



User Manual



H-SPARTAN-4 IPTV Encoder

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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Chapter 1 – Introduction

1.1 Product Overview

The H-SPARTAN-4 has 4 channels of HDMI/CVBS inputs for Mpeg4 AVC/H.264 video encoding and Mpeg1 L2 and AAC audio encoding. Especially it is also allowed to play TS files through USB connector. It can be up to 1080/60P full HD resolution and very stable working on local networks.

1.2 Key features

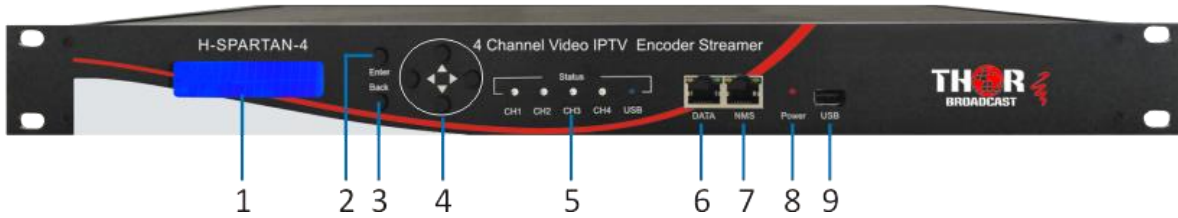
- TS files play directly
- Low Latency & Low bit rate
- CBR/VBR control mode
- LCD & Web controlled, updated via Web
- UDP/RTP (Unicast/Multicast), HLS, RTMP, HTTP
- Youtube and Facebook Live Streaming

1.3 Specifications

Interfaces	
Input	4 x HDMI, 4 x CVBS, 1 x USB
Output	1 x RJ45, 1Gbps IP Streaming, Protocols: UDP/RTP(Unicast/Multicast)/HLS, RTMP, HTTP
Control	LCD with 6 keys & 1 x RJ45 (Web NMS)
Video Encoding	
Format	H.264 AVC/HP@L4.0
Resolution	Input: 1080 50/60p, 1080 50/60i, 720 50/60p, 480i, 576i Output: up to 1080 30p
Bitrate	HDMI: 2~14Mbps CVBS: 2~6Mbps
Rate Control	CBR/VBR
Chroma Sample	4:2:0, 4:2:2
GOP Structure	IBBP
Audio Encoding	
Format	AC3, Mpeg1L2, AAC
Bitrate	64 ~ 384Kbps
Sample Rate	44.1KHz, 48.0KHz
General	
Power Supply	AC 100~240V 50/60Hz
Display	LCD panel @ 2 x 16 characters LED X5 (Ch1~4+USB)
Dimension	483 x 257 x 44.4mm
Weight	2000g
Environmental for operating	Temperature: 5°C- 40°C Relative Humidity: 80% @ 30°C

1.4 Appearance and Description

Front Panel Illustration



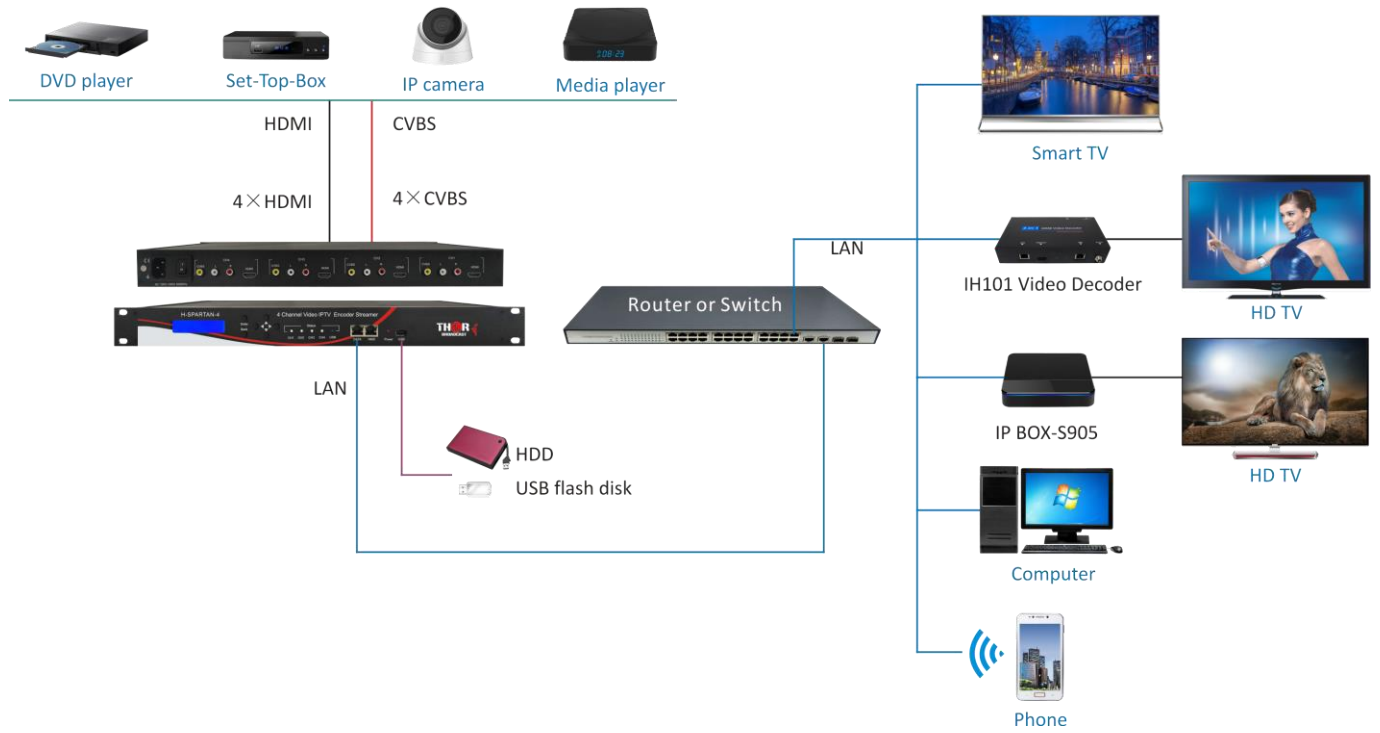
- | | |
|--|-----------------|
| 1. LCD Screen | 6. DATA Control |
| 2. Enter Key | 7. NMS Control |
| 3. Back (Cancel/Return) | 8. Power LED |
| 4. Directional keys (up,down,left,right) | 9. USB Playback |
| 5. Status LED | |

Rear Panel Illustration



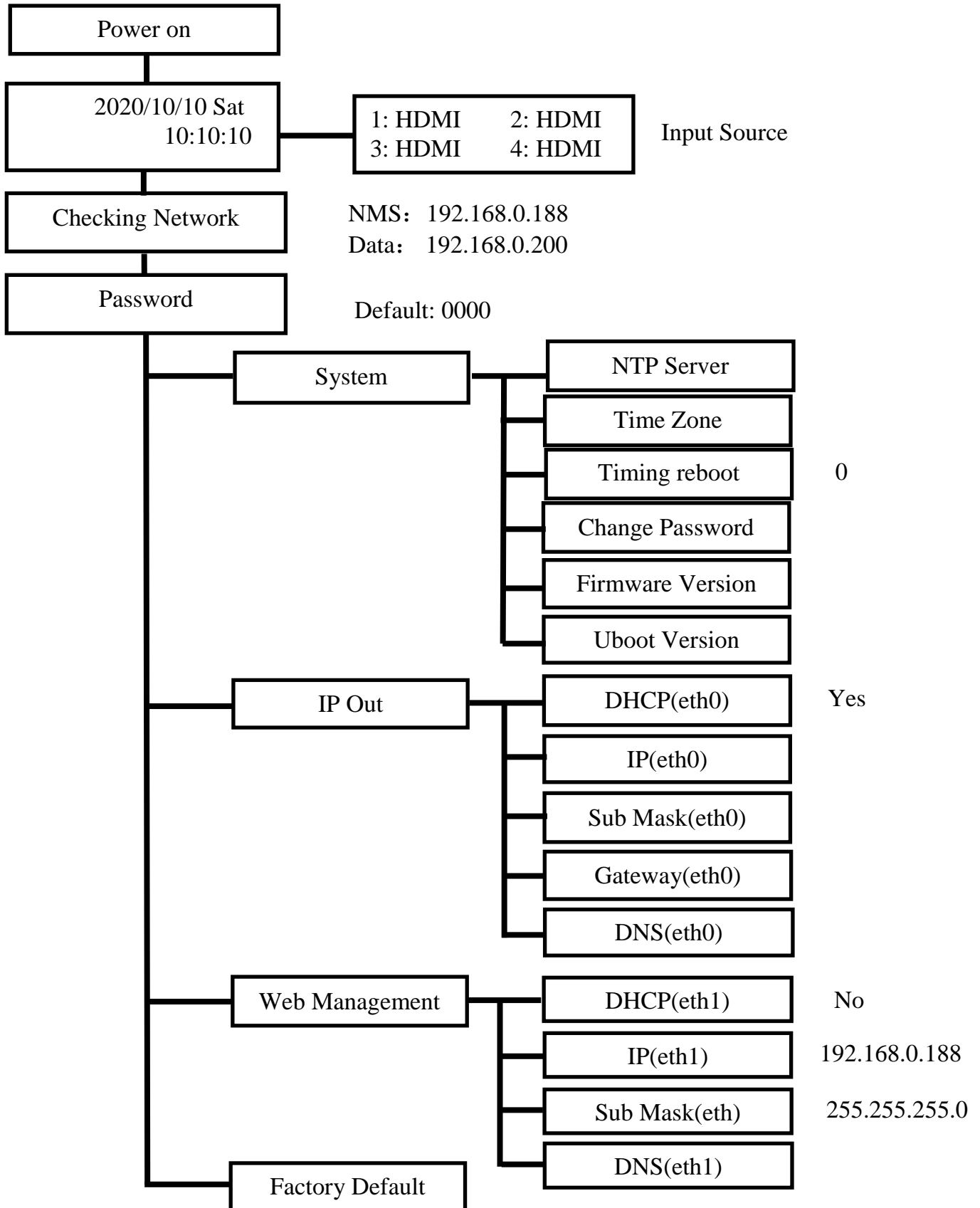
- | | |
|-----------------------|--------------------------|
| 1. Power Supply Input | 3. HDMI & CVBS Input * 4 |
| 2. Power Switch | |

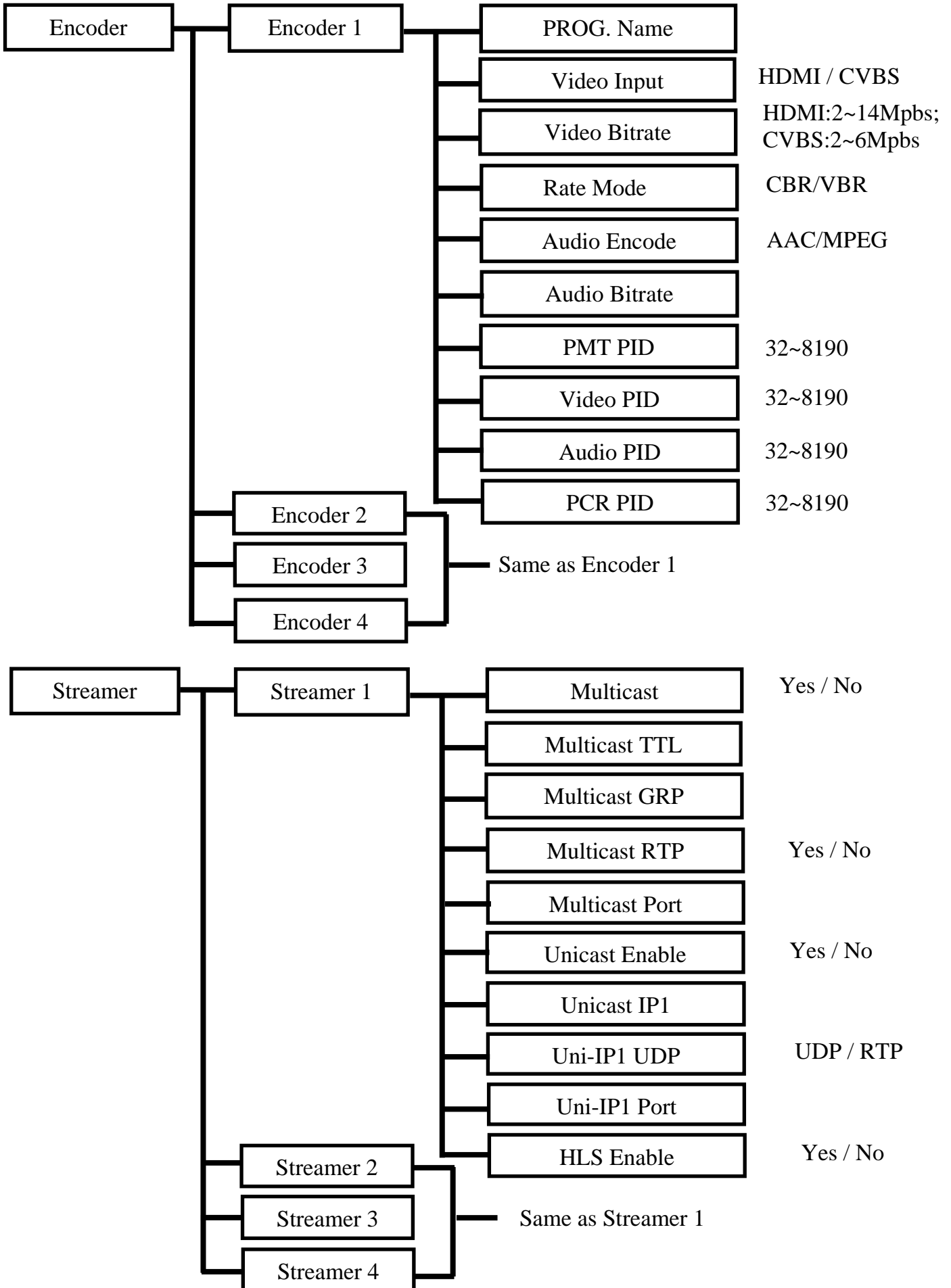
1.5 Application Diagram

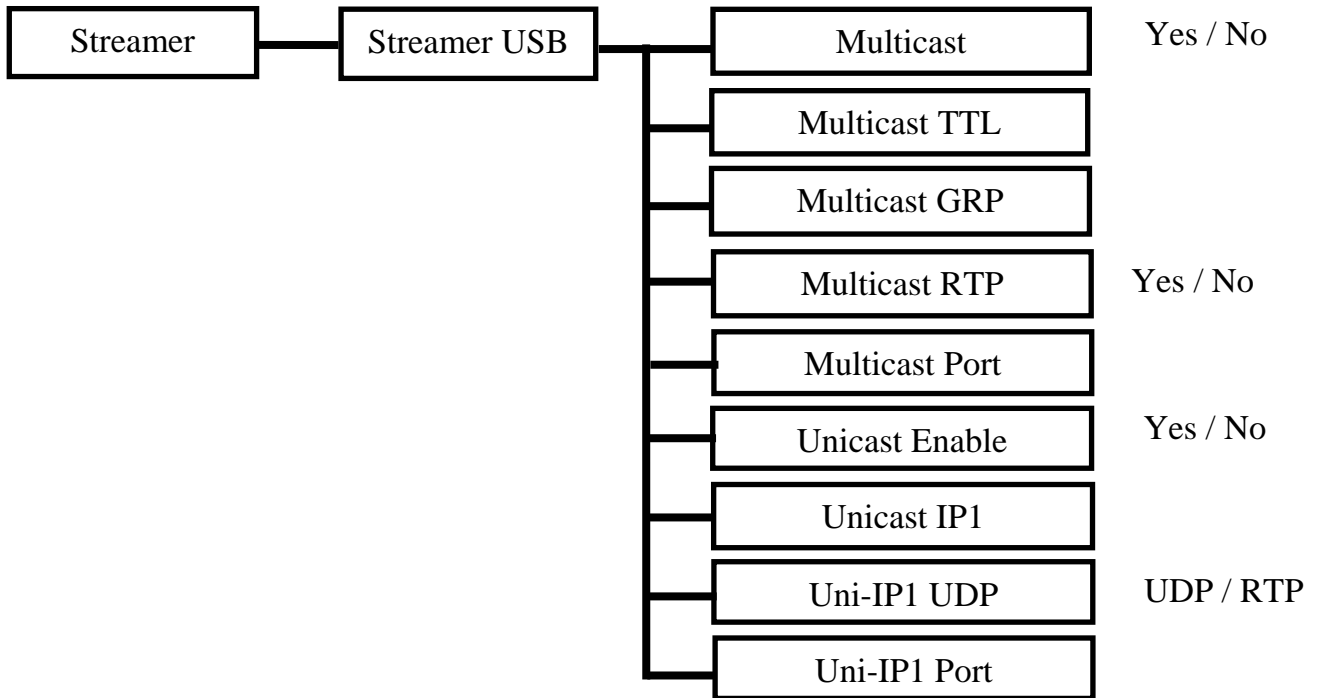


Chapter 2 - LCD Operation

For setting up your configurations you can use the LCD control panel. The Spartan will initialize to the main interface after turning on, then press “Enter” into the main menu.







2.1 LED Lights

Video Input			CH1	CH2	CH3	CH4	USB
HDMI	Plug	TS Input/Output	Blue light blinks				-
		TS Stop Input/Output	Blue light				-
	Unplug		X	X	X	X	-
CVBS	Plug	TS Input/Output	Green light blinks				-
		TS Stop Input/Output	Green light				-
	Unplug		X	X	X	X	-
USB	Plug	TS Input/Output	-	-	-	-	Blue light blinks
		TS Stop Input/Output	-	-	-	-	Blue light
	Unplug		-	-	-	-	X

Chapter 3 - WEB Operation

For setting up configurations you can use the front panel; or you can control and set the configurations from any computer by connecting the device to the RJ45 NMS Port. You should ensure that the computer's IP address is different from the Modulator IP address; otherwise, it would cause an IP conflict.

3.1 Login

The default IP of this device is 192.168.0.188. We can modify the IP through the front panel. Connect the PC and the device with net cable, and use ping command to confirm they are on the same network segment.

E.G. the PC IP address is 192.168.0.190, we then change the device IP to 192.168.0.xxx (xxx can be 0 to 255 except 190 to avoid IP conflict). Use any web browser to connect the device with the PC by inputting the Encoder & Modulator's IP address in the browser's address bar and press Enter. It will display the Login interface. Input the Username and Password (Both the default Username and Password are "admin".) and then click "LOGIN" to start the device setting. Both fields of Username and Password are case sensitive.

COMPANY

THOR
BROADCAST

Username:

Password:

LOGIN

Default User:admin
Default Password:0000

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3.2 NMS Home Page & Status

Contents of the home page includes: Status/Encoder Setup /Streaming Setup/Network/ Password/Firmware/Configuration.

And device's status details are also shown on this page. Here you can see the MAC Address, Serial Number, Firmware version, USB Status, Uboot Version, Streaming, Stream information, USB information, HLS information.

Streaming server

Web Management
Logout

Summary

▶ Status

Parameters

▶ Encode Setup

▶ Streaming Setup

System

▶ Network

▶ Password

▶ Firmware

▶ Configuration

up 0 day 01:27:13

Status

Version Information

Model Name	H-SPARTAN-4	MAC Address	00:32:23:43:5f:f4
Serial Number	0001	Firmware Version	SK01V079-4S
USB Status	USB Found	Uboot Version	SB01V3-H26
Streaming	Multicast=5,Unicast=0	Total Bitrates	33.9 M

Stream Status

Encoder CH	Video Input Source	Resolution	Video Maxout Bitrate	Video Current Bitrate(bps)	Audio Output Format	Audio Output Bitrate	IP Information
CH1	HDMI	1920x1080 30p	8Mbps	8.062 Mbps	AAC	128Kbps	udp://@238.1.1.1:3990
CH2	HDMI	1920x1080 30p	8Mbps	8.052 Mbps	AAC	128Kbps	udp://@238.1.1.2:3990
CH3	HDMI	1920x1080 30p	8Mbps	8.062 Mbps	AAC	128Kbps	udp://@238.1.1.3:3990
CH4	HDMI	1920x1080 30p	8Mbps	8.052 Mbps	AAC	128Kbps	udp://@238.1.1.4:3990

USB Status

Device	Playing Filename	Bitrate	File Size	IP Information
USB	1.ts	1.667 Mbps	57453928 / 58863176	udp://@238.1.1.5:3990

Realtime Stream Server Status

Device	IP Information
CH1	OFF
CH2	OFF
CH3	OFF
CH4	OFF

3.3 Encoder Setup

You can change the program name, or choose the signal source as HDMI or CVBS. You can also change the Video Bitrate, Rate Mode, Audio Encoder, Audio Bitrate, PMT PID, Video PID, Audio PID, PCR PID parameters.

Encoder

Encoder No	Program Name	Input Source	Video Bitrate (10 Mbps)	Rate Mode	Audio Encode	Audio Bitrate	PMT PID	Video PID	Audio PID	PCR PID	HLS Switch
No. 1	CH1	HDMI ▼	8	CBR ▼	AAC ▼	128 Kbps ▼	101	102	103	104	NO ▼
No. 2	CH2	HDMI ▼	8	CBR ▼	AAC ▼	128 Kbps ▼	201	202	203	204	NO ▼
No. 3	CH3	HDMI ▼	8	CBR ▼	AAC ▼	128 Kbps ▼	301	302	303	304	NO ▼
No. 4	CH4	HDMI ▼	8	CBR ▼	AAC ▼	128 Kbps ▼	401	402	403	404	NO ▼

3.4 Streaming Setup

Use the Streaming Setup Page to setup your required streaming method. You can choose UDP/RTP multicast or unicast, or choose HLS/RTMP/HTTP stream.

Note. When using USB TS, it only supports UDP/RTP multicast or unicast. Please note that the TS bitrate size in USB.

Stream

Channel No	Multicast	Protocol	Group IP	Port	TTL	Unicast	Protocol	Destination IP	Port	Realtime Stream
No. 1	NO	UDP	238.1.1.1	3990	1	NO	UDP		15100	YES
No. 2	YES	UDP	238.1.1.2	3990	1	NO	UDP		16100	NO
No. 3	YES	UDP	238.1.1.3	3990	1	NO	UDP		17100	NO
No. 4	YES	UDP	238.1.1.4	3990	1	NO	UDP		18100	NO

RTMP Setup

Channel No	Custom Server	RTMP URL	Private Key
No. 1	YES	rtmp://a.rtmp.youtube.com/live2	bvw5-kv8a-7szt-eeg8-exrw
No. 2	NO		
No. 3	NO		
No. 4	NO		

USB Setup

Device	Multicast	Protocol	Group IP	Port	TTL	Unicast	Protocol	Destination IP	Port
USB Drive	NO	UDP	238.1.1.5	3990	1	NO	UDP		19100

Live stream on YouTube or Facebook

- Step1. Select "Yes" in the "Real time Stream" item
- Step2. Select "Yes" in the "Custom Server" item of RTMP Setup
- Step3. Enter RTMP URL and Private Key
- Step4. Press the apply button

3.5 Network

The IP Out default setting is DHCP on. The Web Management default setting is DHCP off(Default 192.168.0.188).

Network

IP Out

DHCP Mode: YES

IP Address: 192.168.50.129

Subnet mask: 255.255.255.0

Default Gateway: 192.168.50.1

DNS Server: 192.168.50.1

Web Management

DHCP Mode: NO

IP Address: 192.168.0.188

Subnet mask: 255.255.255.0

Default Gateway:

3.6 Password

In the Old password field, enter default password(0000).

In the New password field, enter the new password you want to change, also the same password as the new password to confirm.

Password

New Username	<input type="text" value="admin"/>
Old Password	<input type="text"/>
New Password	<input type="text"/>
Confirm Password	<input type="text"/>

3.7 Firmware

Use the Firmware page to update system firmware.

Firmware

Firmware Upgrade

Model Name	<input type="text" value="H-SPARTAN-4"/>
Serial Number	<input type="text" value="0001"/>
Firmware Version	<input type="text" value="SK01V047"/>

No file chosen

Upgrade Encoder1

Version

Upgrade Encoder2

Version

Upgrade Encoder3

Version

Upgrade Encoder4

Version

No file chosen

3.8 Configuration

Use the “Factory Set” to reset configuration to factory default.

Use the “Reboot Device” to Reboot device.

Use the “Save Configuration” to saved device setting configuration setting to PC.

Use the “Save Configuration” to upload the file with pre-saved configuration settings to device.

Use the “Timing reboot” to reboot every day.

Configuration

Factory Set

Reboot Device

Backup and Restore Configuration

Save Configuration

Choose config file upload

Choose File No file chosen

Upload Configuration

Time Setting

NTP Server

Time Zone

Timing reboot (Note: 0=Off) Timing reboot OFF

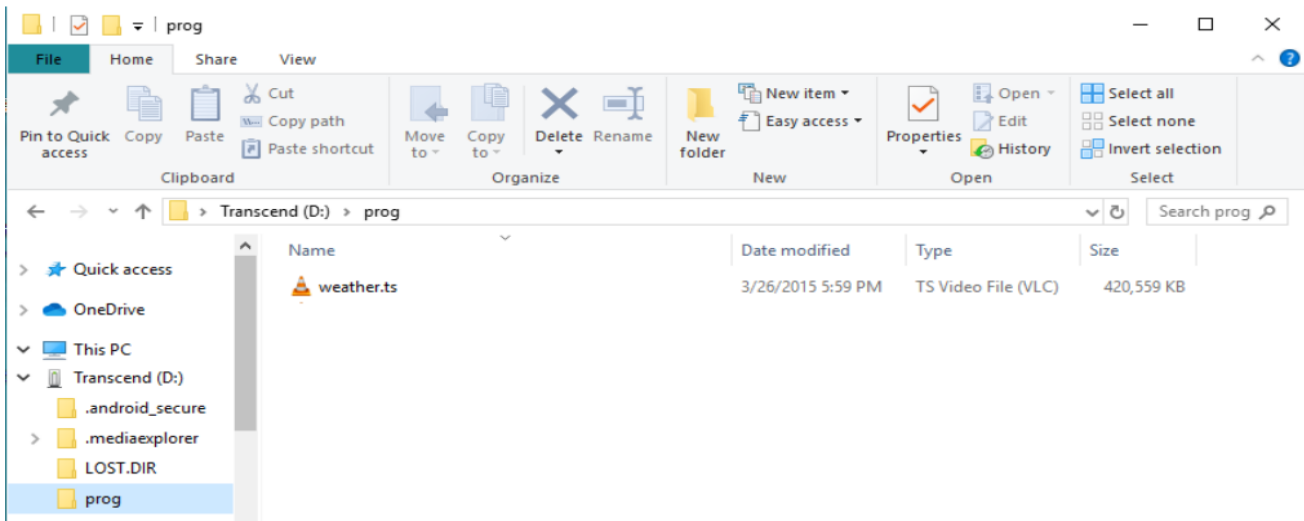
Apply

To synchronize the device's time.

Current time

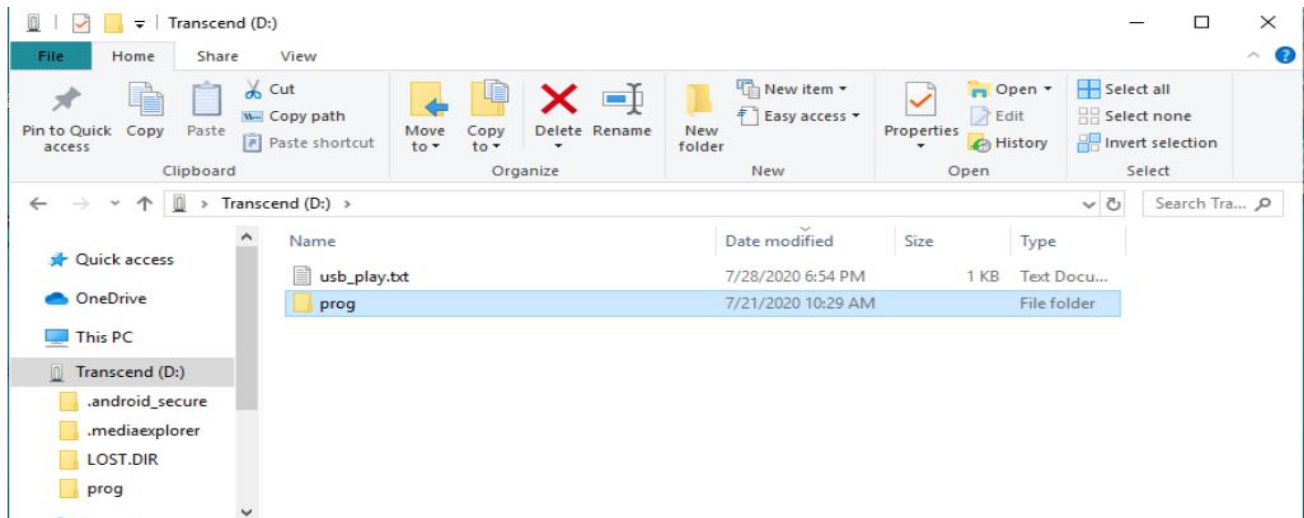
Sync Time

How to use the TS files in the USB flash drive to play streaming?



Step1. Create a “prog” folder and “usb_play.txt” file in the USB flash drive.

Step2. Copy the ts file to the prog folder in the usb flash drive.



Note: Put the TS file into the USB, the bit rate should be less than 15Mbps

Step3. Open the usb_play.txt file. Enter the file name and extension (.ts) of the ts file. After typing, you need to press enter to jump a line.



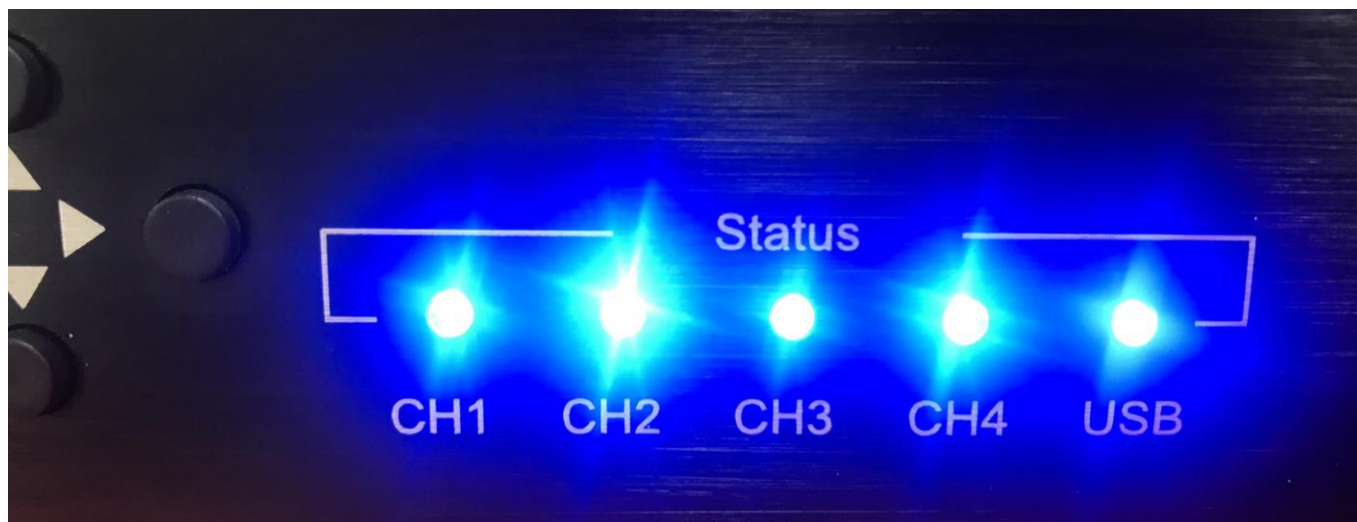
Step4. Insert the USB flash drive into the USB hole of the device



Step5. Enter the NMS website. Select the streaming setup option, open and set the USB Drive option

Device	Multicast	Protocol	Group IP	Port	TTL	Unicast	Protocol	Destination IP	Port
USB Drive	YES ▾	UDP ▾	238.1.1.5	3990	1	NO ▾	UDP ▾		19100

Step6. Waiting a few seconds, it will start to play and stream, and the USB LED on the front panel will start to blink.



Note: To ensure PID consistency, please use conversion software to convert each file before inserting the USB.

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