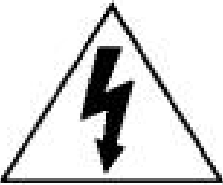



# DIGITAL VIDEO RECORDER

## USER MANUAL

Please read instructions thoroughly before operation and retain it for future reference.

# IMPORTANT SAFEGUARD

	<b>CAUTION</b> <b>RISK OF ELECTRIC SHOCK</b>	
<p><b>CAUTION:</b></p> <p>To reduce the risk of electric shock, do not expose this apparatus to rain or moisture.</p> <p>Only operate this apparatus from the type of power source indicated on the label.</p> <p>The company shall not be liable for any damages arising out of any improper use, even if we have been advised of the possibility of such damages.</p>		

## Graphic Symbol Explanation



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



This exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



All lead-free products offered by the company comply with the requirements of the European law on the Restriction of Hazardous Substances (RoHS) directive, which means our manufacture processes and products are strictly “lead-free” and without the hazardous substances cited in the directive.



The crossed-out wheeled bin mark symbolizes that within the European Union the product must be collected separately at the product end-of-life. This applies to your product and any peripherals marked with this symbol. Do not dispose of these products as unsorted municipal waste. Contact your local dealer for procedures for recycling this equipment.



This apparatus is manufactured to comply with the radio interference requirements.

## Disclaimer

We reserve the right to revise or remove any content in this manual at any time. We do not warrant or assume any legal liability or responsibility for the accuracy, completeness, or usefulness of this manual. The content of this manual is subject to change without notice.

## MPEG4 Licensing

THIS PRODUCT IS LICENSED UNDER THE MPEG-4 VISUAL PATENT PORTFOLIO LICENSE FOR THE PERSONAL AND NON-COMMERCIAL USE OF A CONSUMER FOR (i) ENCODING VIDEO IN COMPLIANCE WITH THE MPEG-4 VISUAL STANDARD (“MPEG-4 VIDEO”) AND/OR (ii) DECODING MPEG-4 VIDEO THAT WAS ENCODED BY A CONSUMER ENGAGED IN A PERSONAL AND NON-COMMERCIAL ACTIVITY AND/OR WAS OBTAINED FROM A VIDEO PROVIDER LICENSED BY MPEG LA TO PROVIDE MPEG-4 VIDEO. NO LICENSE IS GRANTED OR SHALL BE IMPLIED FOR ANY OTHER USE. ADDITIONAL INFORMATION INCLUDING THAT RELATING TO PROMOTIONAL INTERNAL AND COMMERCIAL USES AND LICENSING MAY BE OBTAINED FROM MPEG LA, LLC. SEE [HTTP://WWW.MPEGLA.COM](http://www.mpeg-la.com).

## GPL Licensing



This product contains codes which are developed by Third-Party-Companies and which are subject to the GNU General Public License (“GPL”) or the GNU Lesser Public License (“LGPL”).

The GPL Code used in this product is released without warranty and is subject to the copyright of the corresponding author.

Further source codes which are subject to the GPL-licenses are available upon request.

We are pleased to provide our modifications to the Linux Kernel, as well as a few new commands, and some tools to get you into the code. The codes are provided on the FTP site, and please download them from the following site or you can refer to your distributor:

<ftp://ftp.dvrtw.com.tw/GPL/AV074/>

## Version

Video Viewer: 0098

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# 1. SPECIAL NOTES

- VGA Output Resolution Support

Model 1 and Model 2 have VGA interface built-in, and users are allowed to change the resolution depending on their display monitor.

Go to “ADVANCE” → “DIAPLAY”, and move to “VGA OUTPUT” to select the VGA resolution you want. There are seven options as follows:

- 1) 800 x 600
- 2) 1024 x 768 (default)
- 3) 1280 x 1024
- 4) 1440 x 900
- 5) 1400 x 1050
- 6) 1680 x 1050
- 7) 1600 x 1200

## 2. FRONT AND REAR PANEL

### 2.1. Front Panel

1) LED Indicators

POWER: DVR is powered on.

HDD: HDD is reading or recording

ALARM: Once the alarm is triggered (Selected models only)

TIMER: When timer recording is turned on

PLAY: Under playing status

2) MENU

Press to enter the main menu.

3) ENTER

Press to confirm the setting.

4) LIST

To quick search the recorded files by event list, press this button to show all types of the event lists.

Select one of the event list and press "ENTER" to playback the selected file. There are following four types:

ALARM List the information of the alarm-trigger-recorded files. (Selected models only)

MANUAL List the information of the manual-recorded files. The DVR will save one recorded file once any recording setting is changed.

MOTION List the information of the motion-trigger-recorded files.

SYSTEM List the information of the system-recorded files. The DVR system will save one recorded file every one hour.


TIMER List the information of the timer-recorded files.

5) SLOW

Under the playback mode, press to slowly playback the recorded file.

6) ZOOM

In the live or playback mode, press to enlarge the image of the selected channel.

7) 

16CH: Press to show the 4 / 9 / 16 channel display modes.

8CH: Press to show the 4 / 9 channel display modes.

4CH: Press to show the 4 channel display mode.

8) SEQ

Press to activate the call monitor function, and press again to quit.

9) POWER

Press long enough to turn on/off your DVR.

---

**Note:** Under the recording mode, please stop recording before turning off your DVR.

---

10) 1~16 / 1~8 / 1~4

Press one of the buttons to select the channel to display.

11) PLAY

Press to play the recorded video.

12) ⏸ (PAUSE/UP/ +), ◀◀ (REW/LEFT), ▶▶ (FF/RIGHT), ■ (STOP/DOWN/ -)


Press one of these four buttons to move the cursor up/down/left/right.

Under the playback mode, press these buttons to pause / stop / fast rewind / fast forward the playback file.

Under the setting mode, press "UP/ +" or "DOWN/ -" button to change the setting in the menu.

13) AUDIO (SLOW + ZOOM)

Press these two buttons at the same time to select live or playback sounds of the audio channels.

14) PTZ (SEQ + )

Press these two buttons at the same time to enter / exit the PTZ control mode.

In the PTZ control mode: Zoom in: Press "+" button ; Zoom out: Press "-" button

Adjust PTZ angle: Press direction buttons to turn up/down/left/right

15) "MENU" + "ENTER" (Key lock)

Press these two buttons at the same time to lock keys on the DVR front panel.

Press any button on the DVR front panel and enter the DVR password to exit the key lock mode.

16) USB port (Selected models only)

To quickly backup or upgrade firmware/OSD, you can insert a compatible USB flash drive into this USB port.

Before using the USB flash drive, please use your PC to format the USB flash drive as "FAT32" first.

17) REC (Selected models only)

Press to activate manual recording.

18) SNAP (Selected models only)

Connect a USB drive first and then press "SNAP" to take a snapshot picture of the current image on the monitor.

## 2.2. Rear Panel

1) 75Ω / HI-IMPEDANCE (Selected models only)

When using LOOP function, set the impedance switch at your DVR rear panel to HI-IMPEDANCE to decrease interferences. Otherwise, switch to 75Ω.

---

**Note:** The default setting is **75Ω**.

---

2) LOOP / INPUT (1 ~ 16CH / 1 ~ 8CH / 1 ~ 4CH)

LOOP: Video output connector. (Selected models only)

INPUT: Connect to video sources, such as cameras.

---

**Note:** If you want to make a video backup with audio, please make sure whether your DVR supports the audio function, and connect audio cameras to the channels which support the audio function.

---

3) MONITOR

Connect to MAIN monitor for video output.

4) CALL (Selected models only)

Connect to CALL monitor to show the channel display one by one.

When any alarm is triggered, CALL monitor will show the image of the triggered channel for a period of time.

5) Audio IN (Select models only)

Connect to audio sources, such as cameras equipped with the audio function.

Please get to know whether your DVR supports the audio function, and how many audio inputs are supported first.

---

**Note:** Depending on the model you have, this DVR series supports **UP TO FOUR** audio-in channels, which are Audio 1, Audio 2, Audio 3 and Audio 4 accordingly, and the audio data will be recorded with the video data of CH1, CH2, CH3 and CH4 respectively.

For example, if your DVR supports two audio-in, its audio channels will be Audio 1 and Audio 2.

When you playback CH1, you will also hear the audio recording of Audio 1.

---

6) Audio OUT (Selected models only)

Connect to an audio device, such as a microphone or speaker.

---

**Note:** Depending on the model you have, this DVR series supports **UP TO TWO** audio-out channels. Please get to know whether your DVR supports the audio function, and how many audio outputs are supported first.

---

7) USB (Selected models only)

To quickly backup or upgrade firmware/OSD, you can insert a compatible USB flash drive into this USB port. Before using the USB flash drive, please use your PC to format the USB flash drive as "FAT32" first.

8) IR (Selected models only)

Connect the IR receiver for remote control.

9) EXTERNAL I/O (Selected models only)

Insert the supplied 15PIN DSUB to this port for connecting external devices (external alarm, PTZ camera, etc).

For detailed I/O port PIN configuration, please refer to "APPENDIX 1 PIN CONFIGURATION" at page 26.

10) VGA (Selected models only)

Connect to a LCD monitor directly.

11) LAN (Selected models only)

Connect to Internet by LAN cable.

12) LINK ACT.

When your DVR is connected to the Internet, this LED will be on.

13) DC 19V

Connect to the supplied adapter.

## 3. CONNECTION AND SETUP

### 3.1. HDD Installation

The HDD must be installed before the DVR is turned on.

- Step 1: Loosen the screws on the upper cover and open the upper cover of the DVR.
- Step 2: Remove the HDD bracket.
- Step 3: Get a compatible HDD, and connect it to the power connector and data bus connector (make sure to align the HDD precisely for pin connection).
- Step 4: Put the HDD to the DVR, and replace the HDD bracket back to the DVR base.
- Step 5: Close the upper cover of the DVR, and fasten all the screws you loosened in Step 1.

### 3.2. Camera Connection

The cameras must be connected and power-supplied. And then connect the camera video output to the DVR video input port with a coaxial cable or RCA lines with BNC connectors. The DVR will automatically detect the video system of the connected camera(s) (NTSC / PAL), and switch itself to the correct system.

1) Power connection

Connect the camera with indicated power supply.

2) Video cable connection

Connect the camera video output to the DVR video input port with a coaxial cable or RCA line with BNC connector.

3) Audio cable connection (Selected models only)

Connect the camera audio output to the DVR audio input port with a coaxial cable or RCA line with BNC connector.

4) Camera Setup (PTZ cameras only)

For detailed camera title, ID, protocol and baud rate setup, please refer to "5.5. REMOTE" at page 13.

### 3.3. Optional Peripheral Connection (Selected models only)

Depending on the DVR model you have, this DVR series may support to connect other peripherals. For detailed connection, please refer to their own user manuals.

### 3.4. Power Setup

This device should be operated only with the type of power source indicated on the manufacturer's label. Connect the indicated AC power cord to the power adapter, and plug into an electrical outlet. The power LED will be on. It takes approximately 10 to 15 seconds to boot the system.

### 3.5. Date and Time Setting

Before operating your DVR, please set the date and time on your DVR first.

Press "MENU" and enter the password to go to the menu list. The default admin password is 0000. Move to "DATE" and you can set the date / time / daylight saving in the "DATE" menu list.

### 3.6. Password Setting

Press "MENU" and enter the password to go to the menu list. Then, Move to "ADVANCE" to enter the advanced



setting menu.

In the “ADVANCE” menu, Move to “SYSTEM” or “SYSTEM INFO”. Select “PASSWORD” and press “ENTER” to enter the submenu to set the password (four digits). The default admin password is 0000.

### **3.7. Record Setting**

By defaults, the record function is activated when the DVR is powered on and a camera is connected.

To change the record settings, Press “MENU” and enter the password to go to the menu list. Then, Move to “RECORD” to enter the advanced setting menu. You can set the image size, image quality and the image per second for recording.

For details, please refer to “5.2. RECORD” at page 10.

# 4. BASIC OPERATION

## 4.1 Live Page

Depending on the DVR you have, you may see the following live view screen with status icons.



Icon	Function	Icon	Function	Icon	Function	Icon	Function
	Key lock		Key unlock		1 <sup>st</sup> live audio channel		2 <sup>nd</sup> live audio channel
	3 <sup>rd</sup> live audio channel		4 <sup>th</sup> live audio channel		1 <sup>st</sup> playback audio channel		2 <sup>nd</sup> playback audio channel
	3 <sup>rd</sup> playback audio channel		4 <sup>th</sup> playback audio channel		Audio channel unselected		Digital zoom mode
	Digital zoom unselected		HDD overwrite		Timer recording		Motion
	Recording		Alarm		R.E.T.R.		

## 4.2. Recording

When the recording and the pre-alarm function are activated, this device will overwrite 8GB data from the oldest for continuous recording without notice.

1) Manual Recording Icon

By defaults, when the DVR is properly connected with cameras and the HDD is installed, you can see (recording) on the screen.

2) Event Recording Icon

When the motion / alarm detection is activated, once motion or external alarm happens, you will see (motion) or (external alarm) on the screen.

3) Timer Recording Icon

When the timer record is activated, you will see the LCD light of “Timer” is on, and (timer) on the screen.

## 4.3. Playback

Press "PLAY" on the DVR control panel, and the device will playback the latest recorded video.

---

**Note:** There must be at least 8192 images of recorded data for playback to work properly. If not, the device will stop playback. For example, if the IPS is set to 30, the recording time should be at least 273 seconds (8192 images / 30 IPS) for the playback to work properly.

---

### 1) Fast Forward / Fast Rewind

You can increase the speed for fast forward and rewind on this device. In the playback mode:

Press "FF" once to get 4X speed forward and press twice to get 8X speed, etc. And the maximum speed is 32X.

Press "REW" once to get 4X speed rewind and press twice to get 8X speed, etc. And the maximum speed is 32X.

---

**Note:** During playback, the image size of the recorded data (FRAME, FIELD or CIF) will be shown on the screen.

---

### 2) Pause / Image Jog

Press "PAUSE" to pause the playback.

In the pause mode:

Press "▶" once to get one frame forward.

Press "◀" once to get one frame rewind.

### 3) Stop



Press "STOP" under the playback mode, and the screen of this device will return to live monitoring mode.


### 4) Slow Playback



Press "SLOW" to get 1/4X speed playback and press twice to get 1/8X speed playback.

### 5) Audio Playback (Selected models only)

Use these two buttons to select the live or playback sound of the audio channels.

Icon  means: Live audio of the 1<sup>st</sup> audio channel / Icon  means: Playback audio of the 1<sup>st</sup> audio channel

Icon  means: Live audio of the 2<sup>nd</sup> audio channel / Icon  means: Playback audio of the 2<sup>nd</sup> audio channel

Icon  means: Live audio of the 3<sup>rd</sup> audio channel / Icon  means: Playback audio of the 3<sup>rd</sup> audio channel

Icon  means: Live audio of the 4<sup>th</sup> audio channel / Icon  means: Playback audio of the 4<sup>th</sup> audio channel

Icon  means: The audio channel is not selected.

---

**Note:** If you want to make a video backup with audio, please make sure whether your DVR supports the audio function, and connect audio cameras to the channels which support the audio function.

---

## 4.4. Search

### 1) Search by List



Press "LIST" on the DVR control panel to show the list for all types of the recorded files. Choose the list you want to view and press "ENTER" to start playback.

ALARM	List the information of the alarm-trigger-recorded files. (Selected models only)
MANUAL	List the information of the manual-recorded files. The DVR will save one recorded file once any recording setting is changed.
MOTION	List the information of the motion-trigger-recorded files.
SYSTEM	List the information of the system-recorded files. The DVR system will save one recorded file every one hour.
TIMER	List the information of the timer-recorded files.

## 2) Search by Time via DVR

Press “MENU” to enter the menu list, and go to “EVENT LOG”. Move to “QUICK SEARCH”, and press “ENTER” to enter the quick time search menu. You can search any specific events by time (Year / Month / Day / Hour / Min) and directly play the file you find.

## 3) Search by Record Event via Video Viewer

Click “” (Miscellaneous Control) to show the miscellaneous control panel. In the miscellaneous control panel, click “” (Status List) to enter the “Status List” page. In this page, you can see the list of three different types of recording (User / Motion / Alarm). Select the log you want, and click “Play” to directly playback the file.

## 4.5. Firmware / OSD Upgrade

### 1) By using USB flash drive

Step 1. Format the USB memory device as FAT32 format first.



Step 2. Get the upgrade files from your distributor and save the upgrade files in your USB flash device (do not change the file name).

Step 3. In the “SYSTEM” menu, Move to “UPGRADE”, and press “ENTER” button.

Step 4. Select “YES”, and press “ENTER” button again to confirm upgrade.

### 2) By using the supplied software “Video Viewer”

Step 1. Save the upgrade files at your PC (do not change the file name), and log into Video Viewer.

Step 2. Click “” (Miscellaneous Control) to show the miscellaneous control panel. In the miscellaneous control panel, click “” (Tools) on the miscellaneous control panel to enter the upgrade window.

Step 3. Enter the user name, password, IP address and port number of the DVR.

Step 4. Click “Firmware” or “Language” tab as needed, and click “Add” to select the firmware or OSD files to upgrade.

Step 5. Click “Update Firmware” or “Update Language” button to start the upgrade.

## 5. ADVANCED OPERATION

### 5.1. QUICK SEARCH

You can search any specific events by time and directly play the file you find from the DVR. Move to “QUICK SEARCH”, and press “ENTER”. You will see the following submenu items:

- 1) DATE  
Select the specific time period (YEAR / MONTH / DAY / HOUR / MIN) that you want to search.
- 2) SEARCH HDD  
Change to the HDD you want if there are more than 1 HDD in your DVR.
- 3) START  
Move to “START” and press “ENTER” button to search and directly playback the recorded files.

### 5.2. RECORD

In this menu list, you can set record settings. Press “MENU” button on the front panel. The default admin password is **0000**. Enter the default password, and press “ENTER”. Users can change the password later. Move to “RECORD”, and press “ENTER”. The screen will show the following submenu items:

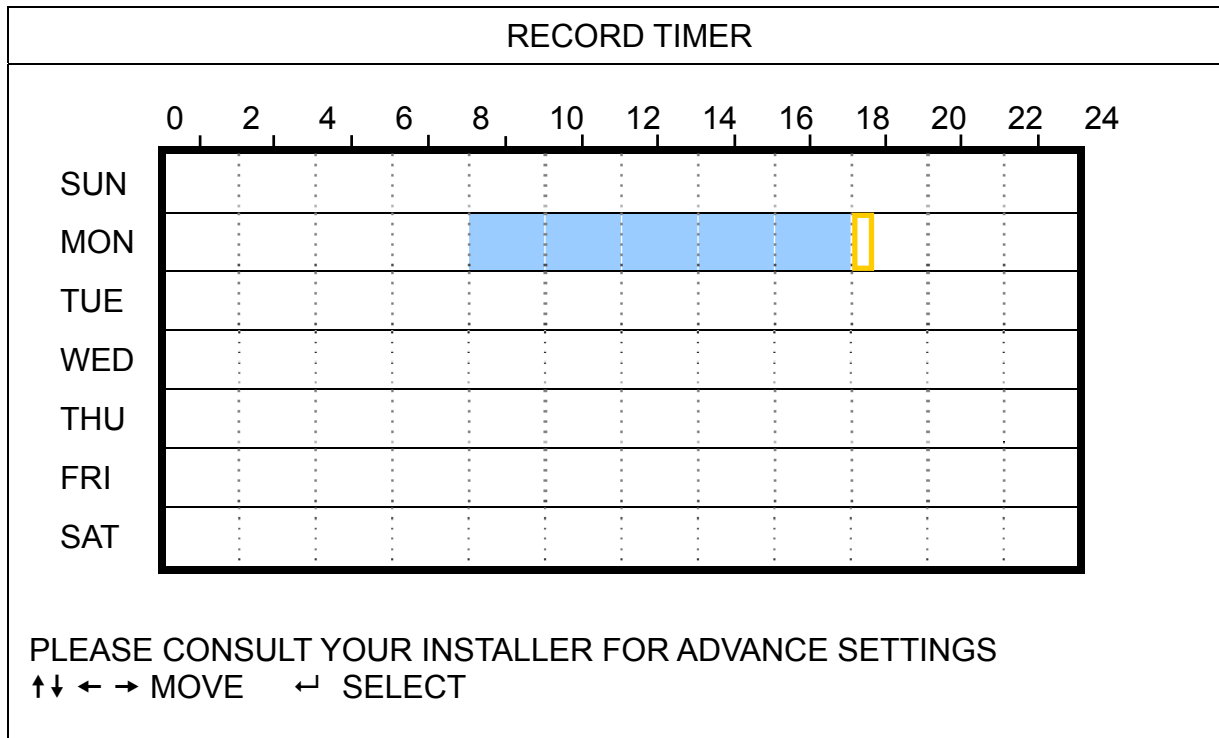
- 1) IMAGE SIZE  
Select FRAME, FIELD (Selected models only) or CIF.
- 2) QUALITY  
Select one of the 4 quality options: BEST, HIGH, NORMAL and BASIC.
- 3) MANUAL RECORD ENABLE  
Start / stop the manual recording function.
- 4) EVENT RECORD ENABLE  
Start / stop the event recording function. When this function is enabled, the recording will be triggered by any motion or external alarm.
- 5) TIMER RECORD ENABLE  
Start / stop the timer recording that is activated according to the scheduled time
- 6) MANUAL RECORD IPS or IMAGE PER SECOND (Selected models only)  
Select the images per second for MANUAL RECORD.
- 7) EVENT RECORD IPS  
Select the images per second for EVENT RECORD (Recording that is triggered by alarm or motion).
- 8) TIMER RECORD IPS  
Select the images per second for TIMER RECORD (Recording that is activated according to the scheduled time.).
- 9) PRE-ALARM RECORD (Selected models only)  
Select to enable or disable the pre-alarm function (ON / OFF).  
When pre-alarm and event recording functions are both activated, the DVR will record 8MB data before an alarm / motion event is triggered.
- 10) OVERWRITE (Selected models only)  
Select to overwrite previous recorded data in your HDD. When the HDD is full under the O/W recording mode, the DVR will clear 8GB data from the oldest for continuous recording without notice.

### 5.3. TIMER

In this menu list, you can schedule different sets of time for recording and detection function. Move to “TIMER”, and press “ENTER”. Select to enable (ON) or disable (OFF) the recorder timer and / or detection timer functions.

1) RECORD TIMER

Use the “UP” “DOWN” button to change the setting (ON / OFF). When it’s set to “ON”, press enter button to go to its submenu for further settings.



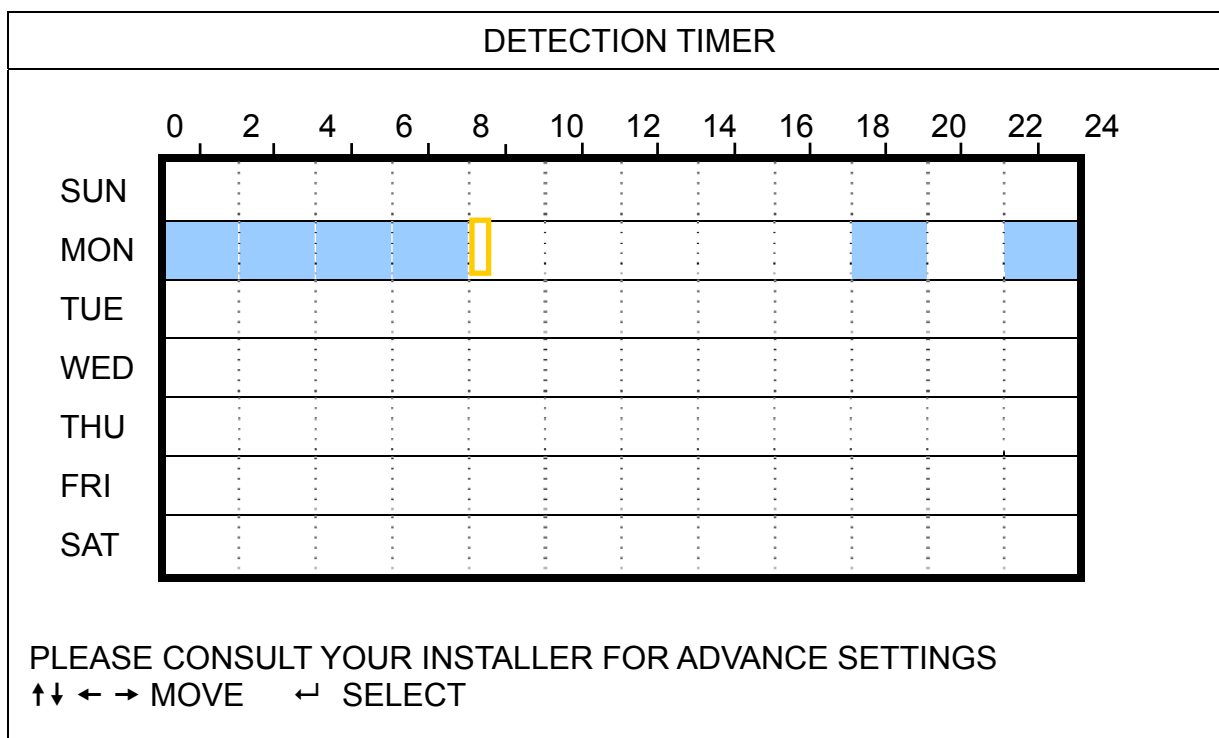
X axis 0 ~ 24 hours. Each time interval within a square is two hours (divided into four 30-minutes).

Y axis Monday ~ Sunday.

Operation Move to the start time point, and press enter to set the start time point (marked in red color). Then, press “UP”, “DOWN”, “LEFT”, “RIGHT” button to set the timer-recording schedule. After setup, press enter button again to create an ending time point (marked in yellow color) and press “MENU” button to exit.

2) DETECTION TIMER

Use the “UP”, “DOWN” button to change the setting (ON / OFF). When it’s set to “ON”, press enter button to go to its submenu for further settings.





- X axis      0 ~ 24 hours. Each time interval within a square is two hours (divided into four 30-minutes).
- Y axis      Monday ~ Sunday.
- Operation    Move to the start time point, and press enter to set the start time point (marked in red color). Then, press "UP", "DOWN", "LEFT", "RIGHT" button to set the timer-recording schedule. After setup, press enter button again to create an ending time point (marked in yellow color) and press "MENU" button to exit.

**Note:** This function here is only for detection timer setup and activation.

## 5.4. DETECTION

In this submenu, you can set up detection-related functions.

Move to "DETECTION", and press "ENTER". The screen will show the following submenu items:

1) TITLE

Show the camera title of each channel set in "CAMERA".

2) DET

The available options vary depending on the model you have.

For Model 1 & 2: Select if you want to activate the motion detection function for the selected channel (ON/OFF).

For Model 3 & 4: Select HIGH / NORMAL / LOW to activate the motion detection function with different sensitivity for the selected channel, or select OFF to disable this function.

3) AREA

Press "ENTER" button to set the detection area. You will see similar screens as the following:

Pink blocks represent the area that is not being detected while the transparent blocks are the area under detection.

There are two different methods to set the detection area depending on the model you have.

### Method 1



Transparent blocks are the area under detection.



Press "ENTER" to confirm the start area.



Press "LEFT" / "RIGHT" to choose the width of the detection area.



Press "UP" / "DOWN" to choose the height of the area.



You can also set up multi-detection area.



When any movement is detected, you will see the grids are flashing.

\*Pink blocks represent the area that is not being detected while the transparent blocks are the area under detection.

### Method 2



\*Pink blocks represent the area that is not being detected while the transparent blocks are the area under detection.

There are three detection areas for your choice:

Press “▲” or “◀” once to broaden the detection area.

Press “▼” or “▶” once to narrow the detection area.

4) LS (Level of Sensitivity) (Selected models only)

“LS” is to set the sensitivity of comparing two different images. The smaller the value is, the higher sensitivity for motion detection.

5) SS (Spatial Sensitivity) (Selected models only)

“SS” is to set the sensitivity for detecting the size of one object (the number of the grids) on the screen. The smaller the value is, the higher sensitivity for motion detection.

---

**Note:** The default setting of SS is 03, which means once an object is detected more than 3 grids, the system will get triggered. So the value of SS must be less than the number of grids that you set up for the motion detection area.

---

6) TS (Time of Sensitivity) (Selected models only)

“TS” is to set the sensitivity regarding how long one object stays in the detection area and triggers the recording. Depending on the model you have, you may see either of the following methods:

- a). Select a value -- The smaller the value is, the higher sensitivity for motion detection.
- b). Select an option – HIGH / NORMAL / HIGH.

7) RE (Reference) (Selected models only)

“RE” is to set a reference for detection. The default value is 10, which means the DVR will compare 10 continuous images at one time according to the sensitivity of LS, SS, TS simultaneously.

8) ALARM (Selected models only)

Select N.C. (Normally Closed) / N.O. (Normally open) / OFF for the alarm polarity. The default alarm value is OFF.

## 5.5. REMOTE (Selected models only)

In this menu list, you can set up remote devices to work properly.

Move to “REMOTE”, and press “ENTER”. You will see the following submenu items:

1) TITLE

Show the camera title of each channel set in “CAMERA”.

2) DEVICE

Select the device type (CAMERA / PTZ) according to the connected camera for each channel.

3) ID

Set the ID number (0 ~ 255) for a PTZ camera. After connecting to a PTZ camera correctly, the default ID of the PTZ camera will be shown on the screen.

4) PROTOCOL

Select NORMAL (our protocol) or P-D (PELCO-D) protocol.

5) RATE

Set the baud rate of each channel (2400 / 115200 / 9600 / 19200 / 57600 / 115200). For the connected cameras, such as PTZ and speed dome cameras, etc., please make sure their baud rate setting is the same as the setting here.

## 5.6. SYSTEM / SYSTEM INFO

In this menu list, you can check or change some system settings.

The submenu items are described below:



- 1) SERIAL TYPE (Selected models only)  
Press "UP" / "DOWN" button to set the serial type of the DVR (RS485).
- 2) BAUDRATE (Selected models only)  
Set the baud rate of the DVR (2400 / 9600 / 19200 / 57600 / 115200).
- 3) HOST ID (Selected models only)  
Set the ID of the DVR (0 ~ 254).
- 4) PASSWORD  
Press "ENTER" to reset the password for accessing the DVR system. You can set the password up to 4 digits.

**Note:** Users who use guest password to access the DVR will be only allowed to view the live streaming video and sequence display, shift the channel display, and lock keys.

- 5) RESET DEFAULT  
Press "ENTER" to reset all settings as default, and select "YES" to confirm or "NO" to cancel.
- 6) CLEAR HDD  
Select the HDD you want to clear. Press "ENTER", and select "YES" to confirm to clear HDD or "NO" to cancel.
- 7) UPGRADE  
Before using the USB flash drive, please use your PC to format the USB flash drive as FAT32 format first. Then, save the upgrade file in a compatible USB flash drive, and insert it into the USB port at the front panel. Press "ENTER", and select "YES" to confirm upgrade or "NO" to cancel.

**Note:** To use this function, you need to have the upgrade file saved in a compatible USB flash drive, and insert it into the USB port at the front or rear panel.

**Note:** Do not disconnect the power of your DVR while the upgrade process is in progress, or the DVR functions may not work normally or be unable to use.

- 8) AUTO KEYLOCK (SEC)  
Set the time-out in second after which the key lock function is activated (NEVER / 10 / 30 / 60).
- 9) LANGUAGE (Support multi-language)  
Select the language of the OSD.
- 10) VIDEO FORMAT  
Here shows the information of the DVR video format (NTSC / PAL).
- 11) VERSION  
Here shows the firmware version information.

## 5.7. NETWORK (Selected models only)

In this menu list, you can set up the network.

Move to "NETWORK", and press "ENTER" button to enter the submenu. The submenu items are described below.

### 5.7.1. STATIC

- 1) NETWORK TYPE  
Select the network type as STATIC and set all the information needed in the DVR.
- 2) NETWORK INFORMATION (IP / GATEWAY / NETMASK)  
Key in all the network information obtained from your ISP (Internet Service Provider).

3) DNS (PRIMARY DNS / SECONDARY DNS)

Key in the IP address of the domain name server obtained from your ISP (Internet Service Provider).

4) PORT

The valid number ranges from 1 to 9999. The default value is 80. Typically, the TCP port used by HTTP is 80. However in some cases, it is better to change this port number for added flexibility or security.

See the example below:

STATIC	
NETWORK TYPE	STATIC
IP	192 . 168 . 001 . 012
GATEWAY	192 . 168 . 001 . 254
NETMASK	255 . 255 . 252 . 000
PRIMARY DNS	168 . 095 . 001 . 001
SECONDARY DNS	139 . 175 . 055 . 244
PORT	0080
PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTING	
↑↓ SELECT   ← BACK   → NEXT   ↵ ENTER	

**5.7.2. PPPOE**

5) NETWORK TYPE

Select the network type as PPPOE.

6) USER NAME / PASSWORD

Set the “username” and “password” subscribed from your ISP supplier

7) DNS (PRIMARY DNS / SECONDARY DNS)

Key in the IP address of the domain name server obtained from your ISP (Internet Service Provider).

8) PORT

The valid number ranges from 1 to 9999. The default value is 80. Typically, the TCP port used by HTTP is 80. However in some cases, it is better to change this port number for added flexibility or security.

See the example below:

PPPOE	
NETWORK TYPE	PPPOE
USER NAME	EMPTY
PASSWORD	EMPTY
IP	000 . 000 . 000 . 000
GATEWAY	000 . 000 . 000 . 000
NETMASK	000 . 000 . 000 . 000
PRIMARY DNS	168 . 095 . 001 . 001
SECONDARY DNS	139 . 175 . 055 . 244
PORT	0080
PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTING	
↑↓ SELECT   ← BACK   → NEXT   ↵ ENTER	

---

**Note:** The PPPOE function needs to have one “username” and one “password” subscribed from one ISP supplier, and a “DDNS account” to correspond the dynamic IP address to a specific “Hostname”.

---

### 5.7.3. DHCP

9) NETWORK TYPE

Select the network type as DHCP.

10) DNS (PRIMARY DNS / SECONDARY DNS)

Key in the IP address of the domain name server obtained from your ISP (Internet Service Provider).

11) PORT

The valid number ranges from 1 to 9999. The default value is 80. Typically, the TCP port used by HTTP is 80. However in some cases, it is better to change this port number for added flexibility or security.

See the example below:

DHCP	
NETWORK TYPE	DHCP
IP	000 . 000 . 000 . 000
GATEWAY	000 . 000 . 000 . 000
NETMASK	000 . 000 . 000 . 000
PRIMARY DNS	168 . 095 . 001 . 001
SECONDARY DNS	139 . 175 . 055 . 244
PORT	0080
PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTING	
↑↓ SELECT   ← BACK   → NEXT   ↵ ENTER	

---

**Note:** This DHCP function needs to be supported by a router or a cable modem network with DHCP services, and a “DDNS account” to correspond the dynamic IP address to a specific “Hostname”, for this function to work properly.

---

### 5.8. BACKUP (Selected models only)

In this menu list, you can choose to make a copy for a specified period time to a compatible USB flash drive for your own purpose.

The backup file can be played directly in your PC via the supplied licensed software “Video Viewer”. For details, please refer to “Playback” at page 21.

---

**Note:** Before making a video backup with audio, you need to make sure whether there’s any audio camera connected to the channel which supports audio recording, and there’s any recorded data for the channel.

---

#### 5.8.1. USB BACKUP (Selected models only)

Before making USB backup, please check if:

The USB flash drive is supported by your DVR. If not, the message “USB ERROR” will be shown on the screen. For the list of the compatible USB flash drives, please refer to “APPENDIX 3 COMPATIBLE USB FLASH DRIVE LIST” at page 28.

The format of your USB flash drive is "FAT 32". If no, please format it to “FAT 32” in your PC.

There is no data in the USB flash drive. If yes, it’s recommended to clear all data in the USB flash drive before starting the backup. Move to “BACKUP”, and press “ENTER”. You will see the following submenu items:

1) START TIME

Select the start time of the backup.

- 2) END TIME  
Select the end time of the backup.
- 3) AVAILABLE SIZE  
Display the available capacity in the inserted USB flash drive.
- 4) CHANNEL  
Select channels by pressing “ENTER” button to change the symbol in front of the channel number.  
Symbol “  ” means that this channel is selected to backup.  
Symbol “  ” means that this channel is not selected to backup.
- 5) HDD NUM  
Select the HDD containing the data you need.
- 6) START  
Press “ENTER” to start copying the chosen data to the USB flash drive.

---

**Note:** Depending on the model you have, this DVR series supports **UP TO FOUR** audio-in channels, which are Audio 1, Audio 2, Audio 3 and Audio 4 accordingly, and the audio data will be recorded with the video data of CH1, CH2, CH3 and CH4 respectively.

For example, if your DVR supports two audio-in, its audio channels will be Audio 1 and Audio 2. When you playback CH1, you will also hear the audio recording of Audio 1.

---

### 5.8.2. DISK BACKUP (Selected models only)

Before making disk backup, please check if the type of your DVD is DVD-R. The maximum number of backup files in the CD or DVD is 41.

---

**Note:** During the backup process, a file player will also be copied into your disk, and you will see a message “BACKUP PLAYER” shown on the screen.

---

Move to “DISK BACKUP”, and press “ENTER” button.

The submenu items and their functions are almost the same as USB BACKUP. For the description of the submenu items, please refer to the previous page.

The process below describes how to make a disk backup:

- a) Press “EJECT” button to open the disk tray. Put the DVD into a DVR writer, and press “EJECT” button again to close the disk tray.
- b) Go to “DISK BACKUP” menu, and set the start time, end time, channels and HDD.
- c) Move to “START”, and press “ENTER” to start backup.  
While DVD backup is processing, users will see the backup completed percentage on the screen.
- d) After DVD backup is completed, “DISK BURN FINISH” will be prompted on the screen. Press “EJECT” button to eject the DVD tray and get the DVD.
- e) Put the DVD into the DVD-ROM drive of your PC. Double click the file to convert it into “VSE” format. Play the converted file in your PC to see if the backup is successful.

---

**Note:** The supported PC operation systems are Windows 2000, Windows XP and Vista.

---

# 6. REMOTE OPERATION

You can also control the DVR remotely via the supplied licensed software “Video Viewer” (hereafter called the “Video Viewer”), IE web browser, and Apple’s QuickTime player **ONLY** when your DVR supports the network function.

**Note:** The buttons and functions described below may differ from the actual ones and are for selected model(s) only.

## 6.1. Video Viewer

### 6.1.1. Installation & Network Connection





1) Install the software

Place the supplied CD-ROM into your DVD- / CD-ROM drive. The installation process will automatically start. Follow the on-screen instructions to install the application programs.

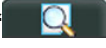


After installation, a shortcut icon  will be shown on your PC desktop.

2) Network Connection




➤ Local Connection (via LAN)

- a) Connect the DVR to your PC via a RJ-45 network line. The default DVR IP address is “192.168.1.10”, and the default user name and password are both “admin”.
- b) Set the PC’s IP address as “192.168.1.XXX” (1~255, except 10) in order to make the PC and DVR under the same domain.
- c) Double-click  icon on your PC desktop to enter the control panel. By defaults, the “Address Book” () panel will be displayed on the right side of the control panel.
- d) Click  (Address Book) →  (Add) button to key in the default IP address, user name, password, and port number of the DVR you intend to connect.

OR

- Click  (Search) →  (Refresh) to search the available IP address(es) of other DVR(s) under the same domain as your PC’s IP address. The found address(es) will be listed, and can be added into the address book by clicking  (Add into address book).
- e) Double-click the IP address you just added into the address book to log in. When you’re logged in, the “Event” panel will be shown by defaults.

➤ Remote Connection (via Internet)

- a) Double-click  icon on your PC desktop to enter the control panel. By defaults, the “Address Book” panel will be displayed on the right side of the control panel.
- b) Click  (Address Book) →  (Add) button to key in the IP address, user name, password, and port number of the DVR you intend to connect.

The default DVR values are as follows:

Item	Default Value
IP address	192.168.1.10
User name	admin
Password	admin
Port	80

OR

Click "🔍" (Search) → "🔄" (Refresh) to search the available IP address(es) of other DVR(s) under the same domain as your PC's IP address. The found address(es) will be listed, and can be added into the address book by clicking "📁" (Add into address book).

- c) Double-click the IP address you just added into the address book to log in. When you're logged in, the "Event" panel will be shown by defaults.

### 6.1.2. Control Panel

After setting up the network information, login user name and password, double-click "👁️" on the PC desktop to open and log into the control panel. You will see a screen similar to the following with 7 major sections:










NO.	Button	Function	Description
①	N/A	Image Display	The place where the images are displayed.
②		Address Book	Click to show the predefined IP address(es). You can add, remove or search the IP address to log in the DVR remotely. Two sub-functions are available for this button: Address Book and Search.
③		Miscellaneous Control	Click to show the main operation functions: audio volume control, color setting, backup, DVR setting, upgrade, and find event logs. For details, please see "Miscellaneous Control" at page 20.
④		Record / Record Stop	Click to start / stop the manual recording.
⑤		Snapshot	Click to take a snapshot of the current view. The snapshot will be saved in the path you specified in "Record Setting".
⑥		Information	Click to show the current network connection details.
⑦		DVR Control	Click to go to the DVR control panel to operate the DVR remotely.

### Miscellaneous Control



Click “” (Miscellaneous Control) on the control panel, and 7 functions are available as follows:

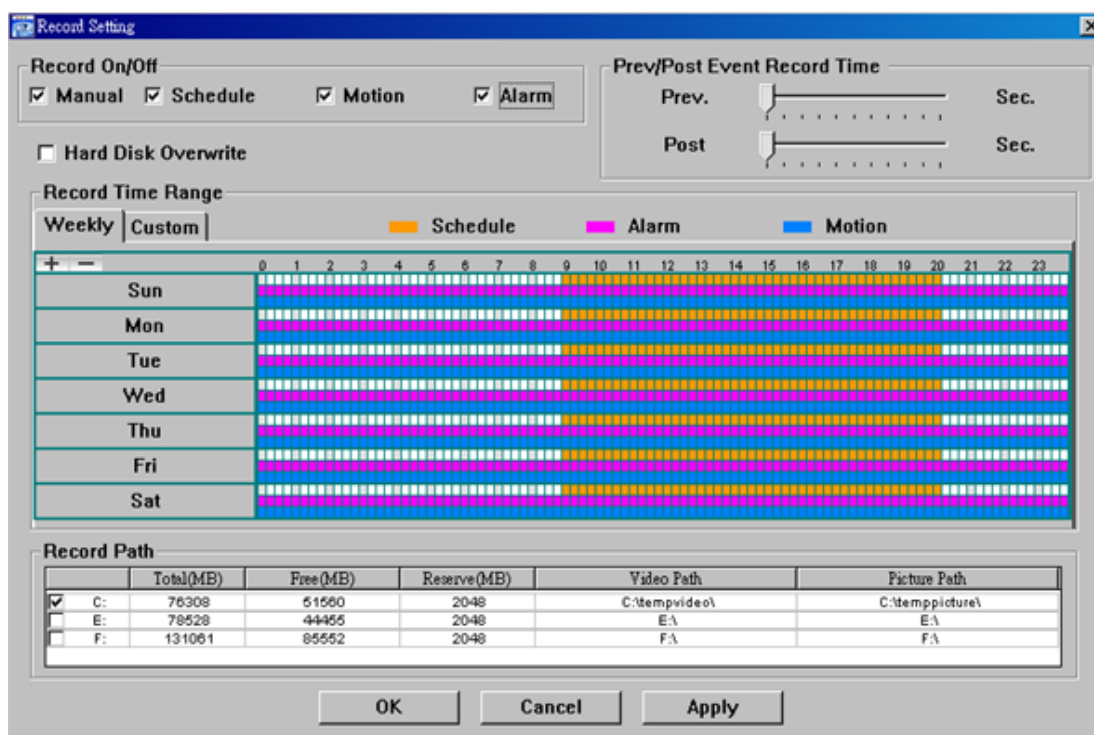


NO.	Button	Function	Description
①		Audio Volume Control	To adjust the volume of the audio channel, press and drag the volume slider.
②		Color Setting	Click this button to adjust the brightness / contrast / hue / saturation for a single channel or the whole channels.
③		Backup	To make a video backup remotely, click this button, and you will go to the download setting page.
④		Record Setting	Click to go to the detailed record setting.
⑤		Server Setting	Click to go into the detailed DVR setting.
⑥		Tools	Click to update the firmware version, multilingual OSD and boot display of your DVR remotely.
⑦		Status List	Click to view all event and recording logs, search the desired log(s) by date, or playback the recording of the selected log.

### 6.1.3. General Operation

#### Record


To record remotely at the same time when any event alarm is triggered at the DVR side, click “” (Miscellaneous Control) → “” (Record Setting) to go to the “Record Setting” page.







In the “Record Setting” page, you can set the following items:

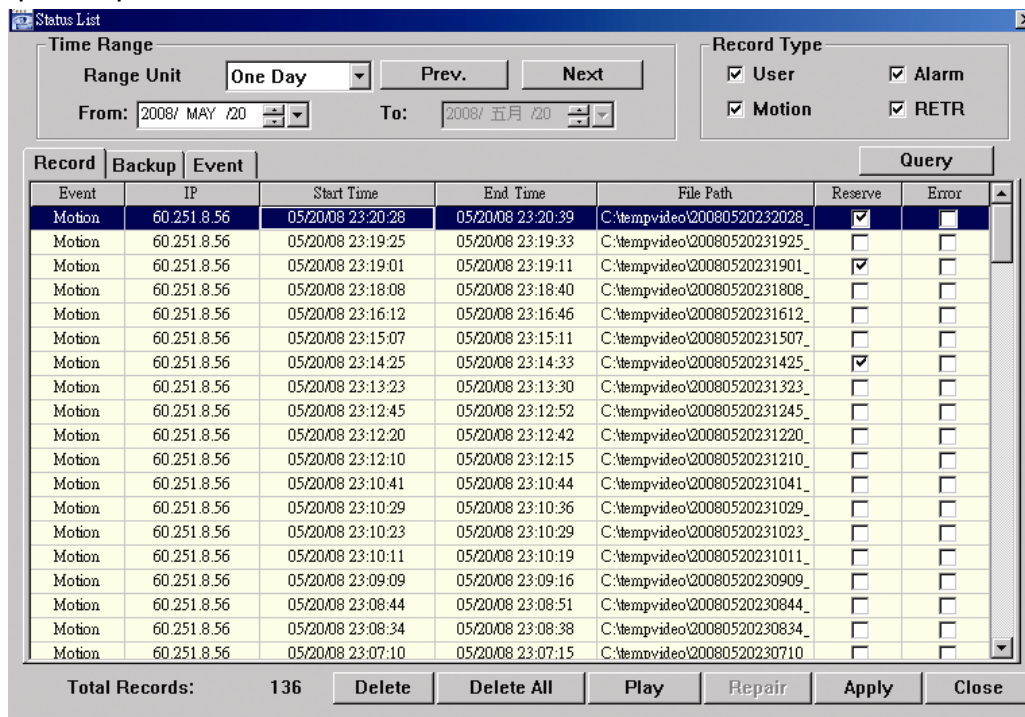
- Record type
- Hard disk overwriting
- Pre- / post-alarm record time
- Record time setting
- Record path

If “Manual” is checked, click “” (Record) on the main control panel to start the manual recording immediately, and the recordings will be saved in the specified location. The red text indication “REC” will be shown at the top left corner of the image display view.

If “Motion” and / or “Alarm” are checked, the recording function will also be enabled at the remote side when any event is triggered at the DVR side, and the recordings will be saved in the specified location.

### Playback

To play a recording, click “” (Miscellaneous Control) → “” (Status List), and select the “Record” tab or “Backup” tab. A list of all the recordings will be shown by defaults, and you can also sort out the logs you want to speed up the search time.





To immediately play a recording, select a log from the list, and click “Play” button, or double-click the selected log. Then, the playback control panel will be shown at the bottom of the main control panel similar to the following.

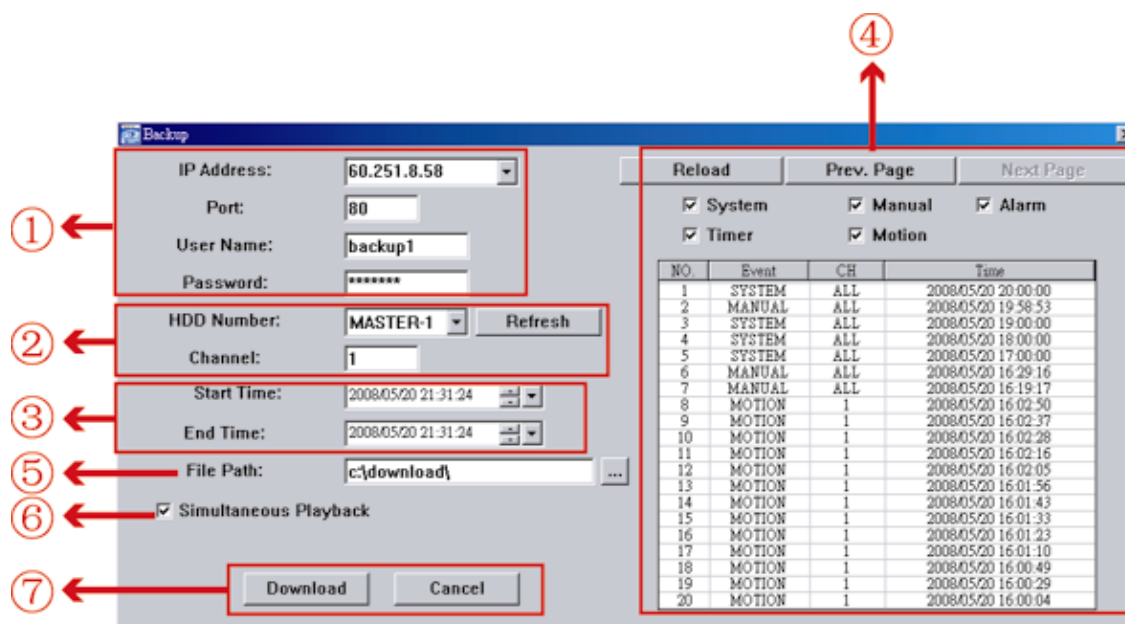




## Network Backup

Click “” (Miscellaneous Control) → “” (Backup) to go into the “Download” page as follows, and you can select a specific time range or event to make a video backup remotely.

**Note:** Before enabling the network backup function, make sure the DVR is not in the playback mode, or the DVR will stop playback.



NO.	Function	Description
①	IP Address / Port / User Name / Password	Check if the network connection information of the DVR within which contains the video data you need is correct.
②	HDD Number / Channel	Specify the hard disk (HDD Number) and channel number (Channel) within which have the video data you need.
③	Download by Time	Specify the time range within which has the video data you want in the “Start Time” and “End Time” columns.
④	Download by Event	Select an event log from the event list. This list shows all logs in the specified DVR from the latest to the earliest. <ul style="list-style-type: none"> <li>• To quickly find the events you need, check or uncheck the event type “System” / “Manual” / “Alarm” / “Motion”, and select the log you want.</li> <li>• To view the earlier or later logs that are not shown in the current page, click “Prev. Page” or “Next Page”.</li> <li>• To refresh the event list, click “Reload”.</li> </ul>
⑤	File Path	Assign the location where the backup files are saved.
⑥	Simultaneous Playback	To view the backup images simultaneously when the download process is in progress, select the checkbox “Simultaneous Playback”. You will see the backup images while the images are being downloaded to the PC or notebook.  To simply backup images without previewing, deselect the checkbox “Simultaneous Playback”. You will only see a message box indicating the total time needed, the current status and the saving location.
⑦	Download / Cancel	Click “Download” to start or “Cancel” to discard the video backup.

## 6.2. IE Web Browser

**Note:** The supported PC operation systems are Windows Vista / XP / 2000.

Step 1: Key in the IP address used by your DVR in the URL address box, such as 60.121.46.236, and press Enter. You will be prompted to enter the user name and password to access the DVR.












If the port number your DVR used is NOT 80, you need to key in the port number additionally. The format is **ipaddress:portnum**. For example, for IP address 60.121.46.236 and port No. 888, please key in "http://60.121.46.236:888" into the URL address box, and press "Enter".

Step 2: Enter the user name and password, the same as the ones used for video viewer login, and press "OK". You will see a screen when the login information is correct.

**Note:** The buttons and functions described below may differ from the actual ones and are for selected model(s) only.



NO.	Function	Description
1	Home	Click  to go to the main page of the DVR
2	Config.	Click  to go to the detailed DVR setting.
3	PTZ	Click  to enter the PTZ mode.
4	Channel Selection	Click one of the number to switch to the channel you want to see in full screen.
5	Selection	Click  or  to go to the previous / next channel, or change setting.
6	Display Mode	: Click to show 4-cut display. : Click to display each channel one by one, starting from CH1. When the last channel is displayed, it will start from CH1 again. To exit from this display mode, press any other channel display button.
7	Menu and Arrow Keys	: Click to enter the menu / exit the menu mode. / : Move the cursor up / down to select the previous / next menu or sub-menu function, or change the setting. / : Move the cursor left / right to the previous / next sub-menu items.
8	Event	Click  to enter the playback search settings screen.
9	Snapshot	Click  to take a snapshot for the current view, and open another browser window to display the captured image.

NO.	Function	Description
10	Key Lock	Click  to enable the DVR key lock function. To unlock the DVR, key in your password, and press  .
11	Enter	Click  to confirm the setting or enter your selection.
12	Digital Zoom	Click  to zoom in / out the selected channel image.
13	Search	Click  to enter the DVR full search menu. You can check all the logs here, and select one of them to payback.
14	Playback control buttons	 (Stop) /  (Play) /  (Rewind) /  (Forward) /  (Pause) /  (Slow Playback) <b><u>Rewind / Forward</u></b> Click once to get 4X fast rewind / forward, twice to get 8X, three times to get 16X, and four times to get 32X the highest. <b><u>Slow Playback</u></b> Click once to get 4X slow playback and twice to get 8X slow playback.
15	Web Transmission	<b><u>H.264 / M-JPEG / QuickTime (Depending on the model you have)</u></b> QuickTime is Apple Inc.'s multimedia software. You need to have QuickTime installed in your operation system first. When "QuickTime" is selected, you will be promoted to enter the user name and password to access the server of the DVR.
16	Change Quality	<b><u>BEST / HIGH / NORMAL / BASIC</u></b> Click to change the image quality.
17	Change Resolution	<b><u>4 CIF / CIF</u></b> Click to change the image resolution (4CIF: 704*480 / CIF: 352*240)

### 6.3. QuickTime Player

**Note:** The supported PC operation systems are Windows Vista / XP / 2000, and Apple Mac.

You can use the QuickTime player to remotely log into the DVR and check the live view only.

**Note:** QuickTime is Apple's multimedia software. You need to have QuickTime installed in you operation system first, and you can access the DVR to see the live view.

If you have installed QuickTime, please skip Step 1.

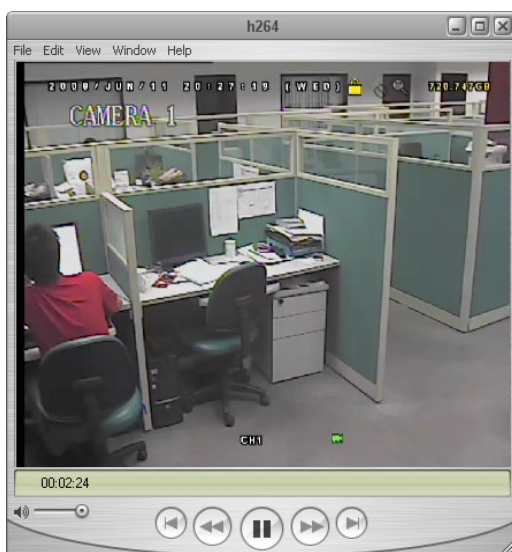
- Step 1: Go to Apple's official website to download QuickTime. The website address is as follows:  
<http://www.apple.com/quicktime/win.html>
- Step 2: a). Click "Download" to go into the download page, and select to download the free player.
- Step 3: b). Leave your Email address, and press "Free Download Now" to download the latest QuickTime player.
- Step 4: c). When the download is completed, execute the "QuickTimeInstaller.exe" file, and follow the on-screen instructions to finish the installation procedure.
- Step 5: Open your QuickTime player. Select "File" → "Open URL", and key in the URL address. The URL format is "rtsp://ipaddress/live/mpeg4" (For example, "rtsp://59.124.231.75/live/mpeg4"). Click "OK" to continue.



- Step 6: A pop-up window will appear and prompt you to enter the authentication information. Key in the user name and password for accessing your DVR. The user name and password are the same as the ones you use to log into the AP.
- Step 7: If the information is correct, press "OK" to go on. If not, press "Cancel" to quit the accessing.



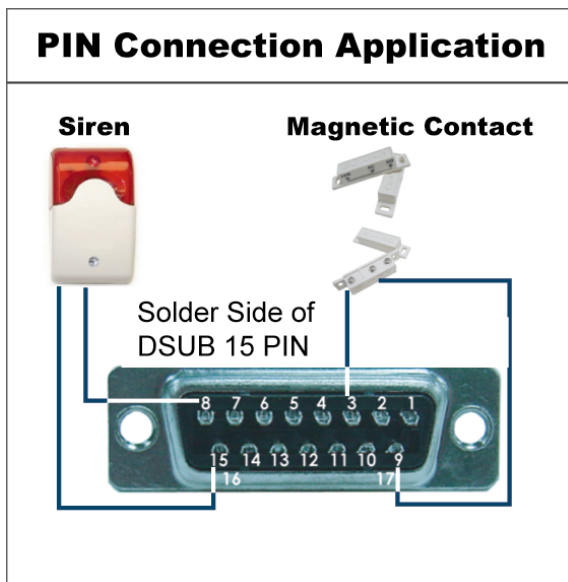
- Step 8: When the login is successful, you will see a similar screen as the following.





# APPENDIX 1 PIN CONFIGURATION

- For 4CH DVR



### Siren

When the DVR is triggered by alarm or motion, the COM connects with NO and the siren with strobe starts wailing and flashing.

### Magnetic Contact

When the magnetic contact is opened, the alarm will be triggered and the recording is on.

PIN	FUNCTION	DESCRIPTION
1~2	PIN OFF	NA
3~6	ALARM INPUT	Connect ALARM INPUT (PIN 3 – 6) and GND (PIN 9) connector with wires. Once an alarm is triggered, the DVR will start recording and the buzzer will be on. PIN 3 is Alarm 1. Once the alarm is triggered, the CH1 of the DVR will start alarm-triggered recording. PIN 4 is Alarm 2. Once the alarm is triggered, the CH2 of the DVR will start alarm-triggered recording. PIN 5 is Alarm 3. Once the alarm is triggered, the CH3 of the DVR will start alarm-triggered recording. PIN 6 is Alarm 4. Once the alarm is triggered, the CH4 of the DVR will start alarm-triggered recording.
7	NC	Under the normal operation, COM connects with NC and disconnects from NO. But when any alarm is triggered, COM disconnects with NC and connects with NO. Attention: The voltage restriction is under DC24V 1A.
8	NO	Under the normal operation, COM disconnects with NO. But when any alarm is triggered, COM connects with NO. Attention: The voltage restriction is under DC24V 1A.
9	GND	GROUND
10	RS485-B	Using RS-485 serial communication signals, DVR can be controlled by keyboard controller.
11	RS485-A	Using RS-485 serial communication signals, DVR can be controlled by keyboard controller.
12~14	PIN OFF	NA
15	EXTERNAL ALARM COM	Under the normal operation, COM disconnects with NO. But when any alarm is triggered, COM connects with NO. Attention: The voltage restriction is under DC24V 1A.

## APPENDIX 2 TROUBLESHOOTING

Please refer to the table below for easy troubleshooting. The table describes some typical problems and also their solutions. Please check them before calling your DVR dealer.

- **FAQ (Frequently ask question)**

Questions	Solutions
No power	Check power cord connection.
	Confirm that there is power supplied from the outlet.
DVR is not working when pressing any button	You might be under "Key Lock" mode. Press any key and enter the password to exit this mode.
HDD detection failed	Replace with another HDD for testing.
	Replace with another HDD cable for testing.
Can't detect your USB flash drive	Replace with another USB flash drive for testing.
	Format the USB flash drive as FAT32 format and try again.
No live video	Confirm the camera is power supplied.
	Check the setting of the camera lens.
	Check the monitor's video cable and connection.
	Check the camera's video cable and connection.
No recorded video	Check if the HDD is installed and connected properly.
	Check if "MANUAL RECORD ENABLE" option is set to "ON", and the record function in the "CAMERA" menu is set to "ON", too.
Timer recording is not working	Check if "TIMER RECORD ENABLE" option is set to "ON", and the timer schedule has been arranged.
Motion detection recording is not working	Check if "EVENT RECORD ENABLE" option is set to "ON".
	Check if the detection function "DET" is set to "ON".
	Check if the detection area "AREA" has been set.
Can't play the recorded data on my DVR	There must be at least 8192 images of recorded data for playback to work properly. If not, your DVR will stop the playback. For example, if the IPS is set to 30, the recording time should be at least 273 seconds (8192 images / 30 IPS) for the playback to work properly.
Can't backup the video with audio	Make sure your DVR support the audio function.
	Make sure your camera supports the audio function.
	Make sure your audio camera is connected to the correct DVR audio input.
Can't view the DVR images over the network with IE web browser after login	Check the DVR firmware version.
	Choose to allow the web browser ActiveX or applet in the pop-out message.
Failed to backup the recorded files of the DVR from the remote PC side	You need to be a supervisor to operate this function.
	Check if the network connection information is correct (IP Address / Port / User Name / Password).
	Specify the hard disk (HDD Number) and channel number (Channel) within which have the recorded data you need.
Failed to upgrade the firmware / OSD file via USB flash drive	Check if the USB flash drive is formatted to FAT32.
	Check if the firmware / OSD files are correct.
Can't use the IR remote control	Check if your DVR supports the IR remote control.
	Check if the batteries are installed.
	Aim at the IR receiving zone and try again.

## APPENDIX 3 COMPATIBLE USB FLASH DRIVE LIST

Please upgrade the firmware of the DVR to the latest version to ensure the accuracy of the following table. If the USB flash drive is not supported by the DVR, the “USB ERROR” message will be shown on the screen.

**Note:** Please use your PC to format the USB flash drive as “FAT32”.

MANUFACTURER	MODEL	CAPACITY
Transcend	JFV35	4G
	JFV30	8G
Kingston	DataTraveler	1G
PQI	U172P	4G
Apacer	AH320	2GB
	AH320A	8GB
	AH220	1GB
	AH320	4GB
A-data	RB-18	1GB
Sandisk	Cruzer Micro	2G
	Cruzer Micro	4G
	Cruzer4-pk	2G
Netac	U208	1G
MSI	F200	4G
SONY	Micro Vault Tiny 2G	2G
	Micro Vault Tiny 4G	4G
	Micro Vault Tiny	1G

# APPENDIX 4 COMPATIBLE SATA HDD LIST

MANUFACTURER	MODEL	CAPACITY	ROTATION
Seagate	ST3320613AS	320GB	7200 rpm
	ST33500320AS	500GB	7200 rpm
	ST3750330AS	750GB	7200 rpm
	ST31000340AS	1000GB	7200 rpm
WD	WD3200AAKS	320GB	7200 rpm
	WD5000AACS	500GB	7200 rpm
	WD6400AAKS	640GB	7200 rpm
	WD7500AAKS	750GB	7200 rpm
Maxtor	STM3500320AS	500GB	7200 rpm
	STM3750330AS	750GB	7200 rpm
HITACHI	HDT725032VLA360	320GB	7200 rpm
	HDS721010KLA330	1000GB	7200 rpm



## APPENDIX 5 SPECIFICATIONS

MODEL	Model 1	Model 2	Model 3	Model 4
Video System	NTSC / PAL (auto detection)			
Video Compression Format	H.264			
Video Input (composite video signal 1 Vp-p 75Ω BNC)	4 channels			
Video Output (composite video signal 1 Vp-p 75Ω BNC)	Main monitor output			
Audio Input / Output	4 audio inputs, 1 audio output (Mono)	1 audio input, 1 audio output (Mono)	1 audio input, 1 audio output (Mono)	N/A
Maximum Recording Rate (Frame)	704×480 pixels with 30 IPS <NTSC> / 704×576 with 25 IPS <PAL>			N/A
Maximum Recording Rate (Field)	704×240 pixels with 60 IPS <NTSC> / 704×288 pixels with 50 IPS <PAL>		N/A	
Maximum Recording Rate (CIF)	352×240 pixels with 120 IPS <NTSC> / 352×288 pixels with 100 IPS <PAL>			
Multilingual OSD	YES			
Image Quality Setting	Super Best, Best, High and Normal			
Hard Disk Storage	Accommodates 1 SATA HDD (capacity up to 1TB)			
Quick Search	Time / Motion / Alarm search mode	Time / Motion search mode	Time search mode	
SATA Interface	Built-in			
VGA Interface	Built-in (output resolution up to 1600 x 1200)		N/A	N/A
Recording Mode	Manual / Timer / Motion / Alarm / Remote	Manual / Timer / Motion / Remote		Manual / Timer / Motion
Multiplex Operation	Live display / record / playback / backup / network operations			Supports live display, recording, playback & backup simultaneously
Remote Independent Operation	Basic remote independent operation	N/A		
Motion Detection Area	16 × 12 grids per camera for all channels		3 pre-defined detection areas selectable	
Motion Detection Sensitivity	4 adjustable parameters for accurate detection		One parameter with four sensitivity levels (High / Normal / Low / Off)	
Pre-alarm Recording	YES (8 MB)			
Backup Device	USB 2.0 flash drive / Network			USB 2.0 flash drive
Web Transmitting Compression Format	H.264			N/A
Ethernet	10/100 Base-T. Supports remote control and live view via Ethernet			N/A
Web Interface	Supports licensed software "Video Viewer" / Internet Explorer & Mozilla Firefox web browsers / QuickTime (20 users access simultaneously)			N/A
	*Operating System: Windows Vista / XP / 2000; Apple Mac			N/A
Network Protocol	TCP/IP, PPPOE, DHCP and DDNS			
IR Remote Control	YES (IR receiver built-in)		N/A	
Picture Zoom	2X digital zoom (Live & Playback)			
PTZ Control	YES		N/A	
Alarm I/O	4 inputs, 1 output		N/A	

MODEL	Model 1	Model 2	Model 3	Model 4
Picture Zoom	2X digital zoom (Live & Playback)			
Key Lock (Password Protection)	YES			
Video Loss Detection	YES			
Camera Title	Supports up to 6 letters			
Video Adjustable	Hue / Saturation / Contrast / Brightness			
Date Display Format	YY/MM/DD, DD/MM/YY, MM/DD/YY, and Off			
Daylight Saving	YES			
Power Source ( $\pm 10\%$ )	DC 19V			
Power Consumption ( $\pm 10\%$ )	< 42 W			
Operating Temperature	10°C ~ 40°C (50°F ~ 104°F)			
Dimensions (mm)**	343(W) × 59(H) × 223(D)			
System Recovery	System auto recovery after power failure			
Optional Peripherals	Keyboard controller	N/A	VGA converter	

\* The specifications are subject to change without notice.

\*\* Dimensional Tolerance:  $\pm 5\text{mm}$