DIGITAL VIDEO RECORDER

USER MANUAL

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

IMPORTANT SAFEGUARD

	CAUTION	
	RISK OF ELECTRIC SHOCK	

CAUTION:

To reduce the risk of electric shock, do not expose this apparatus to rain or moisture. Only operate this apparatus from the type of power source indicated on the label. 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.

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

The information in this manual was current when released. 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. For the actual display & operation, please refer to your DVR in hand. The content of this manual is subject to change without notice.

The product & company names mentioned herein may be the registered trademarks or tradenames of their respective owners.

Grounding

This is a Safety Class 1 Product (provided with a protective earthing ground incorporated in the power cord). The mains plug shall only be inserted in a socket outlet provided with a protective earth contact. Any interruption of the protective conductor inside or outside of the instrument is likely to make the instrument dangerous. Intentional interruption is prohibited.

Water & Moisture

Do not expose this product to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the product.

MPEG4 Licensing

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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/AV071/

Version

Firmware: 1055-1015-1010-1023-1007 (For 16CH Models) / 1030-1015-1010-1023-1007 (For 8CH Models)
Video Viewer: 0114

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1. SPECIAL NOTES

- **Remote Surveillance**

1). This DVR series supports remote independent operation, and the image transmission per channel is independent at the remote site. Therefore, during the remote surveillance, the image transmission may not be so fluent when you're viewing four channels or more at the same time.

2). During the remote surveillance, you can only switch the channel display when you are in DVR Control ( ). You're not allowed to enter the DVR menu.

3). When you click snapshot to take a snapshot of the current view, each channel will have one image file. The snapshot will be saved in the path you specified in "Record Setting".

4). You can choose the single channel to watch when you are playback the record.

5). The channel title will not be shown when the user level for remote login is "guest".

- **VGA Output Resolution Support**

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

Go to "ADVANCE" → "DISPLAY", 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		

Note: To have the best image quality on your LCD monitor, make sure (1) the selected DVR VGA output resolution is supported by your monitor, and (2) the VGA output settings on both the LCD monitor and DVR are consistent.
If the image is not positioned or scaled properly, please go to your monitor's menu for adjustment. For details, please refer to the user manual of your LCD monitor.

- **Power Supply**

To ensure that your DVR works constantly and properly, it's recommended to use an UPS, Uninterruptible Power Supply, for continuously operation. (Optional)

- **HDD Scanning & Formatting**

When a HDD is connected ***for the first time*** and the DVR is turned on, the DVR will automatically detect & format the HDD as needed. At the same time, the DVR will also scan the HDD for any bad sector, and use the good ones for recording and data storage. It takes about eight minutes for a 1TB HDD to finish the whole process, and the actual time needed varies based on different HDD capacity.

When the DVR is ***rebooted***, the DVR will scan the HDD for any bad sector, and use the good ones for recording and data storage. It takes about three minutes for a 1TB HDD to finish the whole process, and the actual time needed varies based on different HDD capacity.

- **USB DVD Writer Support**

USB DVD writer connection is only supported for the selected models to have disk backup function.

To know whether your DVR supports USB DVD writer connection, please refer to "APPENDIX 7 SPECIFICATIONS" at page 43.
To know the compatible USB DVD writer list, please refer to "APPENDIX 5 COMPATIBLE USB DVD WRITER LIST" at page 41.
To know how to use a USB DVD writer for video backup, please refer to "5.8.2. DISK BACKUP" at page 21.

- **DVR Battery Replacement**

DVR time might reset after the disconnecting of the DVR power, for example, caused by a power outage, because the DVR battery is low or even running out of power.

For details about battery replacement, please refer to “APPENDIX 9 DVR BATTERY REPLACEMENT” at page 49.

2. FRONT AND REAR PANEL

2.1. Front Panel

1) LED Indicators

POWER : DVR is powered on.
HDD : HDD is reading or recording.
ALARM : An alarm is triggered (Selected models only).
TIMER : Timer recording is on.
PLAY : Under playback 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, 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.

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.

8) SEQ

Press to switch the channel display one by one, and press again to quit.

Note: When channel sequence display is on, the channel(s) with video loss and covert recording will be skipped.

9) POWER or ⏻

Press long enough to turn on/off your DVR.

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

Note: To ensure that your DVR works constantly and properly, it's recommended to use an UPS, Uninterruptible Power Supply, for continuously operation. (Optional)

10) 1~16 / 1~8

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

11) PLAY

Press to play the recorded video.

12) ▲ (PAUSE / +), ▼ (STOP/ -), ◀ (REW), ▶ (FF)

Press one of these four buttons to move 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 ” ▲” or “▼” to change the setting in the menu.

13) AUDIO (SEQ + ⊞)

Press SEQ + ⊞ simultaneously to select the audio channel you want for listening to the live audio (in the live mode) or playback audio (in the playback mode).

14) PTZ (SLOW + ZOOM)

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

15) USB port

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.

16) EJECT (Selected models only)

Press to open / close the built-in DVD Writer.

17) “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.

2.2. Rear Panel

1) INPUT (1 ~ 16CH / 1 ~ 8CH)

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.

---

2) MONITOR

Connect to a CRT monitor for video output.

3) Audio IN

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.

---

4) Audio OUT

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.

---

5) 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.

6) IR

Connect the IR receiver for remote control (IR receiver optional).

7) EXTERNAL I/O

Insert the supplied 25 PIN 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 36.

8) VGA (Selected models only)

Connect to a LCD monitor directly.

Note: To select the suitable VGA resolution, please go to “ADVANCE” → “DISPLAY” → “VGA OUTPUT”.

9) LAN

Connect to Internet by LAN cable.

10) LINK ACT.

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

11) DC 19V

Connect to the supplied adapter.

3. CONNECTION AND SETUP

Note: The DVR is designed to automatically detect the video system of the connected cameras (NTSC or PAL). To make sure the system detection is correct, please check if the cameras are connected to the DVR and power-supplied before the DVR is powered on.

3.1. HDD Installation

The HDD must be installed before the DVR is turned on. The steps below are for your reference only. The actual installation process may vary depending on different models and situations.

➢ **For Model 1 ~ 4**

Step 1: Loose the screws on the upper cover and open the upper cover of the DVR.

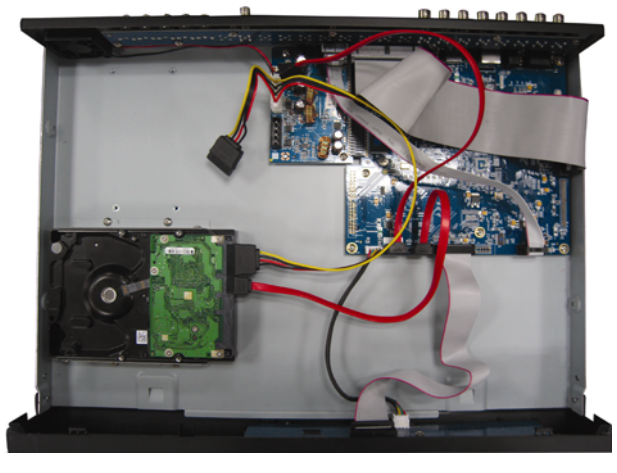
Note: The DVR cover is made of metal. Please be careful with its edge when you remove the cover.

Step 2: Find the HDD brackets supplied within the sales package, two L-shape brackets for each HDD.

Step 3: Get a compatible HDD, and align the screw holes of the bracket with the HDD's screw holes. Make sure the PCB side of the HDD is facing up. Then, fasten the HDD to the brackets.

Step 4: Connect the power connector and data bus connector to the HDD.

Step 5: Find the screw holes on the DVR base, and fasten the brackets to the DVR base.



Step 6: Close the upper cover of the DVR, and fasten all the screws you loosened in Step 1.

➢ **For Model 6 & 8**

Step 1: Loose the screws on the upper cover and open the upper cover of the DVR.

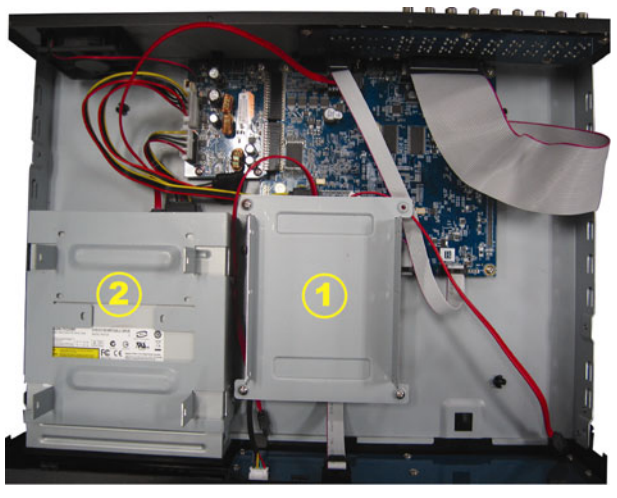
Note: The DVR cover is made of metal. Please be careful with its edge when you remove the cover.

Step 2: There are two HDD brackets for this DVR as indicated on the right picture.

2-1 To install on the first bracket

Remove the bracket, and align the screw holes of the bracket with the HDD's screw holes. Make sure the PCB side of the HDD is facing up.

Fasten the HDD to the bracket, and connect the power connector and data bus connector to the HDD. Then, replace the bracket to DVR.

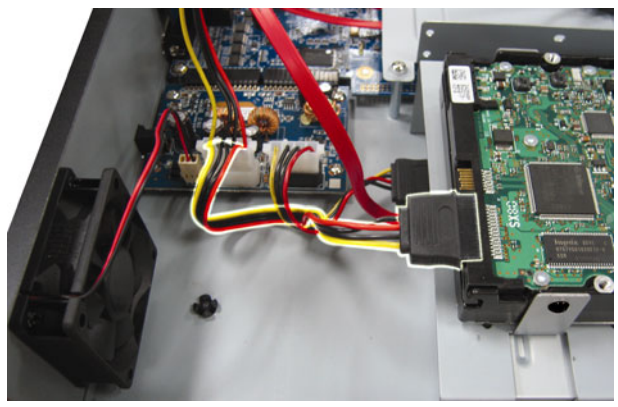


2-2 To install on the second bracket

Connect the power connector and data bus connector to the HDD.

When connecting the power cable, make sure the cable is passed through the power cable of DVD writer. This is to prevent the HDD power cable from interfering with the fan spinning.

Align the screw holes of the bracket with the HDD's screw holes. Make sure the PCB side of the HDD is facing up. Then, fasten the HDD to the bracket.



Note: Make sure the HDD power cable is connected to the ***WHITE*** jack on the DVR mainboard as shown below. The black jack is reserved for DVD writer installation.

Step 3: Close the upper cover of the DVR, and fasten all the screws you loosened in Step 1.

Note: When a HDD is connected ***for the first time*** and the DVR is turned on, the DVR will automatically detect & format the HDD as needed. At the same time, the DVR will also scan the HDD for any bad sector, and use the good ones for recording and data storage.

It takes about eight minutes for a 1TB HDD to finish the whole process, and the actual time needed varies based on different HDD capacity.

3.2. Camera Connection

1) Video cable connection

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

2) Audio cable connection

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

3) Power connection

   Connect the camera with indicated power supply and make sure it's power-supplied.

4) Camera Setup (PTZ cameras only)

   This setup is made when the DVR is powered on and initialized. For detailed camera title, ID, protocol and baud rate setup, please refer to "5.5. REMOTE" at page 17.

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.

Note: Before the DVR is powered on, make sure the cameras are connected and power-supplied for the detection of the camera video system to be correct.

Note: To ensure that your DVR works constantly and properly, it's recommended to use an UPS, Uninterruptible Power Supply (Optional), for continuously operation.

3.5. Date and Time Setting

Before using 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.

Note: Please DO NOT change the date or time of your DVR after the recording function is activated. Otherwise, the recorded data will be disordered and you will not be able to find the recorded file to backup by time search. If users change the date or time accidentally when the recording function is activated, it's recommended to clear all HDD data, and start recording again.

Note: For the first time to use the DVR, please power it on for at least 48 hours continuously after the date & time is set correctly. It helps to prevent DVR time from resetting after the disconnecting of DVR power. If the DVR time resets after the disconnecting of DVR power, for example, caused by a power outage, the battery might run out and please replace the battery as described in "APPENDIX 9 DVR BATTERY REPLACEMENT" at page 49.

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 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.

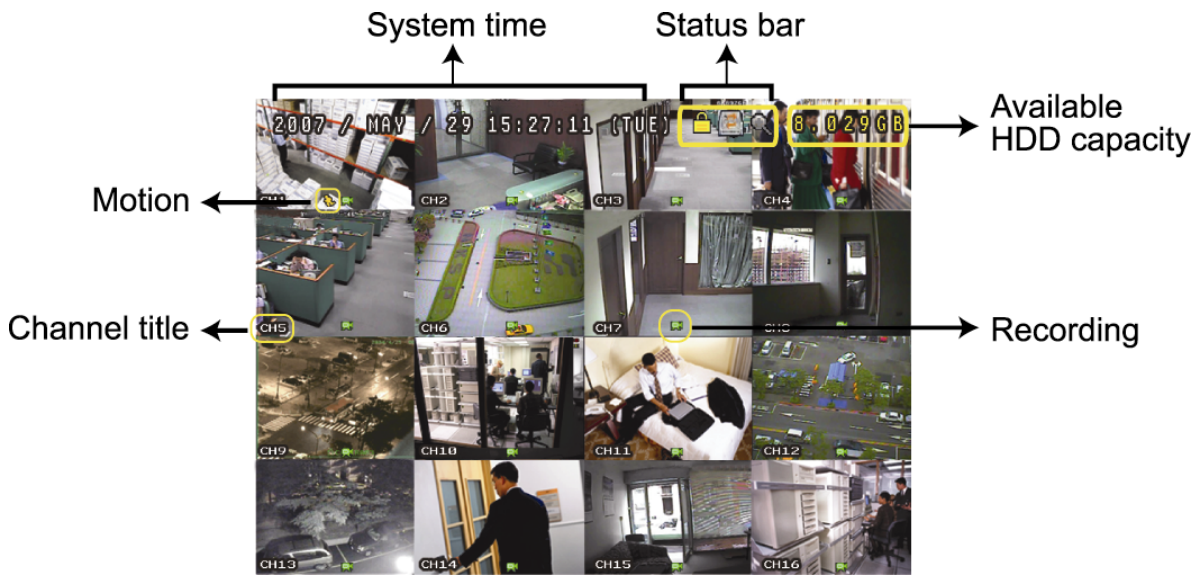
To change the record settings, press "MENU" and enter the password to go to the menu list. Then, move to "ADVANCE" → "RECORD" to enter the advanced setting menu. You can set the image size, image quality and the image per second for recording.

For details, please refer to "5.2. RECORD" at page 13.

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		The 1st live audio channel		The 2nd live audio channel
	3rd live audio channel		4th live audio channel		The 1st playback audio channel		The 2nd playback audio channel
	The 3rd playback audio channel		The 4th playback audio channel		Audio channel unselected		Digital zoom mode
	Digital zoom unselected		HDD overwrite		Timer recording		Motion
	Recording		Alarm	R.E. T.R.	R.E.T.R. on (Selected models only)	R.E. T.R.	R.E.T.R. delay (Selected models only)

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 LED light of “Timer” is on, and “” (timer) on the screen.

4.3. Playback

Via DVR

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

You could only watch 4-channel playback images at the same time. If you want to watch other channels, press ⊞ button on the front panel to show the next 4-channel display.

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

In the playback mode, press SEQ + ⊞ to select the audio channel you want for audio playback.

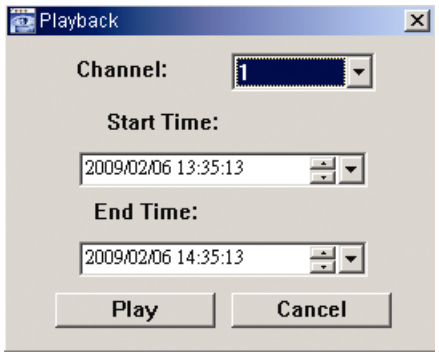
- Playback audio of the 1st audio channel
- Playback audio of the 2nd audio channel
- Playback audio of the 3rd audio channel
- Playback audio of the 4th audio channel
- The audio channel is not selected.

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.

Via Supplied Software “Video Viewer”

In DVR Control

Click or to show the DVR control panel, and click or . A channel selection window will pop up, and you and select the channel and time within which includes the images you want to see.



Then, click “Play” to immediately start playback.

4.4. Search

Via DVR

1) Full Event Search

Press “LIST” to show the list for all types of the recorded files. Choose the item you want to see and press “ENTER” to start playback.

2) Search by Time

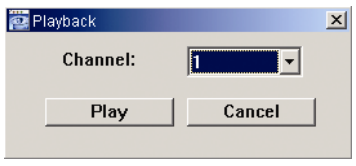
Press “MENU” to enter the menu list, and go to “ADVANCE” → “EVENT LOG”. Move to “QUICK SEARCH”, and press “ENTER” to enter the quick time search menu. You can search any specific events by time (Year / Month / Day / Hour / Min) and directly play the file you find.

Via Supplied Software “Video Viewer”

Search by Event via the Supplied Software “Video Viewer”

Click or to enter the “Status List” page. Select the “Record” tab to show all the recordings, or sort the list by time or event.

Select a log from the list, and click “Play”, or double-click the selected log. A channel selection window will pop up, and you can select the channel you want to see from the drop-down list.



Then, click “Play” to immediately start playback.

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. Insert your USB flash drive into the USB port. Wait till the DVR detects your USB flash drive.
Step 4. Press “MENU”, and move to “ADVANCE” → “SYSTEM INFO”. Select “UPGRADE” → “START”, and press “ENTER”.
Step 5. Select “YES”, and press “ENTER” 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 execute Video Viewer.

Step 2. In the “Address Book” panel, select the IP address of your DVR (or add the IP address of your DVR to the address book if it’s not yet in the address book), and click “ ” to show the “Update Server” panel.

Step 3. In “Update Server”, click “Firmware” or “Language” tab as needed, and click “Add” to select the firmware or OSD files to upgrade.

Step 4. Click “Update Firmware” or “Update Language” 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” on the front panel. The default admin password is **0000**. Enter the default password, and press “ENTER”.

5.2.1. Quick record setting

Move to “QUICK START” → “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 four quality options: BEST, HIGH, NORMAL and BASIC.

3) IMAGE PER SECOND

Select the images per second for MANUAL RECORD.

5.2.2. Detailed record setting

Move to “ADVANCE” → “RECORD”, and press ”ENTER”. The screen will show the following submenu items:

1) MANUAL RECORD ENABLE

Start / stop the manual recording function.

2) 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.

3) TIMER RECORD ENABLE

Start / stop the timer recording that is activated according to the scheduled time

4) EVENT RECORD IPS

Select the images per second for EVENT RECORD (Recording that is triggered by alarm or motion).

5) TIMER RECORD IPS

Select the images per second for TIMER RECORD (Recording that is activated according to the scheduled time.).

6) PRE-ALARM RECORD

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.

7) OVERWRITE

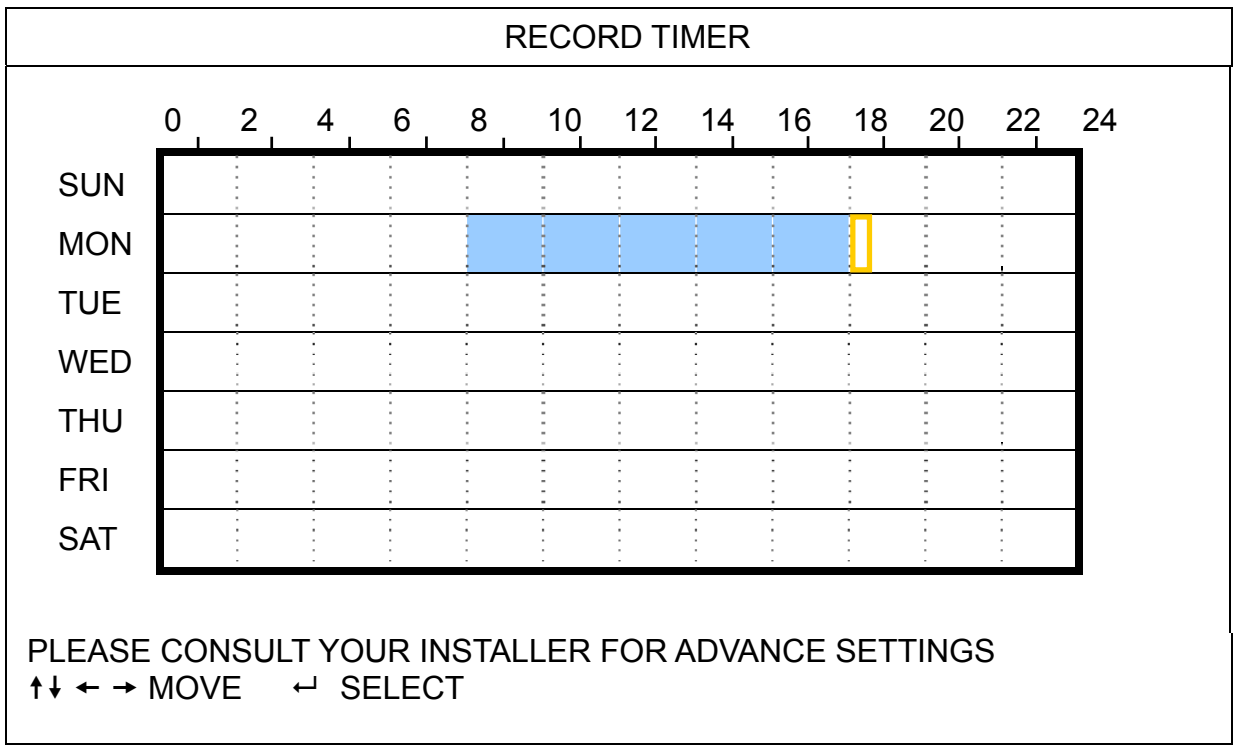
Select to overwrite previous recorded data in your HDD. When the HDD is full under the O/W recording mode, the DVR will clear 8GB data from the oldest for continuous recording without notice.

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 ▲ or ▼ to change the setting (ON / OFF). When it’s set to “ON”, press “ENTER” to go to its submenu for further settings.



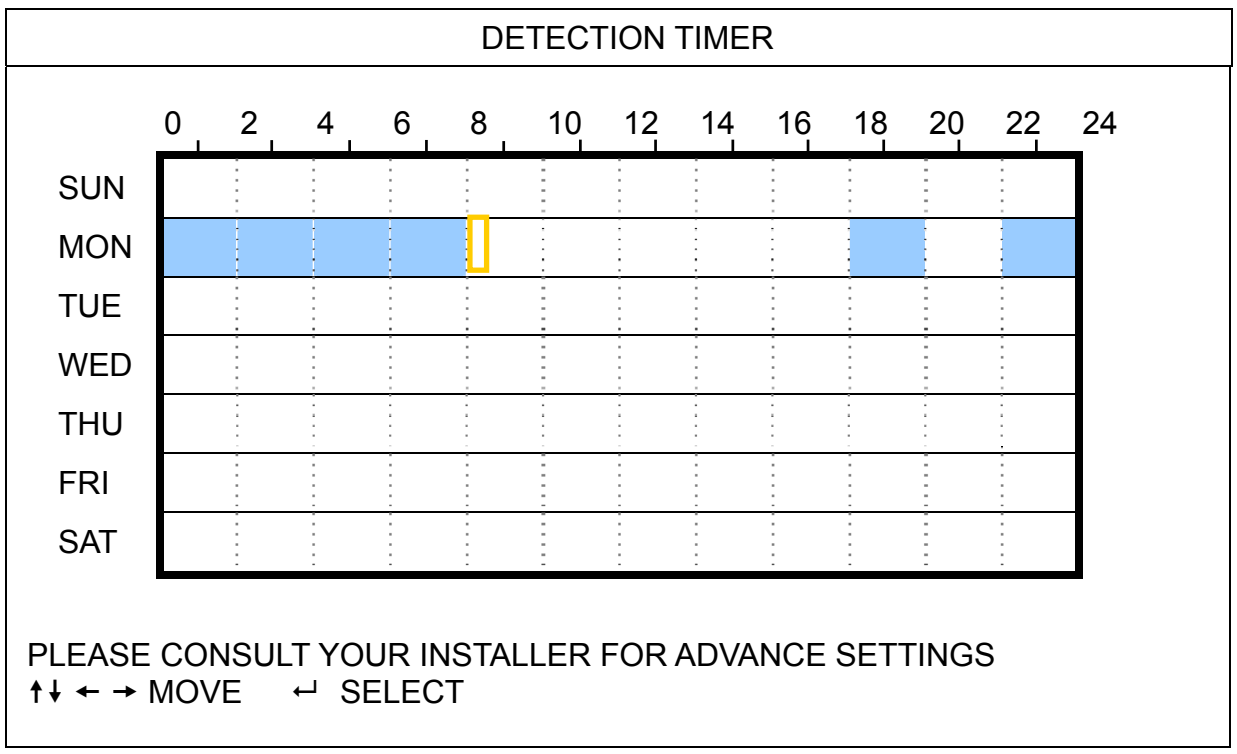
X axis 0 ~ 24 hours. Each time interval within a square is two hours (divided into four 30-minutes).

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 ▲ / ▼ / ◀ / ▶ to set the timer-recording schedule. After setup, press “ENTER” again to create an ending time point (marked in yellow color) and press “MENU” to exit.

2) DETECTION TIMER

Use ▲ or ▼ to change the setting (ON / OFF). When it's set to "ON", press "ENTER" 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 ▲ / ▼ / ◀ / ▶ to set the timer-recording schedule. After setup, press "ENTER" again to create an ending time point (marked in yellow color) and press "MENU" 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:

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

5.4.1 For Model 1 & 3

DETECTION
(Take Model 3 as an example)

TITLE	DET	AREA	TS	ALARM
CH1	ON	SETUP	HIGH	OFF
CH2	ON	SETUP	HIGH	OFF
CH3	ON	SETUP	HIGH	OFF
CH4	ON	SETUP	HIGH	OFF
CH5	ON	SETUP	HIGH	OFF
CH6	ON	SETUP	HIGH	OFF
CH7	ON	SETUP	HIGH	OFF
CH8	ON	SETUP	HIGH	OFF

PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTING
↑↓ SELECT ← BACK → NEXT ↵ ENTER

1) TITLE

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

2) DET

Select if you want to activate the motion detection function for the selected channel (ON/OFF).

3) AREA

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

Transparent blocks are the area under detection.

Press “ENTER” to confirm the start area.

Press ◀ / ▶ to choose the width of the detection area.

Press ▲ / ▼ 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.

4) TS (Time of Sensitivity)

“TS” is to set the sensitivity regarding how long one object stays in the detection area and triggers the recording. There are three level of sensitivity for motion detection. (HIGH / NORMAL / LOW)

5) ALARM

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

5.4.2 For Model 2 & 4

DETECTION (Take Model 4 as an example)		
TITLE	DET	AREA
CH1	HIGH	SETUP
CH2	OFF	SETUP
CH3	OFF	SETUP
CH4	OFF	SETUP
CH5	OFF	SETUP
CH6	OFF	SETUP
CH7	OFF	SETUP
CH8	OFF	SETUP
PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTING		
↑↓ SELECT ← BACK → NEXT ↵ ENTER		

1) TITLE

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

2) DET

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” 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 three detection areas for your choice:
Press “▲” or ” ◄” once to broaden the detection area.
Press “▼” or ” ►” once to narrow the detection area.

5.5. REMOTE

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), P-D (PELCO-D) or P-P (PELCO-P) protocol.

5) RATE
Set the baud rate of each channel (2400 / 4800 / 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 INFO

In this menu list, you can check or change some system settings.
The submenu items are described below:

1) SERIAL TYPE
Display the serial type of the DVR (RS485).

2) BAUD RATE
Set the baud rate of the DVR (2400 / 9600 / 19200 / 38400 / 57600 / 115200).

3) HOST ID
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) R.E.T.R. (MIN) (Selected models only)

Select the timeout after which the R.E.T.R. function will be activated (03 / 05 / 10 / 30).

- **R.E.T.R. On**

Press the R.E.T.R. key on the IR remote controller to enable the timeout function. Key in the password, and the R.E.T.R. delay icon “R.E.T.R.” (in green background) will be shown on the screen. When the RETR function is activated, the R.E.T.R. on icon “R.E.T.R.” (in red background) will be shown on the screen.

- **R.E.T.R. Off**

Press any key (except “POWER”) and enter the password to turn off the RETR function.

9) AUTO KEYLOCK (SEC)

Set the time-out in second after which the key lock function is activated (NEVER / 30 / 60 / 120).

10) LANGUAGE (Support multi-language)

Select the language of the OSD.

11) VIDEO FORMAT

Here shows the information of the DVR video format (NTSC / PAL).

12) VERSION

Here shows the firmware version information.

5.7. NETWORK

In this menu list, you can set up the network.
Move to “NETWORK”, and press “ENTER” 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”.

Note: The device doesn’t support POE router or hub.

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.

Note: The device doesn't support POE router or hub.

5.8. BACKUP

In this menu list, you can choose to make a copy for a specified period time with a compatible USB flash drive, built-in DVD writer, or USB DVD writer for your own purpose.

Note: For details about the backup devices supported by your DVR, please refer to "APPENDIX 7 SPECIFICATIONS" at page 43.

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

Before making USB backup, please check if:

a). 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 39.

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

c). 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.

Note: When USB backup starts, it's not allowed for OSD menu operation or network backup in order to keep the consistency of the video data.

Note: You can backup up to 2GB video data for one-time USB backup. To backup more data, please set the time & channel(s) you want, and start USB backup again.

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)

DISK BACKUP is only available for the models with a DVD writer built-in, or the models supporting a USB DVD writer.

Note: The USB DVD writer is not supplied within the sales package, and needs to be purchased separately. For the compatible USB DVD writer list, please refer to "APPENDIX 5 COMPATIBLE USB DVD WRITER LIST" at page 41.

FOR USB DVD WRITER

Before making disk backup by a USB DVD writer, make sure:

- Your DVR supports USB DVD writer connection, and the DVR firmware is as follows:
  (1) For 16CH models: 1055-1015-1010-1023-1007 or later
  (2) For 8CH models: 1030-1015-1010-1023-1007 or later
- Your DVD writer is supported by the DVR. Please check the compatible USB DVD writer list at page 41.

When the above criteria are met, follow the steps below to connect the USB DVD writer to your DVR:

STEP1: Turn on your DVR, and wait till the system initialization is completed.

Note: If your DVR is powered up, please skip to STEP2.

STEP2: Find the data bus & power cables supplied with the USB DVD writer, and connect them to DVD writer as described in its user manual. Then, plug it into an outlet for power supply.

STEP3: Connect the DVD writer to the USB port of the DVR.

STEP4: Wait till the DVR shows the message “USB CONNECTED”. If this message is not shown, it means the DVD writer is not detected by the DVR, and you’re unable to use the function “DISK BACKUP”.

STEP5: Press “MENU”, and go to “ADVANCE” → “BACKUP”. Check if the option “DISK BACKUP” is shown.

Note: The option “DISK BACKUP” is shown only when the USB DVD writer is detected by the DVR correctly.

DISK BACKUP PROCESS

The process below describes how to make a disk backup:

a) Press “EJECT” to open the disk tray. Put a CD or DVD into the DVD writer, and press “EJECT” again to close the disk tray.

Note: Check if the type of your CD or DVD is CD-R or DVD-R. The maximum number of backup files in the CD or DVD is 41.

b) Press “MENU”, and go to “ADVANCE” → “BACKUP”. Select “DISK BACKUP”, and you will see the submenu items almost the same as USB BACKUP.
For the description of the submenu items, please refer to “5.8.1. USB BACKUP”.

c) Set the start time, end time, channels and HDD.

d) Move to “START”, and press “ENTER” to start backup.
While disk backup is processing, users will see the backup completed percentage on the screen.

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.

e) After disk backup is completed, “BACKUP SUCCESS” will be prompted on the screen. Press “EJECT” to eject the disk tray and get your disk.

f) Put the CD or DVD into the DVD-ROM drive of your PC. Install the file player “PLAYER.EXE”, and double click any backup file to play it directly in your PC and see if the backup is successful.

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

6. REMOTE OPERATION

You can also control the DVR remotely via the supplied licensed software “Video Viewer”, Internet Explorer web browser, and Apple’s QuickTime player.

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

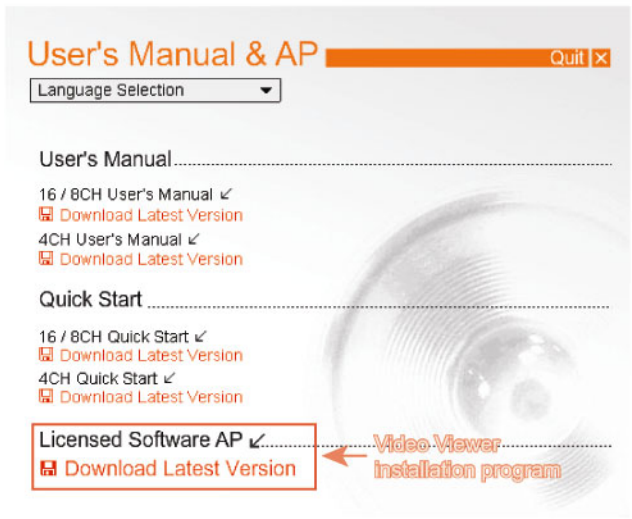
6.1. Video Viewer

The sections below describe frequently-used functions of the Video Viewer. For details about this software and network settings, please download its extended user manual from the following link:
http://www.surveillance-download.com/user/CMS.pdf

6.1.1. Installation & Network Connection

1) Install the software

Step1: Place the supplied CD into your CD-ROM or DVD-ROM drive. The program will be automatically run.



Step2: Click “Licensed Software AP” to install Video Viewer, or click “Download Latest Version” under “Licensed Software AP” to download the latest version of Video Viewer from the Internet.

Step3: Follow the on-screen instructions to finish the installation. When the installation is completed, a shortcut icon “” will be placed on your PC desktop.

2) Network Connection

➢ Local Connection (via LAN)

a) Connect the DVR to your PC via a RJ-45 network cable. The default DVR values are as follows:

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

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 “” → “” to key in the default IP address, user name, password, and port number of the DVR you intend to connect.

OR

Click " " → " " 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 " ".

e) Double-click the IP address you just added into the address book to log in.

➢ 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.

Click " " → " " to key in the IP address, user name, password, and port number of the DVR you intend to connect.

OR

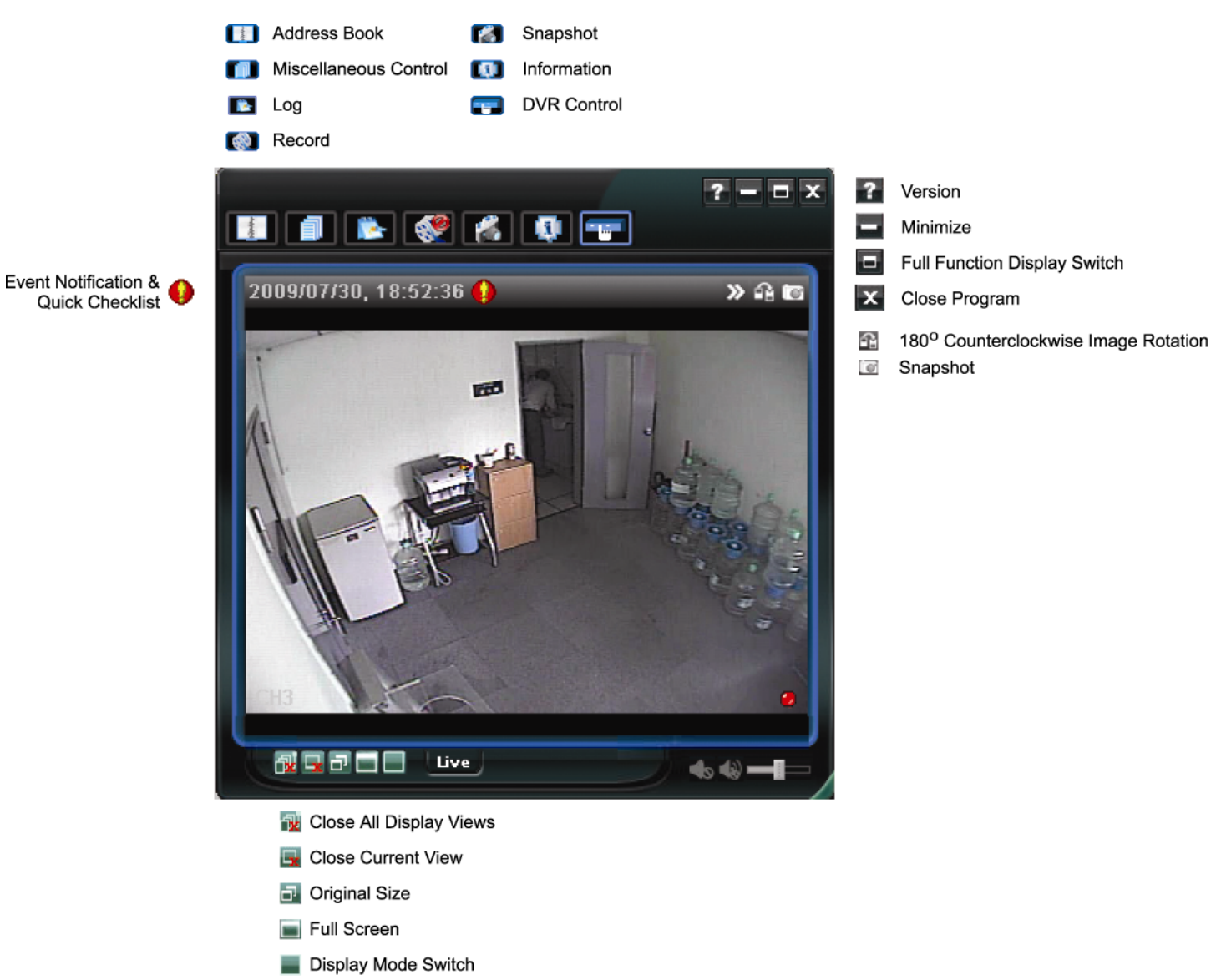
Click " " → " " to search the available IP address(es) of other DVR(s) under the same domain as your PC's IP address. The found address(es) will be listed, and can be added into the address book by clicking " ".

b) Double-click the IP address you just added into the address book to log in.

6.1.2. Control Panel

Two control panels are available and can be switched depending on your use habit.

<u>Simplified Version (Default)</u>



Full Function Version

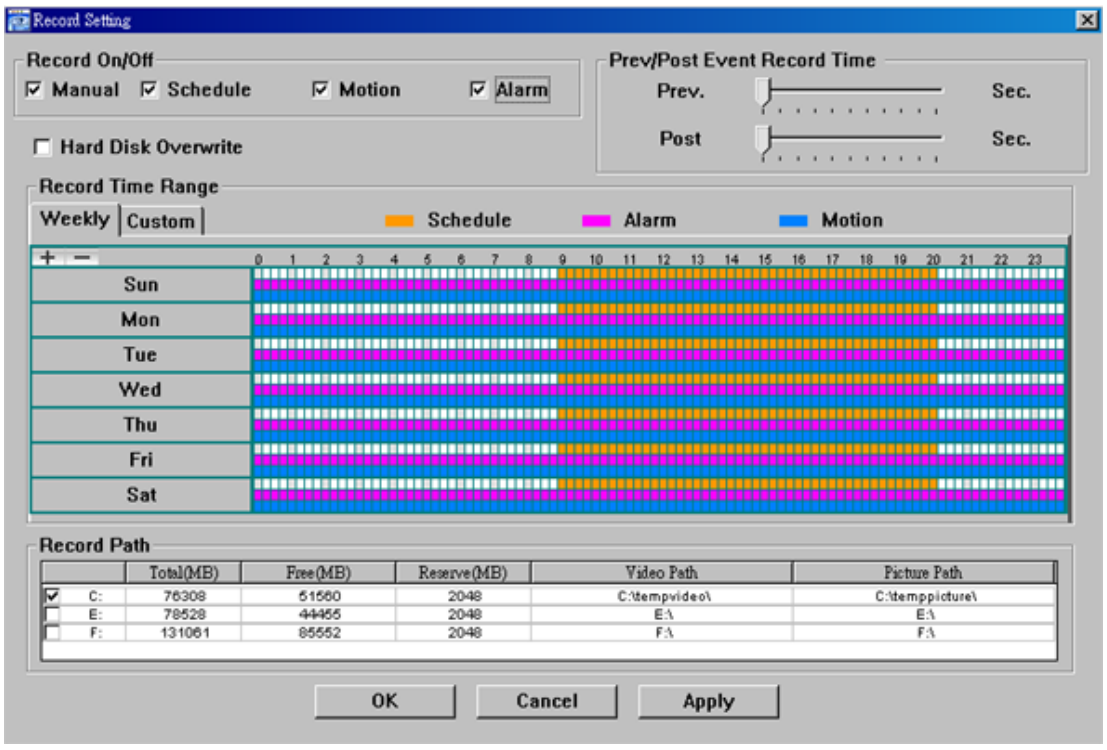
Main Button Overview

Button		Function	Description		
Simplified	Full Function				
		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.		
		Miscellaneous Control		Remote Config	Click to go into the detailed DVR setting.
				Record Setting	Click to go to the detailed record setting.
				Custom Setting	Click to choose the language of this program. The language change will take effect when this program is closed and executed again.
		Log	Click to view all event and recording logs, search the desired log(s) by date, or playback the recording of the selected log.		
		Record / Record Stop	Click to start / stop the manual recording.		
		Snapshot	Click to take a snapshot of the current view. The snapshot will be saved in the path you specified in “Record Setting”.		
		Information	Click to show the current network connection details.		
		DVR Control	Click to go to the DVR control panel to operate the DVR remotely.		

6.1.3. General Operation

Record

To record remotely at the same time for any event or alarm at the DVR side, click “ ” or “ ” → “ ” to go to the “Record Setting” page.



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

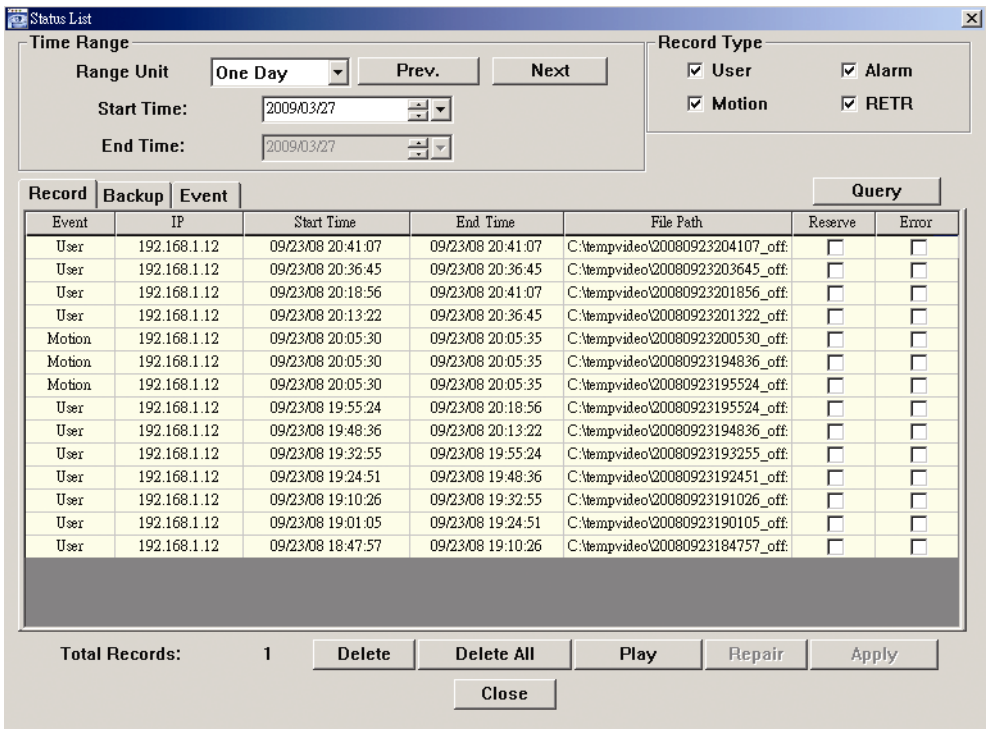
- Record type
- Hard disk overwriting
- Pre- / post-alarm record time
- Record time setting
- Record path

If “Manual” is checked, click “ ” or “ ” 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 “ ” or “ ”, 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”, or double-click the selected log.

Network Backup

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

The file(s) you backup will be from the currently selected IP address.

Function	Description
HDD Number / Channel	Specify the hard disk (HDD Number) and channel number (Channel) within which have the video data you need.
Download by Time	Specify the time range within which has the video data you want in the “Start Time” and “End Time” columns.
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. • To quickly find the events you need, check or uncheck the event type “System” / “Manual” / “Alarm” / “Motion”, and select the log you want. • To view the earlier or later logs that are not shown in the current page, click “Prev. Page” or “Next Page”. • To refresh the event list, click “Reload”.
File Path	Assign the location where the backup files are saved.
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

Function	Description
	saving location.
Download / Cancel	Click “Download” to start or “Cancel” to discard the video backup.

6.1.4. E-Map

Video Viewer is also a Central Management System (CMS) software, which allows network device control & management for up to 16 devices simultaneously.

Note: Before using this function, make sure Video Viewer is connected to all the devices (up to 16) you want to monitor.

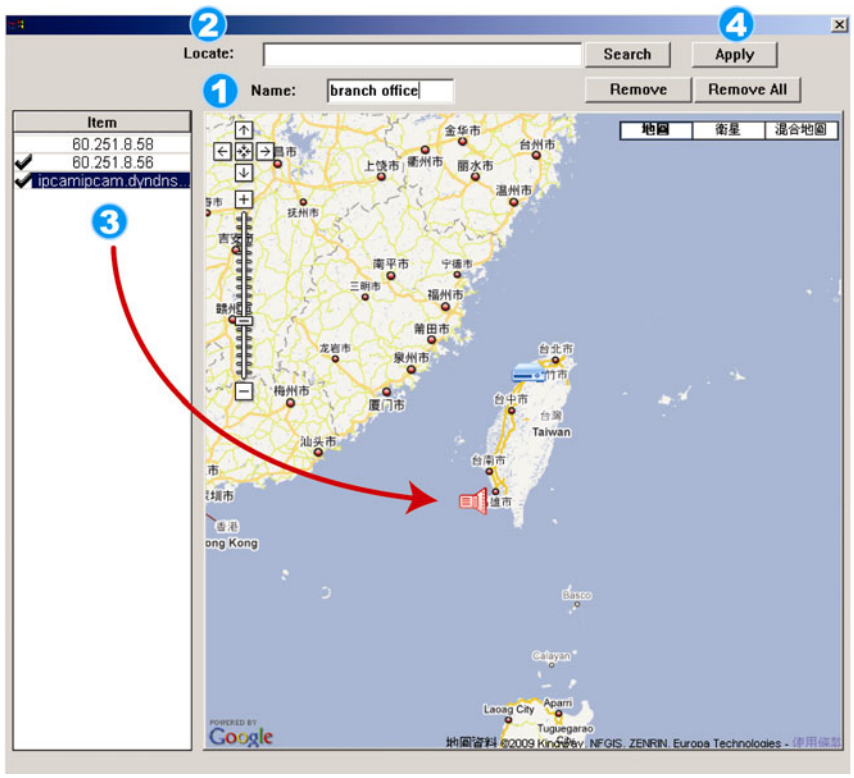
E-Map is ONLY available when the control panel is switch to the full function version.

How to Add an E-Map Group

STEP1: In the simplified version, click “ ” to switch the control panel to the full function version, and click “ ” to enter the E-Map page as follows.

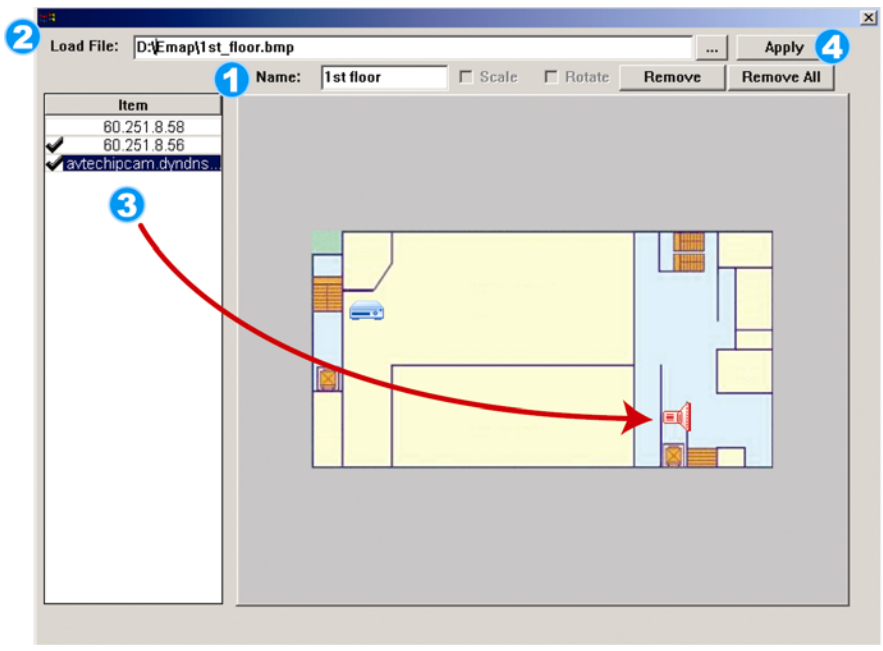
Note: To know where the buttons are, please refer to “Simplified Version (Default) at page 24, and “Full Function Version” at page 25.

STEP2: Right-click to show the shortcut menu on the top-left panel, and select the E-Map group you want to add. There are three E-Map groups you can add: Google E-MAP, Single E-MAP, and Building E-MAP.



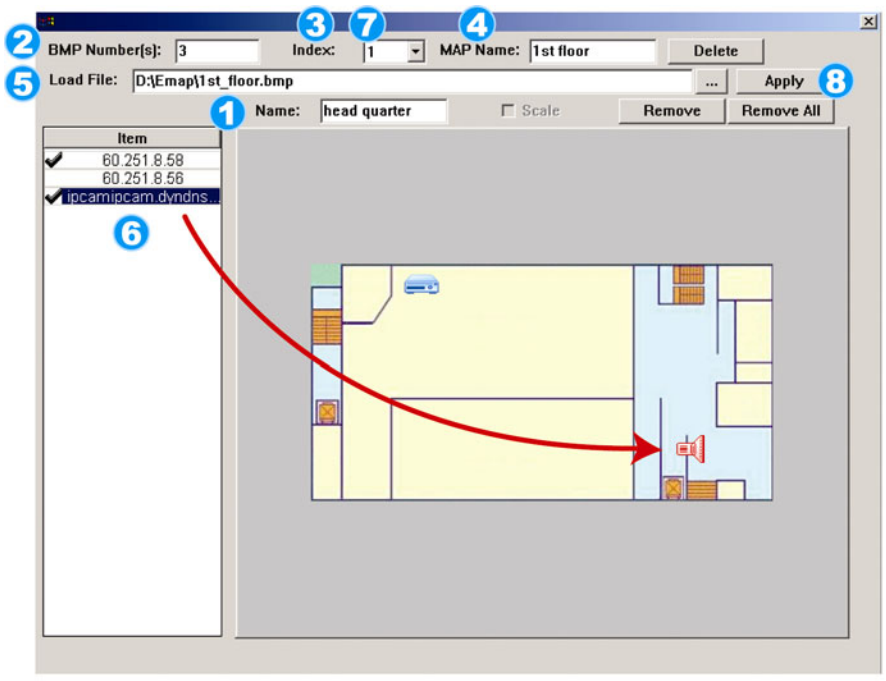
How to add a Google E-Map group:

1. Enter the name of this Google E-Map group.
2. Enter a specific address or landmark, and click “Search”.
   OR
   Move to the map and drag to the location you want.
3. Click and drag the IP address to where it’s located in the current level.
4. Click “Apply” to save and finish.



How to add a single E-Map group:

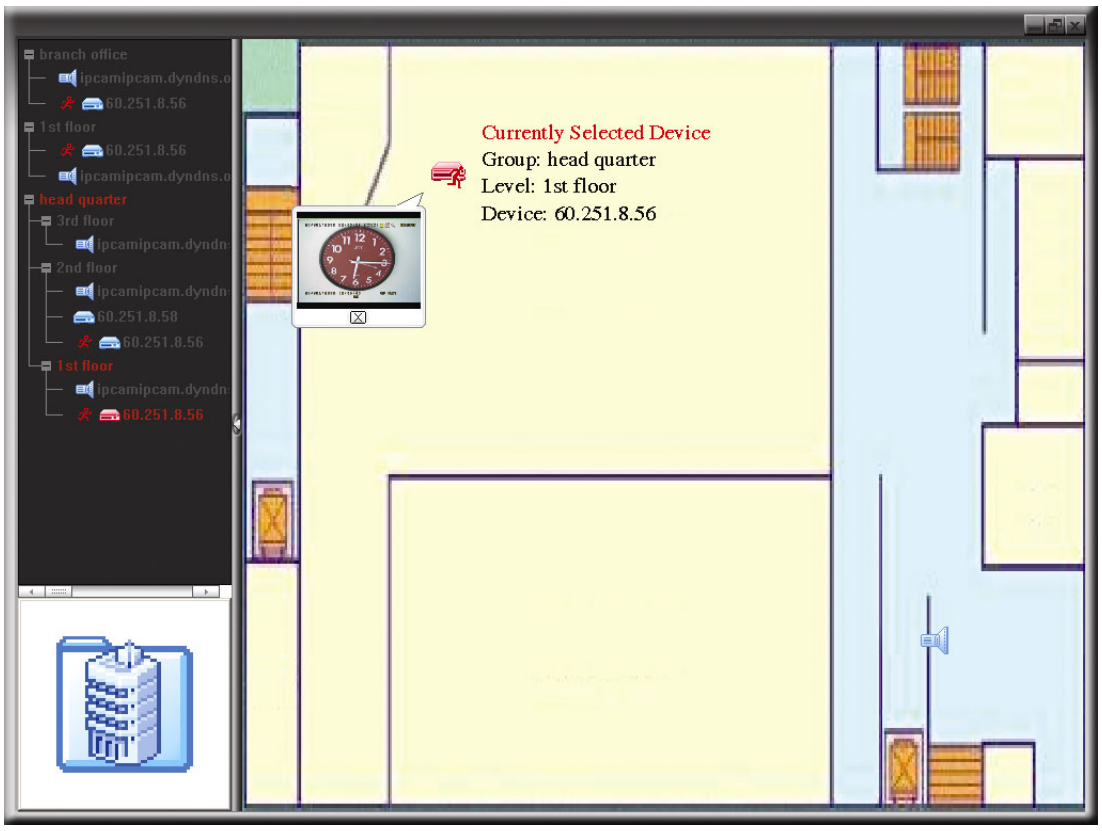
1. Enter the name of this single E-Map group.
2. Click “...” to browse the map file in BMP or JPEG.
3. Click and drag the IP address to where it’s located in the current level.
4. Click “Apply” to save and finish.



How to add a building E-Map group:

1. Enter the name of this building E-Map group.
2. Enter the total levels of this building.
3. Select the level of the building from the drop-down list.
4. Enter the name of the level.
5. Click “...” to browse the map file in BMP or JPEG.
6. Click and drag the IP address to where it’s located in the current level.
7. Go back to STEP 3 to select other level of the building, and repeat from STEP 3 to 6 until the setup for all levels are finished.
8. Click “Apply” to save and finish.

STEP3: When the E-Map group is created, you will see the tree on the top-left panel, showing all the devices you've added to this group.



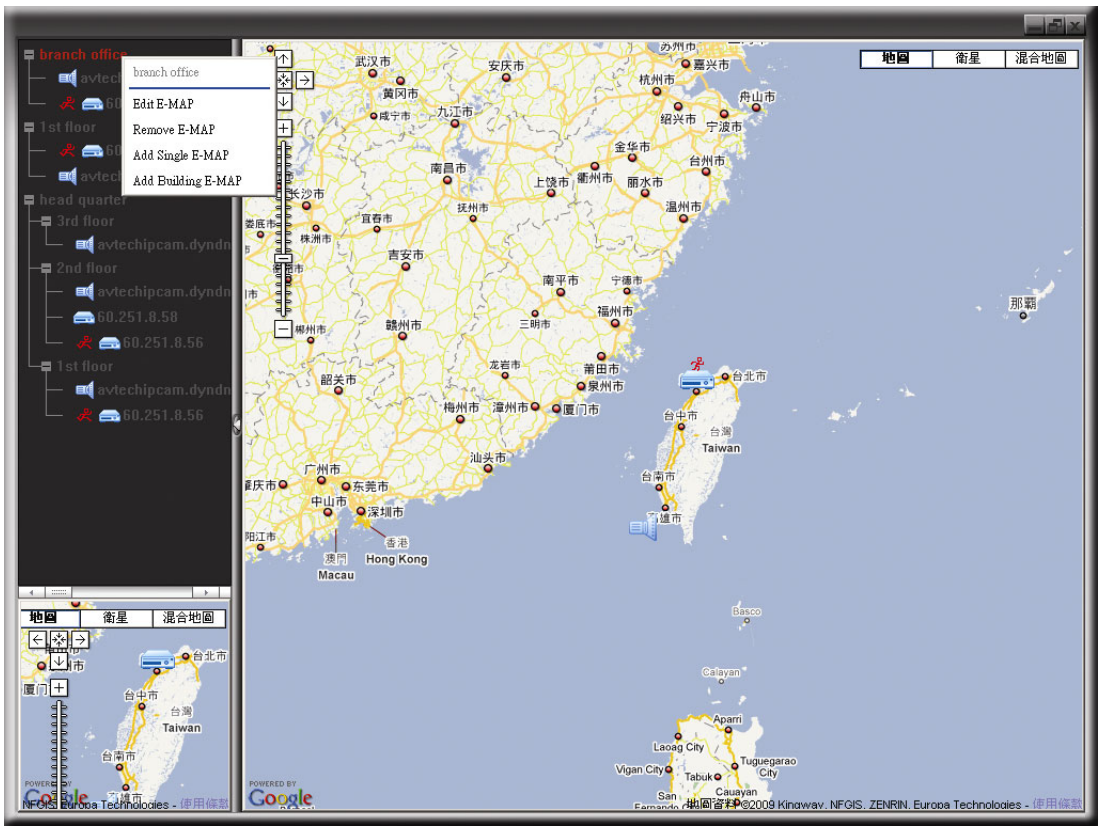
Icon	Description
	The connected device is camera. When it's selected, it will become red.
	The connected device is DVR. When it's selected, it will become red.
	For any motion or alarm event, it will appear on the screen to catch your attention. To know what's happening quickly, double-click the device icon on the E-Map to show the live view.

How to Edit / Remove an Existing E-Map Group

- For Google E-Map Group

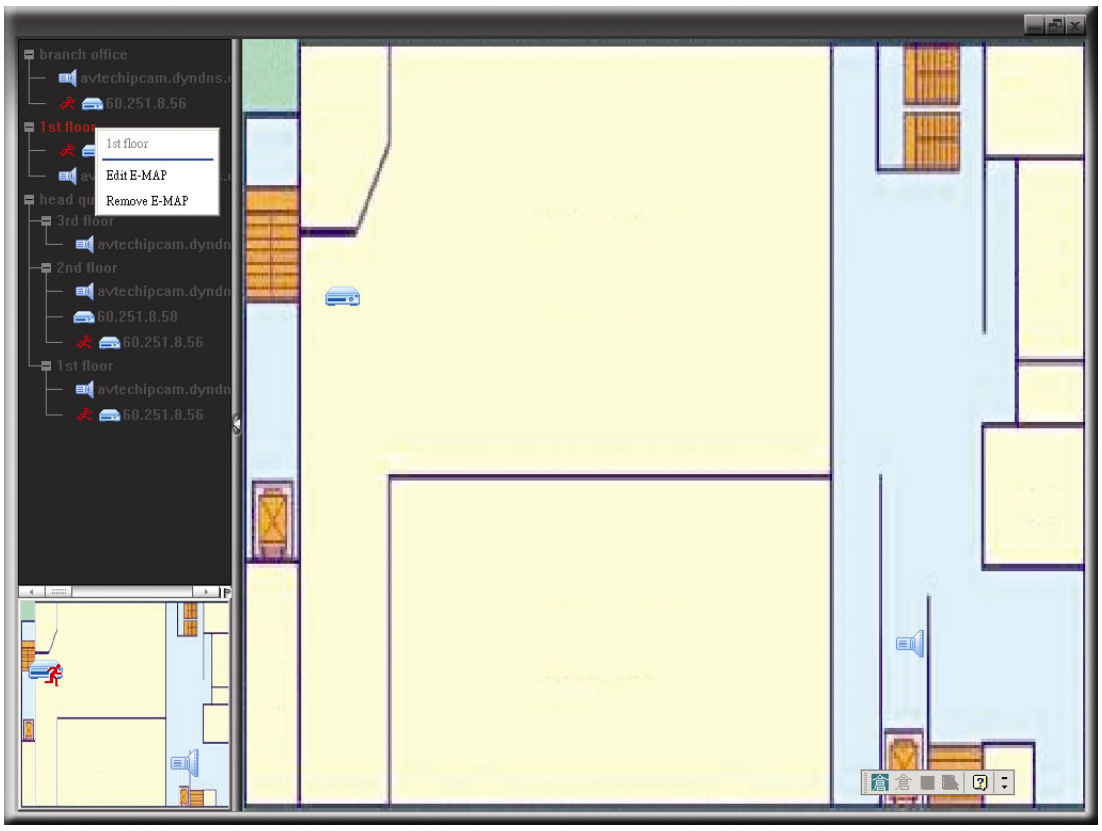
  Right-click on the group name to show the shortcut menu list, and select "Edit E-MAP" or "Remove E-MAP" as needed.

  You can also add a single E-Map group (Add Single E-MAP) or Building E-Map group (Add Building E-MAP) into the existing Google E-Map group.



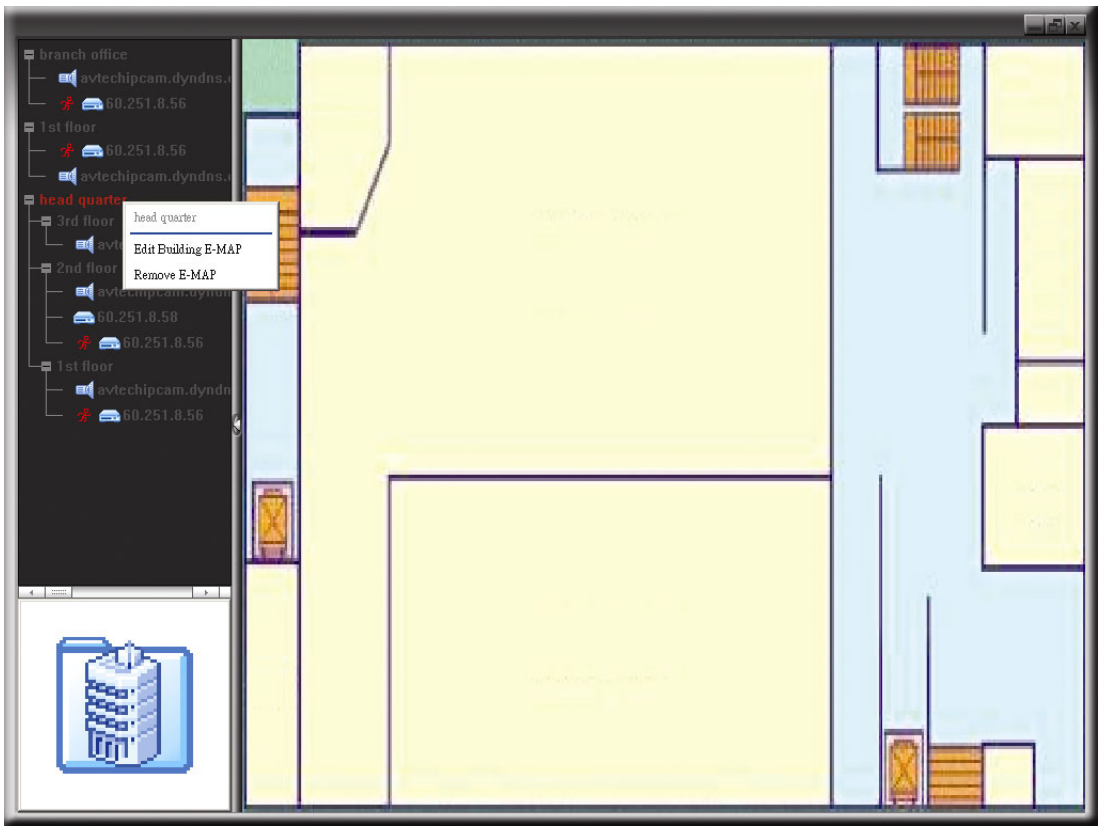
➢ For Single E-Map Group

Right-click on the group name to show the shortcut menu list, and select “Edit E-MAP” or “Remove E-MAP” as needed.



➢ For Building E-Map Group

Right-click on the group name to show the shortcut menu list, and select “Edit Building E-MAP” or “Remove E-MAP” as needed.



To edit or remove a certain level of the building E-Map group, right click on the level name, and select “Edit E-MAP” or “Remove E-MAP” as needed.

6.2. IE Web Browser

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

Step 4: 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 5: 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.

Function	Description
Home	Click to go to the main page of the DVR
Config.	Click to go to the detailed DVR setting.
PTZ	Click to enter the PTZ mode.
Single Channel Selection	Click the channel No. to see the live view of the selected channel. You can also press or to go to the previous / next channel of the selected channel.
Display Mode	Click the display mode you want to see. There are 3 modes for your choice: Click / / to show 4-cut / 9-cut / 16-cut display.
Snapshot	Click to take a snapshot for the current view, and open another browser window to display the captured image.
Selection	Click or to go to the previous / next channel, or change setting.

Function	Description
Quad Sequence / Full Sequence	**Quad Sequence** Click to display all the channel images with four channels as a group in a sequence. To exit from this display mode, press any other channel display button. **Full Sequence** 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.
Web Transmission	**MPEG4 / QuickTime** QuickTime is Apple Inc.'s multimedia software. You need to have QuickTime installed in you 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.

6.3. QuickTime Player

You can also use the QuickTime player to remotely log into the DVR and check the live view only. QuickTime access is only available when the DVR record mode is set to CIF.

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.

Note: The latest version of QuickTime is V6.4 at the time this manual goes to press, and the supported operation systems are Windows Vista / XP / 2000, and Apple Mac.

Step 1: Go to Apple's official website to download QuickTime. The website address is as follows:
http://www.apple.com/quicktime/win.html

a). Click "Free Download" to go into the download page, and select to download the free player.

b). Leave your Email address, and click "Free Download Now" to download the latest QuickTime player.

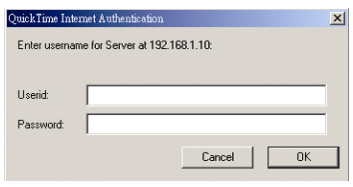
c). When the download is completed, execute the "QuickTimeInstaller.exe" file, and follow the on-screen instructions to finish the installation procedure.

Step 2: Open your QuickTime player. Select "File" → "Open URL in New Player…", and key in the URL address. The URL format is "rtsp://**ipaddress:portnum**/live/mpeg4" (For example, "rtsp://**59.124.231.75**/live/mpeg4").
Click "OK" to continue.

Step 3: A pop-up window will appear and prompt you to enter the authentication information.

Note: If you're not prompted to enter the authentication information, and the error message 10060 appears, go to "Edit" → "Preferences" → "QuickTime Preferences", and select "Streaming Transport" front he drop-down list. Select "Use HTTP", and keep the port ID as 80.

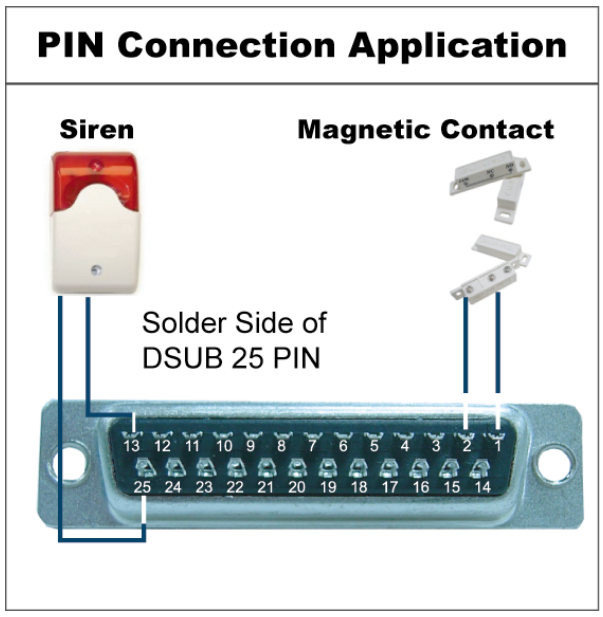
Key in the user name and password for accessing your DVR. The user name and password are the same as the ones you use to log into Video Viewer. If the information is correct, click "OK" to go on. If not, click "Cancel" to quit the accessing.



Step 4: When the login is successful, you will see the live view.

APPENDIX 1 PIN CONFIGURATION

- **For 16CH DVR**



Siren

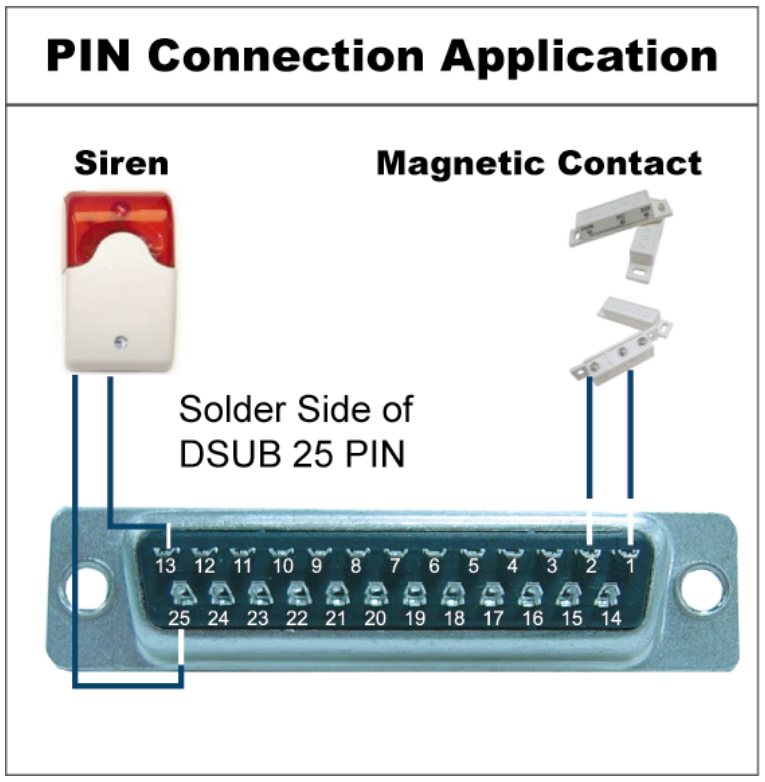
When the DVR is triggered by alarm or motion, the COM connects with NO and the siren with strobe starts wailing and flashing.

Magnetic Contact

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

PIN	FUNCTION	DESCRIPTION
1	GND	GROUND
2~9	ALARM INPUT	Connect ALARM INPUT (PIN 2 -- 9) and GND (PIN 1) connector with wires. Once an alarm is triggered, the DVR will start recording and the buzzer will be on. PIN 2 is Alarm 1. Once the alarm is triggered, the CH1 of the DVR will start alarm-triggered recording. PIN 3 is Alarm 3. Once the alarm is triggered, the CH3 of the DVR will start alarm-triggered recording. PIN 4 is Alarm 5. Once the alarm is triggered, the CH5 of the DVR will start alarm-triggered recording. PIN 5 is Alarm 7. Once the alarm is triggered, the CH7 of the DVR will start alarm-triggered recording. PIN 6 is Alarm 9. Once the alarm is triggered, the CH9 of the DVR will start alarm-triggered recording. PIN 7 is Alarm 11. Once the alarm is triggered, the CH11 of the DVR will start alarm-triggered recording. PIN 8 is Alarm 13. Once the alarm is triggered, the CH13 of the DVR will start alarm-triggered recording. PIN 9 is Alarm 15. Once the alarm is triggered, the CH15 of the DVR will start alarm-triggered recording.
10	EXTERNAL INPUT 1	
11	EXTERNAL OUTPUT 1	
12	RS485-A	
13	EXTERNAL ALARM 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.
14	EXTERNAL INPUT 0	
15~22	ALARM INPUT	Connect ALARM INPUT (PIN 15 – 22) and GND (PIN 1) connector with wires. Once an alarm is triggered, the DVR will start recording and the buzzer will be on. PIN 15 is Alarm 2. Once the alarm is triggered, the CH2 of the DVR will start alarm-triggered recording. PIN 16 is Alarm 4. Once the alarm is triggered, the CH4 of the DVR will start alarm-triggered recording. PIN 17 is Alarm 6. Once the alarm is triggered, the CH6 of the DVR will start alarm-triggered recording. PIN 18 is Alarm 8. Once the alarm is triggered, the CH8 of the DVR will start alarm-triggered recording. PIN 19 is Alarm 10. Once the alarm is triggered, the CH10 of the DVR will start alarm-triggered recording. PIN 20 is Alarm 12. Once the alarm is triggered, the CH12 of the DVR will start alarm-triggered recording. PIN 21 is Alarm 14. Once the alarm is triggered, the CH14 of the DVR will start alarm-triggered recording. PIN 22 is Alarm 16. Once the alarm is triggered, the CH16 of the DVR will start alarm-triggered recording.
23	EXTERNAL INPUT 0	
24	RS485-B	
25	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.

- **For 8CH 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	GND	GROUND
2~5	ALARM INPUT	Connect ALARM INPUT (PIN 2 – 5) and GND (PIN 1) connector with wires. Once an alarm is triggered, the DVR will start recording and the buzzer will be on. PIN 2 is Alarm 1. Once the alarm is triggered, the CH1 of the DVR will start alarm-triggered recording. PIN 3 is Alarm 3. Once the alarm is triggered, the CH3 of the DVR will start alarm-triggered recording. PIN 4 is Alarm 5. Once the alarm is triggered, the CH5 of the DVR will start alarm-triggered recording. PIN 5 is Alarm 7. Once the alarm is triggered, the CH7 of the DVR will start alarm-triggered recording.
10	EXTERNAL INPUT 1	
11	EXTERNAL OUTPUT 1	
12	RS485-A	
13	EXTERNAL ALARM 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.
14	EXTERNAL INPUT 0	
15~18	ALARM INPUT	Connect ALARM INPUT (PIN 15 – 18) and GND (PIN 1) connector with wires. Once an alarm is triggered, the DVR will start recording and the buzzer will be on. PIN 15 is Alarm 2. Once the alarm is triggered, the CH2 of the DVR will start alarm-triggered recording. PIN 16 is Alarm 4. Once the alarm is triggered, the CH 4 of the DVR will start alarm-triggered recording. PIN 17 is Alarm 6. Once the alarm is triggered, the CH6 of the DVR will start alarm-triggered recording. PIN 18 is Alarm 8. Once the alarm is triggered, the CH8 of the DVR will start alarm-triggered recording.
23	EXTERNAL INPUT 0	
24	RS485-B	
25	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”.

Note: You can backup up to 2GB video data for one-time USB backup. To backup more data, please set the time & channel(s) you want, and start USB backup again.

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

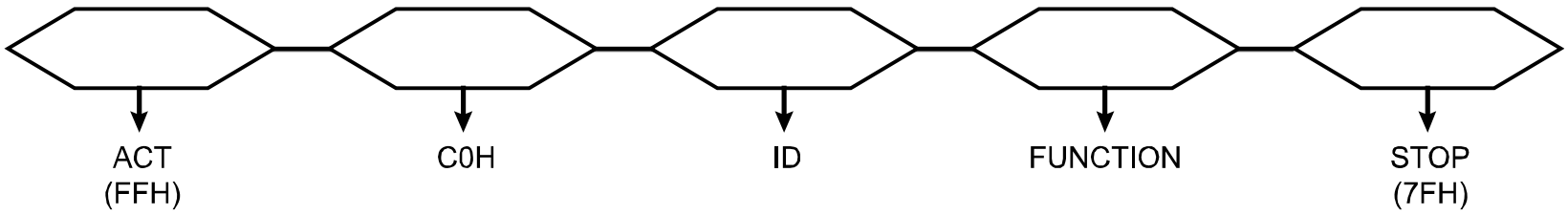
APPENDIX 5 COMPATIBLE USB DVD WRITER LIST

Note: The chipsets listed below are for reference only. To ensure the compatibility, please use the specified models below.

MANUFACTURER	MODEL	CHIPSET
BENQ	EW200G	MediaTek
LiteOn	DH-20A4P	MediaTek
SONY	DRU-V200S	NEC
	AD-7200A	NEC
LG	GH22NP20	Panasonic
	GH20NS15	Renesas

APPENDIX 6 RS485 PROTOCOL

- Use PC keyboards to simulate DVR keypads.
- Data: REMOTE PROTOCOL uses 8 bit data, 1 start bit, 1 stop bit.



FUNCTION	CODE	ASCII	FUNCTION	CODE	ASCII
KEY_MENU	0x4D	M	KEY_SET_CHANNEL	0x6e	n
KEY_ENTER	0x0D	ENTER	KEY_DWELL	0x65	e
KEY_PLUS	0x6b	k	KEY_CH1	0x31	1
KEY_MINUS	0x6d	m	KEY_CH2	0x32	2
KEY_UP	0x55	U	KEY_CH3	0x33	3
KEY_DOWN	0x4E	N	KEY_CH4	0x34	4
KEY_LEFT	0x4C	L	KEY_CH5	0x35	5
KEY_RIGHT	0x52	R	KEY_CH6	0x36	6
KEY_POWER	0x57	W	KEY_CH7	0x37	7
KEY_REC	0x72	r	KEY_CH8	0x38	8
KEY_PLAY	0x50	P	KEY_CH9	0x39	9
KEY_SLOW	0x53	S	KEY_CH10	0x41	A
KEY_ZOOM	0x5A	z	KEY_CH11	0x42	B
KEY_KEY LOCK	0x4B	K	KEY_CH12	0x43	C
KEY_AUDIO	0x64	d	KEY_CH13	0x44	D
KEY_SEARCH	0x73	S	KEY_CH14	0x45	E
KEY_PTZ_MODE	0x70	p	KEY_CH15	0x46	F
KEY_PTZ_PRESET	0x71	q	KEY_CH16	0x47	G
KEY_PTZ_ZOOM_IN	0x69	i	KEY_EJECT_DVD	0x6a	j
KEY_PTZ_ZOOM_OUT	0x66	f	KEY_IRIS_NEAR	0x67	g
KEY_MODE	0x6f	o	KEY_IRIS_FAR	0x68	h
KEY_4 CUT	0x61	a	KEY_PTZ_LIGHT	0x6c	l
KEY_9 CUT	0x62	b	KEY_PTZ_WIPER	0x77	w
KEY_16 CUT	0x63	c			

APPENDIX 7 SPECIFICATIONS

- **Model 1 ~ 4**

MODEL	Model 1	Model 2	Model 3	Model 4
Video System	NTSC / PAL (auto detection)			
Video Input (composite video signal 1 Vp-p 75Ω BNC)	16 channels		8 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)	4 audio inputs, 1 audio output (Mono)	1 audio input, 1 audio output (Mono)
Maximum Recording Rate (Frame)	120 IPS @ 704×480 <NTSC> / 100 IPS @ 704×576 <PAL>		60 IPS @ 704×480 <NTSC> / 50 IPS @ 704×576 <PAL>	
Maximum Recording Rate (Field)	240 IPS @ 704×240 <NTSC> / 200 IPS @ 704×288 <PAL>	N/A	120 IPS @ 704×240 <NTSC> / 100 IPS @ 704×288 <PAL>	N/A
Maximum Recording Rate (CIF)	480 IPS @ 352×240 <NTSC> / 400 IPS @ 352×288 <PAL>		240 IPS @ 352×240 <NTSC> / 200 IPS @ 352×288 <PAL>	
Adjustable Recording Speed (Frame)	120, 60, 30, 15 IPS <NTSC> / 100, 50, 25, 12 IPS <PAL>		60, 30, 15, 7 IPS <NTSC> / 50, 25, 12, 6 IPS <PAL>	
Adjustable Recording Speed (Field)	240, 120, 60, 30 IPS <NTSC> / 200, 100, 50, 25 IPS <PAL>	N/A	120, 60, 30, 15 IPS <NTSC> / 100, 50, 25, 12 IPS <PAL>	N/A
Adjustable Recording Speed (CIF)	480, 240, 120, 60 IPS <NTSC> / 400, 200, 100, 50 IPS <PAL>		240, 120, 60, 30 IPS <NTSC> / 200, 100, 50, 25 IPS <PAL>	
Multilingual OSD	YES			
Image Quality Setting	Best, High, Normal and Basic			
Hard Disk Storage	Accommodates 2 SATA HDDs (1 HDD capacity up to 1TB)			
Quick Search	Time / Motion / Alarm search mode	Time / Motion search mode	Time / Motion / Alarm search mode	Time / Motion search mode
SATA Interface	Built-in			
VGA Interface	Built-in (output resolution up to 1600 x 1200)	N/A	Built-in (output resolution up to 1600 x 1200)	N/A
Recording Mode	Manual / Timer / Motion / Alarm / Remote	Manual / Timer / Motion / Remote	Manual / Timer / Motion / Alarm / Remote	Manual / Timer / Motion / Remote
Refresh Rate	480 IPS for NTSC / 400 IPS for PAL		240 IPS for NTSC / 200 IPS for PAL	
Multiplex Operation	Live display / record (16 channels) / playback (simultaneously up to 4 channels) / backup / network operations		Live display / record (8 channels) / playback (simultaneously up to 4 channels) / backup / network operations	
Remote Independent Operation	Fully remote independent operation			
R.E.T.R. (Remote Event Trigger Recording)	YES	N/A	YES	N/A
Motion Detection Area	16 × 12 grids per camera for all channels	3 pre-defined detection areas selectable	16 × 12 grids per camera for all channels	3 pre-defined detection areas selectable
Motion Detection Sensitivity	One parameter with three sensitivity levels (High / Normal / Low)			
Pre-alarm Recording	YES (8 MB)			

MODEL	Model 1	Model 2	Model 3	Model 4
Backup Device	1. USB DVD writer (optional); 2. USB 2.0 flash drive; 3. Network			
USB Interface	Front panel * 1 / Back panel * 1	Front panel * 1	Front panel * 1 / Back panel * 1	Front panel * 1
Ethernet	10/100 Base-T. Supports remote control and live view via Ethernet			
Web Interface	Supports licensed software “Video Viewer” / Internet Explorer & Mozilla Firefox web browsers / QuickTime (5 users access simultaneously)			
	*Operating System: Windows Vista / XP / 2000; Apple Mac			
Remote Alarm Notification	E-mail and FTP server	N/A	E-mail and FTP server	N/A
Network Protocol	TCP/IP, PPPOE, DHCP and DDNS			
IR Remote Control	YES (IR receiver built-in)			
PTZ Control	YES			
Dwell Time (Sequential Channel Switch)	Programmable with adjustable dwell time (3 / 5 / 10 / 15 seconds)			
Alarm I/O	16 inputs, 1 output	N/A	8 inputs, 1 output	N/A
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			
Daylight Saving	YES			
Power Source (±10%)	DC 19V			
Power Consumption (±10%)	＜64 W			
Operating Temperature	10℃ ~ 40℃ (50℉~104℉)			
Dimensions (mm)**	430(W) x 65(H) x 338(D)			
System Recovery	System auto recovery after power failure			
Optional Peripherals	Keyboard controller	Keyboard controller / VGA converter	Keyboard controller	Keyboard controller / VGA converter

* The specifications are subject to change without notice.

** Dimensional Tolerance: ±5mm

- **Model 5 ~ 8**

MODEL	Model 5	Model 6	Model 7	Model 8
Video System	NTSC / PAL (auto detection)			
Video Input (composite video signal 1 Vp-p 75Ω BNC)	16 channels		8 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)	4 audio inputs, 1 audio output (Mono)	1 audio input, 1 audio output (Mono)
Maximum Recording Rate (Frame)	120 IPS @ 704×480 <NTSC> / 100 IPS @ 704×576 <PAL>		60 IPS @ 704×480 <NTSC> / 50 IPS @ 704×576 <PAL>	
Maximum Recording Rate (Field)	240 IPS @ 704×240 <NTSC> / 200 IPS @ 704×288 <PAL>	N/A	240 IPS @ 704×240 <NTSC> / 200 IPS @ 704×288 <PAL>	N/A
Maximum Recording Rate (CIF)	480 IPS @ 352×240 <NTSC> / 400 IPS @ 352×288 <PAL>		240 IPS @ 352×240 <NTSC> / 200 IPS @ 352×288 <PAL>	
Adjustable Recording Speed (Frame)	120, 60, 30, 15 IPS <NTSC> / 100, 50, 25, 12 IPS <PAL>		60, 30, 15, 7 IPS <NTSC> / 50, 25, 12, 6 IPS <PAL>	
Adjustable Recording Speed (Field)	240, 120, 60, 30 IPS <NTSC> / 200, 100, 50, 25 IPS <PAL>	N/A	120, 60, 30, 15 IPS <NTSC> / 100, 50, 25, 12 IPS <PAL>	N/A
Adjustable Recording Speed (CIF)	480, 240, 120, 60 IPS <NTSC> / 400, 200, 100, 50 IPS <PAL>		240, 120, 60, 30 IPS <NTSC> / 200, 100, 50, 25 IPS <PAL>	
Multilingual OSD	YES			
Image Quality Setting	Best, High, Normal and Basic			
Hard Disk Storage	Accommodates 2 SATA HDDs (1 HDD capacity up to 1TB)			
Quick Search	Time / Motion / Alarm search mode	Time / Motion search mode	Time / Motion / Alarm search mode	Time / Motion search mode
SATA Interface	Built-in			
VGA Interface	Built-in (output resolution up to 1600 x 1200)	N/A	Built-in (output resolution up to 1600 x 1200)	N/A
Recording Mode	Manual / Timer / Motion / Alarm / Remote	Manual / Timer / Motion / Remote	Manual / Timer / Motion / Alarm / Remote	Manual / Timer / Motion / Remote
Refresh Rate	480 IPS for NTSC / 400 IPS for PAL		240 IPS for NTSC / 200 IPS for PAL	
Multiplex Operation	Live display / record (16 channels) / playback (simultaneously up to 4 channels) / backup / network operations		Live display / record (8 channels) / playback (simultaneously up to 4 channels) / backup / network operations	
Remote Independent Operation	Fully remote independent operation			
R.E.T.R. (Remote Event Trigger Recording)	YES	N/A	YES	N/A
Motion Detection Area	16 × 12 grids per camera for all channels	3 pre-defined detection areas selectable	16 × 12 grids per camera for all channels	3 pre-defined detection areas selectable
Motion Detection Sensitivity	One parameter with three sensitivity levels (High / Normal / Low)			
Pre-alarm Recording	YES (8 MB)			

MODEL	Model 5	Model 6	Model 7	Model 8
Backup Device	1. DVD writer (optional) 2. USB 2.0 flash drive 3. Network	1. USB DVD writer (optional) 2. USB 2.0 flash drive 3. Network	1. DVD writer (optional) 2. USB 2.0 flash drive 3. Network	1. USB DVD writer (optional) 2. USB 2.0 flash drive 3. Network
USB Interface	Front panel * 1			
Ethernet	10/100 Base-T. Supports remote control and live view via Ethernet			
Web Interface	Supports licensed software “Video Viewer” / Internet Explorer & Mozilla Firefox web browsers / QuickTime (5 users access simultaneously)			
	*Operating System: Windows Vista / XP / 2000; Apple Mac			
Remote Alarm Notification	E-mail and FTP server	N/A	E-mail and FTP server	N/A
Network Protocol	TCP/IP, PPPOE, DHCP and DDNS			
IR Remote Control	YES (IR receiver built-in)			
PTZ Control	YES			
Dwell Time (Sequential Channel Switch)	Programmable with adjustable dwell time (3 / 5 / 10 / 15 seconds)			
Alarm I/O	16 inputs, 1 output	N/A	8 inputs, 1 output	N/A
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			
Daylight Saving	YES			
Power Source (±10%)	DC 19V			
Power Consumption (±10%)	＜64 W			
Operating Temperature	10℃ ~ 40℃ (50℉~104℉)			
Dimensions (mm)**	430(W) x 65(H) x 338(D)			
System Recovery	System auto recovery after power failure			
Optional Peripherals	Keyboard controller	Keyboard controller / VGA converter	Keyboard controller	Keyboard controller / VGA converter

* The specifications are subject to change without notice.

** Dimensional Tolerance: ±5mm

APPENDIX 8 RECORDING TIME TABLE

The testing environment for this recording time table is normal office, and for reference only.

Recording time may vary depending on the following three factors:

- Different camera resolution;
- Different picture complexity;
- Different frequency of the object movement

For 16CH DVR

Record Mode	Quality	IPS	750GB record time (hour)	750GB record time (day)
FRAME	BEST	120	151.33	6.31
		60	217.77	9.07
		30	393.91	16.41
		15	558.04	23.25
	HIGH	120	202.92	8.46
		60	322.72	13.45
		30	496.03	20.67
		15	622.92	25.96
	NORMAL	120	243.51	10.15
		60	382.65	15.94
		30	595.24	24.80
		15	765.31	31.89
	BASIC	120	293.70	12.24
		60	469.92	19.58
		30	669.64	27.90
		15	892.86	37.20
FIELD	BEST	240	153.94	6.41
		120	267.86	11.16
		60	398.60	16.61
		30	572.34	23.85
	HIGH	240	192.70	8.03
		120	314.39	13.10
		60	385.25	20.22
		30	656.51	27.35
	NORMAL	240	200.94	8.37
		120	360.02	15.00
		60	519.10	21.63
		30	720.05	30.00
	BASIC	240	261.32	10.89
		120	413.36	17.22
		60	653.31	27.22
		30	892.86	37.20
CIF	BEST	480	111.61	4.65
		240	191.33	7.97
		120	343.41	14.31
		60	505.39	21.06
	HIGH	480	145.57	6.07
		240	199.89	8.33
		120	412.09	17.17
		60	637.76	26.57
	NORMAL	480	169.10	7.05
		240	297.62	12.40
		120	491.48	20.48
		60	744.05	31.00
	BASIC	480	221.37	9.22
		240	382.65	15.94
		120	622.92	25.96
		60	892.86	37.20

For 8CH DVR

Record Mode	Quality	IPS	750GB record time (hour)	750GB record time (day)
FRAME	BEST	60	302.66	12.61
		30	435.54	18.15
		15	787.82	32.83
		7	1116.07	46.50
	HIGH	60	405.84	16.91
		30	645.44	26.89
		15	992.06	41.34
		7	1245.85	51.91
	NORMAL	60	487.01	20.29
		30	765.31	31.89
		15	1190.48	49.60
		7	1530.61	63.78
	BASIC	60	587.41	24.48
		30	939.85	39.16
		15	1339.29	55.80
		7	1785.71	74.40
FIELD	BEST	120	307.88	12.83
		60	535.71	22.32
		30	797.19	33.22
		15	1144.69	47.70
	HIGH	120	385.41	16.06
		60	628.77	26.20
		30	970.50	40.44
		15	1313.03	54.71
	NORMAL	120	401.89	16.75
		60	720.05	30.00
		30	1038.21	43.26
		15	1440.09	60.00
	BASIC	120	522.65	21.78
		60	826.72	34.45
		30	1306.62	54.44
		15	1785.71	74.40
CIF	BEST	240	223.21	9.30
		120	382.65	15.94
		60	686.81	28.62
		30	1010.78	42.12
	HIGH	240	291.15	12.13
		120	399.79	16.66
		60	824.18	34.34
		30	1275.51	53.15
	NORMAL	240	338.20	14.09
		120	595.24	24.80
		60	982.96	40.96
		30	1488.10	62.00
	BASIC	240	442.74	18.45
		120	765.31	31.89
		60	1245.85	51.91
		30	1785.71	74.40

APPENDIX 9 DVR BATTERY REPLACEMENT

DVR time reset after power failure, for example, caused by a power outage, will cause the disorder of the recorded data, and users may have problems in searching the event clip they want. To keep the DVR time from resetting, a non-chargeable lithium battery, *CR2032*, is installed in the DVR.

However, the DVR time might still get reset when the DVR battery is low or even running out of power. If so, please replace the DVR battery, CR2032, **right away** as instructed below.

- **How to replace CR2032**

Note: The lithium battery, CR2032, is a non-chargeable battery, and should be purchased separately. Please replace only with the same or equivalent type battery in case of danger.

Step1: Stop all DVR recording **immediately** to prevent the disorder of the recorded data. Then, back up the recorded data if necessary.

Step2: Power off the DVR, and disconnect the DVR power.

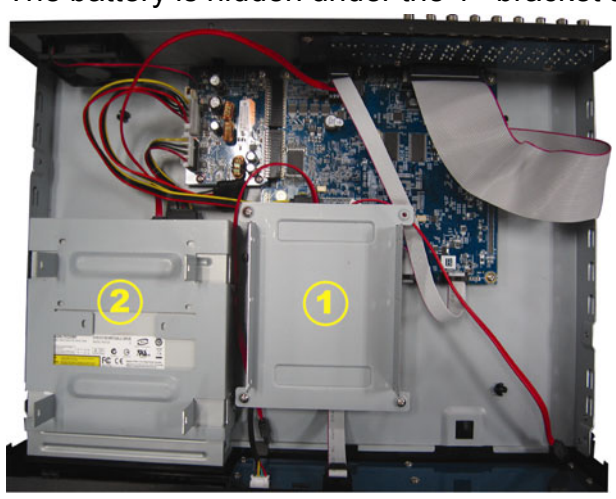
Step3: Remove the DVR cover, and find the battery on the mainboard.

For Model 1 ~ 4

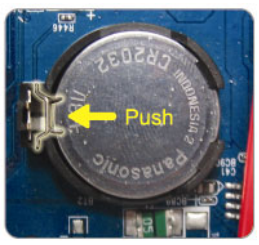
The battery is shown and can be easily found when the DVR cover is removed.

For Model 5 ~ 8

The battery is hidden under the 1st bracket as indicated below. Remove the bracket and the battery is shown.



Step4: Push the release as indicated below to remove the battery.



Step5: Get a new battery with the side of “CR2032” facing up, and install it to the mainboard.

Step6: Replace the DVR bracket for Model 5 ~ 8, and replace the DVR cover.

Step7: Connect to DVR power, and turn on the DVR.

Step8: Set DVR date & time, and resume recording. For details, please refer to “3.5. Date and Time Setting” at page 8, and “5.2. RECORD” at page 13.