 AES-256	Defines which encryption standard to use or if the DMG 7000 will automatically detect this.
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 output statistics.



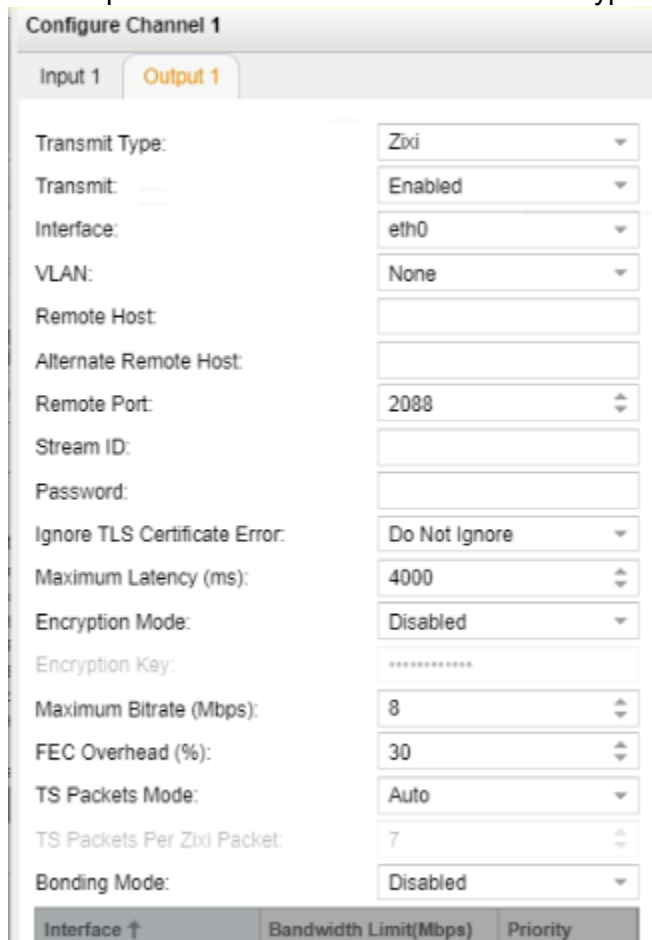
The screenshot displays the SRT Output Statistics window. At the top, there are tabs for 'Configure Channel', 'Add Input', 'Add Output', and 'Switch to Backup Input'. Below these, the 'Input Selection' section shows 'Active: MPEG/IP Receive 1' and 'Primary: MPEG/IP Receive 1'. The 'Output 1 (SRT)' section shows 'Interface: eth0' and 'Connecting to 1.0.0.1:10000'. The 'Status' section on the left lists various connection metrics. The 'Statistics' section in the middle shows real-time data for the SRT connection. The 'Configuration' section on the right lists the settings for the SRT channel, including Discovery Timeout, Bandwidth Overhead, TS Packets Mode, and Encryption Mode.

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”.



Zixi Output Settings

Settings	Range	Description
Remote Host	xxx.xxx.xxx.xxx Domain Name	Defines the host of the remote broadcast using an IP address or domain name
Alternate Remote Host	xxx.xxx.xxx.xxx Domain Name	Defines the alternate host of the remote broadcast using an IP address or domain name
Remote Port	0 – 65535	Defines the port of the stream on the remote device
Stream ID	User entry	Defines the Zixi stream ID to be transmitted
Password	User entry	Provides the password to allow specific Stream ID entered to be received



Ignore TLS Certificate Error	Do Not Ignore Ignore	Defines whether to cease or continue processing if TLS Certificate Error is signaled
Maximum Latency (ms)	30 – 10,000	Defines the maximum latency or buffer size (in milliseconds)
Encryption Mode	Disabled AES-128 AES-192 AES-256 Automatic	Defines which encryption standard to use or if the OHP-IP-00 will automatically detect this
Encryption Key	User entry	The key to be used by downstream decryption devices
FEC Overhead (%)	0 – 50	Defines the amount of static overhead to be used to accommodate FEC
TS Packets Mode	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.
TS Packets per Zixi Packet	1 – 7	User defined value for when <i>Manual</i> mode is enabled.
Bonding Mode	Disabled All interfaces One Interface Any Interface	Specifies which interfaces, if any, are to be set to bonding mode.
Interface Bonding Box	Available for One Interface Mode Any Interface Mode	Allows user to define parameters and details about the port(s) when bonding

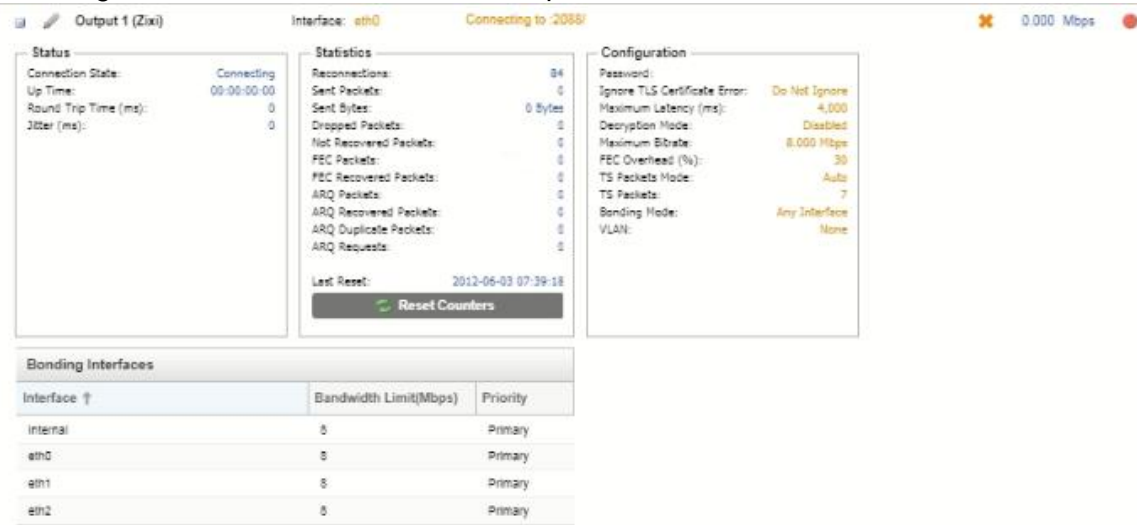
Zixi transmissions can be configured to use multiple interfaces simultaneously (Port Bonding). By defining the maximum bitrate for that interface, the unit will only send up to that rate on that interface. A Primary and Backup interface may also be chosen if redundant links should be used.

Interface ↑	Bandwidth Limit(Mbps)	Priority
Internal	<input type="text" value="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.






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

Zixi Output Statistics

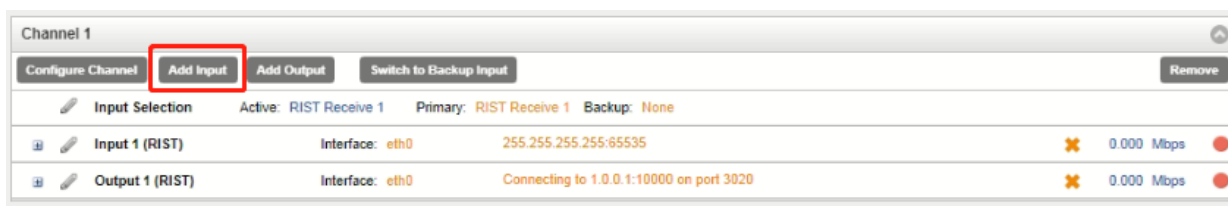
The  button is used to reset all the statistics for incoming Zixi packets and establish a new point of reference.

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

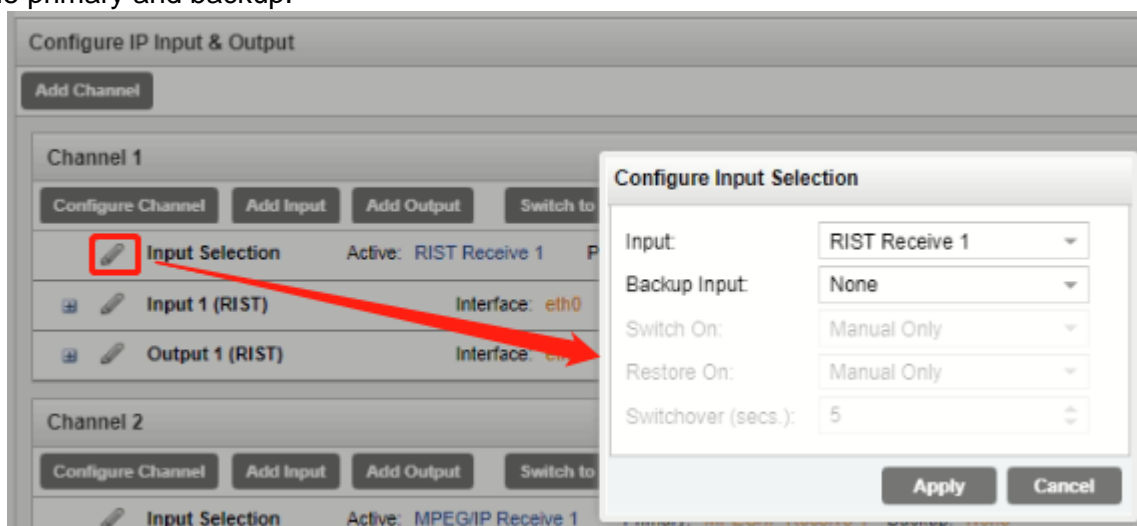
Only one additional input instance can be added, so the option becomes gray as shown below after the second path is added.



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
Input	Input 1 Input 2	Used for both normal operation and input failover settings. During normal operation, this input will be the active input
Backup Input	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.
Switch On	Manual Only TS Sync Loss	Choose the event that triggers the switch from the primary to the backup input
Restore On	Manual Only Primary Input TS Restored Backup Input TS Sync Loss	Choose the event that triggers a switch back to the primary input
Switchover (secs)	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					
<div> Configure Channel Add Input Add Output Switch to Backup Input Remove </div>					
<div> Input Selection Active: RIST Receive 1 Primary: RIST Receive 1 Backup: None </div>					
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					
<div> Configure Channel Add Input Add Output Switch to Primary Input Remove </div>					
<div> Input Selection Active: MPEG/IP Receive 2 Primary: RIST Receive 1 Backup: MPEG/IP Receive 2 </div>					
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

3.5.13.3 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.

Reporting Control Panel			
Alarms		Logs	Configure
State	Name	Location	Last Changed
	Transport Stream Not Present	Gateway Receive 1 (Gateway 1)	2012-05-03 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

Reporting Control Panel			
Alarms		Logs	Configure
State	Name	Location	Last Changed
	Transport Stream Not Present	Gateway Receive 1 (Gateway 1)	2012-05-03 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

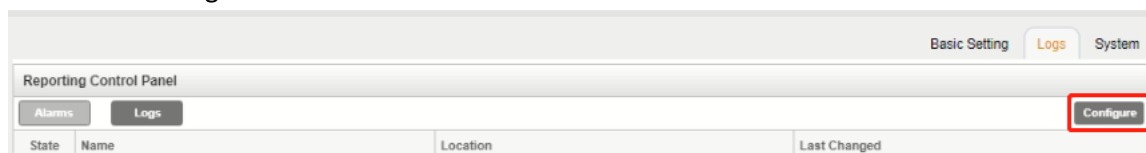
Clicking on the Alarms button displays the Active Alarms menu. This list displays all of the active alarms currently being reported by the unit. There are four columns in the log that display different types of information

Alarms	
Column Name	Description
State	<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>
Name	This column displays the description of the detected instance.
Location	This column displays the hardware or function that is experiencing the active error.

Last Changed	This column displays the data and time the error was raised. Timestamps here are determined with the Date and Time settings configured in the Time tab under System Setting of the CMP baseboard
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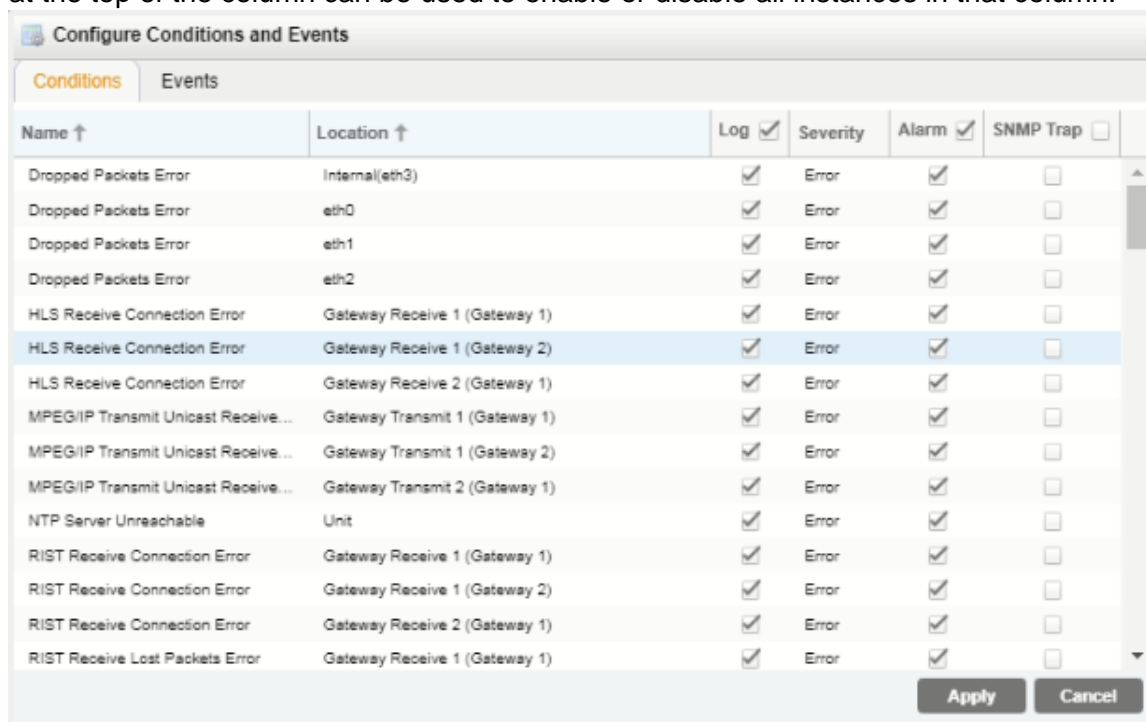
Configuring the Alarms

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.
Log	A checked box defines which instances will be recorded to the log file
Severity	A dropdown box within the row allows the user to define the instance as an Error or Information event.
Alarm	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.
SNMP Trap	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.

Configure Conditions and Events			
Conditions		Events	
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 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
Name	Defines the error message that will be provided if the instance is detected.
Location	This will always be “Unit” since these instances are global
Log	A checked box defines which instances will be recorded to the log file.
SNMP Trap	A checked box defines which instances will trigger the OHP-IP-00 module to send a trap message.






Event Logs

Severity	Timestamp	Transition	Location	Message
1	2021-09-27 07:24:42	+	Gateway Transmit 2 (Gate...	Unicast Receiver Not Found - Cleared
1	2021-09-27 07:24:42	+	Gateway Transmit 2 (Gate...	RIST Transmit Connection OK
1	2021-09-27 07:24:41	+	Gateway Transmit 2 (Gate...	RIST Transmit Lost Packets OK
1	2021-09-27 07:24:41	+	Gateway Transmit 2 (Gate...	Zixi Transmit Connection OK
1	2021-09-27 07:24:41	+	Gateway Transmit 2 (Gate...	Zixi Transmit Not Recovered Packets OK
1	2021-09-27 07:24:41	+	Gateway Transmit 2 (Gate...	Zixi Transmit Dropped Packets OK
1	2021-09-27 07:24:41	+	Gateway Transmit 2 (Gate...	SRT Transmit Connection OK
1	2021-09-27 07:24:41	+	Gateway Transmit 2 (Gate...	SRT Transmit Lost Packets OK
1	2021-09-27 07:24:41	+	Gateway Transmit 2 (Gate...	SRT Transmit NAK Received OK
1	2021-09-27 07:24:19	+	Gateway Receive 2 (Gatew...	Seamless RTP Reception OK
1	2021-09-27 07:24:19	+	Gateway Receive 1 (Gatew...	Seamless RTP Reception OK
1	2021-09-27 07:24:18	+	Gateway Receive 2 (Gatew...	TS Sync Loss OK
1	2021-09-27 07:24:18	+	Gateway Receive 2 (Gatew...	RIST Receive Connection OK
1	2021-09-27 07:24:18	+	Gateway Receive 2 (Gatew...	RIST Receive Lost Packets OK
1	2021-09-27 07:24:18	+	Gateway Receive 2 (Gatew...	TS Sync Loss OK
1	2021-09-27 07:24:18	+	Gateway Receive 2 (Gatew...	HLS Receive Connection OK

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.

Refresh		Prompts the OHP-IP-00 to update the displayed logs.
Clear		Clears the log file.
Download		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.

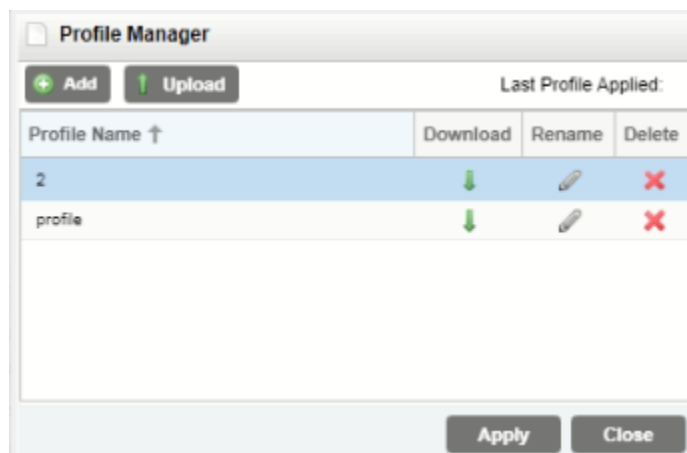
Column Name	Description
Severity	<p>The  Info icon means the message is Informational and no error has been detected.</p> <p>The  Error icon means the message is an Alarm and the unit status has been set to 'Error'.</p>
Timestamp	This is the OHP-IP-00 module associated date and time of the instance.
Transition	<p>The  Went Bad icon means the instance entered into an Error state.</p> <p>The  Went Good icon means the instance entered into a Clear state.</p> <p>The  Event icon means a single point instance (such as NTP Time was updated) took place.</p>
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**.

3.5.13.4 System Settings





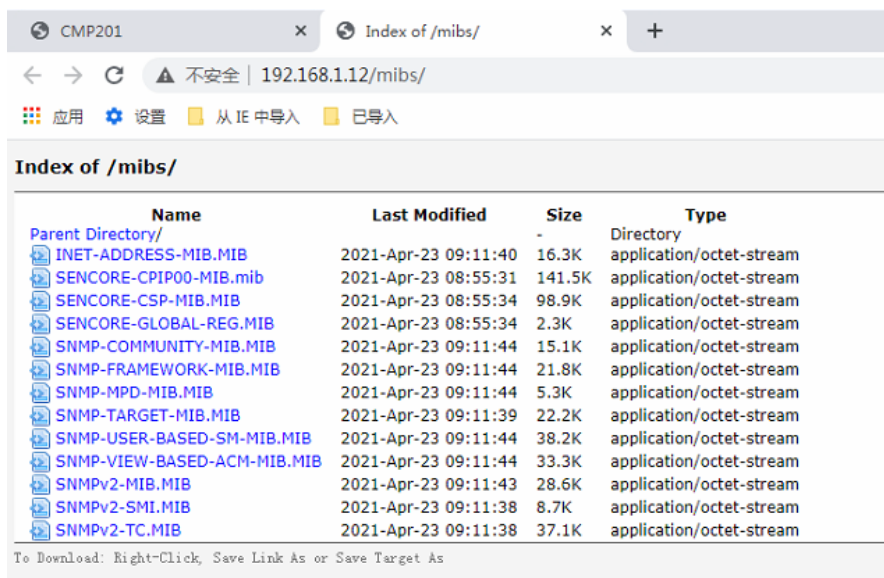
The OHP-IP-00 has the ability to save all configured settings to multiple profiles. Profiles can be saved locally, renamed and saved to external storage to be used on other OHP-IP-00 modules. Profiles can be used to quickly and easily change the configuration of the module to suit different inputs and decoding requirements.

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

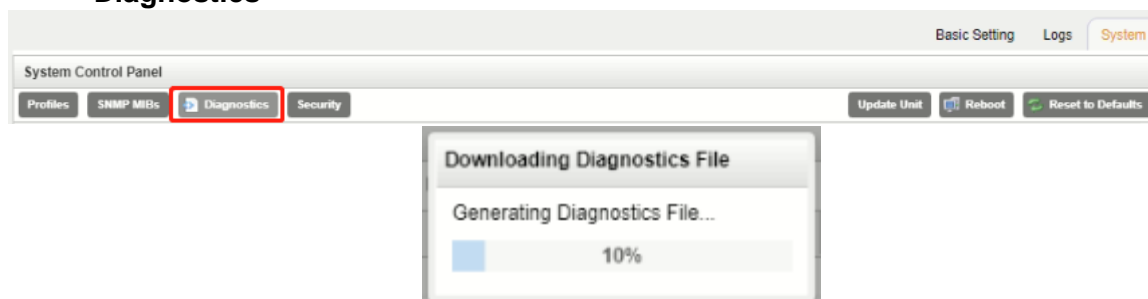
SNMP MIB files



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

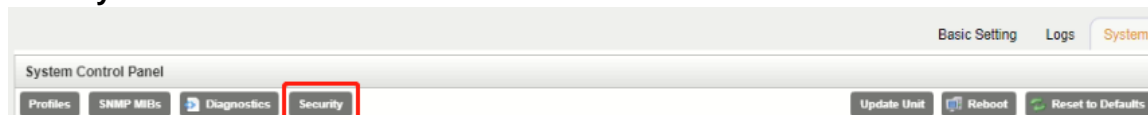


The OHP-IP-00 provides the user the ability to take a snapshot of the ALL current unit settings, reported values, active alarms, and the alarm and log file history. This snapshot will be downloaded as an .XML format file that can be attached in an email or opened for viewing.

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.

Security Manager

Certificate Signing Request

Country Name:

State or Province Name:

Locality Name:

Organization Name:

Organizational Unit Name:

Common Name:

Email Address:

Certificate Signing Request File Name:

Generate New CSR File:

Download Generate CSR File:

Delete Old CSR File:

Delete Old Local Private Key File:







Local Certificate File:


Local Private Key File:

Remote Certificate File:

Security Manager Menu

Settings	Range	Description
Name	User entry	Country Name for generated CSR file
State or Province Name	User entry	State/Province Name for generated CSR file
Locality Name	User entry	Locality Name for generated CSR file
Organization Name	User entry	Organization Name for the generated CSR file
Organizational Unit Name	User entry	Organizational Unit Name for the generated CSR file
Common Name	User entry	Common Name for the generated CSR file
Email Address	User entry	Email Address for reference on the generated CSR file
Generate New CSR File	<input type="button" value="Generate"/>	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
Download Generate CSR File		This icon will download the locally generated CSR file onto a remote machine
Delete Old CSR File		This icon will delete the locally generated CSR file
Delete Old Local Private Key File		This icon will delete the locally generated private key file
Local Certificate File		Use this icon to upload the local certificate file
Local Private Key File		Use this icon to upload the local private key file
Remote Certificate File		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: 

Download Generate CSR File: 

Delete Old CSR File: 

Delete Old Local Private Key File: 

Local Certificate Files: 

Local Private Key Files: 

Remote Certificate Files: 

Generated Private Key and CSR Files

Enabling DTLS

In order to make a successful DTLS connection when enabling encryption and decryption on RIST receive and transmit instances, a “Local Certificate File”, “Local Private Key File” and “Remote Certificate File” must be uploaded to the Security Manager.

As shown in the figure, the same Certificate File may be uploaded to both the Local and Remote Certificate File fields.

Local Certificate Files: 

Local Private Key Files: 

Remote Certificate Files: 

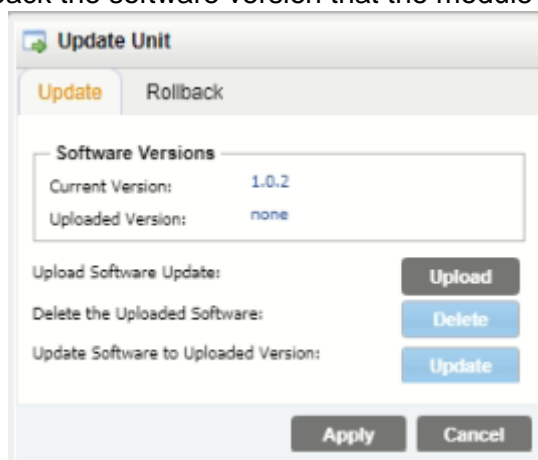
Uploaded Key and Certificate Files

When making a DTLS connection between a OHP-IP-00 that is transmitting RIST and a OHP-IP-00 that is receiving RIST, these same files must be uploaded to both units. Additionally, both the output and input instance on each unit must have Profile Mode configured for “Main” and Encryption Mode configured for “DTLS”.

Updating the System Software

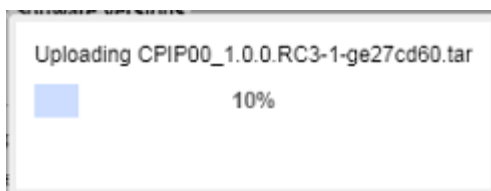


Updates to the OHP-IP-00 are performed through the web interface. A software update file is provided by Wellav and then uploaded to the unit. To request the latest software version or a copy of the release notes please contact our after-sales technical support team. The 'Update Unit' button is in the 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.

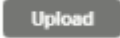




Applying software updates

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.

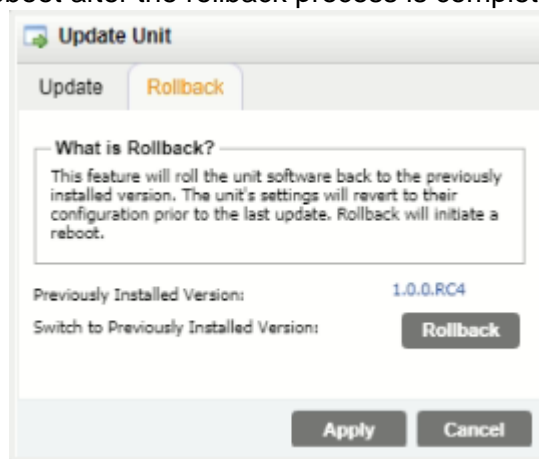


Upload Software		To upload software updates to OHP-IP-00 module, click this button. The user will be prompted to navigate to an
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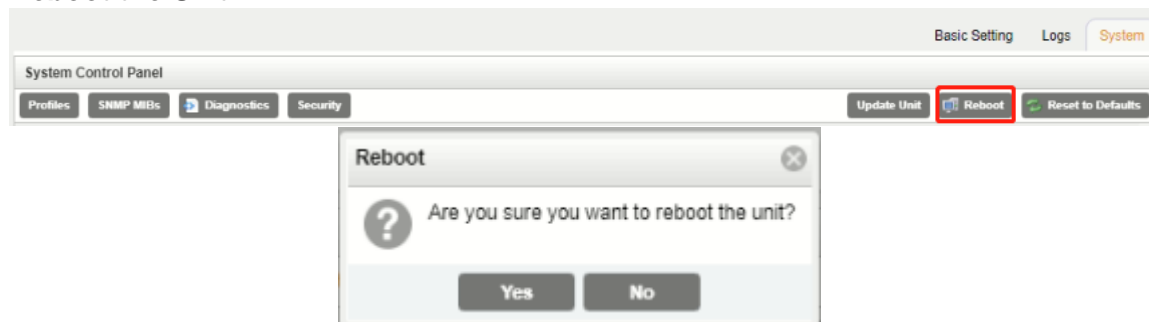
Update		update file. The file will then upload to the module. When completed, the module will prompt the user to either apply the update or cancel
Delete the Uploaded Software		Clicking this button prompts the user to confirm the deletion of the software update from the OHP-IP-00 module. This will also 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.



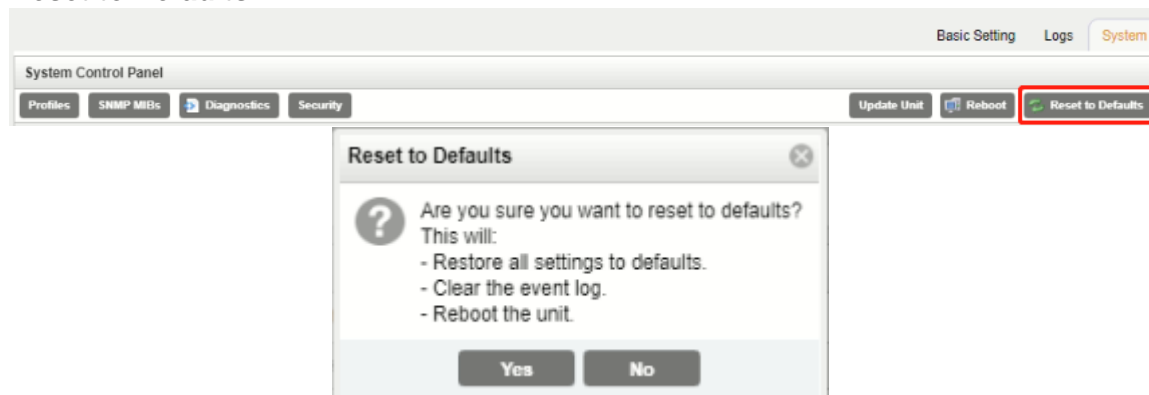
Reboot the Unit



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.

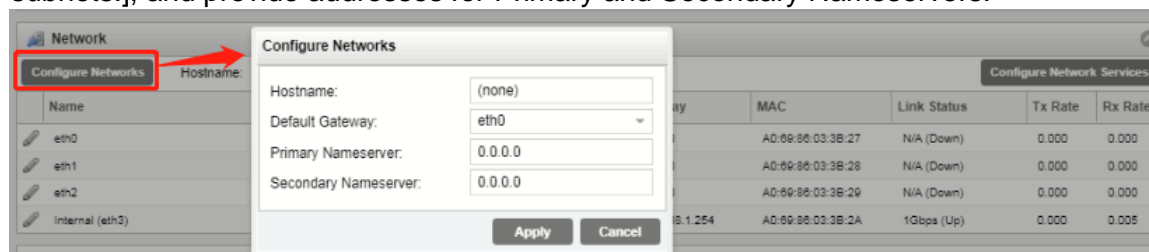
Reset to Defaults



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.

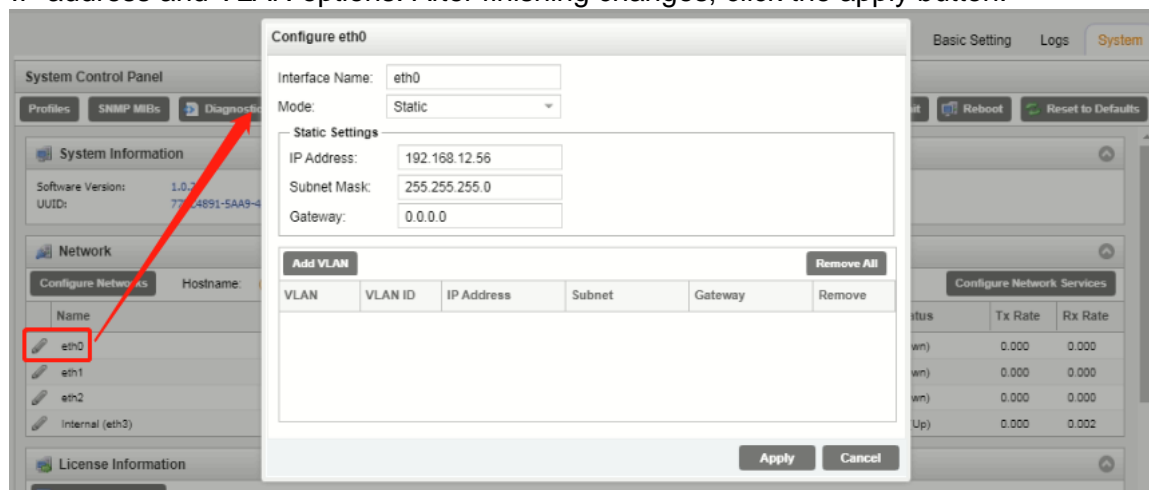


Setting	Available Selections	Descriptions
Hostname	Alphanumeric, no spaces allowed	Defines optional system name
Default Gateway	Eth0, Eth1, Eth2, Internal	Defines which physical port gateway address is to be used
Primary Nameserver	xxx.xxx.xxx.xxx	IP address of Primary (DNS)

		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
Gateway	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.



Add VLAN

VLAN Name:

VLAN Tag ID:

IP Address:

Subnet Mask:

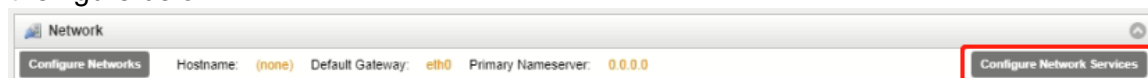
Gateway:

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

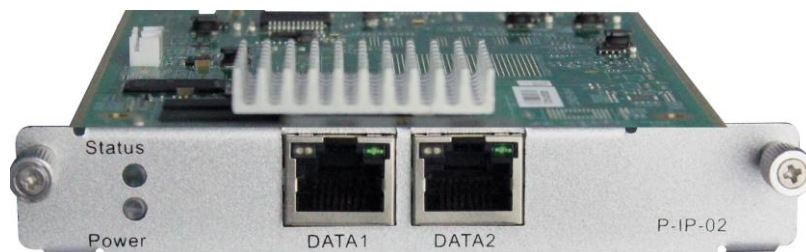
Certain features of the OHP-IP-00 require licenses in order to be functional. The interface displays all licenses available as well as the following status:

- 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.

3.6.6 OHP6-IP-02

OHP6-IP-02 is a Gigabit IP multiplexing processing module, with 2 RJ45 Gigabit port, support UDP/RTP protocol, the single port maximum support 120 channels input and 120 channels output



Click the IP **Input** in the menu to go into IP input page where you can see **Status**, **Basic Setting**, **IGMP Setting** and **Service Configuration**.

IP Input >Status

In this page, you can check info of each channel: Total Bit Rate, Effect Bit Rate, TS Analysis and Service List.

OHP6-IP-02

Input

Output

System Setting

Status

Basic Setting

IGMP Setting

Service Configuration

Port 1

Port 2

Total Bitrate: 0.000 Mbps

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

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

- **TS Analysis**

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

Channel1.1 TS Analysis

Reset Counter

Search

PID	Bit Rate(Mbps)	Bandwidth(%)	Continuity Count Error	Type	Service
0x0(0)	0.001	0.085	0	PAT	
0x11(17)	0.001	0.085	0	SDT	
0x102(258)	0.001	0.085	0	Other	
0x103(259)	0.001	0.085	0	Other	
0x201(513)	0.269	22.816	0	Other	
0x202(514)	0.242	20.526	0	Other	
0x294(660)	0.021	1.781	0	Other	
0x29e(670)	0.021	1.781	0	Other	

Tips:

- Service List

Click a service name to check its detailed info.

Channel : 1.1

#	Service
1	[302] CCTV 2
2	[303] CCTV 7

[302] CCTV 2

Type	PID	Bit Rate(Mbps)
PCR	8190	0.044
PMT	258	0.018
Video(MPEG2)	513	4.899
Audio	660	0.256

Close

IP Input > Basic Settings

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

OHP6-IP-02

Input Output System Setting

Status Basic Setting IGMP Setting Service Configuration

Port 1 Port 2

Batch Setting ^

Select All ☐

☐ Enable Disable

☐ Protocol UDP

Start Channel-End Channel 1 - 128

☐ Destination IP Address 227.10.20.80 Same

☐ Destination Port 1234 Same

☐ Pkt Length 7

Batch Setting

Apply

Channel	Enable	Destination IP Address	Destination Port	Protocol	Pkt Length
1.1	<input type="checkbox"/>	239.192.0.100	10000	UDP	Auto
1.2	<input type="checkbox"/>	227.10.20.2	1234	UDP	Auto
1.3	<input type="checkbox"/>	227.10.20.3	1234	UDP	Auto

If you want to configure a batch of channels, please click [Batch Setting](#). To set the IP input parameters in batch, you can check the boxes before parameters you need then choose / modify the values.. Click **Apply** to make the setting take effect.

Batch Setting ^

Select All ☐

☐ Enable Disable

☐ Protocol UDP

Start Channel-End Channel 1 - 128

☐ Destination IP Address 227.10.20.80 Same

☐ Destination Port 1234 Same

☐ Pkt Length 7

Batch Setting

Apply

Channel	Enable	Destination IP Address	Destination Port	Protocol	Pkt Length
1.1	<input checked="" type="checkbox"/>	239.192.0.100	10000	UDP	Auto
1.2	<input checked="" type="checkbox"/>	227.10.20.2	1234	UDP	Auto
1.3	<input checked="" type="checkbox"/>	227.10.20.3	1234	UDP	Auto
1.4	<input checked="" type="checkbox"/>	227.10.20.4	1234	UDP	Auto
1.5	<input checked="" type="checkbox"/>	227.10.20.5	1234	UDP	Auto
1.6	<input type="checkbox"/>	227.10.20.6	1234	UDP	Auto

IP Input >IGMP Setting

In this tab, user can choose **IGMP version**, **IGMP Automatic Report**, and **IGMP Report Cycle(s)**.

OHP6-IP-02

Input Output System Setting

Status Basic Setting IGMP Setting Service Configuration

IGMP Version: V2

IGMP Automatic Report: Enable

IGMP Report Cycle(s): 15

Apply

IP Input >Service Configuration

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

OHP6-IP-02

Input Output System Setting

Status Basic Setting IGMP Setting Service Configuration

Port 1 Port 2

Channel Select: Channel 1.1 Scanning Time(ms): 10000 SI Search Time(ms): 5000 Program Scan

Service Name	Destination	Destination Setting
Channel 1.1 +		⚙️
[1] 2.5M-CCTV1		✎
PID 16 (Other PID)		✎
PID 18 (Other PID)		✎

Apply

Clear Config

- Multiplex or Bypass stream: Click the setting icon (⚙️), check the output module, and then you can set the output channel of this stream. After you select bypass mode, this output channel will be occupied only by this stream.
- Multiplex services: You should click the service line setting icon (✎) to make the certain service output from certain channel combining with other services. The operation you can refer to multiplex stream output.

x

[1]2.5M-CCTV1

☐ 5.OHP6-IP-02

☒ 17.Baseboard

<
1
2
3
4
5
6
7
8
>

Channel1	<input checked="" type="checkbox"/> Multiplex
Channel2	<input type="checkbox"/> Multiplex
Channel3	<input type="checkbox"/> Multiplex
Channel4	<input type="checkbox"/> Multiplex
Channel5	<input type="checkbox"/> Multiplex
Channel6	<input type="checkbox"/> Multiplex
Channel7	<input type="checkbox"/> Multiplex
Channel8	<input type="checkbox"/> Multiplex
Channel9	<input type="checkbox"/> Multiplex
Channel10	<input type="checkbox"/> Multiplex
Channel11	<input type="checkbox"/> Multiplex

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



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

IP Output >Status

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

OHP6-IP-02

Input

Output

System Setting

Status

Basic Setting

Service Configuration

PSIP

Port 1

Port 2

Total Bitrate: 0.000 Mbps

Channel	IP Address: Port	Effective Bitrate(...)	Total Bitrate(M...	Bitrate	TS Analysis	Service List
1.1	0.0.0.0 : 0	0.000	0.000	Normal	👁	⋮
1.2	0.0.0.0 : 0	0.000	0.000	Normal	👁	⋮
1.3	227.20.30.3 : 1234	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	👁	⋮

IP Output >Basic Settings

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

OHP6-IP-02									
				Input	Output	System Setting			
				Status	Basic Setting	Service Configuration			
							PSIP		
							Port 1		
							Port 2		
Batch Setting ▾									
TX Interval: 100 (ms) Null Packet Filter: Enable ▾									
<div> < 1 2 3 4 5 6 7 8 > </div>									
Channel	Enable	Source Port	Destination IP ...	Destination...	Protocol	Pkt Length	Bitrate...	Enable Destination MAC	Destination M...
1.1	<input type="checkbox"/>	1000	227.20.30.1	1234	UDP ▾	7 ▾	25	Disable ▾	01:00:5E:14:1E:01
1.2	<input type="checkbox"/>	1000	227.20.30.2	1234	UDP ▾	7 ▾	5	Disable ▾	01:00:5E:14:1E:02
1.3	<input checked="" type="checkbox"/>	1000	227.20.30.3	1234	UDP ▾	7 ▾	8	Disable ▾	01:00:5E:14:1E:03
1.4	<input type="checkbox"/>	1000	227.20.30.4	1234	UDP ▾	7 ▾	40	Disable ▾	00:00:00:00:00:00
1.5	<input type="checkbox"/>	1000	227.20.30.5	1234	UDP ▾	7 ▾	40	Disable ▾	00:00:00:00:00:00
1.6	<input type="checkbox"/>	1000	227.20.30.6	1234	UDP ▾	7 ▾	40	Disable ▾	00:00:00:00:00:00
1.7	<input type="checkbox"/>	1000	227.20.30.7	1234	UDP ▾	7 ▾	40	Disable ▾	00:00:00:00:00:00

Apply

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



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

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

Batch Setting of IP output channels is also similar to that of IP input.

IP Output >Service Configuration

You can make configuration for output services and TS.

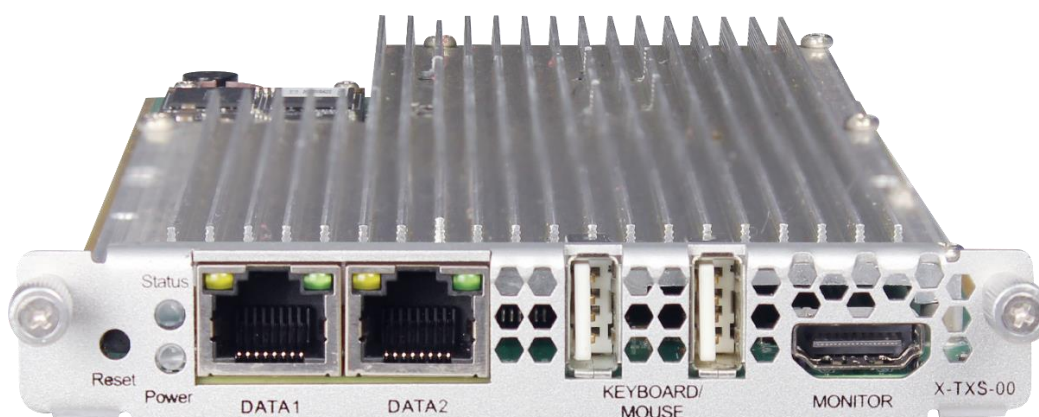
- TS setting: Click TS line (the blue area) to configure Original Network ID, TS ID and each Service ID, Service Name, and Service Provider.
- NIT setting: Please refer to CM-QAM-00 module.

Transcode Modules

3.7.1 OHX6-TXS-00

OHX6-TXS-00 is a transcoder module that supports transcoding between different video compression standards such as H.265, H.264 and MPEG-2. The module has 2 GbE ports, 2 USB ports and 1 HDMI port. The GbE ports will be used for IP stream input and output while USB port and HDMI port will be used for OS installation.

With this transcoder module, you're able to output programs with desired codec to adapt to various decoder terminals and/or further transmission.




OHX6-TXS-00 >Status

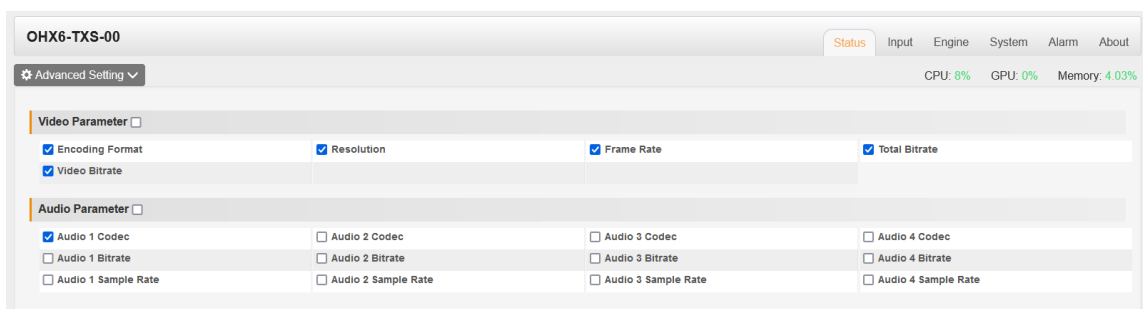
Status allows the user to have an overview about the details of current status and media info of input and output. User could drag the bar below to see more info.

Engine	Status	Run Time	Input			Output				
			Input Source	Service	View	Output URL	Preview	Encoding Format	Resolution	Frame Rat
1	●	0:0:12	UDP://227.10.29.99:4027:Data 1	[5]	👁	RTP://227.10.29.99:4020	🖼	MPEG-2	1920 x 1080	29.97Hz Interl
2	●	0:0:0	UDP://0.0.0.0:5001:Internal	[1] NONE	👁	http://10.38.223.15/live_2_1.sdp	🖼	MPEG-2	1920 x 1080	Auto
3	●	0:0:0	UDP://0.0.0.0:5001:Internal	[1] NONE	👁	UDP://0.0.0.0:6003	🖼	MPEG-2	1920 x 1080	Auto
4	●	0:0:0	UDP://0.0.0.0:5001:Internal	[1] NONE	👁	UDP://0.0.0.0:6004	🖼	MPEG-2	1920 x 1080	Auto
5	●	0:0:0	UDP://0.0.0.0:5001:Internal	[1] NONE	👁	UDP://0.0.0.0:6005	🖼	MPEG-2	1920 x 1080	Auto
6	●	0:0:0	UDP://0.0.0.0:5001:Internal	[1] NONE	👁	UDP://0.0.0.0:6006	🖼	MPEG-2	1920 x 1080	Auto
7	●	0:0:0	UDP://0.0.0.0:5001:Internal	[1] NONE	👁	UDP://0.0.0.0:6007	🖼	MPEG-2	1920 x 1080	Auto
8	●	0:0:0	UDP://0.0.0.0:5001:Internal	[1] NONE	👁	UDP://0.0.0.0:6008	🖼	MPEG-2	1920 x 1080	Auto
9	●	0:0:0	UDP://0.0.0.0:5001:Internal	[1] NONE	👁	UDP://0.0.0.0:6009	🖼	MPEG-2	1920 x 1080	Auto
10	●	0:0:0	UDP://0.0.0.0:5001:Internal	[1] NONE	👁	UDP://0.0.0.0:6010	🖼	MPEG-2	1920 x 1080	Auto

Output URL	Preview	Encoding Format	Resolution	Frame Rate	Total Bitrate(Mbps)	Video Bitrate(Mbps)	Audio 1 Codec
RTP://227.10.29.99:4020		MPEG-2	1920 x 1080	29.97Hz Interlaced	15.00(Mbps)	12.00(Mbps)	AC3
http://10.38.223.15/live_2_1.sdp		MPEG-2	1920 x 1080	Auto	8.80(Mbps)	8.00(Mbps)	MPEG1/L2
UDP://0.0.0.0:6003		MPEG-2	1920 x 1080	Auto	8.80(Mbps)	8.00(Mbps)	MPEG1/L2
UDP://0.0.0.0:6004		MPEG-2	1920 x 1080	Auto	8.80(Mbps)	8.00(Mbps)	MPEG1/L2
UDP://0.0.0.0:6005		MPEG-2	1920 x 1080	Auto	8.80(Mbps)	8.00(Mbps)	AC3
UDP://0.0.0.0:6006		MPEG-2	1920 x 1080	Auto	8.80(Mbps)	8.00(Mbps)	MPEG1/L2
UDP://0.0.0.0:6007		MPEG-2	1920 x 1080	Auto	8.80(Mbps)	8.00(Mbps)	MPEG1/L2
UDP://0.0.0.0:6008		MPEG-2	1920 x 1080	Auto	8.80(Mbps)	8.00(Mbps)	MPEG1/L2
UDP://0.0.0.0:6009		MPEG-2	1920 x 1080	Auto	8.80(Mbps)	8.00(Mbps)	MPEG1/L2
UDP://0.0.0.0:6010		MPEG-2	1920 x 1080	Auto	8.80(Mbps)	8.00(Mbps)	MPEG1/L2

- **Engine:** Show channel number. The amount of input channels is controlled by license.
- **Status:** Show channel status. When channel is on, it will show green light. Otherwise, it will show red light.
- **Input Source:** Show channel input protocol, address and port, and input Ethernet.
- **Service:** Show which channel is being transcoding.
- **View:** Click  see detailed info of selected input channel
- **Output URL:** Show output protocol, address and port number.
- **Preview:** Preview transcoding effect by moving the cursor over them.
- **Encoding format:** Show output encoding format.
- **Resolution:** Show output video resolution.
- **Frame rate:** Show output video frame rate.
- **Total bitrate:** Show total output ts bitrate.
- **Video bitrate:** Show output video bitrate.
- **Audio bitrate:** Show output audio bitrate.
- **Run time:** Display how long the transcoding has been run.


User could also click the **Advanced Setting** on Status and users could select more/less parameters they want to display on Status.

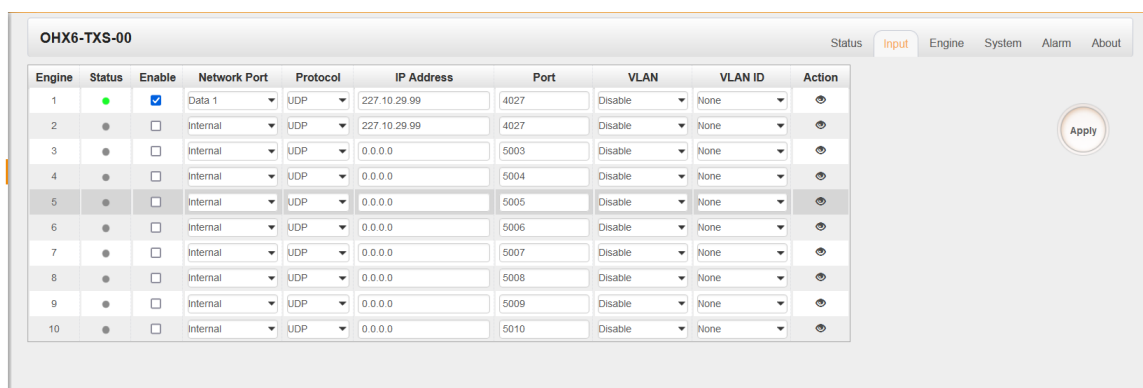


OHX6-TXS-00 >Input

This menu allows the user to configure the source input including UDP and RTP protocols. 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 “Enable”, when user click the blank box would enable the channel; “Network Port”, which can be set to DATA1, DATA2 and Internal (CMP baseboard IP input) and “VLAN”, which will filter incoming streams for VLAN tags. If user select “Internal”, the module would use the CMP baseboard data port while user need to type the same IP address that use at IP input.

After finishing the configuration for all the parameters, click  to make the configuration take effect.



Engine	Status	Enable	Network Port	Protocol	IP Address	Port	VLAN	VLAN ID	Action
1	●	<input checked="" type="checkbox"/>	Data 1	UDP	227.10.29.99	4027	Disable	None	
2	●	<input type="checkbox"/>	Internal	UDP	227.10.29.99	4027	Disable	None	
3	●	<input type="checkbox"/>	Internal	UDP	0.0.0.0	5003	Disable	None	
4	●	<input type="checkbox"/>	Internal	UDP	0.0.0.0	5004	Disable	None	
5	●	<input type="checkbox"/>	Internal	UDP	0.0.0.0	5005	Disable	None	
6	●	<input type="checkbox"/>	Internal	UDP	0.0.0.0	5006	Disable	None	
7	●	<input type="checkbox"/>	Internal	UDP	0.0.0.0	5007	Disable	None	
8	●	<input type="checkbox"/>	Internal	UDP	0.0.0.0	5008	Disable	None	
9	●	<input type="checkbox"/>	Internal	UDP	0.0.0.0	5009	Disable	None	
10	●	<input type="checkbox"/>	Internal	UDP	0.0.0.0	5010	Disable	None	

Settings	Range	Description
Input	After finish settings of that input channel, check the box under to enable that input	A green indicator ● beside means receive source successfully while a red ● indicator means failed.
Network Interface	DATA1 DATA2 Internal	Select right Ethernet which the stream feeds into. The Internal input is fed by CMP baseboard Data port.
Protocol	UDP RTP	Check the “IP address” and enter Ethernet IP address which the

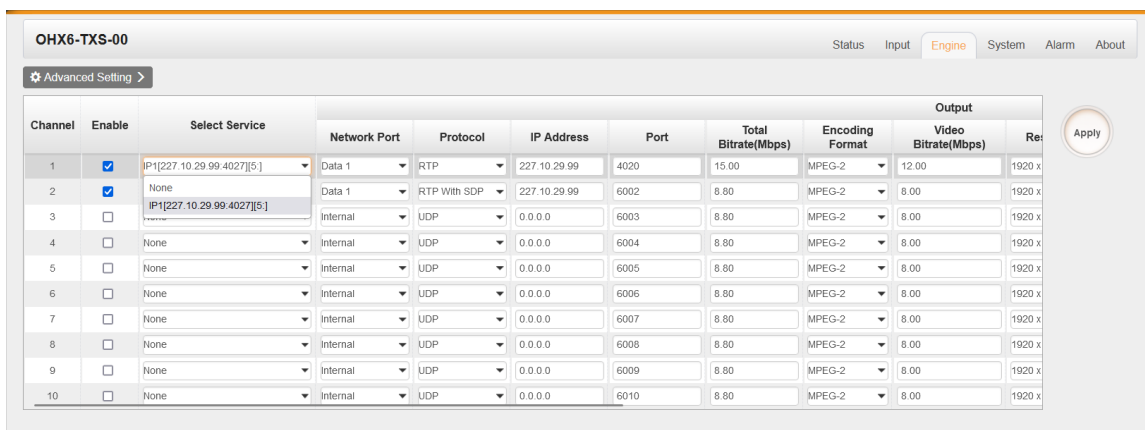
source comes from.

OHX6-TXS-00 > Engine

After finishing configure the Input, user need to enter the Engine page to configure the transcoded parameters. This menu allows user to configure parameters of transcoded outputs.

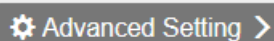
Click the box at “Select Service” and select active input stream from drop-down list. User could configure the transcoding output parameters at the box for the

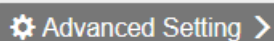
relevant channel. click  to make the configuration take effect.

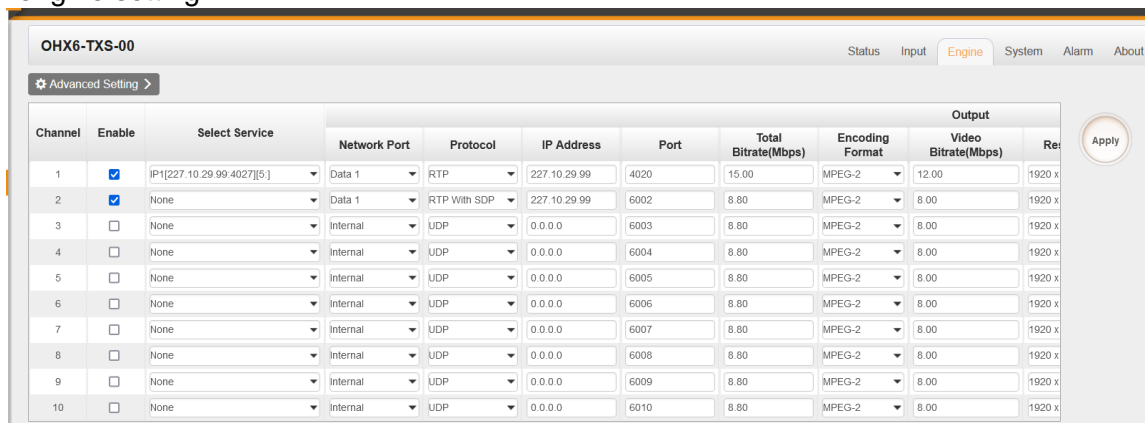


Channel	Enable	Select Service	Network Port	Protocol	IP Address	Port	Total Bitrate(Mbps)	Encoding Format	Video Bitrate(Mbps)	Resolution
1	<input checked="" type="checkbox"/>	IP1[227.10.29.99:4027][5]	Data 1	RTP	227.10.29.99	4020	15.00	MPEG-2	12.00	1920 x 1080
2	<input checked="" type="checkbox"/>	None	Data 1	RTP With SDP	227.10.29.99	6002	8.80	MPEG-2	8.00	1920 x 1080
3	<input type="checkbox"/>	IP1[227.10.29.99:4027][5]	Internal	UDP	0.0.0.0	6003	8.80	MPEG-2	8.00	1920 x 1080
4	<input type="checkbox"/>	None	Internal	UDP	0.0.0.0	6004	8.80	MPEG-2	8.00	1920 x 1080
5	<input type="checkbox"/>	None	Internal	UDP	0.0.0.0	6005	8.80	MPEG-2	8.00	1920 x 1080
6	<input type="checkbox"/>	None	Internal	UDP	0.0.0.0	6006	8.80	MPEG-2	8.00	1920 x 1080
7	<input type="checkbox"/>	None	Internal	UDP	0.0.0.0	6007	8.80	MPEG-2	8.00	1920 x 1080
8	<input type="checkbox"/>	None	Internal	UDP	0.0.0.0	6008	8.80	MPEG-2	8.00	1920 x 1080
9	<input type="checkbox"/>	None	Internal	UDP	0.0.0.0	6009	8.80	MPEG-2	8.00	1920 x 1080
10	<input type="checkbox"/>	None	Internal	UDP	0.0.0.0	6010	8.80	MPEG-2	8.00	1920 x 1080

Move the bar below to change the transcode output parameters.



User could click  for more parameters to configure. User could click the box to add the feature inside the engine setting. If user click the box near the “Video/audio/Subtitle Parameter”, it would select all the features and add into the engine setting.



Channel	Enable	Select Service	Network Port	Protocol	IP Address	Port	Total Bitrate(Mbps)	Encoding Format	Video Bitrate(Mbps)	Resolution
1	<input checked="" type="checkbox"/>	IP1[227.10.29.99:4027][5]	Data 1	RTP	227.10.29.99	4020	15.00	MPEG-2	12.00	1920 x 1080
2	<input checked="" type="checkbox"/>	None	Data 1	RTP With SDP	227.10.29.99	6002	8.80	MPEG-2	8.00	1920 x 1080
3	<input type="checkbox"/>	None	Internal	UDP	0.0.0.0	6003	8.80	MPEG-2	8.00	1920 x 1080
4	<input type="checkbox"/>	None	Internal	UDP	0.0.0.0	6004	8.80	MPEG-2	8.00	1920 x 1080
5	<input type="checkbox"/>	None	Internal	UDP	0.0.0.0	6005	8.80	MPEG-2	8.00	1920 x 1080
6	<input type="checkbox"/>	None	Internal	UDP	0.0.0.0	6006	8.80	MPEG-2	8.00	1920 x 1080
7	<input type="checkbox"/>	None	Internal	UDP	0.0.0.0	6007	8.80	MPEG-2	8.00	1920 x 1080
8	<input type="checkbox"/>	None	Internal	UDP	0.0.0.0	6008	8.80	MPEG-2	8.00	1920 x 1080
9	<input type="checkbox"/>	None	Internal	UDP	0.0.0.0	6009	8.80	MPEG-2	8.00	1920 x 1080
10	<input type="checkbox"/>	None	Internal	UDP	0.0.0.0	6010	8.80	MPEG-2	8.00	1920 x 1080

Transcode

Transport protocol

OHX6-TXS-00 supports transport with the following protocols: UDP, RTP, RTP with SDP

1. UDP

Settings	Range	Description
Destination address	Multicast: 224.0.0.0 ~239.255.255.255 Unicast: terminal IP address	
Destination port	1~65535	
Total Bitrate	0 – 30000Kbps	Need to be higher than the video bitrate

2. RTP

Settings	Range	Description
Destination address	Multicast: 224.0.0.0 ~239.255.255.255 Unicast: terminal IP	

	address	
Destination port	1~65535	
Total Bitrate	0 – 30000Kbps	Need to be higher than the video bitrate

Video setting

Below the capture shows the parameters that the user could configure transcoding parameters for video output. Different transport protocol will have different config parameters.

Output										
Network Port	Protocol	IP Address	Port	Total Bitrate(Mbps)	Encoding Format	Video Bitrate(Mbps)	Resolution	Frame Rate	Data Table Standard	Data
Data 1	RTP	227.10.29.99	4020	15.00	MPEG-2	12.00	1920 x 1080	29.97Hz Interlace	ATSC	Pass-T
Data 1	RTP With SDP	227.10.29.99	6002	8.80	MPEG-2	8.00	1920 x 1080	Auto	ATSC	Pass-T
Internal	UDP	0.0.0.0	6003	8.80	MPEG-2	8.00	1920 x 1080	Auto	ATSC	Pass-T
Internal	UDP	0.0.0.0	6004	8.80	MPEG-2	8.00	1920 x 1080	Auto	ATSC	Pass-T
Internal	UDP	0.0.0.0	6005	8.80	MPEG-2	8.00	1920 x 1080	Auto	ATSC	Pass-T
Internal	UDP	0.0.0.0	6006	8.80	MPEG-2	8.00	1920 x 1080	Auto	ATSC	Pass-T
Internal	UDP	0.0.0.0	6007	8.80	MPEG-2	8.00	1920 x 1080	Auto	ATSC	Pass-T
Internal	UDP	0.0.0.0	6008	8.80	MPEG-2	8.00	1920 x 1080	Auto	ATSC	Pass-T
Internal	UDP	0.0.0.0	6009	8.80	MPEG-2	8.00	1920 x 1080	Auto	ATSC	Pass-T
Internal	UDP	0.0.0.0	6010	8.80	MPEG-2	8.00	1920 x 1080	Auto	ATSC	Pass-T

Settings	Range	Description
Encoding format	MPEG-2 H.264 H.265(License required)	
Bitrate	0.48-20Mbps	Video bitrate
Resolution	Auto 1920 x 1080 1280 x 720 720 x 576 720 x 480	When choose “Auto”, it would follow the original video resolution
Frame Rate	Auto 25p/29.97p/30p/50p/59.94p/60p 25i/29.97i/30i/50i/59.94i/60i	When choose “Auto”, it would follow the original video frame rate.
Data Table Standard	DVB/ATSC	
Data Table Mode	Disable Pass through Generate	User could select if you need to disable, pass through or generate the table on OHX6-TXS-00 which including ATSC,NIT and EIT table
Closed Caption	Enable Disable	Choose if use the closed caption on the output

Audio Setting

This section allows the user to configure transcoding parameters of audio output. Different transport protocol will have different config parameters


				Output
Audio 1 Codec	Audio 1 Bitrate(Kbps)	Audio 1 Channels	Audio 1 Sample Rate(Khz)	Audio 1 Selection
AC3	256	5.1	48	1 - [84] - English
MPEG1/L2	96	Stereo	48	1
MPEG1/L2	96	Stereo	48	1
MPEG1/L2	96	Stereo	48	1
AC3	256	5.1	48	1
MPEG1/L2	96	Stereo	48	1
MPEG1/L2	96	Stereo	48	1
MPEG1/L2	96	Stereo	48	1
MPEG1/L2	96	Stereo	48	1
MPEG1/L2	96	Stereo	48	1

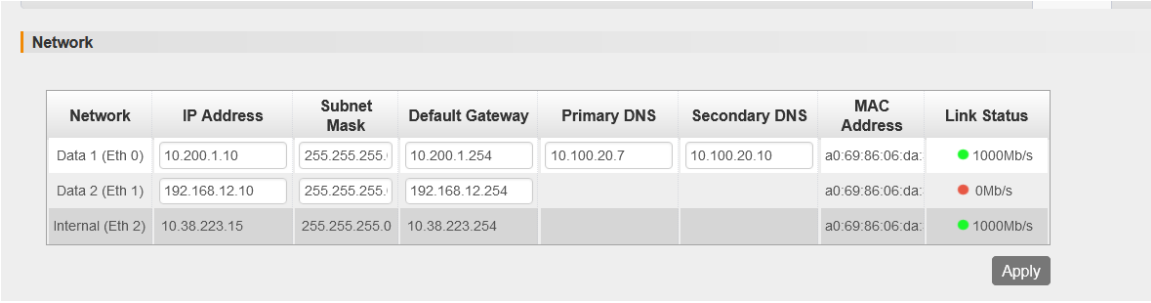
Subtitle Setting

Subtitle 1 Codec	Subtitle 1 Input ID
None	1
None	1
None	1
None	1
None	1
None	1
None	1
None	1
None	1
None	1

OHX6-TXS-00 >System Network

As shown below, OHX6-TXS-00 has 2 Data ports and the internal port would be used for data input/output. The Link Status shows if user connect the cable into the Data port.




User could change the IP Address, Subnet Mask and DNS for each Data port. After configuring the parameters, click  button.

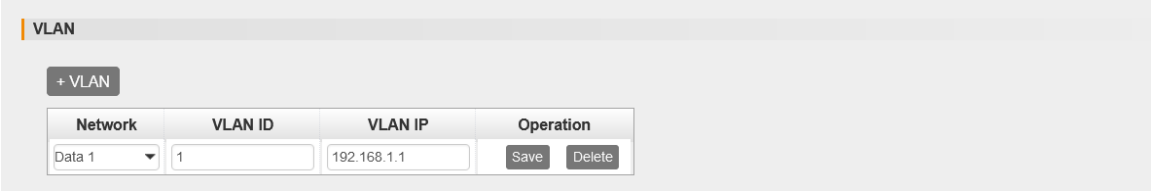


Network	IP Address	Subnet Mask	Default Gateway	Primary DNS	Secondary DNS	MAC Address	Link Status
Data 1 (Eth 0)	10.200.1.10	255.255.255.	10.200.1.254	10.100.20.7	10.100.20.10	a0:69:86:06:da:	1000Mb/s
Data 2 (Eth 1)	192.168.12.10	255.255.255.	192.168.12.254			a0:69:86:06:da:	0Mb/s
Internal (Eth 2)	10.38.223.15	255.255.255.0	10.38.223.254			a0:69:86:06:da:	1000Mb/s

Settings	Range	Description
IP Address	xxx.xxx.xxx.xxx	Static mode IP address entry
Subnet Network	xxx.xxx.xxx.xxx	Static Mode subnet mask entry
Gateway	xxx.xxx.xxx.xxx	Static Mode gateway entry

VLAN

To add a VLAN to the NIC, click the  icon to add the VLAN. After clicking  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.



Network	VLAN ID	VLAN IP	Operation
Data 1	1	192.168.1.1	Save Delete

Settings	Available Selections	Description
Network	Data0/Data1/Intern	Add the VLAN to the designated NIC
VLAN ID	1-4094	The VLAN tag to be assigned to outgoing streams and filtered for incoming streams
VLAN IP	xxx.xxx.xxx.xxx	Static mode IP address entry

Firmware Version Upgrade

Updates to the OHX6-TXS-00 are performed through the web interface. A firmware upgrade file is provided by Wellav and then uploaded to the unit. To request the latest firmware version or a copy of the release notes please contact our after-sales technical support team.

Software License

Every OHX6-TXS-00 modules would have its own Product ID. If user need to renew the license file or add the license feature, please export the license file and send it to Sencore after-sales technical support team.

System Resource

This page shows the current usage for the CPU, Memory and GPU. With different transcode channels, different transcoding parameters and different transcoding configuration, the usages are also different.





Profile

The OHX6-TXS-00 is able to save all configured settings to multiple profiles. Profiles can be saved locally and saved to external storage to be used on other OHX6-TXS-00 modules or do a backup for the current module. Profiles can be used to quickly and easily change the configuration of the module to suit different inputs and decoding requirements.


Profile Name	Date	Operation
2023_06_27_21_05_20.sys.img	2023-06-29 09:43:48	<input type="button" value="Apply"/> <input type="button" value="Download"/> <input type="button" value="Delete"/>

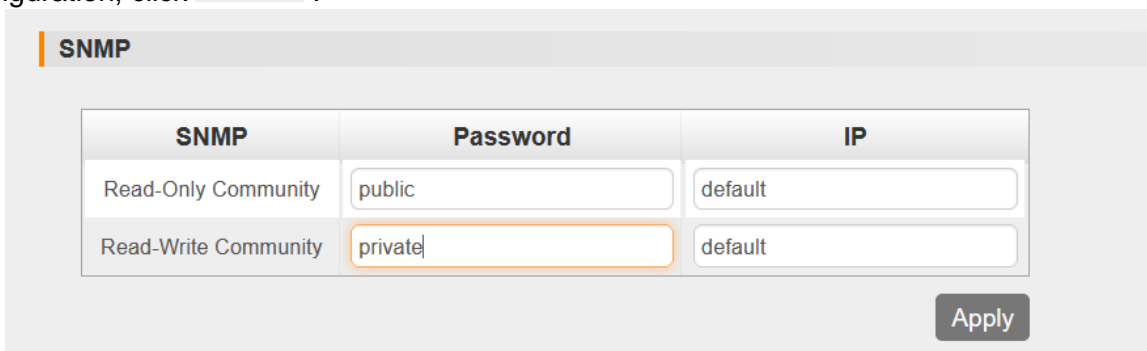
Backup New Profile

Used to create a new profile to the profile list

Import Profile		Used to import a profile to the module from user pc
Apply Profile		Used to apply a profile selected from profile list
Download Profile		Used to download a profile selected from the list to the user pc
Delete Profile		Used to delete a profile from the profiles list

SNMP

User is allowed to manage OHX6-TXS-00 system via SNMP MIB file. After finished configuration, click  .



The image shows the SNMP configuration interface. It has a title bar 'SNMP' with an orange vertical bar on the left. Below the title bar is a table with three columns: 'SNMP', 'Password', and 'IP'. The table has two rows: 'Read-Only Community' and 'Read-Write Community'. The 'Read-Only Community' row has 'public' in the Password field and 'default' in the IP field. The 'Read-Write Community' row has 'private' in the Password field and 'default' in the IP field. Below the table is an 'Apply' button.

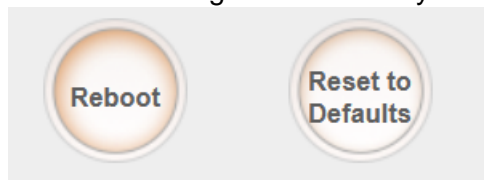
SNMP	Password	IP
Read-Only Community	public	default
Read-Write Community	private	default

Apply

System Restart

User can reboot system, reset system to defaults and turn off system through Web operation on this section.

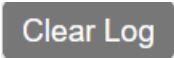
Noted: IP addresses will not change when reset system to defaults.



Logs

Generally, the original system logs will be saved for several months until it is covered by new logs if the system is running normally. It recommends the user to save and send current system logs to the technician of Wellav if the system runs abnormally.

There are Real-time logs inside the box which would keep a small part of the latest log. If user need to observe the Real-time logs without exporting the log file, click

 .

The unit would keep generating the new logs inside the box.

Logs

```

2023-07-01 11:20:49 [Alarm] ID:00030015, Description:IPI-1(udp://227.10.29.99:4027:Data 1) total cc error:154 TS packet
Continuity counter(CC) error, Solution:Please check the input
2023-07-01 11:20:49 [Alarm] ID:00030018, Description:IPI-1(udp://227.10.29.99:4027:Data 1)pat error. TS packet pat error,
Solution:Please check the input
2023-07-01 11:20:50 [Alarm] ID:00030019, Description:IPI-1(udp://227.10.29.99:4027:Data 1)pat table error. TS packet pat error
1, Solution:Please check the input

```

Clear Log Export Log Export System Log

OHX6-TXS-00 >Alarm

This page displays all of the current active alarms being reported by the unit. Click

Ignore

to conceal alarms.

OHX6-TXS-00					
Status Input Engine System Alarm About					
NO.	Location	Alarm Type	Last Changed	Notification	Operation
1	Data 2	The ethernet is not connected to any IP networks	2023/07/01 10:18:54	Check the Data cable connection	Ignore
2	IPI-0(udp://227.10.29.99:4027:Data 1)pat error.	TS packet pat error	2023/07/01 10:22:18	Please check the input	Ignore
3	IPI-0(udp://227.10.29.99:4027:Data 1)pat table error.	TS packet pat error 1	2023/07/01 10:22:18	Please check the input	Ignore
4	IPI-0(udp://227.10.29.99:4027:Internal)pe error.	TS packet pat error	2023/07/01 10:27:21	Please check the input	Ignore
5	IPI-0(udp://227.10.29.99:4027:Internal)pe table error.	TS packet pat error 1	2023/07/01 10:27:21	Please check the input	Ignore
6	IPI-1(udp://227.10.29.99:4027:Data 1)pat error.	TS packet pat error	2023/07/01 11:21:32	Please check the input	Ignore
7	IPI-1(udp://227.10.29.99:4027:Data 1)pat table error.	TS packet pat error 1	2023/07/01 11:21:32	Please check the input	Ignore

OHX6-TXS-00 >About

User can check the product ID and fingerprint of the unit, also with firmware version currently installed.

OHX6-TXS-00

StatusInputEngineSystemAlarmAbout

Information

Product ID:

c698156400113e8600e7f65bdfc772f7

Firmware Name:

release

Firmware Version:

1.5.3

Hardware Version:

1.0.0.0

Build Version:

10343

Release Date:

2023-04-26 06:44:04

Hardware Fingerprint:

09fb8baf2c43f47a6b05eaaba7206754

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	120W
OMNIHUB-6 Chassis	Max.16W
OMNIHUB-6D-02 Chassis	Max.49.5W
OMNIHUB-6-02 Chassis	Max.49.5W
OMNIHUB-6D Chassis	Max.16W
OMNIHUB-6RFX Chassis	Max.28.5W
OMNIHUB-16 Chassis	Max.72W
OHR6-DVBC-00:DVB-C AnnexA/C	Max.9W
OHR6-DVBC-00:DTMB	Max.9W
OHR6-DVBC-01:DVB-C AnnexB	Max.9W
OHR6-DVBC-01:ISDB-T	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.6W
OHM6-8VSB-R01/R01A	Max.12W/ Max.14W
OHM6-DTMB-R01/R01A	Max.14W
OHM6-OFDM-R01/R01A	Max.14W
OHM6-QAMB-R01/R01A	Max.14W
OHM6-QAMA-R01/R01A	Max.14W
OHM6-ISDB-T-R01/R01A	Max.15W
OHM6-QAMA-02/02A	Max.35W
OHM6-DTMB-03	Max.23W
OHM6QAMA-03	Max.23W
OHM6-QAMB-03	Max.23W
OHM6-OFDM-03	Max.23W
OHM6-ISDBT-03	Max.23W
OHM6-8VSB-03	Max.23W
OHM6-QAMB-02A	Max.23W
OHM6-QAMA/B-R00	Max.20.3W
OHE6-HDMI-R01	Max.11.2W
OHE6-HDMI-02C	Max.17W

OHE6-HDMI-02	Max.17W
OHE6-HDMI-05A	Max.20.3W
OHE6-HDMI-R05	Max.18.6W
OHE6-HDMI-06	Max.20W
OHE6-SDI-01	Max.16W
OHE6-CVBS-00	Max.17W
OHE6-CVBS-R01	Max.18W
OHP6-EAS-00	Max.5.2W
OHP6-IP-00	Max.16W
OHP6-IP-02	Max.7W
OHP6-ASI-00	Max.12W
OHP6-IP-02-SFP	Max.23W
OHP6-CAM-00	Max.6W
OHP6-EIT-00	Max.6W
CX2-TXS-00	Max.48W

Remark: chassis including baseboard and fan

APPENDIX B - Abbreviations

AAC	Advanced Audio Coding
AC-3	Also known as Dolby Digital
AES	Audio Engineering Society
ATSC	Advanced Television Systems Committee
AV	Audio Video
BAT	Bouquet Association Table
BER	Bit Error Ratio
Bit Rate	The rate at which the compressed bit stream is delivered
BNC	British Naval Connector
CAM	Conditional Access Module
CAT	Conditional Access Table
CBR	Constant Bitrate
CI	Common Interface
CVBS	Composite Video Broadcast Signal
dB	Decibel
DVB	Digital Video Broadcasting
EAS	Emergency Alert System
EIT	Event Information Table
EPG	Electronic Program Guide
FEC	Forward Error Correction
GOP	Group of Pictures
HD	High Definition
HDCP	High-bandwidth Digital Content Protection
HDMI	High Definition Multimedia Interface
Kbps	1000 bit per second
LED	Light Emitting Diode
LNB	Low-Noise Block
Mbps	1,000,000 bits per second
MER	Modulation Error Ratio
MPEG	Refers to standards developed by the ISO/IEC JTC1/SC29 WG11, Moving Picture Experts Group. MPEG may also refer to the Group.
MPEG-2	Refers to ISO/IEC standards 13818-1 (Systems), 13818-2 (Video), 13818-3 (Audio), 13818-4
MPTS	Multi-program Transport Stream
NIT	Network Information Table
OFDM	Orthogonal Frequency-Division Multiplexing
PAT	Program Association Table
PCR	Program Clock Reference
PID	Packet Identifier
PMT	Program Map Table
PSI	Program Specific Information
PSU	Power Supply Unit

QAM	Quadrature Amplitude Modulation
QPSK	Quadrature Phase-Shift Keying
SD	Standard Definition
SDT	Service Description Table
SI	Service Information
SNMP	Simple Network Management Protocol
SNR	Signal Noise Ration
SPTS	Single Program Transport Stream
TDT	Time and Date Table
TS	Transport Stream
VBR	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 substitution audio and video. The Monroe box will need to be configured in a very specific way in order to work with the proposed OmniHub 6RFX-02 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.
2. Connect the CVBS video and analog-unbalanced audio to an encoder module. These outputs will be where the video and audio that needs to be used for substitution will come out.



3. 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 using a web browser.

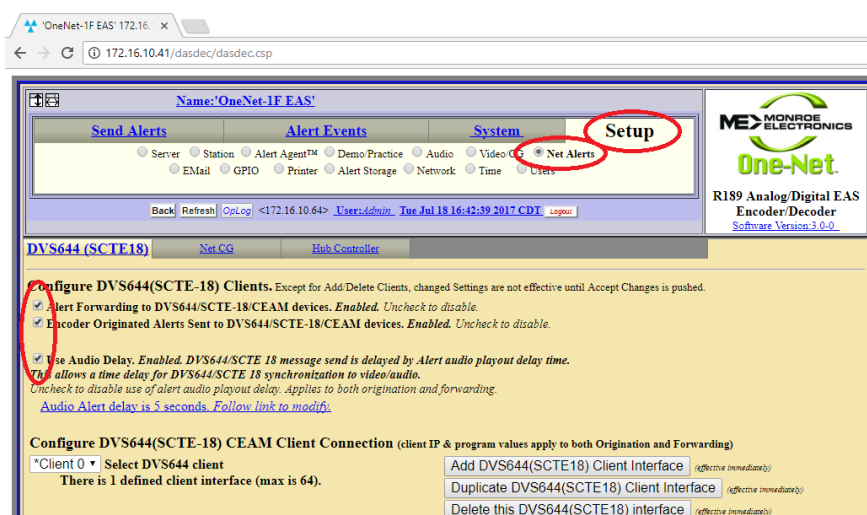


Webpage Configuration

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 are shown in this document. 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 of 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 6RFX-02. 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.

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

Check to enable In-Band PID=1FFC.

☒ Send internal EAT control event at EAT,NPT End of Message. *Enabled. NOTE! This may be REQUIRED for ending force tune during EAT 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 6RFX-02 listen for SCTE18 messages on any other port.
7. Also make sure the **In-Band** checkbox is disabled. The OmniHub 6RFX-02 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: EAT 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 EAT.

☐ 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 EAT 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 is finished playing, the SCTE18 messages will no longer be sent.

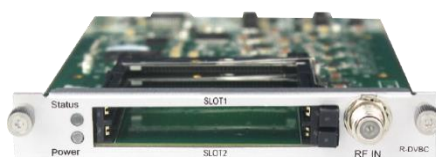
When the OmniHub 6RFX-02 receives the first SCTE18 message on the management port, it should trigger it to replace all services on the output with an encoded version of the Monroe video and audio outputs. 15 seconds after the last SCTE18 is received, the OmniHub 6RFX-02 should return all services to their original content.

APPENDIX D - Specification

OmniHub 6RFX-02- Base unit

Includes -	4RU chassis/case, power supply/line cord
Systems -	
Chassis Dimension	445mm x 177mm x 428mm (W x H x D), 4RU
Front Panel	16 Hot swappable Slots Dual Redundant Power Supplies 4 Gigabit Ethernet port
Remote Operation/Update Interface -	
Type	Ethernet, 10/100
Front Panel Indicators	Link (Green LED). Activity (Amber LED)
Connector	RJ45
Operating Temperature -	0 to 50-degree Celsius
Storage Temperature -	-10 to 70-degree Celsius
Operating Humidity -	<95%
AC Power -	
Operating Voltage	90 - 240VAC
PSU Max Power	350W
Line Cord	Detachable, 3-prong

Receiver Module Specification



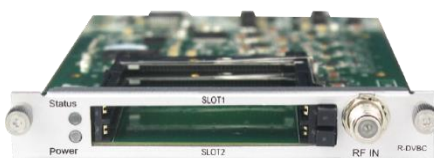
OHR6-DVBC-00 Receiver

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

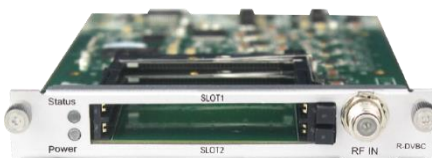
Signal Level	40~80dBuV
CA system	Supports mainstream CAS
Power Consumption	Max.9W

OHR6-DTMB-00 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

**OHR6-DVBC-01 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
Power Consumption	Max. 9W

**OHR6-ISDBT-01 Receiver(Modified mode inside the subboard, no change in appearance)**

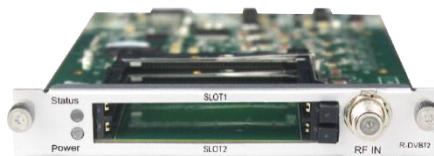
Input	4 channels via 1 RF Female connector
-------	--------------------------------------

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	6/8MHz
Constellation	DQPSK, QPSK, 16QAM, 64QAM
FEC	1/2, 2/3, 3/4, 5/6, 7/8, Automatic
Signal Level	-80~-20dBm
CA system	Supports mainstream CAS
Power Consumption	Max. 9W



OHR6-DVBS2FTA-01 Receiver

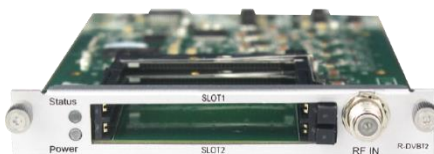
Input	C/Ku Bank, 4 channels via 4 RF female connectors
LNB Power	Independent power supplies for LNB-1 & LNB-3
LNB Current	Max. 400mA
LNB Voltage	13V / 18V
Constellation	QPSK, 8PSK
Frequency Range	950 - 2150MHz
Signal Level	-70~-20dBm
Roll-off Factor	0.15, 0.20, 0.25, 0.35
Symbol Rate	DVB-S: 1~45Msps 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-S2X: 11/15, 7/9, 4/5, 5/6 (Normal FEC FRAME)
Power Consumption	Max. 38W



OHR6-DVBT2CI-00 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 DVB-T2: QPSK / 16QAM / 64QAM / 256QAM
Guard Interval	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
Power Consumption	Max. 8W



OHR6-DVBS2CI-01 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	DVB-S: QPSK DVB-S2: QPSK, 8PSK, 16APSK DVB-S2X: QPSK, 8PSK, 16APSK, 32APSK, 64APSK
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



OHM6-DVBS2FTA-01A 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	DVB-S: QPSK DVB-S2: QPSK, 8PSK, 16APSK, DVB-S2X: QPSK, 8PSK, 16APSK, 32APSK, 64APSK
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 DVB-S2X: 1~34 Msps
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
Power Consumption	Max. 70W



OHR6-8VSB-00 Receiver

Input	4 channels via 4 RF Female connectors
Frequency Range	Off-Air:57MHz - 803MHz; STD:57MHz-816MHz;IRC: 57MHz – 816MHz; HRC:55.75HMz – 859.75MHz

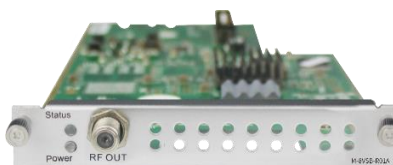
Bandwidth	6MHz
Modulation	8VSB
Signal Level	-80~-20dBm
Power Consumption	Max. 9.5W

Modulator Module Specification



OHM6-OFDM-R01/R01A 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,
Code Rates	1/2, 2/3, 3/4, 5/6, 7/8
Output Level	Max. 105dBuV
MER	≥32dB
Power Consumption	4CH: Max. 12W; 8CH: Max. 14W



OHM6-8VSB- R01/R01A 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
Power Consumption	4CH: Max. 12W; 8CH: Max. 14W



OHM6-DTMB-R01/R01A Modulation

Output	4/8 frequencies via 1 RF female connector 75Ω
Standard	DTMB GB20600-2006
Frequency Range	47 ~ 862MHz
Constellation	4QAM/16QAM/32QAM/64QAM 64QAM
Output Level	Max. 105dBμV
MER	>32dB
Power Consumption	4CH: Max. 12W; 8CH: Max. 14W



OHM6-QAMA-R01/R01A Modulation

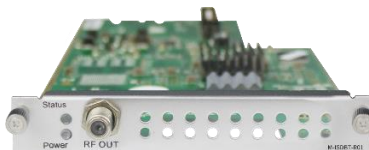
Output	4/8 frequencies via 1 RF female connector 75Ω
Standard	ITU-T J.83 Annex A/C
Frequency Range	47 ~ 862MHz
Bandwidth	6/7/8MHz
Constellation	16QAM / 32QAM / 64QAM / 128QAM / 256QAM
Symbol Rate	3.6~6.9Ms/s
Output Level	Max. 105dBμV
MER	≥32dB
Power Consumption	4CH: Max. 12W; 8CH: Max. 14W



OHM6-QAMB-R01/R01A Modulation

Output	4/8 frequencies via 1 RF female connector 75Ω
Standard	ITU-T J.83 Annex B
Frequency Range	48 ~ 862MHz

Bandwidth	6/8MHz
Constellation	64QAM / 256QAM
Symbol Rate	5.057 Ms/s (64QAM), 5.360 Ms/s (256QAM)
Output Level	Max. 105dB μ V
MER	\geq 40dB
Power Consumption	4CH: Max. 12W; 8CH: Max. 14W



OHM6-ISDBT-R01/R01A Modulation

Output	4/8 frequencies via 1 RF female connector, 75 Ω
Standard	ARIB STD-B31
Frequency Range	47 - 862MHz
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 μ V
MER	\geq 40dB
Power Consumption	4CH: Max. 12W; 8CH: Max. 14W



OHM6-QAMA-02/02A Modulation

IPQAM

IP input	2x100/1000Mbps ports
IP Encapsulation	MPEG TS over UDP/RTP
MPEG TS	MPTS and SPTS
I/O Processing	Up to 512 channels either via 2xGbE input
Addressing	Unicast and multicast
IGMP Version	IGMP v2, IGMP v3

QAM Output	
Output	1 1xRF port, max 16/32 agile channels QAM modulation
Standard	ITU-T J.83 Annex A/B/C
QAM Constellation	64/256 QAM, configurable for each frequency Segment Mode Full Seg
Symbol Rate	3.6~6.956Mbauds
Output Level	90dBuV~115dBuV according to modulation frequency quantity
Output Range	47~862MHz
Bandwidth	6/7/8MHz
MER	≥43dB
Power Consumption	4CH: Max. 12W; 8CH: Max. 14W
Multiplexing	
Table Supported	SI/PSI
PID Processing	Pass-through, remapping, filtering
EIT Processing	Pass-through
External Data	EPG, PID and SI insertion
Scrambling	
Interface	1x100/1000 Mbps port
Scrambling Algorithms	CSA
SCS	Internal
CAS Connections	Up to 4 different CA systems
Supported CAS	Support major CA systems
Max. TS rate	1.6Gbps
EMM Bitrate	Up to 3Mbps
Power Consumption	Max. 45W



OHM6-QAMA/B-R00 Modulation	
Output	16 agile frequencies via 1 RF female connector 75Ω
Standard	ITU-T J.83 Annex A/B
Frequency Range	47 - 862MHz
Bandwidth	Annex A: 6/7/8MHz Annex B: 6MHz
Constellation	Annex A: 16QAM/32QAM/64QAM/128QAM/256 QAM Annex B: 64QAM/256QAM
1 x RJ45	Reserved for scrambling
Symbol Rate	Annex A: 4.4~6.9Ms/s Annex B: 5.056Mbauds(64QAM), 5.361Mbauds(256QAM)
Output Level	Max. 105dBμV

MER	$\geq 40\text{dB}$
Power Consumption	Max .21W



OHM6-QAM-03 Modulation

Output	8 agile frequencies via 1 RF female connector 75 Ω
Standard	ITU-T J.83 Annex A/C
Frequency Range	47~862MHz, non adjacent
Bandwidth	8MHz
Constellation	16QAM/32QAM/64QAM/128QAM/256QAM Transmission Mode
Symbol Rate	3.6~6.9 Ms/s
Power Consumption	Max. 23W
Output Level	Max. 105dB μ V
MER	$\geq 32\text{dB}$



OHM6-OFDM-03 Modulation

Output	8 agile frequencies via 1 RF female connector 75 Ω
Standard	ETSI EN 300744
Frequency Range	47~862MHz,
Bandwidth	6/7/8MHz
Constellation	QPSK/16QAM/64QAM
Symbol Rate	3.6~6.9 Ms/s
Power Consumption	Max. 23W
Output Level	Max. 105dB μ V
MER	$\geq 32\text{dB}$
Guard Interval	1/2, 2/3, 3/4, 5/6, 7/8



OHM6-ISDBT-03 Modulation

Output	8 agile frequencies via 1 RF female connector 75 Ω
Standard	ETSI EN 300744

Frequency Range	47~862MHz, non adjacent
Bandwidth	6MHz
Constellation	QPSK/16QAM/64QAM
Symbol Rate	3.6~6.9 Ms/s
Power Consumption	Max. 23W
Output Level	Max. 105dBμV
MER	≥32dB
Guard Interval	1/4,1/8,1/16,1/32
Transmission	2K
Code Rates	1/2,2/3,3/4,5/6,7/8



OHM6-DTMB-03 Modulation

Output	8 agile frequencies via 1 RF female connector 75Ω
Standard	DTMB GB20600-2006
Frequency Range	47~862MHz, non adjacent
Constellation	QPSK/16QAM/
Power Consumption	Max. 23W
Output Level	Max. 105dBμV
MER	≥32dB



OHM6-QAMB-03 Modulation

Output	8 frequencies via 1 RF female connector 75Ω
Standard	ITU-T J.83 Annex B
Frequency Range	47~862MHz, non adjacent
Bandwidth	6/7/8MHz
Constellation	64QAM/256QAM
Symbol Rate	5.057MBaud: 64QAM 5.361MBaud: 256QAM
Power Consumption	Max. 23W
Output Level	Max. 108dBμV
MER	≥32dB

Encoder Module Specification



OHE6-HDMI-R01A Encoder

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	1000 ~ 14,000Kbps
GOP Structure	IPPP
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
Power Consumption	Max. 12W



OHE6-HDMI-02 Encoder

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
Audio Mode	Stereo (2.0, including downmix)
Sampling Rate	48KHz
Power Consumption	Max. 16W



OHE6-HDMI-02C Encoder

Input	2 channels via 2 HDMI female connectors (HDMI 1.4)
	CC via RCA 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).
Audio Mode	Stereo (2.0, including downmix)
Audio Sampling Rate	48KHz
Power Consumption	Max. 18W

**OHE6-SDI-01 Encoder**

Input	2 channels via 2 SDI or CVBS SDI or CVBS via BNC 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).
Audio Mode	Stereo (2.0, including downmix)
Audio Sampling Rate	48KHz
Power Consumption	Max. 16W

**OHE6-CVBS-03 Encoder**

Interface	Input 2 channels via 2 CVBS CVBS via BNC connector
Video	H.264 / AVC MP/HP@L4.2 H.265 / HEVC MP@L4.1
Resolution	H.264: High/Main/Baseline/2.2-4.2 Bitrate Control CBR
Bitrate Control	CBR
GOP Structure	IBBP, IPPP, IBP
GOP Size	18~48
Aspect Ratio	Automatic or Manual
Audio	MPEG-1 Layer II, AAC, AC3
Audio Bitrate	32~384Kbps
Audio Mode	Stereo 2.0

Audio Sampling Rate	48KHz
Audio Volume Leveling	-20dB~20dB
CC	CEA 608/708(Under development)
Closed Caption Input	Support
Power Consumption	Max. 16W



OHE6-HDMI-R05 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
Power Consumption	Max. 15W



OHE6-HDMI-06 Encoder

Input	4 channels via 4 HDMI female connector (HDMI 1.4)
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Video	H.264/AVC MP/HP@3.1 (720P) H.265/HEVC MP@L3.1 (720P) H264 MP/HP@L4.2 (1080P) H.265/HEVC MP@L4.1 (1080P)
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	96~192Kbps
Audio Mode	Stereo 2.0
Audio Sampling Rate	48KHz
Audio Volume Leveling	-20dB~20dB
OSD overlay	Text, Image, QR Code
OSD Overlay	Text, Image, QR Code
Power Consumption	Max. 15W



OHE6-HDMI-05A Encoder

Input	8 channels via 8 HDMI female connectors (HDMI 1.4)
Video	H.264/AVC MP/HP@3.1 (720P) H.265/HEVC MP@L3.1 (720P) H264 MP/HP@L4.2 (1080P) H.265/HEVC MP@L4.1 (1080P)
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	600~10000 Kbps
GOP Structure	IPPP
GOP Size	1~60
Aspect Ratio	Automatic or Manual
Audio	MPEG-1 Layer II, AAC, AC3
Audio Bitrate	96~192Kbps
Audio Mode	Stereo 2.0
Audio Sampling Rate	48KHz
Audio Volume Leveling	-20dB~20dB
OSD overlay	Text, Image, QR Code
Power Consumption	Max. 21W



OHE6-CVBS-00 Encoder

Input	6 channels via 2 DB15 connector each DB15 for 3 channels 2 x RCA-DB15 adaptor cables come along with 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	IBBP,IBP,IPPP
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
Power Consumption	Max. 17W



OHE6-CVBS-R01 Encoder

Input	16 channels via 4 DB15 connectors, each DB15 for 4 channels 4 x RCA-DB15 adaptor cables come along with 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
OSD Overlay	Text, Image, QR Code
Power Consumption	Max. 18W

Function Module Specification



OHP6-EAS-00 Processing Module

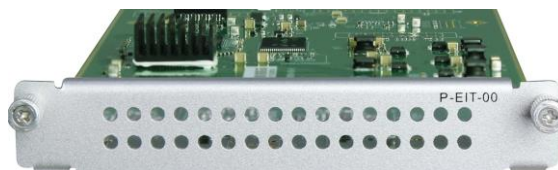
Input	Digital EAS input (SCTE-18) via 1*RJ45 port Analogue EAS input via 3pin contact closure CVBS input via 1*RCA connector Audio L/R input via 2*RCA connector TS input via 1*BNC connector
Video	H.264 SD: MP/HP@L3.0
Resolution	MPEG-2 SD: MP @ML (by default)
ASI	SD: 480i59.94fps 500Kbps to 100Mbps

Contact Closure	3PIN Connector with dry Contact or 5~12V DC input for EAS trigger
RJ45	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
Power Consumption	Max. 5.5W



OHP6-IP-00 Processing Module

Input	3x Internal port, 100/1000M 3 x External RJ45 ports, 100/1000M Intel NIC chipset
HDMI	1 x HDMI 2.0 port Connect to LCD Monitor
USB	1 x USB 2.0 port Connect to external USB Hub for keyboard/mouse/USB DVD drive
Input Protocols	UDP/RTP/SRT/RIST/Zixi/ *RTMP/RTMPS (future option)
Output Protocols	UDP/RTP/SRT RIST/Zixi/RTMP/RTMPS (future option)
Number of Gateways	Default: 10 gateways, UDP/RTP/HLS input, UDP/RTP output Notice: Additional license are required to support more gateways and network protocols
Power Consumption	Max. 16 W



OHP6-EIT-00 Processing Module

Input	DVB-S/S2/S2X/T/T2/C/ISDB-T/DTMB/IP
Output	QAM/OFDM/ISDB-T/DTMB/IP
Standard	DVB standard
Processing Capability	32 TS stream input, 16 TS stream output Up to 100 services depending on the EIT complexity of signal source
Content Processing	Automatic update for Original Network ID, TS ID and Service ID
Number of Gateways	Default: 10 gateways, UDP/RTP/HLS input, UDP/RTP output Notice: Additional license are required to support more gateways and network protocols
EIT Table Generation	EIT table with PID 18 will be generated after the processing
TDT/TOT Table	TDT/TOT table with PID 20 will be passed through to the output
EIT Enable/Disable Control	Module Level, TS Level, Service Level
Supported EIT Module in Each Chassis	1
Status Display	Service name and service list Signal source and output module EIT multiplexing success/failure display at service level
Configuration	Configuration can be exported and imported to the module Standard DVB standard
Software Upgrade	Web-based software upgrade
Log	Support Enable/Disable control, Live logging and log file export
License	License control is available for authorization time control
Power Consumption	Max. 5 W



OHP6-ASI-00 Processing Module

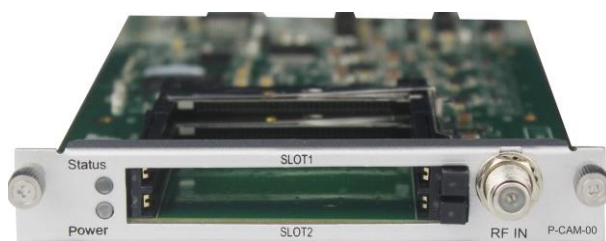
Connector	5 x ASI port, BNC female
Bitrate	500Kbps to 150Mbps
Reception/ Transmission mode	Byte mode(Continuous mode)
Packet Length	188 Bytes or 204 Bytes
Working mode	3 ASI input ports, 2 ASI output ports by default, each port can be redefined as ASI input or ASI output port

Multiplexing	Support PSI/SI or PSIP table regeneration PID filtering External PID insertion
Power Consumption	Max. 12 W



OHP6-IP-02 Processing Module

Ethernet	2 x RJ45, 100/1000Base-T
Input	UDP/RTP via Unicast/Multicast
Output	UDP/RTP via Unicast/Multicast
Channels	DATA 1: 128 input & output DATA 2: 120 input & output
Effective Bitrates	Maximum 700 Mbps (total 2 ports)
Power Consumption	Max. 7 W



OHP6-CAM-00 Processing Module

Standard	EN 50221
CAM Scrambling	2 x PCMCIA CI slotst
CAM Descrambling	Support Xcrypt CAMCAS
Channels	Supports mainstream CAS Descrambled channel quantity depends on CAM capability, 2 CAMs could be different
Power Consumption	Max. 6 W

Transcode Module Specification



OHX6-TXS-00 Transcoder Module

Network	2 x external RJ45 ports, 100/1000M 1 x Internal port, 100/1000M
HDMI	1 x HDMI 1.4 port Connect to LCD Monitor
Input Audio format	Mpeg-1 Layer II, AAC 2.0 and 5.1, AC- 3 2.0 and 5.1, E-AC3 2.0 and 5.1
Output Audio format	Mpeg-1 Layer II, AAC 2.0 and 5.1, AC- 3 2.0 and 5.1, E-AC3 2.0 and 5.1
Audio Process	Up to 4 audio pids per video Pass- through supported
Input Video Decoding	Video format: Mpeg-2/H.264/H.265 Video resolution: 576i25, 480i29.97, 720P50/60, 1080i25/29.97/30, 1080P25/30/50/59.94/60 Video bitrate: 1 to 40Mbps Network protocol: UDP, RTP, unicast, multicast
Output Video Encoding	Video format: Mpeg-2/H.264/H.265 Video resolution: 576i25, 480i29.97, 720P50/60, 1080i25/29.97/30, 1080P25/30/50/59.94/60 Video bitrate: 1 to 20Mbps Network protocol: UDP, RTP, unicast, multicast
Downscale	HD to SD video resolution
Closed Captions	CEA/EIA-708 Closed Caption passed through
DVB Subtitle	DVB subtitle passed through
Power Consumption	Max. 48 W

Comment: OHX6-TXS-00 can be installed only in Omnihub 6/6D/6RFX-02 chassis.

APPENDIX E- Indicator light description

OmniHub Main Machine			
	Front Panel LED	UI Status	
With configuration signal locking	Green light on	Green light on	
Without configuration signal locking	Green light on	Green light on	
Configured signal loss locking	Red light on	Red light on	
No configured signal loss locking	Green light on	Green light on	
Code rate overflow	Red light on	Red light on	
Code rate normal	Green light on	Green light on	
OEM mismatch	Red light on	Red light on	
OEM match	Green light on	Green light on	
Status light during power failure loading	Green light on	Green light on	
Power off loading completion status light	Green light on	Green light on	
Power light during power failure loading	Green light on	Green light on	
Power off loading completion power light	Green light on	Green light on	
Soft reloading in progress status light	Green light on	N/A	
Soft reload completion status light	Green light on	Green light on	
Soft reloading in progress power light	Green light on	N/A	
Soft Reload completion power light	Green light on	Green light on	
OmniHub Subboard			
	Front panel light	UI Status	Rear plate status
With configuration signal locking	Green light on	Green light on	Green light on
Without configuration signal locking	Green light on	Green light on	Green light on
Configured signal loss locking	Red light on	Red light on	Red light on
No configured signal loss locking	Green light on	Green light on	Green light on
Code rate overflow	Green light on	Green light on	Red light on
Code rate normal	Green light on	Green light on	Green light on
OEM mismatch	Green light on	Green light on	Green light on
OEM match	Green light on	Green light on	Green light on
Status light during power failure loading	No lights on	No lights on	No lights on
Power off loading completion status light	No lights on	No lights on	No lights on

Power light during power failure loading	Green light flashing	Green light flashing	Green light on
Power off loading completion power light	Green light on	Green light on	Green light on
Soft reloading in progress status light	Green light on	Green light on	Green light on
Soft reload completion status Light	Green light on	Green light on	Green light on
Soft reloading in progress power light	Green light flashing	Green light flashing	Green light on
Soft Reload completion power light	Green light on	Green light on	Green light on

APPENDIX F - 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 G - Support and Contact information

4.1 Returning for Service or Calibration

The OmniHub 6RFX-02 is 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.

4.2 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 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.

4.3 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.