

# Moxa VP-022D IP Video Decoder User's Manual

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[www.moxa.com/product](http://www.moxa.com/product)

**MOXA**®

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# Moxa VP-022D IP Video Decoder User's Manual

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# 1

## Introduction

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The following topics are covered in this chapter:

□ **Product Overview**

➤ Rear View

➤ Front View

□ **Mouse operations**

This model is a standalone 4-channel 1080P IP decoder that can display the live videos of Moxa's IP cameras and encoder. This model can decode live video via the TCP/IP network to form part of a video wall.

The virtual matrix feature stores the IP addresses of the cameras and video decoders in a database, making access and identification quick and easy. IP addresses can be automatically imported via the IP scan utility. The VP-022D has an IP scan facility, (WS Discovery) which locates all the cameras on the network and imports a preview thumbnail of each channel. This automated installation wizard speeds up commissioning.

### Features

- Standalone HD IP Video Decoder
- No PC required
- Full HD 1920\*1080P HDMI output
- HTTP browser based viewing including Decoder Configuration, PTZ Control, and Live Monitoring
- Supports up to 4-channel layout on the screen

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### Caution

- Do not drop or strike the equipment
- Do not install the equipment near naked flames or heat sources
- Do not expose this unit to rain, moisture, smoke or dusty environments
- Do not cover the opening of the cabinet with cloth or plastic. Allow 10cm between this unit and its surroundings
- Do not continue to operate the unit under abnormal conditions such as detection of smoke, strange smell or no display on screen whilst power is turned on
- Do not touch the power connection with wet hands
- Do not damage the power cord or leave it under pressure
- To avoid unnecessary magnetic interference, do not operate this unit near magnets, speaker systems, etc.
- All connection cables must be grounded properly

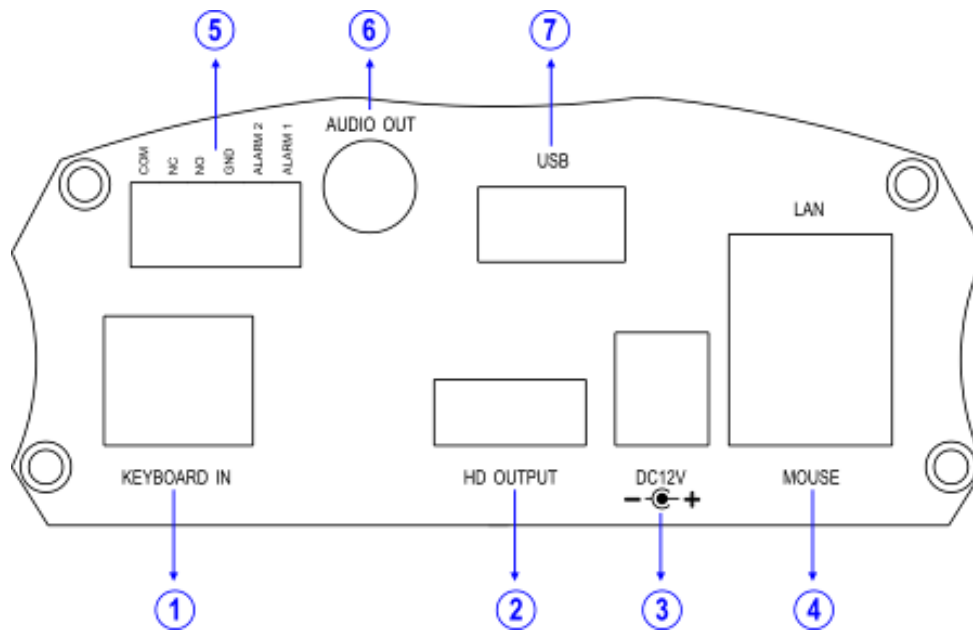


### CAUTION

**RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.  
DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.**

# Product Overview

## Rear View



- |  |   |
|--|---|
| <ol style="list-style-type: none"> <li>1. <b>RJ-45 Keyboard In</b></li> <li>2. <b>HDMI Output</b></li> <li>3. <b>12V DC Input</b></li> <li>4. <b>LAN / USB Mouse</b><br/>Network RJ-45 connector and USB mouse.</li> </ol> | <ol style="list-style-type: none"> <li>5. <b>Alarm I/Os</b><br/>Alarm 1 N/O alarm output,<br/>and 1 N/C alarm output</li> <li>6. <b>Audio Output</b><br/>RCA audio connector</li> <li>7. <b>USB 2.0 connector</b><br/>USB flash disk</li> </ol> |
|--|---|

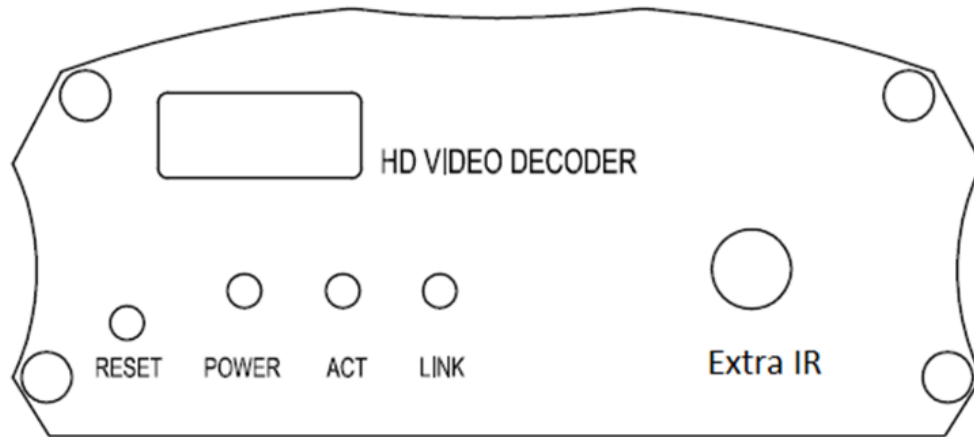
**NOTE** Do not connect any devices to 'Keyboard In' other than the keyboard as the connection contains 12VDC and may damage other devices.

**NOTE** Please use a HDMI cable with shading processing and snap ferrite ring to avoid interference from electromagnetic radiation.

## Front View

IP Video Decoder LED Panel.

The status of each LED is described in the table below:



LED	Description	Color
RESET	Manufacturing default button	
POWER	Constant on	Green
ACT	Network ACT LED	Green (flashing)
LINK	Network LINK LED	Orange

### RESET

Hardware Factory Default.

Use hardware to restore factory default settings, follow these steps:

1. Hold Load Default Button for 10 seconds, then release.
2. Green and Yellow Network LED blinks On->Off->ON.
3. HD IP Video Decoder has completed the factory default settings, and will then reboot.

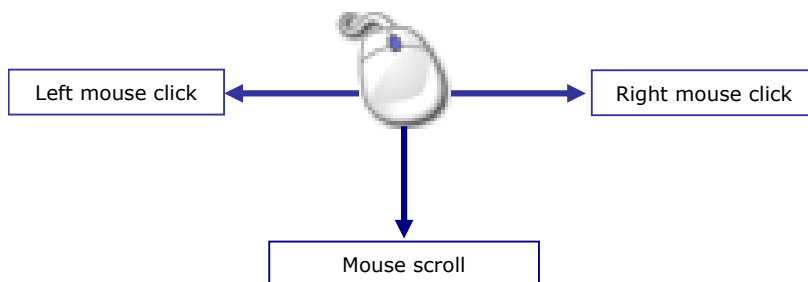
**NOTE** Hardware Factory reset does affect IP address, video system, and language settings. The default IP address is 192.168.127.100

**NOTE** The extra IR port is for the IR receiver. IR control will be supported in the next version.

## Mouse operations

The HD IP Video Decoder has a USB mouse interface.

General mouse operations can be used to navigate the device.



The following topics are covered in this chapter:

❑ **Using the Web-based Management Interface**

- General
- Time
- User
- Storage
- Event
- Maintenance

❑ **Network Setup**

- General
- Advance
- DDNS
- Other

❑ **Connecting to Cameras**

- General
- Video

❑ **Live View**

- Live

❑ **Alarm Configurations**

- Display Configurations
- General
- Advance
- Sequence

❑ **PTZ Camera Configurations**

- General

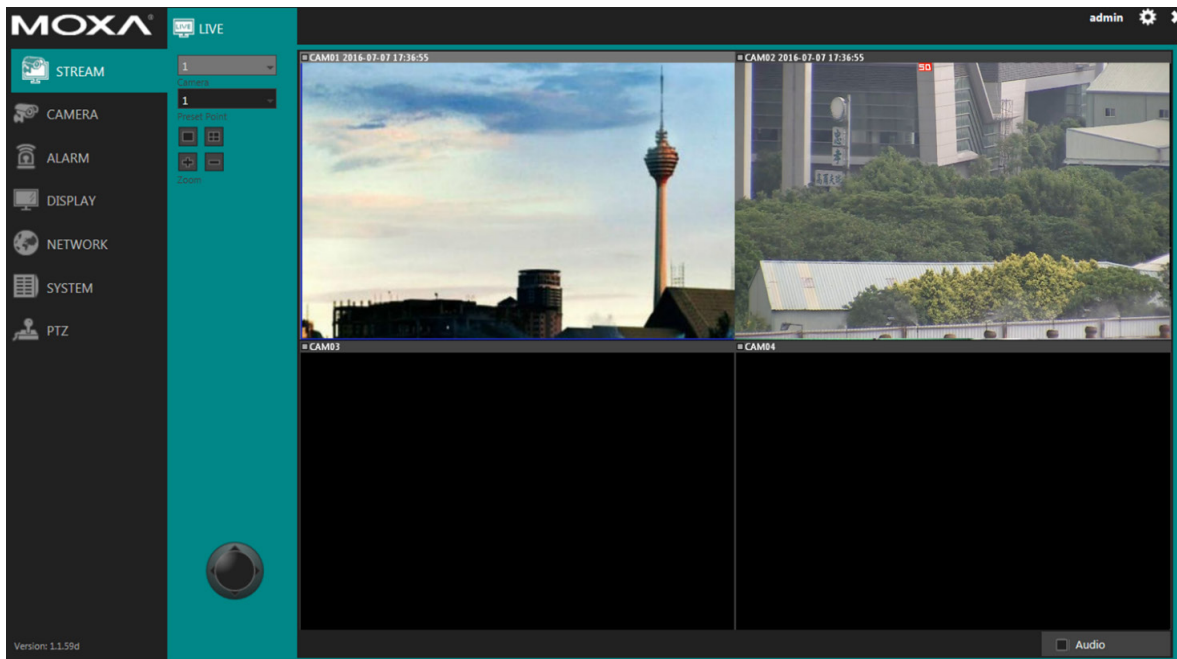
❑ **Live view Interface in Video Decoder Page**

- PTZ Control Interface in Single Video Window



## Using the Web-based Management Interface

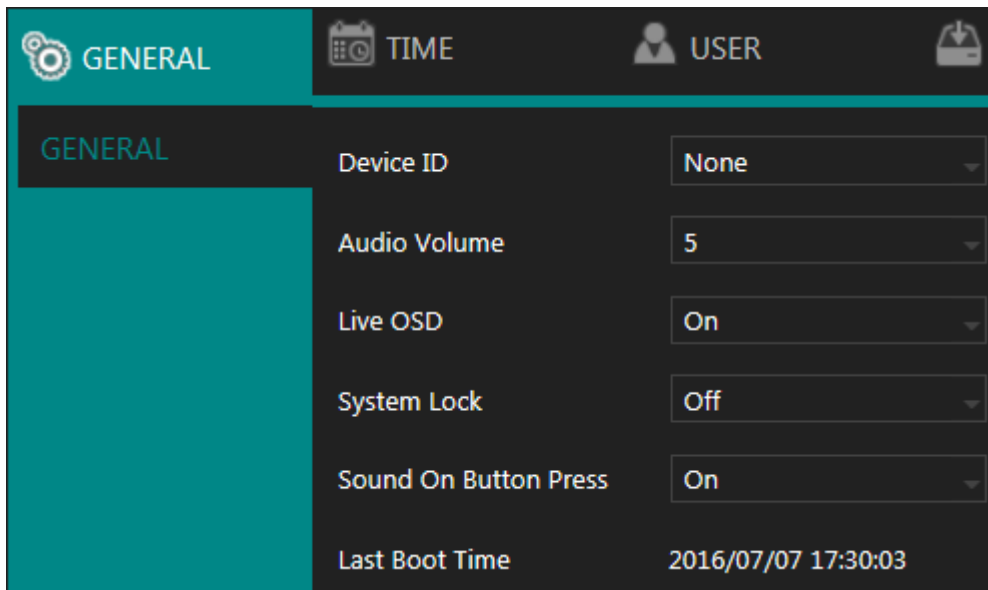
When you first access the decoder, you can click the settings button on the upper left side to do system configuration if you are using a HDMI interface. For the web interface, it has the same configuration page as a HDMI interface, but contains one additional category **Stream** for live viewing and PTZ control.



**NOTE** Please use IE 11 in order to have full compatibility.

First of all, please click **System** in the left panel, where you are allowed to adjust general configurations of the Decoder. The details of the tabs are described as followed:

## General



**Device ID:** Assign an ID for the VP-022D to be controlled by the remote controller.

**Audio Volume:** Adjust the volume of the VP-022D.

**Live OSD:** Switch on/off the OSD.

**System Lock:** Switch on/off the system lock.

**Sound On Button Press:** Switch on/off the sound when pressing remote control buttons.

**Last Boot Time:** The last time the system was rebooted.

## Time

The screenshot shows the 'TIME' configuration page with the following settings:

Setting	Value	Notes
Datetime	2016 / 07 / 05 16 : 10 : 15	(YYYY/MM/DD hh:mm:ss) (Current time)
Date Format	YYYY/MM/DD	
Time OSD	On	
Time Zone	Off	
Time Sync Mode	Off	
NTP Server	time.stdtime.gov.tw	(Max. length 63)
Time Sync Interval	1	(Hour(s))
NTP Status		

**Date/Time:** Set the date/time of the VP-022D.

**Date Format:** Modify the date format.

**Time OSD:** Switch on/off the time to be displayed on the screen.

**Time Zone:** Change the time zone of the location where the VP-022D is installed.

**Time Sync Mode:** Choose how you would like the time to be synced.

**NTP Server:** Enter the NTP server you want to use.

**Time Sync Interval:** Choose the interval for the time to be synced.

**NTP Status:** The status of the selected NTP server will appear here.

**NOTE** Click **Apply** for the changes to take effect.

# User

User	Field	Value / Action
ADMIN	User	ADMIN (Max. length 8)
OPERATOR	Old Password	[Input] Show (Display password)
	New Password	[Input] Show (Display password)
	Confirm Password	[Input] Show (Display password)
USER01	User Permission	Admin Effect at next login
USER02	Setup	<input checked="" type="checkbox"/>
USER03	Event	<input checked="" type="checkbox"/>
USER04	PTZ	<input checked="" type="checkbox"/>
USER05	Shutdown	<input checked="" type="checkbox"/>
USER06	Alarm	<input checked="" type="checkbox"/>
USER07	Remote Live Video	<input checked="" type="checkbox"/>
USER08	Load Default	Default
USER09	Apply	Apply
USER10		

The VP-022D supports up to 12 sets of individual user settings (including administrator, operator, and guest), to which you can assign different access rights.

**User:** Enter the name of the user (the fields administrator, operator, and guest cannot be changed).

**Old Password, New Password, and Confirm Password:** If you would like to change the password, enter your previous password and enter the new password and confirm the password. Press **Show** to reveal the password. The default passwords for administrator, operator, and guest are 1111, 2222, and 3333, respectively.

**User Permission:** Set the access rights of the user to administrator, operator, or guest.

**Load Default:** Restore to the factory default settings.

**NOTE** Click **Apply** for the changes to take effect.

## Storage

### USB INFO.

GENERAL TIME USER STORAGE EVENT				
USB MGT.				
	Model	Size	Status	Select
1.	None	0MB	None	<input type="checkbox"/>
2.	None	0MB	None	<input type="checkbox"/>

In **USB MGT.**, you will see a list of storage devices attached to the VP-022D with their individual information including USB model name, storage size, and status. Check the USB device you want to format or refresh, and then click **Format** or **Refresh**.



The main purpose of the external storage function is **firmware upgrading** and **configuration file exporting**, regarding these two functions, we will introduce more details in the following contents.

## Event

### SYSTEM

GENERAL TIME USER STORAGE EVENT MAINT		
SYSTEM		
Time:	Content:	
2016/07/04 11:39:57	Primary stream in CH.1	
2016/07/04 11:38:08	Primary stream loss CH.1	
2016/07/04 11:30:23	Primary stream in CH.1	

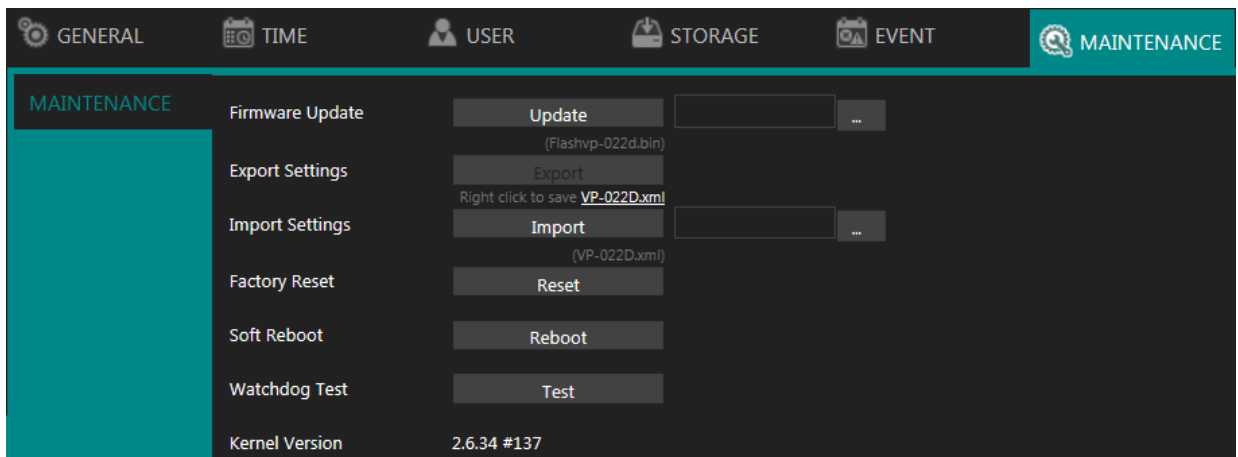
The search field in this page allows you to search for specific event reports at different times and of different content. Press **Download** to export the event report.

### OPERATING

GENERAL TIME USER STORAGE EVENT MAINTENANCE				
SYSTEM				
Time:	IP:	User:	Content:	
2016/07/05 15:12:56	192.168.127.17	ADMIN	Login	
2016/07/01 15:46:14	192.168.127.17	ADMIN	Camera IP address 1	
2016/07/01 15:44:20	192.168.127.17	ADMIN	Camera source 1	
2016/07/01 15:44:20	192.168.127.17	ADMIN	Camera IP address 1	

You can examine the operating status of different users under this page. Press **Download** to export the event report.

## Maintenance



**Firmware Update:** Choose a firmware file and click **Update** to perform the firmware update, please also check the firmware file name is "Flashvp-022d.bin"

**Export Settings:** Right click the file name in order to save settings as a configuration file (XML format).

**Import Settings:** Insert a configuration file (in XML format) to a USB flash drive, then press **Import** to update the settings.

**Factory Reset:** Click **Reset** to restore the system to factory default settings.

**Soft Reboot:** Soft reboot the system.

**Watchdog Test:** Click to test the watchdog function. This may reboot the VP-022D.

**Kernel Version:** The kernel version of the system.

# Network Setup

After you completed setting up the system configurations, you will have to connect the VP-022D to a network before you can view the video streams. Click **Network** in the left panel.

## General

GENERAL	ADVANCE	DDNS	OTHER
GENERAL			
IP Mode	Static		
IP Address	192.168.127.111	IP Test	
Subnet Mask	255.255.255.0		
Default Gateway	192.168.127.254		
Primary DNS	8.8.8.8		
Secondary DNS	8.8.4.4		
Video Port	3100		
HTTP Port	80		
MAC	00:0F:FC:11:1C:EB		

Enter the required information in the fields:

**IP Mode:** Select the connection type of the VP-022D from **Static**, **DHCP**, and **PPPoE**.

**IP Address:** Enter the IP address you want to use, and press **IP Test** if necessary.

**Subnet Mask:** Enter the desired subnet mask.

**Default Gateway:** Enter the desired default gateway.

**Primary DNS:** Enter the first priority DNS server.

**Secondary DNS:** Enter the secondary DNS server in case the primary DNS is not available.

**Video Port:** Specify the desired video port.

**HTTP Port:** Specify the desired HTTP port.

**MAC:** This is the MAC address of your VP-022D.

## Advance

### TCP/IP

GENERAL	ADVANCE	DDNS	OTHER
TCP/IP			
1st TCP/IP		Off	
1st IP Address		192.168.1.111	IP Test
1st Subnet Mask		255.255.255.0	
2nd TCP/IP		Off	
2nd IP Address		192.168.2.111	IP Test
2nd Subnet Mask		255.255.255.0	
3rd TCP/IP		Off	
3rd IP Address		192.168.3.111	IP Test
3rd Subnet Mask		255.255.255.0	

The VP-022D supports three sets of virtual IP addresses. When **TCP/IP** is switched to **On**, the VP-022D can access the camera using the specific IP.



## DDNS

With DDNS, you can access the VP-022D connected to the Internet through the DDNS URL, whatever the actual IP is. The setting options are described below:

GENERAL	ADVANCE	DDNS	OTHER
<b>DDNS</b>			
Server	Off		
Hostname	111CEB <small>(Max. length 64)</small>		
User	111CEB <small>(Max. length 64)</small>		
Password	•••• <small>(Max. length 16)</small>		Show <small>(Display password)</small>
WAN IP	 <small>(Max. length 15)</small>		
Check Interval	1 <small>(Hour(s))</small>		
Status	DDNS Disabled !		

**Server:** Choose the DDNS server you want to use.

**Hostname:** Enter the hostname of the DDNS server.

**User:** Enter the username to log in the DDNS server.

**Password:** Enter the password to log in to the DDNS server.

**WAN IP:** Enter your WAN IP.

**Check Interval:** Choose the time interval you want the system to check the DDNS connection.

**NOTE** The DDNS feature requires an Internet connection.

## Other

The VP-022D also supports other protocols, and related configurations that can be modified in the **OTHER** tab. The setting options are described below:

The screenshot shows the configuration interface for the VP-022D device, specifically the **OTHER** tab. The interface has a dark theme with teal accents. At the top, there are four tabs: **GENERAL**, **ADVANCE**, **DDNS**, and **OTHER** (which is selected). Below the tabs, the **OTHER** section is active, showing a list of settings. The **UPnP Device Name** is set to "VP-022D 192.168.127.111". Under the **SNMP** sub-section, the following settings are visible:

Setting	Value
UPnP Service	On
Reset On Ethernet Error	Off
Max Connections	10
Browser Auto Logout	Off (30 minutes)
Disable HTTP Auth.	Off

**UPnP Device Name:** Your device name is shown on the UPnP network.

**UPnP Service:** Switch on/off the UPnP service.

**Reset on Ethernet Error:** Reset the VP-022D when an Ethernet error is detected.

**JPEG Mode:** Choose **Single JPEG** to attach JPEG snapshots.

**Max Connections:** Set the maximum number of simultaneous connections when streaming using Internet Explorer.

**Browser Auto Logout (30 Minutes):** Check to log out after 30 minutes of inactivity.

**Disable HTTP Auth.:** Check to disable the required authorization when accessing the VP-022D through the HTTP.

# Connecting to Cameras

After you complete setting up the **System** and **Network**, you should then connect to the cameras. Press **Camera** in the left panel to enter the camera setup page. The setting options are described below:

## General

The screenshot displays the 'GENERAL' configuration page for a camera. The interface is dark-themed with a teal sidebar on the left listing cameras from CAM01 to CAM13. The main area shows settings for CAM01. On the right, there are buttons for 'WS Discovery' and 'Cancel', and a table for channel discovery.

CH	IP Address	Model

**Camera Name:** Enter the camera name to be displayed on the streaming screen.

**Camera Source:** Allocate a VP-022D channel for the camera.

**IP Address:** Enter the IP address of the camera you want to connect to, and press **Dev. Info.** to check ONVIF compatibility.

**HTTP Port:** Enter the port for the HTTP connection.

**RTSP Port:** Enter the port for the RTSP connection.

**User:** Enter the username required for camera authorization.

**Password:** Enter the password required for camera authorization.

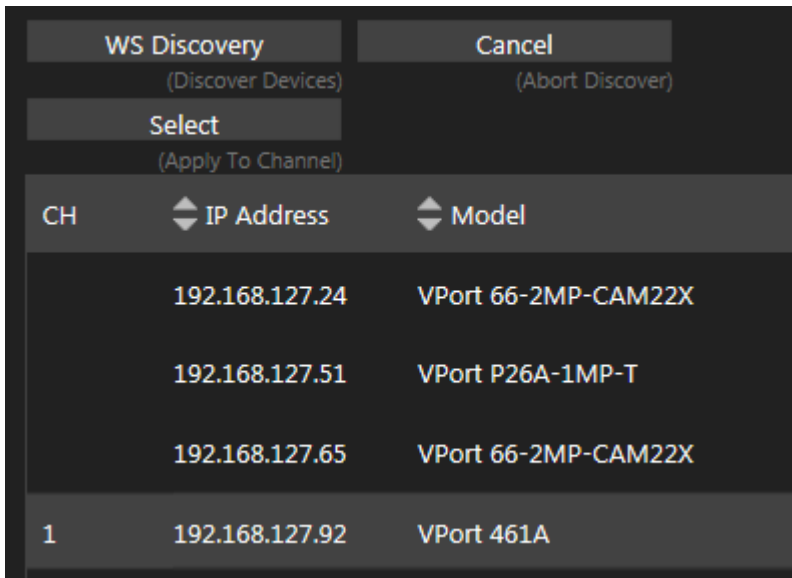
**Stream Type:** Choose whether to stream only SD video or dual (SD & HD) video.

**Primary Stream:** Select the FPS and GOP for the primary stream.

**Primary Stream Bitrate:** Select the bitrate for the primary stream.

**Decode Ref.:** Select the number of the reference frame for the decoder.

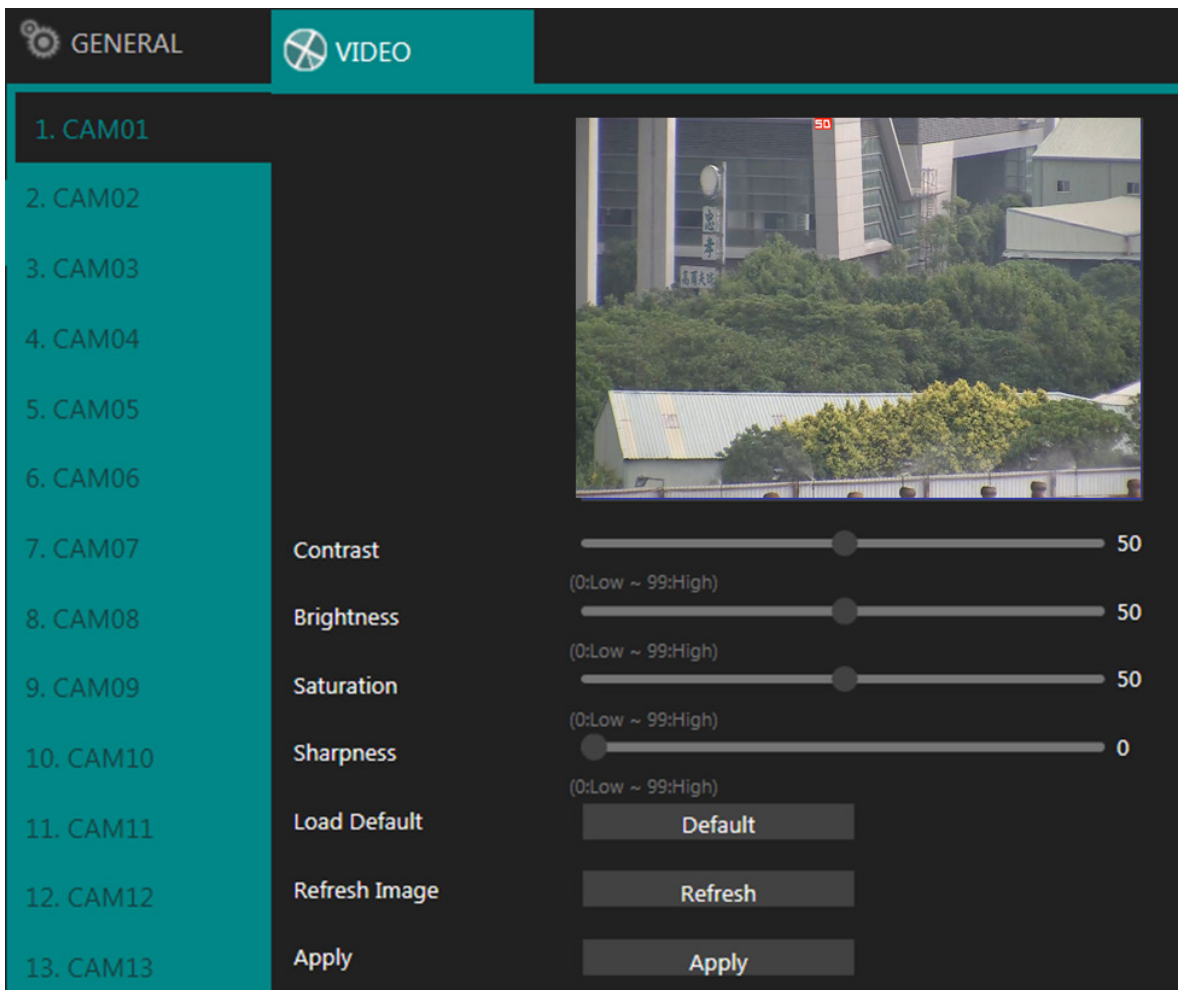
**Network View Permission:** Set up the permission level to limit the authority to view streaming.



**WS Discovery:** Click WS Discovery to scan for connected devices on the network. Click **Cancel** to stop scanning.

**Select:** Automatically apply the detected camera settings into the channel settings.

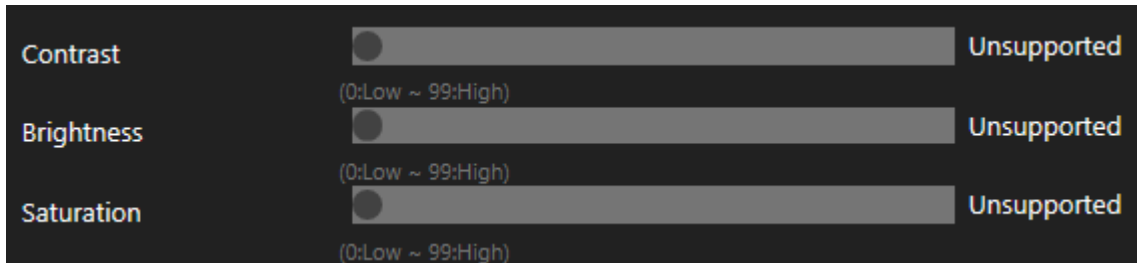
## Video



In this page, you can adjust several camera parameters including contrast, brightness, saturation, and sharpness.

Click **Load Default** to restore the VP-022D to its default settings. Click **Refresh Image** if a delay occurs.

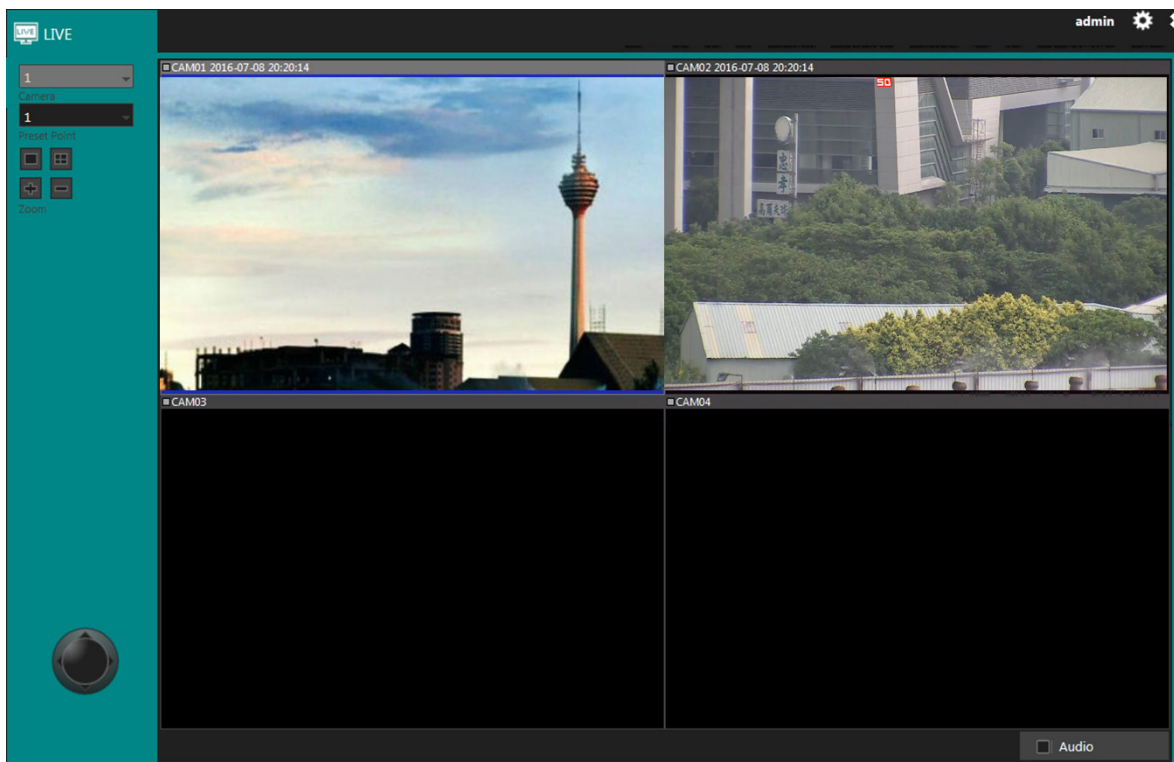
**NOTE** Supported parameters are determined by product models, an “unsupported” message will be displayed if the parameter is not supported by the camera.



## Live View

Once the network configurations are completed and cameras connected, you can view the live streams of the cameras, in addition to access other functions such as PTZ operation and split views.

To access camera live view, go to **Stream** in the left panel.

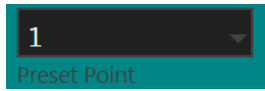


## Live

The **LIVE** tab displays the streams of all connected cameras. With the control buttons and joystick you can control the movement of the selected camera. In the lower right hand side, a check point is there for the user to turn on the audio function. The functionality of each control button is described below:



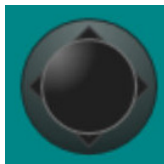
Show the camera ID selected by the user.



Make the camera move to a preset point.

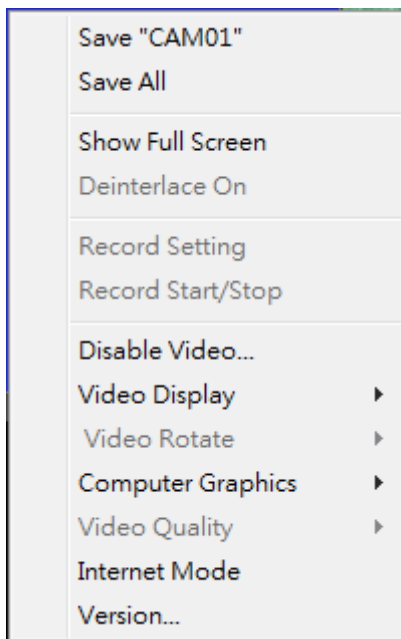


Choose your required view to one or four split view. It's also representing the channel changing button, you can switch to the following channels by clicking on this button too.



PT control handle.

A Pop-out function window will appear by right clicking on the video block.



**Save "CAM"**: Save snapshot

**Save All**: Save snapshot at all streaming on the live view matrix

**Show Full Screen**: Change this streaming to full screen mode

**Disable video**: Disable display streaming

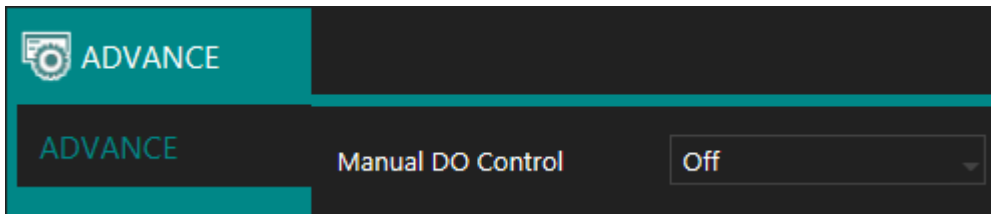
**Video Display**: Display video in three modes, which are the original video size.

**Computer Graphics**: Change computer graphic interface including Direct3D Acceleration, DirectDraw Acceleration, Graphics Device Interface (GDI)

**Version**: Show ActiveX version

# Alarm Configurations

To change the alarm settings, click **Alarm** in the left panel. The setting options are described below:



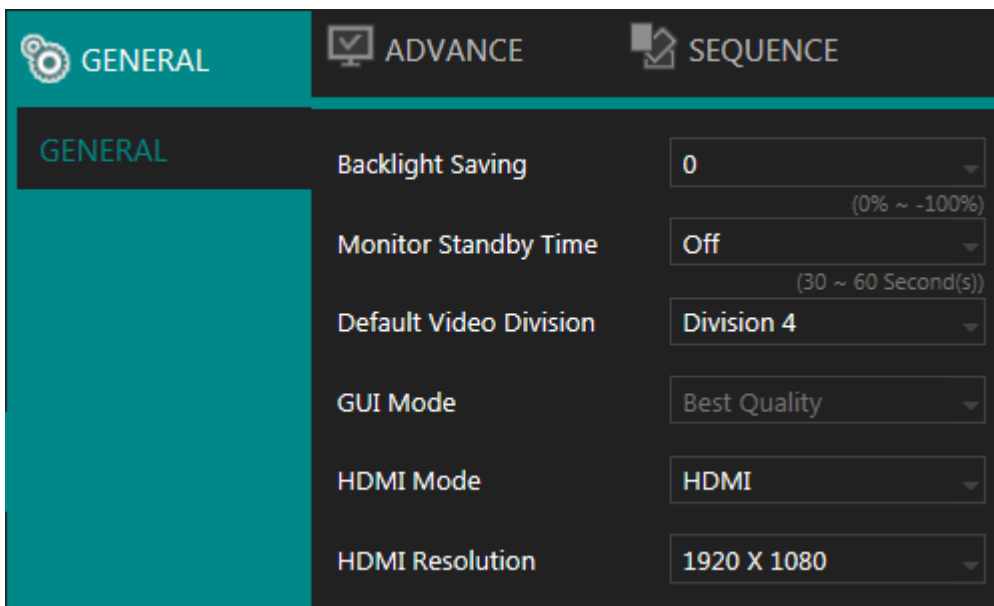
**Manual DO Control:** Turn **On** to enable DO control.

**NOTE** Click **Apply** for the changes to take effect.

## Display Configurations

**Display** provides several adjustable parameters such as resolution, number of split views, and contrast. The details of these settings are described below:

### General



**Backlight Saving:** Reduce the level of screen brightness once the **Monitor Standby Time** is reached.

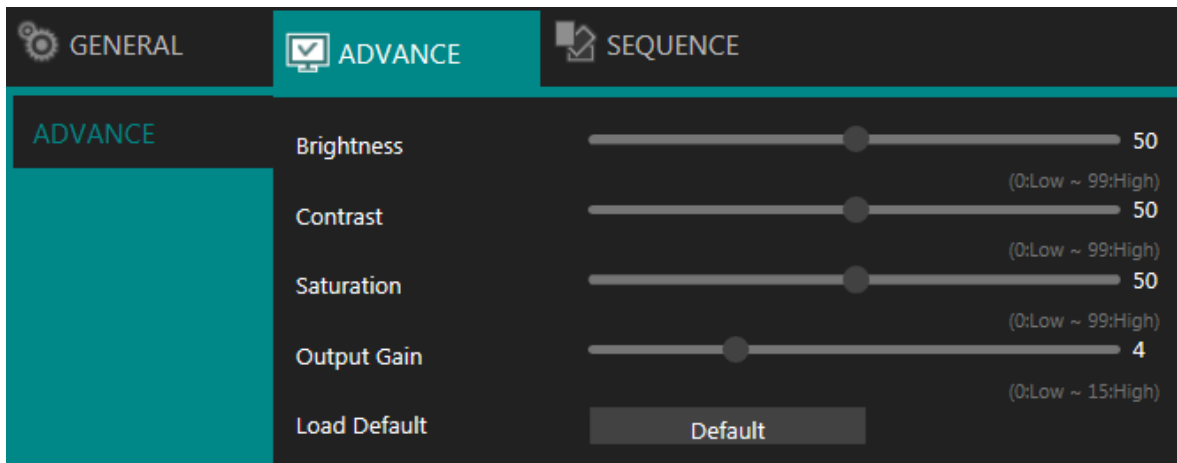
**Monitor Standby Time:** Set the time of inactivity until the monitor enters standby mode.

**Default Video Division:** Select the number of split views you see when switching on the VP-022D.

**HDMI Mode:** Switch the output mode between **DVI** or **HDMI**.

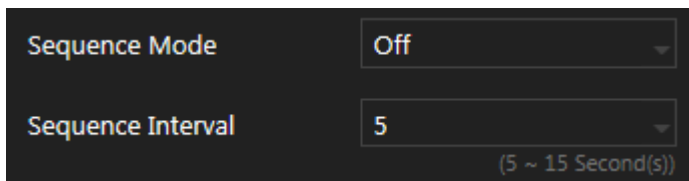
**HDMI Resolution:** Select a screen resolution that fits your screen.

## Advance



On this page, you can adjust the VP-022D's output of brightness, contrast, saturation, and gain. Click **Load Default** to restore to the factory default settings.

## Sequence



You are allowed to view videos of multiple cameras in sequence. Check the cameras you want to monitor and choose the number of split views in the drop-down menu in **Sequence Mode**. Specify the time interval for VP-022D to switch to the next camera for monitoring.

**NOTE** Click **Apply** for the changes to take effect.



# PTZ Camera Configurations

Select **PTZ** in the left panel to enter the settings page for PTZ cameras.

## General

**Transfer Mode:** Fixed in ONVIF mode

**RS-485 protocol:** No specified protocol

**Control Panel:** Fixed in Joystick

**Transparent Port:** The VP-022D supports the transparent PTZ control function, which means the user can connect a legacy PTZ control panel to the VP-022D's RJ-45 port to control the PTZ camera connected to the VPort video encoder. It is not necessary to install the PTZs driver.

**NOTE** To enable the transparent PTZ control function, the PTZ driver in the VPort series video encoders should be set to Transparent PTZ Control. For the port setting, please refer to below parameters:




<b>Baud rate (bps)</b>	9600
<b>Data bits</b>	8
<b>Stop bits</b>	1
<b>Parity bits</b>	None

# Live view Interface in Video Decoder Page

User can view videos and perform configurations in the video decoder page. The user interface is similar with the HTML interface, and only the live view page has a different design. Please refer to indicators below to know the operation methods:



### Short cut keys on Live View page:

-  Menu: Go to the VP-022D settings page, which is the same settings page as the HTML site.
-  Pause: Freeze the videos.
-  Choose your required view to one or four split views. It's also represented on the channel changing button; you can switch to the following channels by clicking on this button too.

# PTZ Control Interface in Single Video Window

In the single video view, users can use the PTZ control button on the right hand side to control the camera's PTZ and preset.



# A

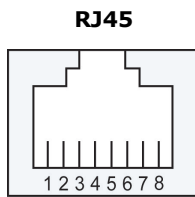
## Appendix

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The following topics are covered in this appendix:

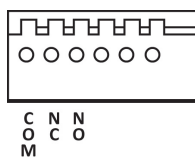
- ❑ **RS-485 Input and Output Pin Assignment**
- ❑ **Alarm I/Os**
- ❑ **Supported USB Flash Disk**
- ❑ **Restore to Factory Default**

# RS-485 Input and Output Pin Assignment



Terminal	Name
1	-
2	-
3	-
4	-
5	RS-485 - Out Link Keyboard
6	RS-485 + Out Link Keyboard
7	GND
8	12V + DC input

## Alarm I/Os



Pin 1	-
Pin 2	-
Pin 3	-
Pin 4	ALARM NO (normal open)
Pin 5	ALARM NC (normal close)
Pin 6	COM

## Supported USB Flash Disk

- Transcend: 8G, 16G
- Kingston: 4G, 8G, 16G
- SanDisk: 8G, 16G

Please formatting the USB device before using, and compatible system is NTFS.

## Restore to Factory Default

To restore the IP camera to the factory default, follow the below procedures:

1. Press the "Reset" button for 10 seconds before releasing.
2. The decoder will restart.
3. Access the decoder via the HDMI interface.
4. Enter the default username and password to login.