

# IP to RF Modulator (DVB-T+DVB-C)

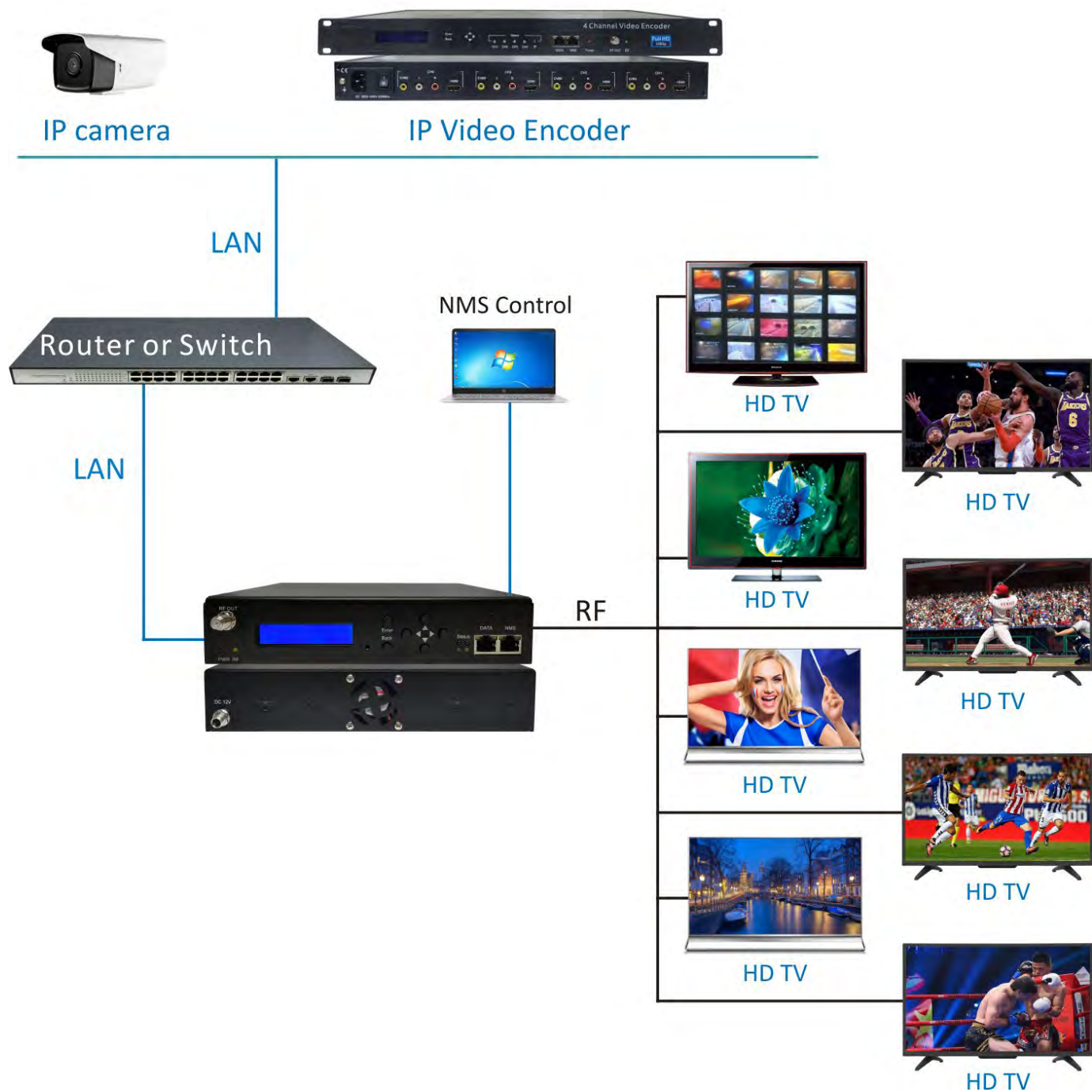


**KC201**

# TECHNICAL SPECIFICATIONS

<b>Input</b>			
Interface	GE ports		
Streaming	UDP / RTP, ip input over 8xSPTS or 1xMPTS, 4xRTSP		
Transport Protocol	TS over UDP/RTP, unicast and multicast, IGMP V2/V3		
Packet Length	188 Bytes		
<b>Network Interface</b>			
Management	1x1000Base-T Ethernet(RJ 45)		
Data	1x1000Base-T Ethernet(RJ 45)		
Protocol	IEEE 802.3 Ethernet,RTP,ARP,IPv4,TCP/UDP,HTTP,IGMP v2/v3		
<b>Modulation</b>			
MER	Typ. 35dB		
RF range	50~950MHz, 1KHz step		
RF output level	95dB $\mu$ V		
<b>Standard</b>	<b>DVB-T</b>	<b>DVB-C</b>	
Bandwidth	6,7,8M	Constellation	16QAM,32QAM, 64QAM, 128QAM, 256QAM
Constellation	QPSK, 16QAM, 64QAM		
Code Rate	1/2,3/5, 2/3, 3/4, 5/6, 7/8		
Guard interval	1/4, 1/8, 1/16, 1/32	Symbol rate	5.000-8.000Msps ADJ
FFT	2K, 8K		
<b>System</b>			
Management	LCD + Control buttons/Ethernet		
Language	English		
Upgrade	Ethernet		
<b>General</b>			
Power Supply	DC 12V 2A		
Dimension	220 x 206 x 44mm		
Weight	1000g		
Environmental For Operating	Temperature: 5°C- 40°C Relative Humidity: 80% @ 30°C		

# Application Example - IP to RF Modulator

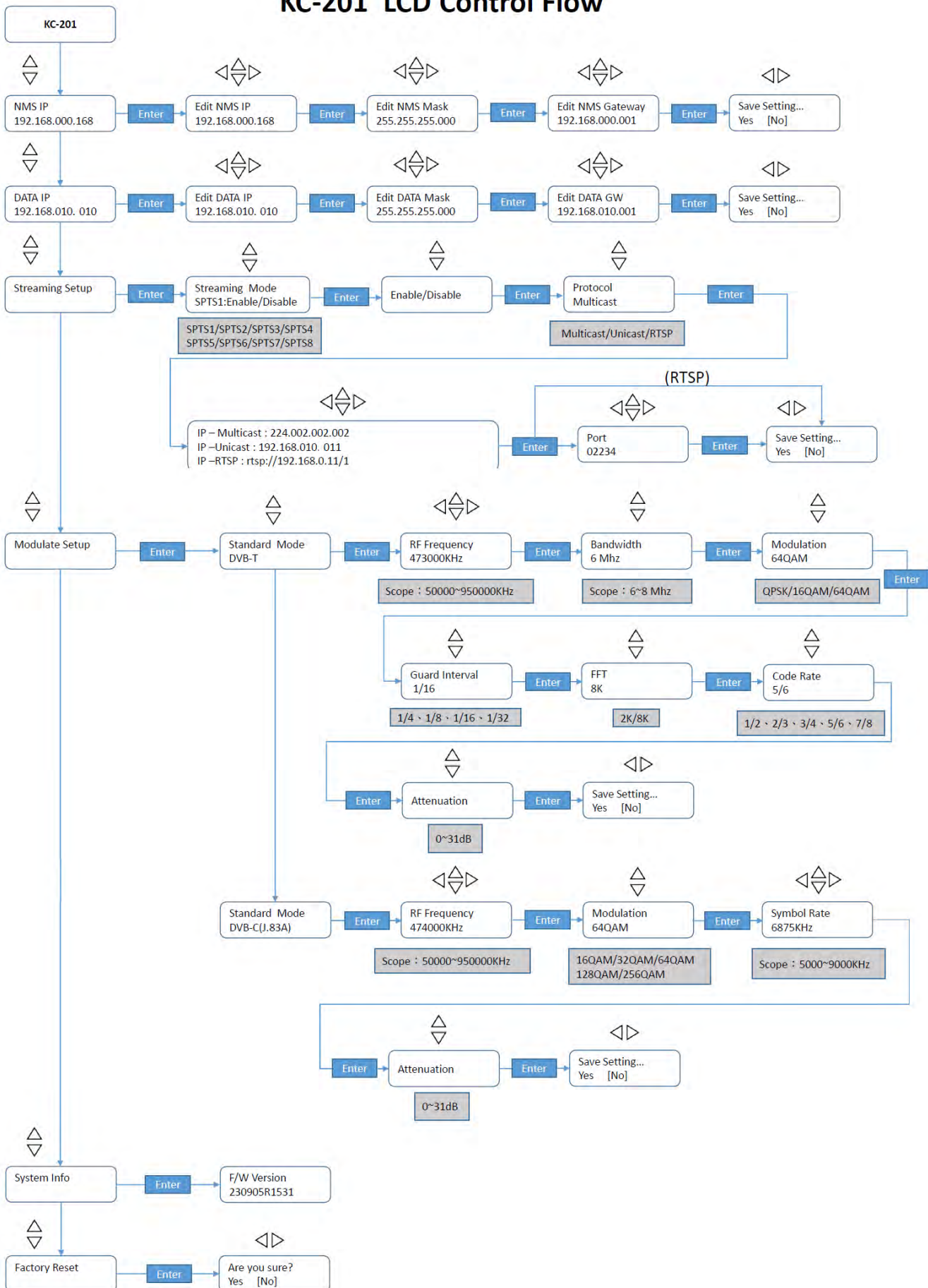


## The solution used the following our products

- 1.HCFI422 - 4 x HDMI/CVBS to IP Video Encoder
- 2.KC201 - IP to RF Modulator

# LCD Control Flow

## KC-201 LCD Control Flow



# LED LAMP

SPTS1 or SPTS5 LED1 (Blue) / SPTS2 or SPTS6 LED2 (Green)

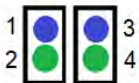
SPTS1 or SPTS5 LED1 (Blue) / SPTS2 or SPTS6 LED2 (Green)

		LED1 (Blue)	LED2 (Green)	LED3 (Blue)	LED4 (Green)
IP source	SPTS1 or SPTS5 TS Input	Blue light	—	—	—
	RJ45 cable unplug or TS Stop Input	X			
	SPTS2 or SPTS6 TS Input	—	Green light	—	—
	RJ45 cable unplug or TS Stop Input		X		
	SPTS3 or SPTS7 TS Input	—	—	Blue light	—
	RJ45 cable unplug or TS Stop Input			X	
	SPTS4 or SPTS8 TS Input	—	—	—	Green light
	RJ45 cable unplug or TS Stop Input				X

**RF OUTPUT : Yellow Light**

**RF STOP OUTPUT (Data RJ45 cable unplug or All TS Stop input): X**

**Exceed actual bit rate Yellow Light Blinks**



# WEB OPERATION INSTRUCTION

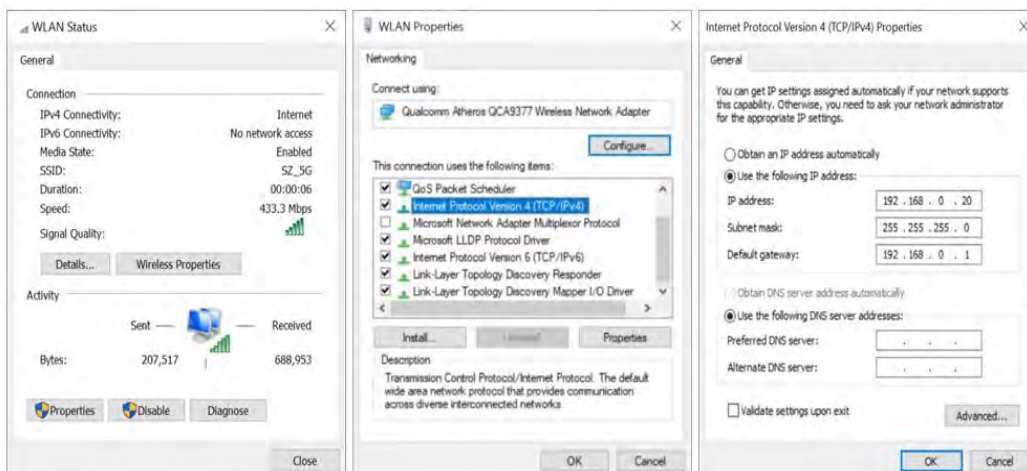
The device is configured using NMS. Access to the NMS is via the network connection

## 1. IP Address of Computer Setting

We must choose the static IP address according to the default gateway address. The first three numbers must be the same (192.168.0.x in the example).

System Control> Network Connections> LAN Connection> Properties> Internet Protocol Version 4 TCP/IPv4 > Properties> Use the following IP address:

IP address Computer: 192.168.0.20 and Subnet mask: 255.255.255.0.





## 2. IP Address of Computer Setting

2.1 Each machine can have different username and password settings.

2.2 Please log in before operation. **Default IP is 192.168.0.168; Password: 0000**

The image shows a login page with a blue background. At the top left, there is a 'COMPANY' label. Below it is a large blue rectangular area. Underneath, there are two input fields: 'Username:' with a person icon and 'Password:' with a lock icon. To the right of the password field is a 'LOGIN' button. Below the input fields, it says 'Default User: admin' and 'Default Password: 0000'. At the bottom center, it says 'Copyright © 2023'.

## 3. NMS Home Page & Status

Contents of the home page includes: Device Information/Streaming Setup/Modulator Setup/Network/ Password/Upgrade/Configuration.

And device's Device Information details are also show on this page. Here you can know the Model Name, Serial Number, Firmware version, Boot Version, Modulator Version, Modulator Mode, Data MAC Address, NMS MAC Address.

The image shows the NMS Home Page & Status. The page has a blue header with 'Streaming server' and a 'Web Management' button. There is a 'Logout' button and the time '02:57'. The main content area is divided into a left sidebar and a main panel. The sidebar has sections: 'Summary', 'Device Information' (selected), 'Parameters' (with sub-items: Streaming Setup, Modulator Setup), and 'System' (with sub-items: Network Setup, Password, Upgrade, Configuration). The main panel shows 'Device Information' with a table of details.

Device Information			
Model Name	KC-201	Serial Number	7E2307003
Firmware Version	230911R1806	BOOT Version	230911R1806
Modulator Version	R0217	Modulator Mode	DVB-C(J.83A)
Data MAC Addr	00:1E:97:6F:1A:70	NMS MAC Addr	00:1E:97:6F:1A:71

## 4. Streaming Setup

Use the Streaming Setup Page to setup your required streaming method. You can choose up to 8xSPTS or 1xMPTS. You can choose UDP/RTP (unicast and multicast), UDP/RTP is

automatic analysis. In addition, it can receive 4 channels of RTSP

### 4.1 Multicast UDP/RTP(SPTS)

The screenshot shows the 'Streaming server' web management interface. The top navigation bar includes 'Web Management' and a 'Logout' button with the time '02:55'. On the left, a sidebar menu has sections for 'Summary', 'Parameters' (with 'Streaming Setup' selected), and 'System'. The main content area is titled 'IP Streaming' and contains a table with the following data:

	Protocol	IP	Port	Bit Rate
<input checked="" type="checkbox"/> SPTS 1	Multicast UDP/RTP	224.2.2.2	2234	3.12 Mbps
<input checked="" type="checkbox"/> SPTS 2	Multicast UDP/RTP	224.2.2.2	2236	3.41 Mbps
<input checked="" type="checkbox"/> SPTS 3	Multicast UDP/RTP	224.2.2.2	2238	3.26 Mbps
<input checked="" type="checkbox"/> SPTS 4	Multicast UDP/RTP	224.2.2.2	2240	3.19 Mbps
<input checked="" type="checkbox"/> SPTS 5	Multicast UDP/RTP	224.2.2.2	2242	3.25 Mbps
<input checked="" type="checkbox"/> SPTS 6	Multicast UDP/RTP	224.2.2.2	2244	3.31 Mbps
<input checked="" type="checkbox"/> SPTS 7	Multicast UDP/RTP	224.2.2.2	2246	3.02 Mbps
<input checked="" type="checkbox"/> SPTS 8	Multicast UDP/RTP	224.2.2.2	2248	3.11 Mbps
<input type="checkbox"/> MPTS	Multicast UDP/RTP	224.2.2.2	2250	0.00 Mbps
<b>Total</b>				<b>25.67 Mbps</b>

At the bottom of the table area are 'Cancel' and 'Apply' buttons.

### 4.2 Multicast UDP/RTP(MPTS)

The screenshot shows the 'Streaming server' web management interface. The top navigation bar includes 'Web Management' and a 'Logout' button with the time '02:58'. On the left, a sidebar menu has sections for 'Summary', 'Parameters' (with 'Streaming Setup' selected), and 'System'. The main content area is titled 'IP Streaming' and contains a table with the following data:

	Protocol	IP	Port	Bit Rate
<input type="checkbox"/> SPTS 1	Multicast UDP/RTP	224.2.2.2	2234	0.00 Mbps
<input type="checkbox"/> SPTS 2	Multicast UDP/RTP	224.2.2.2	2236	0.00 Mbps
<input type="checkbox"/> SPTS 3	Multicast UDP/RTP	224.2.2.2	2238	0.00 Mbps
<input type="checkbox"/> SPTS 4	Multicast UDP/RTP	224.2.2.2	2240	0.00 Mbps
<input type="checkbox"/> SPTS 5	Multicast UDP/RTP	224.2.2.2	2242	0.00 Mbps
<input type="checkbox"/> SPTS 6	Multicast UDP/RTP	224.2.2.2	2244	0.00 Mbps
<input type="checkbox"/> SPTS 7	Multicast UDP/RTP	224.2.2.2	2246	0.00 Mbps
<input type="checkbox"/> SPTS 8	Multicast UDP/RTP	224.2.2.2	2248	0.00 Mbps
<input checked="" type="checkbox"/> MPTS	Multicast UDP/RTP	224.2.2.2	2250	15.83 Mbps
<b>Total</b>				<b>15.83 Mbps</b>

At the bottom of the table area are 'Cancel' and 'Apply' buttons.

To use multicast servers and clients, the following conditions typically need to be met:

1. The sender and receiver are on the same Local Area Network (LAN).
2. The sender and receiver join the same multicast group address.
3. The network administrator configures routers and firewalls to allow multicast traffic to be transmitted between LANs (if the sender and receiver are on different LANs).

## 4.3 RTSP

### Streaming server

Web Management Logout 02:52

#### Summary

- ▶ Device Information

#### Parameters

- ▶ Streaming Setup
- ▶ Modulator Setup

#### System

- ▶ Network Setup
- ▶ Password
- ▶ Upgrade
- ▶ Configuration

#### IP Streaming

	Protocol	IP	Port	Bit Rate
<input checked="" type="checkbox"/> SPTS 1	RTSP	rtsp://192.168.0.11/1		3.23 Mbps
<input checked="" type="checkbox"/> SPTS 2	RTSP	rtsp://192.168.0.11/2		3.31 Mbps
<input checked="" type="checkbox"/> SPTS 3	RTSP	rtsp://192.168.0.11/3		3.05 Mbps
<input checked="" type="checkbox"/> SPTS 4	RTSP	rtsp://192.168.0.11/4		3.29 Mbps
<input type="checkbox"/> SPTS 5	Multicast UDP/RTP	224.2.2.2	2242	0.00 Mbps
<input type="checkbox"/> SPTS 6	Multicast UDP/RTP	224.2.2.2	2244	0.00 Mbps
<input type="checkbox"/> SPTS 7	Multicast UDP/RTP	224.2.2.2	2246	0.00 Mbps
<input type="checkbox"/> SPTS 8	Multicast UDP/RTP	224.2.2.2	2248	0.00 Mbps
<input type="checkbox"/> MPTS	Multicast UDP/RTP	224.2.2.2	2250	0.00 Mbps
<b>Total</b>				<b>12.88 Mbps</b>



## 5. Modulator Setup

Use the Modulator Setup Page to setup your required modulator information. If the input is SPTS, the PID and other parameters of the Transport Stream can be pass thought or remapping. If the input is MPTS, the PID and other parameters of the Transport Stream only pass thought.

### 5.1 Modulator-DVB-C

Streaming server
Web Management Logout 02:59

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Summary

- ▶ Device Information

Parameters

- ▶ Streaming Setup
- ▶ Modulator Setup

System

- ▶ Network Setup
- ▶ Password
- ▶ Upgrade
- ▶ Configuration

#### Modulator

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Standard	DVB-C(J.83A) ▼	RF Frequency	474000 KHz
Modulation	64QAM ▼	SYMBOL RATE	6875 KHz
RF Atten.	0 dB ▼		
TS ID	1	ON ID	1
Network ID	1	Network Name	Network
PDS	00000029		
Allow Bit Rate	38.01 Mbps	Actual Bit Rate	24.00 Mbps

#### Channel Parameter

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	SPTS 1	SPTS 2	SPTS 3	SPTS 4
	Remapping ▼	Remapping ▼	Remapping ▼	Remapping ▼
LCN	1	2	3	4
Service ID	474	475	476	477
PMT PID	32	33	34	35
PCR PID	50	53	56	59
VIDEO PID	48	51	54	57
AUDIO PID	49	52	55	58
Service Provider	KSETI	KSETI	KSETI	KSETI
Service Name	KSETI-HD1	KSETI-HD2	KSETI-HD3	KSETI-HD4
	SPTS 5	SPTS 6	SPTS 7	SPTS 8
	Remapping ▼	Remapping ▼	Remapping ▼	Remapping ▼
LCN	5	6	7	8
Service ID	478	479	480	481
PMT PID	36	37	38	39
PCR PID	62	65	68	71
VIDEO PID	60	63	66	69
AUDIO PID	61	64	67	70
Service Provider	KSETI	KSETI	KSETI	KSETI
Service Name	KSETI-HD5	KSETI-HD6	KSETI-HD7	KSETI-HD8

Cancel
Apply

## 5.2 Modulator-DVB-T

Streaming server
Web Management Logout 02:59

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Summary

- ▶ Device Information

Parameters

- ▶ Streaming Setup
- ▶ Modulator Setup

System

- ▶ Network Setup
- ▶ Password
- ▶ Upgrade
- ▶ Configuration

### Modulator

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Standard	DVB-T <input type="button" value="v"/>	RF Frequency	474000 <input type="button" value="KHz"/>
Bandwidth	8 <input type="button" value="v"/> MHz	Modulation	64QAM <input type="button" value="v"/>
Guard Interval	1/16 <input type="button" value="v"/>	FFT	8K <input type="button" value="v"/>
Code Rate	5/6 <input type="button" value="v"/>	RF Atten	0 dB <input type="button" value="v"/>
TS ID	<input type="text" value="1"/>	ON ID	<input type="text" value="1"/>
Network ID	<input type="text" value="1"/>	Network Name	<input type="text" value="Network"/>
PDS	<input type="text" value="00000029"/>		
Allow Bit Rate	<input type="text" value="29.27"/> Mbps	Actual Bit Rate	<input type="text" value="24.00"/> Mbps

### Channel Parameter

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	SPTS 1	SPTS 2	SPTS 3	SPTS 4
	Remapping <input type="button" value="v"/>	Remapping <input type="button" value="v"/>	Remapping <input type="button" value="v"/>	Remapping <input type="button" value="v"/>
LCN	<input type="text" value="1"/>	<input type="text" value="2"/>	<input type="text" value="3"/>	<input type="text" value="4"/>
Service ID	<input type="text" value="474"/>	<input type="text" value="475"/>	<input type="text" value="476"/>	<input type="text" value="477"/>
PMT PID	<input type="text" value="32"/>	<input type="text" value="33"/>	<input type="text" value="34"/>	<input type="text" value="35"/>
PCR PID	<input type="text" value="50"/>	<input type="text" value="53"/>	<input type="text" value="56"/>	<input type="text" value="59"/>
VIDEO PID	<input type="text" value="48"/>	<input type="text" value="51"/>	<input type="text" value="54"/>	<input type="text" value="57"/>
AUDIO PID	<input type="text" value="49"/>	<input type="text" value="52"/>	<input type="text" value="55"/>	<input type="text" value="58"/>
Service Provider	<input type="text" value="KSETI"/>	<input type="text" value="KSETI"/>	<input type="text" value="KSETI"/>	<input type="text" value="KSETI"/>
Service Name	<input type="text" value="KSETI-HD1"/>	<input type="text" value="KSETI-HD2"/>	<input type="text" value="KSETI-HD3"/>	<input type="text" value="KSETI-HD4"/>
	SPTS 5	SPTS 6	SPTS 7	SPTS 8
	Remapping <input type="button" value="v"/>	Remapping <input type="button" value="v"/>	Remapping <input type="button" value="v"/>	Remapping <input type="button" value="v"/>
LCN	<input type="text" value="5"/>	<input type="text" value="6"/>	<input type="text" value="7"/>	<input type="text" value="8"/>
Service ID	<input type="text" value="478"/>	<input type="text" value="479"/>	<input type="text" value="480"/>	<input type="text" value="481"/>
PMT PID	<input type="text" value="36"/>	<input type="text" value="37"/>	<input type="text" value="38"/>	<input type="text" value="39"/>
PCR PID	<input type="text" value="62"/>	<input type="text" value="65"/>	<input type="text" value="68"/>	<input type="text" value="71"/>
VIDEO PID	<input type="text" value="60"/>	<input type="text" value="63"/>	<input type="text" value="66"/>	<input type="text" value="69"/>
AUDIO PID	<input type="text" value="61"/>	<input type="text" value="64"/>	<input type="text" value="67"/>	<input type="text" value="70"/>
Service Provider	<input type="text" value="KSETI"/>	<input type="text" value="KSETI"/>	<input type="text" value="KSETI"/>	<input type="text" value="KSETI"/>
Service Name	<input type="text" value="KSETI-HD5"/>	<input type="text" value="KSETI-HD6"/>	<input type="text" value="KSETI-HD7"/>	<input type="text" value="KSETI-HD8"/>

## 6. Network Setup

The IP Out default setting is 192.168.10.10 The Web Management default setting is 192.168.0.168. You can modify the IP of NMS and DATA by yourself, please note that the IP addresses of NMS and DATA cannot be set in the same LAN.

The screenshot shows the 'Streaming server' Web Management interface. The top navigation bar includes 'Web Management' and a 'Logout' button with a timer at 03:00. A left sidebar contains a menu with 'Summary', 'Parameters', and 'System' sections. Under 'System', 'Network Setup' is selected. The main content area is titled 'Network' and contains two sections: 'NMS IP' and 'Data IP'. Each section has three input fields: 'IP Address', 'Subnet mask', and 'Default Gateway'. The 'NMS IP' fields are pre-filled with 192.168.0.168, 255.255.255.0, and 192.168.0.1 respectively. The 'Data IP' fields are pre-filled with 192.168.10.10, 255.255.255.0, and 192.168.10.1 respectively. At the bottom of the form are 'Cancel' and 'Apply' buttons.

## 7. Password

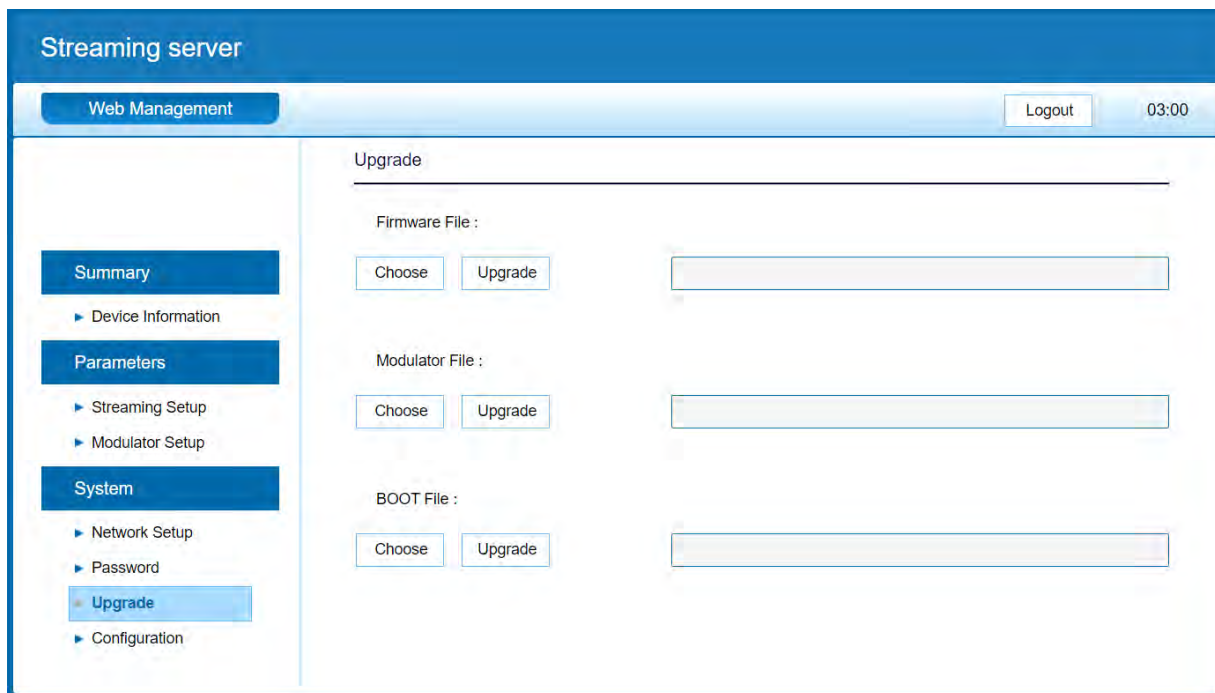
You can modify the user name and password. In the New password field, enter the new password you want to change, also the same password as the new password to confirm.

The screenshot shows the 'Streaming server' Web Management interface. The top navigation bar includes 'Web Management' and a 'Logout' button with a timer at 02:59. A left sidebar contains a menu with 'Summary', 'Parameters', and 'System' sections. Under 'System', 'Password' is selected. The main content area is titled 'Password' and contains three input fields: 'New Username' (pre-filled with 'admin'), 'New Password', and 'Confirm Password'. An 'Apply' button is located at the bottom of the form.

## 8. Upgrade

Use the Upgrade page to update system firmware, Modulator Firmware Boot code.  
Step1. Download the firmware zip file and unzip the firmware file. The file is image.ub  
Step2. Login to NMS.

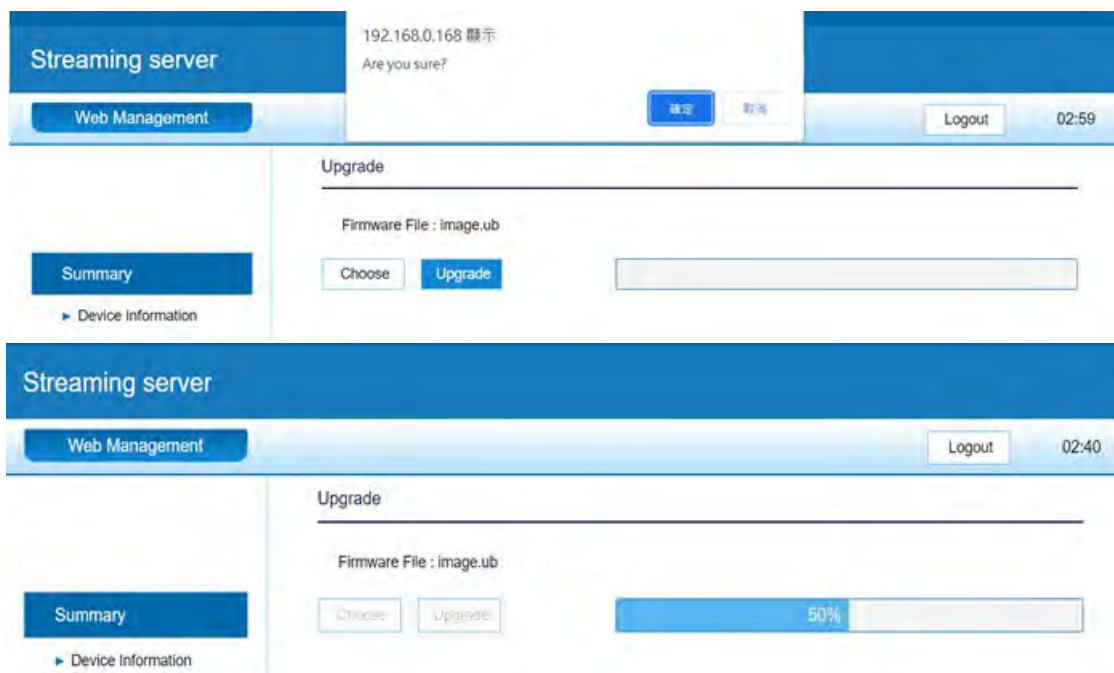
Step3. Select to upgrade page. Select the “Choose” button of Firmware File

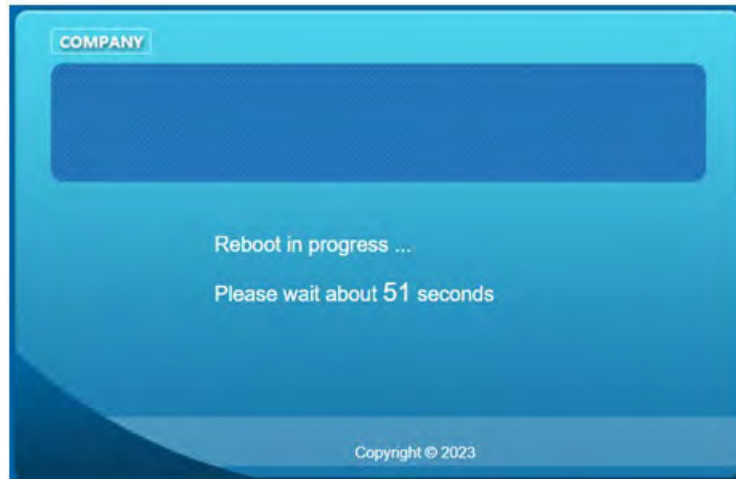


Step4. Select the firmware to update



Step5. Select the “Upgrade” button to update Firmware. Please wait about 1 minute for the system to reboot





## 9. Configuration

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

Use the “Download Config” to saved device setting configuration setting to PC.

Use the “Upload Config” to upload the file with pre-saved configuration settings to device.

