DMP900

Digital Media Platform

User Guide



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11/7/2019	2.4-N	Modify the modules description	SW

Revision History

This guide contains some symbols to call your attention.

	The DANGER symbol calls your attention to a situation that, if ignored, may cause physical harm to the user.
	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.
	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 serials of operation steps mentioned in the context.

This guide also contains the following text conventions.

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

Safety Instructions

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

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 the products 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.
- 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 contact the manufacturer for assistance.

Electrostatic Discharge (ESD) Caution:

- Always wear an ESD-preventive wrist or ankle strap when handling electronic components.
- Handle cards by the faceplates and edges only. Avoid touching the printed circuit board and connector pins.
- Avoid touching any electronic components while holding any module in hands.



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Part 1 Panel Overview

1.1 Front Panel

DMP900 is a powerful, platform-based and multipurpose video-processing product. Equipped with six hot-swappable modules, DMP900 supports almost any video delivery requirement with any combination of receiving, de-scrambling, transcoding, re-multiplexing/grooming, scrambling, modulating and IP/ASI turn around for service providers.



- 1. Cooling Air Intake
- 2. LCD Screen
- 3. RJ45 Management Port
- 4. Power Alarm Indicator
 - Flashing red One of the Power Supply Unit is disconnected or malfunctioning
 - Green Normal running status

Mainboard communication status indicator

- Red Mainboard loading failure
- Flashing Red Alarm for high temperature inside the chassis
- Green Normal running status

Module Status Indicators for slot 1 to slot 6

- Flashing green Initializing this module
- Green Normal running status
- Red Initialization Failure due to hardware defection, software missing (when a new module is inserted, and there is no software for this module in the chassis), or other malfunction conditions.
- 5. Up, Down, Left, Right, Menu, OK buttons

1.2 Rear Panel



- 1. Dual AC Power Supply
- 2. Slots for maximum 6 modules

Note the position of each slot on rear panel. Fasten the modules in the chassis by screws to avoid loose connection between the modules and mainboard.

Port Sequence on the Modules

Take 4-channel HDMI encoding module for example, from left to right the ports are port1, port2, port3 and port4.



The DMP00 is cooled via forced induction through the front of the unit and exhausted through the slots in the rear of the chassis. The DMP900 is equipped with a temperature controlled status indicator. If the temperature inside the chassis exceeds 50°C (the default alarm threshold) the mainboard status indicator will be flashing red on the front panel.

Part 2 Installation

2.1 Rack Installation

The DMP900 is designed to be mounted in a standard 19" rack. It takes 1RU of rack space. To install it into a rack, please use the following steps:

- 1. Determine the desired position in the rack for the DMP00. Make sure that the air intake on the top of the unit and the exhausts on the back of the unit will not be blocked.
- 2. Install the brackets at desired position if there's no supporting plate in the rack.



- 3. Insert the rack mount clips into place over the mounting holes in the rack.
- 4. Slide the DMP900 into the position in the rack.
- 5. Secure the chassis to the rack by installing the four supplied screws through the front mounting holes and tightening.



2.2 AC Power Connection

Please only use the supplied 3-prong power connector or one with equal specifications. NEVER tamper with or remove the grounding pin. This could cause damage to DMP900, personnel, or property. Make sure the power outlet is switched off before plug or unplug the power cable from the back panel of DMP900.

Dual Redundant Power Supply Specification:

AC INPUT 100~240V, 47~63Hz, 2~4A, 275W

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.

2.3 Configuring Network via Front Panel

The following chart presents the Menu Structure on the Front Panel:

		Host IP Address		
		Host Subnet Mask		
	Eth are at	Host Gateway		
	Elhemel	Host MAC Address		
Main Menu		Trap IP Address1		
		Trap IP Address2		
		Language		
	Svstem	Factory Setting		
	- ,	Trap IP Address2 Language Factory Setting Power Alarm Meinba and Mersian		
	Version	Mainboard Version		
		Sub board/Slot Version		

To configure DMP900 network, use the following steps:

- 1. Press **MENU** button to enter Main Menu.
- 2. Use Up, Down, OK button to navigate and enter submenus.
- 3. In order to change the addresses, press **OK** button to enter edit mode. When a short line appears under editable digit, press **Up** or **Down** button to change the digit, then press **Left** or **Right** button to edit next digit. Press **OK** button to confirm and exit edit mode.
- 4. Press **MENU** at any time to return to previous menu.

Part 3 Web GUI

3.1 Web GUI Overview

3.1.1 Connecting to the Management Port

Factory network settings of the Management Port:

- IP address 192.168.1.98
- Subnet Mask 255.255.255.0
- Gateway 192.168.1.1

Use the following step to access the Web GUI in a browser.

- Connect both DMP900's management port and the computer's Ethernet port to a switch by CAT5 straight-through cables. If you do not have a switch, you can connect the computer directly to DMP900's management port.
- Set the IP address of the laptop/computer in the same network with the DMP900 management IP address. For example, you can set the computer's IP address to 192.168.1.98.
- Check the physical connection via Command Prompt (Try to click the Windows Menu Icon in the corner of the desktop, and hit "CMD ", then press "Enter", you will open the Command Prompt). Type "ping 192.168.1.98" or "ping 192.168.1.98 –t" and press "Enter" to check reply status. Stable and constant replies from 192.168.1.98 (management computer's IP address) indicate a reliable physical connection. See the following image.

Administrator: C:\Windows\system32\cmd.exe	
Microsoft Windows [Version 6.1.7601] Copyright (c) 2009 Microsoft Corporation. All rights reserved.	×
C:\Users\wellav>ping 192.168.1.98	
Pinging 192.168.1.98 with 32 bytes of data: Reply from 192.168.1.98: bytes=32 time<1ms TTL=64 Reply from 192.168.1.98: bytes=32 time<1ms TTL=64 Reply from 192.168.1.98: bytes=32 time<1ms TTL=64 Reply from 192.168.1.98: bytes=32 time<1ms TTL=64	
Ping statistics for 192.168.1.98: Packets: Sent = 4, Received = 4, Lost = 0 (0% loss), Approximate round trip times in milli-seconds: Minimum = 0ms, Maximum = 0ms, Average = 0ms	
C:\Users\wellav}_	
	T

3.1.2 Logging into the Web GUI

Type the DMP management IP address into the URL field of any recommended browser (IE8 or above, Firefox, and Google Chrome) to access the logon page. By default, the admin user account is admin with password admin. Click *Login* or strike Enter on the keyboard to login to the GUI.



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

- The input and output rate of each slot
- The running status of each module
- The temperature in the chassis

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← ① 192.168.1.98/Index.html			♥ 鬷 C Q 百度 <ctrl+k></ctrl+k>	☆ 自 ∔ 合 ち - Ξ
Digital Media Plat	form	ation Equipment Con	figuration - Logout	
		Mainboard S	tatus	
		TS Bitrate Ov	erview	
	Input(Mbps)		Ou	.tput(Mbps)
Board1	56.52	6	Board1	0.000
Board2	0.008	3	Board2	56.463
Board3	0.000		Board3	29.775
Board4	0.000		Board4	29.775
Board5	0.000)	Board5	0.000
Board6	0.000	2	Board6	0.000
		Communicate	Status	
Slot 2 : Normal		Slot 4 : Nor	mai	Slot 6 : Normal
Slot 1 : Normal		Slot 3 : Nor	mal	Slot 5 : Sud-module out or config failed
		Backup Sta	tus	
	Main Slot		B	ackup Slot
	N/A			N/A
		Temperatu	re	
		26.8 deg	c	
				in.

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

3.1.3 Dropdown Menu Overview

Status -	Module Configuration		Service Configuration		Equipment Configuration -	Logout
Chassis	Slot 1:DVBC+				System	
Services Overview	Slot 2: IPASI	•	ASI		Version Information / Upgrade	
Slot 1:DVBC+	Slot 3:QAM(A/C)		TSIP Input	•	License	Ou
Slot 2:IPASI	Slot 4:TSIP(64132O)		TSIP Output	•	Import / Export	Board1
				_		Board2
Slot 3:QAM(A/C)	Slot 6:ASI		TSIP Setup		User Authorization	Board3
Slot ATSIB(641220)			0.008		Logo	Board4
SI0(4.15)P(04)320)			0.000		Logs	Board5
Slot 6:ASI			0.000		Config Logs	Board6

On the top of the Web UI, you will find a couple of menu items. Move the cursor to each item to navigate through the dropdown menus. Menu item with a small white arrow on the right contains submenu items.

Menu Status pages summarize the input and output bitrate in each board.

Menu *Module Configuration* is where you set input and output parameters for each board.

Menu Service Configuration is where to distribute services.

Menu *Equipment Configuration* includes the basic settings for a DMP900 unit.

3.1.4 Service Configuration

Service Configuration page, see the following image, is the main page to distribute input and output services. In the input and output areas, only the slots with modules successfully loaded are visible, except the scrambler which is hidden in Output Area and it is configurable by right-clicking the programs in output ports. Board 1 in this page refers to the module in slot 1. Board 2 refers to the module in slot 2, and so on.

Menu and	Main Buttons
Status Module Configuration Service	e Configuration Equipment Configuration - Logout
Refresh Apply Save ClearAll Output Program R	edundancy Backup
Input Program Info : Program V Board1[DVBC+] Slot and Module Name Port1 Slot and Module Name TS CCTV 2 Service Group CCTV 10 CCTV 10 CCTV 10 CCTV 12 CCTV 12 CCTV 15 CCTV 15 CCTV 15 CCTV 15 CCTV 15 CCTV 10 CCTV 10	Output Program Info : Program Y Port TS Program Board3[QAM(A/C)] Board4[TSIP(64I32O)] Board6[ASI] Quick Sort
Input Area	Output Area

Functions of the Main Buttons In this page:

Click *Refresh* to refresh input and output configuration or parameters. There are also *Refresh* buttons of the same function in other pages.

Click *Apply* to apply the configuration you have just done. There are also *Apply* buttons in other pages. Click *Apply* buttons every time you complete the settings in these pages.

Click **Save** to save all the configurations into the flash memory. Only in this way will the DMP900 be able to restore all the configurations after power recycling.

Click *Clear All* to erase the configurations in *Service Configuration*. This operation does not remove the configurations saved in flash memory unless you click *Save* after *Clear All* is done.

=	The login session will expire in 5 minutes without any active operation. Please click Apply at
leas	t once every 5 minutes; otherwise, your work in the last few minutes might be futile because the
logiı	n session has stopped without notice.

3.2 Basic Operations

3.2.1 Configuring Network

Configuring the network parameters is the always the first step to configure a head-end unit. Go to *Equipment Configuration > System*. As you can see in the following image, you are able to assign a static IP address to DMP900.

IP Address	192.168.001.098
Subnet Mask	255.255.255.000
Gateway	192.168.001.001
Trap IP Address1	000.000.000 Enable
Trap IP Address2	000.000.000
EIT Mux	Disable ~
NIT/SDT Bypass	Disable ~
Output TS Standard	DVB ~
Mac Address	A0-69-86-00-21-6E
Mainboard Hardware Version	2.0
SIP Filter	Disable ~
Temperature threshold	50
Bitrate statistics config by pid	Slot: 1 Stream ID: 1 PID(Hex): 0000
and the second second	GB2312 ×

Click *Apply* to activate settings in this page.

Click *Refresh* to acquire the system settings that is applied.

Click **Default** to restore factory settings. The unit will reboot by itself after factory setting is done. And only the management IP address will remain after reboot. You may also find **Default** buttons in other pages. Click these buttons to perform factory settings for a module seperately If you do not want to factory set the whole unit. You should always click **Reboot** after **Default** is done.

Click *Reboot* to restart this unit. You may also find *Reboot* in other pages. Click these buttons to reboot a module seperately.

Click *Clear Power Alarm* to clear the alarm for power supply.

If you change the IP address of the DMP900 in System page and click Apply, this unit will restart itself to activate the new IP address.

3.2.2 Configuring Input

Before configuring the input, please plug in an input cable with valid signals.

Steps to configure ASI input:

1. Go to *Module configuration > ASI*, set Port 1 and Port 2 as input ports. Click *Apply* before you go to the next step. Then two input ports are available in ASI module. See the following image.

	Port1	Port2	Port3	Port4
Гуре	Input ~	/ Input ~	Output ~	Output
Constant Rate(Mbps)	36.000	36.000	36.000	36.000
PCR Adjust Mode		Wellav A	djust Mode 🗸 🗸	

- 2. Go to **Service Configuration**. Right click the TS1 under Board6 [ASI] on the left of this page.
- 3. Click Scan TS (DVB) or Scan TS (ATSC) to search the input.

Refresh	Apply	Save	ClearAll	Output Program
Input Progra	m Info : Progra	m ~		
Board1[Board2] Board4[Board4[Board6[Board6[Board6[DVBC+] PASI] TSIP(64I32O)] S1 ASI] Scan TS(DVB)			
ТОТ	Scan TS(ATSC)			
	Clear TS			
	BypassTS			

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Batch Scan

When an input port contains multiple TS, use Batch Scan to search Multiple TS in sequence to avoid repetitive operation.

Board1[DVBC+] Board2[IPASI]	⊕	OVBC+]	
🖃 🔤 Port(TSIP)	IOP 🔁 🗉	Bat	tch Scan
TS1 TS Scan TS(DVB) TS Scan TS(ATSC) TS Batch Scan TS Clear TS TS BypassTS Port2(ASI)		Start End Standard OK S7 (ASI)	1 7 DVB ~ Cancel

=Ò=

Batch Scan is really a convenient function especially used to search multiple TSIP input channels. So you do not have to do it one by one. Note before you use this function, please go to **Status > TSIP** and verify all the input channels you are going to batch scan present input bitrates.

Delete the input TS

See the image above. The *Clear TS* option is right under *Batch Scan*. If you have an input TS scanned, you will see the services and PID included in this TS. Right-click on the TS, and click *Clear TS* to delete a scanned TS.

Bypass the input TS

Right-click an input TS and click **Bypass TS** to pass it to the output. The bypassed TS will not be multiplexed. See the following image, a *[Bypass TS] follows the scanned TS1 as a mark.



.,	4	
۴		
Ľ	_	_
	_	_
L	_	_
L	_	_

To configure the input of other modules, follow the similar steps as how you configure ASI and TSIP input. Summary of the steps:

- 1. Connect input cables
- 2. Open input channels and set input parameters.
- 3. Scan TS
- 4. Click Apply

3.2.3 Configuring Output

Verify the output ports are enabled in *Module Configuration*. Use the following two ways to create output TS:

Drag TS to TS

Click an input TS; drag and drop it to an output TS. Click *Apply*. Click *Save* if necessary. See the following Image, there is a TS coming from Board6 ASI input, and a TS is to be created in Board4 TSIP output port.



Drag Programs to Programs

Right-click an output TS. Click *Add TS* to edit *Original Network ID* and *TS ID* for this new TS. Click *OK* to confirm, then an empty TS is created.

Output Program Info : Program ~	Board2[IPASI]
Board2[IPASI] Board3[QAM(A/C)] Board4[TSIP(64I32O)] Board4[TSIP(64I32O)] Board6[At Add TS Board6[At	Add TS Original Network ID 1 TS ID 3 OK Cancel

Click a program in the input port, drag and drop it to Program (0 Services) in the output configuration area.

Click Apply. Click Save if necessary.



Go to **Status > TSIP (64I320)** to verify the **Effective Bitrate** in the corresponding output channel.

Slot 4:TSIP(64I32O) Status						
TS Bitrate Overview						
Channel	Input (Mbps)	Changel	Output (Mbps)			
Channel	Effective Bitrate	Chaine	Effective Bitrate			
1	0.000	1	3.822			
2	0.000	2	0.000			
3	0.000	3	0.000			
1	0.000	Λ	0.000			

Go to *Module Configuration* > *TSIP* (64I320) > *Output*Channel* (1-16). See the following image. Set the *Constant Rate* 2 Mbps higher than the output *Effective Bitrate* you to avoid overflow. For example, if the Effective Bitrate of ASI output TS1 is 3.822 Mbps, set Constant Rate 6 Mbps. Click *Apply* at the bottom of this page.

Channel	Enable Channel	Source Port	Dest IP Address	Dest Port	Protocol	Encap Num TS Packets	Time To Live	Constant Rate(Mbps)	Enable VLAN	VLAN ID	Enable Dest MAC	Dest MAC
1	\checkmark	10000	227.10.20.80	1234	UDP ~	7 ~	128	6.000	Disable ~	1	Disable ~	00-00-00-00-00
2		10000	227.10.20.81	1234	UDP ~	7 ~	128	25.000	Disable ~	1	Disable ~	00-00-00-00-00
3		10000	227.10.20.82	1234	UDP ~	7 ~	128	25.000	Disable ~	1	Disable ~	00-00-00-00-00-00

\equiv	0	
=	<u> </u>	_
	-	_
	-	_

Effective Bitrate is lower than the *Effective Bitrate*, it will cause packet loss, and the *Effective Bitrate* of the corresponding TS will be highlighted in red. See the following image.

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Slot 4:TSIP(64/32O) Status						
TS Bitrate Overview						
Channel	Input (Mbps)	Channel	Output (Mbps)			
Channer	Effective Bitrate	Channer	Effective Bitrate			
1	0.000	1	4.220			
2	0.000	2	4.551			
3	0.000	3	5.786			
4	0.000	4	5.226			
5	0.000	5	4.695			

EMM and **Other PIDs** (EIT, SDT, TDT and other PIDs) can be output by drag-and-drop procedures.

3.2.4 Delete an Output TS/Program/PID

Move the cursor to a TS, Program or PID until a red icon (^{SS)}) appears. Click the red icon to delete the service or PID. Click *Apply* before next step.

	Output Program Info : Program ~
Output Program Info : Program Board2[IPASI] Board3[QAM(A/C)] Board4[TSIP(64132O)] Port1 Programs(2 Services) CCTV 10 CCTV 10 EMMs(0) OtherPIDs(0) Board6[ASI]	 Board2[IPASI] Board3[QAM(A/C)] Board4[TSIP(64I32O)] Prot1 TS1(OriginalNetworkID:1,TsID:3) Programs(2 Services) CCTV 10 CCTV 12 ServiceID:306 PMTPID:262 PCRPID:8190 ServiceType:1 ES:517(StreamType:2-Video(MPEG2)) ES:700(StreamType:4-Audiochi) EMMs(1) EMMS(1) EMMPID:193(CASID:2469) OtherPIDs(0)

3.2.5 Version Information/Upgrade

Version Information/Upgrade page presents the software information. Check *Advanced* to view all the software that are loaded in this unit.

Version Information								
Module Name	Components	Current Software Version	Compatible Software Version	Hardware Version				
Mainboard	Mainboard	V5.7.98	V5.7.98	V2A(0002)				
DVBC+	DVBC+	V60.1.1	V60.1.0	V2B(0110)				
IPASI	IPASI	V60.3.12	V60.3.0	V5A(0001)				
QAM(A/C)	QAM(A/C)	V60.1.1	V60.1.0	V5B(2000)				
TSIP(64I32O)	TSIP(64I32O)	V60.1.2	V60.1.0	V4B(0000)				
ASI	ASI	V60.1.11	V60.1.0	V3B(0001)				
Advanced								
			Browse					
		Upgrade Scan Flash	Erase All					

Updating software

Click *Browse* to select the software. Then click *Upgrade* to start update process.

If it is a mainboard upgrade, DMP900 will reboot itself after upgrade is finished. If it is module upgrade, Go to *Module Configuration* and click *Reboot* to load the module again.

Always contact the manufacturer if you have any software problem. Do not click *Erase All* to delete all the software unless instructed to do so.

Do not upgrade any software unless instructed to do so. Do not disconnect the management cable or power off the device during update process.

3.2.6 License

	License Information								
	Slot	Chip ID	Last Update Time						
0	0	0x3327561304000047	Mainboard	Full License	2015-11-17				
0	1	0x3348feef040000ce	DVBC+	Full License	2015-4-23				
0	2	0x3379992a05000047	IPASI	Max Input Channel:64,Max Output Channel:32	2016-2-19				
0	3	0x33a1d66f050000c5	QAM(A/C)	Max Channel:8	2016-3-23				
0	4	0x338084f904000011	TSIP(64l32O)	Max Input Channel:64,Max Output Channel:32	2016-6-16				
0	6	0x33344c9b04000041	ASI	Full License	2015-3-11				
	Browse Upgrade License								

License page is where to check and update licenses. Note slot 0 refers to the Mainboard.

Updating License

- 1. Click *Browse* to select a license file.
- 2. Click the circle to select a slot number, then click *Export License* to save the license in the computer. Better name the license files as dmp98main.License, so that you know which license is for which module in which unit.
- 3. Send the license file to our sales for update.
- 4. Once you have the new license file. Click *Browse* to select a license file in the computer, then click *Upgrade License* to enter update process. When the update process succeeded, a manual restart is required to activate the new license.

The license file is unique for each module. You are not supposed to export a license file from one unit and upgrade it in another unit. Contact our sales if you need license updates.

3.2.7 Import/Export Configuration

Export the configuration of a unit, then you can Import it to this unit for fast configuration recovery when needed. To import the whole configuration from the sample unit to other duplicate units, the module types and their positions in the duplicate units should be exactly the same with that in the sample unit.

port: Restoreconfig	guration fron	n file.	
Export: Export the cu	irrent configu	uration to a file,	his file serves as a backup
and will be us	serur when r	estoring the co	Induration.
			Browse

3.2.8 Login User Management

Confirm New Password		
New Password		
Password	••••	
User Name	admin	~
O Create a User	O Delete a User	
Change Password	O Change UserName	

By default, the administrator user name and password are both admin. If the admin password is lost or admin user is deleted, you will have to perform factory setting on the front panel by pressing the buttons to restore the default login account. In that case, you will lose the configuration of this unit.

3.2.9

Log

Module 🗌 All	
SystemControl	SubboardManager 🖉 license 🖉 TSProcess 🖉 SIProcess 🖉 Parameters 🖉 DataReceiver 🖉 Communicate 🖉 SNMP
FPGADriver VI	⊇ Backup 🗹 LOG 🗹 ALARM 🗹 STATUS 🖓 OS 🖓 DS2432 🖓 FLASH
ISIP I SISend	NMG 🖂 LOADER 🖂 SubBoard 🖂 Soap 🖂 AsiSwitch
Type 🗌 All	
🖂 Error 🖂 Warning] Info

Log records the operations and activities of a DMP900. We may request an exported log file from user for troubleshooting or other use.

3.3 Advanced Operations

3.3.1 Edit Output TS

Right-click any output TS and select *Edit TS Info*.





When the *Output TS Standard* in the *System* page is DVB, you have the following editable items.

					2184			1	is ID			3	
#	Service Name	Provider Name	Service ID	PMT PID	PCR PID	Service Type	ES	PID	Priority	Running Status	Free CA Mode	EIT schedule flag	EIT present following fla
	con ()		202	250	0100		513	Video(MPEG2)	1 ~				
			302	258	8190		660	Audio	1 ~	4	0	U	U
	007017		202				514	Video(MPEG2)	1 ~				
2		CCIV	303	259	8190	1	670	Audio	1 ~	4	0	U	U
							515	Video(MPEG2)	1 ~	-			
3		CCIV	304	260	8190	1	680	Audio	1 ~	4	0	0	0
		[1	1		516	Video(MPEG2)	1 ~	[]		-	
4	CCTV 11	CCTV	305	261	8190	1	690	Audio	1 ~	4	0	0	0
							517	Video(MPEG2)	1 ~				
5	CCTV 12	CCTV	306	262	8190	1	700	Audio	1 ~	4	0	0	0
r i			0.000				518	Video(MPEG2)	1 ~				F
6	CCTV 15	CCTV	307	263	8190	1	710	Audio	1 ~	4	0	0	0
						c	Other PIDs	-		1			
	33			36]	3	9						

Apply Back

Name	Range	Name	Range
Original Network ID	0~65535	Service Type	0~255
TS ID	0~65535	ES PID	32~8190
Service Name	Max 32 letters	Priority	1, 2, 3
Provider Name	Max 32 letters	Running Status	0~7
Service ID	0~65535	Free CA Mode	0~1
PMT PID	32~8190	EIT Schedule Flag	0~1
PCR PID	32~8190	EIT Present Following Flag	0~1

PID 8191 is taken as the PID for null (stuffing) packets.

When the *Output TS Standard* in the *System* page is ATSC, you have the following editable items.

	Service Name	Service ID	Channel Number(Major-Minor)	Channel TS ID	PCR PID	Service Type		ES PID	Running Status	Free CA Mode	EIT schedule flag	EIT present following f
							514	Video(MPEG2)				
1	CCTV 7	303	1-1	1	8190	1	670	Audio	4	0	0	0
							517	Video(MPEG2)		-	-	
2	CCIV 12	306	1-2	1	8190	1	700	Audio	4	0	0	0
				1	-		518	Video(MPEG2)				
3	CCTV 15	307	1-3	1	8190	1	710	Audio	4	0	0	0

Annalis	Deals
Apply	Back

Name	Range	Name	Range
Service Name	Max 32 letters	ES PID	32~8190
Service ID	0~65535	Running Status	0~7
Channel Number	Format: x-x	Free CA Mode	0~1
Channel TS ID	0~65535	EIT Schedule Flag	0~1
PCR PID	32~8190	EIT Present Following Flag	0~1
Service Type	0~255		

3.3.2 Edit Service Information for DVB Output

Right-click an output TS to enter SI Setting (DVB).

Output Program Info : Program ~		🕒 🧰 PAT
Board2[IPASI] Port(TSIP)		
TS1(OriginalNetworkID:1_ToID:2)		NIT Other
Programs(3 Services Edit TS Info(DVB)		BAT
☐ CCTV 11 SI Setting(DVB)	<i>\</i>	SDT Actual
⊕ CCTV 12		SDT Other
		TOT
- D EMMs(0)		RST

Add Network Information Table (NIT)

See the following image. Board3 [QAM A/C] is streaming output TS1, TS2 and TS3. Original Network ID is 1. TS1 ID is 1, and TS2 with ID 2, TS3 ID 3. TS1 frequency is 474000 KHz, and TS2 482000 KHz, TS3 490000 KHz. 474 MHz (TS1) is the center frequency.

Board2[IPASI]	RF Level(dBuV)	90			
	Bandwidth	8M	~		
Board3[QAM(A/C)]	(#1-4)SymbolRate(KBaud)	6875			
Port1 TS1(OriginalNetworkID:1 TsID:1)	(#5-8)SymbolRate(KBaud)	6875			
Programs(2 Services) CCTV 2	Spectrum Shaping	Disable	~		
CCTV 7 EMMs(0)				- 1 K	
OtherPIDs(0)	-#	Enable	Frequency(KHz)	Constellation	Max Rate(Mbit
			(i and)	Controlloridation	man r tato (mon
TS2(OriginalNetworkID:1,TsID:2)	1	Enable ~	474000	QAM64 ~	38.015
GriginalNetworkID:1,TsID:2) GriginalNetworkID:1,TsID:2) GriginalNetworkID:1,TsID:2) GriginalNetworkID:1,TsID:2) GriginalNetworkID:1,TsID:2) GriginalNetworkID:1,TsID:2)		Enable ~ Enable ~	474000 482000	QAM64 ~ QAM64 ~	38.015 38.015
	1 2 3	Enable ~ Enable ~ Enable ~	474000 482000 490000	QAM64 ~ QAM64 ~ QAM64 ~	38.015 38.015 38.015
	1 2 3 4	Enable ~ Enable ~ Enable ~ Enable ~	474000 482000 490000 498000	QAM64 ~ QAM64 ~ QAM64 ~ QAM64 ~ QAM64 ~ QAM64 ~	38.015 38.015 38.015 38.015
■ TS2(OriginalNetworkID:1,TsID:2) ■ Programs(2 Services) ■ CCTV 10 ■ CCTV 11 ■ EMMs(0) ■ OtherPIDs(0) ■ ProgramNetworkID:1,TsID:3)	1 2 3 4 5	Enable ~ Enable ~ Enable ~ Enable ~ Enable ~ Enable ~	474000 482000 490000 498000 506000	QAM64 ~	38.015 38.015 38.015 38.015 38.015 38.015
■ TS2(OriginalNetworkID:1, TsID:2) ■ Programs(2 Services) ■ CCTV 10 ■ CCTV 11 ■ EMMs(0) ■ OtherPIDs(0) ■ TS3(OriginalNetworkID:1, TsID:3) ■ Programs(2 Services) ■ CCTV 12	1 2 3 4 5 6	Enable ~ Enable ~ Enable ~ Enable ~ Enable ~ Enable ~ Enable ~	474000 482000 4990000 506000 514000	QAM64 ~	38.015 38.015 38.015 38.015 38.015 38.015 38.015
	1 2 3 4 5 6 7	Enable ~ Enable ~ Enable ~ Enable ~ Enable ~ Enable ~ Enable ~ Enable ~	474000 482000 490000 506000 514000 522000	QAM64 ~ QAM64 ~	38.015 38.015 38.015 38.015 38.015 38.015 38.015 38.015

Steps to add NIT:

1. Right-click *NIT Actual* to edit *Network ID* and *Network Name*.



2. Right-click transport_streams to add TS1 (Original Network ID:1 and TS ID:1).



3. Right-click *transport_descriptors* in *transport_stream_id:1* to add *Cable Descriptor* for TS1.

current_next_indicator:1 for the section of the section					
transport_streams					
transport_stream_id:1 original_network_id:1	E.			Add Cable Description	
transport descriptor	S		Frequency	474.0000	MHz
Image: Transport_stream_id:2	Add Cable Descriptor		EEC Outer	Not Defined	~
	Add Satellite Descriptor		I LO Outer	Not Defined	
NIT Other	Add Terrestrial Descriptor		Modulation	64 QAM	~
BAI BAI	Add LCN Description	\Box	SymbolRate	6.875	Msymbol
SDT Other	Add Service List Description		FEC Inner	Not Defined	~
	Add Other Description		ОК	Cancel	_

- 4. Repeat step 2 to add TS2 and TS3. Repeat step 3 to add cable descriptors for these two TS'.
- 5. Click Apply, and go to Service Configuration page, click Apply again.

Right-click *version_number* to change its value if necessary. Once you have added NIT, you are able to export it. Wherever you can find the cross icon (), you can click this icon to delete that item.

Add Logical Channel Number (LCN)

LCN is used to sequence the channels in the Set Top Box. See the following image, we have a NIT tree with Cable Descriptors added in *transport_stream_id:1, transport_stream_id:2, transport_stream_id:3.*



Steps to add LCN for the output services (CCTV2, CCTV7, CCTV10, CCTV11, CCTV 12, and CCTV15):

1. Right-click **transport_descriptors** under **transport_stream_id:1**, then select **Add LCN Description** to enter edit page.



 Select Board1 [QAM (A/C)] Port1 TS1 by clicking the circle in front of it. Then CCTV2 and CCTV7 in TS1 will be in Services on the right side. Click Add in front of CCTV2 (service ID 302) and CCTV7 (service ID 303), they will be added to LCN edit list. Edit LCN in Logic Channel Number text filed. Click Add and Exit.

Board Port TS Board1[QAM(A/C)] Port1 TS1 Board1[QAM(A/C)] Port1 TS2 Board1[QAM(A/C)] Port1 TS2 Board1[QAM(A/C)] Port1 TS3	Port TS Port1 TS1 Port1 TS1 Port1 TS2 Port1 TS3	oard TS List			-Services	2010 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 -			
Board1[QAM(A/C)] Port1 TS1 Board1[QAM(A/C)] Port1 TS2 Board1[QAM(A/C)] Port1 TS3 Add CCTV 2 302 1 -> Digital Television Add CCTV 7 303 1 -> Digital Television Add CCTV 7 303 1 -> Digital Television Service ID Logic Channel Number Visible Service Flag Dot	Port1 TS1 Port1 TS2 Port1 TS3 Add CCTV 2 302 1 -> Digital Television Service Add CCTV 7 303 1 -> Digital Television Service Port1 TS3 Logic Channel Number Visible Service Flag Delete All 600 1 Delete	Board	Port	TS	Add All	Service Name	Service ID	Service	Туре
Add CCTV 7 303 1 -> Digital Television Board1[QAM(A/C)] Port1 TS3 Board1[QAM(A/C)] Port1 TS3	Port1 TS2 Add CCTV 7 303 1 -> Digital Television Service Port1 TS3 Image: Service Flag Delete All Delete All Delete Flag <	Board1[QAM(A/C)]	Port1	TS1	Add	CCTV 2	302	1 -> Digital Telev	vision Service
D Board1[QAM(A/C)] Port1 TS3	Port1 TS3	Board1[QAM(A/C)]	Port1	TS2	Add	CCTV 7	303	1 -> Digital Telev	vision Service
N	Logic Channel Number Visible Service Flag Delete All 600 1 ~ Delete 500 1 ~ Delete	Board1[QAM(A/C)]	Port1	TS3		N			
N	Logic Channel Number Visible Service Flag Delete All 600 1 ~ Delete 500 1 ~ Delete								
N	Logic Channel Number Visible Service Flag Delete All								
N Service ID Logic Channel Number Visible Service Flag De	Logic Channel Number Visible Service Flag Delete All 600 1 Delete 500 1 Delete								
Service ID Logic Channel Number Visible Service Flag De	Logic Channel Number Visible Service Flag Delete All 600 1 Oelete 500 1 Oelete	N							
	600 1 · Delete	Service ID		Logic Channe	el Number		Visible Service Fla	g	Delete All
302 600 1 ~		302		600			1 ~		Delete
303 500 1 ~		303		500			1 ~		Delete

3. Check the LCN descriptors of CCTV2 and CCTV7 that you configured.

😑 😑 NIT Actual	
table_id:64	
section_syntax_indicator:1	
network_id:1	
version_number:0	
Current_next_indicator:1	
Image: Imag	
🖃 🔚 transport_streams	
🖃 🔤 transport_stream_id:1	
original_network_id:1	
transport_descriptors	
descriptor_tag:0x44 => cable_delivery_system_descript	or
escriptor_length:11	
🕀 🧰 descriptor_data(hex):054300000000300505700	
descriptor_tag:0x83 => logical_channel_descriptor	
— D descriptor_length:8	
🖃 🔚 descriptor_data(hex):012ec258012fc1f4	
🕣 🧰 logical_channel_number:600	
🖪 🧰 logical_channel_number:500 🥄	
🖃 🤤 transport_stream_id:2	
— original_network_id:1	
transport_descriptors	
descriptor_tag:0x44 => cable_delivery_system_descript	or
descriptor_length:11	
descriptor_data(hex):054900000000300505700	
⊟	
original_network_id:1	

 Right-click *transport_descriptors* under *transport_stream_id:2*, then select *Add LCN Description* to enter edit page. Select *Board1 [QAM (A/C)] Port1 TS2* add LCN for CCTV10 (service ID 304) and CCTV10 (service ID 305). Click *Add* and *Exit*.

			Services			
Board	Port	TS	Add All	Service Name	Service ID	Service Type
) Board1[QAM(A/C)]	Port1	TS1	Add	CCTV 10	304	1 -> Digital Television Service
Board1[QAM(A/C)]	Port1	TS2	Add	CCTV 11	305	1 -> Digital Television Service
) Board1[QAM(A/C)]	Port1	TS3		•	N 30	
N						
N Service ID		Logic Chanr	nel Number		Visible Service Fla	g Delete All
N Service ID 304		Logic Chanr 400	nel Number		Visible Service Fla	g Delete All Delete
N		Logic Chanr 400 300	nel Number		Visible Service Fla	g Delete All Delete Delete
N Service ID 304 305		Logic Chanr 400 300	nel Number		Visible Service Fla	g Delete All Delete Delete
Service ID 304 305		Logic Chanr 400 300	nel Number		Visible Service Fla	g Delete All Delete Delete
Service ID 304 305		Logic Chanr 400 300	nel Number		Visible Service Fla	g Delete All Delete Delete
N Service ID 304 305		Logic Chanr 400 300	nel Number		Visible Service Fla	g Delete All Delete Delete

5. Repeat step 4 to add LCN for CCTV12 and CCTV15 under *transport_stream_id:3*. Once you have added LCN for these 6 services, click *Apply* in the following page.



6. Go to **Service Configuration**. Click **Apply** and **Save**.

3.3.3 Upgrading Set Top Box through OTA

To update the software for a number of STB's, use the following steps:

- 1. Feed the update stream to SMP by the embedded ASI or IP port.
- 2. Drag the update PID to QAM output port. See the following image, an update stream is taken as other PID 8001 in SMP.



 Add update descriptor in the NIT. Go to SI Edit page of the center TS. Add Network Descriptor by right click on network_descriptors. Generally, the descriptor is from STB manufacturer.

PAT CAT PMTs NIT Actual Itable_id:64 section_syntax_indicator:1 version_number:0 current next_indicator:1	
Inetwork_descriptors Inetwork_descriptors Itransport_streams Add Network Descriptor NIT Other BAT SDT Actual SDT Other TDT	Add descriptor Tag(Hex) a1 Data(Hex) D0010000046300000000000000000000000000000

4. Go to Service Configuration. Click Apply and Save.



5. Exit to Service Configuration, and click Apply.

Part 4 Module Configuration

4.1 Input and Output Modules

4.1.1 TSIP

TSIP is short for TS over IP. There two Gigabit RJ45 ports and two SFP (Small Form-factor Pluggable) ports on this module. The leftmost RJ45 port and the left SFP port are main I/O ports. The rightmost RJ45 port and the right SFP port only provide backup output.



TSIP Module Configuration menu overview:

Module Configuration -	Service Configuration	Equipment Configuration
Slot 4:TSIP(64I32O)	Input +	
	Output +	Channel(1-16)
Input(Mbps)	Setup	Channel(17-32)
	0.000	FEC
	0.000	120
	0.000	Batch Set
	2.222	11 11

Module Configuration > TSIP (64I32O) > Setup

IF Address	192	. 100	. 1	. 34		
Subnet Mask	255	. 255	. 255	.0		
Gateway	192	. 168	. 1	.1		
IGMP Version	IGMP	V3	-	\sim		
IGMP Auto Report	Off		8	\sim		
IGMP Report Period (s)	60					
Speed Mode	Auto	Auto ~				
Enable Input	On		5	~		
Enable Output	On	On ~ On ~				
Enable Backup Port	On					
MAC Address	A0-69-8	6-00-94-4	В			

Name	Range	Name	Range
IP Address	192168.1.34	Speed Mode	Auto
Subnet Mask	255.255.255.0		100M-Duplex
Gateway	192.168.1.1		100M-Half
			1000M-Half
			1000M-Duplex
IGMP Version	V1, V2, V3	Enable Input	Off, On
IGEM Auto Report	Off, On	Enable Output	Off, On
IGMP Report Period (s)	60	Enable Backup Port	Off, On

Module Configuration > TSIP (64I32O) > Input

Enable Input TS channel. Configure multicast IP address, source port, and protocol (RTP, UDP).

Channel	Channel Enable	Source IP Address	Source Port	Protocol	Col Port Matching	Row Port Matching	IGMPV3 Configuratio
1	\checkmark	227.40.50.60	1234	UDP ~	Disable ~	Disable ~	Configuration
2	\checkmark	227.40.50.61	1234	UDP ~	Disable ~	Disable ~	Configuration
3	\checkmark	227.40.50.62	1234	UDP ~	Disable ~	Disable ~	Configuration
4	\checkmark	227.40.50.63	1234	UDP ~	Disable ~	Disable ~	Configuration
5	\checkmark	227.40.50.64	1234	UDP ~	Disable ~	Disable ~	Configuration
6		227.40.50.65	1234	UDP ~	Disable ~	Disable ~	Configuration
7		227.40.50.66	1234	UDP ~	Disable ~	Disable ~	Configuration
8		227.40.50.67	1234	UDP ~	Disable 🗸	Disable ~	Configuration
9		227.40.50.68	1234	UDP ~	Disable ~	Disable ~	Configuration
10		227.40.50.69	1234	UDP ~	Disable ~	Disable ~	Configuration
11		227.40.50.70	1234	UDP ~	Disable ~	Disable ~	Configuration
12		227.40.50.71	1234	UDP ~	Disable ~	Disable ~	Configuration
13		227.40.50.72	1234	UDP ~	Disable ~	Disable ~	Configuration
14		227.40.50.73	1234	UDP ~	Disable ~	Disable ~	Configuration
15		227.40.50.74	1234	UDP ~	Disable ~	Disable ~	Configuration
16		227.40.50.75	1234	UDP ~	Disable ~	Disable ~	Configuration

Module Configuration > TSIP (64I320) > Output

Enable output TS channel. Configure multicast destination IP address, source port, and protocol.

Channel	Enable Channel	Source Port	Dest IP Address	Dest Port	Protocol	Encap Num TS Packets	Time To Live	Constant Rate(Mbps)	Enable VLAN	VLAN ID	Enable Dest MAC	Dest MAC
1	\checkmark	10000	227.10.20.80	1234	UDP ~	7 ~	128	3.000	Disable ~	1	Disable ~	00-00-00-00-00
2	\checkmark	10000	227.10.20.81	1234	UDP ~	7 ~	128	25.000	Disable ~	1	Disable ~	00-00-00-00-00-00
3	\checkmark	10000	227.10.20.82	1234	UDP ~	7 ~	128	4.000	Disable ~	1	Disable ~	00-00-00-00-00
4	\checkmark	10000	227.10.20.83	1234	UDP ~	7 ~	128	25.000	Disable ~	1	Disable ~	00-00-00-00-00
5	\checkmark	10000	227.10.20.84	1234	UDP ~	7 ~	128	25.000	Disable ~	1	Disable ~	00-00-00-00-00
6		10000	227.10.20.85	1234	UDP ~	7 ~	128	25.000	Disable ~	1	Disable ~	00-00-00-00-00
7		10000	227.10.20.86	1234	UDP ~	7 ~	128	25.000	Disable ~	1	Disable ~	00-00-00-00-00
8		10000	227.10.20.87	1234	UDP ~	7 ~	128	25.000	Disable ~	1	Disable ~	00-00-00-00-00
9		10000	227.10.20.88	1234	UDP ~	7 ~	128	25.000	Disable ~	1	Disable ~	00-00-00-00-00
10		10000	227.10.20.89	1234	UDP ~	7 ~	128	25.000	Disable ~	1	Disable ~	00-00-00-00-00
11		10000	227.10.20.90	1234	UDP ~	7 ~	128	25.000	Disable ~	1	Disable ~	00-00-00-00-00
12		10000	227.10.20.91	1234	UDP ~	7 ~	128	25.000	Disable ~	1	Disable ~	00-00-00-00-00
13		10000	227.10.20.92	1234	UDP ~	7 ~	128	25.000	Disable ~	1	Disable ~	00-00-00-00-00
14		10000	227.10.20.93	1234	UDP ~	7 ~	128	25.000	Disable ~	1	Disable ~	00-00-00-00-00
15		10000	227.10.20.94	1234	UDP ~	7 ~	128	25.000	Disable ~	1	Disable ~	00-00-00-00-00
16		10000	227.10.20.95	1234	UDP ~	7 ~	128	25.000	Disable ~	1	Disable ~	00-00-00-00-00

The **Constant Rate** should be about 2 Mbps higher than the **Effective Bitrate** listed in the **Status > TSIP (64I320)** menu. In that case, the bitrate of inserted null packets will be around 2 Mbps.

Next page

Apply Refresh Previous page
Better not enable unemployed channels, since the enabled channels without services still output null packets at Constant Bitrate.

Select *Advanced Setting* to configure backup port. The backup feature is available only when the main channels are transferring services.

		-Backup Port			
Channel	Dest IP Address	VLAN ID	Dest MAC	1	
	227.20.20.80	1	00-00-00-00-00		
	227.20.20.81	1	00-00-00-00-00		
	227.20.20.82	1	00-00-00-00-00		
	227.20.20.83	1	00-00-00-00-00		
	227.20.20.84	1	00-00-00-00-00	1	
	227.20.20.85	1	00-00-00-00-00	1	
	227.20.20.86	1	00-00-00-00-00		
	227.20.20.87	1	00-00-00-00-00		
	227.20.20.88	1	00-00-00-00-00		
0	227.20.20.89	1	00-00-00-00-00		
1	227.20.20.90	1	00-00-00-00-00		
2	227.20.20.91	1	00-00-00-00-00	<u> </u>	
3	227.20.20.92	1	00-00-00-00-00-00		
4	227.20.20.93	1	00-00-00-00-00-00		
5	227.20.20.94	1	00-00-00-00-00-00		
6	227.20.20.95	1	00-00-00-00-00		

The backup port duplicates the output streams in the main port respectively. If you set the backup **Dest IP Address** the same with the main port, do not connect main port and backup port to the same VLAN to avoid conflicts.

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

Module Configuration >	> TSIP	(641320) >	• Output >	FEC
------------------------	--------	------------	------------	-----

Channel	Enable FEC	Col FEC Only	Interleave Mode	FECL	FECD	
1	Disable ~	YES ~	Annex_a ~	4	5	
2	Disable ~	YES ~	Annex_a ~	4	5	
3	Disable ~	YES ~	Annex_a ~	4	5	
4	Disable ~	YES ~	Annex_a ~	4	5	
5	Disable ~	YES ~	Annex_a	4	5	
6	Disable ~	YES ~	Annex_a	4	5	
7	Disable ~	YES 🗸	Annex_a v	4	5	
8	Disable ~	YES ~	Annex_a v	4	5	
9	Disable 🗸	YES ~	Annex_a ~	4	5	
10	Disable 🗸	YES ~	Annex_a ~	4	5	
11	Disable ~	YES ~	Annex_a ~	4	5	
12	Disable ~	YES ~	Annex_a ~	4	5	
13	Disable ~	YES 🗸	Annex_a ~	4	5	
14	Disable ~	YES 🗸	Annex_a	4	5	

Module Configuration > TSIP (64I320) > Output > Batch Set

Batch Set is an efficient feature to Enable/Disable output ports with consecutive IP addresses.

All Channels	Start	Channel (32) - End Channel (32)	Channel Enable	Dest IP Address		est Port	Cons	tant Rate
	1	- 32	Off ~	227.10.20.80 A	uto Assign \lor 1234	Same ~	25.000	
Protocol		Source Port	Enable VLAN	Enable FEC	Col FEC Only	Interleave Mode	FECL	FECD
UDP	~	10000	Off ~	Disable ~	NO	Annex_b ~	4	5
Encap Num TS Packets	1	Time To Live	VLAN ID	Enable Dest MAC	Dest MAC			
1	~	128	1	Disable	00-00-00-00-00-00			

Channel Lis	st																	
Channel	Channel Enable	Dest IP Address	Dest Port	Constant Rate(Mbps)	Protocol	Source Port	VLAN	VLAN ID	FEC	Col FEC Only	Interleave Mode	FECL	FECD	Encap Num TS Packets	Time To Live	Enable Dest MAC	Dest MAC	
1	Enable	227.10.20.80	1234	3.000	UDP	10000	Disable	1	Disable	YES	Annex a	4	5	7	128	Disable	00-00-00-00-00	^
2	Enable	227.10.20.81	1234	25.000	UDP	10000	Disable	1	Disable	YES	Annex a	4	5	7	128	Disable	00-00-00-00-00	
3	Enable	227.10.20.82	1234	4.000	UDP	10000	Disable	1	Disable	YES	Annex a	4	5	7	128	Disable	00-00-00-00-00	
4	Enable	227.10.20.83	1234	25.000	UDP	10000	Disable	1	Disable	YES	Annex a	4	5	7	128	Disable	00-00-00-00-00	
5	Enable	227.10.20.84	1234	25.000	UDP	10000	Disable	1	Disable	YES	Annex a	4	5	7	128	Disable	00-00-00-00-00	
6	Disable	227.10.20.85	1234	25.000	UDP	10000	Disable	1	Disable	YES	Annex a	4	5	7	128	Disable	00-00-00-00-00	
7	Disable	227.10.20.86	1234	25.000	UDP	10000	Disable	1	Disable	YES	Annex a	4	5	7	128	Disable	00-00-00-00-00-00	
8	Disable	227.10.20.87	1234	25.000	UDP	10000	Disable	1	Disable	YES	Annex a	4	5	7	128	Disable	00-00-00-00-00-00	
9	Disable	227.10.20.88	1234	25.000	UDP	10000	Disable	1	Disable	YES	Annex a	4	5	7	128	Disable	00-00-00-00-00-00	~

4.1.2 TSIP+

TSIP+ is an enhanced TSIP module with extra memory card which supports more TS channels and can adjust the PCR better. You may assign different IP address to the main port and backup port. Its configuration pages are similar to TSIP. Please refer to chapter 4.1.1.



Module Configuration > TSIP+ > Setup

IP Address	192.168.1.34	
Subnet Mask	255.255.255.0	
Gateway	192.168.1.1	
IGMP Version	IGMP V3	~
IGMP Auto Report	Off	V
IGMP Report Period (s)	60	
Speed Mode	Auto	~
CBR/VBR	CBR	~
PCR Adjust Mode	Wellav Adjust Mode	V
MAC Address	A0-69-86-00-F3-04	

IP Address	192.168.0.88
Subnet Mask	255.255.255.0
Gateway	192.168.0.1
Mode	256IO(Port1) ~
MAC Address	A0-69-86-00-F3-03

Apply	Refresh	Default	Reboot	Power Off	UpgradeFirmware
	and the second s	and the second sec	and an end of the second	a second s	

4.1.3 ASI

ASI is a 4-channel ASI I/O module. Each ASI port can be set as either input port or output port separately.



Module configuration > ASI

Type	Input		Output	Output
Constant Rate(Mbps)	36.000	36.000	36.000	36.000
6				
CD Adjust Made		Mallau		

Name	Range	Description
Туре	Input, Output	Select to determine the port to be input or output.
Constant Rate (Mbps)	0~100	Max rate of ASI is 100Mbps
PCR Adjust Mode	Wellav Adjust Mode	
	Real-time Stamp Mode	

4.1.4 IPASI

IPASI module is a combination of TSIP and ASI. The leftmost RJ45 port is an I/O port, and the rightmost RJ45 port only provides backup output. The two ASI ports can be set as either input or output port separately. Please refer to chapter 4.1.1 and 4.1.3.



4.1.5 DVBC

DVBC is a 4-channel DVBC receiving module.



Module Configuration > DVBC

Port	Frequency(KHz)	SymbolRate (KSym/s)	Constellation	Lock Statu
	208000	6875	Qam64 v	Lock
2	474000	6875	Qam128 ~	Un-lock
3	474000	6875	Qam128 ~	Un-lock
4	474000	6875	Qam128	Un-lock

Apply	Defrech	Default	Deboot	Dowor Off
Apply	Refresh	Delault	Rebuut	Power Off

Name	Range
Frequency (KHz)	48000~870000
Symbol Rate (KSym/s)	3000~7000
Constellation	QAM16/32/64/128/256
Lock Status	Lock/Un-lock

Status > DVBC

		Slot 1:DVBC+ Status		
		TS Bitrate Overview		
	Port1	Port2	Port3	Port4
Lock Status	Lock	Un-lock	Un-lock	Un-lock
Total Bitrate (Mbps)	38.02	0.00	0.00	0.00
Effective Bitrate (Mbps)	29.77	0.00	0.00	0.00
Carrier Level(dBuV)	42	0	0	0
SNR(dB)	33.0	0.0	0.0	0.0
C/N(dB)	33.2	0.0	0.0	0.0
MER(dB)	33.1	0.0	0.0	0.0
BER	0.000xE-8	0.000xE-0	0.000xE-0	0.000xE-0
EVM(%)	2	0	0	0
EB/NO(dB)	28	0	0	0
	12	0	0	0

Refresh

4.1.6 DVBS2

DVBS2 is a 4-channel DVBS2 receiving module.



Module Configuration > DVBS2 (V2)

			- DVBS2V2					
	Port1		Port2		Port3		Port4	
Mode	4CH Mode(Nor	rmal)		~	4CH Mode(No	rmal)	ſ	N
Frequency (MHz)	11060		11060		11060		11060	
SymbolRate (KSym/s)	27500		27500		27500		27500	
LNB Type	Single Band	~	Single Band	~	Single Band	~	Single Band	,
Band Selection	Auto	~	Auto	~	Auto	~	Auto	
LO Low LNB Frequency (MHz)	9750		9750		9750		9750	
LO High LNB Frequency (MHz)	10600		10600		10600		10600	
Bias	Disable	~	Disable	~	Disable	~	Disable	
Polarization	13V (V)	~	13V (V)	~	13V (V)	\sim	13V (V)	
Lock Status	Un-lock		Un-lock		Un-lock		Un-lock	

Name	Range	Description
Mode	4CH Mode(Normal)	4CH Mode: QPSK, 8PSK
	2CH Mode(Advanced)	2CH Mode: QPSK, 8PSK, 16APSK, 32 APSK.
Symbol Rate (Ksym/s)	1000~45000	
LNВ Туре	Single Band	

	Dual Band	
Band Selection	Auto	
	Forced Low	
	Forced High	
Bias	Disable/Enable	Available in Port2 and Port4
Polarization	13V (V)	Vertical
	18V (H)	Horizontal
Lock Status	Lock/Un-lock	To indicate the input is locked or not.

Contact service provider for input information or visit <u>www.lyngsat.com</u> for the latest information of satellite Radio & TV channels.

4.1.7 DVBT2

DVBT2 is a 4-channel DVBT/DVBT2 receiving module.



Module Configuration > DVBT2

Port	Tuner Mode	Frequency(KHz)	Bandwidth	PLP Mode	PLP ID
1	DVB-T2 V	574000	8M ~	× A ~	
2	DVB-T2 V	574000	8M ~	A ~	2
3	DVB-T2 V	574000	8M ~	A ~	
4	DVB-T2 V	574000	8M ~	A ~	

Apply Refresh Default Reboot Power Off	Apply	Refresh	Default	Reboot	Power Off
----------------------------------------	-------	---------	---------	--------	-----------

Name	Range	Description
Tuner Mode	DVB-T	DVB-T: QPSK, 16/64QAM
	DVB-T2	DVB-T2: QPSK, 16/64/256QAM
Frequency(KHz)	48000~862000	
Bandwidth	6M, 7M, 8M	Depends on the standard in your country.
PLP Mode	А, В	Available when Tuner Mode is DVB-T2.
PLP ID		Available when PLP Mode is B.

4.1.8 8VSB

8VSB is a 4-channel 8VSB receiving module.



Module Configuration > ATSC



Name	Range	Description
Channel	57~803MHz	Refer to American ATSC (8-VSB) Channel List

4.1.9 QAM

QAM module supports modulating 8 adjacent channels. The left connector is for local monitoring.



Module Configuration > QAM

RF Level(dBuV)	90
Bandwidth	8M
(#1-4)SymbolRate(KBaud)	6875
(#5-8)SymbolRate(KBaud)	6875
Spectrum Shaping	Disable

#	Enable	Frequency(KHz)	Constellation	Max Rate(Mbit)
1	Enable ~	474000	QAM64 ~	38.015
2	Enable ~	482000	QAM64 ~	38.015
3	Enable ~	490000	QAM64 ~	38.015
4	Enable ~	498000	QAM64 ~	38.015
5	Enable ~	506000	QAM64 ~	38.015
6	Enable ~	514000	QAM64 ~	38.015
7	Enable ~	522000	QAM64 ~	38.015
8	Enable ~	530000	QAM64 V	38.015

America	Defeasels	Defeult	Delevel	Danna Off
ADDIV	Refresh	Derault	Repoot	Power Off

Name	Range	Name	Range
RF Level(dBuV)	90~106	Enable	Disable, Enable
Bandwidth	6M, 7M, 8M	Frequency (KHz)	47000~862000
Symbol Rate (KBaud)	4400~6956	Constellation	QAM64/128/256
Spectrum Shaping	Disable, Enable	Max Rate (Mbit)	Automatically calculated

4.1.10 IQAM

IQAM module supports modulating 16 non- adjacent channels.



Module Configuration > IQAM

RF Level(dB)	0	\sim			
RF Template	Frequency	~			
Channel Plan	STD	~			
	Mode	Constellation	SymbolRate(Kbaud)	Bandwidth	Max Rate(Mbps
Channel(1-8)	Annex A 🗸 🗸	64QAM ~	6875.000	8M ~	38.02
Constant and American American					
Channel(9-16)	Annex A ~	64QAM ~	6875.000	8M ~	38.02
Channel(9-16)	Annex A ~	64QAM ✓ Channel Select	6875.000 Frequency(MHz)	8M ~	38.02 RF Level(dB)
Channel(9-16)	Annex A ~	Channel Select	6875.000 Frequency(MHz)	8M Interleave Mode I=8,J=16	38.02 RF Level(dB) 82
Channel(9-16) 1 2	Annex A ~	Channel Select Empty Empty	6875.000 Frequency(MHz) 200.000 208.000	8M Interleave Mode I=8,J=16 I=8,J=16	38.02 RF Level(dB) 82 82
Channel(9-16) 1 2 3	Annex A ~	Channel Select Empty Empty Empty	6875.000 Frequency(MHz) ✓ 200.000 ✓ 208.000 ✓ 216.000	8M Interleave Mode I=8,J=16 I=8,J=16 I=8,J=16 I=8,J=16	38.02 RF Level(dB) 82 82 82
Channel(9-16) 1 2 3 4	Annex A ~	[64QAM ✓ Channel Select Empty Empty Empty Empty Empty	6875.000 Frequency(MHz) 200.000 208.000 216.000 224.000	BM Interleave Mode I=8,J=16 V I=8,J=16 V I=8,J=16 V I=8,J=16 V I=8,J=16 V	38.02 RF Level(dB) 82 82 82 82 82
Channel(9-16) 1 2 3 4 5	Annex A ~	[64QAM ✓ Channel Select Empty Empty Empty Empty Empty Empty Empty Empty	Frequency(MHz) 200.000 288.000 216.000 224.000 232.000	Interleave Mode I=8,J=16 I=8,J=16 I=8,J=16 I=8,J=16 I=8,J=16 I=8,J=16	38.02 RF Level(dB) 82 82 82 82 82 82 82

Apply Refresh Default Reboot Power Off

~ Empty

Enable

~ 248.000

I=8,J=16

82

4.1.11 OFDM

OFDM is a 4 channel modulating module. The left connector is for local monitoring.



Module Configuration > OFDM

Bandwidth	8M	~
RF Level(dBuV)	90	
Spectrum Shaping	Disable	~

	1		2		3		4	
Enable	Enable	~	Enable	~	Enable	~	Enable	~
Frequency(KHz)	474000		482000		490000		498000	
Guard IntervaL	1/32	~	1/32	~	1/32	~	1/32	~
Mode	Mode 2k	~						
Constellation	QPSK	~	QPSK	~	QPSK	~	QPSK	~
FEC HP	1/2	~	1/2	~	1/2	~	1/2	~
Max Rate(Mbps)	4.980		4.980		4.980		4.980	

Apply Refresh Default

Power Off

Reboot

Name	Range	Name	Range
Bandwidth	6M, 7M, 8M	Guard Interval	1/4, 1/8, 1/16, 1/32
RF Level(dBuV)	90~109	Mode	2k, 8k
Spectrum Shaping	Disable/Enable	Constellation	QPSK, QAM16/64
Enable	Disable/Enable	FEC HP	1/2, 2/3, 3/4, 5/6, 7/8
Frequency (KHz)	40000~862000	Max Rate (Mbit)	Automatically calculated

4.1.12 8VSBM

8VSBM is compliant with the modulation method used for broadcast in the ATSC digital television standard.



Module Configuration > ATSCM

RF Level		90	dB -17	dBm
Spectrum Sha	aping	Disable	~	
Channel Plan		OTA	\sim	
	#	Enable	Channel Sele	ct Frequency(KHz
	#	Enable	Channel Sele	ct Frequency(KHz)
	# 1 2	Enable Enable Enable	Channel Seler	Ct Frequency(KHz) 473000 479000

Name	Range	Description
RF level	80~107 dB	
	-27~0 dBm	
Spectrum Shaping	Disable, Enable	
Channel Plan	OTA, STD, IRC, HRC	
Channel Select	57~803 MHz	
Frequency (KHz)	44000~999000	

4.1.13 HDMI/SDI Decoder

HDMI/SDI Decoder supports decoding 2 programs in two HDMI ports and two SDI ports.



Module Configuration > HDMI/SDI Decoder

	Port1	Port2
Aspect Ratio Conversion	Automatic	~ Automatic ~
Output Resolution	1920x1080_50i	✓ 1920x1080_50i
Audio Volume (0-49)	30	30

Name	Range	Name	Range
Aspect Ratio	Automatic	Output Resolution	1920x1080_50i/60p/59.94p/
Conversion	4:3 Letterbox		59.94i/60i/30p/29.97p/24p
	4:3 Pan and Scan		1280x720_60p/50p/59.94p
	16:9 Letterbox		720x480_60i
	16:9 Pan and Scan		720x576_50i
Audio Volume (0-49)	0~49		



One decoder channel decodes only one service.

4.1.14 Decoder-CC

Decoder-CC supports decoding 2 programs in two HDMI ports or two SDI ports with CC(closed caption). SDI 1 and HDMI 1 output the decoded video/audio of program1 while SDI 2 and HDMI 2 output the decoded video/audio of program 2.



Module Configuration > Decoder-CC

	Port1	Port2	
Aspect Ratio Conversion	Auto	Auto	
Output Resolution	1280x720_59.94p(Use for 29.97p) ~	1280x720_59.94p(Use for 29.97p)	
Fail Mode	Still Image v	Still Image ~	
A			
Audio volume[0-49]	0	0	
Mixer	Stereo ~	Stereo	
Audio Prefered Language1	No audio V	No audio v	
	Newselle	No oudio	
Audio Prefered Language2	No audio V		
Audio Prefered Language2	No audio		
Audio Prefered Language2 SD EIA 708-B	SDI Enable	Enable	
Audio Prefered Language2 SD EIA 708-B Line	SDI SDI 9 ~	Enable ~	
Audio Prefered Language2 SD EIA 708-B Line SD VBI L21 Captions	SDI Enable v Enable v	Enable ~ Enable ~	
Audio Prefered Language2 SD EIA 708-B Line SD VBI L21 Captions HD EIA 708-B	SDI Enable ~ Enable ~ Enable ~	Enable ~ Enable ~ Enable ~	
Audio Prefered Language2 SD EIA 708-B Line SD VBI L21 Captions HD EIA 708-B Line	SDI Enable ~ Enable ~ Enable ~ 9 ~ Enable ~ 9 ~	Enable ~ 9 ~ Enable ~ 9 ~ 9 ~ 9 ~ 9 ~ 9 ~ 9 ~ 9 ~ 9	
Audio Prefered Language2 SD EIA 708-B Line SD VBI L21 Captions HD EIA 708-B Line Audio Group 1 Pair 1	SDI Enable ~ 9 ~ Enable ~ 9 ~ Enable ~ 9 ~ 0ff ~	Enable ~ 9 ~ Enable ~ 9 ~ Off ~	

Some of the items have optional settings:

Name	Range	Name	Range
Aspect Ratio	Automatic	Output Resolution	1920x1080_50i/60p/59.94p/
Conversion	4:3 Letterbox		59.94i/60i/30p/29.97p/24p
	4:3 Pan and Scan		1280x720_60p/50p/59.94p
	16:9 Letterbox		720x480_60i
	16:9 Pan and Scan		720x576_50i
Fail Mode	Still Image,	Audio Volume (0-49)	0~49
	Black Screen		
Mixer	Stereo, Left, Right, Mono, Dual	Line	4~19
Audio Group	Off, Audio1 PCM, Audio2 PCM		

Steps to decode services

 Go to Service Configuration, right-click on the TS1/TS2 under Decoder-CC module. Click Add TS to generate an empty TS in Port1. An empty TS contains 0 service.



Long click on a service in the input TS, and drag it to the **Programs** tab under the "Decoder-CC Port1 TS1". Drop it until a blue arrow appears on the left handside of the **Programs** tab. Finally we should Click **Apply** button to save the setting. Please refer to the following image. There is an input stream in TSIP Port1 TS1. After drag-and-drop operation, you can see one service td HD Phx Infonews Channel under "Decoder-CC Port1 TS1".





One Decoder Port decodes only one service.

4.1.15 ASI-Switch

≣



ASI-Switch is a 3in2out board for ASI input redundancy application. The three ports on the right are primary, secondary (it could be a copy of the main), and fail-safe input. The two ports on the left are both output 1 and output 2 interfaces.

Steps to get input services:

- 1. Connect ASI cables with valid signals to the three ASI input ports.
- 2. Go to **Service Configuration**, scan the three input TS. You will see the input TS' as in the following image.

Input Program Info : Program 🗸	Output Program Info : Program 🗸
Board3[SWITCH] Port1 OriginalNetworkID:0,TsID:0)[DVB] Fort2 Port3 TS1(OriginalNetworkID:0,TsID:0)[DVB]	

- 3. Click *Apply* and *Save* button in this page.
- 4. Go to *Module Configuration > SWITCH*. Set the switching conditions and thresholds.

Module Configuration > SWITCH > Backup

By default, *Switch level settings* is *Port-level*, and *Port-switch mode selection* is *Automatic switch*. See the following image. *Automatic switch* means this unit will monitor the input according to the conditions that has been checked in *Port-switch condition selection*.

Switch level settings						
Level	Port-level ~					
Port-switch	mode selection					
Port-switch mode selection	Automatic switch ~					
	-					
Port-switch co	ondition selection					
	Condition					
	Abnormal total bit rates					
	Synchronization loss or error					
	PAT missing					

Port automatic switch settings								
Automatic switch mode				Primary program first <				
Min. total bit rates of primary port(Mbps)				0.000				
Max. total bit rates of primary port(Mbps)				50.000				
Min. total bit rates of secondary port(Mbps)				0.000				
Max. total bit rates of secondary port(Mbps)				50.000				
Min. total bit rates of fail-safe port(Mbps)				0.000				
Max. total bit rates of fail-safe port(Mbps)				50.000				
Switch-back delay (s)				0				
	Apply	Default	Reboot					

Some options in *Port automatic switch settings:*

Automatic switch mode	Use Primary program first , this module will activate switch function. Select Switch Lock to disable this feature.
Min/Max total bitrate of primary, secondary and fail-safe port	Configure Minimum and Maximum rates to define the normal rate ranges for the input ports.
Switch-back delay	Once the primary recovered, this module will switch to primary input after a scheduled period.

If you use *Manual switch* for *Port switch mode selection*, the UI will be the following image.

	Switch lev	el settings	
Level			Port-level ~
	Port-switch m	ode selection	
	Port-switch in		
Port-switch mode selection			Manual switch ~
-	Manual port-s	witch settings	
	• • • •		
Output source port settings			ASI In 1 (Primary) ~
	Apply Default	Reboot	

If you choose *Program-level* for *Switch level settings*, as you can see in the following image, you will need to configure *Program-switch condition selection* and *Program Setup*.

DMP900 User Guide

Program-switch condition selection							
	Condition						
	Continuous count error of video						
	Continuous count error of audio						
Normal continuous count error frequency	(0-10 🔄)/200ms						
	Video bit rate is beyond normal range.						
	Audio bit rate is beyond normal range.						
	Program is not de-scrambled.						

ProgramSetup												
Index	ProgramBackup	Fail-safeProgram	Primary au range	Primary audio bit rate range(Mbps)		deo bit rate (Mbps)	Secondary audio bit rate range(Mbps)		Secondary range	video bit rate (Mbps)	Switch-back delay	Switch mode
			Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	(9)	
1	CCTV 2(302) ~	TV 2(302) ~	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	Auto-Primary program ~
2	CCTV 2(302) ~	TV 2(302) ~	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0 😫	Auto-Primary program ~
3	CCTV 2(302) ~	TV 2(302) ~	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	Auto-Primary program ~
4	CCTV 2(302) ~	TV 2(302) ~	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	Auto-Primary program ~
			Appl	/	Default		Reboot		×		iv i	

Module Configuration > SWITCH > Output



Apply

ASI Out 1 bitrate	Configure the constant bitrate for the output ASI port 1. This constant rate should be larger than the effective rate of the input streams.
Other output port bitrate	Configure the constant bitrate for the output ASI port 2. This constant rate should be larger than the effective rate of the input streams.
Output stream selection of other output ports	ASI Switch module will output one of the following four inputs even the whole unit is off: Same signal output as ASI Out 1, Pass-through ASI In 1 (Primary), Pass-through ASI In 2 (Secondary), Pass-through ASI In 3 (Fail-safe)
Pass-through mode for power off	ASI Switch module will output one of the following three inputs even the whole unit is off: Pass-through ASI In 1 (Primary), Pass-through ASI In 2 (Secondary), Auto

4.1.16 DS3



DS3 is a 4-channel input/output module for SDH/PDH transmission network.

Module Configuration > DS3

Туре	Input	~	Input	~	Output	~	Output	~
Protocol	One	~	One	~	One	~	One	~
-			FEC	Disable	e ~			

Name	Range	Description
Туре	Input, Output	Configure a DS3 port to be input or output
Protocol	One, Two, Three, Four	DS3 interface protocol
FEC	Disable, Enable	

4.1.17 ISDBT



ISDBT is a 4-channel receiving module that fully complies with ISDBT standard.

Module Configuration > ISDBT

	ISDBT	2	
Port	Frequency(KHz)	Bandv	vidth
1	474000	6M	~
2	474000	6M	~
3	474000	6M	~
4	474000	6M	~

Name	Range	Description
Frequency (KHz)	48000~862000	
Bandwidth	6M, 7M, 8M	

4.2 Encoding Modules

4.2.1 EN4AV-4M2B

EN4AV-4M2B is a 4-channel CVBS encoder that supports H.264 and MPEG-2 encoding. It can be licensed to support MPEG-2 encoding only.



Module Configuration > EN4AV-4M2B

	Port1	Port2	Port3	Port4	
Video Encoder Type	MPEG2	MPEG2	MPEG2 ~	MPEG2 ~	
Audio Encoder Type	MPEG1 Layer II	MPEG1 Layer II	MPEG1 Layer II V	MPEG1 Layer II V	
Video Encode Mode	CBR	CBR	CBR ~	CBR ~	
Video Max Encode Rate(Payload)(Kbps)	6000	6000	6000	6000	
Video Min Encode Rate(Payload)(Kbps)	1000	1000	1000	1000	
Video Encode Rate(Payload)(Kbps)	4000	4000	4000	4000	
Audio Encode Rate(Payload)(Kbps)	128K	128K	✓ 128K ✓	128K ~	
Total Encode Rate(Payload)(Kbps)	4128	4128	4128	4128	
Audio Volume (dB)	0.0	· 0.0	 0.0 	0.0 ~	

Advanced Setting 🗸

Advanced Setting 🗸				
GOP Structure	IBBP ~	IBBP ~	IBBP ~	IBBP ~
GOP Size	15	15	15	15
GOP Close	Disable ~	Disable \vee	Disable \vee	Disable ~
PCR PID	68	132	196	260
Video PID	66	130	194	258
Audio PID	67	131	195	259
PMT PID	65	129	193	257
Program Name	Program-1	Program-2	Program-3	Program-4
Provider Name	Encoder	Encoder	Encoder	Encoder
Video VIc Mode	CABAC ~	CABAC 🗸	CABAC 🗸	CABAC ~
Video Profile	Main ~	Main ~	Main ~	Main ~
Video Level	Level 3.1 V	Level 3.1 $$	Level 3.1 $$	Level 3.1 \sim
Brightness (0 - 255)	128	128	128	128
Contrast (0 - 255)	128 🚖	128	128	128
Saturation (0 - 255)	128	128	128	128
Hue (-180 - 180)	0	0	0	0

Name	Range	Name	Range
Video Encoder Type	H264, MPEG2	PCR PID	32~8190
Audio Encoder Type	OFF,MPEG1_Layer2,	Video PID	32~8190
	AC3 (optional)		
Video Encode Mode	CBR, VBR	Audio PID	32~8190
Video Max Encode Rate	1.5~2 times of Video Encode Rate	PMT PID	32~8190
Video Min Encode Rate	0~0,75times of Video Encode Rate	Program Name	Max 32 letters
Video Encode Rate	600~6000	Provider Name	Max 32 letters
Audio Encode Rate	64~384	Video VIc Mode	CABAC, CAVLC
Total Encode Rate	Automatically Calculated	Video Profile	Main, High
Audio Volume	0~8	Video Level	3.0, 3.1, 3.2, 4.0, 4.1, 4.2
GOP Structure	IBBP, IPPP, IBP	Brightness	0~255
GOP Size	6~63	Contrast	0~255
GOP Close	Enable, Disable	Saturation	0~255
		Hue	-180~180

4.2.2 EN4SDI-2M2A

EN4SDI-2M2A module supports encoding 2 H.264 HD/SD channels or 2 MPEG-2 SD channels via SDI/CVBS input. AAC and AC3 audio encoding is available with optional hardware and license.



Module Configuration > EN4SDI-2M2A

	Sub-module 1:H264/MPEG2	Sub-module 2:MPEG1_Layer_II		
	Port1	Port2		
Video Source	SDI ~	SDI ~		
Video Encoder Type	MPEG2 ~	MPEG2 ~		
Video Encode Rate(Payload)(Kbps)	4000	4000		
Video Encode Mode	CBR ~	CBR ~		
Video Max Encode Rate(Payload)(Kbps)	6000	6000		
Video Min Encode Rate(Payload)(Kbps)	1000	1000		

	Audio1		Audio2		Audio3		Audio4	
Audio Source	SDI1-Audio1/2	\sim	SDI2-Audio1/2	\sim	SDI1-Audio1/2	\sim	SDI2-Audio1/2	~
Audio Encoder Type	MPEG1_Layer2	\sim	MPEG1_Layer2	\sim				
AC3 AC Mode	1+1(L,R)	\sim	1+1(L,R)	\sim	1+1(L,R)	\sim	1+1(L,R)	Ŷ
Audio Encode Rate(Payload)(Kbps)	128	\sim	128	~	128	\sim	128	~
Belong To	Program1	\sim	Program2	\sim	Program1	\sim	Program2	\sim
Audio Volume (dB)	0.00		0.00		0.00		0.00	
Audio PID	67		131		195		259	

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Advanced Setting

GOP Structure	IBBP ~	IBBP	~
GOP Size	15	15	
GOP Close	Disable ~	Disable	\sim
Aspect Ratio	Auto ~	Auto	~
Video Standard	Auto ~	Auto	~
		1	
PCR PID	68	132	
Video PID	66	130	
PMT PID	65	129	
Service ID	1	1	
Program Name	Program-1	Program-2	
Provider Name	Encoder	Encoder	
Latency Adjustment (ms)	0	0	
Latency Adjustment (ms) VLC Mode	0 CABAC ~	0 CABAC	~
Latency Adjustment (ms) VLC Mode Profile	0 CABAC ~ Main ~	0 CABAC Main	×
Latency Adjustment (ms) VLC Mode Profile Level	0 CABAC Main Level 4.0	0 CABAC Main Level 4.0	> > >
Latency Adjustment (ms) VLC Mode Profile Level Sample Rate	0 CABAC Main Level 4.0 48KHz	0 CABAC Main Level 4.0 48KHz	> > > >
Latency Adjustment (ms) VLC Mode Profile Level Sample Rate Brightness (0 - 255)	0 CABAC Main Level 4.0 48KHz 128	0 CABAC Main Level 4.0 48KHz 128	> > > >
Latency Adjustment (ms) VLC Mode Profile Level Sample Rate Brightness (0 - 255) Contrast (0 - 255)	0 CABAC Main Level 4.0 48KHz 128 128	0 CABAC Main Level 4.0 48KHz 128 128	> > > > *
Latency Adjustment (ms) VLC Mode Profile Level Sample Rate Brightness (0 - 255) Contrast (0 - 255)	0 CABAC Main Level 4.0 48KHz 128 128 128 128	0 CABAC Main Level 4.0 48KHz 128 128 128	> > > > \$

Name	Range	Name	Range
Video Source	SDI	Aspect Ratio	Automatic, 16x9_LetterBox
	CVBS		16x9_CutOff, 4x3_PillarBox
Video Encoder Type	H264, MPEG2	Video Standard	Auto, Downscale
Video Encode Rate	600~6000	PCR PID	32~8190
(Payload)(Kbps)			
Video Encode Mode	CBR, VBR	Video PID	32~8190
Video Max Encode	1.5~2 times of Video	Service PID	32~8190
Rate (Payload)(Kbps)	Encode Rate		
Video Min Encode	0~0,75 times of Video	PMT PID	32~8190
Rate (Payload)(Kbps)	Encode Rate		
Audio Source		Program Name	Max 32 letters
Audio Encoder Type	OFF, MPEG1_Layer2	Provider Name	Max 32 letters
	AC3 (optional)		

	MPEG2_AAC		
	MPEG4_AAC		
AC3 AC Mode	1+1	Latency adjustment (ms)	Enter a value to adjust the audio and video synchronization. Enter a positive value to delay audio encoding.
Audio Encode Rate	64~384	Vic Mode	CABAC
(Payload)(Kbps)			CAVLC
Belong to	Program-1	Profile	Main, High
Audio Volume	0~8	Level	3.0, 3.1, 3.2, 4.0, 4.1, 4.2
Audio PID	32~8190	Sample Rate	32KHZ, 44.1KHZ,48KHZ
GOP Structure	IBBP, IPPP, IBP	Brightness	0~255
GOP Size	6~63	Contrast	0~255
GOP Close	Enable, Disable	Saturation	0~255
		Hue	-180~180

4.2.3 EN4HDMI-xM2A

EN4HDMI-2M2A supports encoding 2 H.264/MPEG-2 SD channels or 2 H.264 HD channels. Default with AAC audio encoding. EN4HDMI-4M2A supports encoding 4 H.264/MPEG-2 SD channels or 4 H.264 HD channels. AAC audio encoding is available with license.



Module Configuration > EN4HDMI-4M2A

	Sub-module 1	I:M2A	Sub-module 2	M2A	I			
	Port	1	Port	2	Port	3	Porte	4
Video Encoder Type	H264	~	H264	~	H264	\sim	H264	~
VLC Mode	CABAC	\sim	CABAC	~	CABAC	\sim	CABAC	~
Profile	Main	~	Main	\sim	Main	\sim	Main	\sim
Level	4.0	\sim	4.0	\sim	4.0	\sim	4.0	\sim
Video Encode Rate(Payload)(Kbps)	4000		4000		4000		4000	
Video Encode Mode	CBR	~	CBR	\sim	CBR	\sim	CBR	~
Video Max Encode Rate(Payload)(Kbps)	6000		6000		6000	1	6000	
Video Min Encode Rate(Payload)(Kbps)	1000		1000		1000		1000	

Audio Encoder Type	MPEG1_Layer2	~	MPEG1_Layer2	\sim	MPEG1_Layer2	\sim	MPEG1_Layer2	\sim
AC3 AC Mode	1+1(L,R)	\sim	1+1(L,R)	\sim	1+1(L,R)	\sim	1+1(L,R)	\sim
Audio Encode Rate(Payload)(Kbps)	128	\sim	128	\sim	128	\sim	128	~
Audio Volume	0		0		0		0	
Audio PID	259		131		67		195	

Advanced Setting 🗸

GOP Structure	IBBP ~	IBBP ~	IBBP ~	IBBP ~
GOP Size	15	15	15	15
GOP Close	Disable ~	Disable ~	Disable \vee	Disable ~
Sample Rate	48KHZ ~	48KHZ ~	48KHZ ~	48KHZ ~
Video Standard	Auto	Auto ~	Auto ~	Auto ~
Aspect Ratio	Auto ~	Auto 🗸	Auto 🗸	Auto ~
PCR PID Video PID	260	132	68	196
PMT PID	257	129	65	193
Program Name	Program-1	Program-2	Program-3	Program-4
Provider Name	Encoder	Encoder	Encoder	Encoder
Source Check	Disable 🗸 🗸	Disable \checkmark	Disable ~	Disable ~
Encoder Rate Check	Disable ~			

America	Define als	Defende	Debeet	The size of a minimum rate	Derver Of
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Name	Range	Name	Range
Video Encoder Type	H264, MPEG2	GOP Structure	IPPB, IPPP, IBP
VLC Mode	CABAC, CAVLC	GOP Size	6~63
Profile	Main, High	GOP Close	Disable, Enable
Level	3.0, 3.1, 3.2,	Sample Rate	32KHZ, 44.1KHZ,
	4.0, 4.1, 4.2		48KHZ
Video Encode Rate		Video Standard	Auto
(Payload)(Kbps)			Downscale
Video Encode Mode	CBR, VBR	Aspect Ratio	Automatic
			16x9_LetterBox
			16x9_CutOff
			4x3_PillarBox
Video Max Encode	1.5~2 times of Video	PCR PID	32~8190
Rate (Payload)(Kbps)	Encode Rate		
Video Min Encode Rate	0~0,75 times of Video	Video PID	32~8190
			20.0400
Audio Encoder Type	OFF, MPEG1_Layer2		32~8190
	AC3 (optional), AAC		
	available with license		
AC3 AC MODE	1+1(L, R)	Program Name	Max 32 letters
	1/0(C)		
	2/0(L, R)		
Audio Encode Rate	48~448	Provider Name	Max 32 letters
(Payload)(Kbps)			
Audio Volume	0~8	Source Check	Disable, Enable
Audio PID	32~8190	Encoder Rate Check	Disable, Enable

The *Status* >*EN4HDMI* only presents the *Video Resolution* when of the input content is protected by HDCP. In that case, the *Total Bitrate* and *Effective Bitrate* will be 0.000 Mbps and Scan TS will fail.

4.2.4 EN2SDI-2H

EN2SDI-2H is a 2-channel H.264/MPEG-2 HD/SD encoder via SDI/CVBS input.



Module Configuration > EN2SDI-2H

	Sub-module 1:MPEG2	Sub-module 2:MPEG1_Layer_II
	Port1	Port2
Video Source	SDI ~	SDI ~
Video Encoder Type	MPEG2 ~	MPEG2 ~
Video Encode Rate(Payload)(Kbps)	10000	10000
Video Encode Mode	CBR ~	CBR ~

	Audio1	Audio2
Audio Source	SDI1-Audio1/2 ~	SDI2-Audio1/2 ~
Audio Encoder Type	MPEG1_Layer2 ~	MPEG1_Layer2 ~
Audio Encode Rate(Payload)(Kbps)	128 ~	128 ~
Belong To	Program1 ~	Program2 ~
Audio Volume (dB)	0.00	0.00
Audio PID	67	131

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Advanced Setting

GOP Structure	IBBP ~	II	BBP	~
GOP Size	15	15	5	
GOP Close	Disable \vee	D	Disable	~
Aspect Ratio	Auto ~	A	luto	\sim
Video Standard	Auto ~	A	luto	\sim
		()		_
PCR PID	68	11	32	_
Video PID	66	1.	30	
PMT PID	65	12	29	
Service ID	1	1		
Program Name	Program-1	Pr	rogram-2	_
Provider Name	Encoder	E	ncoder	
Latency Adjustment (ms)	0	0		
Profile	High ~	Н	ligh	\sim
Level	Level 4.0 V	b	evel 4.0	\sim
Sample Rate	48KHz V	4	8KHz	\sim
Brightness (0 - 255)	128	12	28	\$
Contrast (0 - 255)	128 🗘	12	28	
Saturation (0 - 255)	128 🗘	12	28	-
Hue (-180 - 180)	0	0		\$
EIA 708	Disable ~	D)isable	\sim
Apply	Refresh	Default Reboot	UpgradeFirm	nwa

Name	Range	Name	Range
Video Source	SDI, CVBS	Video PID	32~8190
Video Encoder	H264, MPEG2	PMT PID	32~8190
Туре			
Video Encode Rate	600~20000	Service ID	0~65535
(Payload)(Kbps)			
Video Encode Mode	CBR, VBR	Program Name	Max 32 letters
Audio Source	L1-XLR1-R1,SDIx-Audio1/2	Provider Name	Max 32 letters
	SDIx-Audio3/4,SDIx-Audio5/6		
	SDIx-Audio7/8		
Audio Encoder	OFF, MPEG1_Layer2	Latency	Enter a positive value to
Туре	AC3 (optional), AAC audio	Adjustment (ms)	delay audio encoding.
	encoding is available with		

	license		
Belong to	Progrma-1	Profile	Main, High
Audio Volume	0~8	Level	3.0, 3.1, 3.2, 4.0, 4.1, 4.2
Audio PID	32~8190	Sample Rate	32KHZ, 44.1KHZ,48KHZ
GOP Structure	IPPB, IPPP, IBP	Brightness	0~255
GOP Size	6~63	Contrast	0~255
GOP Close	Disable, Enable	Saturation	0~255
Aspect Ratio	Auto, 16x9_LetterBox	Hue	-180~180
	16x9_CutOff, 4x3_PillarBox		
Video Standard	Auto, Downscale	EIA 708	Disable, Enable
PCR PID	32~8190		

4.2.5 EN4SC-4M2A

EN4SC-4M2A is a 4-channel H.264 and MPEG-2 encoding module with 4 SDI/CVBS ports. An extra MPEG1-L2 audio encoding is optional for each channel. AC3 are available if enabled in license.



Module Configuration > EN4SC-4M2A01

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	Sub-module 1:	MPEG2			Sub-module 2:	MPEG2		
	Port1		Port2		Port3		Port4	
Video Source	SDI	\sim	SDI	\sim	SDI	\sim	SDI	~
Video Encoder Type	MPEG2	~	MPEG2	\sim	MPEG2	~	MPEG2	~
Video Encode Rate(Payload)(Kbps)	4000		4000		4000		4000	
Video Encode Mode	CBR	\sim	CBR	\sim	CBR	~	CBR	~
Video Max Encode Rate(Payload)(Kbps)	6000		6000		6000		6000	
Video Min Encode Rate(Payload)(Kbps)	1000		1000		1000		1000	

	Audio1
Audio Source	SDI1-Audio1/2
Audio Encoder Type	MPEG1_Layer2
AC3 AC Mode	1+1(L,R)
Audio Encode Rate(Payload)(Kbps)	128
Belong To	Program1
Volume (dB)	0.00
Audio PID	67

Audio2	
SDI2-Audio1/2	~
MPEG1_Layer2	~
1+1(L,R)	\sim
128	~
Program2	~
0.00	
131	

Audio3		Audio4	
SDI3-Audio1/2	\sim	SDI4-Audio1/2	\sim
MPEG1_Layer2	\sim	MPEG1_Layer2	~
1+1(L,R)	\sim	1+1(L,R)	V
128	\sim	128	~
Program3	~	Program4	~
0.00		0.00	
195		259	

Audio Switch On

	Audio5
Audio Source	SDI1-Audio1/2
Audio Encoder Type	MPEG1_Layer2
Audio Mode	Stereo
Audio Encode Rate(Payload)(Kbps)	128
Belong To	Program1
Volume (dB)	0.00
Audio PID	323

 \sim

Audio6	Audio7
SDI2-Audio1/2	SDI3-Audio1/2 ~
MPEG1_Layer2	MPEG1_Layer2 ~
Stereo	Stereo ~
128	× 128 ×
Program2	Program3 ~
0.00	0.00
387	451

Audio8	
SDI4-Audio1/2	\sim
MPEG1_Layer2	~
Stereo	~
128	~
Program4	~
0.00	
515	

Advanced Setting

GOP Structure	IBBP	IBBP		
GOP Size	15		15	
GOP Close	Disable	\sim	Disable	
Aspect Ratio	Auto	\sim	Auto	
Video Standard	Auto	Auto ~		
PCR PID	68		132	
Video PID	66		130	
PMT PID	65		129	
Service ID	1		1	
Program Name	Program-1		Program-2	
Provider Name	Encoder		Encoder	
Latency Adjustment (ms)	0		0	
VLC Mode	CABAC	\sim	CABAC	
Profile	Main	\sim	Main	
Level	Level 4.0	\sim	Level 4.0	
Sample Rate	48KHz	\sim	48KHz	
Brightness (0 - 255)	128	-	128	
Contrast (0 - 255)	128		128	
Saturation (0 - 255)	128	.	128	
Hue (-180 - 180)	0	-	0	

IBBP	\sim	IBBP	\sim	IBBP
15		15		15
Disable	\sim	Disable	~	Disable
Auto	~	Auto	\sim	Auto
Auto	\sim	Auto	\sim	Auto



Encoder	
0	
CABAC	29
Main	~
Level 4.0	1
48KHz	~
128	*
128	4
128	\$
0	 ¢

V A V * * *



260	
258	
257	
1	

Encoder		
0		
CABAC	~	
Main	~	
Level 4.0	\sim	
48KHz	\sim	
128	4	
128	\$	
128	¢	
0	\$	

Name	Range	Name	Range
Video Source	SDI, CVBS	GOP Structure	IBBP/IPPP/IBP
Video Encoder Type	H264, MPEG2	GOP Size	6~63
Video Encode Rate	600~15000	GOP Close	Disable, Enable
Video Encode Mode	CBR, VBR	Aspect Ratio	Auto
	SDI1-Audio1/2(SDI)		Auto
	SDI1-Audio3/4(SDI)		HD_DOWNSCALE_720x576i50
Audio Source	SDI1-Audio5/6(SDI)	Video Standard	HD_DOWNSCALE_720x480l60
	L1-XLR1-R1(CVBS)		HD_DOWNSCALE_704X480I60
	No Audio		HD_DOWNSCALE_544X480I60
Video Min Encode	0~3000	PCR PID	32~8190
Video Max Encode Rate (Payload)Kbps	6000~8000	Video PID	32~8190
Audio Encoder Type	AC3, MPEG1_Layer2	PMT PID	32~8190
AC3 AC Mode	1+1(L,R)	Service ID	1
Audio Encode Rate	64~384	Program Name	Program-x
Belong To	Program x/ None	Provider Name	Encoder
Volume(dB)	0~4	Latency Adjustment	-500~3000
Audio PID	32~8190	VLC Mode	CABAC, CAVLC
Audio Source	L1-XLR1-R1, No Audio	Profile	Main, High
Audio Encoder Type	MPEG1_Layer2	Level	3.0, 3.1, 3.2, 4.0, 4.1, 4.2
Audio Mode	Stereo/Dual/Mono	Sample Rate	48KHz
Audio Encode Rate	64~384	Brightness(0~255)	0~255
Belong To	Program x/ None	Contrast (0~255)	0~255
Volume(dB)	0~4	Saturation(0~255)	0~255
Audio PID	32~8190	Hue(-180~180)	-180~180
		Same PID for PCR and Video	Yes/No

4.2.6 EN5-4H/1U



Module Configuration > EN5-4H/1U

Work Mode	SDI(HD X4)	~	Signal Lost Processing	blue screen
hannel 1 Chanr	nel 2 Channel 3	G	hannel 4	
		TS	Setting	
Resolution	Auto	\sim	Frame Ration	Auto
Program Number	1	+	Provider Name	encoder
Service Name	program-0		PMT PID	4096
PCR PID	512	-		
		Video E	Basic Setting	
Video PID	256		Format	4:2:0 🗸
Bit Depth	8	\sim	Profile	Main Still Picture
Level	Auto	~	Tier	Main 🗸
Bitrate(Kbps)	14500			
lvanced Setting				
Advanced Setting	Enable	~	High Speed Mode	Default(4k:High-Speed. otl >
GOP Size(GOP_N)	32	-	P_AS_L0_B	L0 B picture
Adaptive GOP	not insert	~	IDR Interval	5 ~
GOP Hierarchy	Enable	~	IP Period(GOP_M)	4 ~
Closed GOP	Close	~	Adaptive Quantization	Off 🗸
CPB Delay	Default(3s)	~	VBR Converge	Off

Name	Range	Name	Range	
Work Mode	SDI (HD x4)	Signal Lost	Blue screen	
	SDI (4K x1)	Processing		
Resolution	1920x1080_422_10_60P/59.94P/	Frame Ration	Auto	
	60I/59.94I/50P/50I/30I/29.97P		23.94	
	1920x1080_420_10_60P/59.94P		29.97	
	1920x1080_422_8_60P/59.94P/		59.94	
	601/59.941			
	1280x720_422_10_60P/59.94P			
	1280x720_422_8_60P/59.94P			
	720x576_420_8_50I			
	720x480_420_8_60I/59.94I			
Video PID		Format	4:2:0, 4:2:2	
Bit Depth	8	Profile	Main, Main 10,	
	10		Main Still Picture	
			Main 4:2:2 10	
Level	Auto, 4.0, 5.0, 5.1, 5.2, 6.0, 6.1, 6.2	Tier	Main, High	
Bitrate (Kbps)				
Advanced Setting	Enable, Disable	High Speed	Default (4k:High-Speed,	
		Mode	others: Normal-Speed),	
			Mode1 (4k,2k High-Speed. others: Normal-Speed),	
			Mode2 (4k,2k,720p	
			High-Speed. others: Normal-Speed)	
GOP Size (GOP N)		P_AS_L0_B	P picture, L0 B picture	
Adaptive GOP	Not insert, insert	IDR Interval	0, 1, 2, 3, 4, 5	
GOP Hierarchy	Enable, Disable	IP Period	1, 2, 4	
		(GOP_M)		
Closed GOP	Close, Open	Adaptive Quantization	Off, On	
CPB Delay	Default (3s), 0.5s,1s, 3s	VBR Converge	Off, On	
Availablity	Enable	✓ Audio PID	768	4
----------------------------------	---------	------------------	--------------------	---
Audio Source	SDI1_12	∨ Туре	AAC	~
Channel Layout	Stereo	✓ Bitrate	192Kbps	~
Delay(ms)	0	Dolby Mode	Dolby Digital Plus	9
AAC Version	MPEG4	✓ AAC Profile	LC	~
nced Setting Volume SDI12(dB)	0.00	Volume SDI34(dB)	0.00	

Name	Range	Name	Range
Availability	Enable, Disable	Audio PID	
Audio Source	SDI1_12, SDI1_34	Туре	MPEG1 LAYER2
	SDI1_56, SDI1_78		AC3/EAC3
Channel Layout	Mono, Stereo, Surround	Bitrate (Kbps)	32, 48, 56, 80, 96, 112, 128,
			160, 192, 224, 256, 320,
			384
Delay (ms)		Dolby Mode	Dolby Digital Plus
Volume SDI12 (dB)	-12~12	Volume SDI34 (dB)	-12~12
Volume SDI56 (dB)	-12~12	Volume SDI78 (dB)	-12~12

4.3 Transcoding Modules

4.3.1 TC4-xM2A

TC4-xM2A module refers to TC4-2M2A or TC4-4M2A modules. TC4-2M2A supports transcoding to 2 H.264 HD/SD channels or 2 MPEG-2 SD channels. TC4-4M2A supports transcoding to 2 H.264 HD/SD channels or 4 MPEG-2 SD channels. AC3 audio encoding is available with optional hardware and license.



Module Configuration >TC4-XM2A01

	Channel 1		Channel 2		Channel 3		Channel 4	
Video Encode Rate(Payload)(Kbps)	3000		3000		3000		3000	
Audio Encode Rate(Payload)(Kbps)	192K	~	192K	~	192K	~	192K	~
Advanced Setting 🔽								
Audio Volume(Transcode) (-63-0)(dB)	-30		-30	1	-30		-30	
GOP Structure	IBBP	~	IBBP	~	IBBP	~	IBBP	~
GOP Size	15		15		15		15	
GOP Close	Disable	\sim	Disable	\sim	Disable	\sim	Disable	~
Same PID for PCR and Video								
Output Resolution	720x480_60i	~	720x480_60i	~	720x480_60i	\sim	720x480_60i	~
Video Encoder Type	MPEG2	~	MPEG2	\sim	MPEG2	\sim	MPEG2	~
Video Profile	Main	Y	Main	×	Main	~	Main	V
Video Level	Level 4.0	~	Level 4.0	\sim	Level 4.0	\sim	Level 4.0	~
Video VIc Mode	CABAC	\sim	CABAC	\sim	CABAC	\sim	CABAC	~
Audio Encoder Type	MPEG1 Layer2	\sim	MPEG1 Layer2	~	MPEG1 Layer2	\sim	MPEG1 Layer2	~
AC3 AC Mode	1+1(L,R)	\sim	1+1(L,R)	Ý	1+1(L,R)	\sim	1+1(L,R)	V
Aspect Ratio Conversion	Automatic	\sim	Automatic	\sim	Automatic	\sim	Automatic	V
Video Encode Mode	CBR	\sim	CBR	~	CBR	\sim	CBR	~
Video Max Encode Rate(Payload)(Kbps)	6000		6000		6000		6000	
Video Min Encode Rate(Payload)(Kbps)	1000		1000		1000		1000	
Latency Adjustment(ms)	1900		1900	\	1900	-	1900	
SDHD	4SD	~						

Apply	Refresh	Default	Reboot	Upgrade(Decoder)	Upgrade(Encoder)	Power Off

Name	Range	Name	Range
Video Encode Rate	600~15000	Video Profile	Main, High
Audio Encode Rate	64~384	Video Level	3.0, 3.1, 3.2, 4.0, 4.1, 4.2
Audio Volume	0~8	Video VIc Mode	CABAC, CAVLC
GOP Structure	IPPB, IPPP	Audio Encoder Type	OFF, MPEG1_Layer2, AC3
	IBP		
GOP Size	6~63	AC3 AC Mode	1+1(L, R), 1/0(C), 2/0(L, R)
GOP Close	Disable, Enable	Aspect Ratio	Automatic, 16x9_LetterBox
		Conversion	16x9_CutOff, 4x3_PillarBox
			4x3_CutOff
Output Resolution	720x480_60i	Latency Adjustment	Enter a value to adjust the audio
	720x576_50i	(ms)	and video synchronization. Enter
	1920x1080_60i/50i		encoding. Enter a negative value
	1208x720_60p/50p		to hasten audio encoding.
Video Encoder	H264, MPEG2	SDHD	4SD/2HD channel mode.
Туре			

Drag a program to a TC4 output port for transcoding process. The transcoded program will be in the corresponding TC4 input port. Then the transcoded program can be sent to an output port.



4.4 Scrambling/Descrambling Modules

4.4.1 CI Descrambling

One CI module allows the user to insert two pairs of CAM and smartcard into two independent slots. The top slot is slot 1. The bottom slot is slot2. The user can either select Auto Reset or click Reboot to reset CAM modules. MMI button is used to read CAM and smartcard information.



Module Configuration > CI

	TS Clock	Constant Rate(Mbps) Auto Reset	Auto Resend CA P	MT Mode	
Slot1	9MHz	~ 64.000			CBR	~
Slot2	9MHz	~ 64.000			CBR	

Configuring Service Descrambling

In the following image, a TS that contains 9 scrambled services comes from ASI input port.

 Go to Status > CI and check the CAM Insert Status, CAM Initialization status, CAM Name, and CA System ID. Take the following figure for example, the CAM module is successfully loaded in CI Port.

	Slot 3:Cl Status	
	TS Bitrate Overview	
	Port1	
Input Effective Bitrate(Mbps)	35.79	
Output Effective Bitrate(Mbps)	35.41	
Output Total Bitrate(Mbps)	63.85	
CAM Insert Status	Inserted	
CAM Init Status	Succeeded	
CAM Name	NOVEL SUPERTV-SNIT	
CA System ID	18946 ~	

- 2. Go to **Service Configuration**. Bypass the input TS and drag it to output **Board3 [CI]** on the right side. Then on the left side in **Board3 [CI] Port1** the processed TS is listed as an input again.
- Right-click a program in the output CI port to descramble this service by the CAM in Port 1. [Descramble] follows the service that is descrambled as a mark. To cancel the descrambling process for the service, right-click it and click *Non-descramble*. Click *Apply*.



4. Drag the service that has been descrambled from input Board3 [CI], Port1 to output port.



5. Go to *Status > CI*, check the *Service Descramble Status*. In the following figure, three services are descrambled successfully.

	TS Bitrate Overview	
	Port1	Port2
Input Effective Bitrate(Mbps)	35.79	0.00
Output Effective Bitrate(Mbps)	35.41 0.00	
Output Total Bitrate(Mbps)	63.85	0.00
CAM Insert Status	Inserted	Inserted
CAM Init Status	Succeeded	Failed
CAM Name	NOVEL SUPERTV-SMIT	EMPTY
CA System ID	18946 ~	0 ~
CC Error	In:0, Out:0	In:0, Out:0
	Service ID: 602, Video PID: 801, Succeed	
Service Descramble Status	Service ID: 604, Video PID: 803, Succeed	
	Service ID: 601, Video PID: 800, Succeed	



4.4.2 CI-BISS Descrambling

CI module can be converted to CI-BISS module by a different license and loading CI-BISS module software. BISS descrambling does not require any CAM module. Use the similar way as in Chapter 4.2.1 CI Descrambling to configure CI-BISS Descrambling.

- 1. Bypass the input TS and drag it to output CI port.
- 2. Right-click a program and click BISS-Descramble.



 Configure BISS Mode and BISS Key (and Injected ID in BISS-E Mode). Click Apply and then click Back to return to Service Configuration. [BISS_1] and [BISS_E] follow the descrambled services as a label.

#	Service ID	Service Name	BISS Mode	BISS-1/BISS-E Key	Inject ID
1	302	CCTV 2	BISS-1 ~	00000000000	
2	303	CCTV 7	BISS-1 ~	0000000000	
3	304	CCTV 10	BISS-E ~	000000000000000000000000000000000000000	000000000000000000000000000000000000000
4	305	CCTV 11	BISS-E 🗸	000000000000000000000000000000000000000	00000000000000
5	306	CCTV 12	NoDescramber ${\scriptstyle\lor}$		
6	307	CCTV 15	NoDescramber ~		

4. Drag the descrambled services to output port.



5. Check descrambling status in Status > Cl.

To ensure CA PMT is updated in CI, better bypass the input TS before drag it to CI. Otherwise, descrambling process may fail.

4.4.3 Scrambler+

The scrambler+ module is use to work with CAS systems to encrypt programs. It supports scrambling up to 150 services. Besides, it support BISS-1/BISS-E scrambling without extra license. AES-CBC mode is optional.



Module Configuration	•	Service Configuration		Equipment Configuration	÷
Slot 1:Scrambler+	۲	Setup			_
	-	CA System1	9	ECMG	
Input Bi	itrat	e (Mbps)	I	ECM	
	0.0	0		FMMG	
			0		

The following figure gives an overview of Scrambler+ menu structure.

Refresh

Apply

Configuring Scrambler+ Setup

Go to *Module Configuration* >Setup. Enter the *IP Address, Subnet Mask, Gateway*, and *Speed Mode* for this scrambler. The *IP Address* should be in the same network with that of the CAS server. The *Speed mode* should be the same with the Ethernet of CAS server. Turn on *CA System 1* and keep unused *CA Systems* Off. Use a cross-through RJ45 cable to connect scrambler to CAS server's Ethernet port. Check the connection by pinging scrambler's IP address in the Command Prompt of CAS server.

IP Address	0	- 0	. 0	. 0		
Subnet Mask	0	. 0	. 0	. 0		
Gateway	0	. 0	. 0	0		
Mac Address	A0-69	-86-00-DF	- B 5			
Speed Mode	1000M-DUPLEX ~					
Crypto Period	20					
CA System 1	On 🗸					
CA System 2	Off ~					
CA System 3	Off			\sim		
CA System 4	Off			~		

Reboot

Power Off

Default

Configuring ECMG connection.

System ID	DEC: 0 HEX: 0
Sub System ID	0
CMG IP Address	0.0.0.0
CMG Port	0

Enter **System ID**, **Sub System ID** (keep it 0 if not required), **ECMG IP Address**, and **ECMG Port**. Click **Apply**. Check **ECMG Communication Status** in **Status >Scrambler+**. When the connection is liable, the status is a green Connected. See in the following figure.

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CA System	ECMG	EMMG	ECM Count	EMM Count 1058360 0	
1	Connected	Connected	0		
2	Closed	Closed	0		
3	Closed	Closed	0	0	
4	Closed	Closed	0	0	
		PHY			
Link		Speed		Duplex	
Link Up		100 Mbps		Full-duplex	

Configuring EMMG connection.

	EMMG1
EMMG TCP Port	0
EMMG UDP Port	0
EMM Send Type	ТСР
EMM PID	0
EMM Bandwidth	0

Enter *EMMG TCP Port, EMMG UDP Port* (keep it 0 if EMM Send Type is TCP), *EMM Send Type, EMM PID*, and *EMM Bandwidth*. Click *Apply*. Check *EMMG Communication Status* in **Status >Scrambler+.** When the connection is stable, the status should be a green Connected.

Configuring ECM

ECM Stre	am ID		7	
ECM ID			7	
ECM PID			4006	
AC Data(Hex) 000100	00100060006		Add
			ECM1 List	
ECM Stre	eam ECM ID	ECM PID	AC Data(Hex)	Delete
1	1	4000	0001000100010001	
2	2	4001	0001000100020002	
3	3	4002	0001000100030003	
4	4	4003	0001000100040004	
5	5	4004	0001000100050005	
-	C	4005	0001000100060006	

Add the AC Data that is created in CAS server into ECM List.

Scrambling Programs

Once the ECMG, EMMG connection is done and ECM is added, go to *Service Configuration* and right-click a program in output port to *Program Scramble Setting*.



Select *Slot* (the slot in which Scrambler+ is installed), *CA Stream ID* for each program and click *Apply* to scramble them. Go to *Status* > *Scrambler*+ and check *ECM Count*. The count number should be the same with the number of scrambled programs.

										Batch Se	t						
Sta	t End	Scra	mbling Ty	pe BISS (HE)	6-1/BIS () 🗌	S-E ⊮	(ey	In	jected ID	Slot		CA1S	ream ID	CA2	Stream ID	CA3Stream ID	CA4Stream ID
1	€ 1	CA:	5 CW	- 000	00000	0000)	0	000000000000000000000000000000000000000	None	~	Non-	descramt 🗸	No	n-descramt ~	Non-descramt ~	Non-descramt ~
В	atch Set			Assi	Same gn	● A	uto	(A	⊃Same			O sa Assigr	ame Auto 	Assi	Same	○ Same	⊖Same
NO.	Service	Service	Slot	Scram	nbling		CAS Ty	pe	BISS-1/BISS-E	Injected ID			CA1 Stream II)	CA2 Stream ID	CA3 Stream ID	CA4 Stream ID
1	302	CCTV 2	Slot1	CAS	CW	~	DVB	~	000000000000000000000000000000000000000	00000000	00000	0	1	~	Non-descramt	Non-descramt	Non-descramt
2	303	CCTV 7	Slot1	CAS	CW		DVB	~	000000000000	00000000	00000	00	2	~	Non-descramt	Non-descramt	Non-descramt
3	304	CCTV 10	Slot1	CAS	CW	~	DVB	~	000000000000	00000000	00000	0	Non-descran	nt ~	Non-descramt	Non-descramt	Non-descramt
4	305	CCTV 11	None ~	CAS	CW	\sim	DVB	~	000000000000	00000000	00000	0	Non-descran	nble	on-descramt	Non-descramt	Non-descramt \
5	306	CCTV 12	None ~	CAS	CW	~	DVB	~	000000000000	00000000	00000	0	1 2		on-descramt	Non-descramt \	Non-descramt \
6	307	CCTV 15	None >	CAS	CW	~	DVB	~	000000000000000000000000000000000000000	00000000	00000	0	3		on-descramt	V Non-descramt V	Non-descramt
									Apply	Refresh		Bac	4 5 6 k				

To cancel the scrambling process for a scrambled program, go to *Program Scramble Setting* again, set *Slot* to *None* and apply *Non-scramble* for this program.

BISS-1/BISS-E Scrambling

BISS scrambling does not require a CAS server. Right-click an output program to **Program Scrambling Setting**. Select **BISS-1/BISS-E** in **Scrambling Type** and enter BISS keys to scramble the programs.

Part 5 Appendices

Appendix A - Abbreviations

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

I/O	Input/output
Kbps	1000 bit per second
LCN	Logical Channel Number
LNB	Low-Noise Block
LO	Local Oscillator
Mbps	1,000,000 bits per second
MER	Modulation Error Ratio
MIB	Management Information Base
MPTS	Multi-program Transport Stream
NIT	Network Information Table
OFDM	Orthogonal Frequency-Division Multiplexing
PAT	Program Association Table
PCR	Program Clock Reference
PID	Packet Identifier
РМТ	Program Map Table
PSI	Program Specific Information
PSU	Power Supply Unit
QAM	Quadrature Amplitude Modulation
QPSK	Quadrature Phase-Shift Keying
SD	Standard Definition
SDI	Serial Digital Interface
SDT	Service Description Table
SI	Service Information
SNMP	Simple Network Management Protocol
SNR	Signal Noise Ration
SPTS	Single Program Transport Stream
TDT	Time and Date Table
TS	Transport Stream
VBR	Variable Bitrate



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

Appendix B – Modules Available In Different Regions

Module Name	North America	Europe	Other
TSIP	\checkmark	\checkmark	\checkmark
TSIP+	\checkmark	\checkmark	\checkmark
ASI	\checkmark	\checkmark	\checkmark
IPASI	\checkmark	\checkmark	\checkmark
DVBC	\checkmark	\checkmark	\checkmark
DVBS2	\checkmark	\checkmark	\checkmark
DVBT2		\checkmark	\checkmark
8VSB	\checkmark		\checkmark
QAM-A/C		✓	\checkmark
QAM-B	\checkmark		\checkmark
IQAM	\checkmark		✓
OFDM		\checkmark	✓
8VSBM	✓		✓
HDMI/SDI Decoder		✓	✓
Decoder-CC	✓		✓
ASI-Switch	✓		✓
DS3			✓
ISDBT			\checkmark
EN4AV		✓	\checkmark
EN4SDI		✓	\checkmark
EN4HDMI	✓	✓	\checkmark
EN2SDI-2H	✓	✓	\checkmark
EN4SC	✓		\checkmark
EN5-4H/1U	√		\checkmark
TC4	✓	✓	✓
CI	✓	✓	✓
CI-BISS	√	✓	\checkmark
Scrambler+	\checkmark	\checkmark	\checkmark
SQAM			✓
ENASDI-4S			✓
TCAVS			✓
Decoder AVS+			
LQAM-A/C			✓
LQAM-B	✓		✓

Check the following sheet to find out which modules are available in certain regions.

✓ Available

Appendix C - Warranty

We 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, we will correct any covered defects without charge.

Appendix D - After-Sales Support

Please contact our sales/regional representatives for any help, product information, and troubleshooting.

Returning Products for Service

The DMP00 is a delicate piece of equipment and needs to be serviced and repaired by the manufacturer. In order to expedite this process please carefully read the following items.

• Confirm the required component

Before any product can be returned for service, the client ought to contact our sales representatives and after-sales support department by means of email to confirm the need to return the product or part of the product.

Collect the Serial Numbers to obtain RMA Number

Serial Number (SN) is printed on a label on the chassis and modules. To create a RMA number, SN must be submitted to support department. Once the RMA number has been issued to the client, the unit/component needs to be packaged and shipped back to the manufacturer. It's best to use the original box and packaging for the product but if this not available, check with the service department for the proper packaging instructions. RMA Number should be specified in the delivery bill or written on the package.

Do not return any power cables or accessories unless instructed to do so.