

HDMI-IPCast

H-4HDMI-IPCST (4 channel) H-8HDMI-IPCST (8 channel)

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A Note from Thor Broadcast about this Manual

Intended Audience

This user manual has been written to help people who have to use, integrate and to install the product. Some chapters require some prerequisite knowledge in electronics and especially in broadcast technologies and standards.

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Table of Contents

CHAPTER 1 HDMI-IPCAST INTRO	L
1.1 OUTLINE	1
1.2 MAIN FEATURES	1
1.3 SPECIFICATIONS	2
1.4 PRINCIPLE CHART (PER MODULE)	3
1.5 APPEARANCE AND ILLUSTRATION	3
CHAPTER 2 INSTALLATION GUIDE	4
2.1 WHAT'S IN THE BOX	1
2.2 INSTALLATION PREP	1
2.4 SIGNAL CABLE CONNECTION	7
CHAPTER 3 WEB NMS OPERATION	B
3.1 LOGIN	B
3.2 OPERATION	8
CHAPTER 4 TROUBLESHOOTING10	5
CHAPTER 5 PACKING LIST	8



Chapter 1 HDMI-IPCast Intro

1.1 Outline

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The Thor Broadcast HDMI IPCast network encoder is a unique solution for IP broadcasting. This can come equipped with 4/8/12/24 HDMI inputs with MPEG-4 AVC/H.264 video encoding and LC-AAC or HE-AAC audio encoding. The signals source could be sourced from any STB, PC, Game Console, DVD/BluRay, or any HDMI source. It can transfer the live programs through the internet/LAN and outputs IP out over UDP (Unicast/Multicast), RTSP, RTMP, HTTP and HLS, and the output signals can received by PC, phone and other mobile terminals. The IPCast encoders let you access your IP STB, PC or TV anywhere to watch your programs.

1.2 Main Features

- 4/8/12/24 HDMI inputs
- MPEG-4 AVC/H.264 video encoding and LC-AAC or HE-AAC Audio encoding
- IP Output over UDP (Unicast/Multicast), RTSP, RTMP, HTTP and HLS
- Includes support for Logo, Caption, QR Code inserting
- Management Control and easy updates via web management



1.3 Specifications

Input	4/8/12/24 HDMI inputs						
				Input Output			
				1920x1080_60p, 1920x1080_60i	1920x1080_30p		
				1920x1080_50p, 1920x1080_50i	1920x1080_25p		
		Resolution		1280x720_60p	1280x720_30p		
				1280x720_50p	1280x720_25p		
	Video			720x480_60i	720x480_30p		
Freedor	video			720x576_50i	720x576_25p		
Encoder Section		Encoding		MPEG-4 AVC/H.264 (Baseline profi	le, Main profile, High		
Section		Encoding		profile)			
		Bit rate		1Mbps~13Mbps			
		Rate Mode		CBR, VBR			
		GOP Size		25~50			
	Audio	Encoding		LC-AAC or HE-AAC			
		Sampling rate		44.1KHz			
		Bitrate		LC-AAC : 48, 64, 96, 128, 256 kbps HE-AAC : 48, 64 kbps			
Stream out	IP out over	UDP (Unicast/	'Mult	icast) , RTSP, RTMP, HTTP, HLS (RJ45,	100M)		
	ASI output	port and Data	port	are not applicable currently			
	Remote cor	ntrol Net		twork management (WEB)			
System	Language	Language		Chinese and English			
	Upgrade	Upgrade Et		hernet software upgrade			
	Operation t	Operation temperature		~45°C(work), -20~80°C(Storage)			
General	Power supp	oly	AC	100-240V 50/60Hz 2A			
	Dimensions	;	482	32mm×328mm×44mm			







Chapter 2 Installation Guide

2.1 What's in the Box

Thor Broadcast will deliver the unit with the following items:

- Thor HDMI-IPCast (4-24ch) Network Encoder
- Power Cord
- HDMI cables (4-24 included)
- Network cable

If any item is missing or mismatching with the list above, please contact local dealer.

2.2 Installation Prep

When you install the encoder, please follow the steps below. Checking the possible device missing or

damage during the transportation

- Preparing relevant environment for installation (rack room or Headend)
- Installing Encoder
- Connecting signal cables
- Connecting communication port (if it is necessary)

2.2.1 Installation Flow Chart is as follows :





2.2.2 Rack Accommodation

ltem	Requirement
Machine Rack Space	When installing unit on rack, the distance between 2 rows of machine frames should be 1.2~1.5m and the distance against wall should be no less than 0.8m.
Machine Hall Floor	Electric Isolation, Dust Free, HVAC anti-static material: $1X10^7 \sim 1X10^{10}\Omega$, Grounding current limiting resistance: $1M\Omega$ (Floor bearing should be greater than 450Kg/m^2)
Environment Temperature	5~40°C(sustainable), 0~45°C(short time), installing air-conditioning is recommended
Relative Humidity	20%~80% sustainable 10%~90% short time
Pressure	86~105KPa
Door & Window	Installing rubber strip for sealing door-gaps and dual level glasses for window
Fire Protection	Fire alarm system and extinguisher
Power	Device power, HVAC and lighting should be independent to each other. Device power requires AC $110V\pm10\%$, $50/60Hz$ or AC $220V\pm10\%$, $50/60Hz$. Please carefully check before running.



2.2.3 Grounding Requirement

- > Must be operated and maintained in an area free of dust and debris.
- The cover should be securely fastened, do not open the cover of the chassis when the power is on. This will also void Thor's manufacturer's warranty.
- > After installation, securely stow away all loose cables, external antenna, and others.
- Be careful when connecting a power source to the device.
- > Do not operate in wet or damp areas. Make sure the extension cable is in good condition
- Make sure the power switch is off before you start to install the device
- It is important to keep this device grounded to ensure all of the modules function correctly. Correctly grounding the device will also help prevent any electrical interference, lightening. Etc. Also it helps reject minor interference that may disrupt the devices ability to function smoothly. General rule of them, make sure the device is grounded when installing anywhere.
- Always use copper wire. When applied correctly the ground must be wrapped well to ensure maximum conduction so it can reduce any high frequencies. The copper ground wire should also be as short and thick as possible
- Installer must make sure that the two ends of the ground are well conducted and have appropriate anti-rust properties.
- > It is prohibited to use any other device as part of the grounding electric circuit.
- The area of the conduction between the ground wire and device's frame should be no less than 25 m².

Caution:

Before connecting power cord to HDMI-IPCast Encoder, set the power switch to "OFF"

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2.4 Signal Cable Connection

The signal connections include the connection of input signal cable and the connection of output signal cable. The details are as follows:

2.4.1 HDMI input cable illustration:



2.4.2 Network Cable illustration (CAT5):







Chapter 3 WEB NMS Operation

The Thor Broadcast HDMI-IPCast Encoder series does not support front D-pad buttons or an LCD screen, you can only control and set the configuration by connecting the Encoder to a PC to web NMS Port. Make sure that the computer's IP address is different from the Encoder's IP address otherwise it would cause IP conflict and you will not be able to login.

3.1 login

The default IP address of this device is 192.168.1.137

Connect the PC (Personal Computer) and the device with included net cable, and use ping command to confirm they are on the same network segment (subnet).

E.G. the PC IP address is 192.168.99.252, we then change the device IP to 192.168.99.xxx (xxx can be 0 to 255 except 252 to avoid IP conflict).

Use any web browser to connect the device with the PC by inputting the Encoder's IP address in the browser's address bar and press Enter. (our units usually work better on Mozilla and IE, not Chrome) It will display the Login interface as Figure-1. Input the Username and Password (Both the default Username and Password are "admin".) and then click "LOGIN" to start the device setting.

	×
8	http://192.168.1.137
	admin
	•••••

Figure-1

3.2 Operation

When we confirm the login, it displays the WELCOME interface as Figure-2.

			· · · · · ·
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R		HDM
Network Encoder		
Veb Management	2018-01-19 13:49:02	[Exit]
Summary Status	DEVICE INFORMATION	
Parameters	System Information	
Encode StreamServer	Software Version: 5.4.03 Build 153.01 Nov 29 2017	ystem inforn
▶ OSD	Web Version: 1.01	
System	System Version: 1.1 Product ID: 00420400-00000012-00000000-00000000	
Network Password	Uptime: 0 Day-00.04-23	
Configuration Firmware		
Date Time Log	Click any item here to enter the	
L	corresponding interface to check	
	information or set parameters.	

Figure-2

Parameters →Encoder:

From the menu on left side of the webpage, click "Encoder", it displays the program information of each encoding channel and interface where you can set video and audio parameters as in Figure-





Parameter → Stream Server:

The Thor IPCast supports IP Output over UDP (Unicast/Multicast), RTSP, RTMP, HTTP and HLS. Click "Stream Server", it will display the interface as shown in Figure-4 where you can set RTSP/HTTP/HLS parameters.

		2018-0	01-19 13:51:20	[Ex
STREAMSERVER				
StreamServ	Enc CH 1 Enc CH 2	Enc CH 3 Enc CH 4		
RTSP				
Port	554	Enable:	V	
НТТР				
Port:	9090	Enable:		
HLS				
Port:	8090	Enable:	8	
			Apply	
	RTSP Port: HTTP Port: HLS	StreamServer Enc CH 1 Enc CH 2 RTSP 554 1 Port: 554 1 Port: 9090 1 HLS 1 1	STREAMSERVER StreamServer Enc CH 1 Enc CH 2 Enc CH 3 Enc CH 4 RTSP Port: 554 Enable: HTTP Port: 9090 Enable: HLS	StreamServer Enc CH 1 Enc CH 2 Enc CH 3 Enc CH 4 RTSP

Figure-4

Click "EncCH1-4", it displays the interface as inFigure-5 where you can set stream names, RTMP and

UDP parameters of each encoding channel.

These are the VLC player syntaxes that can be used to test the streams:

udp://@224.2.2:2005 udp://@(multicast IP address):(port number)

RTSP, HTTP, and HLS streams are unicasts. The receiving device, such as a PC, needs to be on the same subnet as the NMS IP address (for example, set your receiving stream PC to 192.168.1.100).

RTSP protocol output: rtsp://192.168.1.137:554/stream1

HTTP protocol output: http://192.168.1.137:9090/stream1

HLS protocol output: http://192.168.1.137:9090/stream1.m3u8

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Network Encoder					
Web Management			2018-	01-19 13 51 31	[Exit]
Summary Status	STREAMSERVER				
Parameters Encode StreamServer	StreamServer	Enc CH 1 Enc CH 2 Enc	CH 3 Enc CH 4		
▶ OSD	StreamName				
System	StreamName:	stream1			_
Network Password	RTMP				
Configuration Firmware	RTMP Server:	rtmp://192.168.1.102/live/stream1	Enable:	8	
Date Time	UDP				
► Log	UDP address:	224.2.2.2	Enable:	10	
	UDP port:	1001			
			chapie.		

Figure-5

Parameter \rightarrow OSD:

Clicking "OSD", it displays the interface as Figure-6/7/8 where to set different Logo/ Caption/ QRCode of each encoding channel or set same Logo/ Caption/ QRCode of all channels.

Network Encod	der
welcome to use Web Manag	Select to configure logo, caption or QR code 2016-01-19 13:56:11 [Exit]
Summary	
► Status	
Parameters	Logo Caption QRCode Enc CH 2 Enc CH 3 Enc CH 4 ALL
Encode Encode Encode System IstranServer OSO System IstranServer Configuration Firmwate Date Time Log	Video Format 1920x1080 501 Logo 31xe 25x120 Logo (X,Y) (0,0) Alpha(0-120) 120 Layer(1-d) 1 Empty • Nove Direct Stati • Nove Start Pos 0 Slide Interval(e) 3 Costs
Browse	and select to which has Put your logo anywhere!!!
20	date Sefresh Delots Apply DelAll -
	Figure-6
Clicking date , wi	ill trigger a dialog box where you can set the date to decide when the LOG
Caption and QR Code	e appear. Select the week and then click Add to set specific time.
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created

date Refresh Delete Apply

Figure-8

DelA11



Figure-9

System → Password:

Clicking "Password", it displays the screen as Figure-10 where to set new login account and password for the web NMS. Both the current username and password are "admin".

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Network Enco	oder
welcome	t 2018-01-19 13:54:05 [EN 中文] [Ex
Summary Status	PASSWORD
Parameters Encode StreamServer OSD	Modify the login name and password to make the device safely. The default login name and password is "admin". Also please note the capital character and lowercase character.
System Network Password Configuration Firmware Date Time	Current UserName: admin Current Password:
► Log	Арру
	4

Figure-10

System → Configuration:

Click "Configuration", it displays the screen as shown in Figure-11 where to set save/ restore/ factory set/ backup/ load configurations.

igement				2018-01-19 13:54:23	[Exit]
Summary		1011			
► Status	CONFIGURA	ION			
Parameter	5				
► Encode		Save Restore Fa	ctory Set Backup	Load	
► StreamS	erver				
► OSD					
System	Whe		u shoud save configura	ation ,otherwise the new configuration	will lost after
Network	1000				
► Passwor	đ				
► Configu					Save config
 Firmware Date Tit 					Save comig
► Log	ne				
			22001		
		Figure-	11		
em → Firmwa	are:				



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Click "Firmware", it displays the screen as shown in Figure-12 where to upgrade firmware.

Network Encod	er	
me to use Web Managemen	2018-01-19 13:54:35 [Exi	1
Summary Status	FIRMWARE	
Parameters Encode StreamServer OSD System Network	 Warning: 1. Upgrade firmware(software and hardware) to get new function,please choose the right firmware to upgrade if you use a wrong file,the device may not work. 2. Upgrade will keep a long time,please do not turn off the power, otherwise the device will not work. 3. After upgrade,you must reboot device manually. 	
Password Configuration Firmware Date Time Log	Current Software Version: 5.4.03 Build 153.01 Nov 29 2017 select file:	
	۰	,

Figure-12

System → Date/Time

Click "Date/Time", it displays the screen as in Figure-13 where to set date and time for the device.

welcome	to use Web	2018-01-19 13:54	4 [Exit
Summary	DATE TIME		
► Status	DATE TIME		
Parameters	3		
► Encode		1970-01-01 00:10:03	
► StreamSe	rver		
► OSD			Update from browser
System			
Network			
► Password			
Configura	tion		
► Firmware			
Date Tin	ne		
P LOg			
	4	m	
		Figure-13	
$m \rightarrow Logo:$			
		Email: sales@thorfiber.com http:,	//www.thorbroadc



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Clicking "Log", it displays the log interface as in Figure-14 where to check or export the

Kernel/System log.

welcome				2018-01-19 13:54:	59	[Exit]
Summary	LOG					
▶ Status						
Parameters			 44.04.1		-	
▶ Encode	Log Type:	Kernel Log	Auto Refresh: 0	•	Export	Court by
StreamServer		ng block 1720 bad				
▶ OSD		ng block 1721 bad				
		ng block 1722 bad ng block 1723 bad				
System		ng block 1723 bad				
Network		ng block 1725 bad				
▶ Password		ng block 1726 bad				
Configuration		ng block 1727 bad				
Firmware	yaffs; checki	ng block 1728 bad				
Date Time		ng block 1729 bad				
▶ Log		ng block 1730 bad				
		ng block 1731 bad				
		ng block 1732 bad				
		ng block 1733 bad ng block 1734 bad				
		ng block 1734 bad				
		ng block 1736 bad				
		ng block 1737 bad				
		ng block 1738 bad				

Figure-14

Chapter 4 Troubleshooting

THOR's ISO9001 quality assurance system has been approved by the CQC organization. We guarantee the products' quality, reliability and stability. All THOR products haven passed all testing and manual inspections before they are shipped out. The testing and inspection scheme already covers all the Optical, Electronic and Mechanical criteria which have been published by THOR. To prevent a potential hazard, please strictly follow the operation conditions.

Prevention Measures

- Installing the device in a place where the environmental temperature is between 0 to 45 °C
- Making sure the unit has plenty of ventilation for the heat-sink on the rear panel; and other heat-sink bores if necessary
- Checking the AC input within the power supply and ensure it is working, the connection is correctly installed before switching on device
- > Checking the RF output levels to stay within a tolerable range, if it is necessary
- > Checking all signal cables have been properly connected

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Frequently switching on/off device is prohibited; the interval between every switching on/off must be greater than 10 seconds.

Conditions needed to unplug power cord

- Power cord or socket damage.
- > Any liquid that got into the device.
- > Any stuff that could cause a circuit short
- Device in damp environment
- > Device has suffered from physical damage; i.e. it fell off a rack.
- ➢ Longtime idle.
- > After switching on and restoring to factory setting, device still won't work properly.

Maintenance needed on device



Chapter 5 Packing list

Thor Broadcast IPCast Encoder		1 PC
User's Manual CD		1 PC
HDMI Cables		4 PCS
Power Cord	1 PC	

For Further Tech Support 1-800-521-Thor(8467) support@thorfiber.com

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