

# Premium H.264 DVR

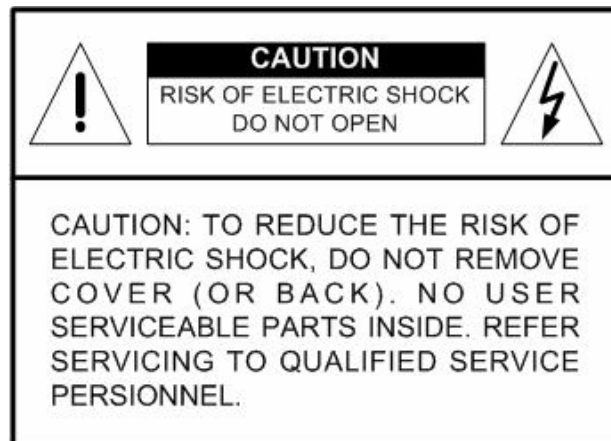
## **User's Manual**

Version 2.2



## Caution and Preventive Tips

- Switch the 115/230V selector to your local voltage standard
- Handle with care, do not drop the unit
- Mount the unit in an equipment rack or place it on a solid, stable surface.
- Indoor use only. Do not place the unit in a humid, dusty, oily, or smoky site.
- Do not place it in an area with poor ventilation or in an area close to fire or other sources of heat. Doing so may damage the unit as well as cause fire or an electric shock.
- When cleaning is necessary, shut down the system and unplug the unit from the outlet before uncovering the top cover. Do not use liquid cleaners or aerosol cleaners. Use only a damp cloth for cleaning.
- Always shut down the system prior connecting or disconnecting accessories, with the exception of USB devices.



This symbol intends to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



This symbol intends to alert the user to the presence of unprotected "Dangerous Voltage" within the product's enclosure that may be strong enough to cause a risk of electric shock.

## **Important Information**

Before proceeding, please read and observe all instructions and warnings in this manual. Retain this manual with the original bill of sale for future reference and, if necessary, warranty service. When unpacking your unit, check for missing or damaged items. If any item is missing, or if damage is evident, **DO NOT INSTALL OR OPERATE THIS PRODUCT**. Contact your dealer for assistance.

## **Rack Mounting**

Consult with the supplier or manufacturer of your equipment rack for the proper hardware and procedure of mounting this product in a safe fashion. Avoid uneven loading or mechanical instability when rack-mounting units. Make sure that units are installed to get enough airflow for safe operation. The maximum temperature for rack-mounted units is 40 °C. Check product label for power supply requirements to assure that no overloading of supply circuits or over current protection occurs. Mains grounding must be reliable and uncompromised by any connections.

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# 1. Overview

The Premium H.264 DVR is an integrated digital video recorder that combines the features of a time-lapse audio / video recorder, a multiplexer, and a video server to create a single security solution.

Its outstanding pentaplex operation enables users to view live video, search and playback any recorded video by date/time or event, remotely monitor the unit via internet on PCs or mobile devices, and backup the configuration and video data, MEANWHILE the recording of the DVR is ongoing simultaneously.

In addition to the new compression mode H.264, some of the Premium H.264 DVR is enhanced to provide MPEG-4 and MJPEG compression modes. Moreover, its distinctive hybrid solution supports the coexistence of network compatible IP devices and convenient analog connections. In addition to these sophisticated functions, another marvelous implementation is the brand-new experience of Graphical User Interface (GUI) that optimizes the monitoring controls of the unit.

The Premium H.264 DVR is pre-installed with remote viewing and configuration software, which is a Web-browser plug-in allowing users to view live or recorded video images, and enables remote configuration. The remote software is stored in the Premium H.264 DVR and deployed over a LAN, WAN or Internet connection to remote Windows-based computers. This simplifies the installation and maintenance of the software components so all remote users are using the same software coming from the unit.



## 2. System Setup

The notices and introduction on system installation will be described particularly in this chapter. Please follow the description to operate the unit.

In order to prevent the unit from data loss and system damage that caused by a sudden power fluctuation, use of an Uninterruptible Power Supply (UPS) is highly recommended.

### 2.1 Position the Unit

Firstly, note to position / mount the DVR in a proper place and be sure to power off the unit before making any connections. The placed location should avoid hindering or blocking the unit from airflow. Enough airflow is needed to protect the unit from overheating. The maximum allowable temperature of operating environment is 40°C.

The unit utilizes heat-conducting techniques to transfer internal heat to the case, especially to the bottom side of the unit.



**NOTE:** Be sure the rubber feet are not removed, and always leave a space for air ventilation on the unit's bottom side.

### 2.2 Select Video Format

The DVR is designed to operate under either NTSC or PAL video formats. The switch is positioned on the rear panel.



### 2.3 Connect Devices to the Unit

This section lists some notices that should be given before making any connections to the DVR.

#### **Connecting Required Devices**

Before powering on the unit, cameras and a main monitor should be connected to the unit for basic operation. If needed, connect a call monitor for displaying full-screen video of all installed cameras in sequence.

### **Connecting Short-term Device**

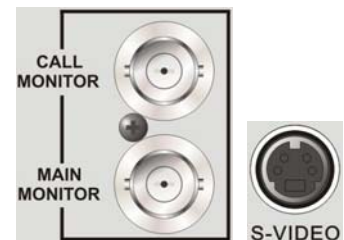
If any short-term devices shall be installed to the DVR as parts of the unit system, such as USB ThumbDrive® or any USB devices, etc., make sure those devices are connected only after the unit is powered on. The reason is because the DVR can recognize the external devices only after the power-on process is done completely.

## **2.4 Rear Panel Connectors**

There are various connectors on the rear panel for the DVR installations. The connectors are described as the followings.

### **Main Monitor (S-Video / BNC)**

Both S-Video and BNC output connectors are offered for connection to a main monitor. The main monitor displays live image and playback recorded video in full-screen or split-window format.



### **Call Monitor (BNC)**

The call monitor is used to display full-screen video of all installed cameras in sequence. The BNC call monitor connector allows user to connect the DVR with a call monitor.

### **VGA Output**

VGA output connectors are offered for connecting to VGA main monitors. Some models provide **one** while other **models** provide **two** VGA connectors.



### **Digital Output**

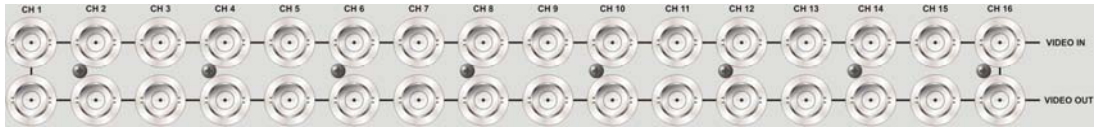
A digital output connector is provided for connection to a displaying device that transfers data digitally to show the best video quality.



**NOTE:** Refer to **Appendix E: Simultaneous Output Options** for detailed information about monitor functionality.

**Video Input**

A group of BNC connectors is offered for video input streams from installed cameras. The number of connectors is equal to the number of channels.



**Video Out**

Plenty of BNC connectors are positioned on the rear panel for looping out the video input.

**Main Audio Out**

The DVR provides a main audio out connectors for connection to an audio output devices, such as an amplified speaker.



**Audio In**

A terminal block titled “AUDIO IN” provides connections to audio source devices of all channels for the purposes of audio recording and two-way audio talk function as well. Refer to **Setup Guide** for detailed pin definitions.



**Alarm I/O & RS485**

The unit provides alarm I/O and RS-485 ports that offer users the flexibility required to connect the unit to the other device. The definition for pins varies when the DVRs have different channels. Refer to **Setup Guide** for detailed pin definitions.



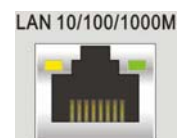
**NAS (Reserved)**

The NAS connector allows users to connect a Network Attached Storage (NAS) device to expand HDD capacity of the DVR.



**LAN 10/100/1000M (RJ-45)**

The DVR is capable of networking and it allows the videos to be viewed over the LAN network or the Internet by using the Internet Explorer.



**USB Connector**

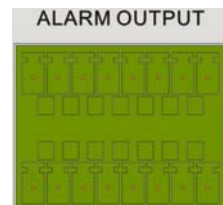
There is a USB2.0 port on the rear panel for users to connect external USB devices to the unit, such as ThumbDrive<sup>®</sup>, DVD+RW, or a USB mouse.

**e-SATA (Reserved)**

Users can connect an e-SATA storage device via this port to expand HDD capacity of the DVR.

**Alarm Output (Optional)**

This optional terminal block offers connections to four extra alarm output devices.

**Video Matrix (Optional)**

This optional D-Sub connector allows users to connect four extra call monitors.

**RS-232C**

The unit provides a RS-232C communication port for sending and receiving signals.

**Power Jack**

Connect the power supply cord shipped with the DVR.



**NOTE:** Use of other power supply cords may cause overloading.

## 3. General System Setup

Before operating the DVR, some general configuration should be setup first. The following subsections will introduce function keys on the front panel and general configuration of the DVR.

The regular displayed OSD information and its displayed positions are shown as following figure. Title of the channel will be displayed on the top-center of the gird, either in full-screen mode or in multiple channel mode. The current operation status and date/time information will be displayed in the status bar at the bottom of the screen. Move the cursor to any status bar icon and its description will be displayed. Refer to the **Setup Guide** for a list of status bar icons and their descriptions.

CH1	CH2
CH3	CH4
2010/12/09 04:31:22 PM	

### 3.1 Front Panel Introduction

The front panel controls enable users to control the unit and preset the programmable functions.

#### 3.1.1 LED Definition

The LEDs on the front panel of the DVR are described as follows.



##### **Network LED**

The LED lights up when the DVR is connected to a network and blinks when data is being transferred.



##### **REC LED**

The LED blinks while the DVR is recording.



##### **Alarm LED**

The LED lights up when an alarm is triggered.

## 3.1.2 Functional Keys

This section describes the functional keys, which are for normal operation, on the front panel of the DVR.

Please refer to the **Setup Guide** for the graphical illustration of functional keys.

### **POWER Key**

- After power cord is correctly connected, press this key to switch power on.
- Press and hold this key to quick shutdown the DVR.

### **CHANNEL**

- In both Live and Playback modes, press the CHANNEL key to view the corresponding video in full-screen. The number of the CHANNEL keys corresponds to the number of cameras supported by the unit.
- In Dome Control mode, the key “1” is used to access the Set/Go preset menu; the keys “11” ~ “16” are for quick access of preset points 1~6.

### **COPY/CALL**

- In Live mode, press this key once to control the call monitor.
- Alternatively, press and hold this key for 3 seconds to control the 2nd main monitor.
- In Playback mode, press this key to select the start and end time of the export video. Refer to section **Video Export** for detailed information.

### **IP**

Press this key and it will be lighted up. Then press channel keys to show full-screen display of IP Camera channels. Press this key again to exit IP Camera viewing mode, and the light of the key will be off.

### **DOME**

Press the key to enter Dome Control mode. Please refer to Section **Dome Control** for detailed controlling operation.

### **MODE**

Press repeatedly to select desired main monitor display format. According to the monitor displaying type, there are several available viewing modes: full-screen, 4-windows, 8-windows, 9-windows, 12-windows, 16-windows, and 20-windows. Refer to section **Viewing Modes** for detailed information.

## **PLAY**

Press this key to switch between live image and playback video.



**NOTE:** The video of latest 5 ~ 10 minutes cannot be played back because the video is still saved in the buffer.

## **FREEZE**

- Press FREEZE while viewing live image, the live video will be frozen. The date / time information shown on the monitor will continue updating, as well as the recording of video. Press FREEZE again to return to live mode.
- Press FREEZE while playing the recorded video, the playback video will be paused. Press LEFT / RIGHT to move the recorded video reverse / forward by single step. Press FREEZE again to continue playing video.

## **SEQ (Sequence)**

Press to start automatic sequence display of video from all installed cameras.

## **SEARCH**

In both Playback and Live mode, press SEARCH to enter the Search menu for searching and playing back recorded video by date / time, event, or text.

## **MENU**

Press this key to enter the OSD setup menu.

## **Direction Keys**

- In Zoom mode, these keys function as Direction keys.
- In the OSD setup menu, the LEFT / RIGHT keys are used to move the cursor to previous or next fields. To change the value in the selected field, press UP / DOWN keys.

## **ESC**

- Press to cancel or exit from certain mode or OSD setup menu without changing the settings made previously.
- When password protection is switched off, press ESC for five seconds to lock up the system. Press ESC for five seconds again to unlock.



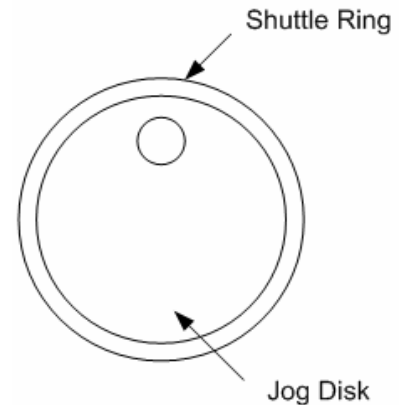
**NOTE:** Enter the OSD menu and go to <System> → <User Management> to enable or disable the password protection.

**ENTER / ZOOM**

- In OSD setup menu or selection interface, press this key to make the selection or save settings.
- In live full-screen viewing mode, press this key to view a 2× zoom image; press it again to return.

**JOG / SHUTTLE (for specified models)**

The jog/shuttle knob, shown as the figure on the right, is a combination of a shuttle ring with an embedded jog disk. It provides wide latitude in playback control. Note that the jog/shuttle knob is active only when the DVR is in Playback mode.



Please refer to **Appendix F: Jog / Shuttle Control** for further information.

## 3.2 Enter OSD Setup Menu

The configuration of the DVR can be customized through the intuitive Graphical User Interface (GUI) OSD setup menu. Collaborating with a USB mouse, setting up the DVR can be easy as operating on a PC. Press MENU and select an account to login.

The next step is to enter a corresponding password. The preset password for the administrator account “admin” is “1234”.



**NOTE:** It is strongly suggested to change the preset password to prevent unauthorized access to the unit.

An icon displayed at the status bar will show the authority level of the account. Under logout condition, the icon will be a guest icon. When an account is logged in, its authority level number (1~8) will be shown.

Before completely logout, other functions can also be accessed without having to login again. There are two ways to logout: manually logout by pressing ESC key at Live mode, or auto logout when keys are not pressed for 5 minutes at Live/ Menu mode.



### 3.2.1 User Management

The DVR provides the option to create up to seven sets of usernames and passwords with customized authority, excluding the preset “admin” account. From the Main Menu, select <System> → <User Management> and the menu is as the following.

User Management	
Password Protection	On
Account Setup	
Authority Setup	
Load Default Setting	No

#### **Password Protection**

Select <On> to request for username and password for accessing functions listed in Authority Setup menu, or select <Off> to allow free access.

#### **Account Setup**

Setup customized account, password, and privilege level in this menu. The account is case sensitive. The privilege level rank from level 1~8, and level 8 has highest privilege. Alternatively, select <Disable> to stop using the account. A second password can also be specified, if required.



**NOTE:** The username and privilege level of the preset administrator account “admin” cannot be changed.

#### **Authority Setup**

Setup the allowed authority level for accessing the functions listed in this menu. The functions include: Playback/Search, Covert Camera, Dome Control, Live Operation, Call Control, Export Data, Menu Access, System Setup, Monitor Setup, Camera Setup, Record Setup, Sequence Setup, Event Setup, Database Setup, Configuration, POS Setup, and Shutdown. The authority level rank from level 1~8, and level 8 has highest authority. Alternatively, select <Disable> to allow free access.



**NOTE:** The “Menu Access” cannot be set to <Disable>.

When the account does not have authority to access certain functions, an error message will be displayed on the screen.

#### **Load Default Setting**

Select <Yes> to load the default setting.

### 3.3 Power On / Shutdown the Unit

If the DVR must be shutdown for any reason, please use the proper shutdown and power on procedures to avoid damaging the DVR.

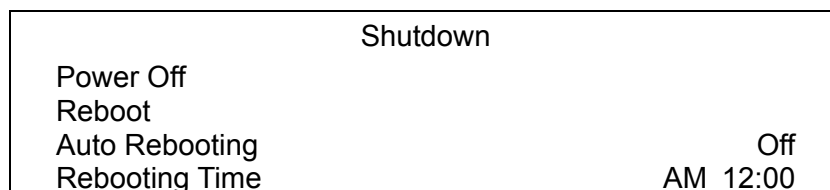
#### To Power On the Unit:

Check the type of power source before plug in the power cord to the DVR (the acceptable power input is between AC110V ~ AC240V), and power on the unit using the power key on the front panel.

The color bar and system checking information will be shown on the monitor and then disappear when the unit has been completely powered up.

#### To Restart / Shutdown the Unit:

Press MENU and input the username and password that has sufficient authority to access the OSD setup menu. Select <Shutdown> in Main Menu and press ENTER to enter the Shutdown menu, which displays as follows.



#### Power Off

Select this item to shut down the unit. Do not remove the power during shut down until the message "You can safely turn off DVR now!" displays.



**NOTE:** Press and hold the **POWER** key can also quick shutdown the DVR.

#### Reboot

Select this item to reboot the unit. The color bar and system checking information are displayed on the monitor until the unit is completely restarted.

#### Auto Rebooting

The **Premium H.264 DVR** series unit can be set to reboot automatically once a day/week at predetermined time in order to keep the DVR system more stable. Select <Off> to disable the auto rebooting function

### **Rebooting Time**

If the auto rebooting function is enabled, select a desired time to perform the auto rebooting function.

## **3.3.1 HDD Auto Scan**

When the DVR found file system error while recording, the DVR will reboot and HDD auto scan will be initiated. If by any chance auto scan failed, the HDD will need to be formatted.



**NOTE:** If users wish to initiate HDD auto scan function for abnormal power loss as well, enter the OSD setup menu via an authorized account and access <Database> to set <Repair On Power Loss> to <On>. HDD auto scan will be initiated every time the DVR powers on if it previously loss power abnormally or if there is file system error.

Read the following troubleshooting to finish the auto scanning process.

- **Skip Auto Scan:** During the scanning process, users can press any key to skip the process.
- **Time Expired:** When the scanning process took more than predetermined time (3hrs for 1TB HDD, 6hrs for 2TB HDD, etc), the scanning process is treated as failed and will be automatically terminated. The DVR will reboot.
- **Format HDD:** If the scanning process is failed, users will be prompted to confirm format of the HDD with error. When users confirmed to format the HDD with error, login of an authorized account is required if password protection is enabled. If users select cancel or do not respond within 5 minutes, the HDD with error will be marked as a NG HDD. A NG HDD will not be counted as a part of the DVR's database. It will just stay there doing nothing.
- **Recover NG HDD:** Enter the OSD setup menu via an authorized account and access <Database>. Then select <Internal Disks> and find the NG HDD from the list. Under <Action> column, first select <Format> to format the NG HDD. Then select <Add> to add the formatted HDD to the DVR's database.



**NOTE:** The above actions will be recorded in the system log data.

## 3.4 System Date / Time Setting

Users can set the current date, time and other OSD parameters in Date/Time menu (under System setup menu). The login account should have authority to access the System setup menu. In OSD setup menu, select <System> and press ENTER, then select <Date/Time> to access the Date/Time menu; the menu displays as follows.

Date/Time	
Date	2010/12/07
Time	PM 10:39:26
Time Zone	Off
Date/Time Display	1 Row
Date Display Mode	Y/M/D
Time Display Mode	12 HR
Daylight Saving Time Setup	
Network Time Protocol Setup	

### 3.4.1 Set Date / Time

#### Set Date / Time

Select <Date> or <Time> and press ENTER for adjusting the settings. LEFT / RIGHT keys are used to move the cursor to previous or next field, ENTER is for selecting, and UP / DOWN are used to change the value in the selected field.



**NOTE:** The new date / time setting applies to record new video. The date and time of previously recorded video will not be changed.



**NOTE:** If time settings have to be changed in any case, it is strongly recommended to format the HDDs to avoid database corruption.

#### Date / Time Display

Users are allowed to set the time OSD displays in 1 row or 2 rows. Use the UP / DOWN keys to change the setting.

**Date Display Mode**

This function allows user to set the OSD display type of the date. There are three options to select from: <Y/M/D>, <M/D/Y> or <D/M/Y>. “Y” represents “Year”, “M” represents “Month” and “D” represents “Day”.

Move to the item and press ENTER, the option starts blinking. Use UP / DOWN keys to change the setting.

**Time Display Mode**

User can set the time format to <12 HR> or <24 HR>. Use the UP / DOWN keys to change the format.

## 3.4.2 Daylight Saving Time

**Daylight Saving Time**

The item is for people who live in certain regions to observe Daylight Saving Time. Select <On> to enable, or <Off> to disable the function.

If the function is disabled, the DST Start / End time and DST Bias will be grayed out and cannot be accessed.



**NOTE:** If this function is enabled, the date/time information will be shown on the screen with a DST icon when playing back recorded video or searching video in the event list. “S” indicates summer time and “W” indicates wintertime.

**DST Start / End**

The items are used to program the daylight saving duration. Use LEFT / RIGHT keys to move the cursor to the next or previous field, UP / DOWN to change the settings in the selected field.

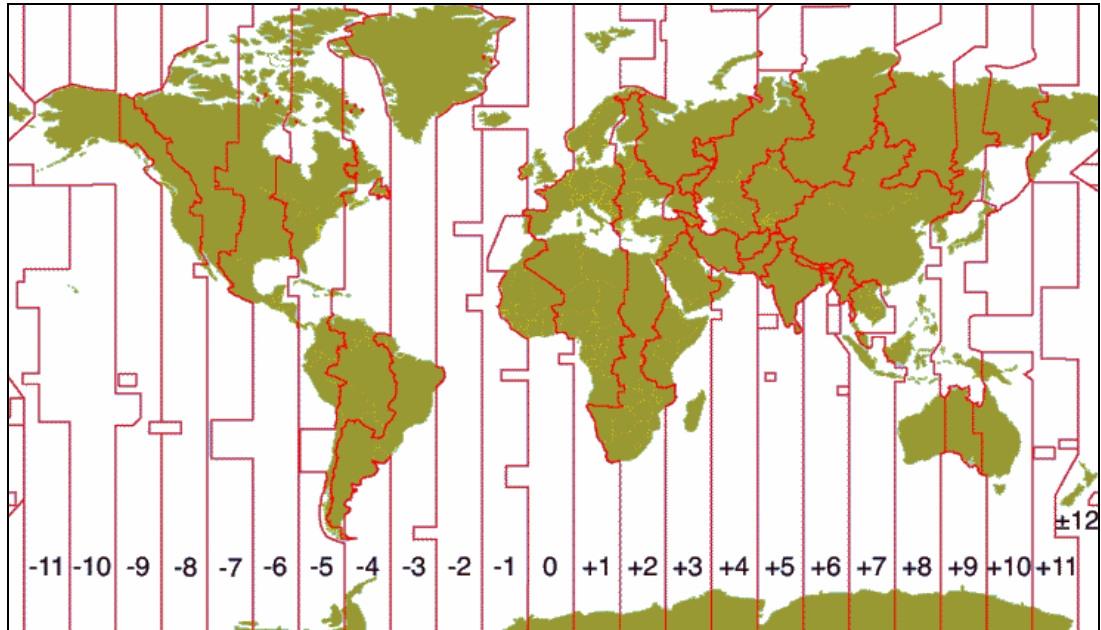
**DST Bias**

The item allows user to set the amount of time to move forward from the standard time for daylight saving time. The available options are in minutes.

### 3.4.3 Network Time Protocol Setup

#### Time Zone

Select **<Time Zone>** to enter the time zone. To find out the correct local time zone, please visit [www.greenwichmeantime.com](http://www.greenwichmeantime.com) or refer to the following figure.



**NOTE:** The **<Time Zone>** must be set to the correct local time zone or the **<Network Time Protocol Setup>** will not be accessible.

#### Network Time Protocol Setup

After entering the time zone, the **<Network Time Protocol Setup>** option will appear. Select the **<Network Time Protocol Setup>** to set the NTP server. The default NTP server is time.nist.gov, but the user can change it to other NTP servers when desired. A list of IP addresses of the NTP servers is listed below.

129.6.15.28	129.6.15.29	132.163.4.101
132.163.4.102	132.163.4.103	128.138.140.44
192.43.244.18	131.107.1.10	69.25.96.13
206.246.118.250	208.184.49.9	64.125.78.85
207.200.81.113	64.236.96.53	68.216.79.113

After the time server is set, select **<Yes>** for **<Manually Time Sync>** to sync the time immediately. The time sync can also be updated periodically. Select **<On>** for **<Automatically Time Sync>**, and the time will be automatically synced once an hour.

## 3.5 IP Camera Setting

The distinctive hybrid solution of the DVR enables users to connect IP camera(s) while others are analog cameras. First enter the OSD setup menu with an authorized account and access <System> → <IP Camera Support> to select the number of IP cameras to be connected. The preset is 4, which added 4 extra channels to the DVR's maximum supported camera connections. When <IP Camera Support> is set to 5 or above, the supported channels will be from the largest numbers (e.g. CH16 for 16ch models).



**NOTE:** The DVR must be rebooted in order to apply the change of IP Camera Support option.

To configure setting of an IP camera, access <Camera> and select the channel with the largest number. The menu will be shown as follows.

IP Camera	
IP Camera Select	CH20
IP Camera Title	CH20
IP Camera Covert	Off
Device Search	
Hostname/IP	X.X.X.X
Model	ONVIF
Connection Setup	
Device Setup	
Activated	No
Status	
Copy Settings	



**NOTE:** If the IP camera is already activated, items <Device Search>, <Hostname/IP>, <Model>, <Connection Setup>, and <Copy Settings> will be grayed out and cannot be accessed.

### 3.5.1 IP Camera Information

#### **IP Camera Title**

Access this item to enter the name of the IP camera to be shown on the monitor.

#### **IP Camera Covert**

If users want to hide the display of image from the IP camera, select <On>. Note that the display in the remote monitoring software will also be hidden. Otherwise select <Off> and the live image will be shown on the monitor.

**Device Search**

Select this item and press ENTER to automatically search for IP cameras installed in the same LAN network to the DVR. If the IP cameras are ONVIF devices, "Brand Name/Onvif" will be shown under the "Brand" column.



**NOTE:** If the model is selected as <ONVIF> in advance to starting device search, the search result will only show ONVIF devices.

**Hostname/IP**

Access this item to enter the hostname or IP address of the IP camera, for example 192.168.1.123.

**Model**

Access this item to select the model of the connected IP camera.

## 3.5.2 Connection Setup

Enter <Connection Setup> to configure the connection and data transmission setting of the connected IP Camera. The menu will be shown as below.

Connection Setup	
Account	Admin
Password	****
Management Port	80
Streaming Format	MJPEG
I-frame Only Mode	Off
Advance Streaming Option	Off
Streaming Port	554
Streaming Protocol	RTP+RTSP
IP Dome Protocol	None
IP Dome ID	0

**Account / Password**

Access these two items to enter a valid account name and password of the connected IP camera.

**Management Port**

Access this item to enter the default port of the IP camera.

**Streaming Format**

Access this item to select the streaming format, <MPEG4>, <MJPEG> or <H264>, of the IP camera. Note that the streaming format for ONVIF devices will be automatically selected by the DVR, with the priority as H.264 > MJPEG > MPEG4.



**I-frame Only Mode**

Users can select <On> for this item to limit the Live display to 1PPS to avoid DVR overloading when the IP camera sends excessive data. The recorded video will not be affected. This item will be accessible only when the streaming format is set to <MPEG4> or <H.264>.



**NOTE:** The DVR will automatically switch to I-frame mode when excessive data is received.

**Advance Streaming Option**

Select <Off> and the Streaming Port and Streaming Protocol will be set automatically according to the camera model selected. Alternatively, select <On> to manually set the Streaming Port and Streaming Protocol.

**Streaming Port**

Access this item to enter the streaming port, for transmitting video and related commands, of the IP camera.

**Streaming Protocol**

Access this item to select the streaming protocol of the IP camera. The option includes <RTP+RTSP>, <RTP/RTSP>, <RTP/RTSP/HTTP>, and <HTTP>.



**NOTE:** Please contact manufacturer of the IP camera for assistance if the IP camera's Management Port / Streaming Port / Streaming Format / Streaming Protocol are unknown.

**IP Dome Protocol / IP Dome ID**

If the connected device is an IP Dome Camera, then select an appropriate IP Dome Protocol from the provided options and setup its Dome ID.

### **3.5.3 Device Setup**

Enter <Device Setup> to configure the basic settings of the IP camera. The basic settings include the IP camera's product name, image quality, image adjustment, etc. Set the item <Apply> to <Yes> to apply the changes.



**NOTE:** The <Device Setup> menu may have fewer or more menu items according to different IP camera models.

### 3.5.4 Activated

Access this item and select <Yes> to activate the connection to the IP camera. To deactivate the connection, select <No>.



**NOTE:** Once the connection to the IP camera is activated, menu items <Device Search>, <Hostname/IP>, <Model>, <Connection Setup>, and <Copy Settings> will be grayed out and cannot be accessed.

### 3.5.5 Status

After the connection to the IP camera is activated, users can check the connection status. The menu will be shown as below.

Status	
Model	ONVIF
Streaming Format	H264(MP)
Resolution	1280×720
PPS	30.00
Bandwidth	511.37 KB/Sec
Pkg. lost rate	0.00%

The information shown on the monitor is “read only”.



**NOTE:** For an example of step-by-step IP camera setup, please refer to [Appendix G: IP Camera Installation](#).

### 3.5.6 Copy Settings

This item allows users to copy the settings set on the current selected camera to any other connected cameras. Enter this menu and select one or more cameras to copy the settings. Then select <CONFIRM> to apply the settings.

Copy Settings							
COPY TO:							
01	02	03	04	05	06	07	08
09	10	11	12	13	14	15	16
17	18	19	20				
SELECT ALL		DESELECT ALL		CONFIRM		CANCEL	



**NOTE:** IP camera settings can only be copied to IP cameras, while analog camera settings can only be copied to analog cameras.

## 3.6 Record Schedule / Quality Setting

The Record setup menu allows users to set recording quality, recording schedules, and other recording parameters. Login with a proper account to access Record setup menu. In the Main menu, move the cursor to <Record> and press ENTER; the following menu is displayed.

Record	
Record Mode Setup	
Schedule Setup	
Preset Config	Best Quality
Per Camera Config	
ezRecord Setup	
Data Lifetime Setup	
Pre-Alarm Recording	15 Sec
Circular Recording	On
Audio Recording	On
Purge Data	

### 3.6.1 Schedule Setup

The Schedule Setup is used to set the day and night time, or weekend recording schedule. Select <Schedule Setup> from the Record setup menu and press ENTER; the following menu is displayed.

Schedule Setup	
Day Time Start	AM 06:00
Day Time End	PM 06:00
Night Time Start	PM 06:00
Night Time End	AM 06:00
Weekend Schedule	On
Weekend Start	Fri PM 06:00
Weekend End	Mon AM 06:00

- Make appropriate changes of the start time of Day and Night Time using Direction keys.
- Press ENTER to confirm the settings or ESC to cancel.
- If a weekend record is required, select <On> to enable the Weekend Schedule in advance and then set the Weekend Start/End time.
- Press ESC to return to previous page.

### 3.6.2 Preset Record Configuration

The <Preset Config> is used to select the preset recording quality and frame rate. In normal circumstances, it is strongly recommended to set the preset configuration as <Best Quality>. Below table shows the PPS and picture size under <Best Quality> in Half-D1 mode. Please refer to OSD Setup Manual, Section **Preset Record Configuration** for further information.

Half-D1 mode (NTSC: 720×240@240PPS; PAL: 720×288@200PPS)			
Normal PPS	Normal Size	Event PPS	Event Size
15 NTSC (12.5 PAL)	12 KB / Pic	30 NTSC (25 PAL)	12 KB / Pic

### 3.6.3 Per Camera Configuration

This function is used to set the Day / Night / Weekend PPS (Picture per Second) and Quality for each channel. The Preset Configuration must be set to <OFF> for accessing these schedules. The menu is displayed as below (Record Mode: 720×240@240PPS in NTSC / 720×288@200PPS in PAL).

Per Camera Config				
Cameral Select				CH1
	Day	Night	Weekend	
Normal PPS	15	15	15	
Normal Qlty	Mid	Mid	Mid	
ABR (KByte)	72	72	72	
Event Max PPS	30	30	30	
Event Qlty	Best	Best	Best	
Event Act	Both	Both	Both	

- First, select a Camera for setting its record configuration. The image and recording settings from the selected camera will be shown on the screen.
- Move the cursor using Direction keys and press ENTER to select an item.
- Change the value using UP / DOWN keys.
- Press ENTER to confirm the settings or ESC to abort.
- <ABR (KByte)> is a “read-only” information showing the Average Bit Rate.
- Press ESC to return to Record setup menu.



**NOTE:** For V and U models, two extra menu items will be displayed to allow users to individually setup resolution of normal and event videos.

Please note that the total normal PPS for all channels cannot exceed 240 NTSC (720×240@240PPS) / 200 PAL (720×288@200PPS). To increase one channel's PPS, others' may have to be reduced first. Event PPS is not restricted to this rule, since a smart event scheduler will handle the total PPS with a correct weighting.

### 3.6.4 Record Event Video Only

If the DVR shall start recording only when alarms are triggered, follow the steps below:

- Enter the OSD setup menu with an account with appropriate authority.
- In the OSD setup menu, select <Record> menu. Move the cursor to the item <Preset Config>, and select <Event only>.

Refer to OSD Setup Manual, Section **Preset Record Configuration** for further information.

### 3.6.5 ezRecord Setup

This item aims to ease the complicated record settings, and to make the setup much easier. Note that the item can be reached only when <ezRecord> is selected as the option for <Preset Config>.

Select <ezRecord Setup> from <Record> and press ENTER, the sub-menu appears as below figure:

ezRecord Setup	
How Many Days To Record	11 Days
Daytime Record	Yes
Night Record	Yes
Weekend Record	Yes
Average Normal PPS	30
Average Normal Quality	Best
Day ABR (KByte)	0
Night ABR (KByte)	0
Weekend ABR (KByte)	0

Follow these steps to setup ezRecord:

- Select <How Many Days To Record> and press ENTER, then press UP/DOWN to choose an option. The average normal PPS & Quality will be adjusted automatically. The maximum of days depends of the size of the installed HDD(s). In other words, the larger the size of the HDD installed, the more days the unit can record.

- Move to <Daytime Record> and press ENTER. This item will determine whether the DVR will record during daytime. If yes, use UP/DOWN to select <Yes> as to enable daytime recording; or select <No> to disable.
- Repeat the same procedures through the 3rd and 4th item, respectively. Note that <Weekend Record> will be inaccessible if <Weekend Schedule> in <Schedule Setup> is set to <No>.
- Select <Average Normal PPS> and press ENTER, then press UP/DOWN to make a choice. The <How Many Days To Record> will be computed automatically.
- Select <Average Normal Quality> and press ENTER, then press UP/DOWN to make a choice. The <How Many Days To Record> will be computed automatically.
- Day/ Night/ Weekend ABR (KByte) are “read-only” information showing the Average Bit Rate of day/night/weekend recording.



**NOTE:** The current number of connected cameras will affect the recording quality automatically calculated through the <ezRecord Setup>. Therefore, once the number of connected cameras is changed, the <ezRecord Setup> should be reset.

### 3.6.6 Data Lifetime Setup

Data Lifetime indicates the duration that a video is saved and recallable in the HDD. Only those video recorded within Data Lifetime can be displayed on the screen and played back. The video exceeded Data Lifetime will be hidden and cannot be retrieved for playback.

Data Lifetime Setup	
Data Lifetime Mode	General
Data Lifetime	0 Days
Data Lifetime By Day	
Data Lifetime By Channel	



**NOTE:** To play back a video exceeding the data lifetime, please extend the duration until the recording data / time of the video is included.

#### **Data Lifetime Mode**

This item allows the user to choose preferred data lifetime mode. There are three types of data lifetime mode: General, By Day, and By Channel. When a specific mode is selected, further settings of the other two items below will be grayed out and cannot be accessed.

**Data Lifetime**

When data lifetime mode is set as <General>, this item will be accessible. Press ENTER to select this item and press UP / DOWN keys to set the data lifetime. The value ranges from <1> to <365> days. Alternatively, select <0> to disable this function.

**Data Lifetime By Day**

When data lifetime mode is set as <By Day>, this item will be accessible. Enter this menu and users can setup data lifetime of each weekday independently. The value ranges from <1> to <365> days. Alternatively, select <0> to disable this function.

**Data Lifetime By Channel**

When data lifetime mode is set as <By Channel>, this item will be accessible. Enter this menu and users can setup data lifetime of each channel independently. The value ranges from <1> to <365> days. Alternatively, select <0> to disable this function.

### **3.6.7 Pre-Alarm Recording**

This item is for setting recording duration of pre-alarm video. The pre-alarm recording function aims to allow users to playback a complete event video. Users can playback not only the video recorded after the alarm is triggered, but also the video recorded few seconds before the alarm is triggered.

When an event is triggered while normal recording is in effect, the unit will start copying the pre-alarm and the post-alarm video to the event video. The pre-alarm duration can be set from 0~30 seconds.

The quality of the pre-alarm video is the same as the quality setting for normal record video; and the quality of the post-alarm video is the same as the quality setting for event record video.

### **3.6.8 Circular Recording**

Users can choose to record video in circular mode or in linear mode. If circular mode is selected, the DVR will stores new video into the HDD spaces while overwrite the oldest recorded video. Alternatively, if linear mode is selected, the DVR will stop recording when the HDD is full. In the meantime, the internal buzzer will start beeping and an alert icon will be shown at the status bar to inform users that the disk is full.

From the Record setup menu, move the cursor to <Circular Recording> and press ENTER, then select <ON> / <OFF> using UP / DOWN keys.

### 3.6.9 Audio Recording

This item allows user to enable / disable Audio recording function of the unit. When it's set to <On>, audio input is recorded and saved with the video. When it's set to <Off>, audio is ignored.

### 3.6.10 Purge Data

This item is used to delete the Normal or Event recording video. In Record setup menu, move the cursor to <Purge Data> and press ENTER; the Purge Data menu is displayed.

Purge Data	
Purge All Data	No
Purge All Event Data	No
Purge Event Before	2010/12/01
Start To Purge	No

#### **Purge All Data**

The item is used to delete all recorded video from the database. Set this item to <Yes> using UP / DOWN keys, and start the deletion by setting <Start To Purge> to <Yes>.

#### **Purge All Event Data**

The item is used to delete all event video from database(s). Using UP / DOWN keys to select <Yes> and start the deletion by setting <Start To Purge> to <Yes>.

#### **Purge Event Before**

The item is used to delete event video before a specific date. Use LEFT / RIGHT keys to move the cursor to next or previous field, ENTER to select the item and UP / DOWN to adjust the value.

#### **Start To Purge**

After the video or data to be deleted are selected, set this item to <Yes> to start the deletion or choose <No> to cancel.



## 3.7 POS Setup

The <POS> function provides a connection between the DVR and a Point-of-Sale (POS) device, such as a cash register. With this function, the financial transaction data can be linked to specific camera images and recorded to the DVR. To enable this function, enter OSD setup menu with proper account, and select <POS>. Press Enter and the following OSD setup menu will show up.

POS	
POS Function	On
POS Overlay	Live & PB
Exception POS Setup	
Input Setup	

### 3.7.1 POS Function

This item is used to enable/ disable this function. Select <On>, the text database will be created on the hard disk.

### 3.7.2 POS Overlay

Users can decide when the POS overlay should be displayed on the monitor. Select <Live> to display the POS overlay in Live mode; select <PB> to display the POS overlay in Playback mode; or select <Live & PB> to display in both modes.



**NOTE:** POS overlay will only be displayed in full-screen mode.



**NOTE:** PB overlay is available only under ×1 PB speed.

### 3.7.3 Exception POS Setup

This sub-menu is used to define the conditions that are to be treated as an "Exception" and thus trigger an action (the function will be implemented later).

Exception POS Setup	
Exception No.	1
Trigger	On
Exception String	NO SALE
By Numerals	Off
Value	
Value (Upper Limit)	

#### Exception No.

Select a number to set the exception parameters. The total is 16 exceptions.

#### Trigger

Select <On> to monitor if transactions satisfy exception parameters. Once an exceptions is found, alarm will be triggered.

#### Exception String

Users can define Exception String. The "Exception String" is case-sensitive. Only exactly matched ones will be marked as exceptions.

#### By Numerals

"Exception String" must be defined before "By Numerals" takes effect. If "By Numerals" is enabled, only transactions which meet both "Exception String" and "By Numerals" criteria will be marked as exceptions.

The selections are as the following:

**<OFF>**: The function is disabled.

**<Specific>**: When the value of a transaction meets a specific value, it will be marked as an exception. That specific value need to be defined in the following sub-setting <Value>.

**<Greater Equal Than>**: When the value of a transaction is greater then or equal to a certain value, it will be marked as an exception. That specific value need to be defined in the following sub-setting <Value>.

**<Less Equal Than>**: When the value of a transaction is less than or equal to a certain value, it will be marked as an exception. That specific value need to be defined in the following sub-setting <Value>.

**<Inside The Range>**: When the value of a transaction is within a certain range, it will be marked as an exception. The range need to be defined in the following sub-setting <Value> and <Value (Upper Limit)>.

**<Outside the Range>**: When the value of a transaction is beyond a certain range, it will be marked as an exception. The range need to be defined in the following sub-setting <Value> and <Value (Upper Limit)>.



**NOTE:** Transactions will be marked as exceptions in text database only when: (1) “Exception Strings” and “By Numerals” are set and (2) “Trigger” is <ON>. The data stored before hand will not be marked as exceptions.

### 3.7.4 Input Setup

This item is used to configure the connection settings of the POS device.

Input Setup	
Port Selection	Serial Port
Input Source	Direct Connected
Camera Selection	1
Text Filter	ASCII
Manual Filter Setup	
Input Process	Canonical
Text Baud Rate	9600
Text Bits	8
Text Stop	1
Text Parity	None

#### **Port Selection**

It is essential to select a correct port for the POS device. Meanwhile, make sure the POS device is connected to the port selected.

#### **Input Source**

Select the input source of the POS device, either direct connected or connected with the Data Converter.

#### **Camera Selection**

Select a camera to display the text overlay.

### **Text Filter**

This item is used to choose the text filter. The supported models for pole display and printer are listed as below.

<b>Pole Display</b>	<b>Printer</b>	<b>POS Machine</b>
Cache Technology VFD-202T	Citizen CBM-1000 II	Acula AQ-812
Citizen C2202	Citizen CT-S300	IBM SurePOS 700
Digipos CD5220	Dell T200	Samsung ER-380M
Emax Pole Display	Epson TM-T88II/TM-T88III/TM-T88IV	Samsung ER-655
Epson DM-D Series	Epson TM-T90	Senor POS
Logic Controls LD9000	Epson TM-930 II	
Logic Controls PD3000	Epson RP-U420	
Logic Controls PD6000	IBM SureMark TF6	
Logic Controls TD3000	IBM SureMark TM6	
Magellan	Ithaca iTherm 280	
Partnertech CD5220	Ithaca POSJet 1000	
Posiflex ICD-2002	POS-X Xr500	
Posiflex PD 302	Samsung SRP350	
Posiflex PD 303	Sensor TP-288	
Posiflex PD-2100	Star TSP100 futurePRNT	
Posiflex PD-2200	Star TSP600	
POS-X Xp8000	Star TSP700	
Scales	Star TSP800	
Sibnet	TPG (Axiohm) A794	
STAR SCD400-PD	WP-520(ESC/POS)	
Soteke VFD2025		
Soteke VFD2029		
TEC		
Toledo 8217		
TYSSO VFD Series		
Ultimate Technology PD1100XL		
Wedderburn DS-770		

### **Manual Filter Setup**

Once enter the Manual Filter Setup menu, users should key in hexadecimal digits. The menu of the item is shown as follows.

Manual Filter Setup	
Header 1	30
Header 2	30

### **Input Process**

If a pole display from a PC based POS device will be used, select <Canonical>. <Non-Canonical> is to be selected when using a Pole Display from a Standalone POS device.

### **Text Baud Rate, Bit, Stop, Parity**

These are used to setup the baud rate, bit, stop, and parity of RS232 which connects the POS device and DVR.

## 4. Basic Operation

The DVR allows users to access some general operations through the front panel easily. The following sections introduce the general operations.

### 4.1 View Live / Playback Video

The general functions in Live and Playback mode are described in the following sections.

#### 4.1.1 Viewing Modes

The DVR provides versatile ways of viewing both live and recorded video. The following presents these viewing modes.

##### Viewing in Full-Screen

Press any CHANNEL key directly to view the corresponding camera image in full-screen mode. In addition, press IP key first and then press channel keys to view full-screen display of IP Camera channels. Press IP key again to exit IP Camera channels viewing mode.

##### Viewing in Multi-Windows

Various multi-windows viewing modes are offered for selection. Press MODE repeatedly to switch among available viewing modes. The viewing modes are different when simultaneous output is enabled or disabled.

When simultaneous output is enabled, the available viewing modes are illustrated as the following figure. Press MODE repeatedly to switch to the next available viewing modes.

1	2
3	4

4-windows

1	2	3
4	5	6
7	8	9

9-windows

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

16-windows



**NOTE:** 9-windows mode is only available in 8ch models and 16ch models; while 16-windows mode is only available in 16ch models.

When simultaneous output is disabled, in addition to the above three viewing modes, the following figure shows four more available viewing modes. Press MODE repeatedly to switch to the next available viewing modes.

1	2
3	4

4-windows

1	2	5
3	4	6
		7
		8

8-windows

1	2	3	4
5	6	7	8
9	10	11	12

12-windows

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20

20-windows



**NOTE:** 12-windows mode is only available in 8ch and 16ch models, while 20-windows mode is only available in 16ch models.

## 4.1.2 Digital Zoom

Users are able to view a 2× full-screen in live and playback mode. To view the 2× full-screen, follow the steps.

- Press any CHANNEL key to view the corresponding camera in full-screen.
- Press ENTER to view 2× zoomed screen of the selected camera.
- To view a specific area in 2× zoomed screen, use Direction keys to pan / tilt the zoomed screen.
- Either press ENTER again or press ESC to leave the Zoom mode.



**NOTE:** For IP cameras, digital zoom function will be unavailable when viewing live video or when playback with simultaneous output function enabled.

### 4.1.3 View Live Cameras

Users are allowed to view live camera in versatile viewing modes. The general operation under live mode is described as follows.

#### Freeze Live Image

Press FREEZE while viewing live image, the image pauses but the date / time information does not, and the system clock continues running.

Press FREEZE to pause the live image; press FREEZE again to resume the live camera view.

### 4.1.4 View Recorded Video

To view recorded video, users can press PLAY key directly. After pressing the PLAY key, the DVR starts to resume playback the recorded video from the suspended point of record. If it is the first time to use the PLAY key, the DVR will playback from the very beginning of the record. Alternatively, users can select records from the Search menu to playback specific video. Refer to section **Search Recorded Video** for further information.

The Forward or Reverse playback speed indicator will be shown in the status bar during Playback mode.

The general operations in playback mode are described as follows.

#### Key Usage in Playback

The key usage is slightly different in Playback mode. Following is the key usage found in playback mode.

- **LEFT** (Reverse Playback)  
Press this key to reverse playback the recorded video. Press the key repeatedly to increase the speed of reverse playback by 1×, 2×, 4×, 8×, 16×, or 32×.
- **RIGHT** (Forward Playback)  
Press this key to playback the recorded video fast forward. Press the key repeatedly to increase the speed of forward playback by 1×, 2×, 4×, 8×, 16×, or 32×.

- **FREEZE**

Press FREEZE to pause the playback video. When the recorded video is paused, press LEFT / RIGHT to move playback video single step reverse / forward respectively. Press FREEZE again to resume playback video.

- **PLAY**

Press it to start playing back video or stop playing back video and return to live mode.

### **Pause Playback and Single Step Forward**

To pause and resume recorded video, follow these steps.

- Press any CHANNEL key to view the corresponding camera in full-screen.
- Press FREEZE to pause the current playback image.
- Press RIGHT / LEFT Direction keys to move the video single step reverse / forward. Press and hold RIGHT / LEFT keys to repeatedly reverse / forward the video single step.
- Press FREEZE again to resume the playback operation.

## **4.1.5 Taking Snapshots**

When a playback video of a single channel display is paused, users can press ENTER key to capture and export snapshots to an external storage device, excluding optical drives. Note that the system log will keep a record of any snapshot exportation.

## **4.2 Sequence Setup**

This section introduces the way to view sequence mode with the Main Monitors and Call Monitor, if connected. Sequence function can avoid manual backtracking and provides more flexibility while monitoring surveillance.

### **4.2.1 Sequence with Main Monitor (1st and 2nd)**

Automatic sequence function can be observed in any viewing modes, except the viewing mode that already displayed all channels. Select certain viewing mode and press SEQ to toggle the automatic sequence. Press ESC to stop.



## 4.2.2 Sequence with Call Monitor

Two different modes can be displayed on the call monitor: Sequence display and Single camera display. To setup sequence schedule of the call monitor, see OSD Setup Manual, Section **Sequence Setup**.

Follow the steps to control display of the call monitor.

- Press the CALL key on the front panel to enter call monitor control mode. The icon representing “Call Mode” will be shown in the status bar.

Press 1-16 Key To Select Channel  
Press SEQ Key To Enable Sequence

- Press a CHANNEL key to display the selected camera on the call monitor.
- Alternatively, press SEQ repeatedly to display the sequence of cameras previously programmed in Call Monitor Schedule menu.
- Press ESC/CALL to return the front panel to Main monitor control mode.



**NOTE:** The call monitor cannot show videos from IP cameras.

## 4.3 Search Recorded Video

The DVR is capable of searching and playing back recorded video by date / time, events, or text. To search by time, select a specific date and time of the wanted video or enter Calendar Search. To search by event, select channels to display the event list. In Live or Playback mode, press SEARCH to enter the Search menu.

Search

Search By Time-----

From: 2010/12/07 PM 04:45:36

End: 2010/12/08 AM 08:15:12

Select: 2010/12/08 PM 04:45:36

Begin Playback

Calendar Search

Smart Search

Search By Event-----

Select Channel: CH1 CH2 CH3 CH4  All

Event List

Search By Text -----

Text Query Page



**NOTE:** “Search By Text” only functions when a POS machine is connected and text data is stored.

### 4.3.1 Search by Time

Follow the steps to search video by date and time.

- Press SEARCH to enter the Search menu.
- Move the cursor to "From" and press ENTER will start playing recorded video from the specified "From" time.
- Move the cursor to "End" and press ENTER will start playing recorded video from the specified "End" time.
- Move the cursor to "Select" and press LEFT/RIGHT keys to choose date/time. Press ENTER and adjust the values by UP/DOWN keys.
- Press ENTER to confirm the settings or ESC to abort.
- Move the cursor to <Begin Playback> and press ENTER to start playing back the selected video.
- Press PLAY again to return to live video.



**NOTE:** If there is no available recorded video that matches the specified time and date, the unit starts to playback from the next available video.



**NOTE:** The date/time information will be shown on the screen with a DST icon if the Daylight Saving Time function is enabled. "S" indicates summer time and "W" indicates winter time.

### 4.3.2 Calendar Search

Follow the steps below to search recorded video via Calendar Search.

- Press SEARCH button to enter the Search menu.
- Move the cursor to <Calendar Search> and press ENTER. A calendar will be shown as below.

Calendar Search

Date/Time -----

← December 2010 →							
	Sun	Mon	Tue	Wed	Thu	Fri	Sat
48	28	29	30	1	2	3	4
49	<b><u>5</u></b>	<b><u>6</u></b>	<b><u>7</u></b>	<b><u>8</u></b>	<b><u>9</u></b>	<b><u>10</u></b>	<b><u>11</u></b>
50	<b><u>12</u></b>	13	14	15	16	17	18
51	19	20	21	22	23	24	25
52	26	27	28	29	30	31	1
1	2	3	4	5	6	7	8

Search By Time -----

From/End From End

Select 2010/12/07 PM 10:34:18

Begin Playback

- Move the cursor to year/ month and press ENTER. Then press UP/DOWN keys to adjust the value and press ENTER again to confirm.
- Move the cursor and press ENTER to select any date shown in bold and underlined font. The bar below the calendar will change according to the recorded data of the selected date.
- Then select preferred time from the time bar. Alternatively, move the cursor to the time shown at the bottom. Press ENTER and adjust the values of hour/ minute/ second via UP/DOWN keys.
- The <From> and <End> buttons allows users to playback video from the beginning or end of the database.
- Note that the time blocks highlighted in red represent events occurred.
- Select <Begin Playback> and press ENTER to start playing back selected video.

### 4.3.3 Smart Search

Smart Search allows users to search for recorded videos according to specific date/time, channel, and monitoring area. Follow the steps below to search recorded video via Smart Search.

- Press SEARCH button to enter the Search menu.
- Move the cursor to <Smart Search> and press ENTER. The Smart Search menu will be displayed as below.

Smart Search	
From:	2010/12/07 AM 11:21:42
End:	2010/12/07 PM 11:36:42
Select Channel	CH01
Select Search Area	
Search Sensitivity	77%
Search Threshold	50%
Interval	60 Sec
Smart Search List	

- Specify the From/End time to search for recorded video within the period.
- Choose a channel for smart search.
- Setup the monitoring area following the special operation described in **Appendix C: USB Mouse Operation**.
- Specify detection sensitivity and threshold according to environment and required application.
- The time interval specified here will be time segment of smart search. That means, if the total time period is 10 minutes, and the time interval is 60 seconds, then there will be 10 time segments. Therefore, if video satisfied the smart search criteria is found in the 4<sup>th</sup> segment, only the 4<sup>th</sup> segment video will be reported on the Smart Search List.
- When the criteria are all set, select <Smart Search List> and press ENTER to start the smart search.

When the Smart Search List is displayed, use Direction keys to scan through the list. Press ENTER to playback any desired item, or press ESC to exit the list.

### 4.3.4 Search by Event

“Event List” allows users to search wanted video by event. The Event List is displayed as below:

Event List		
Date Time	Ch	Type
2010/12/07 AM 11:26:50	2	Motion
2010/12/07 AM 11:53:03	5	Alarm
2010/12/17 PM 12:14:42	3	Alarm
2010/12/07 PM 12:45:31	1	Motion
2010/12/07 PM 12:55:56	1	Alarm

First Page

<<< << < > >> >>>

The list displays events by date, time, triggered camera and alarm type. As some events are deleted, others are displayed. The latest recorded event video will be listed on the top.

Follow these steps to search event video through Event List:

- Press SEARCH to enter the Search menu.
- To search event video that has been recorded on a specific camera, use LEFT / RIGHT to move the cursor and press ENTER to select or de-select a channel.
- Move the cursor to <Event List> and press ENTER to list the event video of the selected channels. The Event List displays.
- To exit the event list, press ESC.

Follow the steps to playback video from Event List.

- Press and hold UP / DOWN to select from the Event List.
- Press ENTER to play back the selected event record.
- Press the buttons at below to go to previous/next pages.
- Press PLAY to return to Live mode.

### 4.3.5 Search by Text

When a POS device is connected to the DVR, users can search for videos with text data. The "Text Query Page" is displayed as below:

Text Query Page		
By Text		Off
Item		
Item		
By Numerals		Off
Value		
Value (Upper Limit)		
By Date/Time		Off
From:	2010/12/07 AM 00:00:00	
To:	2010/12/09 AM 00:00:00	
By Channel		Off
Text Query List		

There are three ways to search: by text, by numerals, or by text and numerals. In the mean time, date/time and/or channel can be specified to narrow down range, thus the search will be faster. Refer to below for search options.

#### **By Text:**

- **Exception:** Search for video with data containing the exception string set in the OSD setup menu.
- **OR:** Enter two sets of word strings. Search for videos with data containing EITHER ONE of the word strings.
- **AND:** Enter two sets of word strings. Search for videos with data containing BOTH of the word strings.
- **Specific:** Specify one set of word string. Search for videos with data containing the specific word string.

#### **By Numerals:**

- **Outside The Range:** Enter two numbers to specify a range. Search for videos with data containing number(s) out of the range.
- **Inside The Range:** Enter two numbers to specify a range. Search for videos with data containing number(s) within the range.
- **Less Equal Than:** Enter one number. Search for videos with data containing number(s) less than or equal to the specific number.
- **Greater Equal Than:** Enter one number. Search for videos with data containing number(s) greater than or equal to the specific number.
- **Specific:** Specify a number. Search for videos with data containing the specific number.

### 4.3.6 Panorama Search

In addition to the various search methods listed above, the DVR also provides users a different way to search for video of one specific channel via preview images, called panorama search. Please refer to the following steps to do panorama search.

- First, start to playback video of one specific channel in full-screen.
- Press FREEZE and the video will be paused.
- Press MODE once, panorama search will be started and the preview images will be in 1 second interval, with 20 preview images displayed.
- Press LEFT/RIGHT, the previous/next 20 preview images in 1 second interval will be displayed.
- Press MODE the second time, panorama search preview will be refreshed in 1 minute interval.
- Press MODE the third time, panorama search preview will be refreshed in 1 hour interval.
- Press MODE the fourth time, panorama search preview will be refreshed in 1 day interval.
- Move the mouse cursor to the frame preferred and click on it to start playback the video from the selected frame.
- Press PLAY to return to Live mode.

## 4.4 Video Export

The following sections will show how to export video through the OSD setup menu and through the hot keys on the front panel, respectively. Note that the system log will keep records of all video exportations, including duration, start time, and end time.

### 4.4.1 Export from OSD Setup Menu

The Video Export menu enables only the accounts with proper authority to export recorded video with digital signature to a USB ThumbDrive<sup>®</sup> or a DVD+RW drive. Login with an authorized account to export video.

The exported video will be named by the exporting date and time, and classified by event type. Each recorded video will be exported into four files if digital signature is required, including \*.gpg, \*.avi (or \*.drv), \*.sig and readme.txt.

Make sure an external storage device is available and connected to the appropriate port for video export. From the Main menu, select <Video Export> and press ENTER. The menu is displayed as below.

Video Export			
Select Device			
Select Ch:	Ch1	Ch2	Ch3 Ch4 <input type="button" value="All"/>
			<input type="button" value="None"/>
From:	2010/12/07 AM 11:50:05		
To:	2010/12/09 PM 03:09:18		
Select Events			
Data Type			Normal
Export Format			DRV
Digital Signature			No
Erase Disc			No
Begin Export			No

#### 4.4.1.1 Select the External Device

The available external devices for exporting video will be listed by name and free size in Select Device menu. The Select Device menu displays as follows.

Select Device		
Device Name	Available	Sel
xxx-xxx-x-x-xx	256 MB	No
xx-xxx-xx-xxxx	1.5 GB	No

The DVR only supports EXT3 file system. If an external HDD will be connected to the unit, ensure the format of the HDD is EXT3.

##### Device Name

The item shows the name of the available device.

##### Available

The item shows the free space of the available device.

##### Select

Set the item to <Yes> to set it as an exporting destination, or <No> to cancel.

#### 4.4.1.2 Select Video for Exporting

Select video from desired channel(s) with specific date / time and/or event(s), and set the item <Begin Export> to <Yes> to start exporting. Following are the items for selecting video.



**Select Channel**

Select the channel to export. Move the cursor to the desired channel using LEFT / RIGHT keys, select or de-select a channel by pressing ENTER.

**From / To Time**

The items are used to set the time which data export begins and ends. Move the cursor using LEFT / RIGHT keys, and press ENTER to select the date / time items; adjust the selected date and time value by UP / DOWN keys.

**Select Events**

Select this item to display the event list. Move the cursor to scroll through the event list and press ENTER to select event(s) to be exported.

**Data Type**

The item is used to select exporting video type. The options are <Normal> (export normal video only), <Event> (export event video only) and <Both> (export both normal and event video).

**Export Format**

This item is for selecting exporting video format. The options are <DRV> and <AVI>.

The \*.drv file can only be played back with the remote software and playback software, and multiple camera video can be played from one file. The \*.avi file can be played back with media players. Note that if multiple channels are exported, each channel is exported to a separate file.

**4.4.1.3 Digital Signature**

Users can export video clip with or without a digital signature. Set this item to <Yes> to export with the signature file, or <No> to export without it.

Each recorded video with digital signature will be exported into four files, including \*.gpg, \*.avi (or \*.drv), \*.sig and readme.txt. The \*.gpg file name is as the last eight MAC (Media Access Control) address of the unit.

Make sure that an external storage device, such as a USB Hard Drive or USB ThumbDrive®, is available and connected to the appropriate port for export.

For more information on verifying digital signature, see appendix **Verify Digital Signature** in the OSD Setup Manual.

#### 4.4.1.4 Erase Disc

This function is used to remove data found on a DVD+RW disk prior to exporting new information to the drive. Select <Yes> and press ENTER to start deleting data.

### 4.4.2 Quick Video Export through Front Panel

Through front panel control, the DVR allows users to easily export wanted video as \*.drv file with the built-in DVD+RW or to an external device, such as a USB ThumbDrive<sup>®</sup>. To export video to an external device, make sure the device is connected to the DVR.



**NOTE:** Once an external device has been connected to the DVR, the device has priority over the built-in DVD+RW. That means the video will be exported to the external device instead of the built-in DVD+RW.

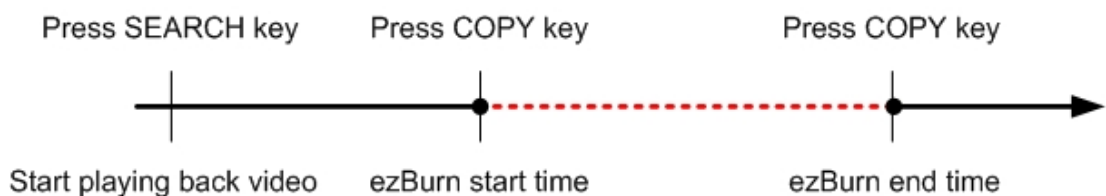
Depending on the size of video, the exporting process may take about 10 minutes to 1 hour.

#### 4.4.2.1 ezBurn Introduction

Built with the ezBurn technology, ezBurn function provides users the easier way to export desired video with built-in DVD+RW or to an external device, such as an USB ThumbDrive<sup>®</sup>.

TWO keys (SEARCH and COPY) and THREE touches are all what's needed for completing the export. The entire exporting process will be done through the front panel, without needing to enter the OSD setup menu.

The ezBurn exporting process is illustrated as below figure:



The entire process is described step by step in the following sections.

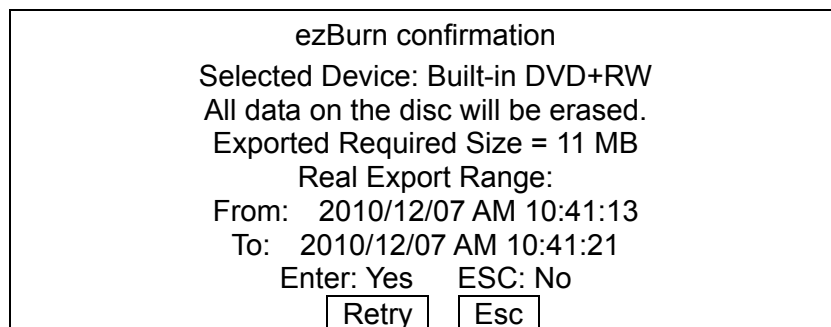


**NOTE:** The file exported using ezBurn will be in .drv file format, which can only be played using the remote player software.

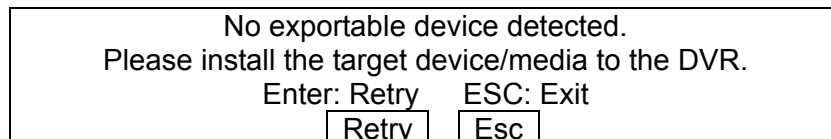
### 4.4.2.2 Export Normal Video

To Export normal video to external device, follow these step:

- Press SEARCH and playback wanted normal video by entering date/time. Note if the screen is showing in multiple channel mode, please make sure there is no window displaying in Live mode, or the export will not work.
- After entering Playback mode, playback the video and press COPY once to mark the starting point of the export video. The playback continues.
- Press COPY again to mark the ending point of the export video. Then the “ezBurn” window will display as below figure. The information shown on the window is “read only”.



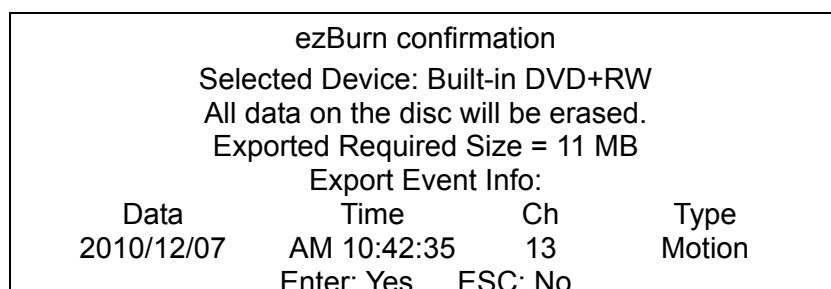
- Press ENTER to start the export; or, press ESC to abort.
- If there is no exportable device connected to the DVR, then a warning message will be shown on the screen, as below figure:



### 4.4.2.3 Export Event Video

To export event video, follow these steps:

- Press SEARCH and playback wanted event video. To playback event video, refer to OSD Setup Manual Section **Search Recorded Video**.
- After entering Playback mode, press COPY. The “ezBurn” window will display as below figure. The information shown on it is read only.



- Press ENTER to start the export the whole event video to the connected device; or, press ESC to abort.
- If there is no exportable device connected to the DVR, then a warning message will be shown on the screen.

## 4.5 Dome Control

The DVR allows users to control a dome camera via the function keys on the front panel. In Live mode, users can press any CHANNEL key to display the desired dome camera in full-screen. To enter Dome Control mode, press the DOME key and a dome control panel will be displayed. To exit the Dome Control mode and return to Live mode, press ESC or DOME.

### 4.5.1 Dome Connection

Follow the steps to install dome camera.

- See **Setup Guide** for RS-485 port pin definition.
- Connect the R+, R- terminals on the dome camera to the D+, D- terminals on the RS-485 port by RS-485 cable respectively. Refer to the connection figure illustrated in **Setup Guide**.

### 4.5.2 Dome Protocol Setup

The Dome Protocol lists the supported dome protocols for communicating with dome cameras connected to the DVR. From the Main menu, select <Camera> and press ENTER. The following menu is displayed.

Analog Camera	
Analog Camera Select	CH01
Dome Protocol	None
Dome ID	0
Camera Title	Ch1
Covert/Privacy Mask	
Termination	On
Brightness	0
Contrast	0
Saturation	0
Hue	0
Audio Association	Yes

To configure dome protocol, select a camera first and set the communication protocol associated with dome camera using the Direction keys and ENTER.



**NOTE:** The settings become effective after saving the changes and exiting from the menu.

### 4.5.3 RS485 Setup

The DVR controls the dome cameras via RS-485 communication protocol. The RS-485 parameters of the DVR must be set to the same as the parameters set in dome camera.

Users are allowed to change the RS-485 settings of the DVR. Select <System> in Main menu, then select <RS485 Setup> from the System setup menu and press ENTER. The following menu is displayed.

RS485 Setup	
Unit ID	224
Baud Rate	9600
Bits	8
Stop	1
Parity	None

Unit ID number must match the ID address set by the dome camera. The Unit ID is in the range of 1 to 255. Note that there cannot be any two devices on the same bus given the same ID address, or a conflict may occur.



**NOTE:** The settings become effective after saving the changes and exiting from the menu.

### 4.5.4 Dome Controlling Key

After pressing DOME to enter Dome Control mode, a dome control panel will be displayed. The controlling buttons are: Iris Close/Open, Focus Far/Near, Zoom Out/In, Preset, Live, Pan/Tilt Speed, Direction buttons, and Auto Focus. The functions are described as below.

#### **Iris Close**

Click on it to close the Iris on the dome camera.

#### **Iris Open**

Click on it to open the Iris on the dome camera.

#### **Focus Far**

Click on it to focus the lens of selected dome camera at a farther point.

**Focus Near**

Click on it to focus the lens of selected dome camera at a nearer point.

**Zoom Out**

Click on it to zoom out the lens of selected dome camera. This function enables users to shrink the current image and a larger viewing area can be displayed.

**Zoom In**

Click on it to zoom in the lens of selected dome camera. This function enables users to enlarge a certain area.

**Preset**

This key is used to enter the Dome Preset menu to set up certain position as a preset and go to the predetermined preset positions for viewing.

**Live**

Click on it to exit Dome Control mode and return to live full-screen viewing mode.

**Pan/Tilt Speed**

Users can select preferred pan/tilt speed.

**Direction Buttons**

Click on the buttons to pan and tilt the lens of selected dome camera.

**Auto Focus**

Click on this button to automatically adjust focus of the dome camera.

The front panel keys can also perform the functions listed above. Please refer to ***Setup Guide*** for the graphical illustration of functional keys.

## **4.5.5 Set Preset Points**

The DVR allows users to set preset positions. The amount of preset points depends on the dome manufacturer.

Follow the steps to set preset points.

- Press a Channel key to view the corresponding camera in full-screen.

- Then press DOME to enter Dome Control mode. The dome control panel will be displayed.
- Use Direction keys to pan/tilt the dome camera to desired position.
- Click <Preset> on the dome control panel or press CH1 key to access the Set/Go Preset function. A numeral keyboard will be displayed as below.

[Empty Input Field]			
1	2	3	BS
4	5	6	Set Preset
7	8	9	Go Preset
Exit	0	Clear	Run Tour

- Input a desired preset number.
- Click on the <Set Preset> button to save the position. Now the preset position is set and ready to be called.

#### 4.5.6 Call Preset Points

Follow the steps to call preset points.

- Press a Channel key to view the corresponding camera in full-screen.
- Then press DOME to enter Dome Control mode. The dome control panel will be displayed.
- Click <Preset> on the dome control panel or press CH1 key to access the Set/Go Preset function. A numeral keyboard will be displayed.
- Input a desired preset number.
- Click on the <Go Preset> button to call the preset point. Then the selected dome camera will rotate to the preset position automatically.

#### 4.5.7 Run Dome Camera Tour

Users can also display dome camera tour setup at the dome camera side. Follow the steps to run display of dome camera tour.

- Press a Channel key to view the corresponding camera in full-screen.
- Then press DOME to enter Dome Control mode. The dome control panel will be displayed.
- Click <Preset> on the dome control panel or press CH1 key to access the Set/Go Preset function. A numeral keyboard will be displayed.
- Click on the <Run Tour> button to run display of dome camera tour.
- Press any Direction keys to end the display of dome camera tour.

## 4.6 UPnP Function

UPnP is the abbreviation for Universal Plug and Play, which is a technology that integrates a universal protocol for widespread plug-and-play devices to ease the network implementation. When a PC and a DVR both installed the UPnP function, the PC can automatically recognize the DVR in the same local area network.

The advantage of this function is that PCs can connect to the DVR via the remote control software by directly clicking on the icon representing the DVR in **<My Network Places>** folder.

### 4.6.1 Setting Up the DVR and the PC

#### Enable the UPnP function in the DVR:

Enter the OSD setup menu with proper account and access **<System>** → **<Network Setup>** → **<UPnP Setup>**. The menu is as the following:

UPnP Setup	
UPnP	On
UPnP NAT Traversal	No

Set the first item UPnP to **<On>** and the DVR is ready.

#### Install the UPnP interface components in a PC:

- Click **<Start>** → **<Control Panel>** → **<Add or Remove Programs>**.
- Then click **<Add/Remove Windows Components>** on the left.
- In Windows Components Wizard, double click on **<Networking Services>**, then check the box in front of **<Universal Plug and Play>**.
- Click **<OK>**, then **<Next>** and the installation process will begin.
- When the installation is completed, the icon representing the DVR can be found in **<My Network Places>** folder.
- Double click on the icon will open an internet browser that connects to the DVR via the remote control software.



## 4.6.2 UPnP NAT Traversal Function

The UPnP NAT traversal function will help to automatically setup a router if the DVR connects to the internet via a router.

When a PC connects to a DVR not in the same local area network, a real IP address and corresponding port number is required. However if the DVR is behind a router, the communication between the PC and the DVR will be transmitted back and forth by the router. The router will need to setup port mapping (forwarding) before images from the DVR can be remotely viewed on the PC. For each individual DVR, the setting needs to be done individually. Imagine if there is tens or hundreds of DVRs. The setting will take a long time.

Fortunately, if the DVR has UPnP NAT traversal function, the setting of the router will be done automatically when it is enabled. Just select <Yes> for the menu item UPnP NAT Traversal in the UPnP setup menu and it will take care of everything.

## 4.7 System Log Exportation

In the Configuration setup menu, select <System Log> and a list of system logs will be displayed on the screen. Users can export the system log as a data file to an external storage device. Connect a USB storage device and click on <Export> (or press COPY key) to export the system log file to the USB storage device. Note that in the mean time, a digital signature file will also be exported.

Also under the Configuration setup menu, set <Operation Log> to <On> and operation logs will begin to be recorded in the system log. Alternatively, set to <Off> and operation logs will not be part of the system log.

## 5. Remote Monitoring Software

The remote monitoring software is a remote browser-based software application designed to operate with the DVR products. Using the software, users are allowed to view live and recorded video, and to configure the DVRs remotely via a LAN, WAN or Internet on a personal computer.

The connected PC will automatically download the remote monitoring software plug-ins from the DVR when the DVR is connected by entering its IP address in the address bar on the browser.

The tasks that can be performed with the remote monitoring software are listed below:

- Remote viewing of live/ recorded video
- Remote setup of the DVR
- Remote control of dome cameras
- Alarm notification from the DVR
- Up to five connections to one DVR simultaneously, including the preset "admin" and four other accounts



**NOTE:** The Menu function allows users to remotely access the DVR's OSD setup menu, with some limitations. Refer to the above sections or the OSD Setup Manual for setting configuration of the DVR.

### 5.1 Remote Monitoring System Requirements

Items	Requirements
<b>Personal Computer</b>	<b>Minimum:</b> Intel® Pentium® M CPU 1.40GHz RAM 512 MB
	<b>Recommended:</b> Intel® Core™2 Quad CPU Q6600 @ 2.4GHZ RAM 2 GB
<b>Hard Disk Drive</b>	Requires 20 MB for software installation
<b>Operating System</b>	Windows XP, Windows Vista, Windows 7
<b>Web Browser</b>	Microsoft Internet Explorer version 6.0 or above
<b>Monitor Resolution</b>	Minimum 1024×768 with 16-bit color
<b>Network Card</b>	10Base-T (10 Mbps) or 100Base-TX (100 Mbps) operation; must match the network configuration

## 5.2 Software Installation

Refer to the following description to install the remote monitoring software.

### 5.2.1 Change Internet Settings

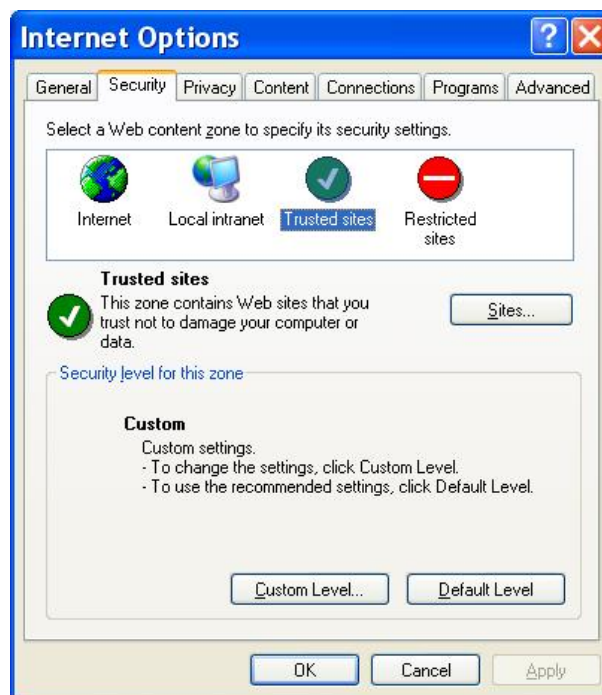
The PC operating with the remote monitoring software should be set to accept ActiveX plug-ins. Please follow the steps to set the Internet security settings appropriately.

- Before operating the remote monitoring software, please check the IP address of the DVR. To check the IP address, press MENU key on the unit and enter username and password to access OSD setup menu. Select <System>, <Network Setup>, then <LAN Setup> to check the IP.
- Start the IE; it can be started either by clicking on the desktop icon, or by using the Start menu to access it.

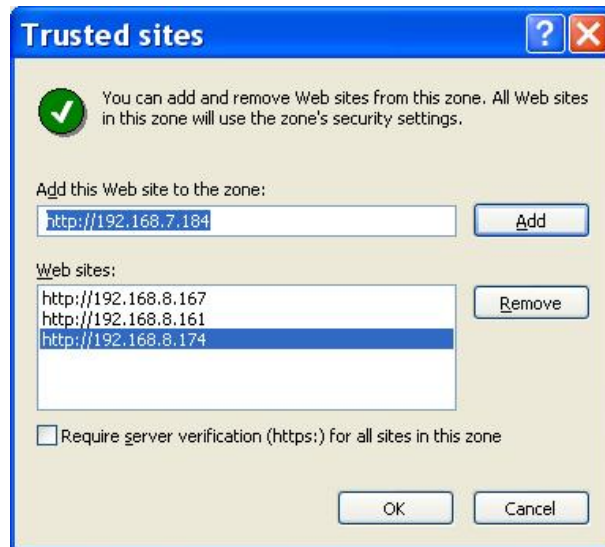


**NOTE:** Windows IE provides the ActiveX component that is required when using the remote monitoring software.

- Select <Tools> from the main menu of the browser, then <Internet Options>, and then click the <Security> tab.
- Select <Trusted sites> and click <Sites> to specify its security setting.



- Uncheck “Require server verification (https:) for all sites in this zone”. Type the IP address of the unit in field and click <Add> to add this web site to the zone.



- Click <OK> to confirm the setting and close Trusted sites dialog.
- In the Security Level area, click <Custom Level>. The Security Settings screen is displayed.



- Under <ActiveX controls and plug-ins>, set all items to <Enable> or <Prompt>.
- Click <OK> to apply the setting and close the <Security Settings> screen.
- Click <OK> to close Internet Options dialog.

Now the installation can continue to the next step.

## 5.2.2 Install Remote Monitoring Software

Start the browser to initiate the installation of the remote monitoring software on the PC. The IP address of the DVR can be saved as a Favorites item in the web browser to enable easy access in the future.

- Start the IE; it can be started either by clicking on the desktop icon, or by using the Start menu to access it.
- Enter the IP address of the DVR in the address bar at the top of the browser.
- The ActiveX controls and plug-ins dialog will show twice for confirmation; click <Yes> to accept ActiveX plug-ins. The remote monitoring software plug-ins will be downloaded and installed on the PC automatically when the connection is successfully made.



**NOTE:** Do not enter any leading “0” characters in the address, for example, “192.068.080.006” should be entered as “192.68.80.6”. If the default trigger port 80 is changed into another one, take port 81 for example, the IP address should be entered as “192.68.80.6:81”.



- A version check starts to verify whether the remote monitoring software was installed already, and also check if the version is the same as that stored in that particular DVR. This process may take up to 30 seconds.
- When the software is completely downloaded and installed, the Login Screen is now displayed.



### 5.2.2.1 Log in / Log off

Login using the same accounts setup in the DVR. The authority level is also the same as setup in the DVR.

One preset account “admin” and up to four other accounts can access a DVR at the same time. Nevertheless, if the “admin” account is currently accessing the DVR’s OSD setup menu via front panel of the DVR, then the “admin” account at the remote monitoring site cannot change the settings at the same time. The “admin” account at the DVR side has priority.



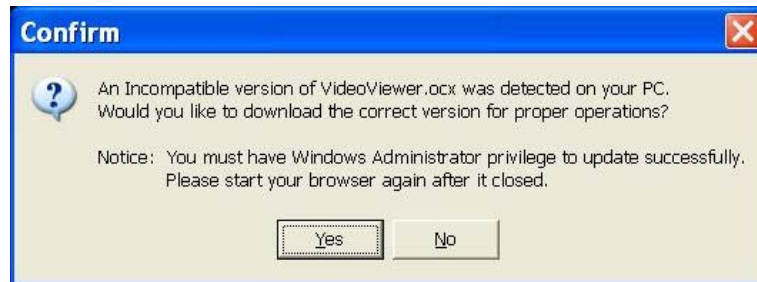
The following steps demonstrate procedures to connect and login to the DVR.

- Start the remote monitoring software by entering the IP Address of the DVR in the Address bar of the browser. Alternatively, click on the Favorite entry for the unit (if the IP address of the unit has been set).
- Enter the Username and password. The login username and password can be saved to ease future login. The default username and password is **admin / 1234**.
- Click <OK> to log in to the DVR. The process may take a few seconds.
- If the connection is made successfully, the main window will display live video of the attached cameras.

If the IE browser is closed, the remote system is logout and disconnected from the DVR at the same time.

### 5.2.2.2 Software Upgrades

If a new version of the remote monitoring software is available on the DVR, upgrade will be prompted while accessing the unit. Follow the steps to upgrade the software.



- The message as the above figure will be prompted. Click <Yes> to accept version upgrade.
- Start the IE again and enter the IP address of the DVR in the Address bar of the browser; or if the unit address is set as a Favorite site, click the Favorites entry for the unit.
- When the software is completely downloaded and installed, the Login Screen will be displayed.

## 5.3 Basic Operation for Monitoring Remotely

When a DVR is successfully connected, the main window of the remote monitoring software will be displayed. Please refer to the **Setup Guide** for the graphical illustration of functional items.

The functions on the remote monitoring software will be described in the following sections.

### 5.3.1 View Live Video

View live video from the cameras attached to the DVR by clicking <Live> button on the main window toolbar. Choose a desired display mode – full-screen, 4-windows, 9-windows, 16-windows, and 20-windows – after the live images of the DVR are displayed on the main window. When a dome camera is connected and viewed in single channel full-screen mode, the dome camera control operation can be accessed. To choose desired display mode and to operate dome camera control, refer to the following sections.

### 5.3.1.1 Select Display Mode

Choose the number of windows to be displayed on the main window. Click one of the display buttons in MODE section. Available selections are 4, 9, 16, and 20 camera displays. To view certain window in full-screen, either double-click on the preferred grid, or click on the corresponding CAMERA button.

### 5.3.1.2 Operate Cameras with Dome Control

The remote monitoring software allows users to control and configure a dome camera remotely.

Click on any CAMERA button displayed with a dome icon to view the camera in full-screen. The Dome Control Panel will be displayed on the main window. The items on the Dome Control Panel are described as follows.

#### **Auto Focus (A.F.)**

Click on it and the focus of the camera will be automatically adjusted to show a clearer image.

#### **Set/Go Preset & Run Tour (•←)**

The remote monitoring software allows its users to store up to 255 preset points according to the allowance of the supported dome cameras.

Use Direction buttons to pan/tilt dome camera to an appropriate position. Then click this button, select <Set Preset> and choose a preferred number from the pull-down list. The preset point is named as the selected number.

Click this button, select <Go Preset> and choose a preferred number from the pull-down list to call the preset point for viewing.

Click this button, select <Run Tour> and the dome camera will start the tour set previously at the dome camera side.

#### **Dome ID (ID)**

Click for changing the dome ID and protocol. Proper authority is required to access this function.

#### **Focus +/-**

Use to adjust the camera lens to focus on objects for a clear view. Click on <Focus +> to focus near or <Focus -> to focus far.



### **Iris +/-**

This item is used to open and close the iris to let more or less light into the camera. Click on <Iris +> to open iris or <Iris -> to close iris.

### **Zoom +/-**

Users are allowed to zoom-in or zoom-out using the adjusting buttons. Zoom-in to enlarge a certain area and zoom-out to view more area.

### **Direction Button**

This button is used to pan and/or tilt the dome camera. Click the arrows in the directions to be viewed.

## **5.3.1.3 Digital Zoom of Camera Display**

Users can view the camera zoom-in images via the digital zoom function. Right click on any preferred camera grid, in any kind of display mode, and select the digital zoom item to switch on the function. Users then can easily control zoom in/out via mouse scroll wheel.

Move the scroll wheel away from users to zoom in and move toward the users to zoom out. On the upper left-hand corner will show zoom-in magnification. The maximum magnification is X7. Also on the lower right-hand corner will display the position of current viewing area (shown as an inner white rectangle) comparing with the original screen (shown as an outer rectangle frame).

In addition, the viewing area can be dragged and moved by left clicking and holding the mouse while moving.



**NOTE:** This function will use up a lot of CPU resources. It is recommended not to open too many programs at the same time to avoid crash of CPU.

## **5.3.1.4 Manually Trigger Relay Output Devices**

The remote monitoring software allows users to manually trigger relay output devices while monitoring at the remote site. Right click on any camera grid and select relay out A, B, or C to manually trigger any of them. This is especially convenient when users wishes to trigger any relay output devices while monitoring at the remote site.

## 5.3.2 Instant Recording

Instant Recording function allows users to record video to the PC by one click.



**NOTE:** The Audio function is set to OFF as the default setting.

### 5.3.2.1 Record Video Instantly

Follow the steps to start recording instantly:

- Click on the <Instant Recording> button.
- Select the destination folder to save the video.
- Click on the button again to stop recording.



**NOTE:** The instant recording video will be saved as \*.drv file.

### 5.3.2.2 Playback Instant Recorded Video

Follow the steps to playback a video recorded by “Instant Recording”.

- Click <Play> on main window toolbar and click <Local Playback> tab.
- Click <Open> to choose a recorded file.
- Click <OK> to start playing the recorded video.

## 5.3.3 Playback Video

The remote monitoring software allows users to either view recorded video from the DVR, or from the hard disk drive of the PC.

To access the Playback screen, click <Play> button on the main window toolbar. There are three tabs in the Playback screen: <Remote Playback>, <Local Playback>, and <Verify> tabs. <Remote Playback> allows users to playback from the DVR. <Local Playback> enables users to playback a recorded video file stored in the hard disk drive of the PC. <Verify> is provided for users to authenticate if the exported video is altered.

The DVR continues recording while playing back recorded video on the PC, either remote playback or local playback.

### 5.3.3.1 Playback Remote Video

To view remote video, click <Play> on the main window toolbar, and then <Remote Playback> tab. The <Remote Playback> screen will be displayed.

The <From> and <To> in the <Available Record Video> display the date and time from which recorded video is available for playback.

To playback remote video segments, follow these steps:

- Choose <Playback> in <Select> field for playback recorded video.
- In <Start> field, users can change the date and time either by typing desired numbers directly or by using the arrow buttons.

**To type directly:**

Click on day, month and year of date field respectively, and type the desired numbers directly. Follow above steps to adjust the hour, minute and second of time field.

**To use the arrow buttons:**

Click on the arrow button next to the date field to display the calendar; then click the left and right arrow at the top of the calendar to change the date. Use up and down arrow next to the time field to change to the wanted time.

- The other way to select date and time is by moving the blue sliding bar.
- Click <OK> to start the playback, or click <Close> to abort.
- The other option <Download (.DRV)> in <Select> field enables users to download the video segment of selected date and time to the PC. The selection of time duration is the same as described above. Files downloaded will be in \*.drv format.

### 5.3.3.2 Playback Local \*.drv Files




The <Local Playback> tab allows users to playback \*.drv video files stored in the PC's hard drive.

Follow below steps to playback a downloaded \*.drv file with the remote monitoring software.

- Click <Open> and the file selection screen is displayed.
- Select the \*.drv video file for playback and click <OK>.
- Click <OK> in the <Local Playback> Screen to start the playback, or click <Cancel> to abort.
- View the video playback using the Playback controls.
- To end the playback, click <Live> to return to live video.

### 5.3.3.3 Playback Controls

When the local or remote video is being played, the remote monitoring software is in Playback Mode. The playback controls toolbar will emerge on the main window toolbar. The Playback controls and indicators are described as below.

Icon	Name	Description
	<b>Fast Backward / Step Backward</b>	<ol style="list-style-type: none"> <li>1. Click to play the recorded video in backward direction. Click repeatedly to select the backward playback speed: 1x, 2x, 4x, 8x, 16x, or 32x.</li> <li>2. When playback is paused, click repeatedly to move backward step-by-step.</li> </ol>
	<b>Play / Pause</b>	<ol style="list-style-type: none"> <li>1. While playing, click to pause the playback.</li> <li>2. When paused, click to resume the playback.</li> </ol>
	<b>Fast Forward / Step Forward</b>	<ol style="list-style-type: none"> <li>1. Click to play the recorded video in forward direction. Click repeatedly to select the forward playback speed: 1x, 2x, 4x, 8x, 16x, or 32x.</li> <li>2. When playback is paused, click repeatedly to move forward step-by-step.</li> </ol>

### 5.3.4 Verify Digital Signature

The digital signature aims to authenticate a video file exported from the DVR. Follow the description to verify the digital signature.

- Click <Play> on the main window toolbar.
- Click <Verify> tab to display the Verify window.
- Click <Browse> to select the \*.gpg, \*.avi, \*.sig files respectively, which belong to the exported video to be authenticated.
- Click <Verify> to start verifying digital signature.
- The result of verify will be shown in the <Status Log> field. It returns a GOOD or BAD signature result. A GOOD signature indicates the exported clip has not been altered.

### 5.3.5 Search from Event List

Click SEARCH, the Event List appears. The List contains information about the alarm events that the unit recorded and saved. Up to 1024 events can be listed in the Event List.

The Event List displays each event by its number, the date and time of the event, the type of the event (including Alarm In, Motion Detection, and Video Loss), and the camera channel where the event occurred.

To view an event video, follow these steps:

- Click SEARCH button positioned in the main window toolbar. The Event List appears.
- Scroll through the Event List and highlight the interested events.
- Double-click on the desired event to view the event video.

### 5.3.6 Take a Snapshot

Snapshot is a simple screen capture tool. When users click on the SNAPSHOT button, it will capture the screenshot of the window that is currently showing on the screen. Each click captures one screenshot to be saved as a JPEG file on the desktop. The snapshot file will be named as "Snapshot-\*".

### 5.3.7 Health Status of HDD

This function verifies HDD status of the DVR. The information items shown in the chart are described as below:

**Device Name**

This item shows the model name of the HDD.

**Int./Ext.**

This item indicates whether the HDD is an internal or external device.

**Total Size**

This item indicates the total size of the HDD.

**State**

This item indicates whether the HDD is active or non-active.

**Temperature**

This item indicates the current temperature of the HDD in Celsius degree.

### 5.3.8 Normal and Dual Streaming

For different networks with different bandwidths, two streaming options are provided – normal and dual streaming. The preset is normal streaming.

Users who are using high-speed networks, normal streaming will be a recommended choice. Depending on the HDD capacity and network usage, set the remote monitoring software to occupy high or low bandwidths.

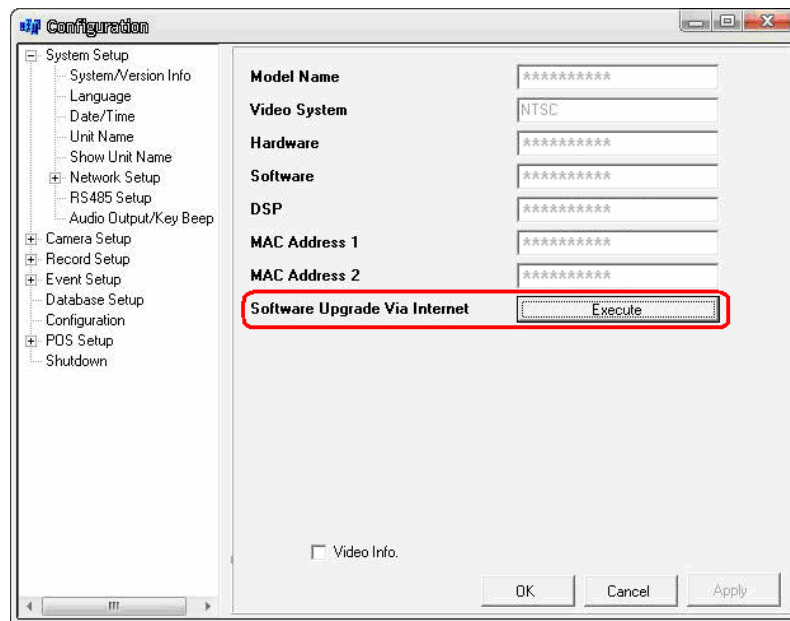
For networks with limited bandwidth, dual streaming will be a better choice. It enables coexistence of high quality streaming at local DVR site and lower quality streaming but faster transmission for the remote monitoring site. To select dual streaming, click on the bandwidth icon and the icon will change color. Then users can furthermore choose different bit rates to adjust for the best displaying quality.

## 5.3.9 Remote Software Upgrade/ Reboot of Connected DVR

Users can remotely perform software upgrade or reboot the connected DVR.

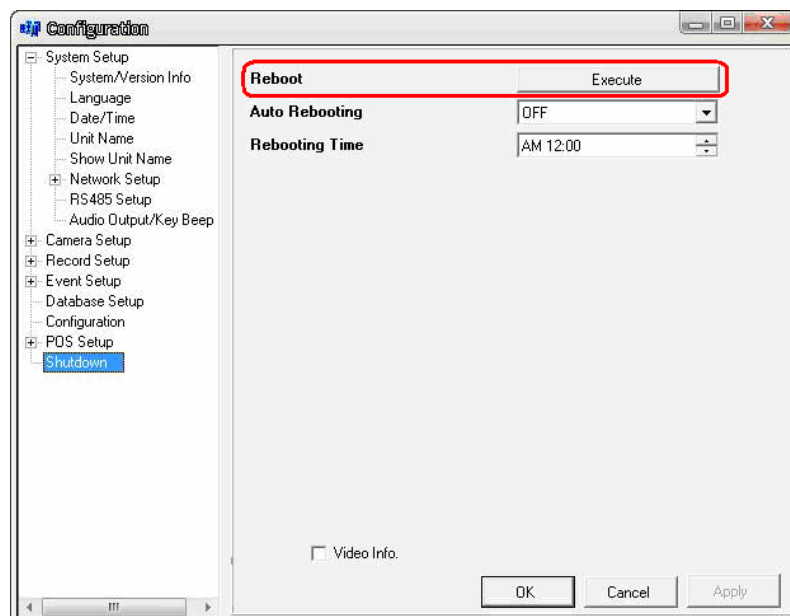
### Remote Software Upgrade

Click MENU button in the main window toolbar. A Configuration window will be displayed. Go to <System Setup> → <System/Version Info> and the menu is as shown below. Then click on the Execute button and locate the upgrade file “\*.tar” or files “\*.tgz & \*.md5” to start remote software upgrade.



### Remotely Reboot

Also from the Configuration window, access the Shutdown menu as shown below. Then click on the Execute button to remotely reboot the DVR.



### 5.3.10 Remote Monitoring Software Troubleshooting

What happened if the server requests to upgrade the software every time the DVR is connected? If the following screen displays repeatedly, please follow the steps to delete the temporary internet files.



- Select <Tools> from the main menu of the web browser, then <Internet Options>, and then click the <General> tab.



- Click the <Delete Files> button in the <Temporary Internet Files> field; the <Delete Files> screen displays as below.



- Check the <Delete all offline content> box and click <OK>.
- Now, enter the IP address of the DVR to make the connection again.



## Appendix A: Recommended HDDs

The following is a list of recommended SATA HDDs.

Brand	Model Name	Model Number	Size
Seagate	Barracuda 7200.12	ST2500418AS	500GB
	SV35	ST3500411SV	500GB
	SV35	ST31000526SV	1TB
	Barracuda Green	ST1500DL003	1.5TB
	Barracuda Green	ST2000DL003	2TB
WD	AV-GP	WD5000AVDS	500G
	AV-GP	WD10EURS	1.0T
	AV-GP	WD20EURS	2.0T

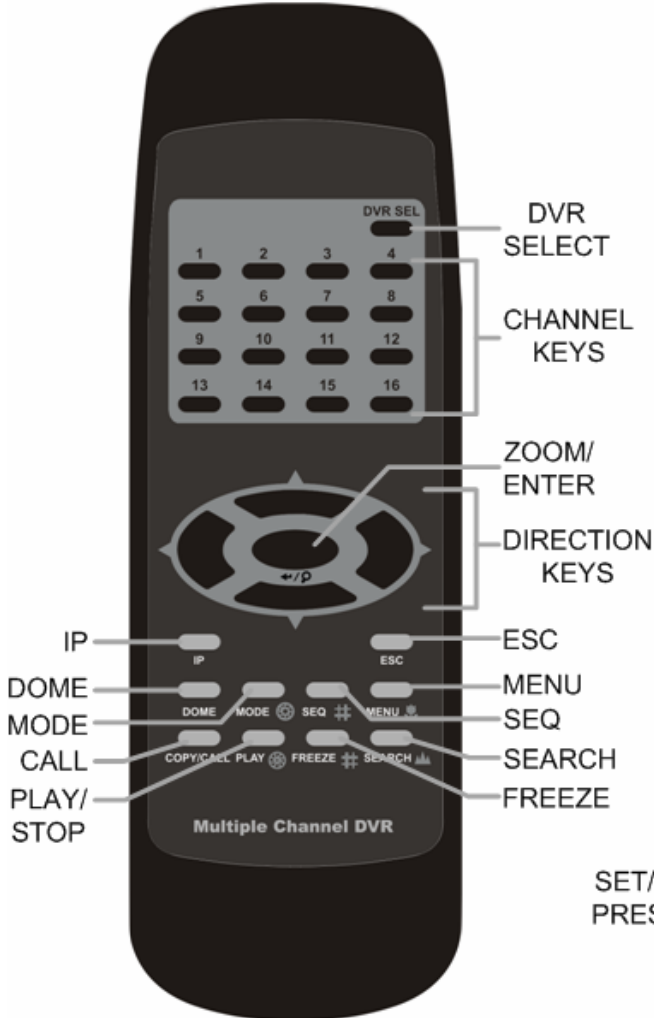


**NOTE:** After a HDD is successfully installed, users will see a number shown in front of the device name when retrieving internal disks information in the OSD setup menu via <Database> → <Internal Disks>. The number represents the SATA port that the HDD is connected to.

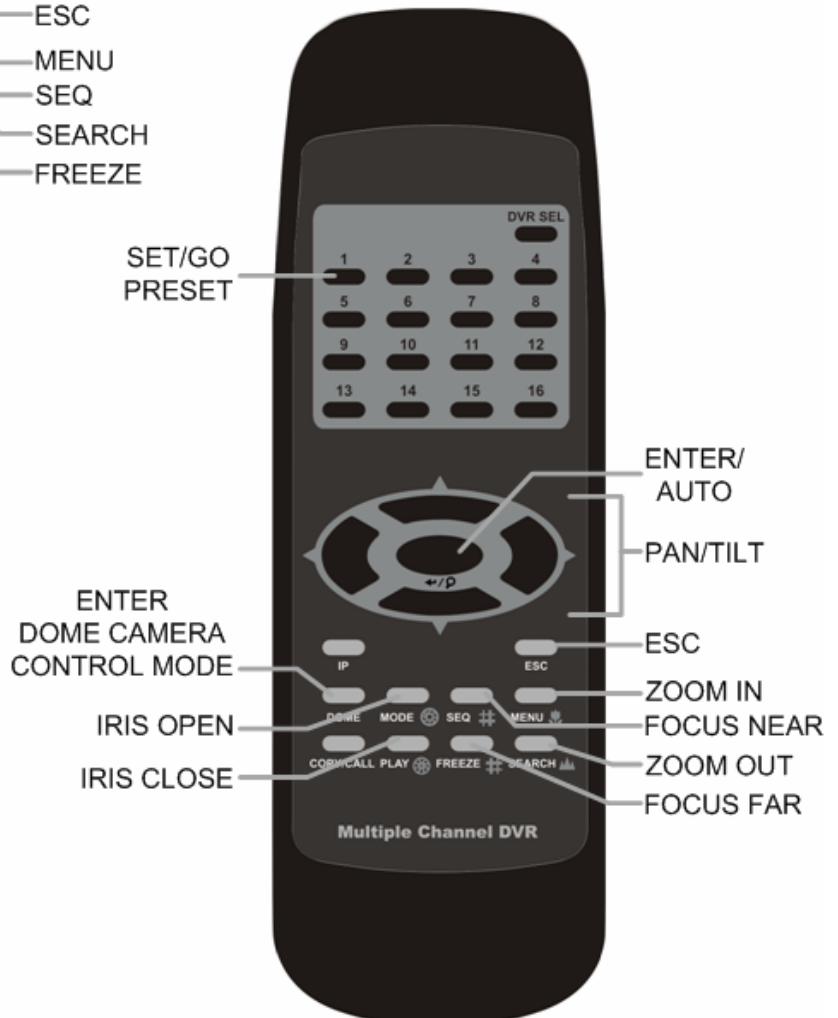
## Appendix B: Remote Controller

A remote control is provided for the DVR. The operational function keys (on the left) and dome camera control keys (on the right) on the remote control are listed as below figure:

### DVR Control Mode



### Dome Camera Control Mode



The keys of the remote control function as the keys of the front panel of the DVR. The only difference between the remote control and the front panel is the “DVR SEL” key. The DVR Selection key is used to switch control between different DVRs.

The remote control can be used to control up to 16 DVRs. To setup the remote control, the first thing is to assign a unique DVR Unit ID to different DVRs.

Use the front panel of the DVR, and follow this path to change the DVR Unit ID: <Main Menu> → <System> → <RS485 Setup> → <Unit ID>. Change the DVR Unit ID to any number between 224 and 239, and exit the menu.

The ID Table is listed below for reference.

DVR Unit ID	224	225	226	227	228	229	230	231
Remote Control #	1	2	3	4	5	6	7	8

DVR Unit ID	232	233	234	235	236	237	238	239
Remote Control #	9	10	11	12	13	14	15	16

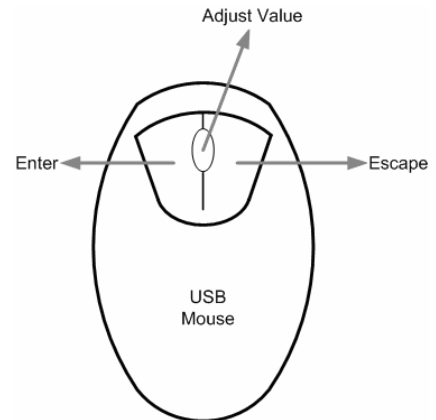
After the DVR Unit ID is changed, setup the “DVR SEL” of the remote control. Press “DVR SEL”, and then press the Remote Control # immediately to select the DVR. For example, assuming that the DVR Unit ID is set to 225, press “DVR SEL” and press “2” immediately. Now, the remote control will only be able to control the specified DVR. Press “DVR SEL”, and then press the Remote control # to switch between DVRs.

To exit the single DVR control mode, press “DVR SEL”, and then press “ESC” to do so.

## Appendix C: USB Mouse Operation

Users can use an USB mouse to operate the DVR. To use the USB mouse, please read through the following descriptions.

Plug in an USB mouse to any USB port of the DVR. Move the USB mouse, and the cursor should appear. Move the cursor to the right side of the screen and a Live Panel will be displayed. The icons on the Live Panel are the same as the functional keys on the front panel of the DVR.



Clicking the left button functions the same as pressing the "ENTER" key. Clicking the right button functions the same as pressing the "ESC" key. The scroll wheel is used to change values.

For example, if users want to change dome camera ID, enter the OSD setup menu with an authorized account and go to the following path: <Camera> → <Dome ID>.

Left click on <Dome ID> and scroll the wheel up or down, the ID number will change as the scroll wheel moves. Stop moving the scroll wheel when the preferred ID number appears, then left click on the <Dome ID> and the ID number will be changed.



**NOTE:** Users can access the OSD menu with an authorized account and go to <Monitor> → <Mouse Sensitivity> to setup preferred sensitivity level of USB mouse.

## Special Operations

There are two special operations provided when an USB mouse is connected. One is camera title alignment and the other is motion detection area setup.

### Camera Title Alignment

Users are allowed to change the display position of camera titles of all channels. To change the camera title position of any single channel, left click on the camera title and drag to any preferred position. If users want to set all of the camera titles to the same position that is set for a specific channel, right click on the specific camera title and select <Align Here> from the pull-down menu. Users can also change the monitor type as BNC or VGA. The other options allow users to quickly set all camera titles to the preset positions at once.

### **Motion Detection Area Setup**

When users are setting the motion detection area, a USB mouse can help to speedily complete the setup. Enter the OSD setup menu and go to the following path: <Event> → <Per Channel Config> → <Detection Config> → <Detected Area Setup>. The screen is split into 16×12 grids, where the grids can be selected or deselected as motion detection area.

Left click once on any grid to select or deselect the specific grid. Moreover, left click and drag to choose multiple grids, then a pull-down menu will be displayed when the mouse button is released. Choose <Block Select> to set the grids as motion detection area, or choose <Block Deselect> to deactivate the grids. Otherwise, choose <Cancel> to do nothing.

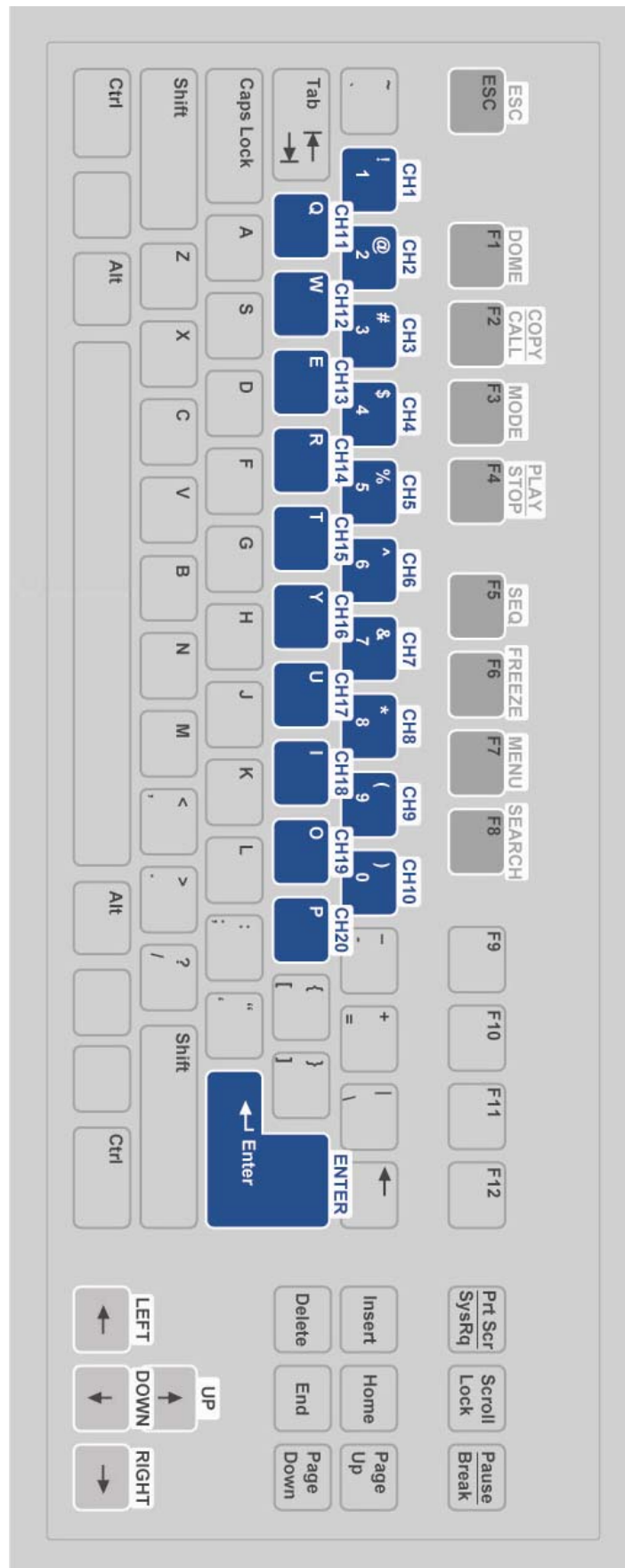
Right clicking the USB mouse will display a different pull-down menu, which includes: <Select All>, <Deselect All>, and <Confirm>. Choose <Select All> to set all grids as motion detection area, or choose <Deselect All> deactivate all grids. When the setup is completed, choose <Confirm> to save the setting and return to the previous page.



**NOTE:** This special USB mouse operation is also available to the privacy mask setup and smart search area setup.

## Appendix D: Keyboard Access Sketch

The following sketch shows the keys used to access and control the connected DVR.



## Appendix E: Simultaneous Output Options

When simultaneous output is disabled (No), dual main monitor function will be available. Alternatively, when simultaneous output is enabled (Yes), all main monitors connected will be showing the same output. However, the hybrid display function and playback function on BNC and S-Video monitors will be unavailable when simultaneous output is disabled. Refer to the following table to see the display of monitors under the two different situations.

Simultaneous Output	Dual Main	Digital Output	VGA	BNC Main	S-Video	Native Resolution
No (default)	Main1 / Main2	Main1	Main1	Main2	Main2	1080P*
Yes	N/A	Main	Main	Main	Main	D1



**NOTE:** Native Resolution is the original video resolution the DVR created. When the monitor resolution is set to be higher or lower, the output resolution will be scaled up or scaled down to satisfy users setting.

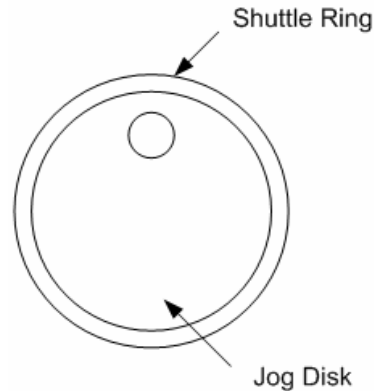


**NOTE:** BNC Main and S-Video outputs can only display up to D1 resolution.

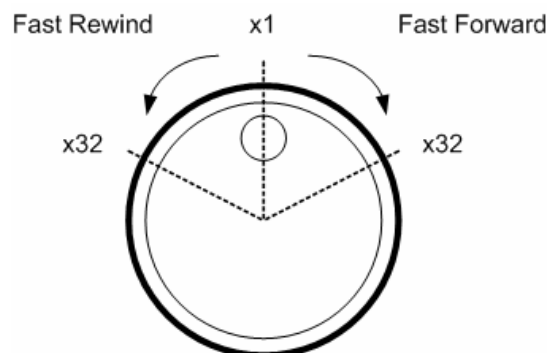
Refer to the OSD Setup Manual for detailed settings.

## Appendix F: Jog / Shuttle Control

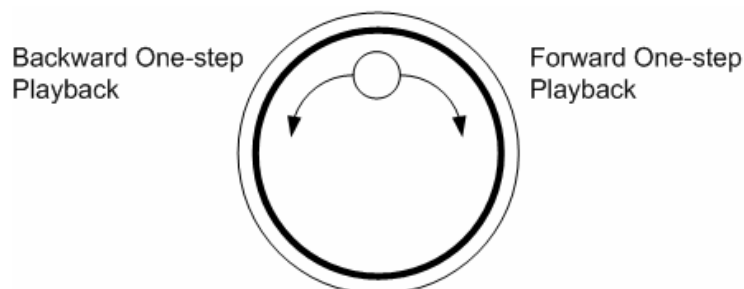
The jog/shuttle knob is used to provide wide latitude in playback control. Note that the jog/shuttle knob is active only when the DVR has been in Playback mode.



While playing back recorded video, users can rotate the shuttle ring to select different speed of forward and backward playback. Rotating the shuttle ring clockwise/ counterclockwise causes the unit to playback faster forward/ backward. According to the rotating angle the shuttle ring, users can choose the playing speed from 1×, 2×, 4×, 8×, 16×, and 32×, in both forward and reverse directions, shown as below figure:



Inside the shuttle ring is the jog disk, shown as below figure. It can turn in either direction. Once the video is paused, users can use the jog disk to playback by single-step. Clockwise rotation causes a forward one-step playback; and counterclockwise rotation causes a backward one-step playback.





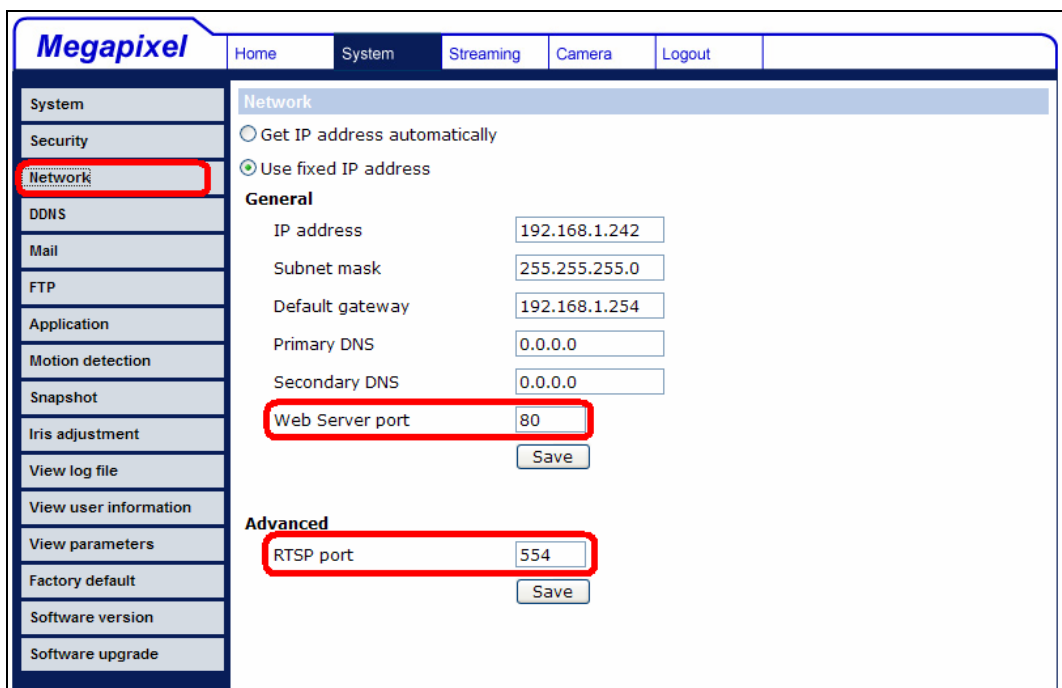
## Appendix G: IP Camera Installation

The following is an example of the installation of a Nx Series IP camera.

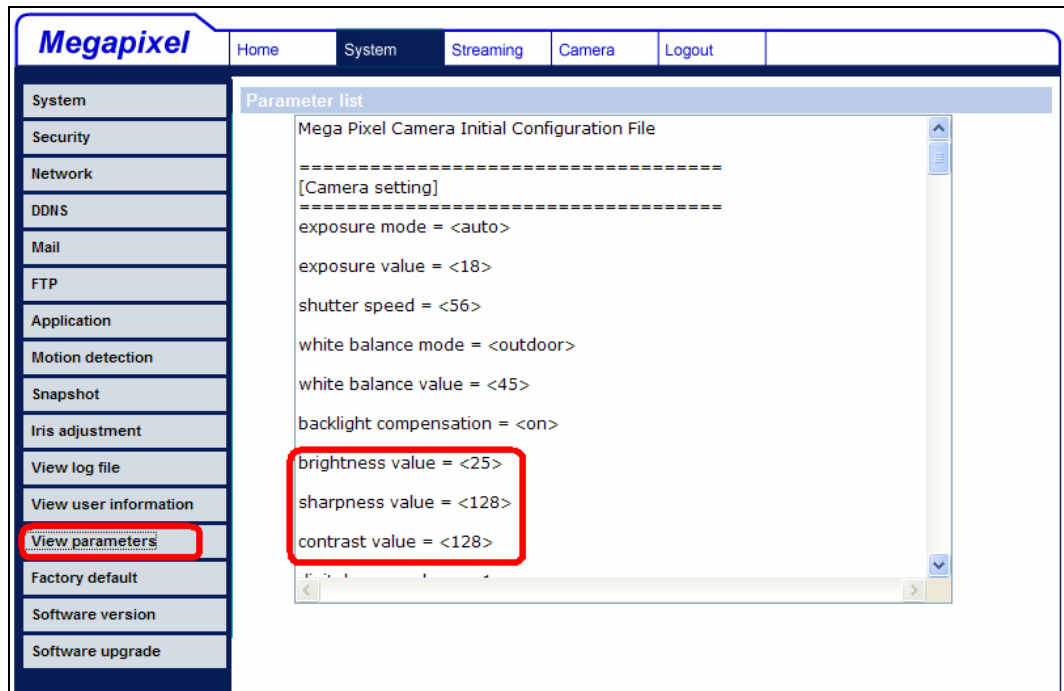
- Step 1.** Enter the IP address (for example: 192.168.1.242) of the Nx Series IP camera to access its web management page. Login using the administrator's username and password (for example: Admin & 1234).



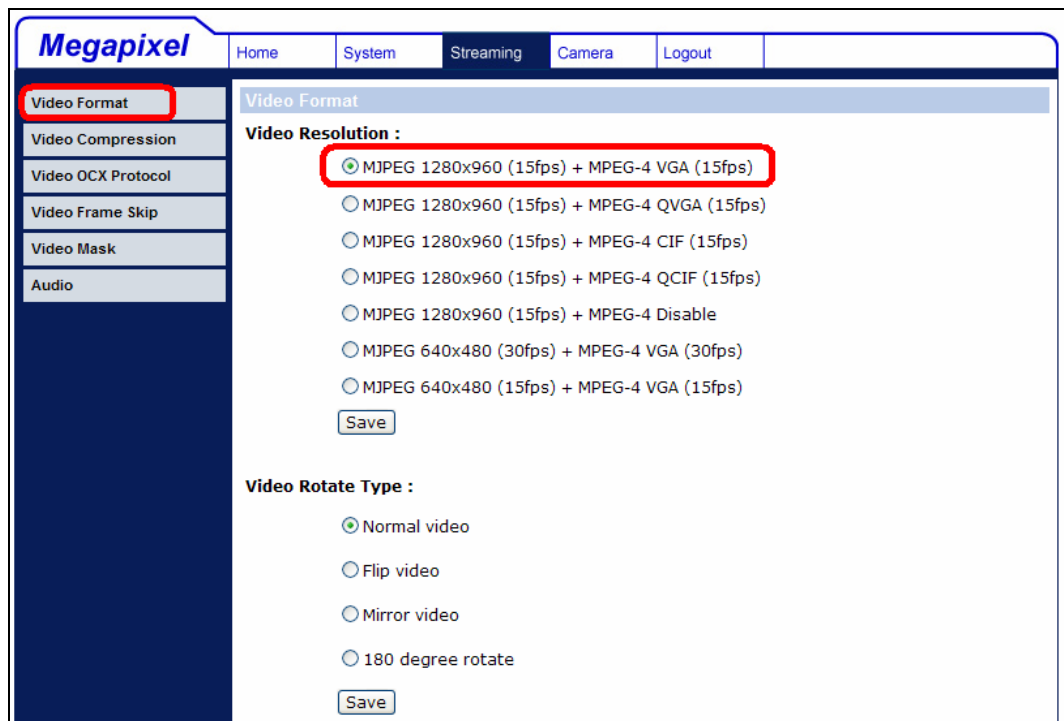
- Step 2.** Access the System menu and click on the “Network” tab to find the management port and the RTSP port. The management port is **80** and the RTSP port is **554**.



**Step 3.** Next click on the “View parameters” tab to look for current camera image settings: Brightness=**25**, Sharpness=**128**, and Contrast=**128**.



**Step 4.** Access the Streaming menu to look resolution setting: MJPEG=**1280×960**, MPEG-4=**VGA**, and the maximum frame rate is **15fps**.



**Step 5.** Access the OSD setup menu of the DVR to select the number of IP cameras to be connected: **<System> → <IP Camera Support>**. The DVR will reboot in order to apply the change.

**Step 6.** Access the **<Camera>** menu of the DVR to setup the IP camera. Select the channel that is reserved for IP camera. The menu should look like the following:

IP Camera	
IP Camera Select	CH16
IP Camera Title	CH16
IP Camera Covert	Off
Device Search	
Hostname/IP	192.168.1.242
Model	Nx Series
Connection Setup	
Device Setup	
Activated	No
Status	
Copy Setting	

**Step 7.** If the IP camera is UPnP compatible and is in the local area network, select **<Device Search >** and press ENTER to automatically search for the IP camera. Alternatively, manually enter the Hostname/IP as 192.168.1.242. Then select **<Model>** as Nx Series.

**Step 8.** Access the **<Connection Setup>** menu to enter connection setting parameters: Account=**Admin**, Password=**1234**, Management Port=**80**, and Streaming Format=**MPEG4** or **MJPEG**. If Advance Streaming Option is set to **<Off>**, the Streaming Port and Streaming Protocol will be setup automatically. If the parameters are different, set Advance Streaming Option to **<On>** and the values can be modified manually.

Connection Setup	
Account	Admin
Password	****
Management Port	80
Streaming Format	MPEG4
I-frame Only Mode	Off
Advance Streaming Option	Off
Streaming Port	554
Streaming Protocol	RTP+RTSP
IP Dome Protocol	NONE

**Step 9.** Access the **<Device Setup>** menu to enter device setting parameters: Image Resolution=**vga**, Sharpness=**128**, Brightness=**25**, and Contrast=**128**.

Device Setup	
Product ID	Nx Series
Image Resolution	vga
Sharpness	128
Brightness	25
Contrast	128
Apply	No

**Step 10.** Set <Apply> to <Yes> and the device setting parameters will be applied.

**Step 11.** Set <IP Camera> → <Activated> to <Yes> and the video from the IP camera should be displaying on the screen after a few seconds.

**Step 12.** Access <IP Camera> → <Status> and the current status of the IP camera will be displayed as shown below. The information is “read only”.

Status	
Model	Nx Series
Streaming Format	MPEG4
Resolution	640×480
PPS	15.00
Bandwidth	62.53 KB/Sec
Pkg. lost rate	0.00%

### **Troubleshooting:**

If the video does not show on the screen, perform the following checks:

1. Check if the target IP device is supported by the DVR. Make sure that <Model>, <Streaming Port>, <Streaming Protocol>, and <Streaming Format> are set correctly.
2. Check the menu item <Hostname/IP>. Try to connect the IP camera via the browser directly and see if the video shows correctly.
3. Make sure the settings of the items <Account>, <Password>, and <Management Port> in <Connection Setup> are correct. If the <Model> selected is supported by the DVR, confirm items in <Device Setup> menu and see if the settings are correct. Try to connect the IP camera via the browser directly and see if the video shows correctly.
4. If everything seems to be correct, the problem might be bandwidth and performance.
  - ◆ Reduce the resolution, quality, or FPS of the IP camera.
  - ◆ Reduce the GOV/GOP setting.

### **Limitation:**

The following functions are not supported for IP cameras.

1. Audio
2. Alarm I/O