

# Marshall

Broadcast A/V Division

## CV355-27X-IP/CV355-27X-ND3 27X IP/ND3 Box Camera



## User Manual

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## Copyright Information

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## Chapter 1: Safety Instructions

Always follow these safety instructions when setting up and using the product:

### 1. OPERATION

- 1.1 Please use the product in the recommended operating environment.
- 1.2 Do not place the product in tilted position.
- 1.3 Do not place the product on an unstable trolley, stand or table.
- 1.4 Do not use the product near water or source of heat.
- 1.5 Use attachments only as recommended.
- 1.6 Use the type of power source indicated on the product. If you are not sure of the type of power available, consult your distributor or local electricity company for advice.
- 1.7 Always take the following precautions when handling the plug. Failure to do so may result in sparks or fire:
  - Ensure the plug is free of dust before inserting it into a socket.
  - Ensure that the plug is inserted into the socket securely.
- 1.8 Do not overload wall sockets, extension cords or multi-way plug boards to avoid potential risks.
- 1.9 Do not block the slots and openings in the case of the product. They provide ventilation and prevent the product from overheating.
- 1.10 Except as specifically instructed in this User Manual, do not open or remove covers, otherwise it may expose you to dangerous voltages and other hazards. Refer all servicing to licensed service personnel.
- 1.11 Unplug the product from the wall outlet and refer servicing to licensed service personnel when the following situations happen:
  - If the power cords are damaged or frayed.
  - If liquid is spilled into the product or the product has been exposed to rain or water.

### 2. INSTALLATION

- 2.1 For security considerations, please make sure the standard hanging rack you bought is in line with UL or CE safety approvals and installed by technician personnel approved by agents.

### 3. STORAGE

- 3.1 Do not place the product where the cord can be stepped on as this may result in fraying or damage to the lead or the plug.
- 3.2 Never push objects of any kind through cabinet slots. Never allow liquid of any kind to spill into the product.
- 3.3 Unplug this product during thunderstorms or if it is not going to be used for an extended period.
- 3.4 Do not place this product or accessories on top of vibrating equipment or heated objects.

### 4. CLEANING

- 4.1 Unplug all the cables before cleaning. Use a damp cloth for cleaning. Do not use liquid or aerosol cleaners.

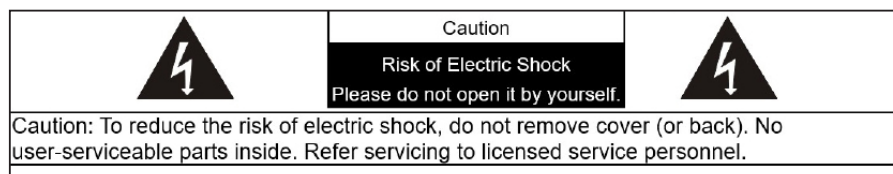
### 5. REMOTE CONTROL (if the accessories are equipped with remote control)

- 5.1 Using an incorrect battery type in the remote control may result in breakdown. Follow local instructions on how to dispose of used batteries.

## ⚡ PRECAUTIONS

**Warning: To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture.**

If the HD camera is not used for an extended time, unplug it from the power socket.



### ■ FCC WARNING

This Camera has been tested and found to comply with the limits for a Class A digital device, pursuant to Article 15-J of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation.

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled "Digital Apparatus," ICES-003 of Industry Canada.

### ■ EN55032 (CE Radiation) WARNING

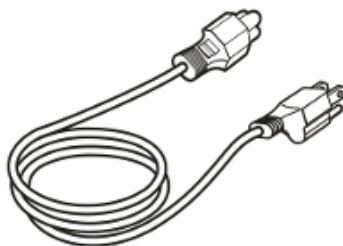
Operation of this equipment in a residential environment could cause radio interference.

## Chapter 2: Package Contents

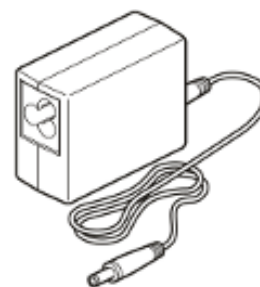
### Camera



### Power Cord



### Power Adapter



## Chapter 3: Function Introduction

### 3.1: I/O functions Introduction



NO.	Item	Function Descriptions
1	Lens	30x HD camera lens
2	Tally indicator light	Display the tally light status of the camera
3	Network port	Network port, support routers or hubs (IEEE 802.3 af) with PoE power supply support
4	3G-SDI output	The factory setting for the output resolution is 1080P/60
5	HDMI output	HDMI output
6	RS232 output	RS232 output port, at most 7 cameras can be connected in a serial connection
7	RS232 input	RS232 input port, at most 7 cameras can be connected in a serial connection
8	DC 12 V power connector	AC power supply connecting port
9	Power indicator light	After power is on, the indicator light will display in red
10	Audio input	Support Line In/Mic In
11	Audio output	Support 3.5 mm audio input
12	Tripod screw holes	The camera is mounted on a (specification) 1/4", 20 UNC tripod deck

### 3.2 Tally Indicator Light Function Description

The Tally lamp function may be enabled through the RS232 command. Please refer to RS-232 command set document

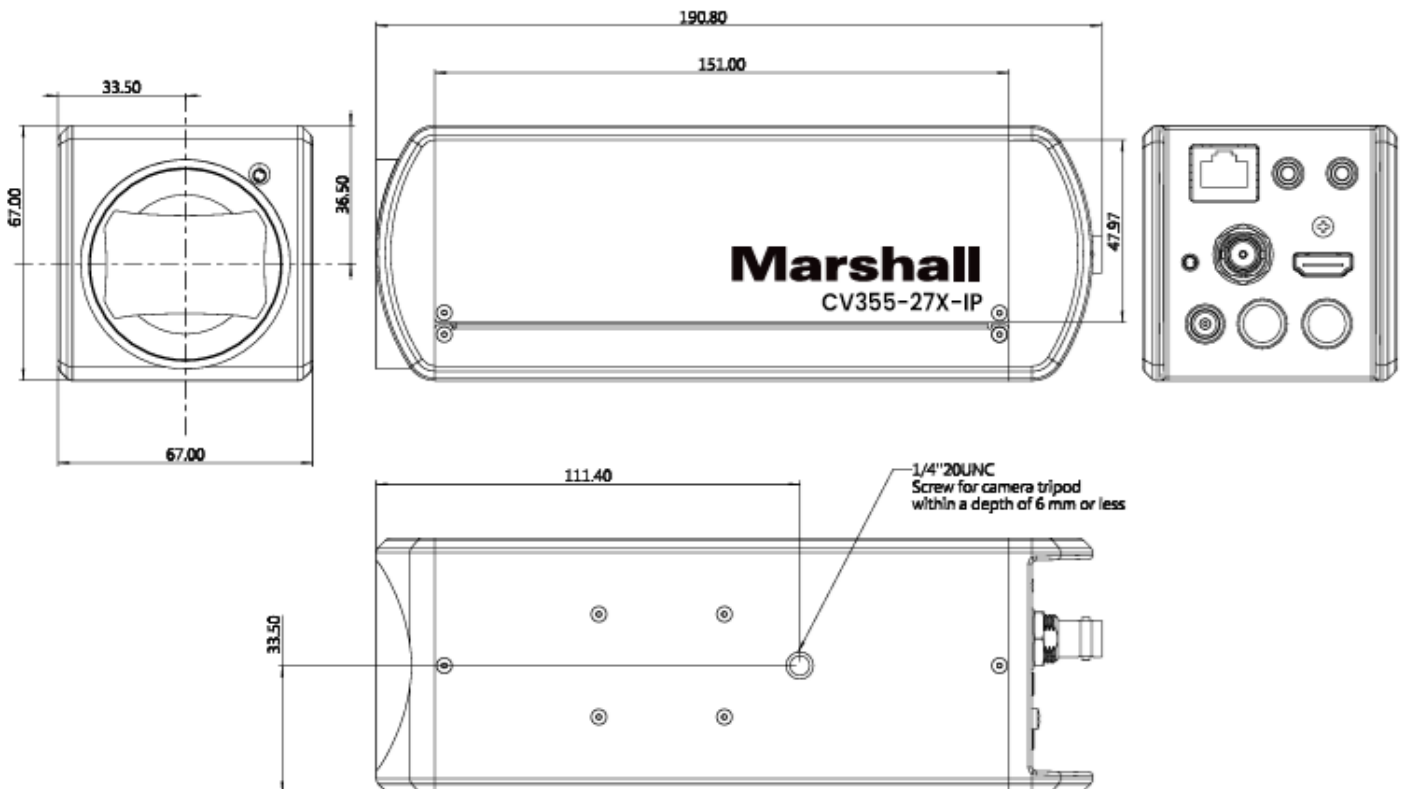
## Chapter 4: Instructions for Installation

### 4.1 Basic Devices

#### 4.1.1 Dimensions

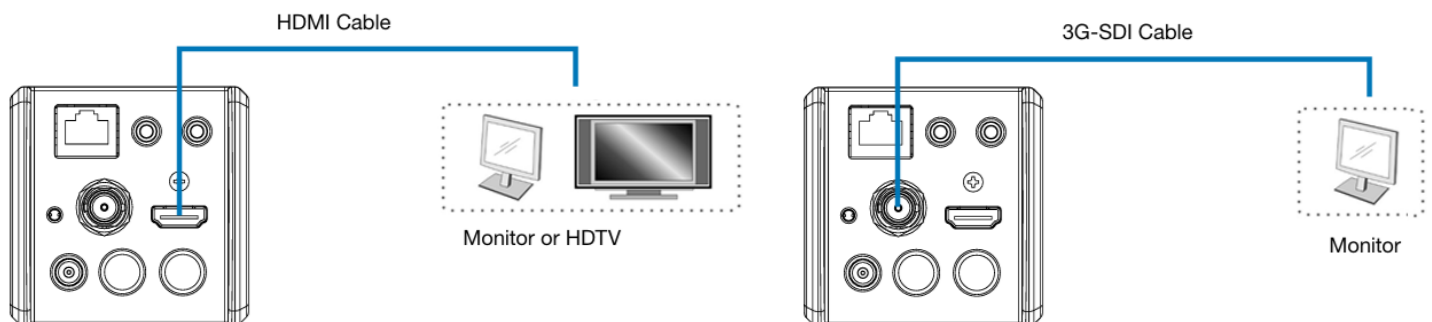
Length x Width x Height: 190.80 x 67.0 x 67.0 mm

Weight: 1 Kg



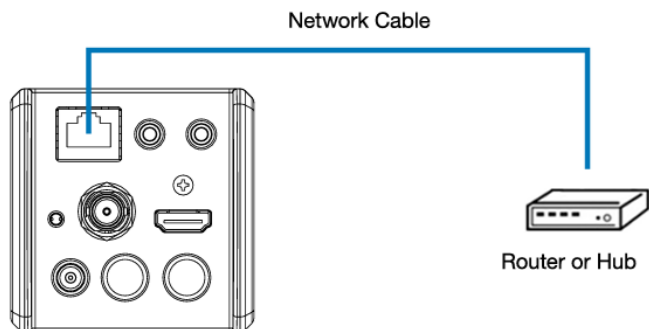
### 4.2 Connecting devices

#### 4.2.1 Using HDMI/3G-SDI connect to the screen

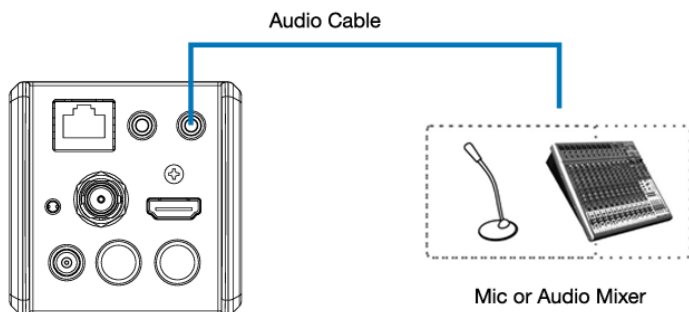


## 4.2.2 Connecting to the Internet

For details of web page connection setting and description, please refer to [Chapter 5 Network Function Settings Description](#).



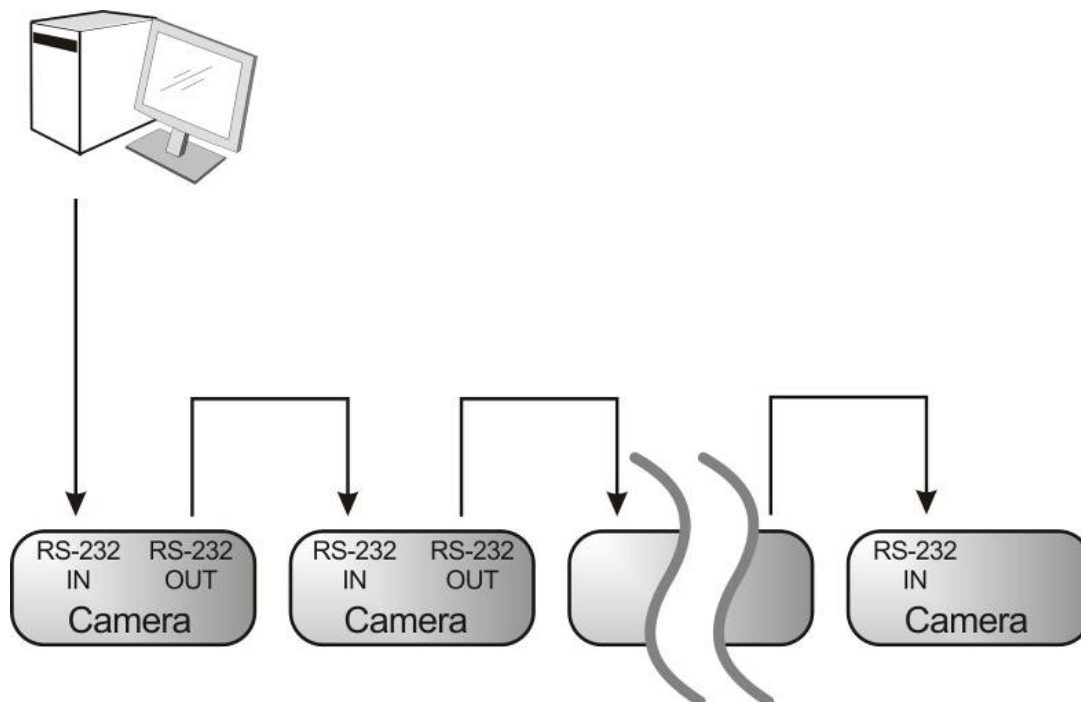
## 4.2.3 Connecting AUDIO IN



## 4.2.4 Connecting RS-232

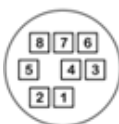
- RS-232 serial connection

**With RS-232 in/out, at most 7 cameras can be connected.**



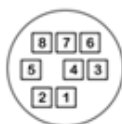
## ■ RS-232 pin definition description

### ▼ RS-232 IN Pins Instructions



NO	Pins	Signals
1	DTR	Data Transmission Reade
2	DSR	Data Set Reade
3	TXD	Transmit Data
4	GND	Ground
5	RXD	Receive Data
6	GND	Ground
7	IR OUT	IR Commander Signal
8	N.C.	No Connection

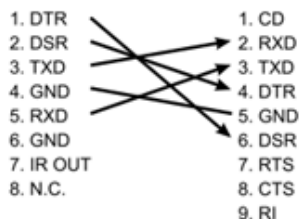
### ▼ RS-232 OUT Pins Instructions



NO	Pins	Signals
1	DTR	Data Transmission Reade
2	DSR	Data Set Reade
3	TXD	Transmit Data
4	GND	Ground
5	RXD	Receive Data
6	GND	Ground
7	OPEN	Reserved
8	OPEN	Reserved

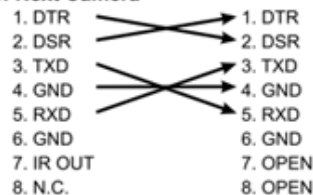
### ▼ RS-232 Connection Instructions

RS-232 IN of Camera      RS-232 of PC



### ▼ RS-232 Connection Instructions

RS-232 IN of Next Camera      RS-232 OUT of Last Camera



## Chapter 5: Network Functions Setting Description

### 5.1 Web System Requirements

#### 5.1.1 Web Browser:

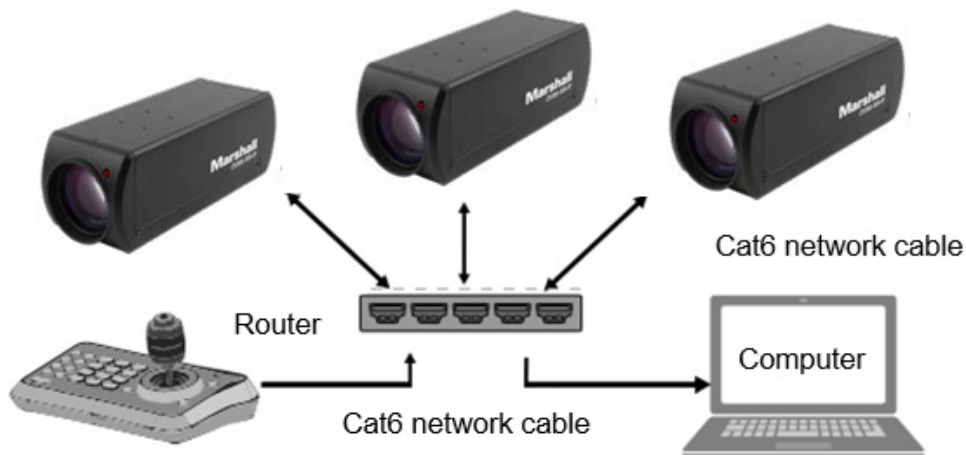
- Internet Explorer 11 or above
- Firefox 66.0.3 or above
- Chrome 73 or above
- Edge 42.17134 or above
- Safari 12.1 or above

### 5.2 Connecting Camera to Network

#### 5.2.1 Connecting to the Internet

Two common connection methods are shown below

##### 1. Connecting via switch or router

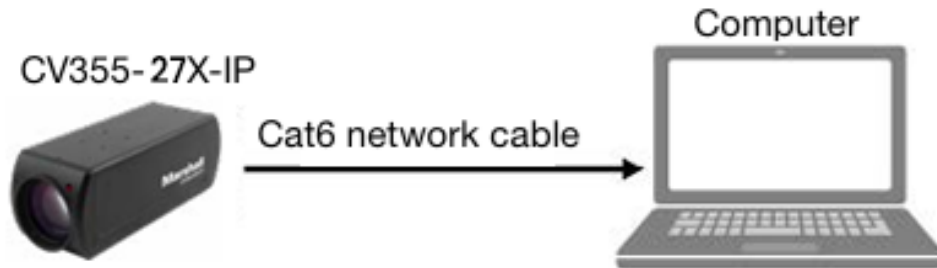


# Marshall

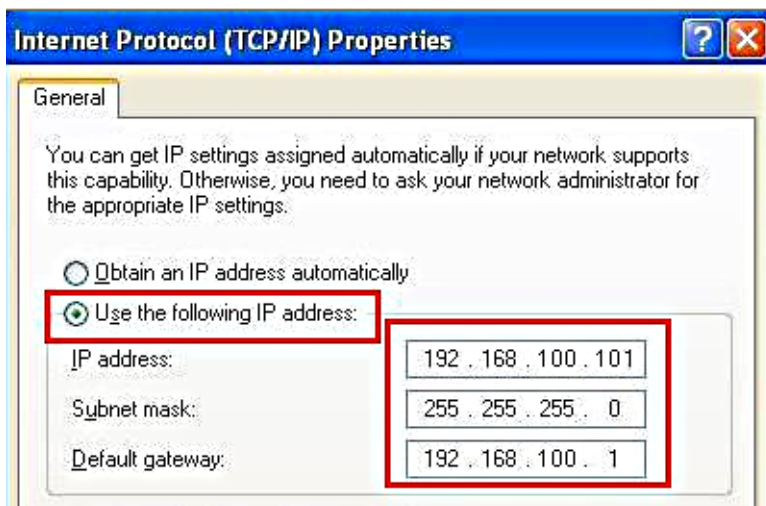
2. To connect directly through network cable, the IP address of the computer should be changed so that it is in the same network segment as the camera

**e.g.:** The factory-preset default IP address of CV355-27X-IP is 192.168.100.100. The computer IP address must be set with the same network segment, such as 192.168.100.101, so that the computer can be connected correctly with the camera

## ■ Connection Diagram

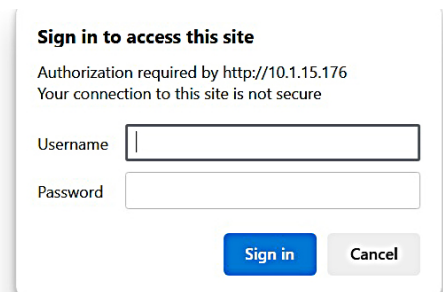


## ■ Change Network Settings



## 5.2.2 Using the Browser to View the Images

- Open the browser, and enter the URL of CV-355-27X-IP in the IP address bar e.g.: <http://192.168.100.100> (default IP address)
- Enter the administrator's account and password  
Account: admin (Default)  
Password: 9999 (Default)



## 5.2.3 Using RTSP Player to View the Images

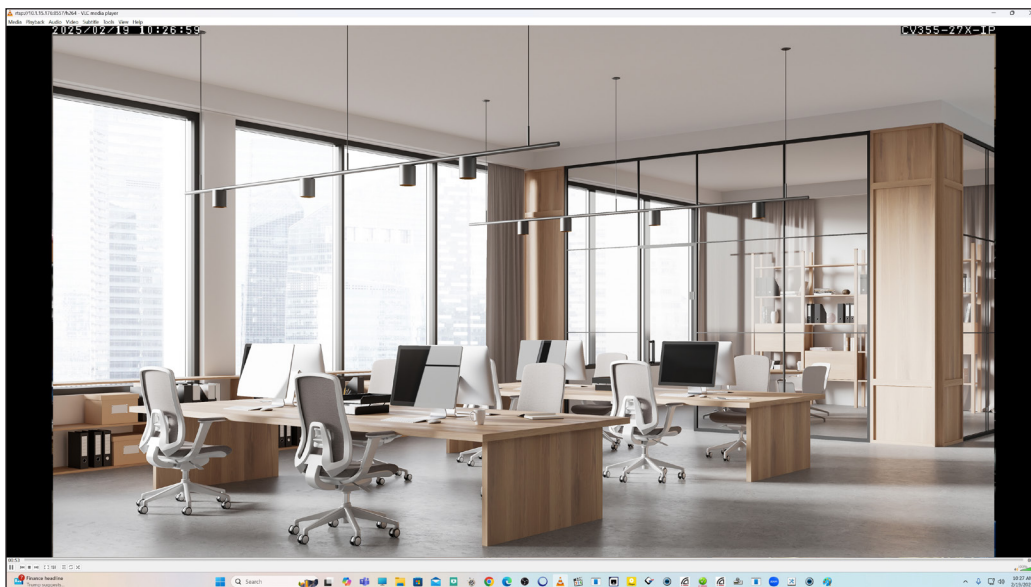
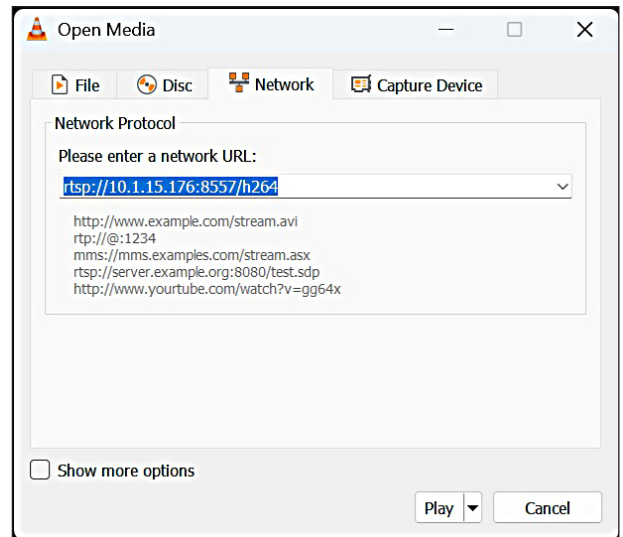
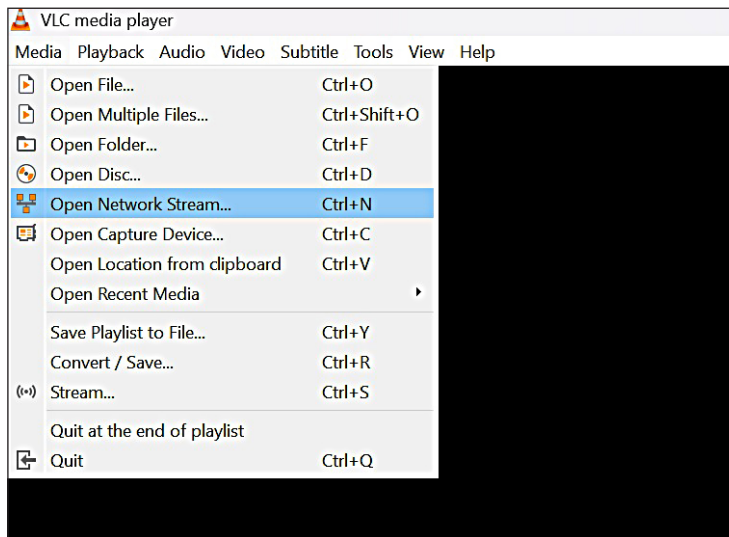
In addition to the browser and VMS, other free software also can be used for RTSP connection, such as VLC, Quick Time and PotPlayer

### RTSP connection address formats are as follows:

- RTSP Main Streaming (1080P@H.265) => <rtsp://camera IP:8554/hevc>
- RTSP Sub1 Streaming (1080P@H.264) => <rtsp://camera IP:8557/h264>
- RTSP Sub2 Streaming (720P@H.264) => <rtsp://camera IP:8556/h264>

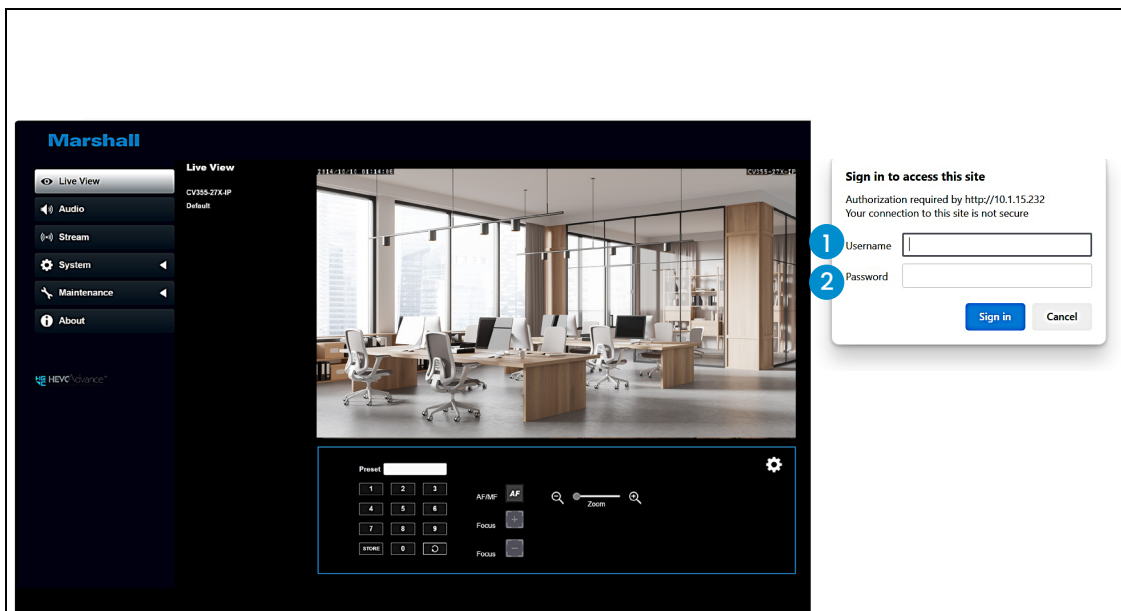
### If password authentication is enabled, the RTSP connection address is as follows:

- RTSP Main Streaming  
<rtsp://Username:Password@VC IP address:port/hevc>
- RTSP Sub1/ Sub2 Streaming  
<rtsp://Username:Password@VC IP address:port/h264>
- To enable password authentication function, please refer to 5.3.9 Setting-Network  
Example: Open VLC software and enter URL: <rtsp://192.168.4.48:8557/h264>



## 5.3 Web Page Function Description

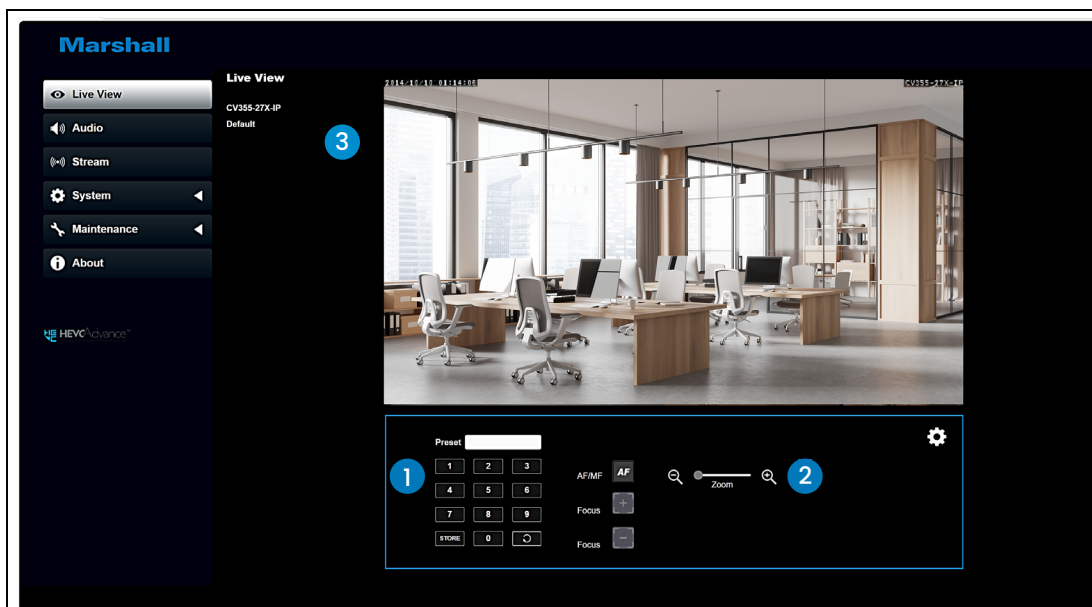
### 5.3.1 Login Screen



Enter the IP address on the URL column in webpage then log in.

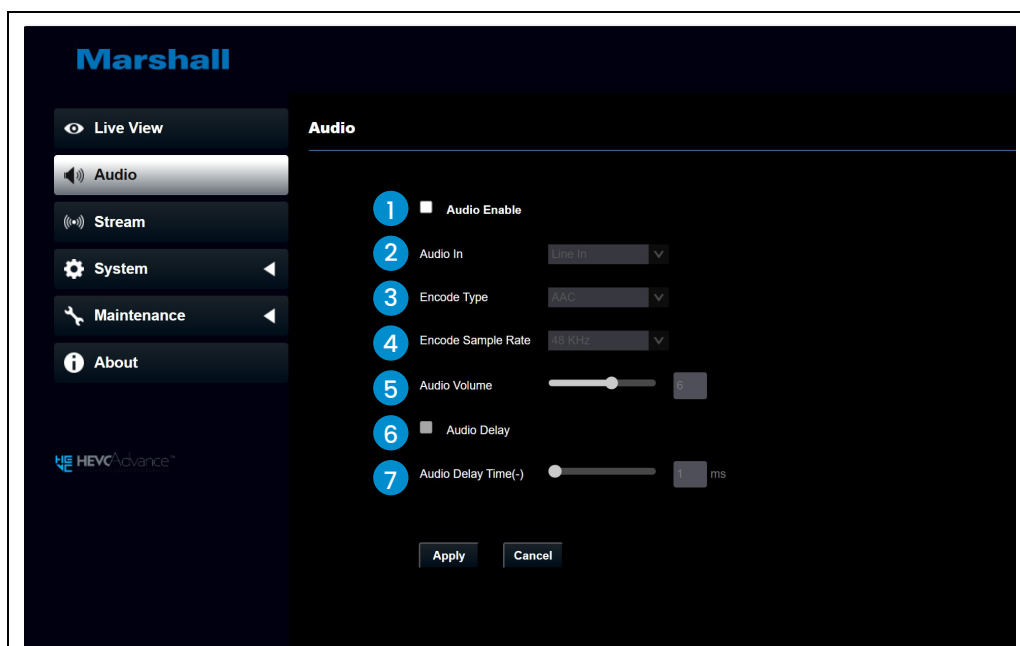
No	Item	Function Descriptions
1	Username	Enter user account (default: admin)
2	Password	Enter user password (default: 9999)

### 5.3.2 Viewing In Real Time



No	Item	Function Descriptions
1	Preset setting	Select the number first, then press the 'Store' button to save or the 'Enter' button to trigger.
2	Zoom ratio	Adjust the zoom-in or zoom-out ratio via scroll bar
3	Preview window	Display the screen currently captured by the camera

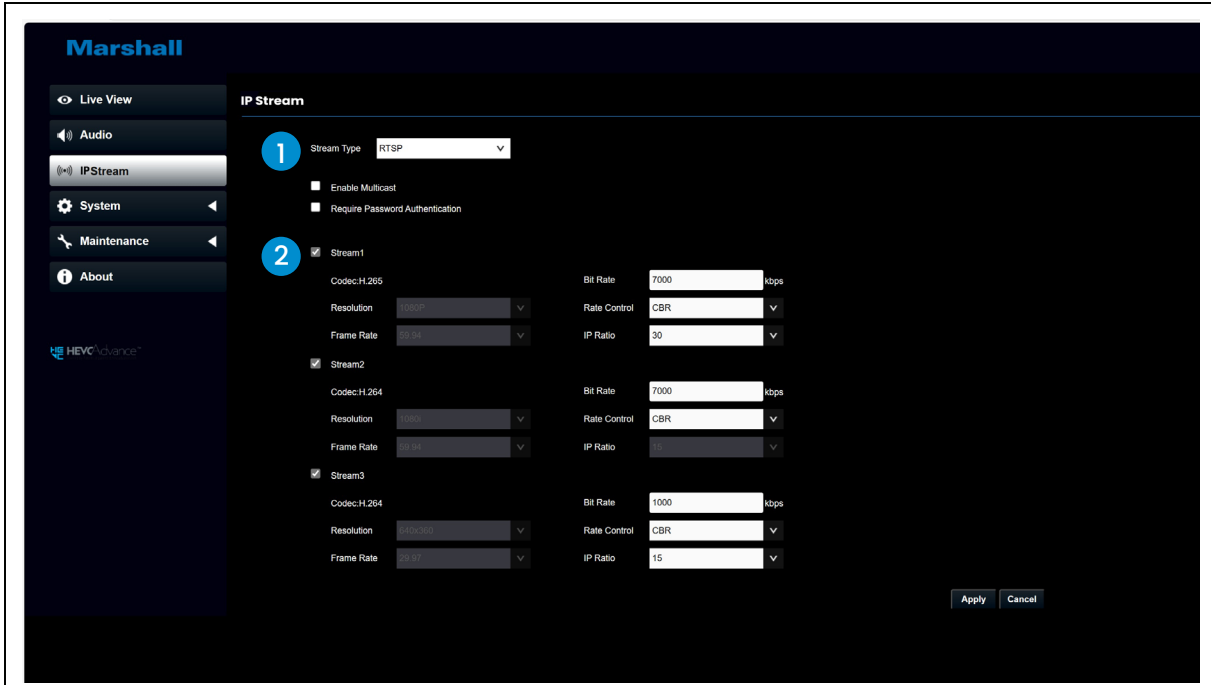
### 5.3.3 Audio



No	Item	Function Descriptions
1	Audio Enable	Turn on/off sound
2	Audio In Type	Set MIC In/Line In
3	Encode Type	AAC / G.711
4	Encode sample rate	Set Encode sample rate 48 KHz (AAC) 44.1 KHz (AAC) 16 KHz (G.711) 8 KHz (G.711)
5	Audio Volume	Adjust Volume
6	Audio Delay	Enable / disable Audio Delay
7	Audio Delay Time	Set the audio signal delay time (-1 ~ -500 ms)

## 5.3.4 Stream

### 5.3.4.1 IP Stream



No	Item	Function Descriptions
1	Stream Type	<p><b>1. RTSP</b> Enable/Disable Multicast. It is suggested to enable Multicast when the number of users online watching the live image simultaneously is more than 4</p> <p><b>2. MPEG-TS</b> Port must be set in the range above 1024 with a maximum value of 9999  The following port has been used by the camera. Setting of the port may not connect correctly. 8554, 8556, 8557, 8080, 9090, 1935</p> <p><b>3. SRT</b> Set the field of SRT and then check the item to open STR streaming After the SRT streaming is opened, it will be connected automatically upon startup  The port number must be set in the range above 1024 with a maximum value of 9999  The following port has been used by the camera. Setting of the port may not connect correctly. 8554, 8556, 8557, 8080,9090,1935 Delay time is for 20 to 8000 microseconds. The default value is 120 microseconds</p> <p><b>4. SNTP/ Port</b> SNTP Setting: Set SNTP Server IP Port Setting: Set HTTP and HTTPS ports. The default values are Port 80 and Port 81 respectively</p> <p><b>&lt;Remark&gt;</b> Change of setting is available only when DHCP function of camera is closed</p>

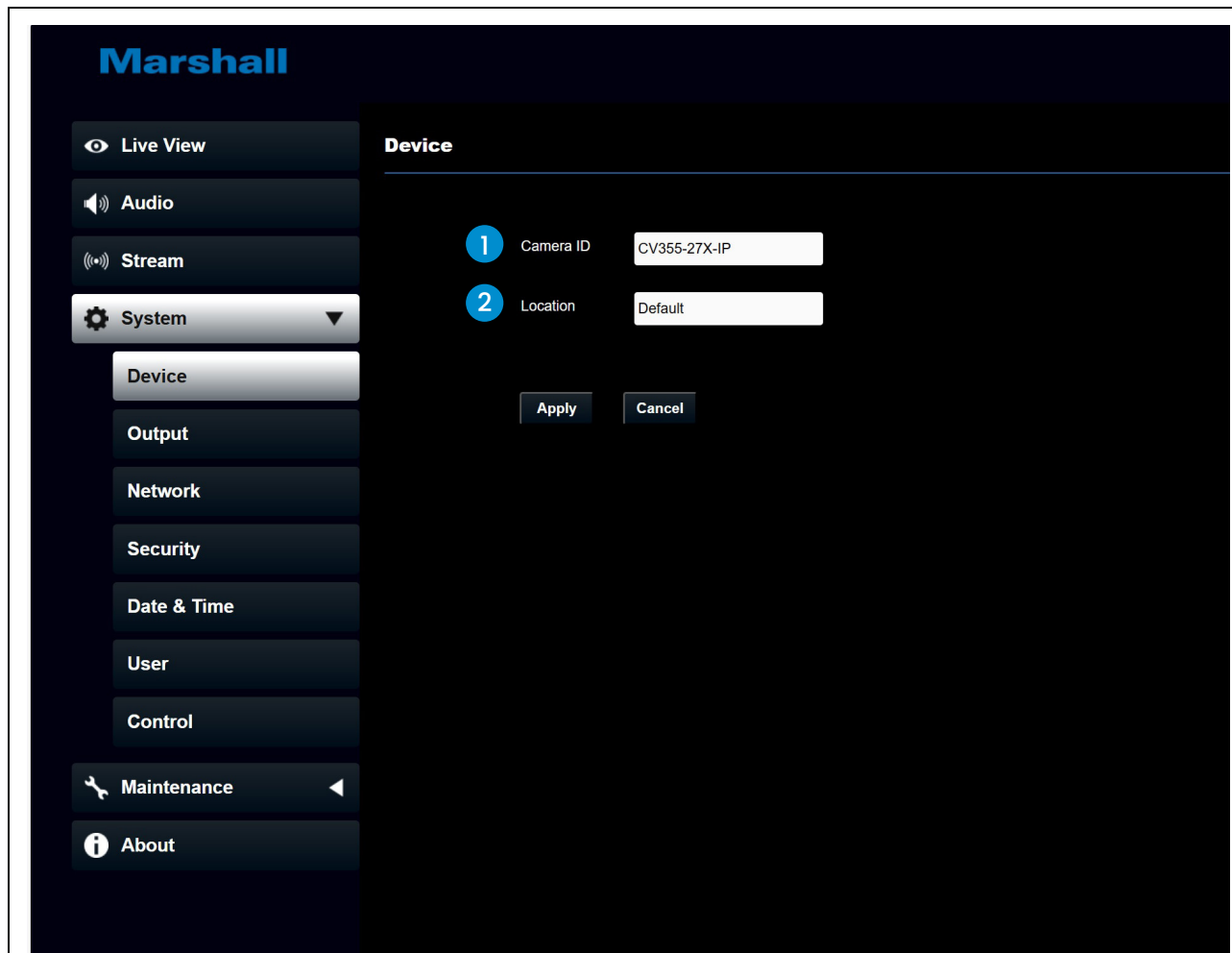
## 2 Streaming Parameter Setting

Function		Streaming 1	Streaming 2	Streaming 3
Encode Format		H.265	H.264	
Resolution		1080P/720P		640 x 360
Frame Rate		Setting according to the supported resolution		
Bit Rate (kbps)	Range	2,000 ~ 20,000	2,000 ~ 20,000	512 ~ 5,000
	Factory Default	7,000	7,000	1,000
Rate Control		CBR/VBR		
IP Ratio		Setting according to the supported resolution		

## 5.3.4.2 NDI Stream

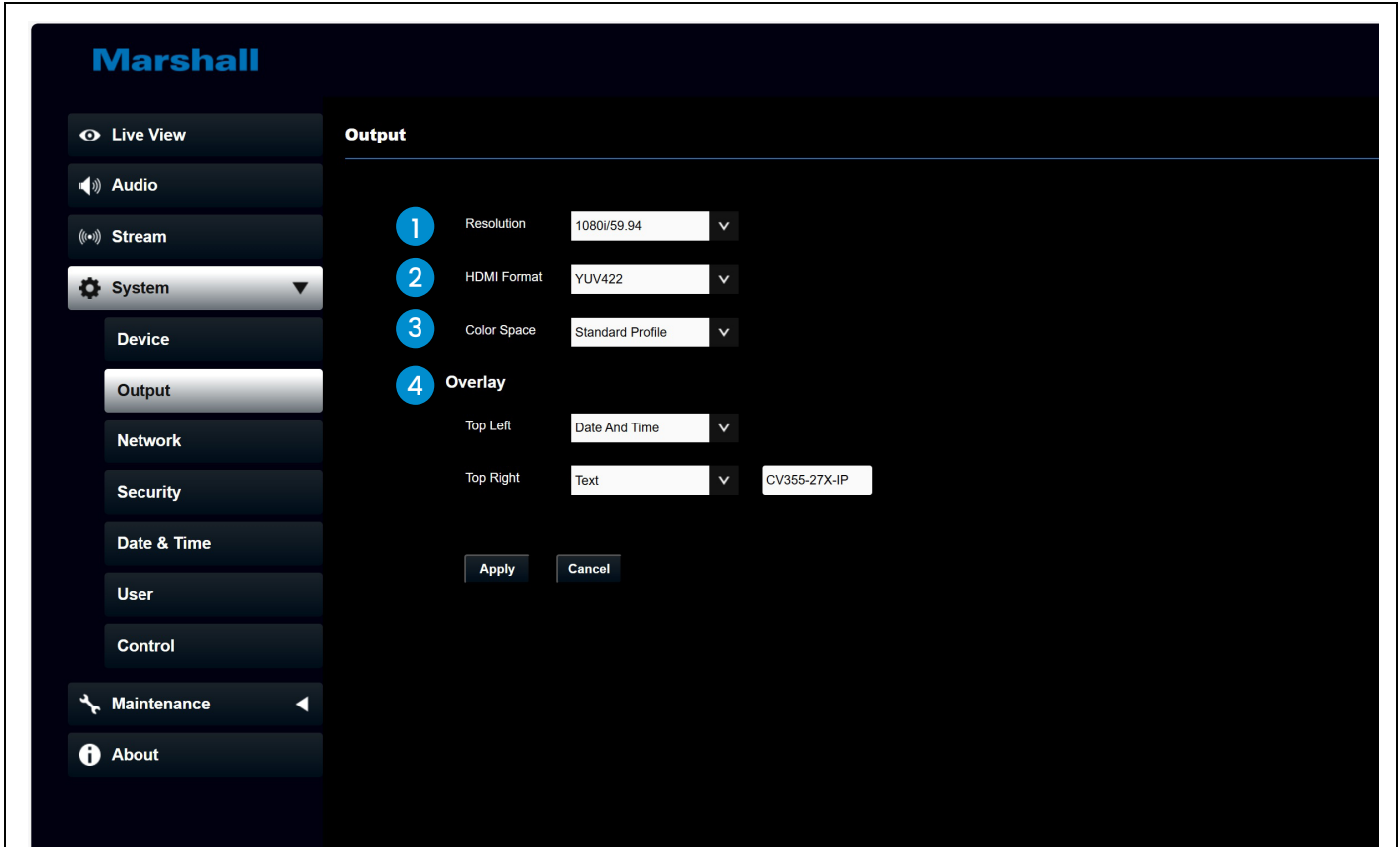
No	Item	Function Descriptions
1	Camera ID/ Location	Displaying ID/location according to [System] > [Device] setting content
2	Group Name	<p>The group name can be modified here and set with Access Manager - Receive in NDI Tool</p> <ul style="list-style-type: none"> <li>■ If no group is assigned, the machine belongs to Public. As the default of Access Manager includes Public, Studio Monitor can discover this machine</li> <li>■ If a group is assigned, but this group is not added into Access Manager, Studio Monitor cannot discover this machine</li> <li>■ If a group is assigned and this group is added into Access Manager, Studio Monitor can discover this machine</li> </ul> <p><b>&lt;Remark&gt;</b> The name can contain commas (,) to distinguish different groups Example: default, 123, abc means this machine belongs to three groups at the same time (default/ 123/ abc)</p>
3	NDI HX	<p>Set NDI HX 2/ HX3/ Off</p> <ul style="list-style-type: none"> <li>■ Off: Support RTSP/ RTMP/ RTMPS/ MPEG-TS/ SRT, and ONVIF can find devices but cannot be used with NDI Tool</li> <li>■ HX2: Support HX2</li> <li>■ HX3: Support HX3</li> </ul> <p><b>&lt; Remark &gt;</b> HX3 only supports 1080p 60/59.94/50 resolutions <b>&lt;Remark&gt;</b> ONVIF cannot find devices, and RTSP/ RTMP/ RTMPS/ MPEG-TS/ SRT streams cannot be used when HX2/ HX3 on.</p>
4	Encode Format	Display Encode Format
5	Multicast	<p>Multicast Setting</p> <p>It is suggested to enable Multicast when the number of users online watching the image simultaneously is more than 4</p>
6	Discovery Serve	Check to enter the Server IP address
7	Apply/Cancel	After setting has been modified, select this button to apply/cancel the setting

### 5.3.5 System - Device



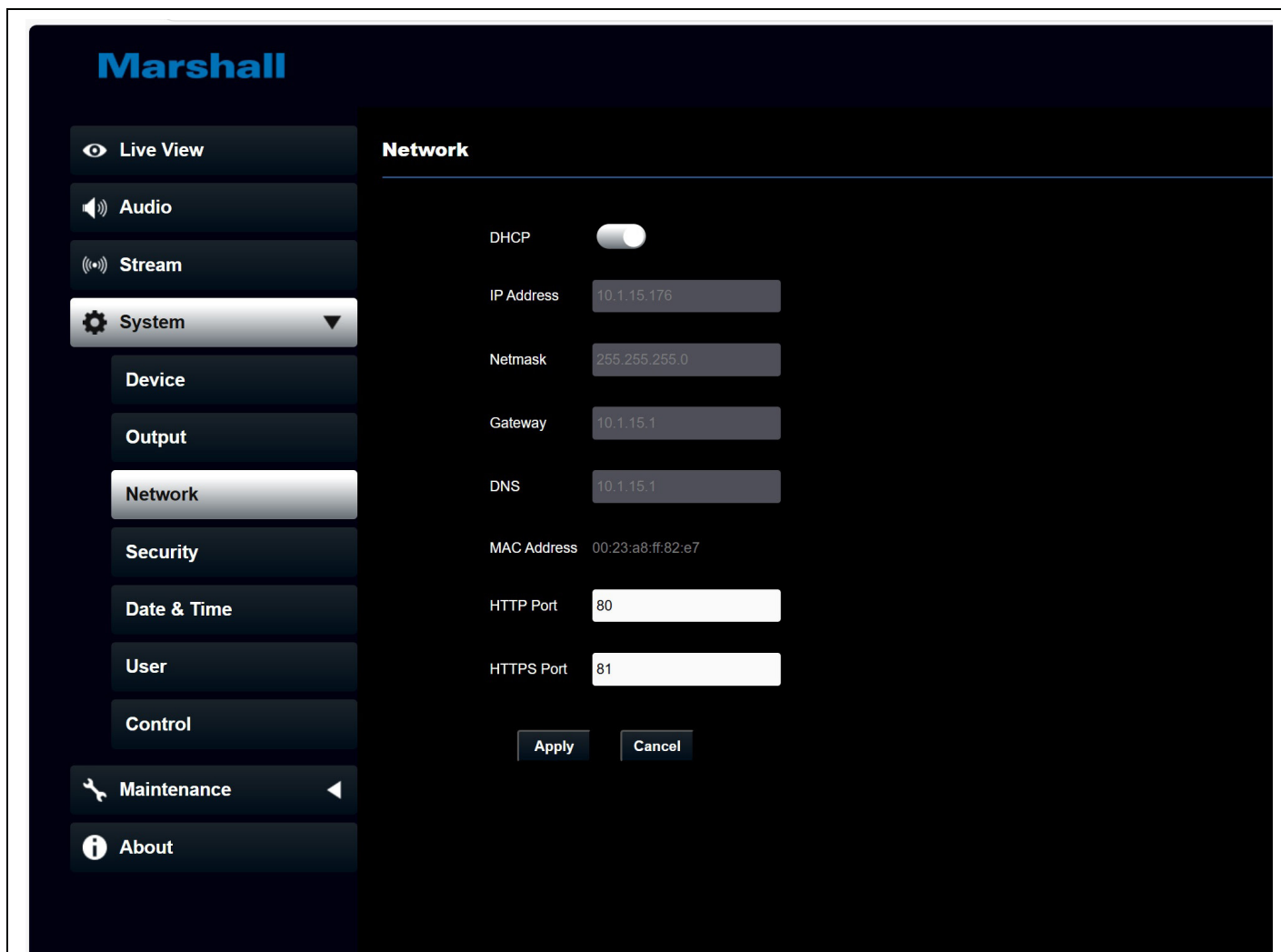
No	Item	Function Descriptions
1	Camera ID	Modify the camera name Camera names are limited to 1 - 12 characters Please use a camera name by mixing uppercase and lowercase letters or numbers. Do not use “/” and “space” or special symbols
2	Camera Location	Modify the location of the camera, such as Meeting Room 1 Camera location is limited to 1 - 12 characters Please use a camera location by mixing uppercase and lowercase letters or numbers. Do not use “/” and “space” or special symbols

## 5.3.6 System - Output



No	Item	Function Descriptions
1	Resolution	Set the resolution of the camera, resolutions supported by the camera are as follows: 1080p / 60, 59.94, 50, 30, 29.97, 25 1080i / 59.94, 50 720p / 60, 59.94, 50, 30, 29.97, 25 After switching the resolution, the camera will restart. If there are no images on the website, please refresh the browser
2	HDMI Format	YUV422 / RGB
3	Color Space	Standard Profile / REC.709 / BT.2020
4	Overlay	The information displayed on the live view image and the monitor can be customized. The display position can be set to the left side, right side, or both  1. Date and Time: Displays the current date and time. 2. Text: Allows you to enter customized text as desired

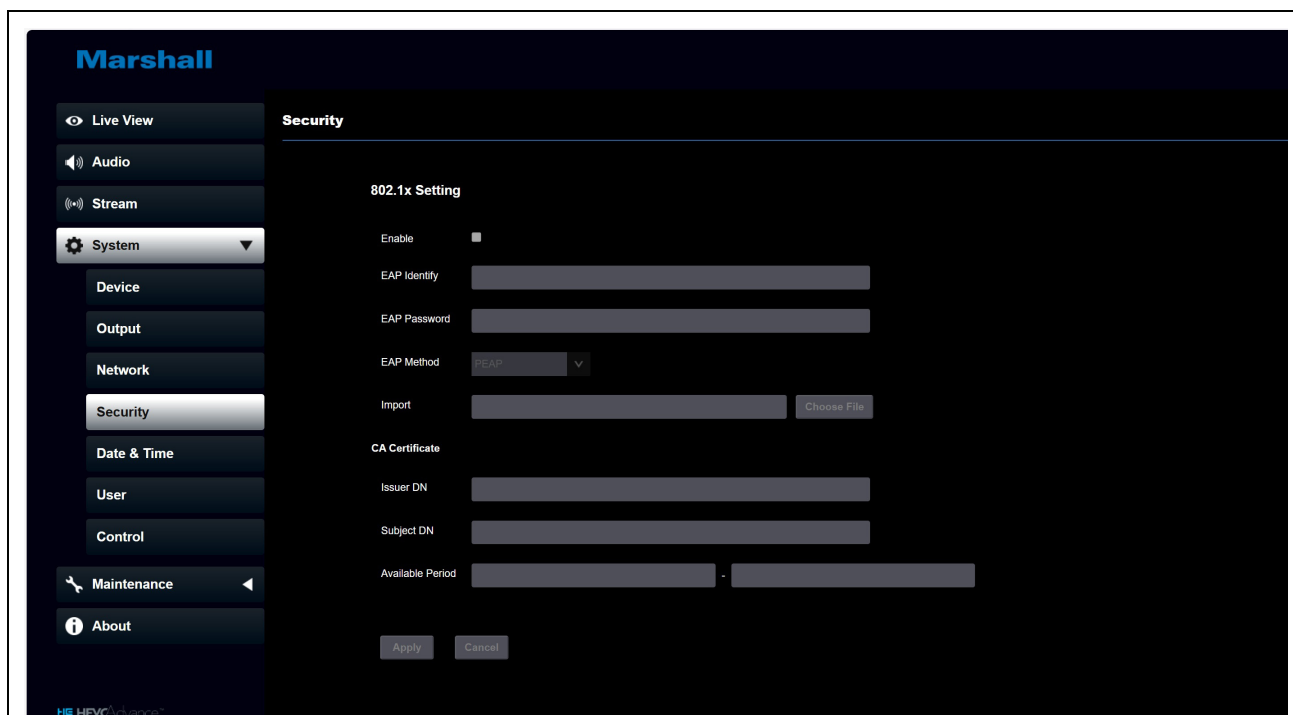
### 5.3.7 System - Network



#### Function Description

Network setting of camera. Change of setting is available only when DHCP function is closed.

## 5.3.8 System - Security

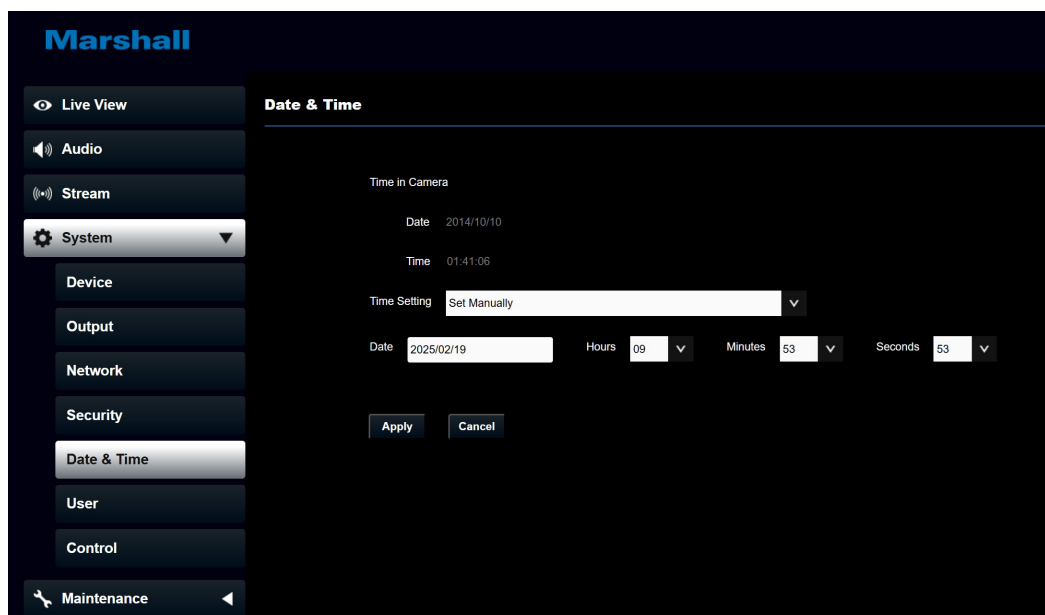


### Function Description

Enable/disable 802.1x protocol and configure settings when enabled.

<Remark> The router must support 802.1x protocol to enable this feature

## 5.3.9 Date & Time

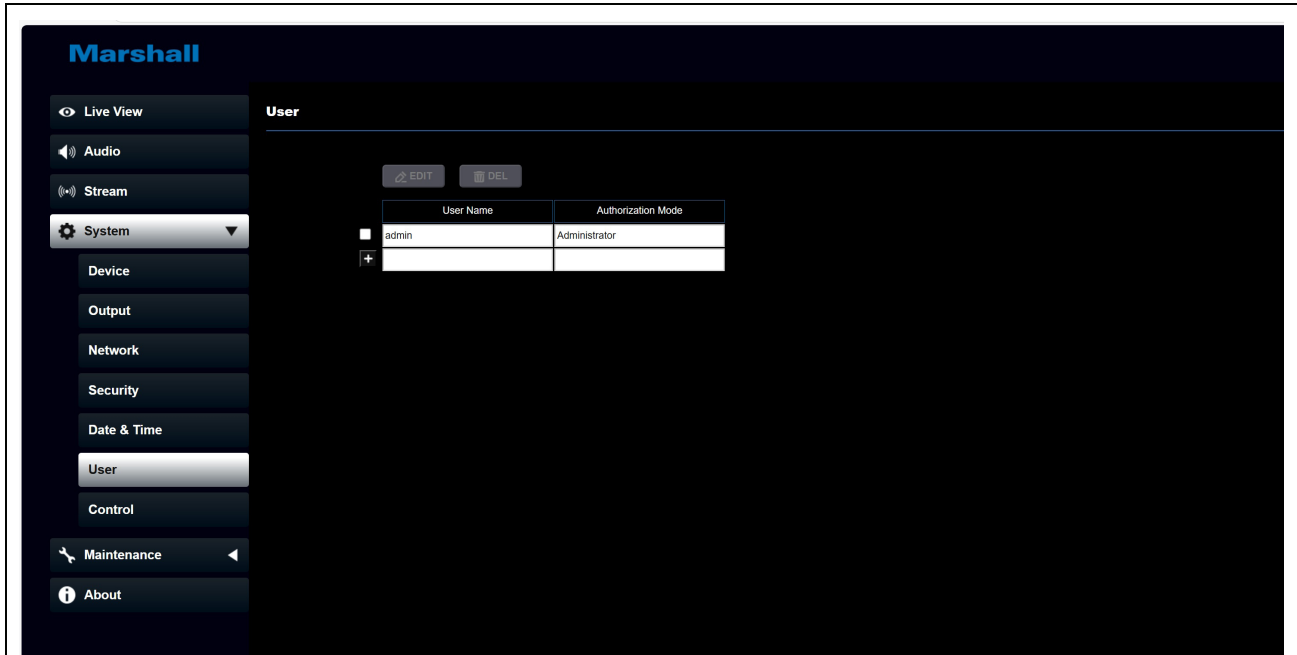


### Function Description

Display date and time of the current camera/ PC. You may set the synchronization method and modify date and time

## Chapter 6: System

### 6.1.1 System - User



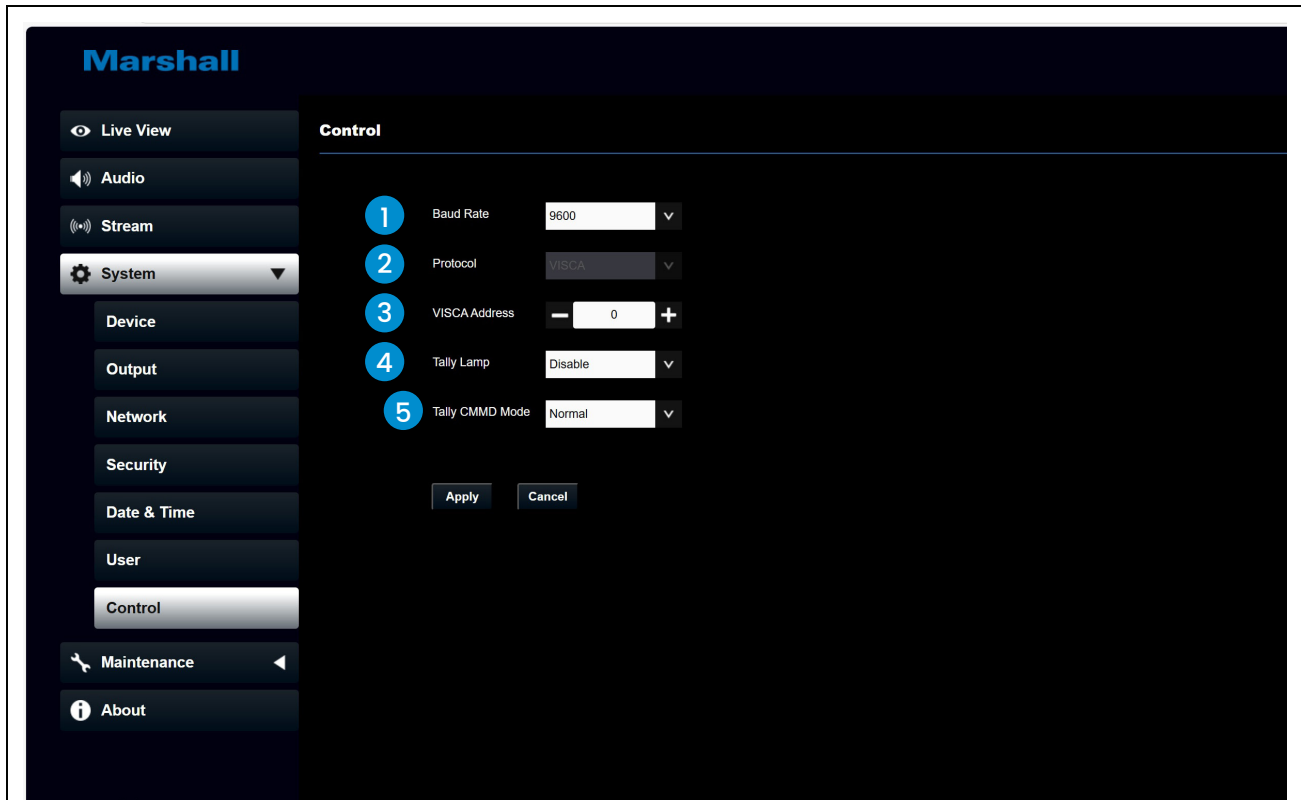
#### Function Descriptions

Add/ Modify/ Delete user account

1. Supporting 4 ~ 32 characters for username and password
2. Authentication Mode: Set the new account management permissions

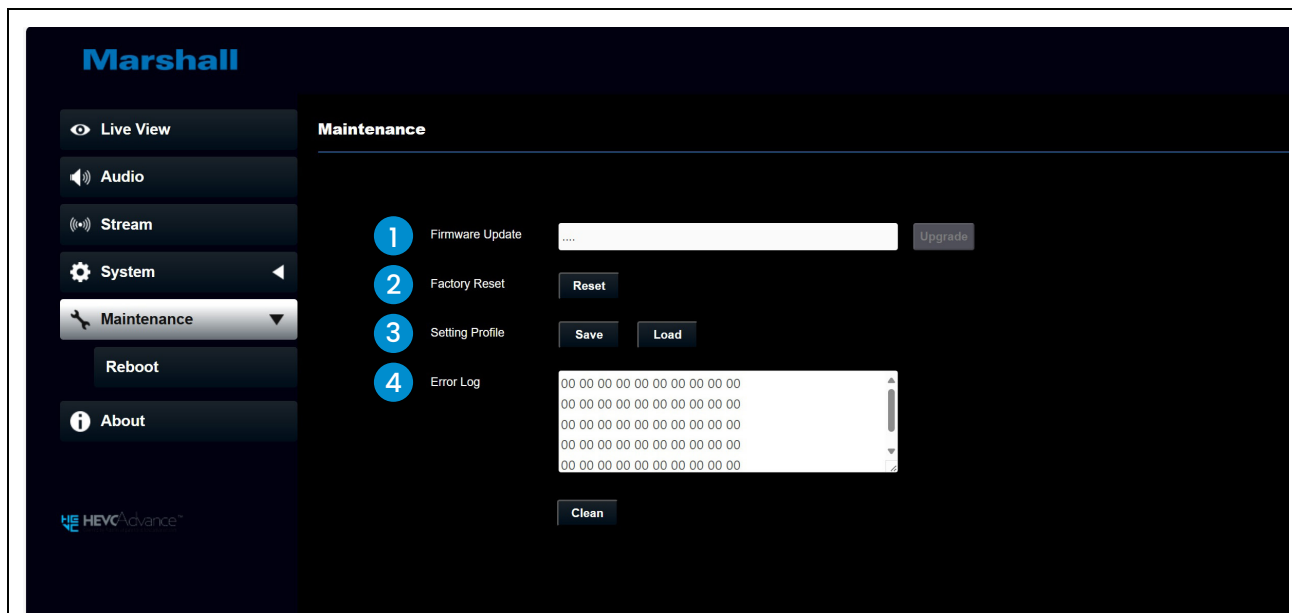
User Type	Admin	Operator	Viewer
View images	Y	Y	Y
Settings	Y	Y	N
Account management	Y	N	N

## 6.1.2 System - Control



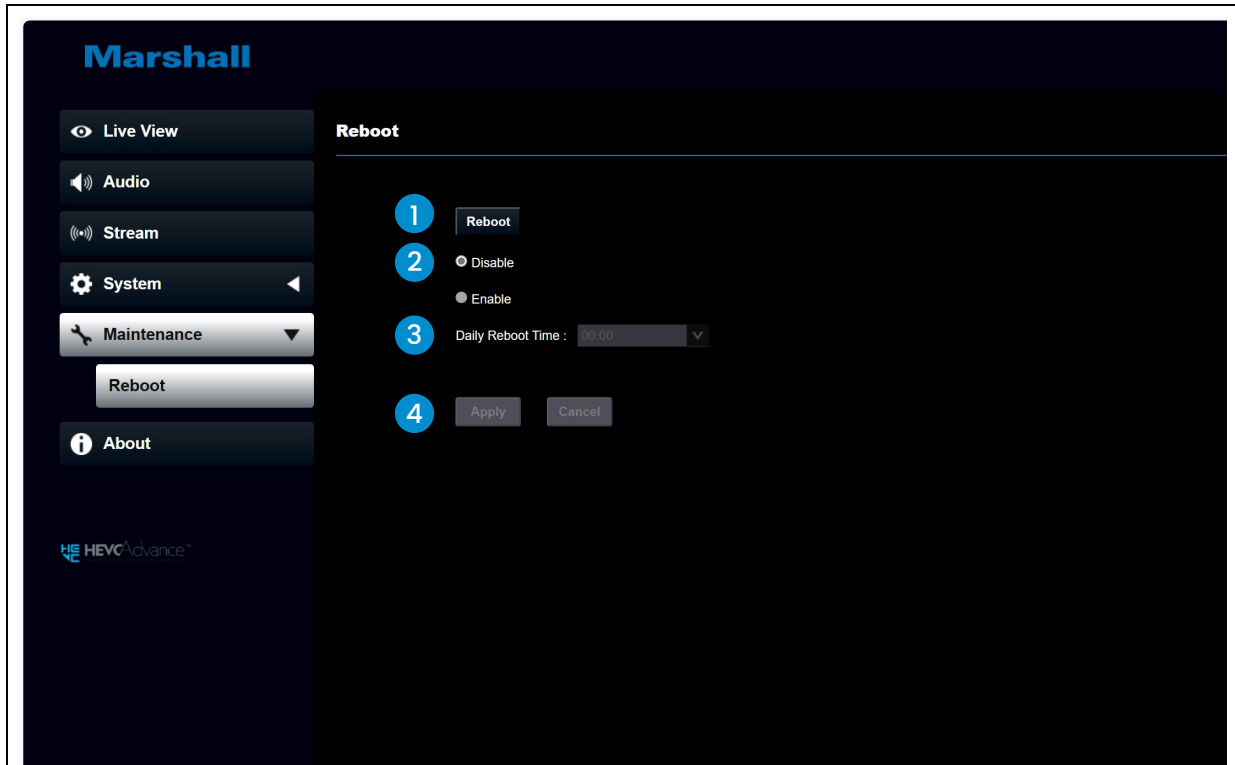
No	Item	Function Descriptions
1	Baud Rate	Choose the transmission speed of the control signal as 9600/38400
2	Protocol	VISCA
3	VISCA Address	The camera ID address 0 ~ 7 can be assigned.
4	Tally Lamp	Enable / Disable
5	Tally CMD Mode	<p>Set whether the indicator light is linked with RS232 command</p> <p>1. Normal (Not linked): The indicator light switch and mode shall be set separately.</p> <ul style="list-style-type: none"> <li>- When the indicator light is on and the default mode is off, additional command is required to set the indicator light mode</li> <li>- Setting the indicator light mode when the indicator light is off will not trigger the indicator light</li> </ul> <p>2. Link:</p> <ul style="list-style-type: none"> <li>- When the indicator light is on, the default mode is red light</li> <li>- Setting the indicator light mode when the indicator light is off will turn on the indicator light</li> </ul>

## 6.1.3 Maintenance



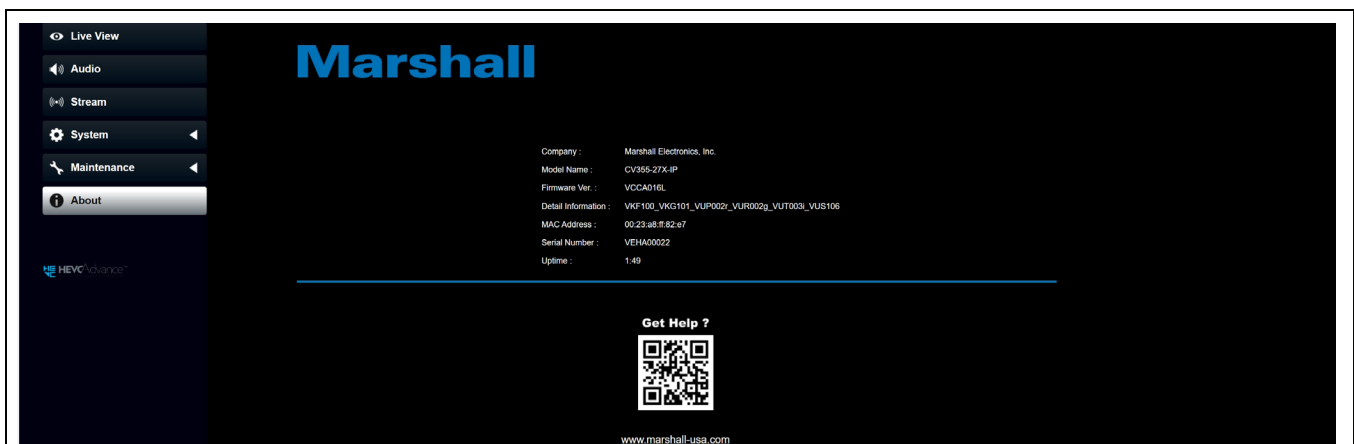
No	Item	Function Descriptions
1.	Firmware Update	Click [...] to select the firmware file and click [Upgrade] to update the firmware. <Remark>Update takes about 2 - 3 minutes. <Remark>Please do not operate or turn off the power of the device during the update to avoid firmware update failure.
2	Factory Reset	Restore the factory default setting
3	Setting Profile	Save or load the setting profile
4	Event log	If the camera encounters errors, error codes will be displayed here as a record.

## 6.1.4 Maintenance - Reboot



No	Item	Function Descriptions
1	Reboot	Reboot immediately
2	Disable	Disable the reboot settings
3	Daily Reboot	Set the daily reboot time <b>Remark:</b> Please go to <b>Settings - Time</b> to complete the SNTP server synchronization to set daily reboot
4	Timing Reboot	Set the timing reboot time

## 6.1.5 About



### Function Descriptions

Display the camera's product information, such as the firmware version, serial number, and model name.

## Chapter 7: Troubleshooting

This chapter describes problems you may encounter while using CV355-27X-IP. If you have questions, please refer to related chapters and follow all the suggested solutions. If the problem still occurs, please contact your distributor or the service center.

No.	Problems	Solutions
1.	<b>Boot without power signal</b>	<ol style="list-style-type: none"> <li>1. Make sure you have plugged in the power cord.</li> <li>2. When using a PoE connection, ensure that the power supply supports IEEE 802.3af hubs</li> </ol>
2.	<b>There is no image output from CV355-27X-IP</b>	<ol style="list-style-type: none"> <li>1. Check the power supply or PoE supply functions.</li> <li>2. Make sure the display supports the output resolution; in general, the resolution is 1080p60/720p60.</li> <li>3. Replace the cables and make sure they are not faulty.</li> </ol>
3.	<b>RS-232 cannot be controlled</b>	<ol style="list-style-type: none"> <li>1. Confirm the connection is correct (RS-232 Input/Output)</li> <li>2. Please make sure the Baud rate setting is the same as the control equipment</li> </ol>
4.	<b>The ONVIF software cannot find the machine</b>	Please go to <b>Setting - Video - Camera Location</b> in the webpage and make sure that the ID is only made up of English letters or numbers. The Onvif software cannot find the machine if you use special characters and space.
5.	<b>Tally lamp is not working when applying RS232 setting</b>	Please go to <b>Setting - Camera - Tally Lamp</b> in the webpage to check if the function is on.

For Warranty information, please refer to Marshall website page:

[marshall-usa.com/company/warranty.php](http://marshall-usa.com/company/warranty.php)