

EMBEDDED DVR USER MANUAL

Thank you for purchasing our Embedded DVR. This manual is applicable to Home Series. Please go through this User Manual before operating so as to use the DVR in the correct and safe way.

The content of this manual is subject to change without notice.

1 PRECAUTIONS

Please observe the following precautions, in order to avoid damage or loss of data caused by improper operation.

- Install DVR within the temperature and humidity requirements.
- Do not install DVR in humid, dusty or smoky environment.
- Require a solid mounting surface for installation.
- Do not block any ventilation openings. Install under the manufacturer's instructions.
- Do not spill liquid of any kind on device.
- Do not put any other equipment on device.
- Do not dismantle the device.
- Select specified HDD by manufacture.

2 NOTE

- This user manual is for reference only, subject to available products.
- This user manual may contain inaccurate data or printing error.
- Updates to the manual or products themselves will occur without further notification.
- Contact the customer service department when you are in doubt or documentations.

Table of Contents

1 PRECAUTIONS	<u>2</u>
2 NOTE	<u>2</u>
3 PRODUCT INTRODUCTION	<u>5</u>
3.1 SUMMARY	5
3.2 FEATURES	5
4 INSTALLATION	<u>6</u>
4.1 CHECK DVR AND ITS ACCESSORIES	6
4.2 HDD INSTALLATION	6
4.3 FRONT PANEL	7
FRONT PANEL	7
REAR PANEL	12
REAR PANEL I/O PORT CONNECTION	15
	15
	15
5 LOCAL OPERATION GUIDE	<u>16</u>
5.1 POWER ON /OFF OPERATION	16
5.1.1 POWER ON	16
5.1.2 POWER OFF	17
5.1.3 OUTAGE RECOVERY	17
5.2 LOGGING INTO THE MAIN MENU	17
5.3 LIVE VIEW	18
5.4 PTZ CONTROL	19
5.4.1 PTZ CONTROL	19
5.4.2 PTZ SETTING	19
5.5 RECORDING OPERATION	22
5.6 PLAYBACK	23
5.6.1 FAST AND SLOW MOTION	24
5.6.2 BACKWARD AND SINGLE FRAME PLAYBACK	24
5.7 CONFIGURATION	25
5.7.1 SETTING	25
5.7.2 CHANNEL MANAGEMENT	25
5.7.3 NETWORK SETTING	27
5.7.4 ALARM CONFIGURATION	30
5.7.5 USER MANAGEMENT	31

5.7.6 EXCEPTIONS SETUP	32
5.8 STORAGE	34
5.8.1 HDD MANAGEMENT	34
5.8.2 RECORD BACKUP	35
5.9 UTILITIES	36
5.9.1 PTZ CONFIGURATION	36
5.9.2 ALARM OUTPUT	37
5.9.3 PORT CONFIGURATION	37
5.9.4 OUTPUT	38
5.10 MAINTENANCE	40
5.11 SHUTDOWN	41
 6 ON-LINE OPERATION	 42
 6.1 WEB OPERATION GUIDE	 42
6.1.1 NETWORK CONNECTION	42
6.1.2 CONTROL SETUP & LOG IN / LOG OFF	42
6.1.3 LIVE VIEW	44
6.1.4 PTZ CONTROL	45
6.1.5 SYSTEM SETTING	46
6.1.6 SEARCH RECORD	47
 7 APPENDIX	 48
 7.1 HDD CAPACITY CALCULATION	 48
7.2 REMOTE CONTROL OPERATION	48
7.3 MOUSE CONTROL	48
7.4 TROUBLESHOOTING	49

3 PRODUCT INTRODUCTION

3.1 SUMMARY

Our Embedded Digital Video Recorder is an excellent digital surveillance product which adopts H.264 video compression, hard disk recording, TCP/IP transmission, and a Linux based OS in addition to some of the more advanced technologies in the information technology industry. This enables a more stable, reliable and high picture quality.

These products up to the «Surveillance DVR», support synchronized video and audio recording, playback, and monitoring. This series also supports network based system control, as well as excellent network streaming capabilities.

3.2 FEATURES

Features switched according to the soft/hardware edition.

- Live surveillance
 - ✓ composite video signal (BNC) or VGA output
 - ✓ Live video by monitor, TV or display devices
 - ✓ Single screen / four-screen / nine-screen / sixteen-screen output
 - ✓ Privacy masking, character overlay, unusual states message,
- Compression
 - ✓ Apply H.264 video compression and G.711 audio compression.
- Recording
 - ✓ Motion detection, alarm linkage recording mode, SATA HDD and SMART tech of local HDD.
 - ✓ USB backup or network backup.
- Playback
 - ✓ Video searching, playback, and backup via head end or web interface.
 - ✓ Multiple playback modes: slow motion, fast forward, frame by frame and skip backward.
 - ✓ Network backup or USB 2.0 ports for backup devices.
 - ✓ Multi-channel playback synchronization
- Camera control & Alarm
 - ✓ PTZ (using RS-485), camera control, preset, tour, pattern setting and call.
 - ✓ Three-dimensional positioning (in PTZ condition)
- Alarm management
 - ✓ Multi-channel alarm inputs could be connected with standard devices such as infrared, smoke detection, vibration alarm.
 - ✓ Alarm detection for motion, video loss and masking.
 - ✓ Multi-channel alarm outputs which link alarm with light control.
- Interface

- ✓ USB2.0, Ethernet interface, RS485, etc.
- Network
 - ✓ Support TCP/IP and TCP, UDP, RTP transmission.
 - ✓ Support online real-time surveillance and record search, playback, manage.
 - ✓ Support dynamic IP addressing, PPPOE, DDNS
 - ✓ Access DVR by WEB interface (Internet Explorer)
 - ✓ NTP timing, alarm by Email, etc.
- Operation
 - ✓ Support front panel, remote control and mouse control.
 - ✓ Simple operation, menu driven with help tips.

4 INSTALLATION

4.1 CHECK DVR AND ITS ACCESSORIES

Please carefully check the contents following the packing list. If any of the items are missing, please contact with your dealer.

4.2 HDD INSTALLATION

Preparation:

A Phillips head screwdriver is required to disassemble and reassemble the unit.

This series DVR allows a maximum 2 Hard disks. HDD capacity is tested up to 2TB at the time of writing

Steps:

- Remove the metal top cover by removing two screws from the sides of the cover.
- Place the hard disks on a flat table and fasten it by screws.
- Connect the power and data cables to the HDD.
- Reinstall the metal top cover and fasten it by screws.

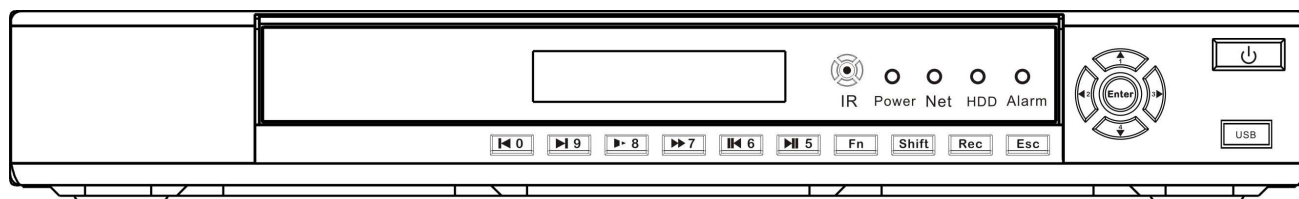
Caution:


- Only use HDD specified by the manufacturer.
- HDD will be formatted automatically during startup, it may cause data loss.
- Recording duration is decided by HDD capability and DVR parameters (recording setup, encoding setup).
Please see the form in [Chapter 7.1](#) (for reference only) .

4.3 FRONT PANEL

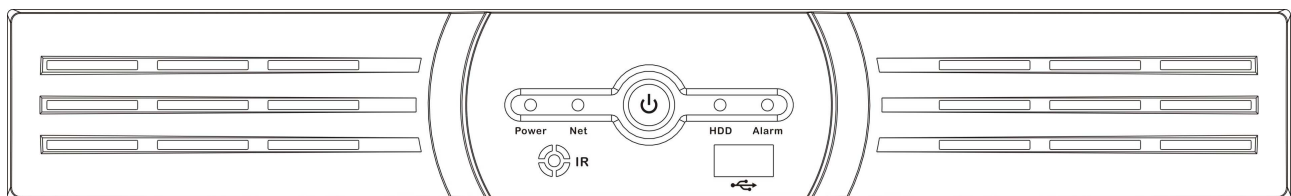
Front Panel

The front panel is shown as follow:




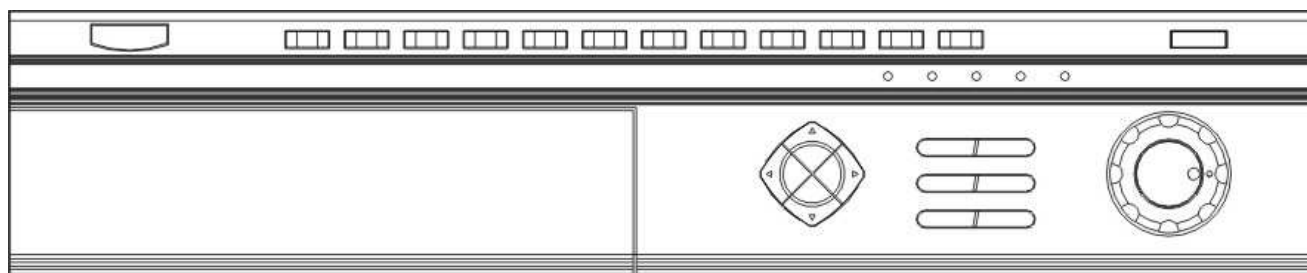
Name	Icon	Function
Power button		Press this button to boot up or shut down DVR.
Shift	Shift	In textbox, click this button to switch between numeral, character and other functions.
Up/Down	▲ ▼	Activate current control switch, and then move up and down; Modify setup, Increase/decrease numeral; Channels can be switched while playing single channel record; Assistant function (Such as PTZ menu), performs as direction control for PTZ; In textbox, enter the number, increment +1 and decrement -1; Multi-screen switch.
Left/Right	◀ ▶	Activate current control switch, and then move left and right; Press left/right buttons to control the playback progress bar when playback video; Performs as direction control for PTZ; Unilaterally switch.
Enter	ENTER	Confirm current operation; Go to menu.
ESC	ESC	Go to previous menu, or cancel current operation.
Record	REC	Manually stop/start recording, in the video control menu, working with direction keys or numeral keys to select the recording channel.
Auxiliary	Fn	In single-camera monitor mode, click this button to display auxiliary function: PTZ control and image color setting;
		In motion detection setup, working with Fn and direction keys to realize setup;
		Backspace function: press Fn for 1.5seconds to delete the previous character before the cursor;
		When textbox selected, continuously press this button to switch between numeral, English character(small/capitalized) , Chinese input(expandable) etc;

		Realize other special functions.
Slow play		Various slow speeds and normal playback; Perform as zoom- function for PTZ control.
Fast play		Various fast speeds and normal playback; Perform as zoom + function for PTZ control.
Play/Pause		In playback mode, click this button to play or pause playback. Perform as Iris- function for PTZ control
Reverse/Pause		In playback mode, click this button to reverse or pause playback Perform as Iris+ function for PTZ control
Play Next		In playback mode, playback the next video Perform as Iris+ function for PTZ control
Play previous		In playback mode, playback the previous video Perform as Iris- function for PTZ control
USB		To connect USB mouse, Mobile HDD, USB storage device, etc.
Network abnormal indication light	Net	The NET light indicates the network is connected normal
HDD abnormal indication light	HDD	The video light indicates recording
Remote control receiver	IR	Used to receive the signal from the remote control
Power indication light	power	Light will be on after power up
Alarm indication light	Alarm	Show whether there is external alarm input. Light on means there are external alarm, light goes out means external alarm stopped



Power indication light		Light will be on after power up
HDD abnormal indication light	HDD	The video light indicates recording

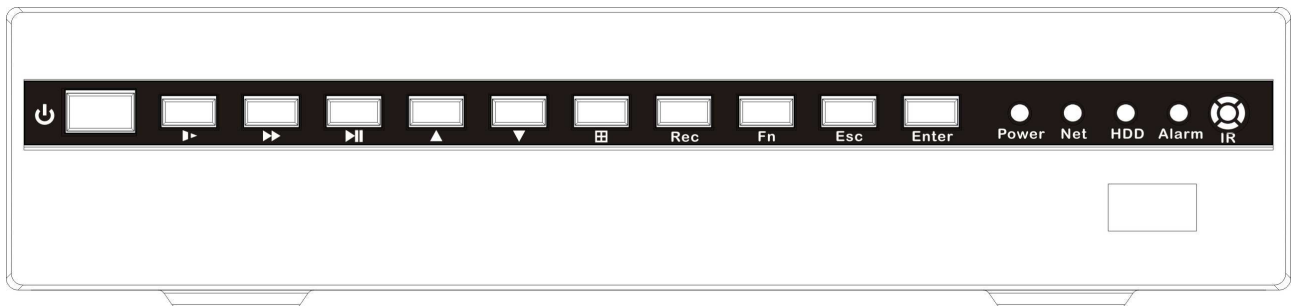
Network abnormal indication light	Net	The NET light indicates the network is connected normal
Alarm indication light	Alarm	Show whether there is external alarm input. Light on means there are external alarm, light goes out means external alarm stopped
Remote control receiver	IR	Used to receive the signal from the remote control
USB		To connect USB mouse, Mobile HDD, USB storage device, etc.



Number	Name	Icon	Function
1	Power button	Power	Under shutdown state, short press this button to boot up
			Under boot state, long press this button for three seconds to shut down DVR.
2	Numeric keypad	1~9	Number input(number input state)
			Character input(text input state)
			Image switching (single picture)
3	10+Numeric key	+10	More than 10 values input: press this button plus other number key, resulting in 10 to 19 input values
4	Up/Down	↑↓	Switch the current activate controls(move or skip up or down)
			Switching drop-down options when activated the drop-down menus
			Activate number input textbox, increase or decrease numeral
			Multi-pictures switch
			Performs as direction control for PTZ
5	Left/Right	←→	Switch the current active controls (move or skip left or right)
			Select the previous channel or next channel when activating the play window
			Performs as direction control for PTZ
6	ESC	ESC	Close the control or exit to previous menu.
7	Enter	ENTER	Confirm current operation

			Go to ENTER option
			Go to main menu
8	Record	Rec	Start/stop video manually
			Under PTZ control menu ,enter the preset setting
9	PTZ control	PTZ	Single-screen monitor state, press the button to enter the PTZ control
10	Auxiliary	Fn	Motion detection setting mode, press the Fn key cooperated with the arrow keys to accomplish settings
			Backspace function keys: under digital input and text input mode, delete character before the caret
			Full screen mode switch when activating play window
			TAB Page switch
			PTZ control to switch different sub page
			Prompts the special matching function on each menu page
			Long press button to switch VGA&1080P HD display output resolution
11	Search video, Play/Pause	play	Start playing
			In playback state press this button to play normal
			In pause state press this button to playback
			Real time monitoring, enter the video search menu
			PTZ control: Zoom +
12	Outward Podrace		PTZ control: Iris, Clockwise circumgyrate +, Counterclockwise circumgyrate -
			Play control: Clockwise go to previous video, Counterclockwise go to next video
13	Inward Podrace		PTZ control: Zoom, Clockwise circumgyrate +, Counterclockwise circumgyrate -
14	Power indication light	POWER	Light will be on after power up
15	HDD abnormal indication light	HDD	The video light indicates recording
16	Network abnormal indication light	LINK	The NET light indicates the network is connected normal
17	Data indication	DATA	Red light prompted alarm when data config appear abnormally

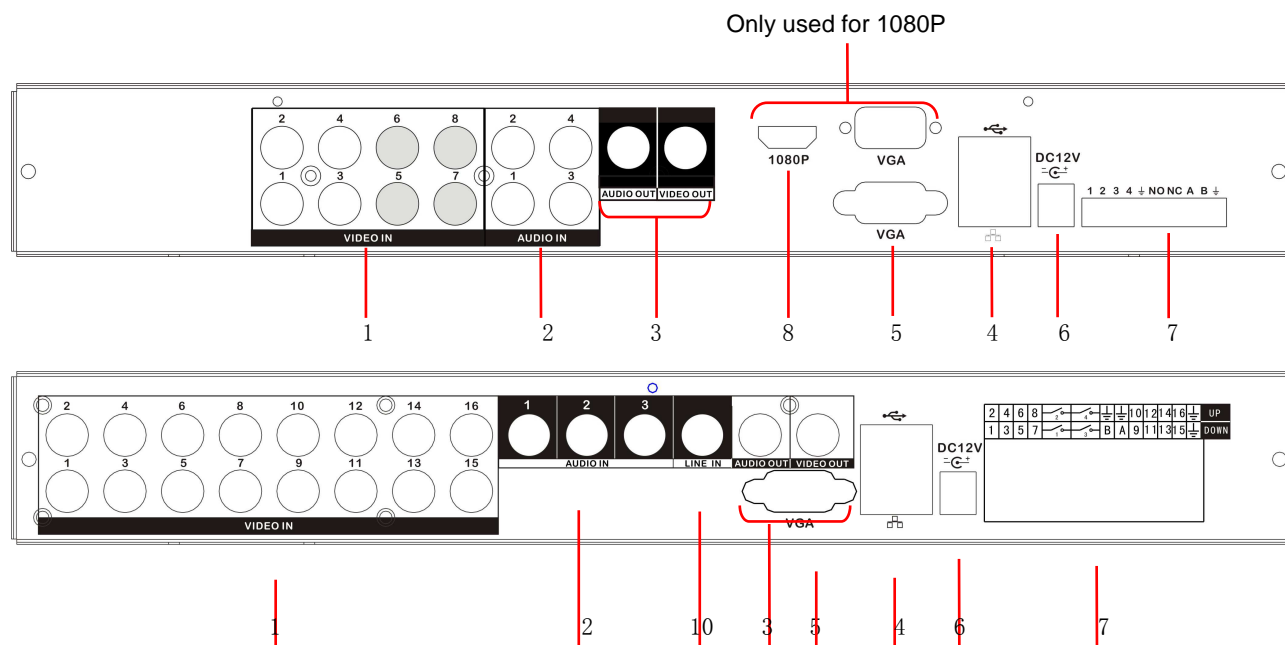
	light		
18	Alarm indication light	ALARM	Show whether there is external alarm input. Light on means there are external alarm, light goes out means external alarm stopped
19	Remote control receiver	IR	Used to receive the signal from the remote control

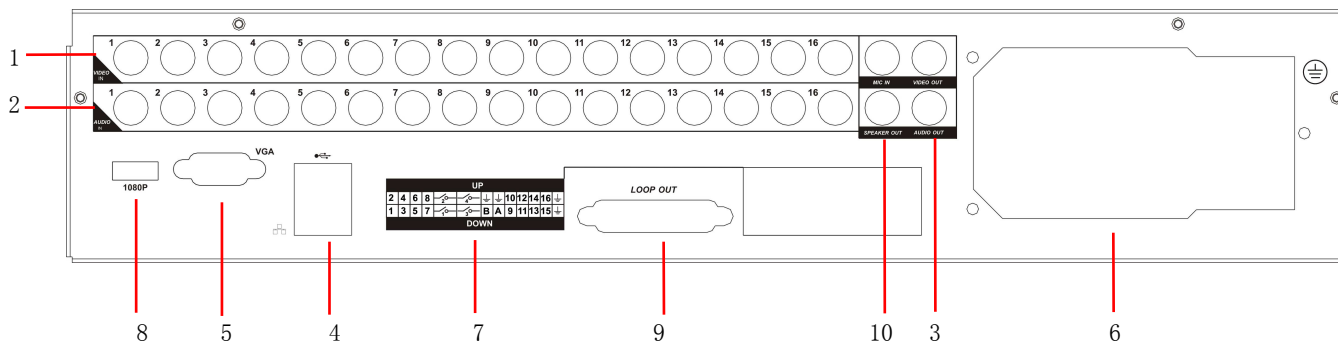
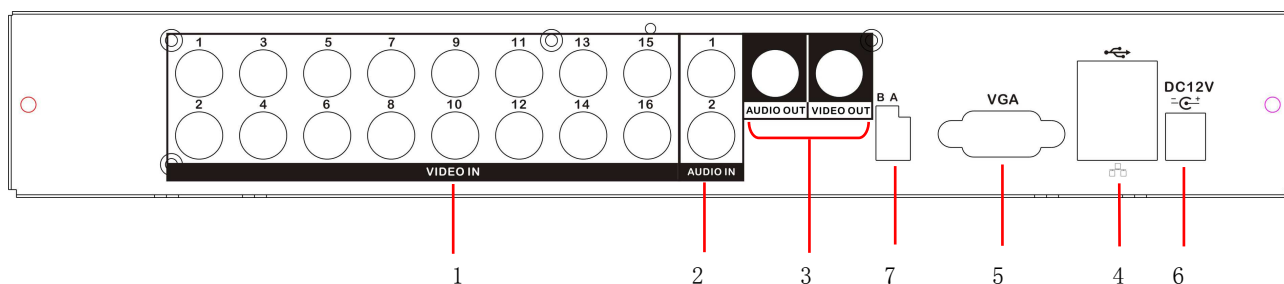
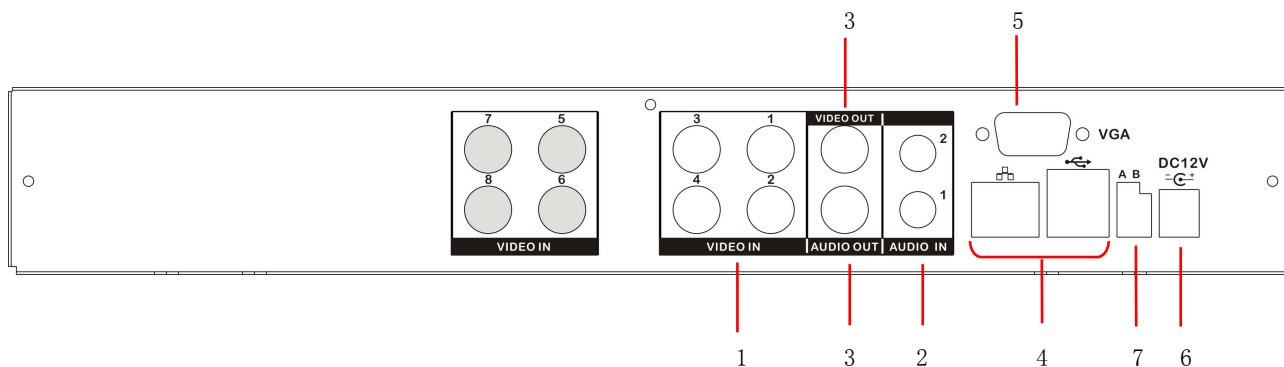
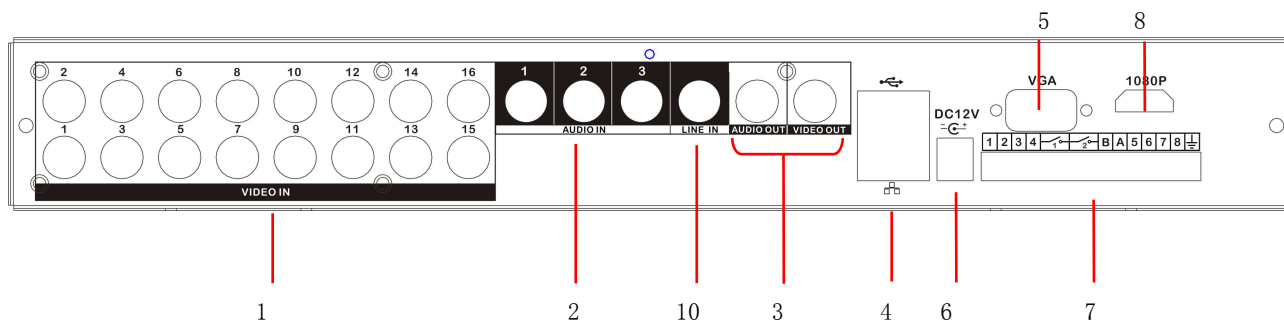


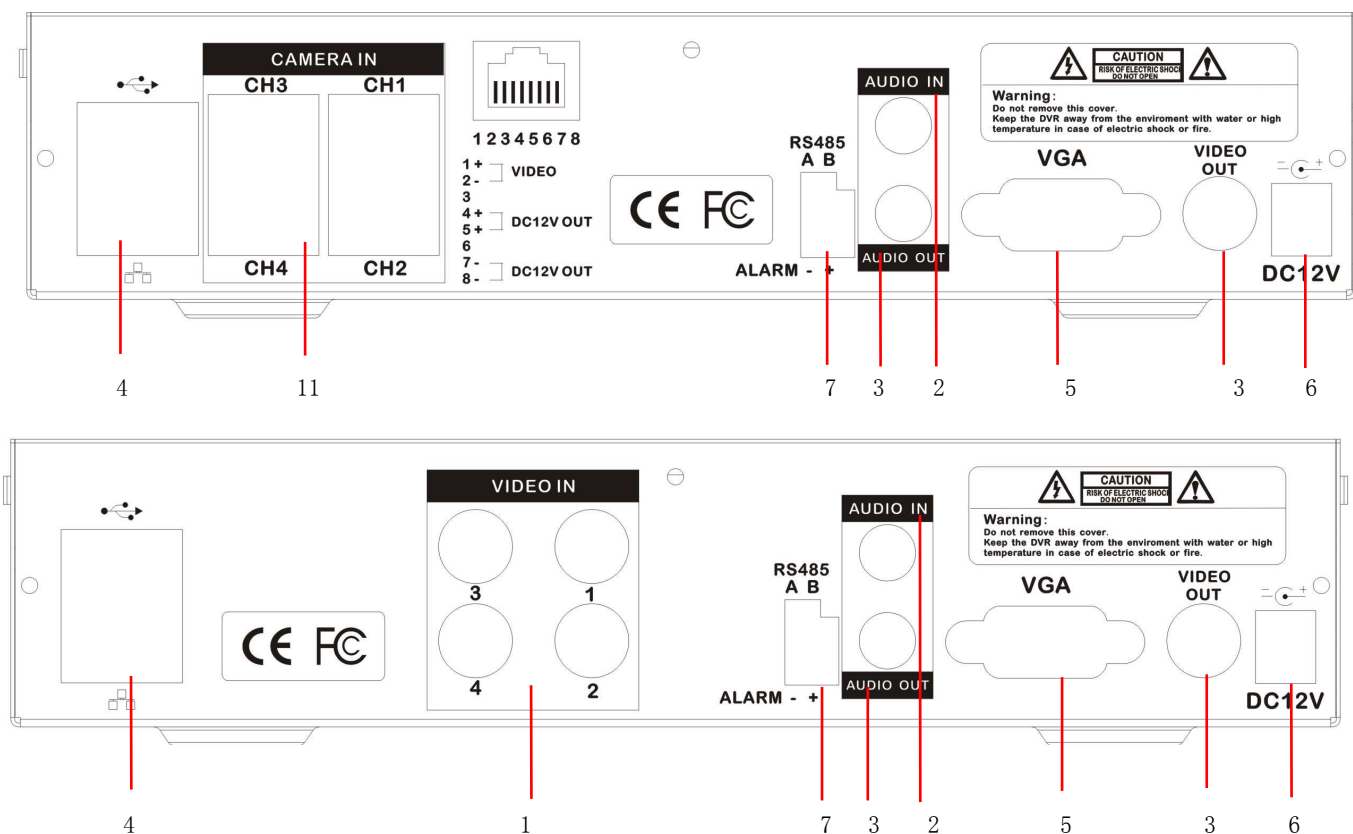
Name	Icon	Function
Power button		Press this button to boot up or shut down DVR.
Slow play		Various slow speeds control switch, Activate current control switch, Available to move left. Perform as left function for PTZ control.
Fast play		Various fast speeds control switch, Activate current control switch, Available to move right. Perform as right function for PTZ control.
Play/Pause		In playback mode, click this button to play or pause. In real time monitoring mode, click this button to records search menu. Perform as zoom function for PTZ control
Up/Down		Activate current control switch, and then move up and down; Modify setup, Increase/decrease numeral; Channels can be switched while playing single channel record; Assistant function (Such as PTZ menu), performs as direction control for PTZ; In textbox, enter the number, increment +1 and decrement -1; Multi-screen switch. In playback mode, click this button to control the rate of progress.
Picture switch		Different sub-picture switch when PTZ controlling.
		Single picture/Multi-picture switch, 1->N->1~4->
		In monitoring mode, press for 3 seconds to switch and display the output port.
Record	REC	Manually stop/start recording, in the video control menu, working with direction keys or numeral keys to select the recording channel. Zoom+
Auxiliary	Fn	In single-camera monitor mode, click this button to display auxiliary function: PTZ control and image color setting;
		In motion detection setup, working with Fn and direction keys to realize setup;


		Backspace function: press Fn for 1.5seconds to delete the previous character before the cursor; When textbox selected, continuously press this button to switch between numeral, English character(small/capitalized) , Chinese input(expandable) etc; Different sub-picture switch when PTZ controlling. TAB page switch. Toggle the active window to full-screen mode. Realize other special functions.
Enter	ENTER	Confirm current operation; Go to menu.
Cancel	ESC	Go to previous menu, or cancel current operation. Available to switch to real-time monitoring in playback mode.
Network abnormal indication light	Net	The NET light indicates the network is connected normal
HDD abnormal indication light	HDD	The video light indicates recording
Remote control receiver	IR	Used to receive the signal from the remote control
Power indication light	power	Light will be on after power up
Alarm indication light	Alarm	Show whether there is external alarm input. Light on means there are external alarm, light goes out means external alarm stopped

Rear Panel

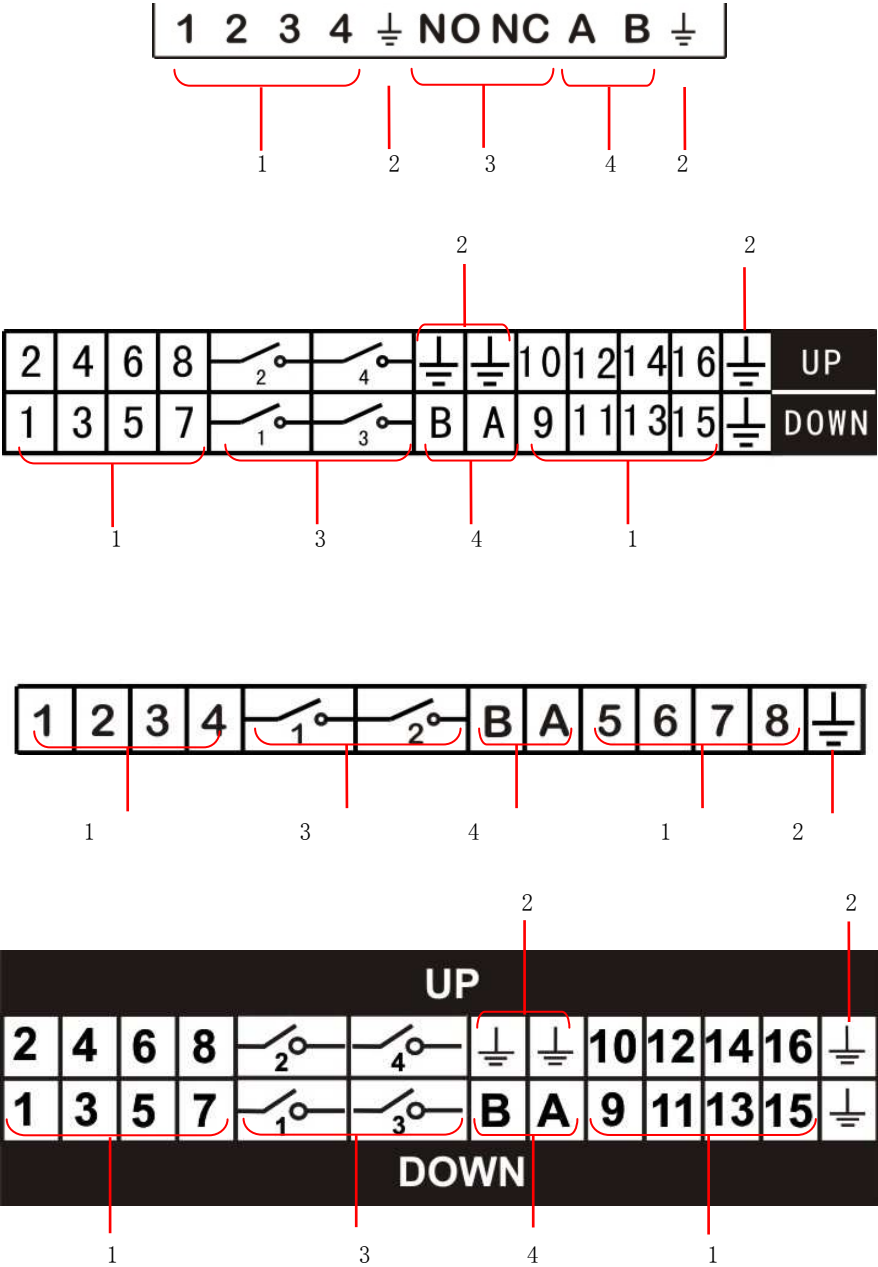






Item No.	Parameter	Description
1	Video input	Composite video broadcast signal (CVBS) input port
2	Audio input	Audio signal input port
3	Video/Audio output	Composite video broadcast signal (CVBS) and audio signal output port
4	Network port	RJ-45 network port, USB port
5	VGA port	VGA Video signal output port
6	Power supply input	Power supply input port (R9901 with AC 220V, others as DC 12V)
7	Connecting terminal	Include alarm input ,alarm output, RS-485 port
8	1080P port	1080P video signal output port
9	Loop port	Output the video signal to other devices which needs the video signal
10	Talk back	Audio input for talk back
11	Camera in	<p>CVBS video and 12v DC power pass through RJ45 port, the signal defined as following:</p>  <p> 1 CVBS video input + 2 CVBS video input - 4&5 DC 12V + 7&8 DC 12V- 3&6 NC </p>

Rear panel I/O port connection



Rear panel I/O interface information:

Serial Number	Name	Description
1	Alarm input	Alarm input port, connected to the alarm.
2	GND	Ground port

3	Alarm output	Alarm output port
4	RS-485	RS-485 port, connected to the PTZ.

Alarm input connection

Normal open or Normal close type

Please parallel connect COM end and GND end of the alarm detector to the GND end of the DVR

Please connect the NC port (or NO port) of the alarm sensor to the DVR alarm input(ALARM)

Use the same ground with that of DVR if you use external power to the alarm device.

Alarm output connection

This alarm output use relay output, please refer to the related parameters while connecting the relay to avoid overload or damage to the DVR.

Material of the touch	Silver	
Electrical functions	Maximum switch power	240VA, 48W
	Maximum switch voltage	125VAC, 60VDC
	Maximum switch currency	2A

Figure 0-1 Relay parameters


PTZ connection

Decoder A (B) line connects with DVR RS-485 A (B) line. If multiple decoders are connected, please connect a 120 Ω resistance in parallel at the A (B) line distal to minimize the control signal distortion caused by reflection.

5 LOCAL OPERATION GUIDE

5.1 POWER ON /OFF OPERATION

5.1.1 POWER ON

Connect power supply and press the power button on the front panel to startup the DVR. The power light is on and  displayed on the LCD during startup. Multiple live view is defaulted when turn on DVR unless it's in the period which set for recording.

Note:

Power supply has to match with DVR, any other substitutes are not allowed.

5.1.2 POWER OFF

- Hold down on-off key to turn off device (only operated by the user who has power off authority) .
- 【Main Menu】 → 【Power off】 → 【Power off】 (Tip: This is the recommended method to shut down, in order to avoid damaging the HDD/system) .



Note: turn off the device and switch off the power when changing HDD

5.1.3 OUTAGE RECOVERY

Reboot after an outage or forceful shutdown, the DVR will save the record before outage and return to normal operation mode.

5.2 LOGGING INTO THE MAIN MENU


Pop up the login dialog by pressing the [Enter] key or left clicking the mouse in live view mode and type in correct username and password.



Default users:





User Type	Name	Default Password
Administrator	admin	123456
User	user	123456
Hidden default	default	

Note:

- Password security: occur alarm after three times wrong input and system lockout in 30 minutes after 5 unsuccessful login.
- For security consideration, please modify the default password. For information on how to add groups, users and modify users information, please refer [Chapter 5.7.5 Uses Management](#)
- Click  to toggle the character input method in mouse mode.

5.3 LIVE VIEW

Power on the DVR and enter the default live view mode. There are date, time, channel names and icons which indicate status displayed on screen. The icons represent:

1		Shows on screen when in recording	3		Shows on screen when video loss
2		Shows on screen when motion detection	4		Shows on screen when the channel is locked

Switch display screens by the front panel, remote control or mouse control.

If you have enable the screen message for external alarm, video loss, masking, motion detection, network and IP conflict alarm, the below interface would popup when those alarm occur.



Alarm Status								
Index	1	2	3	4	5	6	7	8
Alarm in	✓	✓	✓	✓	✓	✓	✓	✓
Video Lost	✓	✓	✓	✓	✓	✓	✓	✓
Mask	✓	✓	✓	✓	✓	✓	✓	✓
Motion	✓	✓	✓	✓	✓	✓	✓	✓
Network	✓							
IP Conflict								

5.4 PTZ CONTROL

Right click on the selected screen under live view mode and choose Pan/Tilt/Zoom. You will see the following interface.

5.4.1 PTZ CONTROL



- Control PTZ **direction**, **step size**, **zoom**, **focus**, **IRIS**, **presets**, **tour**, **pattern**, **border scan**, **AUX switch**, **light switch**, **auto pan**.
- **Step size** controls PTZ speed, e.g. step size 8 is moved faster than step size 1. (you can set 1-8 step size by soft keyboard or keys on front panel)
- Click  and  of zoom, focus and IRIS to modify zoom, focus and brightness.
- Support PTZ eight-direction rotation. (If you are using the front panel, it is only four-direction) .
- Quick positioning:
〈SIT〉 : In the middle of direction keys is the quick position key. It only supports mouse control and supported by certain PTZ protocols.
 - ✓ Single click to move this point to the screen center.
 - ✓ Clicking and dragging a specific region to make the camera to center and zoom accordingly.
Dragging from left to right zooms in, and right to left zooms out.

5.4.2 PTZ SETTING



- Click **【Set】** to set **【Preset】** , **【Tour】** , **【Pattern】** , **【Border】** . Gray keys represent unsupported function.



- **【Preset】** setting: Click **【Preset】** and input a number to assign these coordinates as that number. Click **【Save】** to save these coordinates to that preset number
- Call **【Preset】** : Input preset number and click “preset” on left side to call a specific preset location.



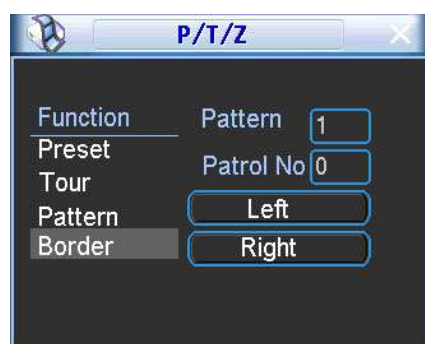
- **【Tour】** setting: Select “Tour”; input numbers in “Path” and “preset”. Click **【Add Preset】** to add one preset in cruise path, repeat to add more than one presets. Click **【Clear Preset】** to delete a preset, repeat to delete more. (Note: This feature is only available in certain protocols)
- Call **【Tour】** : Input a path number and click “Tour” on the left side to start this function. Click **【Stop】** to quit.



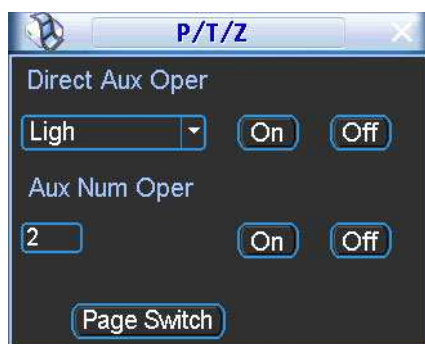
- **【Pattern】** setting: Assign a path number, and click start to begin recording. Once recording, go back to the PTZ controls in order to modify your **【zoom】** , **【focus】** and **【IRIS】** , etc. Click **【Stop】** in “Pattern” settings once finished, in order to save that pattern number
- Call **【Pattern】** : Input a pattern path number and click **【Pattern】** to call the function. Right click to hide the menu in pattern mode; you can take manual control of the camera to stop the pattern at any time.



- **【Border】** setting: Move camera to left/right boundary by direction keys and click **【Left Border】** and **【Right Border】** to confirm the setting.
- Call **【Border】**: Click "Border" to start the function, the **【Border】** button will turn to **【Stop】**. Right click to hide menu and single click **【Stop】** to quit.



- Click **【Page Switch】** again to set additional PTZ functions. These functions are also protocol dependent. (only DH-SD1 and DH-SD2 realize the function presently)



- Click **【Page Switch】** again to set camera (support a few protocol)



Direction keys are primarily used for menu navigation. If the button is grayed out, then the option is unavailable. Up/down keys is using to select menu items and right/left keys to modify the parameters. Click **【Page Switch】**

to go back to the window shown in the picture.

5.5 RECORDING OPERATION

Tip: The “Recording” authority is required for manual recording.

- **Operation interface**

A right click **【REC】** on remote control in preview mode to enter manual operation directly.

- **Status**

✓ **Manual:** The highest priority. Whatever the current mode is, when you select “Manual”, the recording mode will switch to normal.

✓ **Schedule:** If this is selected, the system will record according to the schedule (regular, MD or alarm) in “Record Config”.

✓ **Stop:** Stop recording

All start: All channels start recording

All stop: All channels stop recording

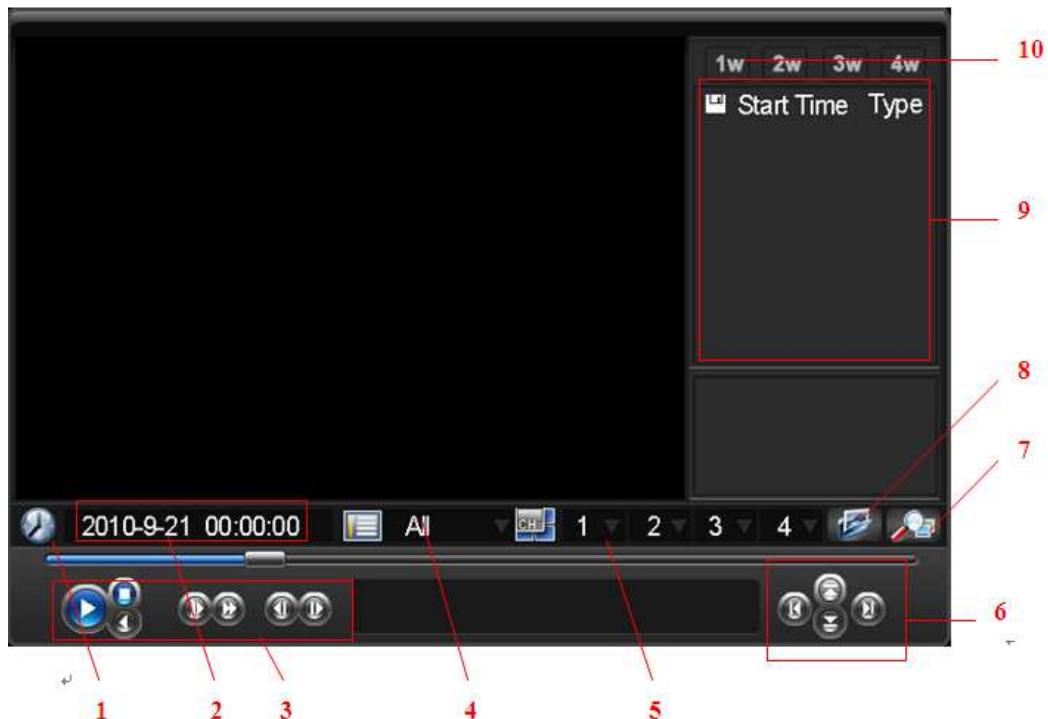




- **Start/stop recording**

Please confirm the recording mode before changing the channel status. Here you can check whether the status is on or off (blank refers the recording off; ticked is the recording on) . To change the status, select a channel by using the **【◀】/【▶】** key and then change the recording mode by using the **【▲】/【▼】** or numeric key.

5.6 PLAYBACK

Playback interface:



Index	Type	Description
1	Calendar	Click the calendar icon--  to show the record list (only the dates with blue background take records.) and then click a specific date to call the record. The list will be upgraded automatically.
2	Time	Select record start and end time.
3	Play	Playback control: stop/play, pause, fast, slow, previous/next frame in pause.
4	Record Type	Search record by external alarm, MD and all alarm record
5	Channel Select	Select record channel
6	Play	Turn to previous/next record and previous/next channel.
7	Search	Once your parameters are set, click "Search" to get the results in list
8	Record Backup	Tick the records you want (enable to select backup records in two channels) and click  to call out backup operation menu and confirm the backup.

		Remove records in backup operation menu by removing the “√” next to records (single channel list 32 items)
9	Record List	Search results show in the results list. Click ▲/▼ to move through the records in list which contains maximum 128 search results. Select one of the records and click “ENTER” or double-click left mouse to play the file. Record type: R—regular; A—alarm; M—MD.
10	Window Select	Select focus window

5.6.1 FAST AND SLOW MOTION

Keys	Description	RMKS
Playback fast motion: The key: ►►	For changing between fast motion in slow and normal mode, speed 1, speed 2 are alterable.	Actual playback speed varies by versions
Playback slow motion: the key: ►	Switch to slow motion in fast and normal mode, speed 1, speed 2 are alterable.	
Play/Pause: ► /	Control Play/Pause in slow/fast mode	
Previous/Next	Valid in playback mode, click ◀ and ▶ to switch to previous or next recording in the same channel	

5.6.2 BACKWARD AND SINGLE FRAME PLAYBACK

Keys	Description	RMKS
Backward: Backward key ◀	Single left click backward key ◀ to play backwards and single click again to stop back run	In backward and single frame playback mode, click ► / to return to normal playback
Manual single frame playback	single frame playback by clicking ◀ and ▶	

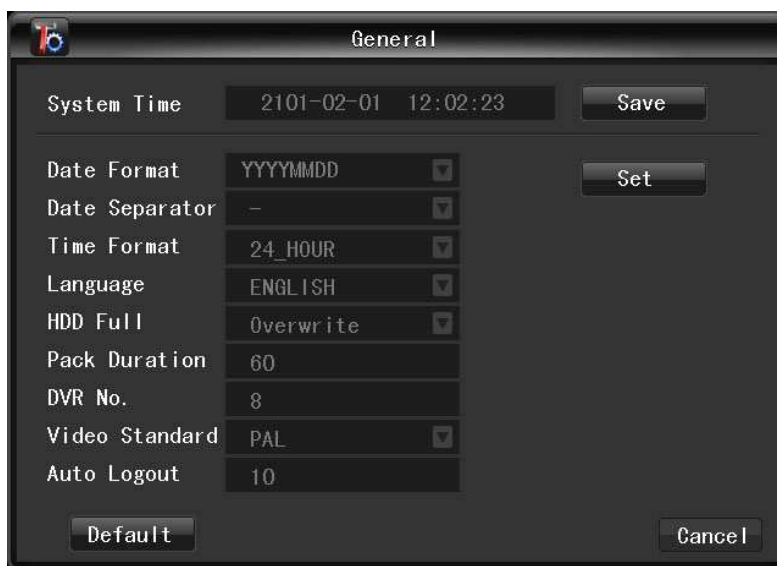
Tips:

1. The current playback speed, channel, time and progress are displayed on the front panel.
2. Playback type and speed are related to product version, please refer to panel prompt.


5.7 CONFIGURATION

5.7.1 SETTING

Enter “Setting” under “Configuration”:



【Time】: Set the current time

Note: Click  to save the time modification.

【Date Format】: To modify the date display format

【Daylight Saving Time (DST)】: Click “DST” to enable the function, and enter the local DST starting and ending time.

【Date Separator】: To select the separator for date

【Time Standard】: 24 hr or 12 hr display mode

【Language】: Language selection (vary by different model).

【Full HDD Solution】: When HDD is full, there are two options: “Overwrite” or “Stop recording”. If you select “Overwrite”, the DVR will overwrite the earliest recorded files and continue recording as all HDD in DVR are full. If you select the “Stop recording” option the DVR will stop recording when it reaches capacity.

【Video Length】: To set time length for each record, default is 60 minutes, the maximum is 120 minutes.

【No.】: Number more than one DVR, click “Ad” button on remote control and input a number to select the corresponding DVR to operate.

【Video Standard】 standard: PAL/NTSC (alter for different model) .

【Menu Standby Time】: This ranges from 0-60 minutes. This is the amount of time without a key press before the DVR will automatically logout of the current user.

5.7.2 CHANNEL MANAGEMENT

- **Standard**

The “**Base Config**” interface:



【Channel】: The channel selection

【Video Compression】: H.264

【Resolution】: Options are D1/CIF/QCIF; frame rate scope is different depending on channel and resolution. Extra stream of 1~16 channel is forced to QCIF while the main stream parameters are selectable.

【FPS】 PAL: 1fps-25fps; NTSC: 1fps-30fps

Note: Resolution and frame rate are vary depending on DVR model.

【Stream Control】: Constant Bit rate or Variable Bit rate. There are 6 levels of image quality in Variable Bit rate, 6 is the best but it is fixed in Constant Bit rate

【Audio/Video】: Enable or disable the recording of video and audio per channel.

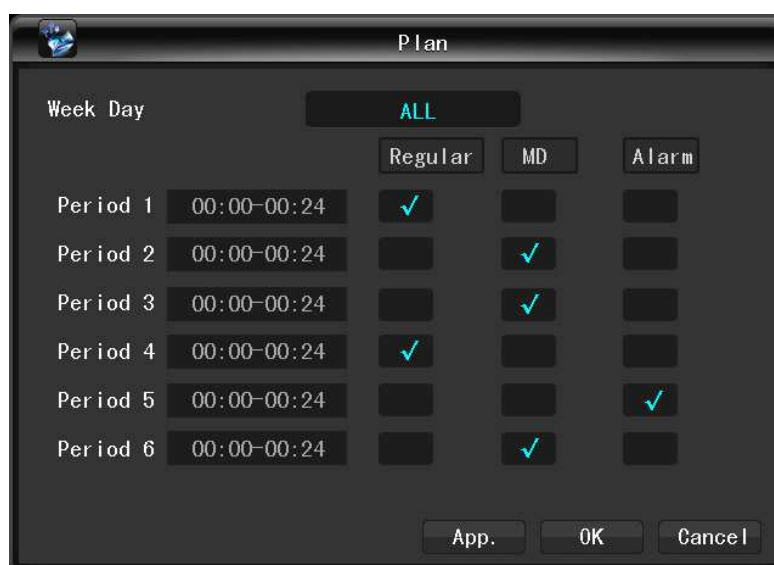
【More】:

- ✓ Modify 【Channel Name】 , 【Date Display】 , 【Channel Title】 , 【Time Title】 setting
- ✓ Modify 【View Tampering】 setting, tampering area is alterable.
- ✓ Modify 【Snapshot】 setting.
- ✓ Modify 【Prerecord】 setting, the maximum is 30 seconds.
- ✓ Turn on/off 【Redundancy】

【Copy】: Copy one channel's configuration to other

● Record plan

Record Config interface:



【Channel】: To select channel, Green, yellow and red refer to the normal, MD and alarm recording type. Modify it in 【Edit】 .

【Duplicate】: To copy one channel's configuration to other

Plan interface:

Week	Day	Time Range	Regular	MD	Alarm
Period 1	00:00-00:24	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Period 2	00:00-00:24	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Period 3	00:00-00:24	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Period 4	00:00-00:24	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Period 5	00:00-00:24	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Period 6	00:00-00:24	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

【Week】: To set time period, you can set 6 periods for each day

【Normal】: Continuous recording

【Motion Detection】: MD enables

【Alarm】: Alarm event recording

5.7.3 NETWORK SETTING

- **Standard**

Base interface:

Base	Advanced	State
Network Card Type	Wired Network	
DHCP	<input checked="" type="checkbox"/>	
IP Address	192.168.1.2	
Subnet Mask	192.168.1.2	
Gateway	192.168.1.2	
First DNS Server	192.168.1.2	
Alternate DNS Server	192.168.1.2	
Physical Address	192.168.1.2	

【DHCP】: Enable the DVR to obtain an IP address automatically. If this is enabled, the DVR will reboot and search for a DHCP server, and then assign a dynamic IP address. The dynamic IP address will be displayed in the menu. Enter a static IP address if there is no DHCP service available. If you are using the advanced feature PPPoE, then the IP/mask/gateway and DHCP are unable to be changed.

【IP Address】: Use (▲▼) or input numbers to modify IP, then set [subnet mask] and [default gateway] for this IP.

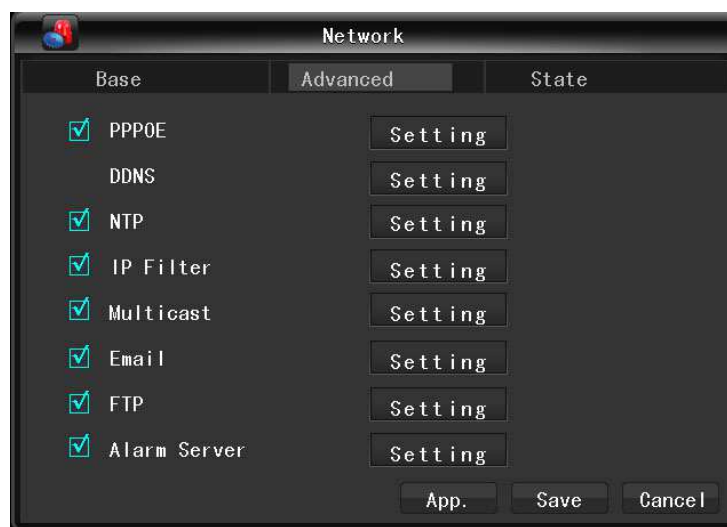
【Preferred DNS】: DNS server IP

【Reserve DNS】: DNS alternate IP

【Physical Address】: Physical address of current net port

- **Advanced**

Advance interface:



【PPPOE】 Enable PPPOE

- ✓ Input PPPoE username and password provided by ISP.
- ✓ Operation: Using this feature, the DVR will automatically obtain a public IP address from your ISP. You can then visit the web interface of the DVR by typing this IP into Internet Explorer.

【DDNS】 Enable the DVR to update a DDNS hostname

- ✓ Select DDNS type (supports various DDNS currently, include CN99 DDNS, NO-IP DDNS, Private DDNS and DynDNS Pro DDNS, with many other compatible) and enable the function; Input the update server IP, port, DNS, username and password. Once setup, you can then login via the web client by using this DNS in Internet Explorer.
- ✓ Private DDNS is available for use with a specific DDNS server and client software.

【NTP】 ON/OFF NTP. Network Time Protocol – allows the DVR to sync with a time server automatically.

- ✓ Host IP: input IP of NTP server
- ✓ Port: this SNTP support TCP only, the default port is 123.
- ✓ Update cycle: time interval between 1 min and 65535 min.
- ✓ Time zone: London: GMT+0, Berlin: GMT +1, Cairo: GMT +2, Moscow: GMT +3, New Delhi: GMT +5, Bangkok: GMT +7, Hong Kong/Peking: GMT +8, Tokyo: GMT +9, Sydney: GMT +10, Hawaii standard time(HST): GMT-10, Alaska standard time(AKST): GMT-9, Pacific standard time (PST): GMT-8, Mountain standard time(MST): GMT-7, Central standard time(CST): GMT-6, Eastern

standard time(EST): GMT-5, Atlantic standard time(AST): GMT-4, Brazil: GMT-3, middle Atlantic: GMT-2.

【IP Authority】 DVR authority management, if you enable the white list, only the DVR in IP list is allowed to connect. This system supports a max of 64 IP addresses.

【Multicast, Port】

【Network Through Capacity】

【On-line User】 Range: 0-10, 0 indicates that no connections are allowed.

【Network Transmission QoS】 Fluency, resolution or automatic adjustment. The automatic setting adjusts these settings based on available network resources.

【Speedy online download】 If enabled, this allows higher priority for downloading a playback clip against viewing live cameras, at the same time.



【Port】:

【HTTP】 default: 80

【TCP】 default: 37777, variable

【UDP】 default: 37778, variable

【Multicast】: Tick 'Multicast' and set a group in 'Set'

【Email】: Set SMTP server IP, port, username, password and sending interval.

- ✓ The email subject is alphanumeric; the limitation is a maximum of 32 characters. Emails can be sent to up to 3 receivers. SSL is supported also.
- ✓ The email sending interval is between 0-3600 seconds. This interval is a threshold to prevent an abusive amount of emails from being sent.

【FTP】: Tick "FTP" and click "Set"

- ✓ Set FTP server IP address, port and destination folder. System will create folders by IP, time and channel if there is no remote folder specified.
- ✓ FTP username and password
- ✓ Set a maximum file size, channel, time, type and etc.
- ✓ Set FTP file length. Upload the whole record if the file length is smaller than setting; leave out the exceed part if the file length is exceed the setting; 0 refers to uploading the entire record in any condition.
- ✓ Set up to two time periods and choose from 3 different record types for channels.

【Alarm Center】 Reserved interface

- **Network status**
Display the current network and IP.

5.7.4 ALARM CONFIGURATION

- **Local alarm**
Local Alarm interface:

Alarm

Local Alarm Net Alarm Detect

Alarm Input Channel No. 1

Enable ☐

Type Normal Open

Alarm Set Process Mode

Copy Save Cancel

- 【Alarm Input Channel No.】: Select the alarm input channel
- 【Enable】: The specified alarm in /out
- 【Type】: Select the alarm circuit type.
- 【Copy】: Copy the configuration to another channel
- 【Process Mode】: Enter alarm linkage interface:

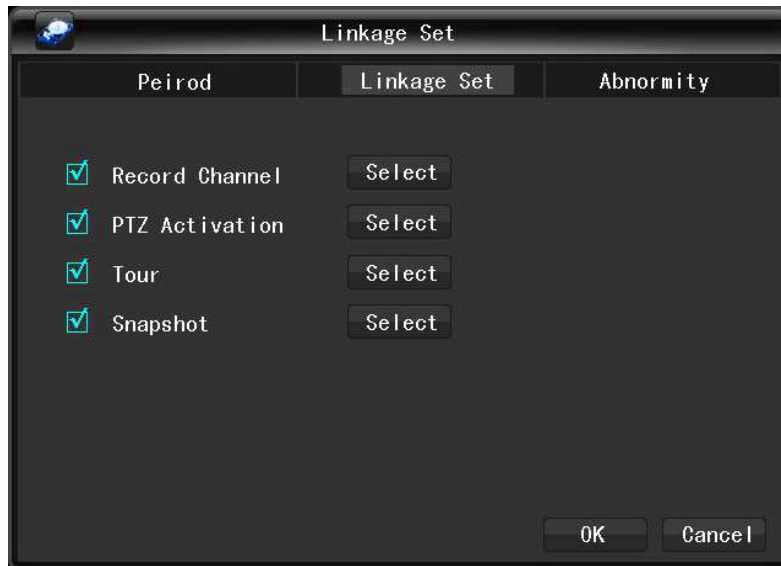
Set

Period Linkage Set Abnormity

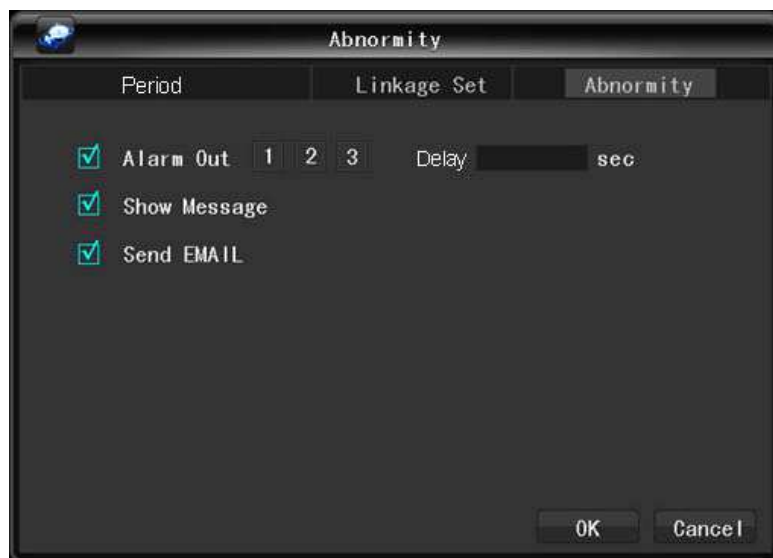
	00	03	06	09	12	15	18	21	24
Sun									
Mon									
Tue									
Wed									
Thu									
Fri									
Sat									

Plan OK

- 【Period】: Sets the alarm active period



【Linkage】: ON/OFF 【Record Channel】 , 【PTZ】 , 【Tour】 , 【Snapshot】 linkage and select channel.



【Abnormity】: Enable or disable 【Alarm Out】 , 【Show Message】 , 【Send Email】

5.7.5 USER MANAGEMENT

Note:

- ✓ Group and user names can be from 1-6 characters in length. Valid characters include letter, numbers, and symbols. You may not use a space as a leading or ending character.
- ✓ There is no limit to the number of groups or users. By default there are two different group levels: admin and user.
- ✓ User management determined upon two levels: the group and the user level. Group and user names can not be duplicated, and each user can only belong to one group.

Use Management interface:



【Add uses】: Add group member information and set authorities.

- ✓ Default users are: “admin”, “user” and hidden “default”, the password of first two username is 123456. “Admin” has advanced authorities; “user” only has surveillance and playback authority.
- ✓ Hidden default: operate in password-less login mode.
- ✓ Enter **【Add uses】**; Input username, password and select group and reusable options. Reusable allows the account to be used by multiple logins.
- ✓ Users can only belong to one group. User rights cannot exceed group rights.

【Modify users】: Modify existing group member information and authority.

【Add group】: Add group and set group authorities

- ✓ Set a group and authorize 60 items including control panel, shut down, live view、playback, record, record backup, PTZ control, account, system information, alarm in /out setting, system configuration, search log, log delete, upgrade, operation authority, etc.

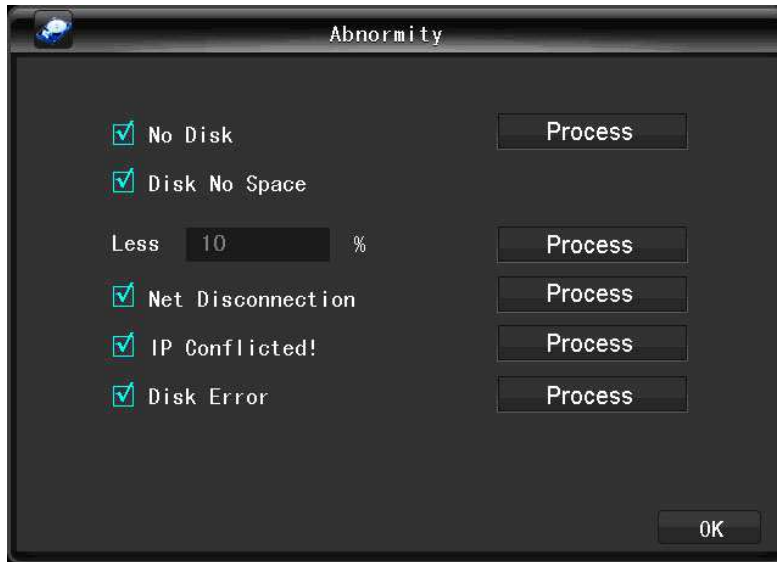
【Modify group】: Modify existing group information.

【Password modification】: Change password

- ✓ Select a user name, and input the previous password and new password twice.
- ✓ Click **【Save】** to confirm
- ✓ Password can be in 1-6 numbers, letters or symbol; blank in beginning and end is invalid.
- ✓ The account with management authority could change others’ password.

5.7.6 EXCEPTIONS SETUP

Abnormity interface:



【No Disk】 Alarm when the hard disk is not present or can not be detected. 【Process Mode】 includes: 【Alarm Output】 , 【Display On Screen】 and 【Send Email】 .

【Disk No Space】 Alarm when hard disk capacity is lower than setting. 【Process Mode】 is same as 【No Disk】's 【Process Mode】

【Network Failure】 Alarm when network is not connected.【Process Mode】includes【Alarm Output】, 【Display On Screen】 and 【Send Email】 and recording linkage.

【IP Conflict】 Alarm when IP address conflict. 【Process Mode】 is same as 【No Disk】's 【Process Mode】

【Disk Error】 Alarm when there is error in reading and writing hard disk. 【Process Mode】 is same as 【No Disk】's 【Process Mode】

5.8 STORAGE

5.8.1 HDD MANAGEMENT

Maintain and manage local HDD

- **Standard**



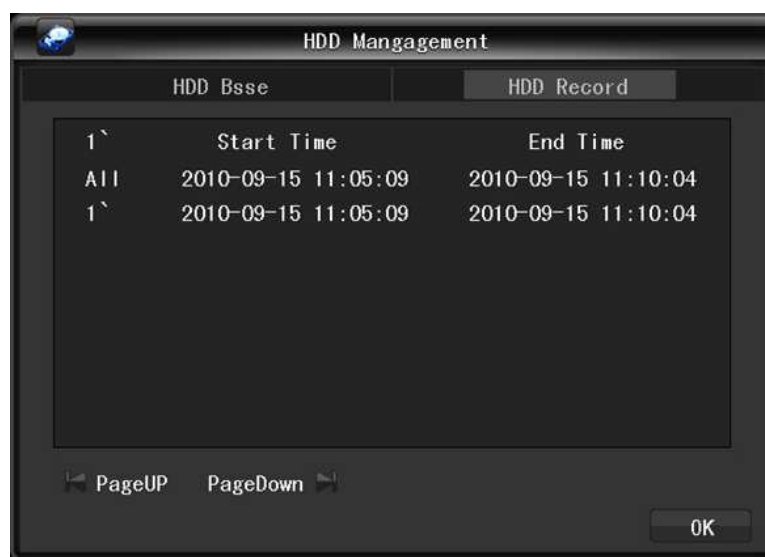
“**Base Config**” shows DVR storage capacity, available space and working status.

【**Format**】 : It is possible to format an individual HDD.

Note: Hard disk format operation result in the loss of video data

【**Set**】 : To set HDD as read-write, read only or redundancy mode. In read only mode, video data cannot be covered.

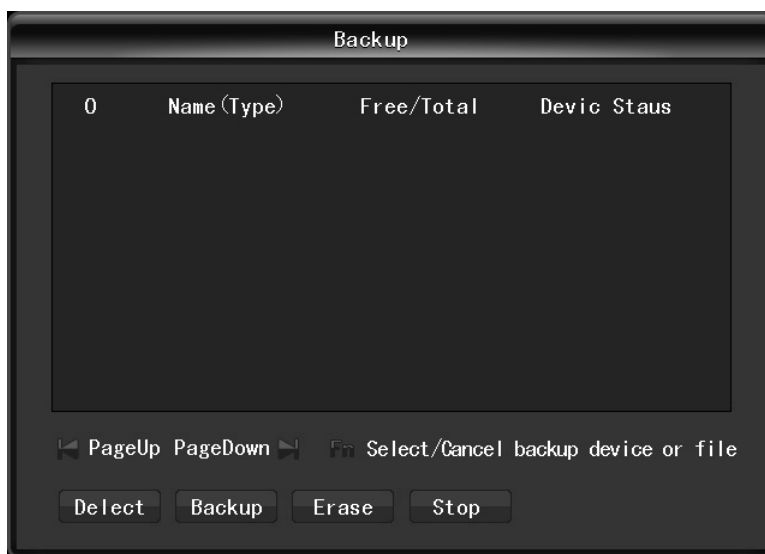
- **Record**



“Record” shows the video start and end time.

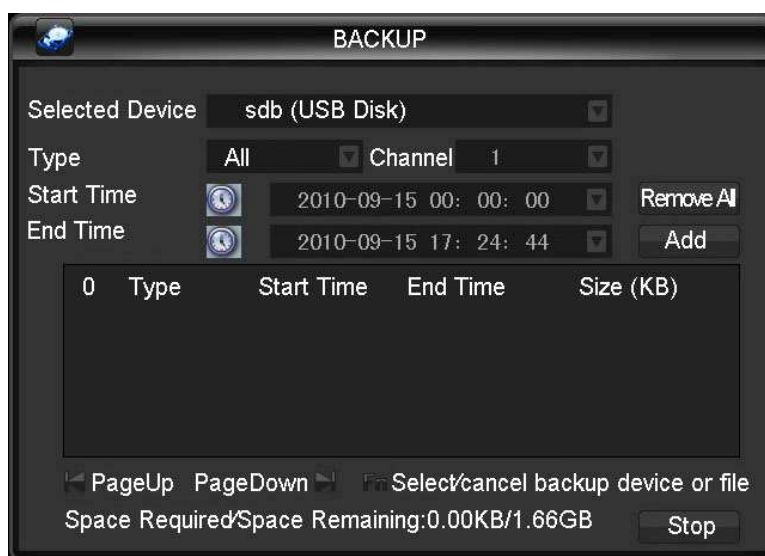
5.8.2 RECORD BACKUP

Connect an External USB device with the USB port to backup in the “Record Backup” menu.



【Detect】 : Identify external USB device and display the device information

【Backup】 : Tick the external device and click 【Backup】 to enter the backup menu.



- **Backup operation**

Select the record start and end time and click 【Add】 to add in list; duplicate it by inputting the start and end time again; click 【Delete】 to clear the files list. Tick the record you want and click 【Start】 to backup and display time remaining.

【Delete】 Delete all data in USB backup device

Note: This operation probably cause permanent data loss

5.9 UTILITIES

5.9.1 PTZ CONFIGURATION

Set PTZ channel, protocol, address, baud rate, etc.

Firstly, set the dome address and ensure the A, B lines of dome and DVR are connected correctly. The configuration interface:



Label	Value
Channel	1
Protocol	NONE
Address	1
Baudrate	9600
Data Bits	8
Stop Bits	1
Parity	NONE

【Channel】 : Select the channel for PTZ camera

【Protocol】 : Select associated dome protocol (e.g. PELCOD)

【Address】 : Select associated dome address, default: 1 (Note: this address has to correspond with dome address, or the dome will not control.)

【Baud Rate】 : Select the dome baud rate and control, default is 9600. Note: the baud rate has to correspond with the dome address, or the dome will not control).

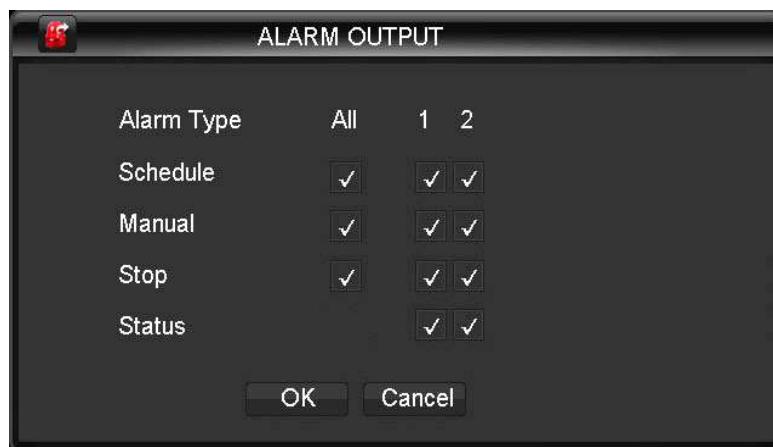
【Data Bits】 Default: 8

【Stop Bits】 Default: 1

【Parity】 Default: None

5.9.2 ALARM OUTPUT

This menu manages alarm output parameters and displays the current state of alarms.



【Channel】 Alarm port

【Auto】 Alarm output is determined by the alarm output menu, while in auto mode.

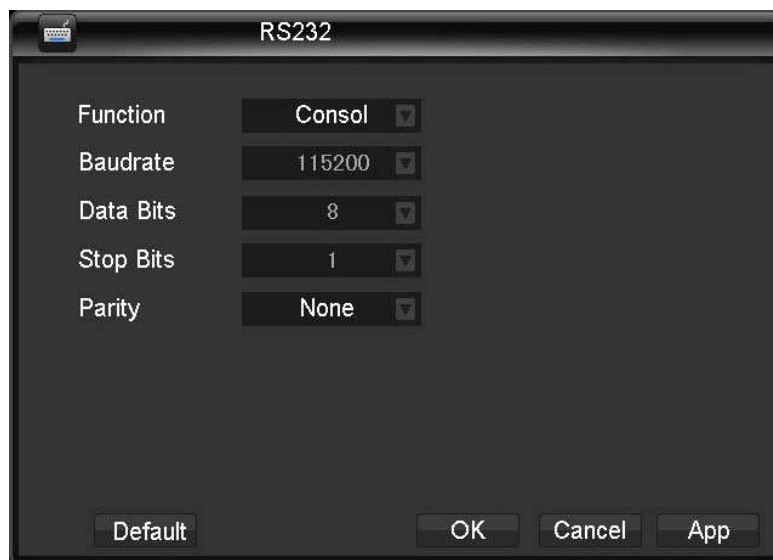
【Manual】 Alarm output is on and the status is active.

【Close】 Alarm output is off and the status is inactive.

【Status】 Current status of alarm output

5.9.3 PORT CONFIGURATION

Port Config interface:



【Port Function】 Adjust protocol

- ✓ General port: upgrade and debug by port and software;
- ✓ Keyboard: keyboard connected by port;
- ✓ Bypassed port: connect with PC to bypass parameters;

- ✓ Net keyboard: keyboard connected by net port;
- ✓ PTZ matrix: control PTZ matrix

Note: Certain models are without an RS-232 port, please see [7.4 Specifications](#).

【Baud Rate】 Set baud rate.

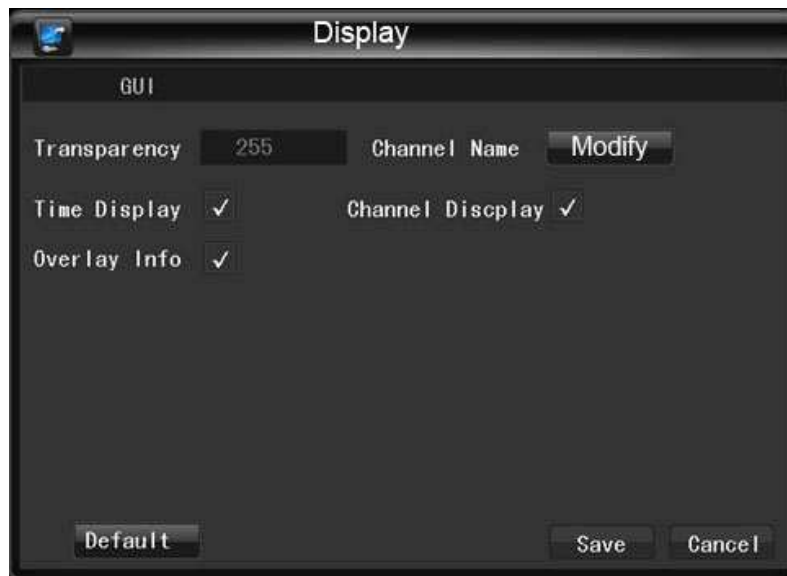
【Data Bit】 Default: 8

【Stop Bit】 Default: 1

【Confirm】 Default is no

5.9.4 OUTPUT

- Menu configuration



【Opacity】 : Maximum: 255 (opacity) , minimum: 128.

【Channel Name】 : To modify channel name, available options are symbols, letters, and numbers.

【Time Display】 : To choose whether time displays on screen

【Channel Display】 : To choose whether channel name displays on screen

【Overlying】 : To choose whether overlaying information displays on screen

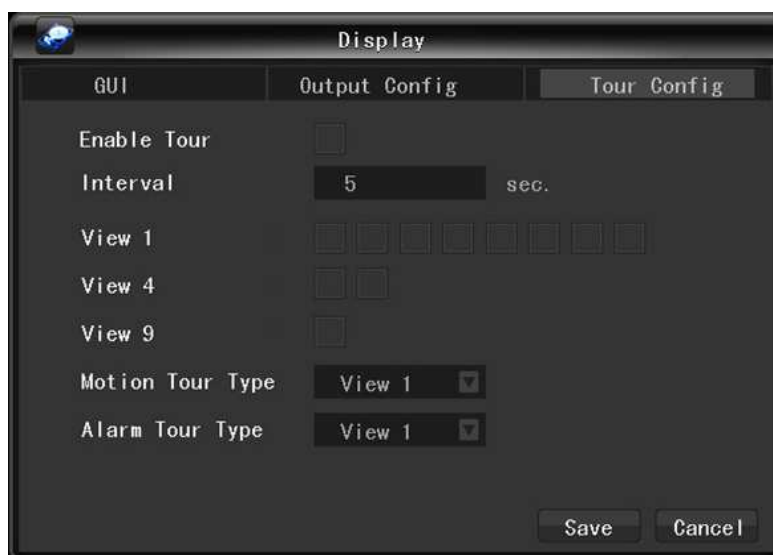
- **Output configuration**



【VGA Output】 : To select VGA resolution and refresh rate, default is 1024×768@60Hz.

【TV Adjust】 : To adjust TV output area. Modify the image to the right size for monitor.

- **Tour configuration**







Setting tour mode and interval between rotation , the time is within 5-120s, the mode include single screen, four-, eight-, nine-, sixteen-screen.

【Motion Tour Type】 : To set the motion detection tour mode

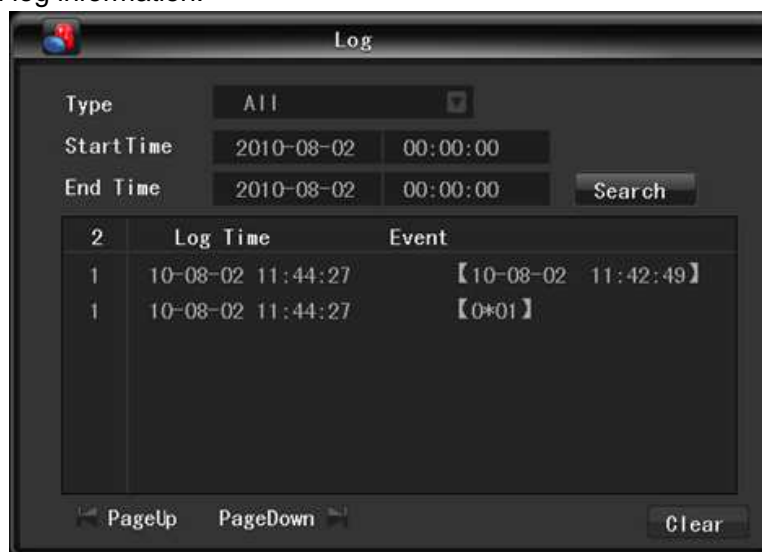
【Alarm Tour Type】 : To set the alarm tour mode

Note:

Shortcut: Switch / by clicking the upper right button or pressing “Shift” key. (: enable tour : disable tour)

5.10 MAINTENANCE

【Log】 Display system log information.



Log type: System operation; configuration; data management; alarm event; recording; user management; log delete; document operation. Select the type and time to filter the log list. Backup logs by clicking "backup" or clicking "delete" to delete all logs.

【Version】 : Shows features, software version and other information

Software upgrade: connect a USB flash device which contains the upgrade firmware and click "Upgrade".

Note: Improper upgrades may cause the startup failure. Please operate under professional direction.

【Default】 : Restore (items are selectable)



Note: Menu transparency, language, time format, video format, IP, user ID, etc are not restored.

【BPS】 shows data rate of each channel by wave form.

Note: This is estimated value, for reference only.

【Auto Maintain】 Set auto maintenance items.

【On-line Users】 Check the current online users status.

5.11 SHUTDOWN



【Menu Logout】 Log out of the current user account


【Shutdown】 Shutdown the DVR

【Restart System】 Reboot the DVR

6 ON-LINE OPERATION

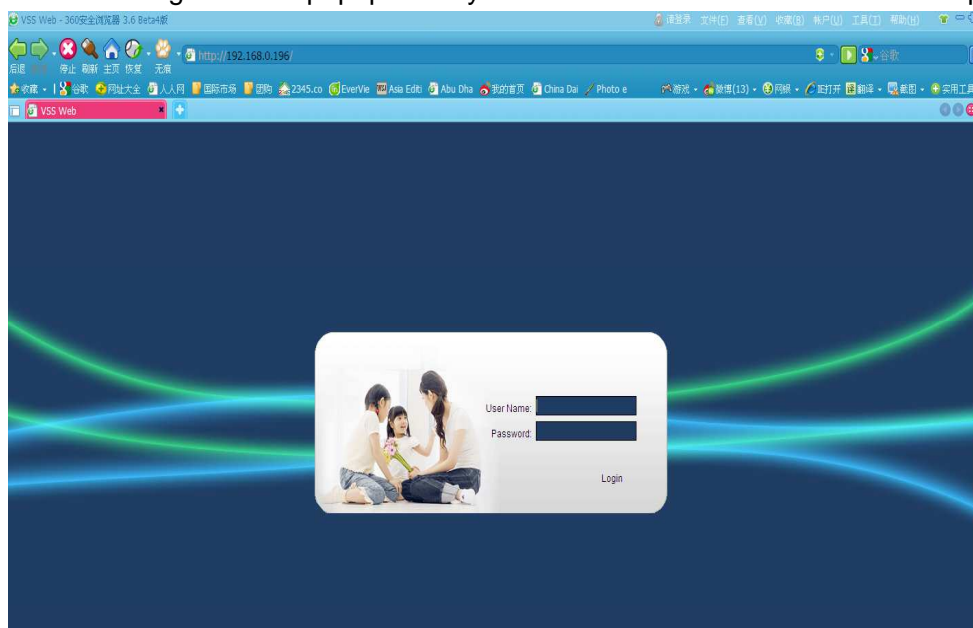
6.1 WEB OPERATION GUIDE

6.1.1 NETWORK CONNECTION

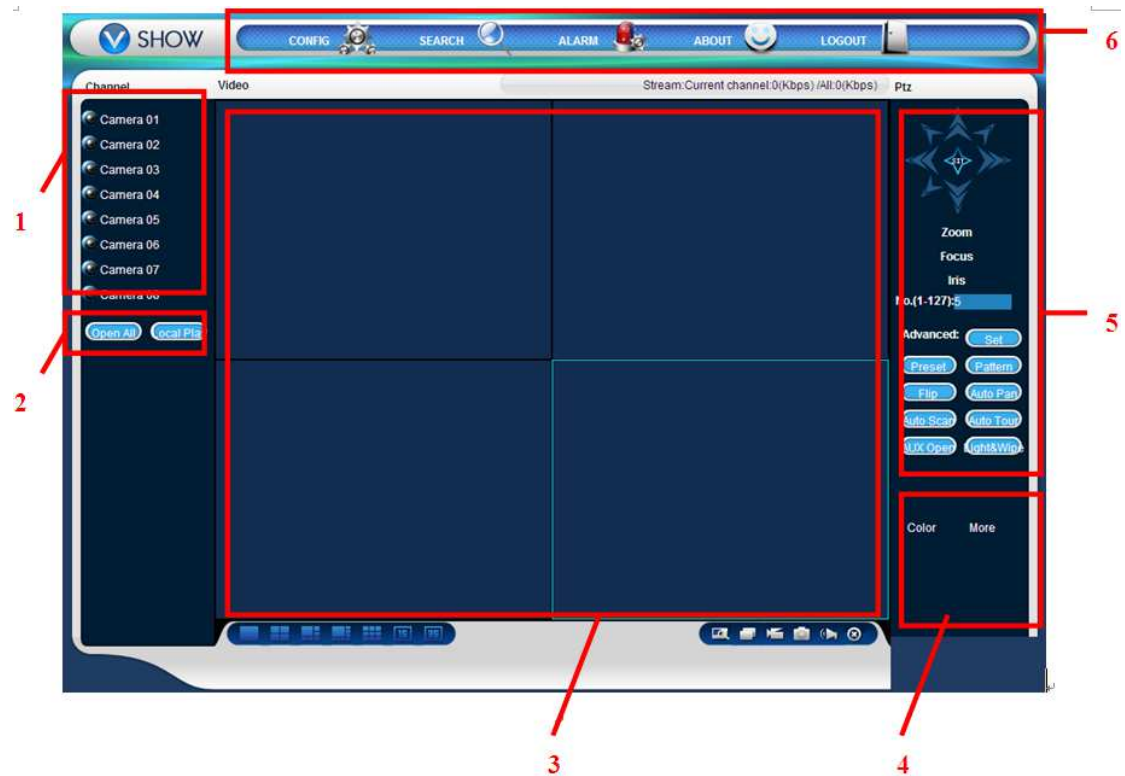
- Check network connection by LCD on front panel, “” refers connection error.
- Set IP, subnet mask and gateway for computer and DVR. The detail of DVR network configuration please see **【Settings】** → **【Network Setting】**
- Ensure the IP is correct and check whether the DVR is on the network by using the Windows command “ping”.

6.1.2 CONTROL SETUP & LOG IN / LOG OFF

- You are able to access the DVR by Internet Explorer, assuming you have a correct network configuration.
- You will see the following interface popup when you access the IP address in Internet Explorer.





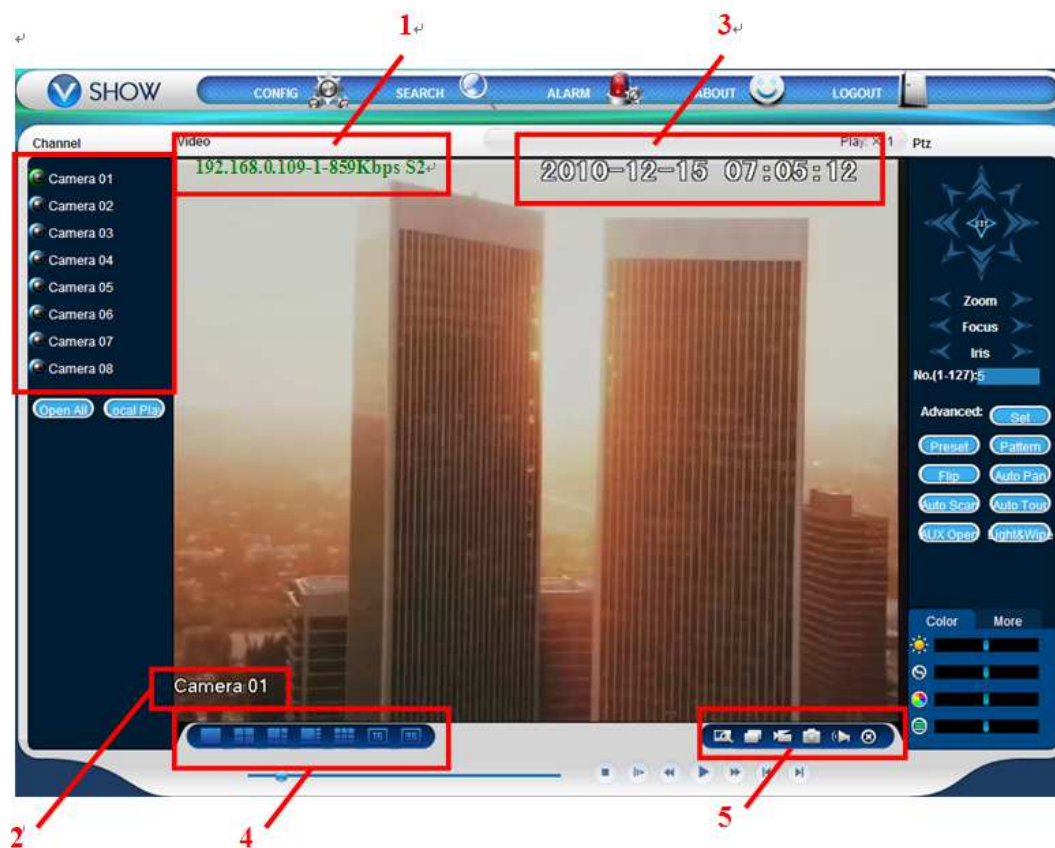
- Install ActiveX. If installation is blocked by Windows, please add the IP as a trusted site or lower your Internet Explorer security settings to allow this.
- The following interface will popup when you input your username, password and click “Login”.
- Click “Exit” to quit.



Index	Name	Description
1	Channel	Channel selection
2	Function key	Local playback: playback local record Open all: play live views in surveillance window
3	Surveillance window	Change window layout
4	Image color & other	Image color: modify brightness, contrast and saturation Other: set capture path, record download path and reboot
5	PTZ control	PTZ control menu
6	Menu	System config, record search, alarm setting, exit, etc.

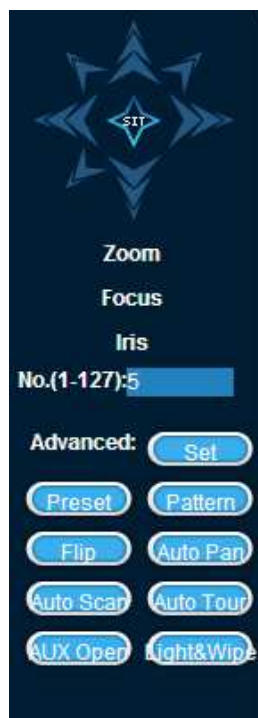
6.1.3 LIVE VIEW

- Select a live view channel in surveillance window
- Top left (1 area in next diagram) shows DVR IP address and stream.
- Left bottom (2 area in next diagram) shows the channel name.
- Top right (3 area in next diagram) shows the date and time.
- Click “” (4 area in next diagram) to switch between single screen and multi-screen.
- “” (5 area in next diagram) refers to multi-screen switch, local record, capture and mute/cancel mute audio.
 - ✓ Multi-screen switch: switch from single screen to multi-screen and vice versa.
 - ✓ Local record: save and record video to a local HDD while in a live view. Set recording path in configuration.
 - ✓ Capture: capture of the present channel, set the path in “other”.
 - ✓ Sound: on/off sound.



6.1.4 PTZ CONTROL

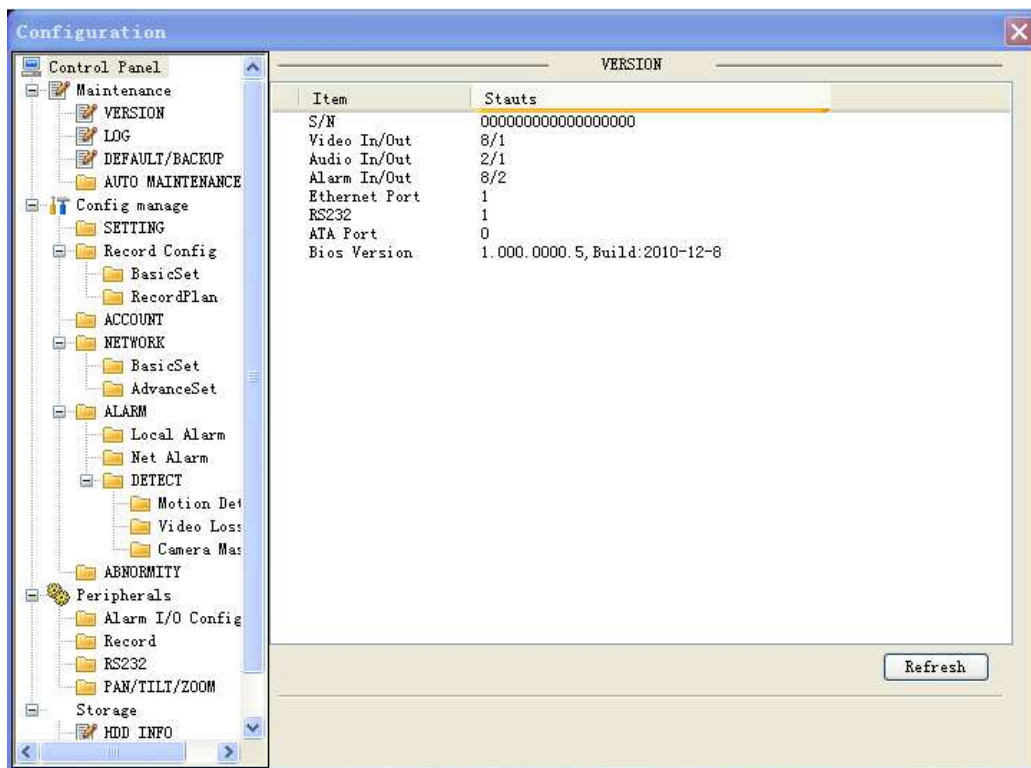
- Set protocol (see 【Setting】 → 【PTZ Config】)
- Control PTZ direction, step size, zoom, IRIS, preset, tour, pattern, border scan, light, wiper, auto pan, etc.
- Step size controls PTZ speed, e.g. step size 8 is moved faster than step size 1.
- Eight direction rotations: up, down, right, left, upleft, upright, lower left, lower right.



- Border scan:
Operation: move camera to the left/right boundary by direction key. Click border again to confirm the setting..
- Preset:
Operation: modify preset position by direction key and inputting a preset number, then click “Add” to save.
- Tour:
Operation: select “Tour”; and input numbers in “Path” and “preset”. Click 【Add Preset】 to add one preset in the cruise path, and repeat to add additional presets. Click 【Clear Preset】 to delete a preset, repeat to delete more.
- Pattern:
Operation: Click “Pattern” in order to record a automated pattern. Then, go back to the PTZ controls in order to modify the zoom, focus and IRIS, etc. Stop recording in “Pattern” setting to save the pattern..
- AUX: on/off one of AUX
- Wiper: on/off wiper under protocol

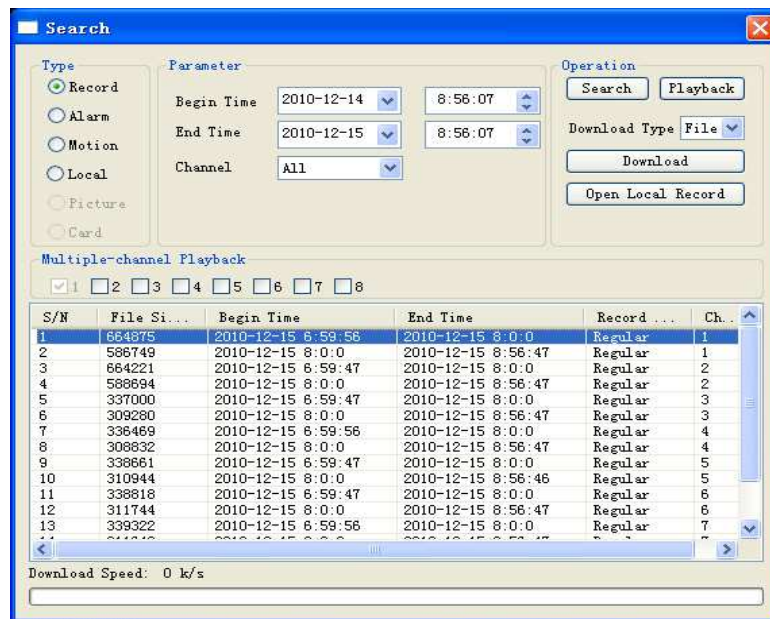
6.1.5 SYSTEM SETTING

Call up the DVR local configuration menu by click “System Setting”, the further details please refer 【Local operation guide】 .



6.1.6 SEARCH RECORD

Click “Search record” to open the search interface.



- Search record: parameters (start and end time, channel number). Then, click ‘Search’ in order to display the results..
- Play: double click a search result to play in video window. Control the the playing video by the control keys on the bottom.



- Download: select a searched video to download to local. The download speed and percentage are displayed on the bottom of the screen.

7 APPENDIX

7.1 HDD CAPACITY CALCULATION

- **HDD capacity**

There is no capacity limitation for each HDD, please select HDD according to your actual recording requirement.

- **Formulas**

Formula for total HDD capacity:

$$\text{Total HDD Capacity (MB)} = \text{Channel Number} \times \text{Time (Hour)} \times \text{HDD Occupation Per Hour (MB/hr)}$$

Formula for record period:

$$\text{Record Period (Hour)} = \frac{\text{Total HDD Capacity (MB)}}{\text{HDD Occupation Per Hour (MB/hr)} \times \text{Channel Number}}$$

Simulation for file size (CBR)

Stream (top limit)	File	Stream (top limit)	File	Stream (top limit)	File
96k	42M	320k	140M	896k	393M
128k	56M	384k	168M	1.00M	450M
160k	70M	448k	196M	1.25M	562M
192k	84M	512k	225M	1.50M	675M
224k	98M	640k	281M	1.75M	787M
256k	112M	768k	337M	2.00M	900M

The file size is different in VBR mode; the above data is only for reference.

7.2 REMOTE CONTROL OPERATION

7.3 MOUSE CONTROL

Connect a mouse and DVR by the USB ports.

- **Left Click**

- ✓ Pops up the login box if you are not logged in. If you are logged in, a left click brings up the main menu.
- ✓ Click an icon to entry it's submenu
- ✓ Execute an operation
- ✓ Select a check box, modify MD state
- ✓ Pop up drop-down list
- ✓ Select input method and input test. ← refers backspace, _ refers blank

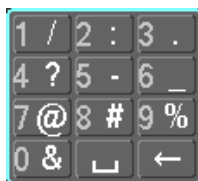
English input:



Number input:



Symbol input:



- **Double left-click mouse**
 - ✓ Select and play a record.
 - ✓ In live view, switch channel to a full screen.
 - ✓ Return back to a previous multi-view by double clicking again.
- **Right Click mouse**
 - ✓ Pop up the context menu in live view mode
 - ✓ Return to the previous menu / cancel the operation.
- **Scroll wheel**
 - ✓ Change numeric fields up/down
 - ✓ Select options from a pull down menu.
 - ✓ Scroll page up/down in a list box
- **Left click and Drag mouse**
 - ✓ Left click and drag to select a motion detection area.
 - ✓ Left click and drag to select a masked area

7.4 TROUBLESHOOTING

- **DVR startup failure or continuously reboot**

Possible reasons:

1. The system has been damaged from a bad DVR update.
2. There is a problem with the DVR main board error, please contact the supplier.
3. There is an HDD error. Replace the faulty HDD.

- **Remote control does not work**

Possible reasons:

1. Check for batteries in the remote control

2. The batteries are dead.
3. The IR receiver / transmitter is not aligned.
4. The DVR address does not correspond to the remote control address. Please check your settings in the "General" menu, and press the RC key to pair the device.

- **DVR cannot control PTZ**

Possible reasons:

1. RS-485 cable connection error, A, B ports are inversely connected. A is RS-485+, B is RS-485 -
2. PTZ decoder, protocol, baud rate, address are incorrect.
3. Parallel connect a 120Ω resistance to resolve signal reflex issues caused by too many PTZs on the line.
4. The RS-485 port on DVR is defective

- **Blurred screen in preview mode**

Possible reasons:

Please make sure your cameras match your video format selected in the General menu. E.g. camera is NTSC standard but the DVR is a PAL standard, the preview would be blurred.

- **Blurred screen in playback mode or failure to playback records**

Possible reasons:

1. Procedure error, reboot the DVR
2. HDD error, test or change out the HDD
3. DVR hardware failure, contact your local supplier

- **Client software cannot view DVR live image**

Possible reasons:

1. Network settings are incorrect
2. IP conflict

- **Download recording can not be played**

Possible reasons:

1. No video player is installed. Please download the latest video player online.
2. The USB or HDD device itself has an error
3. Do not install graphic software later than DX8.1