4CH MPEG4 DVR

USER MANUAL

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

The image shown above may differ from the actual product appearance.

760A_760AS_761AS_761ASV_560A_560AS_561AS_561ASV_Manual_V1.2

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.

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.
RoHS conform	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.
CE	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. 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.

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.

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/AV071/

Version

Firmware: 1236-1012-1033-1018-M3-6C1B
Licensed Software AP: 0099

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1. OVERVIEW

1.1 Product Description

This MPEG4 multiplex network DVR series combines remote surveillance, burglar prevention, and evidentiary recording features and is designed to become a simple DVR system with all necessary functions.

1.2 Features

● **MPEG4 Technology**

- MPEG4 compression format providing crystal clear images with real time performance
- MPEG4 web transmitting for faster transmission and clearer images via network

● **Multiplex Operation**

- Allows live display, record, playback, backup, and network operations at the same time

● **Free Upgrade to Advanced Functions**

- Allows you to upgrade DVR functions without any charges

● **Backup Device**

- Network (for all models)
- USB flash drive (Model 3, 4 & 5)
- DVD writer (Model 5 only)

● **Remote Surveillance**

- Supports remote surveillance up to 20 users simultaneously with licensed software AP, IE browser & Mozilla Firefox browser

● **Intelligent Motion Trigger Recording**

- With the advanced functions of motion detection, scheduled motion detection recording (4 different adjustable factors for motion detection sensitivity) and quick search, customized security environments are achieved
- Alarm trigger recording will send alerts with images to designated e-mails and the FTP address
- Supports pre-alarm recording (8MB)

● **Covert Recording**

- Blank screen replaces live displays to achieve covert recording

● **A/V Support**

- Model 1, 2, 3 & 4: Supports 1 audio-in, 1 audio-out to record sounds
  Model 5: Supports 2 audio-in & 1 audio-out to record sounds
- Supports VGA output to monitor

● **General**

- Supports multi-language OSD
- System auto recovery after power failure
- Supports PTZ camera operations through RS485 signals
- Supports manual / timer / motion / alarm / network remote recording
- Supports TCP/IP, PPPoE, DHCP and DDNS network connection
- Supports IR remote control (for Model 3, 4 & 5 only)
- Supports SATA HDD (except for Model 1)

1.3 Specifications

MODEL	MODEL 1	MODEL 2	MODEL 3	MODEL 4	MODEL 5
Video System	NTSC / PAL (auto detection)				
Video Compression Format	MPEG4				
Video Input (Composite video signal 1 Vp-p 75Ω BNC)	4 Channels				
Video Loop Out (Composite video signal 1 Vp-p 75Ω BNC)	4 Channels				
Video Output (Composite video signal 1 Vp-p 75Ω BNC)	Main Monitor Output / Call Monitor Output				
Maximum Recording Rate	Frame: 720×480 pixels with 30 IPS <NTSC> / 720×576 pixels with 25 IPS <PAL> CIF: 352×240 pixels with 120 IPS <NTSC> / 352×288 pixels with 100 IPS <PAL>				
Adjustable Recording Speed	Frame: 30, 15, 7, 3 IPS <NTSC> / 25, 12, 6, 3 IPS <PAL> CIF: 120, 60, 30, 15 IPS <NTSC> / 100, 50, 25, 12 IPS <PAL>				
Image Quality Setting	Best, High, Normal and Basic				
Hard Disk Storage (Supports over 1000GB HDD capacity, and HDDs are optional)	Supports HDD＊1	Supports SATA HDD＊1			
HDD Quick Cleaning	Quick clean up the "index system" of the recorded files. 1000GB under 2 seconds				
Recording Mode	Manual / Timer / Motion / Alarm / Remote				
Refresh Rate	120 IPS for NTSC / 100 IPS for PAL				
Audio I/O	1 audio input, 1 audio output (Mono)				2 audio inputs, 1 audio output (Mono)
VGA Interface	NO		YES		
USB Interface	NO		Rear Panel x 1		
SATA Interface	NO	YES			
Motion Detection Area	16 × 12 grids per camera for all channels				
Motion Detection Sensitivity	4 adjustable variables with precise calculation for motion detection				
Pre-alarm Recording	Yes (8MB)				
Backup Device	Network	Network / USB flash drive			Network / USB flash drive / DVD writer
Web Transmitting Compression Format	MPEG4				
Ethernet	10/100 Base-T. Support remote control and live view via Ethernet.				
Web Interface	Support licensed software AP, IE browser & Mozilla Firefox browser				
Remote Alarm Notification	E-mail images, and upload images to FTP site's specific account				
Network Protocol	Support TCP/IP, PPPoE, DHCP and DDNS function				
PTZ control	Supports PELCO-D protocol				
IR Remote Control	NO		YES		
Dwell Time (Sequential Channel Switch)	Programmable with adjustable dwell time				
Alarm I/O	4 inputs, 1 output				
Digital Zoom	2X digital zoom (live mode)				
Key Lock	Yes				
Video Loss Detection	Yes				
Camera Title	Support up to 6 letters				
Video Adjustable	Hue / Color / Contrast / Brightness				
Date Display Format	YY/MM/DD, DD/MM/YY, MM/DD/YY, and Off				
Power Source	DC 19V				
Power Consumption	＜42 W				＜64 W
Operating Temperature	10℃ ~ 40℃ (50℉~104℉)				
Dimensions (mm)	343(W) × 59(H) × 223(D)	345(W) x 68.3(H) x 225(D)			375(W) x 61(H) x 281(D)
System Recovery	System auto recovery after power failure				
Optional Peripherals	Keyboard Controller				

＊ The specifications are subject to change without notice.

2. FRONT AND REAR PANELS

2.1 Front Panel

1) <u>LED Indication</u>

 The following LEDs will be on when:

 HDD: HDD is reading or recording

 HDD Full: HDD is full.

 ALARM: Once the alarm is triggered

 TIMER: When timer recording is turned on

 PLAY: Under playing status

 REC: Under recording status

2) <u>MENU</u>

 Press this button to enter / exit the DVR menu mode.

 In the sub-layer of the DVR menu, press this button to confirm the settings and go back to the upper layer.

3) <u>ENTER</u>

 Confirm the password entering.

4) <u>REC</u>

 Press this button to activate manual recording.

5) <u>LIST or SEARCH</u>

 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" button to playback the selected file.

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

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

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

 ALARM   List the information of the alarm-trigger-recorded files.

 TIMER   List the information of the timer-recorded files.

6) <u>SLOW</u>

 Under the playback mode,

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

7) <u>ZOOM</u>

 In the live mode of the DVR, press this button to enlarge the image of the selected channel.

8) ⊞ / −

 Press "⊞" button to show the 4 channel display modes.

 Press "−" button to change the setting in the menu.

9) <u>SEQ /+</u>

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

 Press "+" button to change the setting in the menu.

10) <u>Power</u>

 Press this button long enough to turn on/off your DVR.

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

11) <u>1 / 2 / 3 / 4</u>

 Press one of these buttons to show the channel display of CH1 ~ CH4 on the monitor.

12) or PLAY

    Press this button to play the recorded video.

13) <u>Pause / Stop / Rew / FF</u>
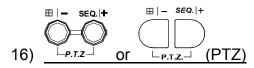
    Under the playback mode:

    Press one of these button to pause / stop / rewind / fast-forward the playback file.

14) <u>Up / Down / Left / Right</u>

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

    Under the DVR menu mode, these direction buttons can use for the following operation:

    Up / Down: Make the selection / Change the settings

    Left / Right: Make the selection

15) or (Audio)

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

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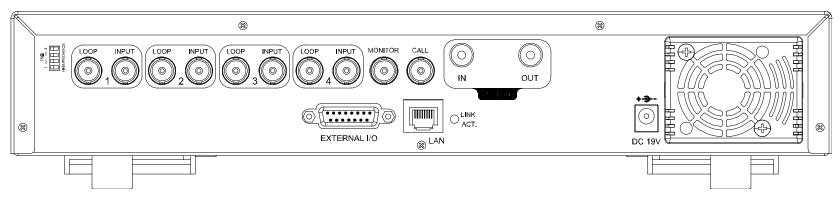
    Press these two buttons at the same time to enter / exit the PTZ control mode.

    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

17) <u>"MENU" + "ENTER" (Key lock)</u>

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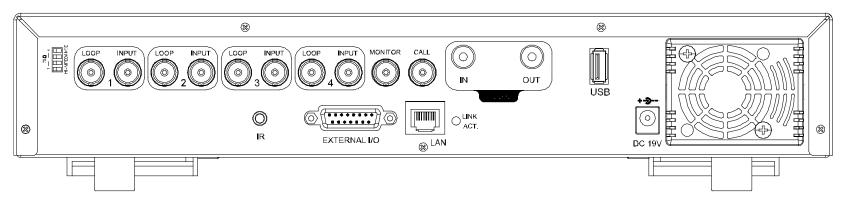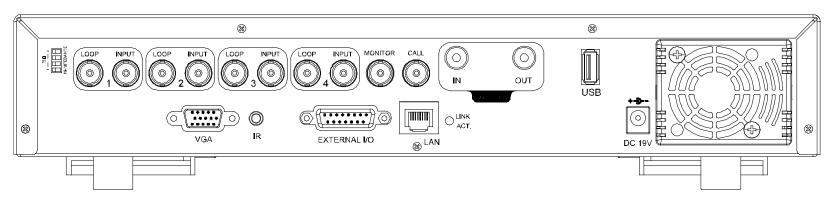
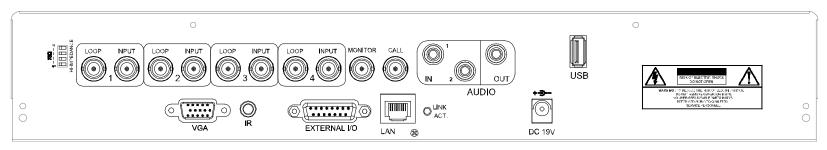## 2.2 Rear Panel

· Model 1 & 2

· Model 3

· Model 4

· Model 5

1) <u>75Ω / HI-IMPEDANCE</u>

When using LOOP function, please switch to HI-IMPEDANCE. Otherwise, please switch to 75Ω.

2) <u>LOOP / INPUT (For channel 1~4)</u>

LOOP: Video output connector.

INPUT: Connect to video sources, such as cameras.

Note: If you want to playback the video with audio, please connect an audio camera to INPUT 1 on the DVR rear panel.

3) <u>MONITOR</u>

Connect to MAIN monitor.

4) <u>CALL</u>

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) <u>AUDIO IN</u>

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

When users start recording, the audio input will also be recorded.

6) <u>AUDIO OUT</u>

Connect to a monitor or speaker with 1 mono audio output.

7) <u>USB (Model 3, 4 & 5 only)</u>

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.

Note: For the list of compatible USB flash drives, please refer to "APPENDIX 2 COMPATIBLE USB FLASH DRIVE BRAND" at page 57.

8) <u>IR (Model 3, 4 & 5 only)</u>

Connect the IR receiver for remote control.

9) <u>EXTERNAL I/O</u>

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 56.

10) <u>VGA (Model 4 & 5 only)</u>

Connect to a LCD monitor directly.

11) <u>LAN</u>

Connect to Internet by LAN cable.

12) <u>LINK ACT.</u>

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

13) <u>DC 19V</u>

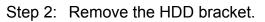Connect to the supplied adapter.

3. CONNECTIONS AND SETUP

3.1 HDD Installation (Take Model 1 as an example)

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

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

STEP1-1: Remove Screws   STEP1-2: Remove DVR Upper Cover

Step 2:   Remove the HDD bracket.

STEP 2:Remove HDD Bracket

Step 3:   Get a compatible SATA HDD, and connect it to the power connector and data bus connector (make sure to align the HDD precisely for pin connection).

STEP3: Connect to power connector & data bus connector

Step 4:   Put the HDD to the DVR, and replace the HDD bracket back to the DVR base.

STEP4: Put the HDD and replace the bracket back

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 **BEFORE** the DVR is turned on. The DVR will automatically detect the video system of the connected camera(s) (NTSC / PAL), and switch itself to the correct system.

Note: For detailed DVR video input / output ports, please refer to "2.2 Rear Panel" at page 5.
For detailed camera operation, please refer to its own manual.

Note: If you want to make a video backup with audio, please connect audio camera to the CH1 which support the audio function
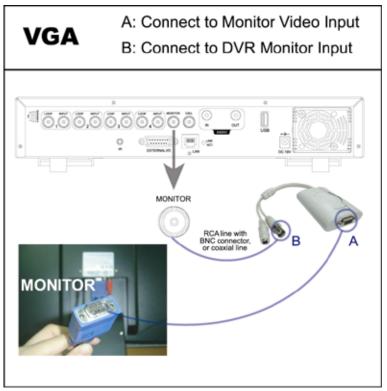
3.2.1 Camera Connection

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) RS485-A & RS485-B wires connection (For speed dome camera only):
Solder the RS485-A (brown) and RS485-B (orange) wires of the PTZ camera to the corresponding pins on the solder side of the 15 PIN D-Sub connector. For details, please refer to "3.3.3 Speed Dome Camera" at page 9.

4) Camera Setup (For speed dome camera only):
For detailed camera title, ID, protocol and baud rate setup, please refer to "7.3 REMOTE" at page 22.

3.3 External Device Connections

3.3.1 VGA Converter Connection (Optional)
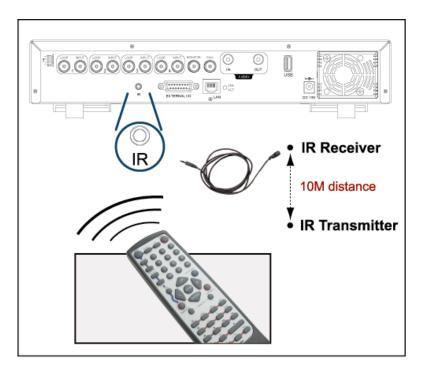
This optional peripheral allows your DVR to have VGA output function. For the connection method, please refer to the following figure as an example (do not use gender changer). For detailed connection, please refer to your VGA converter manual.

3.3.2 IR Transmitter (Model 3, 4 & 5 only)

Please connect the IR receiver line to the IR port on the DVR rear panel. And make sure the IR function is
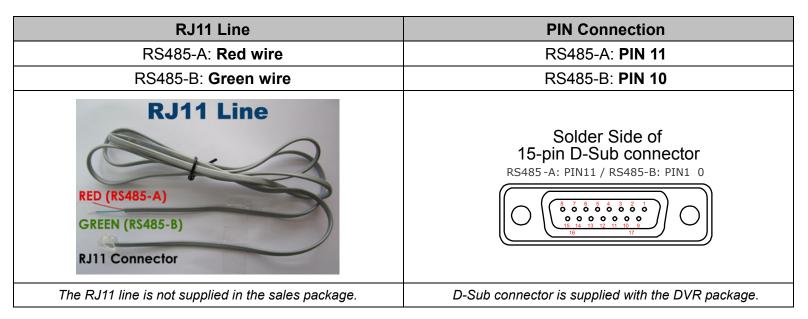
activated in the DVR menu (The default setting is on). Please refer to the following figure as an example.

3.3.3 Speed Dome Camera

You can connect the speed dome camera directly to DVR for pan / tilt / zoom control, but the available camera control is limited.

The following description is just an example. For connection details, please refer to your speed dome camera user manual.

RJ11 Line	PIN Connection
RS485-A: **Red wire**	RS485-A: **PIN 11**
RS485-B: **Green wire**	RS485-B: **PIN 10**
	Solder Side of **15-pin D-Sub connector** RS485-A: PIN11 / RS485-B: PIN1 0
The RJ11 line is not supplied in the sales package.	*D-Sub connector is supplied with the DVR package.*

STEP 1: Get a RJ11 line with the proper length to your connection.

Different RJ11 connector may have different wire layout, so the connection might be different. If you cannot control the DVR after connection, please reverse the RJ11 line connection with the DVR.

STEP 2: Remove one end of the insulating coating of the RJ11 line.

Remove one end of the insulating coating of the RJ11 line to find the RS485-A and the RS485-B wires, and remove the insulating coating to reveal the naked wires for further connection.

STEP 3: Twist the RS485-A and RS485-B wires of the RJ11 line and the speed dome camera together.

Twist the RS485-A (red) and RS485-B (green) wires of the RJ11 line to the RS485-A (brown) and RS485-B (orange) wires of the speed dome camera. To protect the naked wires, use the insulation tape to cover on the twisted wires.

STEP 4: Connect the other end of the RJ11 line to DVR.

Solder the RS485-A (red) and RS485-B (green) wires of the RJ11 line to the corresponding pins on the

solder side of the 15 PIN or 25 PIN D-Sub connector (as shown in the picture above).

STEP 5: Set the speed dome camera at the DVR side.

Go to the "REMOTE" menu to set the speed dome camera.

a) Select the device to "PTZ".

b) Set the ID to the value the same as the one set in the speed dome camera. The default ID of the camera is 000.

c) Select the protocol based on the speed dome camera you're connecting.

d) Set the baud rate to the value the same as the one set in the speed dome camera. The default baud rate of the camera is 2400.

REMOTE				
TITLE	DEVICE	ID	PROTOCOL	RATE
CH1	PTZ	000	NORMAL	2400
CH2	CAMERA	000	NORMAL	2400
CH3	CAMERA	000	NORMAL	2400
CH4	CAMERA	000	NORMAL	2400
PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTING				
↑↓ SELECT ← BACK → NEXT ↵ ENTER				

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 as green. It takes approximately 10 to 15 seconds to boot the system.

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

3.5 Date and Time Setting

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

Press the "MENU" button 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 charge the DVR for at least 48 hours continuously after the date & time is set correctly.

3.6 Password Setting

Press the "MENU" button 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". Select "PASSWORD" and press the "ENTER" button to enter the submenu to set the password (four digits). The default admin password is 0000.

ADVANCE
CAMERA
DETECTION
REMOTE
DISPLAY
ALERT
SYSTEM
NETWORK
BACKUP
HDD INFO
EVENT SEARCH
EVENT LOG

SYSTEM	
SERIAL TYPE	RS485
BAUDRATE	2400
HOST ID	0
PASSWORD	**XXXX**
RESET DEFAULT	RESET
CLEAR HDD	HDD-MASTER-1
UPGRADE	START
AUTO KEYLOCK	NEVER
LANGUAGE	ENGLISH
VIDEO FORMAT	NTSC
VERSION	1236-1012-1033-1018-M3-6C1B

4. BASIC OPERATION

4.1 Live Page

In this live page of the DVR, you can see the following icons:

Icon	Function	Icon	Function	Icon	Function
🔒	Key lock	🔍	Digital zoom mode	📡	Alarm
🔓	Key unlock	🔍	Digital zoom unselected	🎥	Recording
🔊	Live audio channel	⏲	Timer recording	🐾	Motion
🔊	Playback audio channel	🎮	PTZ control mode	💾	HDD overwrite
🔇	Audio channel unselected	🔲	Full screen sequence mode		

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) Continuous Recording Icon

When the DVR is properly connected with camera, you can see the icon " 🎥 " (recording) on the monitor.

2) Motion Recording Icon

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

3) Timer Recording Icon

When the timer record is activated, you will see the icon " ⏲ " (timer) on the monitor

Note: The audio source connected to the "Audio 1" will be recorded with the video of the "CH1".

4.3 Playback

Press the "PLAY" button 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 205 seconds (8192 images / 40 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 recording (CIF) will be shown on the screen.

2) Pause / Image Jog

 Press "PAUSE" button to pause the playback.
 In the pause mode:
 Press "►" button once to get one frame forward.
 Press "◄" button once to get one frame rewind.

3) Stop

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

4) Slow Playback

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

5) Audio Playback

 Use these two buttons [SLOW ZOOM / AUDIO] to select the live or playback sound of the audio channels.

 Live audio of the 1st audio channel   Playback audio of the 1st audio channel

 Live audio of the 2nd audio channel (Model 5 only)   Playback audio of the 2nd audio channel (Model 5 only)

Note: If you want to make a video backup with audio, please connect your audio camera(s) to the channel(s) supporting the audio function first.
   Model 1, 2, 3 & 4: Connect to CH1 / Model 5: Connect to CH1 & CH2.

4.4 Key Lock and Unlock

1) Key Lock On:

 Press "MENU" + "ENTER" buttons at the same time on the DVR control panel to lock keys.
 Or set the time-out after which the key lock function is activated (NEVER / 30 SEC / 60 SEC / 120 SEC). Please refer to "7.6 SYSTEM" at page 24.

2) Key Lock Off:

 Enter the DVR password to exit "Key Lock" mode.

Note: For the password setting, please refer to the section "3.6 Password Setting" at page 10.

4.5 Upgrade

· **Firmware / Multilanguage OSD Upgrade**

1) Use USB flash drive to upgrade firmware or OSD:

 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" → "START", and press "ENTER" button.
 Step 4. Select "YES", and press "ENTER" button again to confirm upgrade.

2) Use the supplied software AP to remotely upgrade firmware or OSD:

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

Note: For remote upgrade details, please see "Tools" at page 48.

4.6 Search

1) <u>Search by List</u>

Press "LIST" or "SEARCH" button 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" button to start playback.

ALARM	List the information of the alarm-trigger-recorded files.
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) <u>Quick Search by Time</u>

Press the "MENU" button to enter the menu list, move to "QUICK SEARCH", and press "ENTER" button 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.

4.7 Audio Backup and Playback

For audio backup, you need to connect your camera(s) to the correct channel(s) supporting audio recording first. For Model 1, 2, 3 & 4, the audio channel is CH1. For Model 5, the audio channels are CH1 & CH2. For detailed backup instructions, please refer to "7.8 BACKUP (Model 3, 4 & 5 Only)" at page 27.

To select live or playback sounds of the audio channels, press these two buttons on the DVR front panel at the same time. For detailed playback instructions, please refer to "4.3 Playback" at page 12. For detailed playback instructions at the remote side, please refer to "Playback" at page 33.

5. MENU CONFIGURATION

MAIN MENU	QUICK SEARCH	DATE
		SEARCH HDD
	RECORD	IMAGE SIZE
		QUALITY
		MANUAL RECORD ENABLE
		EVENT REOCRD ENABLE
		TIMER RECORD ENABLE
		MANUAL RECORD IPS
		EVENT RECORD IPS
		TIMER RECORD IPS
		PRE-ALARM RECORD
		OVERWRITE
	TIMER	RECORD TIMER
		DETECTION TIMER
	DATE	DATE
		FORMAT
		DAYLIGHT SAVING
	ADVANCE	
ADVANCED MENU	CAMERA	TITLE
		BRIG
		CONT
		SATU
		HUE
		COV.
		REC
	DETECTION	TITLE
		DET
		AREA
		LS
		SS
		TS
		RE
		ALARM
	REMOTE	TITLE
		DEVICE
		ID
		PROTOCOL
		RATE
	DISPLAY	DE-INTERLACE
		FULL SCREEN DWELL DURATION (SEC)
		CHANNEL TITLE
		EVENT STATUS
		DATE DISPLAY
		VGA OUTPUT *(For Model 4 & 5 only)*
	ALERT	EXT. ALERT
		INT. BUZZER
		KEY BUZZER
		VLOSS BUZZER
		MOTION BUZZER
		ALARM BUZZER
		HDD BUZZER
		ALARM DURATION (SEC)
		HDD NEARLY FULL (GB)
	SYSTEM	SERIAL TYPE
		BAUDRATE
		HOST ID
		PASSWORD
		RESET DEFAULT
		CLEAR HDD

		UPGRADE
		AUTO KEYLOCK (SEC)
		LANGUAGE
		VIDEO FORMAT
		VERSION
	NETWORK	NETWORK TYPE
		IP
		GATEWAY
		NETMASK
		PRIMARY DNS
		SECONDARY DNS
		PORT
	BACKUP (*(For Model 3, 4 & 5 only)*)	START TIME
		END TIME
		AVAILABLE SIZE
	HDD INFO	HDD NUM
		HDD SIZE (GB)
	EVENT SEARCH	DATE
		CHANNEL
		EVENT
		SEARCH HDD
		START
	EVENT LOG	EVENT
		TIME
		COMMENT

6. QUICK START MENU

Press the "MENU" button and enter the password to go to the quick-start menu list. The default admin password is 0000. Users can change the password later. Please refer to "SYSTEM" at page 24.

ITEM	FUNCTION
MENU	Enter / exit the quick start menu Under the sub-layer of the advanced setting menu, use this button to confirm the settings and go back to the upper layer.
▲ ▼	Make the selection / Change the setting
◄ ►	Go to the upper layer or sub-layer / Make the selection
ENTER	Confirm the password entering Go to the sub-layer of the advanced menu
→ NEXT	Move to this item and press the "ENTER" button to go the next page.
← BACK	Move to this item and press "ENTER" button to go the previous page.

6.1 QUICK SEARCH

In this menu list, you can search any specific events by time and directly play the file you find.

Move to "QUICK SEARCH", and press "ENTER" button.

You will see a similar screen as the following:

```
MENU
QUICK SEARCH
RECORD
TIMER
DATE
ADVANCE
```

```
                    TIME SEARCH
DATE                      2007 / OCT / 10    21 : 30 : 00
SEARCH HDD                                       ALL HDD
START



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

The submenu items are described below:

1) <u>DATE</u>

Select the specific time period (YEAR / MONTH / DAY / HOUR / MIN) that you want to search.

2) <u>SEARCH HDD</u>

Change to the HDD you want if there are more than 1 HDD in your DVR.

3) <u>START</u>

Move to "START" and press "ENTER" button to search and directly playback the recorded files.

6.2 RECORD

In this menu list, you can set record settings. Press "MENU" button on the front panel to enter the main menu list. 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 options:

RECORD	
IMAGE SIZE	FRAME
QUALITY	BEST
MANUAL RECORD ENABLE	ON
EVENT RECORD ENABLE	ON
TIMER RECORD ENABLE	ON
MANUAL RECORD IPS	30
EVENT RECORD IPS	30
TIMER RECORD IPS	30
PRE-ALARM RECORD	ON
OVERWRITE	ON
PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTING	
↑↓ SELECT ← BACK → NEXT ↵ ENTER	

MENU
QUICK SEARCH
RECORD
TIMER
DATE
ADVANCE

The submenu items are described below:

1) IMAGE SIZE

 select FRAME 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 function.

6) MANUAL RECORD IPS

 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.).
 The IPS options are as following:

NTSC		PAL	
FRAME	30 / 15 / 7 / 3	FRAME	25 / 12 / 6 / 3
CIF	120 / 60 / 30 / 15	CIF	100 / 50 / 25 / 17

9) 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 any alarm / motion is triggered.

10) OVERWRITE

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

6.2 TIMER

Press "MENU" button on the front panel to enter the main menu list. Move to "TIMER", and press "ENTER". Select to enable (ON) or disable (OFF) the recorder timer and / or detection timer functions.

MENU
QUICK SEARCH
RECORD
TIMER
DATE
ADVANCE

TIMER	
RECORD TIMER	OFF
DETECTION TIMER	OFF
PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTING	

↑↓ SELECT   ← BACK   → NEXT   ↵ ENTER

6.3 DATE

In this menu list, you can set up the system date and time for this device.

Note: When the recording function is activated, please **DO NOT** change the date or time on your DVR.

Press "MENU" button on the front panel to enter the main menu list. Move to "DATE", and press "ENTER". The screen will show the following options.

The submenu items are described below:

MENU
QUICK SEARCH
RECORD
TIMER
DATE
ADVANCE

DATE	
DATE	2008 / FEB / 15 19 : 15 : 27
FORMAT	Y/M/D
DAYLIGHT SAVING	OFF
PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTING	

↑↓ SELECT   ← BACK   → NEXT   ↵ ENTER

1) <u>DATE:</u>

Set the current date and time. The default order is "YEAR – MONTH – DATE   HOUR : MIN : SEC".

2) <u>FORMAT</u>

Select one date format from the following 3 options: Y-M-D, M-D-Y, D-M-Y.

3) <u>DAYLIGHT SAVING</u>

Specify whether to use daylight-saving time (ON / OFF). If it's set to ON, press "ENTER" to go to its submenu for further settings. You will see a similar screen as following.

DAYLIGHT SAVING		
START TIME	1ST - SUN - MAR	24 : 00 : 00
END TIME	LAST - SUN - OCT	24 : 00 : 00
ADJUST		01 : 00
PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTING		

↑↓ SELECT   ← BACK   → NEXT   ↵ ENTER

Set the start time and end time, and adjust the daylight saving time in hour. The above example means during the daylight-saving time period (starting from the 4th Sunday of March and ending on the 4th Sunday of October), the system time will plus one hour.

7. ADVANCED MENU

Press "MENU" button on the front panel to enter the main menu list. Move to "ADVANCE", and press "ENTER". The screen will show the following options.

MENU
QUICK SEARCH
RECORD
TIMER
DATE
ADVANCE

ADVANCE
CAMERA
DETECTION
REMOTE
DISPLAY
ALERT
SYSTEM
NETWORK
BACKUP
HDD INFO
EVENT SEARCH
EVENT LOG

7.1 CAMERA

In this submenu, you can make advanced camera settings, such as changing the camera title, or adjust the brightness. Move to "CAMERA", and press "ENTER". You will see a similar screen as the following:

ADVANCE
CAMERA
DETECTION
DISPLAY
REMOTE
ALERT
SYSTEM
NETWORK
BACKUP
HDD INFO
EVENT SEARCH
EVENT LOG

CAMERA						
TITLE	BRIG	CONT	SATU	HUE	COV	REC
CH1	110	120	128	128	NO	ON
CH2	110	120	128	128	NO	ON
CH3	110	120	128	128	NO	OFF
CH4	110	120	128	128	NO	OFF

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

The submenu items are described below:

1) <u>TITLE</u>

You can change the default camera naming here. The default title is the channel number.
Move to the camera title you want to change, and press "ENTER" to access the character selection screen. Assign a new name to the camera up to six characters (letters or symbols).

2) <u>BRIG/CONT/SATU/HUE</u>

You can adjust the brightness/contrast/saturation/hue of each channel here. The default value of BRIG is 110, and others are 128. The value is adjustable from 0 to 255.

3) <u>COV.</u>

Select if you want to mask the selected channel under recording (YES/NO). When this function is activated, the wording "COV." will be shown on the screen.

4) <u>REC</u>

Select if you want to enable recording for the selected channel (YES/NO). When this function is activated, the symbol "" will be shown on the channel screen.

7.2 DETECTION

In this submenu, you can set up detection-related functions: DETECTION SETUP and DETECTION TIMER.

Move to "DETECTION", and press "ENTER". The screen will show the following options.

ADVANCE
CAMERA
DETECTION
REMOTE
DISPLAY
ALERT
SYSTEM
NETWORK
BACKUP
HDD INFO
EVENT SEARCH
EVENT LOG

DETECTION							
TITLE	DET	AREA	LS	SS	TS	RE	ALARM
CH1	ON	SETUP	07	03	02	10	OFF
CH2	OFF	SETUP	07	03	02	10	N.C.
CH3	OFF	SETUP	07	03	02	10	N.O.
CH4	OFF	SETUP	07	03	02	10	OFF

PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTING

↑↓ SELECT   ← BACK   → NEXT   ↵ ENTER

The submenu items are described below:

1) <u>TITLE</u>

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

2) <u>DET</u>

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

3) <u>AREA</u>

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.

Transparent blocks are the area under detection.

Press "ENTER" button to confirm the start area.

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

Press "UP" / "DOWN" button 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.

4) <u>LS</u> (Level of Sensitivity)

"LS" is to set the sensitivity of comparing two different images. The smaller the value is, the higher sensitivity for motion detection. The highest sensitivity setting is 00, and the lowest sensitivity setting is 15. The default value is 07.

5) <u>SS</u> (Spatial Sensitivity)

"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.

The highest sensitivity setting is 00, and the lowest sensitivity setting is 15. The default setting is 03.

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) <u>TS</u> (Time of Sensitivity)

"TS" is to set the sensitivity regarding how long one object stays in the detection area and triggers the recording. The smaller the value is, the higher sensitivity for motion detection.

The highest sensitivity setting is 00, and the lowest sensitivity setting is 15. The default setting is 02.

7) <u>RE</u> (Reference)

"RE" is to set a reference for detection. The default value is 10, which means the DVR will compare the 1st image and the 10th image according to the sensitivity of LS, SS, TS simultaneously.

The bigger the value is, the higher sensitivity for motion detection. The highest sensitivity is 61.

8) <u>ALARM</u>

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

7.3 REMOTE

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

Move to "REMOTE", and press "ENTER". You will see a similar screen as the following:

ADVANCE
CAMERA
DETECTION
REMOTE
DISPLAY
ALERT
SYSTEM
NETWORK
BACKUP
HDD INFO
EVENT SEARCH
EVENT LOG

REMOTE

TITLE	DEVICE	ID	PROTOCOL	RATE
CH1	PTZ	000	P-D	2400
CH2	CAMERA	000	NORMAL	2400
CH3	CAMERA	000	NORMAL	2400
CH4	CAMERA	000	NORMAL	2400

PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTING

↑↓ SELECT   ← BACK   → NEXT   ↵ ENTER

The submenu items are described below:

1) <u>TITLE</u>

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

2) <u>DEVICE</u>

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

3) <u>ID</u>

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) <u>PROTOCOL</u>

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

7.4 DISPLAY

In this menu list, you can check and change some display settings.

Move to "DISPLAY", and press "ENTER". You will see a similar screen as the following:

ADVANCE	DISPLAY	
CAMERA	DE-INTERLACE	ON
DETECTION	FULL SCREEN DWELL DURATION (SEC)	03
REMOTE	CHANNEL TITLE	ON
DISPLAY	EVENT STATUS	ON
ALERT	DATE DISPLAY	ON
SYSTEM	VGA OUTPUT *(For Model 4 & 5 only)*	1024 X 768
NETWORK		
BACKUP	PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTING	
HDD INFO	↑↓ SELECT ← BACK → NEXT ↵ ENTER	
EVENT SEARCH		
EVENT LOG		

The submenu items are described below:

1) DE-INTERLACE

Select to enable or disable "DE-INTERLACE" function (ON / OFF).

2) FULL SCREEN DWELL DURATION (SEC)

Set the full screen dwell duration time (3 / 5 / 10 / 15 seconds).

3) CHANNEL TITLE

Select to display the channel title or not (ON / OFF).

4) EVENT STATUS

Select to display the symbols of the event or not (ON / OFF).

5) DATE DISPLAY

Select to display the date or not (ON / OFF).

6) VGA OUTPUT *(For Model 4 & 5 only)*

Select the VGA output resolution. There are seven options for your choice:
800 x 600 / 1024 x 768 (default) / 1280 x 1024 / 1440 x 900 / 1400 x 1050 / 1680 x 1050 / 1600 x 1200

7.5 ALERT

In this menu list, you can set alerts for different kinds of situations, such as when HDD is full.

Move to "ALERT", and press "ENTER". You will see a similar screen as the following:

ADVANCE	ALERT	
CAMERA	EXT. ALERT	ON
DETECTION	INT. BUZZER	ON
REMOTE	KEY BUZZER	ON
DISPLAY	VLOSS BUZZER	ON
ALERT	MOTION BUZZER	ON
SYSTEM	ALARM BUZZER	ON
NETWORK	HDD BUZZER	ON
BACKUP	ALARM DURATION (SEC)	05
HDD INFO	HDD NEARLY FULL (GB)	05
EVENT SEARCH		
EVENT LOG	PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTING	
	↑↓ SELECT ← BACK → NEXT ↵ ENTER	

The submenu items are described below:

1) <u>EXT. ALERT</u>

 Select to enable or disable the sound when any external alarm is triggered (ON / OFF).

2) <u>INT. BUZZER</u>

 Select to enable or disable the sound (ON / OFF) for all the internal buzzers: KEY BUZZER, VLOSS BUZZER, MOTION BUZZER, ALARM BUZZER, and HDD BUZZER.

Note: When this item is set to OFF, item 3) to item 7) will be disabled even though they are set to ON.

---

3) <u>KEY BUZZER</u>

 Select to enable or disable the sound when pressing the buttons on the front panel (ON / OFF).

4) <u>VLOSS BUZZER</u>

 Select to enable or disable the sound when video loss happened (ON / OFF).

5) <u>MOTION BUZZER</u>

 Select to enable or disable the sound when any motion alarm is triggered (ON / OFF).

6) <u>ALARM BUZZER</u>

 Select to enable or disable the sound when any internal alarm is triggered (ON / OFF).

7) <u>HDD BUZZER</u>

 Select to enable or disable the sound (ON / OFF) when the HDD remaining capacity reaches to the value set in "HDD NEARLY FULL (GB)".

8) <u>ALARM DURATION (SEC)</u>

 Press "UP" / "DOWN" to set the duration time of alarm recording in second (5 / 10 / 20 / 40).

9) <u>HDD NEARLY FULL (GB)</u>

 If HDD BUZZER is enabled, press "UP" / "DOWN" to have a buzzer notification when the HDD available capacity is 5/10/15/20 GB left.

7.6 SYSTEM

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

Move to "SYSTEM", and press "ENTER". You will see a similar screen as the following:

ADVANCE	SYSTEM	
CAMERA	SERIAL TYPE	RS485
DETECTION	BAUDRATE	2400
REMOTE	HOST ID	0
DISPLAY	PASSWORD	XXXX
ALERT	RESET DEFAULT	RESET
SYSTEM	CLEAR HDD	HDD-MASTER-1
NETWORK	UPGRADE	START
BACKUP	AUTO KEYLOCK	NEVER
HDD INFO	LANGUAGE	ENGLISH
EVENT SEARCH	VIDEO FORMAT	NTSC
EVENT LOG	VERSION	1236-1012-1033-1018-M3-6C1B
	PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTING	
	↑↓ SELECT ← BACK → NEXT ↵ ENTER	

The submenu items are described below:

1) <u>SERIAL TYPE</u>

 Press "UP" / "DOWN" to set the serial type of the DVR (RS485 / RS232).

2) <u>BAUDRATE</u>

Press "UP" / "DOWN" to set the baud rate of the DVR (2400 / 9600 / 19200 / 57600 / 115200).

3) <u>HOST ID</u>

Press "UP" / "DOWN" to set the ID of the DVR (0 ~ 255).

4) <u>PASSWORD</u>

Press "ENTER" to reset the password for accessing the DVR system (ADMIN PASSWORD or GUEST PASSWORD). 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) <u>RESET DEFAULT</u>

Press "ENTER" to reset all settings as default, and select "YES" to confirm or "NO" to cancel.

6) <u>CLEAR HDD</u>

Press "ENTER", and select "YES" to confirm to clear HDD or "NO" to cancel.

7) <u>UPGRADE</u>

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) <u>AUTO KEYLOCK</u>

Set the time-out in second after which the key lock function is activated (Never / 10 / 30 / 60).

9) <u>LANGUAGE (Support multi-language)</u>

Press "ENTER" to select the language of the OSD.

10) <u>VIDEO FORMAT</u>

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

11) <u>VERSION</u>

Here shows the firmware version information.

7.7 NETWORK

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

Move to "NETWORK", and press "ENTER". You will see a similar screen as the following:

ADVANCE	NETWORK	
CAMERA	NETWORK TYPE	STATIC
DETECTION	IP	192 . 168 . 001 . 012
REMOTE	GATEWAY	192 . 168 . 001 . 254
DISPLAY	NETMASK	255 . 255 . 252 . 000
ALERT	PRIMARY DNS	168 . 095 . 001 . 001
SYSTEM	SECONDARY DNS	139 . 175 . 055 . 244
NETWORK	PORT	0080
BACKUP		
HDD INFO	PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTING	
EVENT SEARCH	↑↓ SELECT ← BACK → NEXT ↵ ENTER	
EVENT LOG		

The submenu items are described below:

· **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
```

· **PPPOE**

1) NETWORK TYPE

   Select the network type as PPPOE.

2) USER NAME / PASSWORD

   Set the "username" and "password" subscribed from your ISP supplier

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:

```
                          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".

· **DHCP**

1) <u>NETWORK TYPE</u>

Select the network type as DHCP.

2) <u>DNS (PRIMARY DNS / SECONDARY DNS)</u>

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

3) <u>PORT</u>

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.

7.8 BACKUP (Model 3, 4 & 5 Only)

The backup file can be played directly in your PC via the supplied licensed **software AP**, or via other **media players** (ex: Windows Media Player or RealPlayer) after the file is converted to "**AVI**" format.

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

Move to "BACKUP", and press "ENTER". You will see the following options:

ADVANCE
CAMERA
DETECTION
REMOTE
DISPLAY
ALERT
SYSTEM
NETWORK
BACKUP
HDD INFO
EVENT SEARCH
EVENT LOG

BACKUP
USB BACKUP

1) <u>USB BACKUP</u>

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 2 COMPATIBLE USB FLASH DRIVE BRAND" at page 57.

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: 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 a similar screen as the following:

BACKUP
USB BACKUP

USB BACKUP				
START TIME			2006 – 12 – 01	21 : 35 : 00
END TIME			2006 – 12 – 01	21 : 45 : 00
AVAILABLE SIZE				1.460 GB
CHANNEL	☑ 01	☐ 02	☐ 03	☐ 04
HDD NUM				HDD-MASTER-1

The submenu items are described below:

· <u>START TIME</u>

Select the start time of the backup.

· <u>END TIME</u>

Select the end time of the backup.

· <u>AVAILABLE SIZE</u>

Display the available capacity in the inserted USB flash drive.

· <u>CHANNEL</u>

Select channels by pressing "ENTER" 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.

· <u>HDD NUM</u>

Press "ENTER" to select the HDD containing the data you need.

7.9 HDD INFO

In this menu list, you can view the remaining capacity of all the connected HDDs in this device.

Move to "HDD INFO", and press "ENTER". You will see a similar screen as the following:

ADVANCE
CAMERA
DETECTION
REMOTE
DISPLAY
ALERT
SYSTEM
NETWORK
BACKUP
HDD INFO
EVENT SEARCH
EVENT LOG

HDD INFO			
HDD NUM	HDD SIZE (GB)	HDD NUM	HDD SIZE (GB)
HDD-MASTER-1	368	HDD-SLAVE-1	NO HDD

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

7.10 EVENT SEARCH

In this menu list, you can search any event by motion or alarm.

Move to "EVENT SEARCH", and press "ENTER". You will see a similar screen as the following:

ADVANCE
CAMERA
DETECTION
REMOTE
DISPLAY
ALERT
SYSTEM
NETWORK
BACKUP
HDD INFO
EVENT SEARCH
EVENT LOG

EVENT SEARCH	
DATE	2008 / JUN / 17 22 : 48 : 00
CHANNEL	01
EVENT	MOTION
SEARCH HDD	ALL HDD
START	

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

The submenu items are described below:

1) <u>DATE</u>

Set the date and time you want to search for events.

2) <u>CHANNEL</u>

Press "UP" / "DOWN" to select the channel.

3) <u>EVENT</u>

Select the event type: MOTION or ALARM.

4) <u>SEARCH</u>

You can choose to search only the selected HDD (SELECTED) or all the connected HDDs (ALL HDD) by pressing "UP" / "DOWN".

After setting all search criteria, press "ENTER" to start search and directly play if any file is found.

Note: The file found will be played with the fast speed.

7.11 EVENT LOG

In this menu list, you can view all the event information (event type, time and channel) or clear all log records.

Move to "EVENT LOG", and press "ENTER". You will see the following options:

ADVANCE
CAMERA
DETECTION
REMOTE
DISPLAY
ALERT
REMOTE
SYSTEM
NETWORK
BACKUP
HDD INFO
EVENT SEARCH
EVENT LOG

EVENT LOG			
EVENT	TIME		COMMENT
POWER ON	2007 / OCT / 10	20:27:49	16
VLOSS	2007 / OCT / 10	20:05:05	06
VLOSS	2007 / OCT / 10	20:00:11	09
VLOSS	2007 / OCT / 10	16:00:08	14
VLOSS	2007 / OCT / 10	15:09:32	13
VLOSS	2007 / OCT / 10	11:00:08	12
VLOSS	2007 / OCT / 10	10:27:33	11
VLOSS	2007 / OCT / 10	08:05:55	10
RESET TO DEFAULT	2007 / OCT / 10	08:05:26	09
POWER ON	2007 / OCT / 10	08:00:22	08

PREV   NEXT   CLEAN

PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTINGS

↑↓ SELECT   ← BACK   → NEXT   ↵ ENTER

8. REMOTE OPERATION
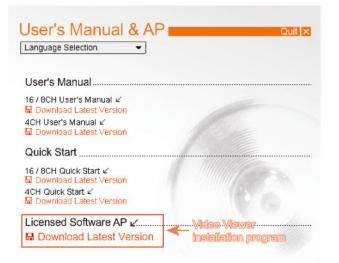
You can also control the DVR remotely via the supplied licensed software AP (hereafter called the "AP"), IE web browser, and Apple's QuickTime player.

8.1 Supplied Licensed Software AP

8.1.1 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 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 AP control panel. By defaults, the "Address Book" ( ) panel will be displayed on the right side of the AP 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).

 For details, please see " " (Search) at page 35.

 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 AP control panel. By defaults, the "Address Book" panel will be displayed on the right side of the AP 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).

For details, please see " " (Search) at page 35.

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.

8.1.2 General AP 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.

For details, please see "Record Setting" at page 38.

Playback

To play a recorded file recorded at your PC side, 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.

For details, please see "Status List" at page 50.

NOTE: You can't select a single channel for video playback. During the playback mode, you can only see the quad view.

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.

For the playback control panel details, please see "Playback Screen" at page 50.

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. For details, please see "Backup" at page 37.

8.1.3 AP 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 AP control panel. You will see a screen similar to the following with 7 major sections:
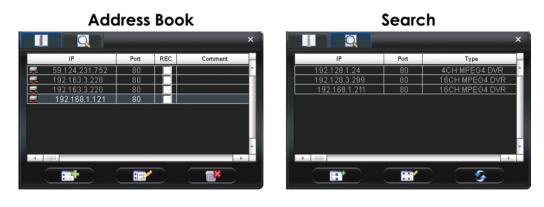
Button	Function	Description
N/A	Image Display	The place where the images are displayed. For details, please see "8.1.4 AP Functions" at page 35.
	Address Book	Click to show the predefined IP address(es). You can add, remove or search the IP address to log in the DVR remotely. Two sub-functions are available for this button: Address Book and Search. For details, please see "Address Book " at page 35.
	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 36.
/	Record	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". Please refer to "Record Setting" at page 38 for details.
	Information	Click to show the current network connection details. For details, please see "Information " at page 51.

Button	Function	Description
	DVR Control	Click to go to the DVR control panel to operate the DVR remotely. For details, please see "DVR Control " at page 51.
Live1 Play1 Dowr...	Live / Playback / Download Display Switch	If you want to switch among the live view, playback view and download view, click the blue tab "Live1", "Play1" or "Download" to make a switch. **Live1**: When you are logged in, this tab with the live view is displayed by defaults. **Play1**: When a video clip is selected in "Status List" and played, this tab with the palyback view is displayed. **Download**: When the downloaded video clip is selected in "Status List" and played, this tab with the downloaded video clip is displayed.
	Original Size	Click to return to original size of the monitoring view.
/ / / / /	Expand All Views	To see all views in the image display area if you have many views and do not want to switch each view by clicking the blue tab described above, click to choose a proper split view (1-cut / 4-cut / 6-cut / 9-cut / 13-cut / 16-cut) which best suits your needs. The selected view will be indicated with a red frame around it.
	Close	Click to close the current image display view. If the last image display view is closed, you will be logged out automatically.
	Close All	Click to close all the image display views.

8.1.4 AP Functions

Address Book

This view is displayed when the AP is activated for you to log in / out the DVR from the current address list, or search the available IP address as follows:

➢ **(Address Book)**

Click to view the pre-defined DVR access details.

To log in, choose one IP address from the address list, and click the address twice; to log out, click the connected IP address twice.

Tip: You can also click "" or "" to log out.

You can also create new IP address information, or modify or remove the current IP address information.

Button	Function	Description
	Add	Click to directly add one IP address for login. Key in the DVR access information needed, and click "Apply" and "Close".
	Edit	Select one current IP address from the address list, and click this button to modify the DVR access information as needed.
	Remove	Select one IP address from the address list, and click this button to delete it.

REC

When the AP is connected to more than 1 device, and not all devices are necessary to enable the manual record function, check "REC" for the connected device(s), and its manual record function will be on.

Note: When the AP is connected to more than 1 device, click " " will record the live views for all the connected devices. To enable the manual record function for the specific device(s), please set from this view.

➢ **(Search)**

Click to search and view the available IP address(es) for the DVR connection. You can choose one address to add into the address book, edit the details, or update the address list.

Button	Function	Description
	Add into address book	Select from the available IP address list, and click this button to add the selected address to the address book.
	Setting	Select from the available IP address list, and click this button to edit the setting.
	Refresh	Click to update the available IP address list.

Miscellaneous Control
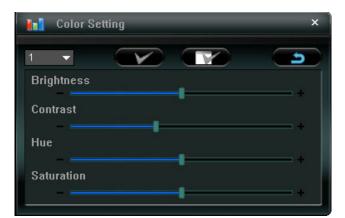
Click " " (Miscellaneous Control) on the AP control panel, and six functions are available as follows:

Button	Function	Description
	Color Setting	Click this button to adjust the brightness / contrast / hue / saturation for a single channel or the whole channels. For details, please see "Color Setting" at page 36.
	Backup	To make a video backup remotely, click this button, and you will go to the download setting page. For details, please see "Network Backup" at page 34.
	Record Setting	Click to go to the detailed record setting. Please refer to "Record Setting" at page 38 for details.
	Server Setting	Click to go into the detailed DVR setting. Please refer to "Server Setting" at page 38 for details.
	Tools	Click to update the firmware version, multilingual OSD and boot display of your DVR remotely. Please refer to "Tools" at page 48 for details.
	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. For details, please refer to "Status List" at page 50.

➢ **Color Setting**

Click " " to go into the "Color Setting" page, and you can adjust the brightness / contrast / hue / saturation for a single channel or all channels.

Choose the desired channel from the drop-down list, and click and drag the slider to make adjustment. Click " " to apply the change to the selected channel, or " " to apply to all channels.

To return to the default values, click " " (Default), and click " " to apply the change to the selected channel, or " " to apply to all channels.

Note: You need to be a supervisor to operate this function. For details, please see "Account" at page 40.

➢ **Backup**

Click " " (Backup) to go into the "Backup" page, and you can select a specific time range or event to make a video backup remotely.

Note: You need to be a supervisor to operate this function. For details, please see "Account" at page 40.

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

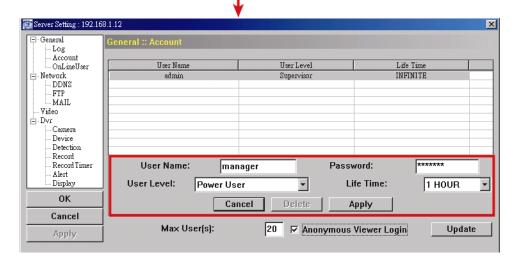| Function	Description
IP Address / Port / User Name / Password	Check if the network connection information of the DVR within which contains the video data you need is correct.
HDD Number / Channel	Specify the hard disk (HDD Number) and channel number (Channel) within which have the video data you need.
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.

Function	Description
	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.
Download / Cancel	Click "Download" to start or "Cancel" to discard the video backup.

➢ Record Setting

Press " " to go into the "Record Setting" page, and you can set the following items:

‧ Record type

‧ Hard disk overwriting

‧ Pre- / post-alarm record time

‧ Record time setting

‧ Record path

Record type

In this section, you can select which type of the recording will be enabled. There are 4 options: Manual / Schedule / Motion / Alarm.

Hard disk overwriting

To overwrite the recorded data from the earliest to the latest when the hard disk is full, check "Hard Disk Overwrite" checkbox.

Pre- / post-alarm record time

Select the pre-/post-alarm recording time from 0 sec. to 60 sec.

Record time setting

There are two ways to set the record time: Weekly and Custom.

◆ Weekly

Click "Weekly" tab, and you will see a weekly time table indicating the week days (Mon ~ Sun) and hours (0 ~ 24), similar to the figure below:

X axis: 0 ~ 24 hours. Each time interval within a square is 15 minutes.

Y axis: Monday ~ Sunday.

Operation: You can set the record schedule for 3 record types as needed in this time table:

   1st timeline -- Schedule record, indicated in yellow,

   2nd timeline -- Alarm record, indicated in magenta, and

3rd timeline -- Motion record, indicated in cyan.

Click and hold the start time point, and drag to the end time point to set the record time range.

◆ Custom

Click "Custom" tab, and you can set a more specific record time range for the 3 record types: Schedule, Motion, and Alarm.

How to add a new time setting:

i. Check the record type you want to schedule the recording.

ii. Set the start time (From) and end time (To).

iii. Click "Add" to add the time range you just set into the schedule table. Before adding the time range, you will be prompted to confirm as follow:

iv. Check if the information shown is correct. Click "OK" if the information is correct. Click "Cancel" if the information is wrong.

How to modify / delete a current time setting:

1. Select the schedule setting you want to modify from the schedule table. The setting will be displayed in the left setting panel.

2. Modify the setting in the left setting panel, and click "Update".

3. You will be prompted to confirm the setting. Click "OK" if the information is correct. Click "Cancel" if the information is wrong.

4. To delete one schedule setting, select it, and click "Delete".

Record Path

Select and view the location for saving the recorded video and snapshot pictures.

To change the saving path for the recorded video clips or snapshots, check the drive you want, click the cell of "Video Path" or "Picture Path" twice, and select a new path for saving the video clips or snapshots.

➢ **Server Setting**

Click " " to view, set or modify the DVR setting. All the changes you make here will be applied to the connected DVR.

Note: You need to be a supervisor to operate this function. For details, please see "Account" at page 40.

General

In "General" and its sub-menus, "Log", "Account" and "OnLineUser", you can view and set some common settings, such as the turbo step, make account setting, check the information for all current on-line users, and search the server logs.

In "General", you will see the following items:

Item	Description
Firmware Version	Display the current firmware version of your DVR.
MAC Address	Display the MAC address.
Turbo Step	Speed up the menu selection under the AP from 1 to 10.
	Ex: If the value of the turbo step is set to 5, one mouse-click will function as 5 mouse-clicks when you click one of the buttons ⬆ / ⬇ / ◀ / ▶ in the DVR control panel.
Title	Provide a title for this DVR. Only 15 characters are allowed.

◆ Logs

Click " 📱 " (Miscellaneous Control) → " 🔑 " (Server Setting) → "General" → "Log" to go into the

"Log" page. In the "Log" page, you can see all the logs for the network camera, such as "Power On", "Reset Default", "Net Login" and "SNTP Update" … etc.

‧ To refresh the logs, click "Reload".
‧ To view the earlier or later logs that are not shown in the current page, click "Prev. Page" or "Next Page".
‧ To clear all the logs, click "Clean".

◆ Account

In "General" → "Account", you can create a new account for login, or delete or modify the existing account setting.
‧ To add an account, click "New", and fill in the following columns. Then, click "Apply" to save your setting and create a new account.

Column	Description
User Name	Set a user name that will be used for remote login. The user name allows up to 10 characters.
Password	Set the password that will be used for remote login. The password allows up to 8 characters.
User Level	Set the security level of an account to give the permission to control different AP functions. There are 4 user levels: Supervisor, Power User, Normal User and Guest.
Life Time	Select how long this account is allowed to stay online (1 MIN / 5 MIN / 10 MIN / 1 HOUR / 1 DAY / INFINITE)

· To modify an existing account, select the account you want, change the setting, and click "Apply".

· To remove an existing account, select the account you want, and click "Delete".

· To save your changes, click "Apply".

· To define the maximum account creation number, key in the number in "Max User(s)" column from 1 to 20, and click "Update".

◆ OnLineUser

In "General" → "OnLineUser", you can check all the online user information. To update the user information, click "Refresh".

Network

In "Network" and its sub-menu, "DDNS", you can set the DVR network configuration. The network configuration allows the DVR to connect to the LAN or Internet.

Select the network type you will be using for DVR connection. There are 3 network connection types: Static IP, PPPOE and DHCP.

Note: PPPOE and DHCP network connection types are required to apply the DDNS service to get a "Hostname" to correspond to a dynamic IP address. Please refer to "DDNS" at page 42 for details.

Function	Description
Web Port	Typically, the default TCP port used by HTTP is 80. However, in some cases, it is better to change this port number for added flexibility or security. The valid web port number ranges from 1 to 9999.
Static IP	Computers are communicated and recognized by their own unique IP addresses over the Internet. "Static IP" provided by your ISP (Internet Service Provider) means the IP address of the computer is fixed. Key in the server IP address, gateway and network information provided by your ISP provider to configure a static IP network connection.
PPPOE	PPPOE stands for Point-to-Point Protocol over Ethernet. Users can easily have the Internet service as long as they're ready for the following things: 1) Insert an Ethernet card into the PC. 2) Obtain the ADSL service via any ISP. 3) Obtain and install the PPPOE software CD. When everything is ready, choose the "PPPOE" IP type, and key in the user name and password provided by your ISP. Then, select "Network" → "DDNS" to set DDNS settings. For detailed DDNS settings, please refer to "DDNS" at page 42.
DHCP	This DHCP function needs to be supported by a router or cable modem network with the DHCP service. Choose the "DHCP" IP type, and select "Network" → "DDNS" to set DDNS settings. For detailed DDNS settings, please refer to "DDNS" at page 42.

◆ DDNS

You need to apply a DDNS account before setting PPPOE or DHCP connection. DDNS is a service for transforming the dynamic IP corresponding to a specific "host name". Go to a website which provide free DDNS services and apply a host name.

DDNS Apply:

a). Go to a website which provide the free DDNS service, for example, http://www.dyndns.org.

b). Create an account in DynDNS.

c). After creating one account, users will receive a confirmation E-mail within a few minutes. To complete the registration, please follow the instructions received.

Users must complete these steps within 48 hours to complete the registration. If the confirmation

E-mail was not received within an hour, request "password reset" (http://www.dyndns.org/account/resetpass/).

d). Use the DDNS username and password to log into the DynDNS.

e). Create a host name:

After login, click "Account" → "My Service" → "Add Host Services" → "Add Dynamic DNS Host". Enter and choose a host name, and click "Add Host". Then, your DDNS host name is created.

◆ FTP

Click "🗔" (Miscellaneous Control) → "🖉" (Server Setting) → "Network" → "FTP" to go into the "FTP" page. Enter the detailed FTP information and press "Apply" to confirm. The information you set here will be applied when the function of FTP notification is enabled in the "Alert" menu.

◆ MAIL

Click "🗔" (Miscellaneous Control) → "🖉" (Server Setting) → "Network" → "MAIL" to go into the "MAIL" page. Enter the detailed E-mail information and press "Apply" to confirm. The information you set here will be applied when the function of E-mail notification is enabled in the "Alert" menu.

Function	Description
Server	Enter the SMTP server address provided from your e-mail system supplier.
Mail From	Enter the entire mail address to ensure E-mails will not be blocked by SMTP.
Verify Password	Some mail servers are required to verify the password. Please enter the "user name" and "password".
Email Address	Add the E-mail address(s) of the assigned recipient(s).

Note: Users can assign up to 4 mail accounts for E-mail notification.

Video

In "Video", you can set the video web transmission size and quality, and the frame rate for transmitting.

Function	Description
JPEG	Choose the image size (4CIF / CIF) and picture quality (BEST / HIGH / NORMAL / BASIC) when the web transmission format is JPEG.
MPEG	Choose the image size (4CIF / CIF) and picture quality (BEST / HIGH / NORMAL / BASIC) when the web transmission format is MPEG.
FrameRate	Choose the frame rate for transmitting (FULL, 1/2, 1/3, 1/4, 1/5, 1/10, 1/15, 1/20, 1/25, 1/30).

Dvr

In "Dvr" and its sub-menus, "Camera", "Device", "Detection", "Record", "Record Timer", "Alert" and "Display," you can set DVR general functions, such as the host ID, the record schedule, alerts, motion detection, and text or icon display, etc.

In "Dvr", you can see the following items:

Function	Description
System Type	Display the current system type (NTSC / PAL). It's automatically detected.
De-interlace	Select to enable or disable the de-interlace function (ON / OFF).
Daylight Saving	Specify whether to use daylight saving time (ON / OFF). If this function is enabled, set the time period (START / END), and adjust the daylight saving time in hours (ADJUST).
Menu Operation	Select the time-out in seconds after which the DVR keys will be automatically locked when no one is operating the DVR for a period of time (0 / 30 / 60 / 120). The default value is 30.

Function	Description
Serial Port Type	Display the serial type (RS485) used by this DVR. It's automatically detected.
Baud Rate	Set the baud rate of the DVR (2400 / 9600 / 19200 / 38400 / 57600).

◆ Camera

In "Dvr" → "Camera", you can specify a channel to enable the recording function by selecting the check box "Record", choose to activate the "Covert Recording" function by selecting the check box "Cover", and rename the channel title which will be displayed in the live view screen by double-clicking the channel title.

◆ Device

Select the device type (CAMERA / PTZ) according to the connected cameras for each channel. Click "Edit" or double click the item to enter the setting box.

Function	Description
DEVICE	Choose either normal camera or PTZ camera.
ID	Set the ID number (0 ~ 255) of the connected PTZ camera.
PROTOCOL	Choose "NORMAL" or "P-D" protocol. It is recommended to select PELCO-D protocol for the connected PTZ camera of other brands. Please choose Normal if it's our own PTZ camera
RATE	Set the baud rate of each channel (2400 / 4800 / 9600 / 19200 / 38400 / 57600 / 115200).

◆ Detection

Select the desired channel, and click "Edit" to enter the motion detection sensitivity and area-setting page.

Please see the description below for each function:

| Function	Description
DETECT	Enable (ON) or disable (OFF) the function of "Motion Detection".
	If this function is enabled, you might need to set the motion detection sensitivity or simply keep the default values. For details, please see the description below.
Motion Detection Sensitivity (LS / SS / TS / RE)	Set the detection sensitivity in 4 different adjustable parameters (LS / SS / TS / RE).
	For details about each parameter, please refer to"7.2 DETECTION" at page 21.
Alarm	Select N.C. (normal closed) / N.O. (normal opened) / OFF for the alarm polarity. For N.C. / N.O.
	contact details, please refer to "APPENDIX 1 PIN CONFIGURATION" at page 56.
Motion Detection Setting Area	Set the motion detection area by selecting the area grids with your mouse. Pink grids represent the area that is not being detected while the transparent grids are the area under detection. You can set multiple areas under detection.
	Click "−" (Clear All) to set the whole area undetected.
	Click "+" (Select All) to set the whole area under detection.
Apply / Return	To save the setting, click "Apply" and return to "Server Setting" window.
	To discard the setting, click "Return" to directly return to "Server Setting" window without saving.

◆ Record
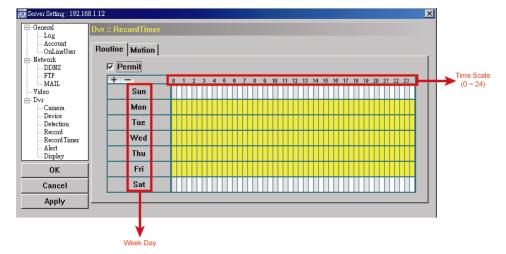
In "Dvr" → "Record", you will see the following items for DVR record settings.

Function	Description
Image Size / Quality	Choose the image size (FRAME / FIELD / CIF) and quality (BEST / HIGH / NORMAL / BASIC).
Manual Record / Event Record / Timer Record	Select the record type that the DVR will take recording (Yes / No), and select the IPS setting for the selected record type.
Pre-Alarm Record	Check this option if you want to enable the pre-alarm recording function.
	When an alarm is triggered, the DVR will record 8MB video data before the alarm event is actually happened.
Overwrite	Select "Yes" to enable the HDD overwrite function when the HDD is full, or "No" to disable this function.
	When this function is on, and the recording and the pre-alarm function are activated, the DVR will overwrite 8GB data from the oldest for continuous recording without notice.

◆ Record Timer

In this menu list, you can set the record schedule for normal recording or motion recording.

· Permit

Select this checkbox to allow the record timer setting to be applied to the connected DVR. If this checkbox is deselected, the setting will not be applied to the connected DVR even when you click "Apply" and "OK".

· Routine / Motion

Click "Routine" tab to select the time range for continuous recording, or "Motion" tab to select the time range within which the recording will be on when any movement is detected.

· Time Table

Find the day and time you want to enable the recording. Then, click to select the time interval(s). Each interval represents 30 minutes.

To enable the recording all the time, click "＋"; to clear the record timer setting, click "－".

◆ Alert

In "Alert", you can set the DVR to beep for notification when there's any alert happened. Check the buzzer option you want, and set how long the beep sound will be lasted.

Function	Description
Ext Alert	Check this option to enable the external alert.
Buzzer Enabled	This option must be checked for "Motion Buzzer", "Alarm Buzzer", "Video Loss Buzzer" & "Key Input Buzzer" to take effects.
Motion Buzzer / Alarm Buzzer / Video Loss Buzzer / Key Input Buzzer	Check one of these 4 options, and you will hear the beep sound when any movement is detected / the alarm is triggered / video loss occurs / any DVR key is pressed.
Notified by	Select the notification method when any event occurs: Email or FTP.
Duration	Set the alert and buzzers to beep for 5 / 10 / 20 / 40 seconds.

◆ Display

In "Display", you can choose whether to display some text indication or icons, set the channel display switch time-out, set the DVR time remotely, and select the date format (Y-M-D / M-D-Y / D-M-Y).

Function	Description
Title	Select to display the channel title in the live view.
Event	Select to display the event symbol in the live view.
Quick Status	Select to display the quick status in the live view.
Full Sequence Duration	Set the time-out in seconds (3 / 5 / 10 / 15) after which the channel display will be switched by one channel (Full Sequence Duration).
Server Time	Set the DVR time remotely.
Date Format	Choose the date display format appropriate to your location (Y-M-D, M-D-Y and D-M-Y).

➢ **Tools**

Click " " to upgrade the firmware version, multilingual OSD and boot display of your DVR (Update Server).

Note: You need to be a supervisor to operate this function. For details, please see "Account" at page 40.

◆ Update Server

3 update options are available for this function: Firmware, Language and Logo.

Before performing any update, finish the following settings first:

1) Choose the IP address of the DVR whose firmware needs to be updated from the drop-down list, or click "Search" to find.

2) Key in the user name, password and port number used to access your DVR remotely.

3) Select the update option (Firmware / Language / Logo) you want. For details, please see the description below.

・**Firmware**

To upgrade your DVR firmware remotely, click "Firmware" tab, and follow the steps below:

a). In the "Firmware" section, you will see the current firmware version. To upgrade the firmware version of your DVR, click "Add" to locate and select the firmware file. The file will be shown in the firmware list.

b). If you want to backup your system before upgrading the firmware version of your DVR, select "System Backup" in the "Configure File" section, click "…" to specify the location for saving system backup, and click "Backup" to start the backup process.

c). To start upgrading the DVR firmware, choose the file from the firmware list, and click "Update Firmware" to start the upgrade process.

・**Language**

To update the DVR OSD language, click "Language" tab, and follow the steps below:

a). Get the language files you want to update from your distributor.

b) Click "Add" to locate and select the files needed. The files will be shown in the list. If you add the wrong file, select it and click "Remove".

c). To start updating the OSD language, choose the files from the list, and click "Update Language" to start the upgrade process.

• **Logo**

To replace the logo shown in the DVR boot display, click "Logo" tab, and follow the steps below:

a). Prepare a graphic file in the "BMP" format for replacement.

Note: Use the image software to set the image size to 320 * 240, and save the image as an 8-bit (64-color) image in the "BMP" format.

b) Click "Add" to locate and select the graphic file. The file will be shown in the list. If you add the wrong file, select it and click "Remove".

c). To start updating the logo, choose the file from the list, and click "Update Logo" to start the upgrade process.

◆ Language

This software is available in English / Chinese / French / German / Portuguese / Spanish / Japanese.

Select a language from the drop-down list, and press "Apply". You will be prompted to restart the application for this change to take effect.

➢ **Status List**

Click "   " to view all the event and record logs, or search for the specific log(s) by date or by record type.

There are three types of logs: Record, Backup and Event. To playback the recorded data for a specific record or backup log, select the log, and double-click to start the video playback.

For detailed playback operation, please refer to "Playback" at page 50.

Button	Description
Time Range	To find the specific logs, set the time range (From / To), and the range unit here.
Record Type	Select the record type you want to search (User / Alarm / Motion / RETR).
Query	Click to start sorting the logs specified.
Delete / Delete All	Click "Delete" to remove the selected log(s), or click "Delete All" to clear the current log list. **Tip:** To select more logs all at once, press and hold the "Ctrl" key on your keyboard, and click to select the logs you want to remove.
Play	Click to play the selected record log. The playback panel will be shown for your further operation. For playback details, please see "Playback Screen" at page 50.
Repair	Click to fix the log with errors.
Close	Click "Close" to quit this window.

◆ Playback Screen

When you select and play the recorded data for a specific log in "   " (Status List) → "Record" or "Backup", you will immediately go into the playback mode, and the following playback panel appears. For the function of each part on the panel, please refer to the following description.

NO.	Function	Description
①	Playback / Download Info Display	This area shows the detailed playback / download information, such as the file name, record date and time, and the speed, etc.
②	Playback Progress Bar	This area shows the playback progress and the progress percentage.
③	Playback Operation	This area is enabled only when the playback is started. / / / / **Rewind / Forward** Click once to get 2X fast rewind / forward, twice to get 4X, three times to get 8X, and four times to get 16X the highest.
④	De-Interlace	Click to reduce the vibration of the paused picture.

Information

To view the current network connection details, click this button.

DVR Control

When the AP is connected to the DVR, this DVR control panel will be enabled, and you can control the DVR remotely. For the function of each button, please refer to the following description.

NO.	Function	Description
1	Channel Selection	Click the channel No. (CH1 ~ CH16) to see the live view of the selected channel.
2		Click the view mode you want to see. There are 10 modes for your choice: ⊞ Select to display the quad view. You can also click " ➕ " or " ➖ " to go to the previous / next channel of the selected channel.
3	Digital Zoom	Click 🔍 to zoom in / out the selected channel image.
4	Full Sequence	**Full Sequence** Click to display each channel one by one, starting from CH1. When CH4 is displayed, it will start from CH1 again. To exit from this display mode, click any other channel display button.
5	Key Lock	Click 🔒 to enable the DVR key lock function. To unlock the DVR, key in your password, and click ↵ .
6	Search	Click " 🔍 " to enter the DVR full search menu. You can check all the logs here, and select one of them to payback.
7	Playback	⏹ (Stop) / ⏸ (Pause) / ⏪ (Rewind) / ▶ (Play) / ⏩ (Slow Playback) / ⏩ (Forward) **Rewind / Forward** 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. **Slow Playback** Click once to get 4X slow playback and twice to get 8X slow playback.
8	Event	Click " E " to enter the DVR full search menu. You can check all the logs here, and select one of them to payback.
9	Menu and Arrow Keys	Click " 📋 " (Menu) to enter the menu / exit the menu mode. Click the arrow keys to move the cursor and make the selection: 🔼 / 🔽 : 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.
10	Enter	Click " ↵ " to confirm the setting or enter your selection.

8.2 IE Web Browser

You can view the live images only via IE web browser.

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

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 at AP login, and press "OK". You will see a similar screen as the following when the login information is correct.

Function	Description
Home	Press [icon] to go to the main page of the DVR
Config.	Press [icon] to go to the detailed DVR setting.
PTZ	Click [icon] to enter the PTZ mode.
Menu and Arrow Keys	Press [icon] to enter the menu / exit the menu mode. Press the arrow keys to move the cursor and make the selection: [icon] / [icon] : Move the cursor up / down to select the previous / next menu or sub-menu function, or change the setting. [icon] / [icon] : Move the cursor left / right to the previous / next sub-menu items.
Event	Press [icon] to enter the playback search settings screen.
Key Lock	Press [icon] to enable the DVR key lock function. To unlock the DVR, key in your password, and press [icon].
Enter	Press [icon] to confirm the setting or enter your selection.
Digital Zoom	Press [icon] to zoom in / out the selected channel image.

Function	Description
Search	Press to enter the DVR full search menu. You can check all the logs here, and select one of them to payback.
Playback control buttons	(Stop) / (Play) / (Rewind) / (Forward) / (Pause) / (Slow Playback) **Rewind / Forward** Press once to get 4X fast rewind / forward, twice to get 8X, three times to get 16X, and four times to get 32X the highest. **Slow Playback** Press once to get 4X slow playback and twice to get 8X slow playback.
Single Channel Selection	Press the channel No. (CH1 ~ CH4) 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	Press to show 4-cut display.
Snapshot	Press to take a snapshot for the current view, and open another browser window to display the captured image.
Full Sequence	**Full Sequence** Press to display each channel one by one, starting from CH1. When CH16 is displayed, it will start from CH1 again. To exit from this display mode, press any other channel display button.
Web Transmission	**MPEG4 / JPEG / 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.
Change Quality	**BEST / HIGH / NORMAL / BASIC** Press to change the image quality.
Change Resolution	**4 CIF / CIF** Press to change the image resolution (4CIF: 720*480 / CIF: 352*240)

8.3 QuickTime Player

You can also 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.

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 version.
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:portnumber*/live/mpeg4**. If the port number is 80, users don't need to key in the port number. For example, rtsp://192.168.1.10/live/mpeg4.

Step 3: 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.
If the information is correct, press "OK" to go on. If not, press "Cancel" to quit the accessing.
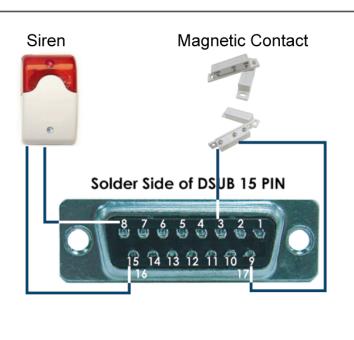

Step 4: When the login is successful, you will see a similar screen as the following.

APPENDIX 1 PIN CONFIGURATION

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

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

PIN	FUNCTION	DESCRIPTION
1	PIN OFF	
2	PIN OFF	

3 ~ 6	ALARM INPUT	To connect the wire from ALARM INPUT (PIN 3 -- 6) to GND (PIN 9) connector, DVR will start recording and the buzzer will be on.
		＊"MENU -> ADVANCE -> DETECTION -> DETECTION SETUP -> ALARM" is set to "Low":
		   When the alarm input signal is " Low ", the unit starts to record and buzzer.
		＊"MENU -> ADVANCE -> DETECTION -> DETECTION SETUP -> ALARM" is set to "High":
		   When the alarm input signal is " High ", the unit starts to record and buzzer.

7	EXTERNAL ALARM 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	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.
9	GND	Signal GND
10	RS485-B	DVR can be controlled remotely by the keyboard of PC by using RS-485 serial communication signals.
11	RS485-A	DVR can be controlled remotely by the keyboard of PC by using RS-485 serial communication signals.
12 ~ 14	PIN OFF	
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.
16 ~ 17	GND	Earth GND

APPENDIX 2 COMPATIBLE USB FLASH DRIVE BRAND

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 "FAT 32".

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
Apacer	AH320	2G
	AH320A	8G
	AH220	1G
	AH320	4G
A-data	RB-18	1G
Transcend	JFV35	4G
	JFV30	8G
Sony	Micro Vault Tiny	1G
Sandisk	Cruzer Micro	2G
	Cruzer Micro	4G
	Cruzer4-pk	2G
MSI	F200	4G
PQI	U172P	4G
Netac	U208	1G

APPENDIX 3 COMPATIBLE HDD BRAND

Please upgrade the firmware of the DVR to the latest version to ensure the accuracy of the following table.

· **For SATA HDD**

MANUFACTURER	MODEL	CAPACITY	ROTATION
Seagate	ST3320613AS	320GB	7200 rpm
	ST33500320AS	500GB	7200 rpm
	ST3750330AS	750GB	7200 rpm
	ST31000340AS	1000GB	7200 rpm
Hitachi	HDT725032VLA360	320GB	7200 rpm
	HDS721010KLA330	1000GB	7200 rpm
WD	WD3200AAKS	320GB	7200 rpm
	WD5000AACS	500GB	7200 rpm
	WD6400AAKS	640GB	7200 rpm
	WD7500AAKS	750GB	7200 rpm
	WD10EACS	1000GB	7200 rpm
Maxtor	STM3500320AS	500GB	7200 rpm
	STM3750330AS	750GB	7200 rpm

· **For IDE HDD**

MANUFACTURER	MODEL	CAPACITY	ROTATION
HITACHI	Deskstar 7K250, HDS722516VLAT20	160GB	7200 rpm
	HDS722516VLAT80	160GB	7200 rpm
	HDS722516DLAT80	160GB	7200 rpm
	Deskstar 7K250, HDS722525VLAT80	250GB	7200 rpm
	Deskstar 511DHT0021	500GB	7200 rpm
Maxtor	DiamondMax Plus 9, Model#6Y160L0	160GB	7200 rpm
	DiamondMax 10 6L160R0	160GB	7200 rpm
	DiamondMax 10 6L200R0	200GB	7200 rpm
	DiamondMax 10 6L200PO	200GB	7200 rpm
	MaxLine Plus Ⅱ, Model#7Y250P0	250GB	7200 rpm
	DiamondMax 10 6L250R0-3	250GB	7200 rpm
	DiamondMax 10 HDMA6L300RO-3	300GB	7200 rpm
Seagate	Barracuda 7200.7 Plus, ST3160023A	160GB	7200 rpm
	Barracuda 7200.8 ST3200826A	200GB	7200 rpm
	Barracuda 7200.8 ST3250826A	250GB	7200 rpm
	Barracuda 7200.8 ST3300831A/P	300GB	7200 rpm
	Barracuda 7200.8 ST3400832A/P	400GB	7200 rpm
	7200.9 ST3200827A/P	200GB	7200 rpm
	7200.10 ST3250620A/P	250GB	7200 rpm
	7200.10 ST3320620A/P	320GB	7200 rpm
Western Digital	Caviar SE WD1600JB	160GB	7200 rpm
	Caviar WD2000BB-00DWA0	200GB	7200 rpm
	Caviar SE WD2500JB	250GB	7200 rpm
	Cavir RE WD2500SB-01KBC0	250GB	7200 rpm

APPENDIX 4 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.
	Make sure HDD "Master", "Slave" mode is correctly set.
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 the "MANUAL RECORD ENABLE" 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 the detection function "DET" is set to "ON".
	Check the detection area "AREA" has been setup.
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 the audio cameras are connected to the DVR channels which support the audio function (CH1, CH2, CH3 and CH4).
Can't view the DVR images over the network with IE web browser	Check the DVR firmware version.
	Please choose to allow the web browser ActiveX or applet in the pop-out message.
Failed to backup the recorded files of the DVR from remote PC side. (For details, please see "Network Backup" at page 34.)	You need to be a supervisor to operate this function. For details, please see "Account" at page 40.
	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	Check the USB flash drive is formatted to FAT32.
	Check the firmware / OSD file is correct.
Can't use the IR remote control	Check whether if the batteries are installed or not.
	Aim at the IR receiving zone and try again.
	Check the lock button on the DVR front panel is switched to the right position.

APPENDIX 5 RS485 PROTOCOL

◆ Use PC keyboards to simulate DVR keypads.

◆ Data: REMOTE PROTOCOL uses 8 bit data, 1 start bit, 1 stop bit.

| ACT (FFH) | C0H | ID | FUNCTION | STOP (7FH) |

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			