

EVOLVE®

Detective



INSTRUCTION MANUAL (en)

Welcome

This manual is designed to be a reference tool for the installation and operation of your system; you can find information about the DVR features and functions, as well as, a detailed explanation of the menu trees.

Before installation and operation please read the following safeguards and warnings carefully!

Important Safeguards and Warnings

Do not place heavy objects on the DVR.

Do not let any liquids spill onto or into the DVR.

Please ensure fans and vent openings are not blocked and that the unit is placed in an area with adequate air circulation.

Do not try to disassemble or replace components other than the installation of the hard disk drive.

Environment

Please place and use the DVR in an area that can maintain a temperature range of 0°C to 40°C (32°F to 104°F).

Avoid placing the DVR in direct sunlight and keep away from any heat source.

Do not install the DVR in a damp environment.

Do not use the DVR in a smoky or dusty environment.

Please ensure that the DVR is placed on a level and stable workplace.

Please install it in a well ventilated area and please keep all vents clean and clear.

Use only the AC adapter included with your DVR and within the voltage ratings noted on the adapter.

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1 Production Introduction

1.1 Product overview

This series DVR is designed especially for security purposes which makes it an outstanding digital surveillance product. It introduces an embedded LINUX operating system which is more stable. It introduces the standard H.264mp video compressed format and G.711A audio compressed format which ensures the highest quality image, low error coding ratio, and single frame playing. It utilizes TCP/IP network technology which achieves the strongest network communication and telecommunication ability.

This DVR can be used individually or online as part of your safety surveillance network and with the included professional network video surveillance software, it can help you to maintain a strong communication and telecommunication network.

1.2 Main functions

Real-time surveillance

Analog interface and VGA interface (VGA interface is equipped selectively)

Surveillance function through monitor or display

Data Storage

User selected motion activated hard drive “sleep” and “wake” functions to extend storage capacity and extend life-span.

Special storage format which insures data safety.

Compression

Real-time compression by individual hard drive which insures the audio and video signal synchronization and stability.

Backup

Through SATA and USB interface and also through Internet download.

Playback

Individual real-time video recording, as well as, search, playback, network surveillance, recording check, and downloading.

Multi-playback mode.

Internet operating

Internet surveillance in the real time

PTZ control

Recording check and real-time playback

Communication interface

RS485 interface for PTZ control

Standard Ethernet network interface with RJ45 jack

intelligent operations

USB Mouse and backup/copy/paste functions

2 Open-package check and cable connections

2.1 DVR package contents

Please verify that there is not visible damage to the DVR and then verify the following:

- 4 channel H.264 DVR
- AC Power Supply
- Remote Control (requires 2 AAA batteries – **not included**)
- USB Optical Mouse
- (4) Screws to Mount HDD
- Installation CD
- User Manual
- Quick Guide

2.2 Hard disk installation

Install SATA hard disk drives before completing the initial software setup. (The below images are just used to show how to install hard disk. The DVR in the photos is not the DVR in the package.)



1. Remove case screws



2. Remove cover.



3. Install SATA hard drive



4. Connect SATA data cables



5. Install SATA power cables

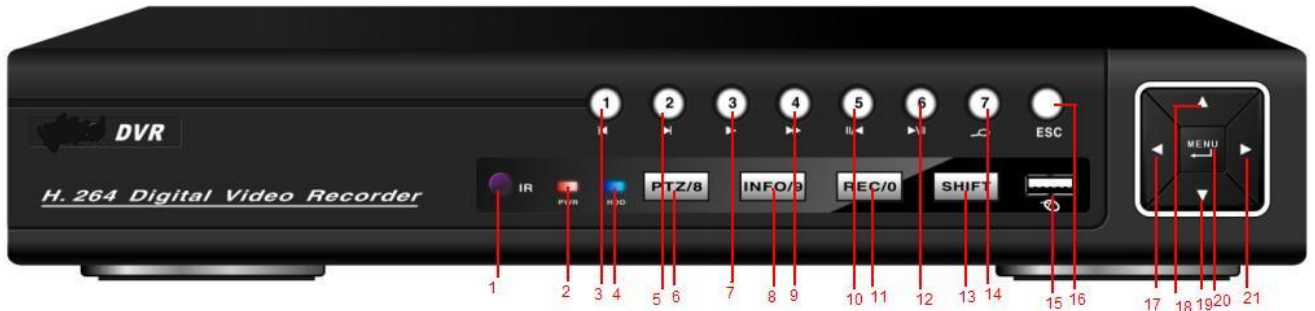


6. Replace cover



7. Replace screws

2.3 Front panel



- | | | | | |
|------------------------|---------------------------|---------------------|-------------------------|------------|
| (1) IR remote receiver | (2) Power indicator light | (3) Previous file/1 | (4) HDD indicator light | |
| (5) Next file /2 | (6) PTZ /8 | (7) Slow play /3 | (8) HDD Info/9 | |
| (9) Fast play/4 | (10) Backward pause/5 | (11) Record /0 | (12) Play Pause /6 | |
| (13) Function switch | (14) Search video/7 | (15) USB | (16) ESC | |
| (17)Left | (18) Up | (19)Down | (20) Menu/Enter | (21) Right |

2.4 Rear panel



- (1) Video input (2) BNC output (3) audio input (4) audio output (5) USB/Mouse*
 (6) Network (7) Power Switch (8) RS485 (9) Power supply (10) VGA output

NOTE if the rear USB mouse port is used then the front USB port becomes non-functional.

2.5 Port Connection Overview



Picture 2.1 Connection Diagram

2.6 Audio and video input and output connections

2.6.1 Video input connections

The video input ports utilize a BNC connector plug with an input signal of NTSC BNC (1.0V_{P-P}, 75Ω).

The video lines should be firmly connected to avoid signal interference and possible oxidation at the connection.

2.6.2 Video output connections and options

The video output is divided into NTSC BNC (1.0V_{P-P}, 75Ω) and VGA (selective configuration).

Please note the following regarding the display used for monitoring:

1. Do not leave the display on for long periods of time.
2. Stay away from any electromagnetic interference.

2.6.3 Audio signal input

Audio port is a BNC connector.

The audio signal line should be firmly connected to avoid signal interference and possible oxidation at the connection.

2.6.4 Audio signal output

Normally the output parameter of DVR audio signal is greater than 200mv 1KΩ (BNC) which can be connected to low impedance earphones, speakers, or other audio output equipments through a power amplifier. If the speakers and microphone cannot be isolated, feedback often occurs. The following are some suggestions to help correct this issue:

1. Use a higher quality microphone.
2. Adjust the speaker volume to be under the threshold that produces the feedback.
3. Use materials that will absorb the sound and reduce reflection of the sound.
4. Adjust the layout of the speaker and microphone.

2.7. PTZ connections

1. PTZ decoder connections

1. The grounding of a PTZ decoder and DVR must be shared otherwise the common-mode voltage

could result in PTZ control failure - shielded twisted pair cable is recommended.

2. Avoid high voltage connections and use surge protectors.
3. When connecting use 120Ω resistance, paralleled, to ensure the signal quality.
4. The 485 AB lines of DVR cannot be connected with other 485 output equipment that is paralleled.
5. The voltage between the AB lines of the decoder must be less than 5V.

2. Front equipment grounding note

Incorrect grounding can result in damage to the unit.

3. PTZ input type unlimited



Parameter	meaning
485T+/A,485T-/B	485communication interface which is connected with the recording control equipments such as the decoder

2.8 Speed dome connections

1. Connect the 485 lines of the speed dome with the DVR 485 interface.



2. Connect the video line to the DVR video input.
3. Power on the speed dome.

3 Basic operation

Note: Any buttons that are displayed in gray indicates it is not supported.

3.1 Preview



Picture3.1 16 Channel Preview

You can right click your mouse to switch between the windows.

The system date, time, channel name, surveillance video, and the alarm status are shown in each window.





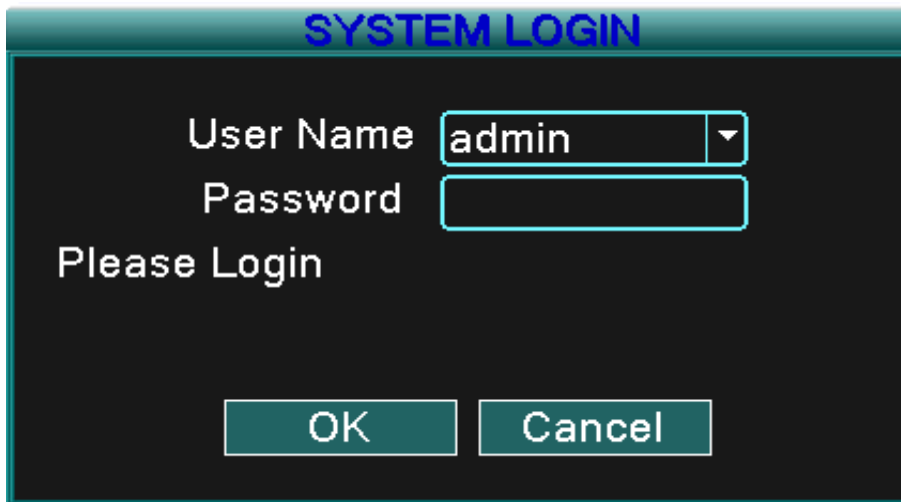
1		Recording status	3		Audio
2		Motion detect	4		Video loss

Table 3.1 Preview icon

3.2 System Login

When the DVR boots up, the user must login and then the system will provide the corresponding functions with that particular user's authority level. There are three user settings: **admin**, **guest** and **default** and these settings initially have no password assigned. **Admin** is the administrator level while **guest** and **default**'s permissions are "preview" and "video playback" only. User **admin** and **guest**'s password can be revised, while their permissions cannot be revised; user **default** is the default login user whose permission can be revised but not its password.



Picture 3.2 System Login

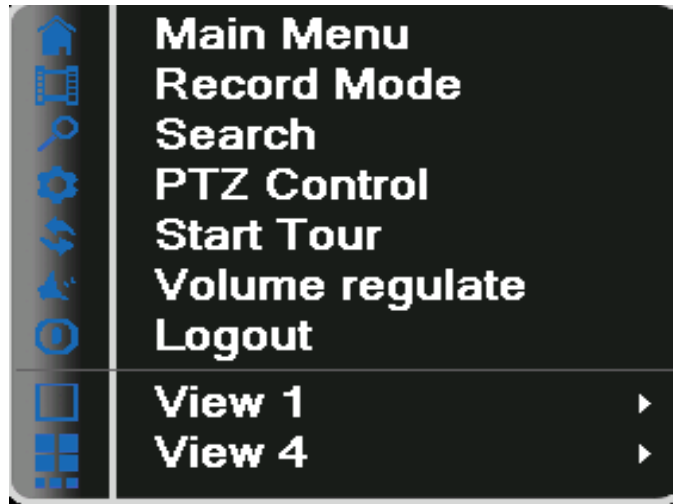
Password protection: If the password is entered incorrectly three times, the alarm will start. If the password is entered incorrectly five times, the account will be locked.

(After 30 minutes or if the unit is rebooted, the account will be unlocked and you can try to enter the password again).

For your system security, please modify your password after first login.

3.3 Desktop shortcut menu

In preview mode you can right click your mouse to get a desktop shortcut menu. The menu includes: main menu, record mode, Search, PTZ control, Start Tour, Volume regulate, Logout, view is for 1/4/8/9/16 channel screens.



Picture 3.3 Shortcut Menu

3.3.1 Main menu

When you login, the system main menu is shown as below.



Picture3.4 Main Menu

3.3.2 Record Mode

Please check current channel status: “○” means it is not in recording status, “●” means it is in recording status.

You can use the desktop shortcut menu or click [main menu]> [recording function]> [recording set] to enter the recording control interface.



Picture 3.5 Record Mode

【Schedule】 Record according to the configuration.

【Manual】 Click the “All” button and all channels will record no matter which state the individual channel is set to. Clicking the individual channels will allow only those particular channels to record.

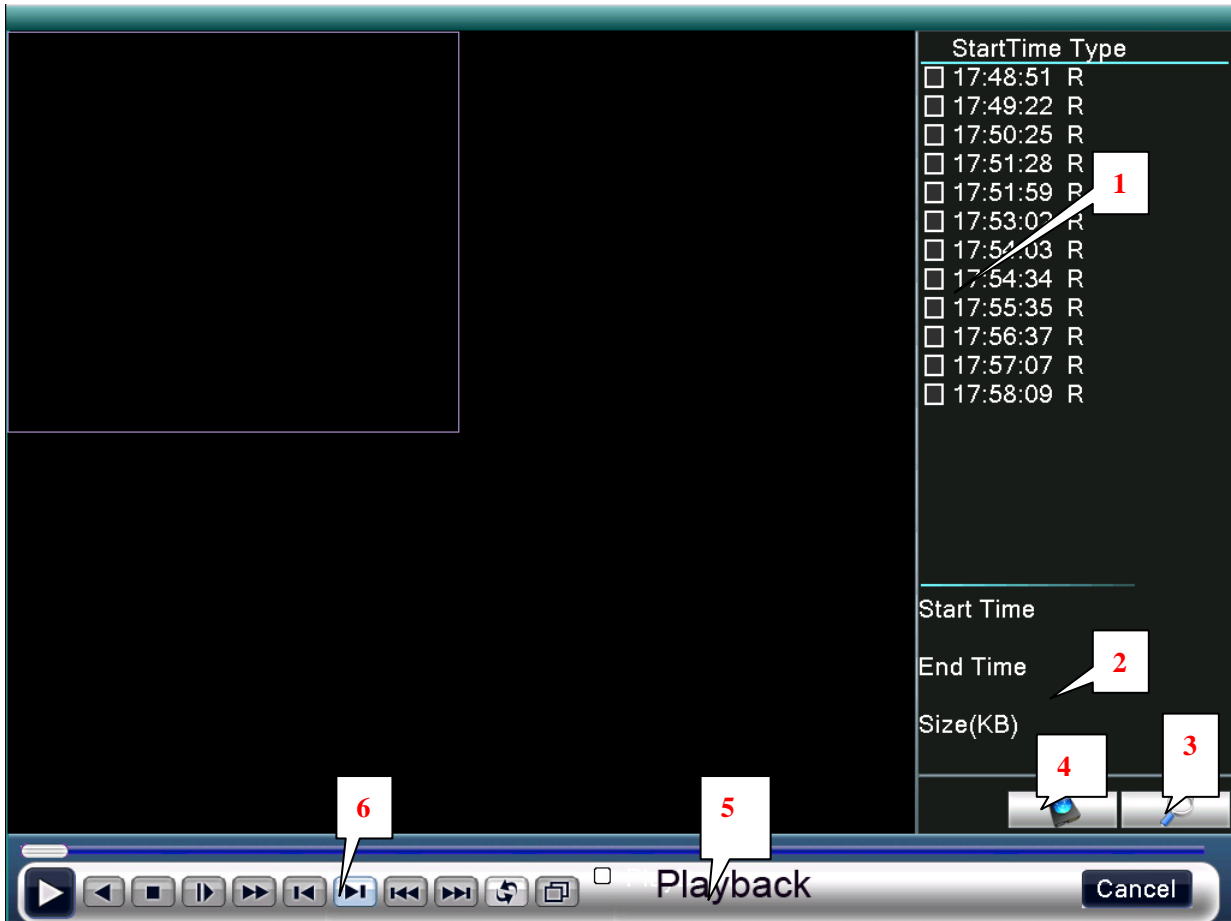
【Stop】 Click the “Stop” button and all channels will stop recording no matter which state the individual channels are set. Clicking the individual channels will stop the recording of that particular channel.

3.3.3 Search/Playback

There are two methods for you to play the video files on the hard drive(s).

1. In the desktop shortcut menu - Main menu -> Search.

Note: The hard drive that saves the video files must be set as read-write or read-only state. (3.5.1)



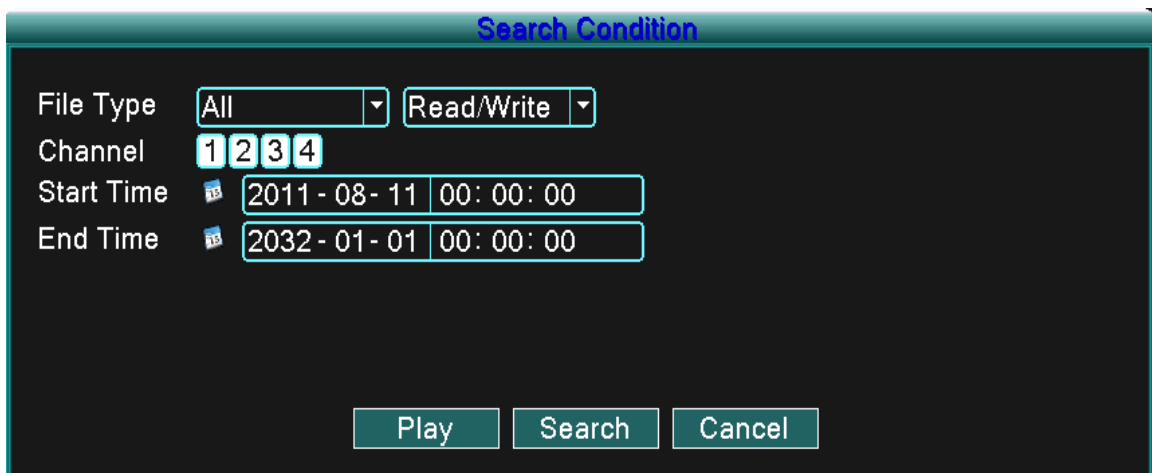
Picture 3.6 video playback

- | | | |
|-----------------|---------------------|---------------------|
| 1. Listed files | 2. File information | 3. File searching |
| 4. File backup | 5. Operation hint | 6. Playback control |

【Listed files】 Look up the listed files that are contained within that search criteria.

【File information】 Look up the found file information.

【File searching】 Search the file according to the searching parameter.



Picture 3.7 file searching

File type: Set the searching file type.

HDD type: Set the searching HDD type.

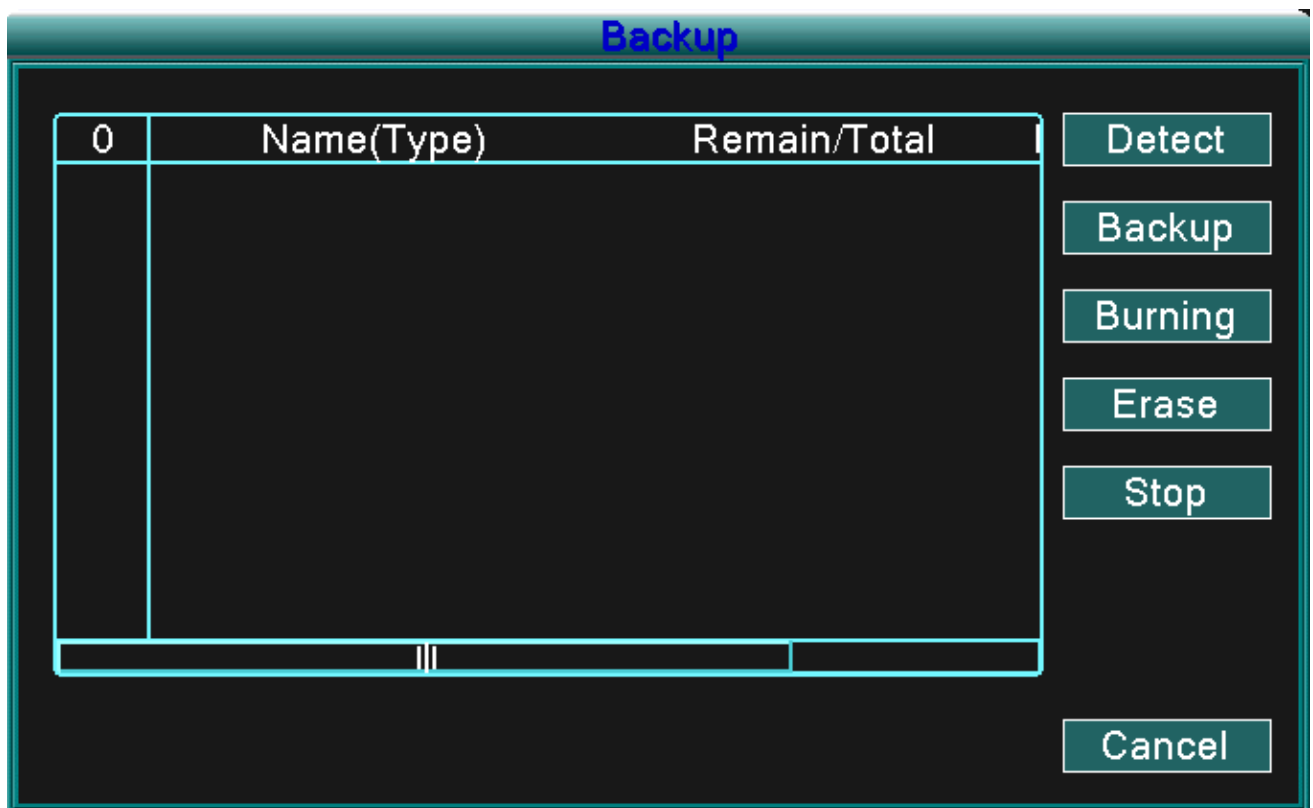
Channel: Set the searching channel.

Start Time: Set the searching start time scan.

End Time: Set the searching end time scan.

【File backup】 Backup the chosen file. Click the button and operate as directed.

Note: The storage drive must be installed before the file can be backed-up. If the backup is terminated any files already backed-up can be played-back individually.



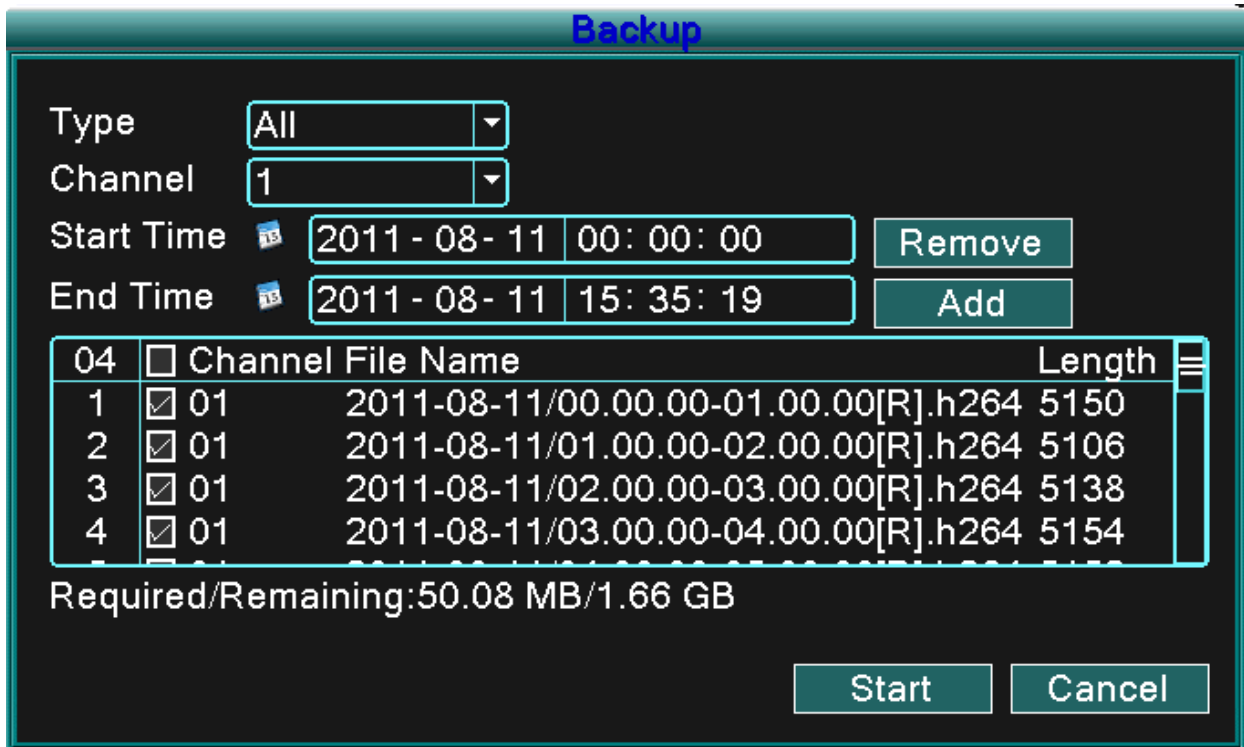
Picture 3.8 detect storage device

Detect: Detect the storage device connected to the DVR such as hard drive or USB drive.

Erasure: Choose the file to delete and click erase to delete the file.

Stop: Stop the backup.

Backup: Click backup button and a dialog box will open. You can choose the backup file according to the type, channel and time.



Picture 3.9 recording backup

Remove: Clear file information.

Add: Show file information meeting the set file attributes.

Start/Pause: Click the play button to start the backup and click the pause button to stop the backup.

Cancel: During backup you can exit the page layout to carry out other functions.

【Playback control】 Refer to the following sheet for more information.


Button	Function	Button	Function
	Play/pause		Backward
	Stop		Slow play
	Fast play		Previous frame
	Next frame		Previous file
	Next file		Circulation
	Full screen		

Table 3.2 Playback control key

Note: Frame by frame playback is only performed in the pause playback state.

Hint You can display the function by placing the cursor on that area.

Special functions:

Accurate playback: Input time (h/m/s) in the time column and then click the play  button. The system will perform an accurate playback according to the search time entered.

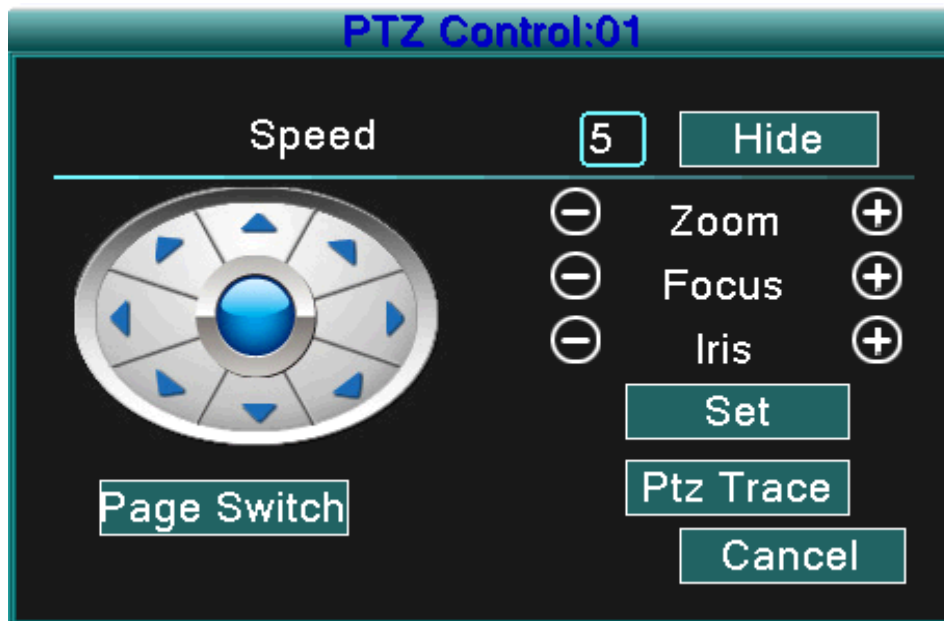
Local zoom: When the system is in a single-window full-screen playback mode, you can drag your mouse onto the screen to select a section and then left click the mouse to activate the local zoom. You can right click the mouse to exit.

3.3.4 PTZ control

Operation functions include: PTZ direction control, step, zoom, focus, iris, and setup operation, patrol between spots, trail patrol, boundary scan, assistant switch, light switch, level rotation and so on.



Note1. Decoder A (B) line connects with DVR A (B) line.



2. Click [main menu] > [system configuration] > [PTZ setup] to set the PTZ parameters.
3. The PTZ functions are decided by the PTZ protocols.





Picture 3.10 PTZ setup

【Speed】 Set the PTZ rotation range. Default range: 1 ~ 8.

【Zoom】 Click  /  button to adjust the zoom multiple of the camera.

【Focus】 Click  /  button to adjust the focus of the camera .

【Iris】 Click  /  button to adjust the iris of the camera.

【Direction control】 Control the PTZ rotation. 8 direction controls are supported (4 directions in Front panel are supported)

【High speed PTZ】 Full-screen show channel image. Left click your mouse and you can control the PTZ rotate orientation. Left click your mouse and then rotate the mouse to adjust the multiple zoom options of your camera.

【Set】 Enter the function operation menu.

【Page switch】 Switch between different pages.

Special functions:

1. Preset

Set a location for the preset, call the preset point, and the PTZ will turn to the preset position.

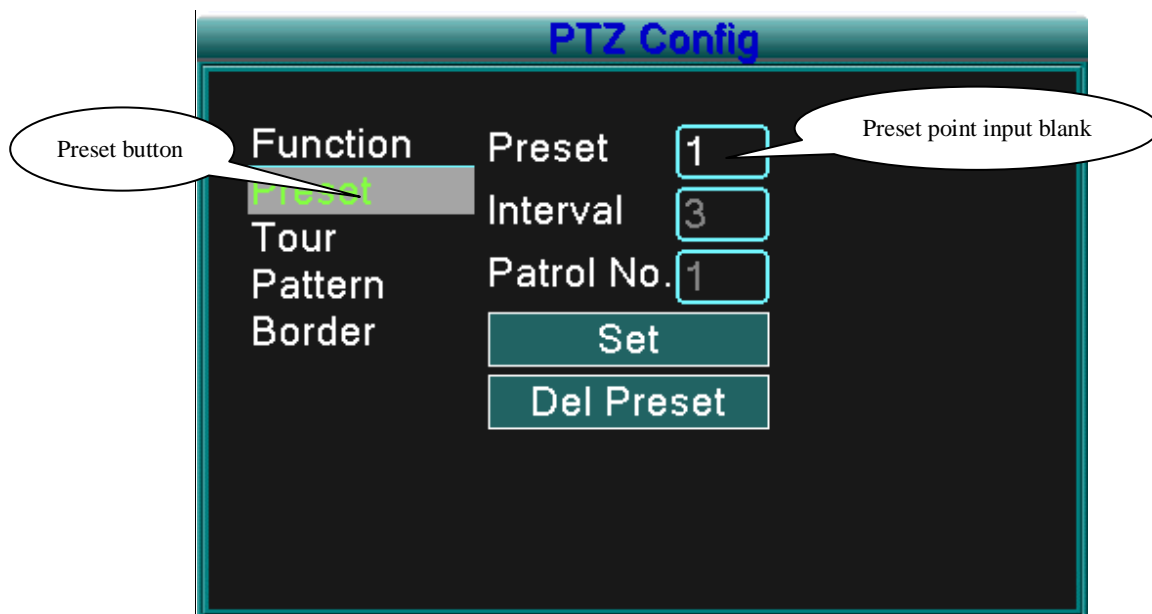
1) To set the Preset option:

Step1: As shown in Picture 3.10, click any of the Direction buttons and the PTZ will turn to that position, click the Set button to enter that position as shown in Picture 3.11.

Step 2: click the Preset button, and then enter the preset points in the input blanks.

Step 3: click the Set button and the PTZ Control window will open, shown in Picture 3.10, and this completes the setup of preset points and preset positions.

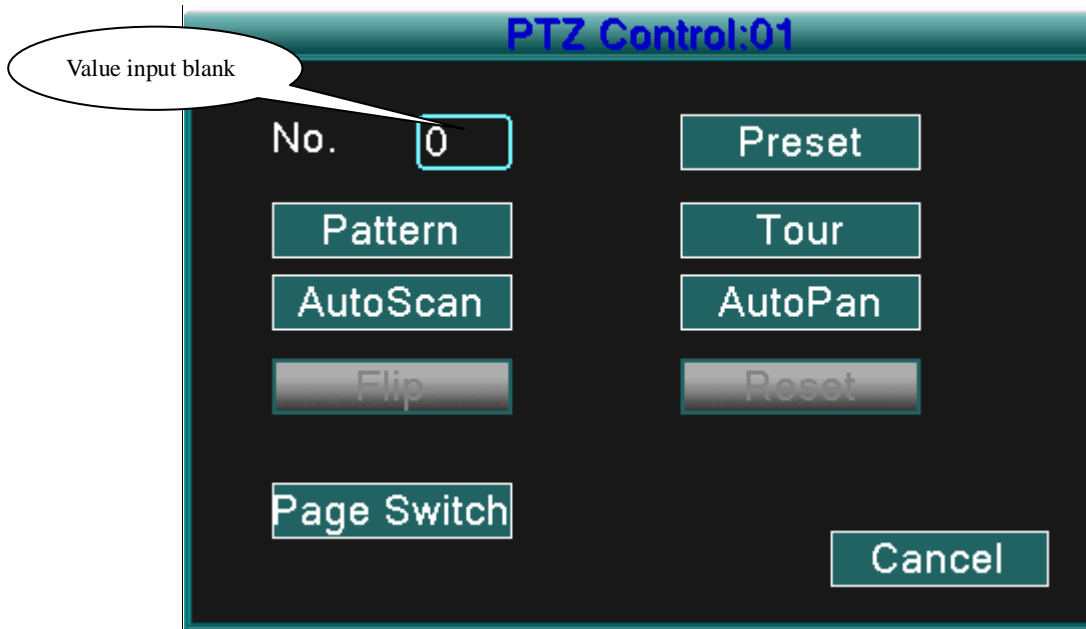
To clear Preset: Input preset points, click Remove button to remove the preset.



Picture 3.11 Preset Settings

2) Preset Point Calls

Click the Page Switch button to enter the PTZ control interface as shown in Picture 3.12. In the input blank, enter the preset points and then click the Preset button and the PTZ will turn to the corresponding preset point.



Picture 3.12 PTZ Control

2. Touring between Points

1) Touring between Point Settings

Tour lines are connected by multiple preset points, to set the preset points:

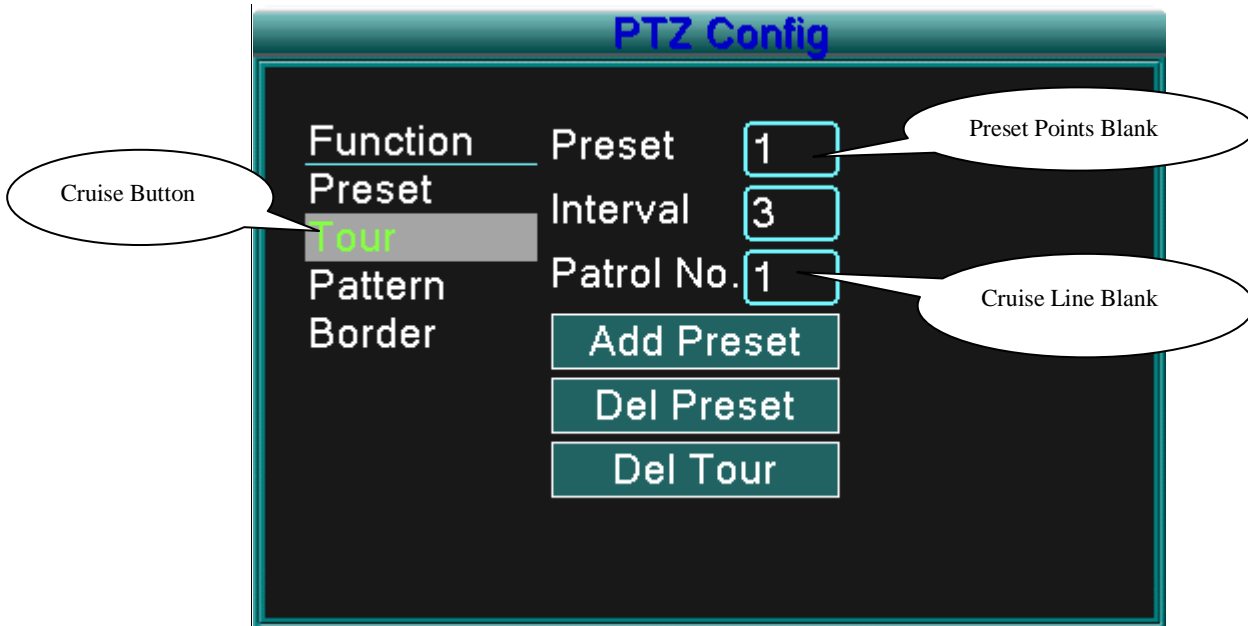
Step1: as shown In Picture 3.10, the Directional keys will turn the PTZ to any desired location, and then click the Set button to enter that location (Picture 3.13),

Step 2: click the Tour button, enter that value into the Tour Line and Preset Points blanks, then click "Add Preset Points" button to complete the settings (you can also add and delete Tour lines which have been previously set up)

Step 3: repeat steps1 and step 2, until all of the preset designated Tour points have been entered.

Remove Preset: Input preset value in the blank, click Remove Preset button to remove the preset points.

Remove Tour Line: Input the number of the Tour line, click Del Tour button to remove the Tour line setting.



Picture 3.13 Tour between Points Settings

2) Call-up Tour lines between Points

Click the Page Switch button (refer to Picture 3.10) to enter the PTZ control menu as shown in Picture 3.12. Input the number of the tour line in the value blank, then click "Tour between Points" button, PTZ will begin to function according to the tour lines that are set. Click the Stop button to stop touring.

2. Scan

The PTZ will work using the preset pattern line repeatedly.

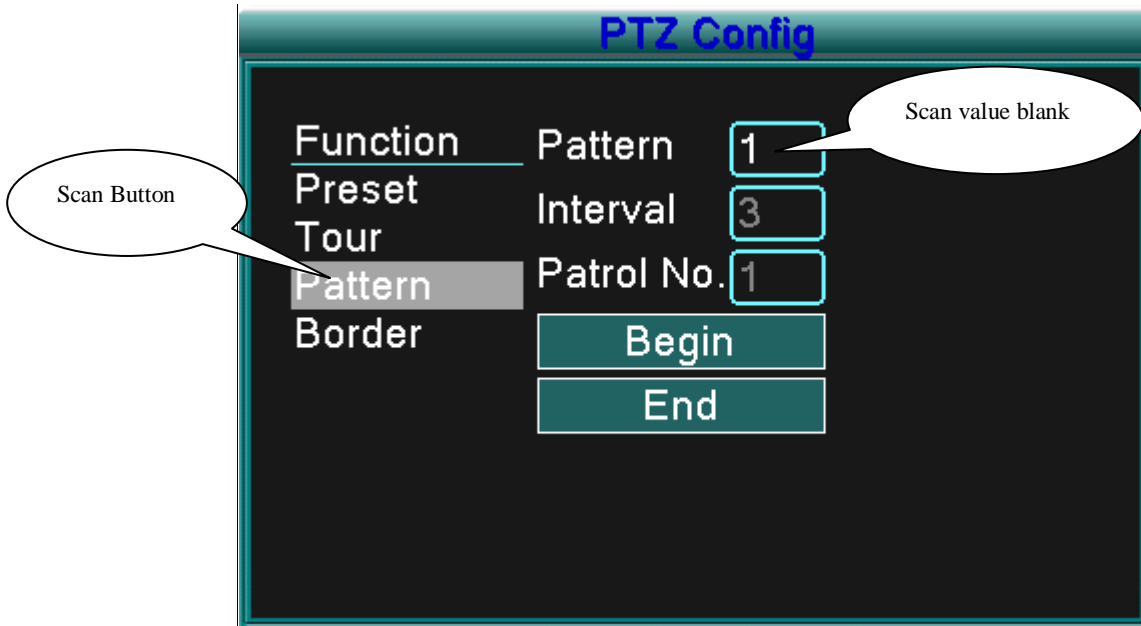
1) Scan setup

Step1: As shown in Picture 3.10, click the Set button

Step2: Click Pattern button, as shown in Picture 3.14, input the scanning values in the Pattern value blanks

Step3: Click Begin button and you can set the following items: Zoom、 Focus、 Aperture、 Direction and so on (refer to Picture 3.10). Click Set button and you will be returned to the PZT configure window, refer to Picture 3.14

Step4: Click End button to complete setup and then click the right mouse button to exit.



Picture 3.14 Pattern Setup

2) Pattern Calls

Referring to Picture 3.10, click Page Shift button, then enter PTZ control menu as shown in Picture 3.12. Input the pattern number of the scan into the value blank, then click the Auto Scan button, the PTZ will begin working using the Pattern lines. Click the Stop button to stop.

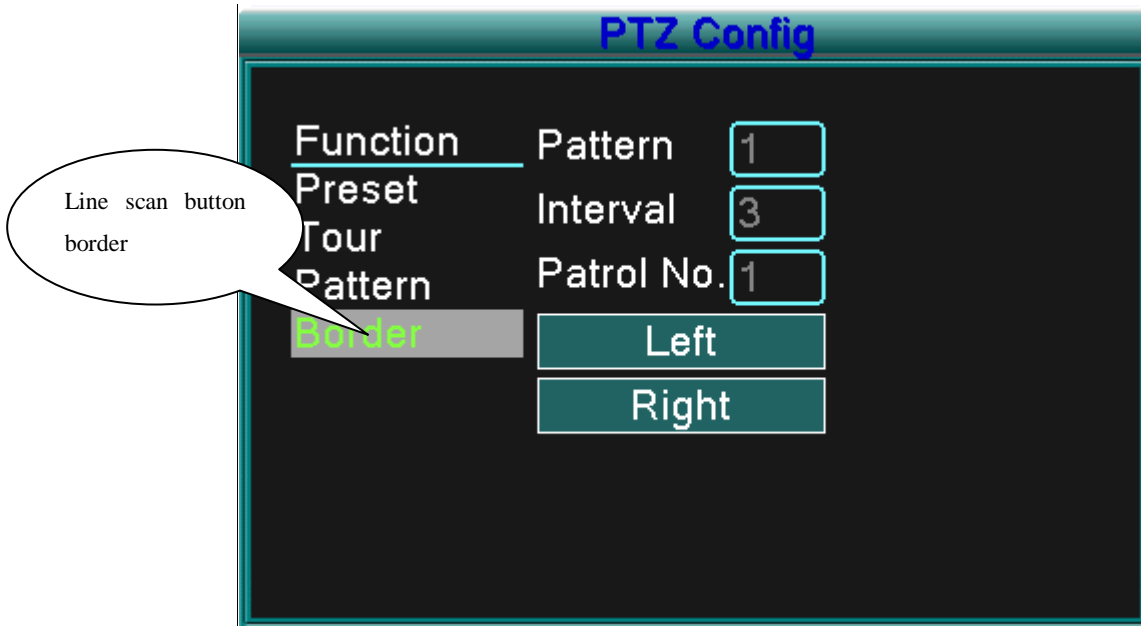
4. Boundary Scan

1) Boundary Pattern setup

Step1: Click the left Directional button to turn the PTZ to set a direction (refer to Picture 3.10) and click the Set button, then select the Left Boundary button (refer to Picture 3.15)

Step2: Click the right Directional button to turn PTZ to set an opposite direction (refer to Picture 3.10) and click the Set button, then select the right boundary button (refer to Picture 3.15)

Step3: The left and right boundary setup is completed.



Picture 3.15 Boundary Scan Setup

2) Boundary Scan Calls

Click the Page Shift button (refer to Picture 3.10) to enter the PTZ control menu as shown in Picture 3.12. Input the number of the Boundary scan in the value blank and click the Auto Scan button, the PTZ will begin working using the Boundary setup. Click the Stop button to stop the scan.

5. Horizontal Rotating

Click the Horizontal Rotating button and the PTZ will rotate horizontally (relative to the original position of the camera). Click the Stop button to stop.

6. Rotate

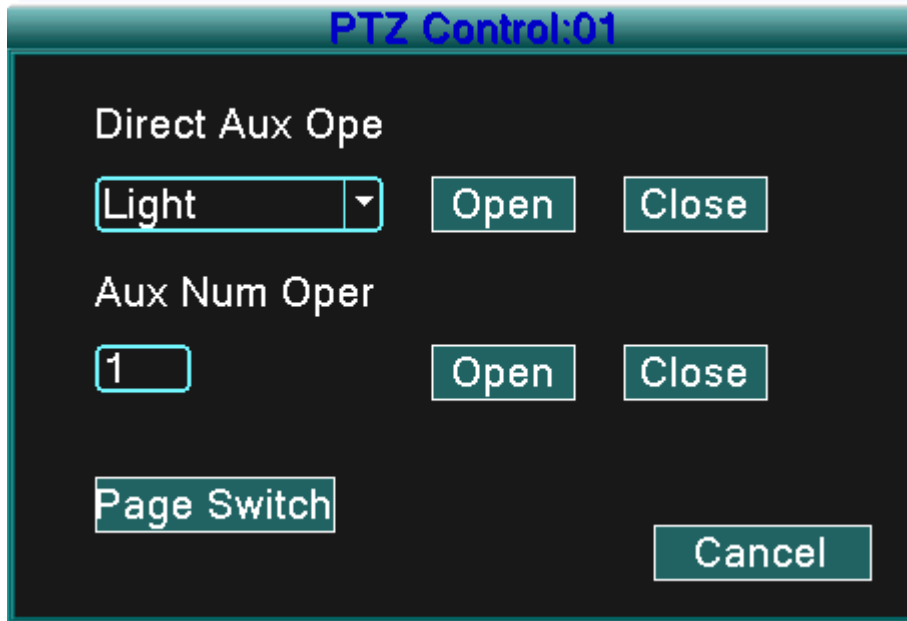
Click on the horizontal Rotating button and the PTZ will turn around.

7. Reset

Click PTZ restart and all data clears to 0.

8. Page Switch

Click Page Switch button, (refer to Picture 3.10) and enter setting auxiliary function (refer to Picture 3.16). The Auxiliary number corresponds to the auxiliary switch on the decoder.



Picture 3.16 Auxiliary Function Control

【Direct Auxiliary Operation】 Choose auxiliary equipment, select Open or Close button, or switch control.

【Auxiliary Number】 The operation of the corresponding auxiliary switch according to the PTZ agreement.

【Page Switch】 Click the Page Switch button and return to PTZ Main Menu (refer to Picture 3.10), the menu itself can be controlled by the menu control buttons


3.3.5 Tour setup

Set the patrol display. There are two methods for you to play the video files contained in the hard disk.

1. Using the desktop shortcut menu.
2. Main menu -> System setup->Video.

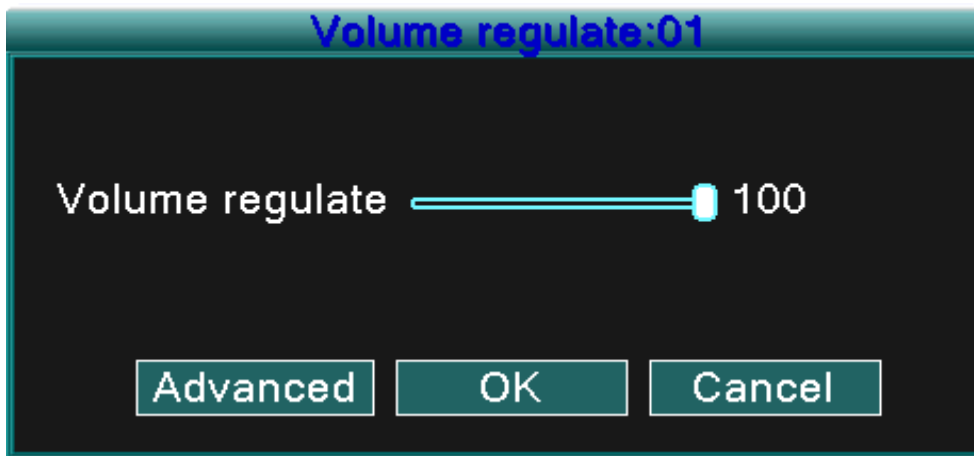
You can choose the single window, four window, nine window, or sixteen window patrol display for a single display.

【interval】 Set the patrol switch interval. The set range is 5-120 seconds.

Note:  /  Means turn off/on the patrol.

3.5.6 Audio Adjust

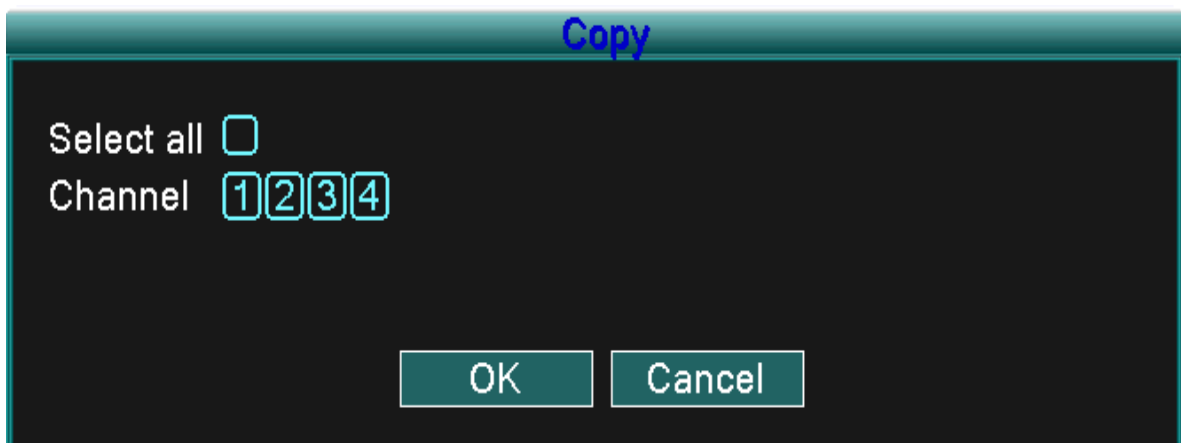
Adjust volume regulate parameters. You can use the desktop shortcut menu.



Picture 3.17 Audio Adjust

【Volume regulate】 You can set the volume regulate value from 0 to 100.

【Advanced】 Will allow volume control for each channel.



Picture 3.18 Audio matches Channel

You can match any or all channels which you want to adjust, but only one audio channel output is valid at a time.

3.3.7 Logout

Logout by shutting down the system or by rebooting. You can use the desktop shortcut to enter [main menu].



Picture 3.19 Logout/Reboot the system

【logout】 Quit the menu. Requires password to logon.

【shutdown】 Quit the system. Power Off the DVR.

【reboot】 Quit the system. Reboot the system.

3.3.8 Window switch

Preview in a single window/four windows/eight windows/nine windows/sixteen windows according to your choice.

4 Main menu

4.1 Main menu navigation

Main menu	Sub menu	Function
Search		recording look-up, recording play, video file storage
Record		Set the recording configuration, recording type, recording time section
HDD management		Set appointed hard disk as read-write disc, read-only disc or redundant disc, clear data, resume date and so on
System configuration	Language	Set language.
	Date/Time	Set system time, data format and so on.
	Account management	Modify user, team or password. Add user or team. Delete user or team.
	GUI display	Set channel name, video time, color setting, preview time, preview channel, record status, alarm status and so on.
	Video	Set resolution, video standard, tour time, and output adjust and so on.
	Exit	Return last lever menu.
Advanced	Alarm Set	Send email or Show Message when alarm happening.
	Version Info	Display software version and build date.
	Motion detection	Set motion detect alarm channel, sensitivity, area, linkage parameters: defending time section, screen hint, recording, PTZ, patrol
	Mobile Monitor	Mobile Monitor Setup.
	Automatic maintenance	Set automatic reboot system , system upgrade, default settings, log and so on.

	PTZ configuration	Set channel, PTZ protocol, address, baud rate, data bit, stop bit, and check.
	Network configuration	Set basic network parameters, DHCP、PPPOE、DDNS parameter
	Exit	Return last level menu.
Exit		Exit main menu and display Monitor.

4.2 Search/Playback

Refer to chapter 3.3.3.

4.3 Record

4.3.1 Record

Set the recording parameters in the surveillance channel. The system is set to 24 hours consecutive recording with the initial startup. You can modify by entering: [main menu]> [record]> [record] to set.

Note: There must be at least one read-write hard disk installed for this to function. (refer to chapter 4.4)



Picture 4.1 Record

【Channel】 Choose the corresponding channel number to set the channel. Choose the All option to set every channel.

【Resolution】 Set the resolution (D1 /HD1/CIF/QCIF) for each channel file. CIF is default value.

【Frame Rate】 Set the frame rate of each channel. 25 is default value (0 to 30 for NTSC).

【Quality】 Set the quality of each video channel. Good is default value (worst, worse, general, good, better, or best).

【Audio】 Set the audio status of each channel. ON is default value.

【REC. Size】 Set the time length of each video file. 60 minutes is default value (1 to 120 min).

【REC Mode】 Refer to chapter 4.3.2.

【Region Cover】 Refer to chapter 4.3.3.

Note: Pressing the “Default” button, will replace all configured settings to default settings.

4.3.2 Record Conf

Channel	REC. Mode	Week	Regular	Detect	Alarm
1	<input checked="" type="radio"/> Schedule <input type="radio"/> Manual <input type="radio"/> Stop	Thu	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Period 1	00:00 - 24:00		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Period 2	00:00 - 24:00		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Period 3	00:00 - 24:00		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Period 4	00:00 - 24:00		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Buttons: Advanced, OK, Cancel

Picture 4.2 Record Conf

【Channel】 Choose the corresponding channel number to set the channel. Choose the all option to set the entire channels.

【REC. Mode】 Set video state: Schedule, Manual and Stop.

Schedule: Record according to the set video type (common, detection, or alarm) and time section.

Manual: Click the manual button and the corresponding channel will begin recording, regardless of its setting.

Stop: Click the stop button and the corresponding channel stops recording, regardless of its setting.

【Period】 Set the time for normal recording, recording will start only within the set range.

【Record type】 Set the recording type: Regular, detection, or alarm.

Regular: Performs regular recording in the set time section. The video file type is “R”.

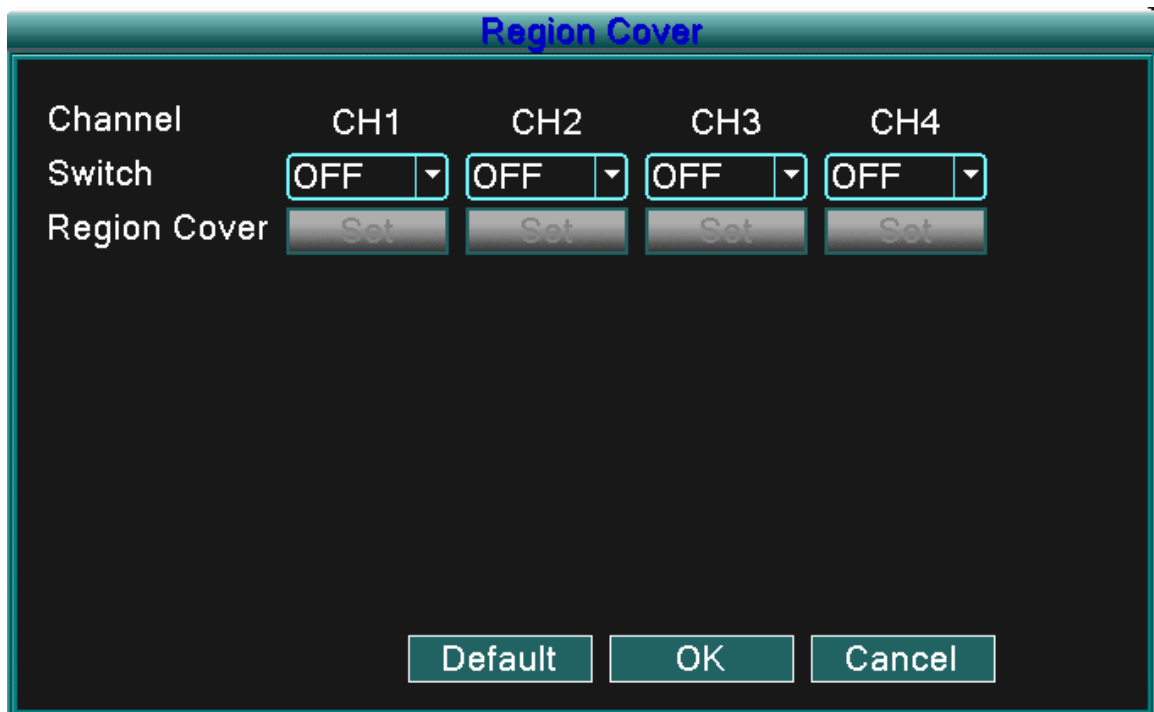
Detect: Activates the “motion detect”, “camera mask” or “video loss” signal. When this alarm is set as the initial recording method the “detection recording” state is on. The video file type is “M”.

Alarm: When alarm is set as the initial recording method the “detection recording” state is on.

Note: Refer to chapter4.6.3 to set corresponding motion detect function.

4.3.3 Region Cover

When the video image is affected by low light level or has reached the set sensitivity parameter, the camera mask function will activate.



Picture 4.3 Region Cover

【Channel】 Choose the corresponding channel number to set the channel. Choose the all option to set every channel.

【Switch】 You can select ON or OFF status for each channel.

【Region Cover】 When this channel status as ON, click Set and enter the area to be set. The area has 4 regions and you can move the cursor to set the areas.

Note: Pressing the “Default” button, will result in all configured settings being replaced by the default settings.

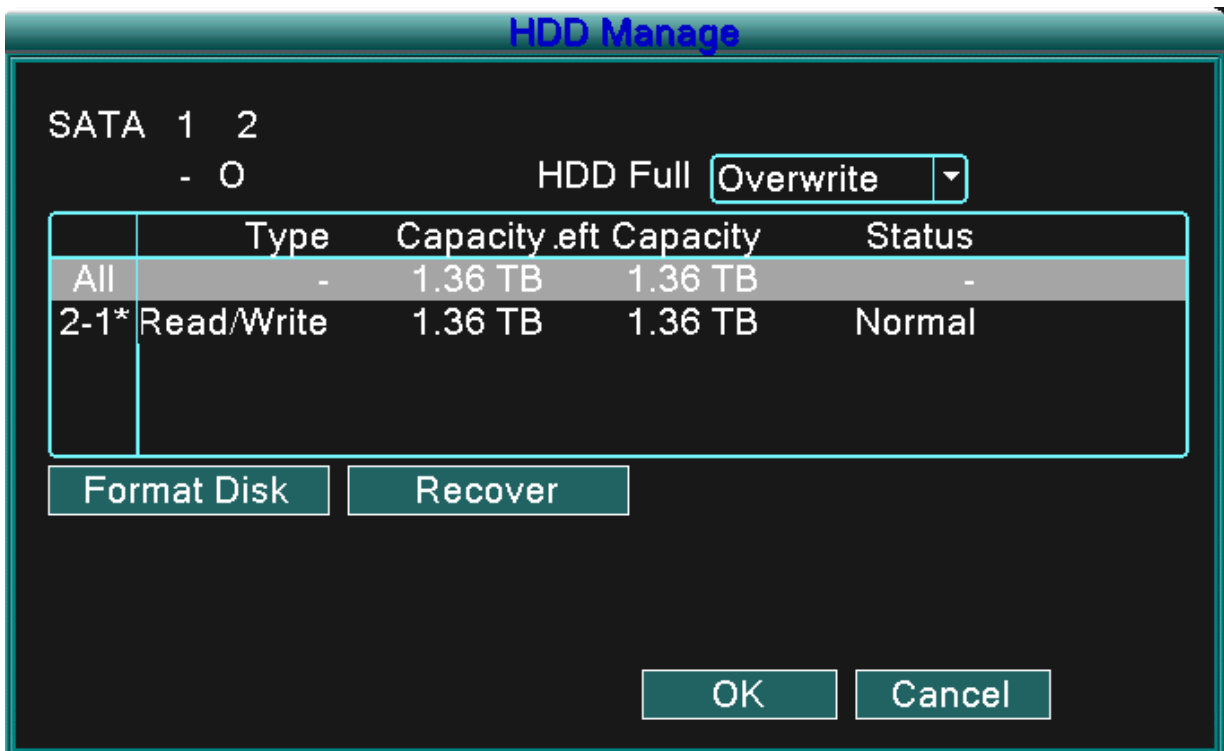
4.4 HDD Manage

Configure and manage the hard disk. The menu displays current hard disk information: hard disk number, input port, type, status and overall capability. The operation include: setup the write-read disk, read-only disk, redundant disk, hard disk format, resume default. Choose the hard disk and click the right function button to execute.

Note: Read/Write Disk: The equipment can write or read data.

Read-only Disk: The equipment can read data but cannot write data.

Redundant Disk: Double backup the video files in the write-read disk.



Picture4.4 HDD Manage

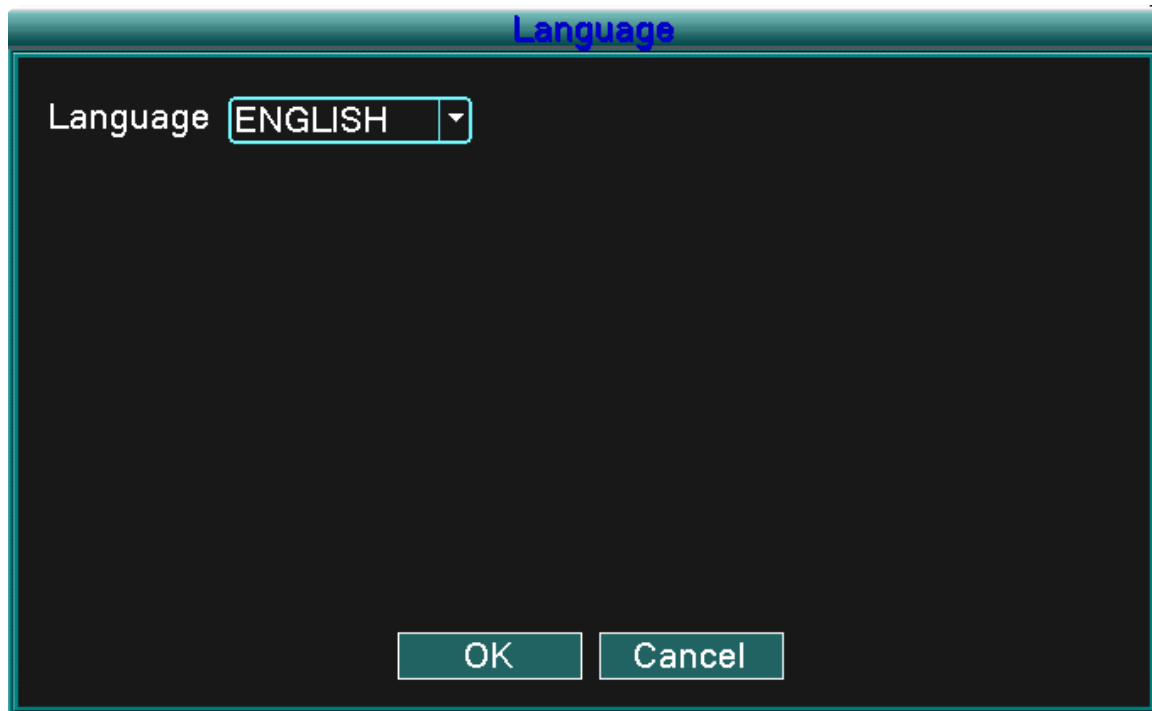
【Format Disk】 Format the HDD which you selected and all data will lost.

【Recover】 restores HDD to default status.

4.5 System setup

Set the system parameters, such as **Language**, **Date/Time**, **Account**, **GUI Display**, **Video** and **Exit**.

4.5.1 Language

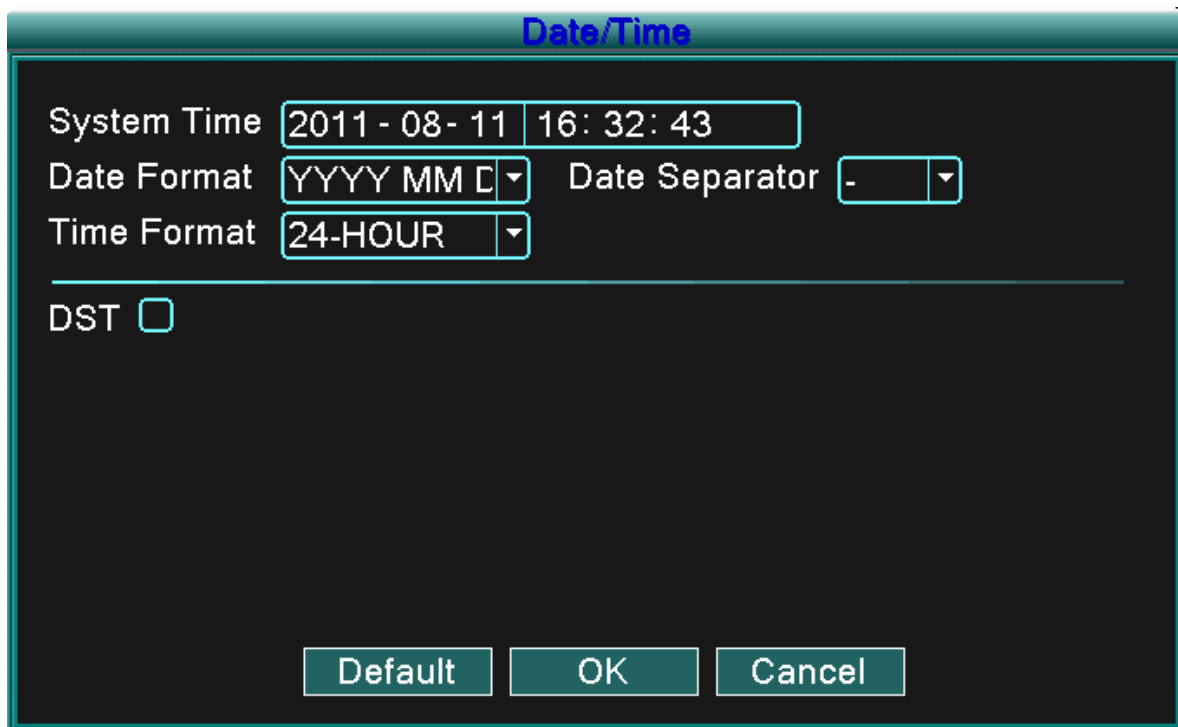


Picture4.5 System Language

【Language】

You can select the language you want to use.

4.5.2 Date/Time



Picture4.6 Date/Time

【System time】 Set the system data and time.

【Date format】 Choose the data format: YMD, MDY, DMY.

【Date Separator】 Choose list separator of the data format.

【Time Format】 Choose time format: 24 hour and 12 hour format.

【DST】 Choose "Daylight Savings Time" option.

The screenshot shows a dialog box titled "Date/Time" with a dark background. At the top, the system time is displayed as "2011 - 08 - 11 16:33:07". Below this, there are three dropdown menus: "Date Format" set to "YYYY MM D", "Date Separator" set to "-", and "Time Format" set to "24-HOUR". A horizontal line separates these settings from the DST configuration. The "DST" checkbox is checked. Underneath, there are two radio buttons: "Day of Week" (selected) and "Date". The "Start" and "End" fields are configured with dropdown menus for month, day, and time. Both "Start" and "End" are set to "Jan", "1st", and "01:01". At the bottom of the dialog, there are three buttons: "Default", "OK", and "Cancel".

Picture 4.7 DST (week)

The screenshot shows a dialog box titled "Date/Time" with a dark background. At the top, the system time is displayed as "2011 - 08 - 11 16:33:29". Below this, there are three dropdown menus: "Date Format" set to "YYYY MM D", "Date Separator" set to "-", and "Time Format" set to "24-HOUR". A horizontal line separates these settings from the DST configuration. The "DST" checkbox is checked. Underneath, there are two radio buttons: "Day of Week" (unselected) and "Date" (selected). The "Start" and "End" fields are configured with date and time input boxes. Both "Start" and "End" are set to "2011 - 01 - 01 01:01". At the bottom of the dialog, there are three buttons: "Default", "OK", and "Cancel".

Picture 4.8 DST (date)

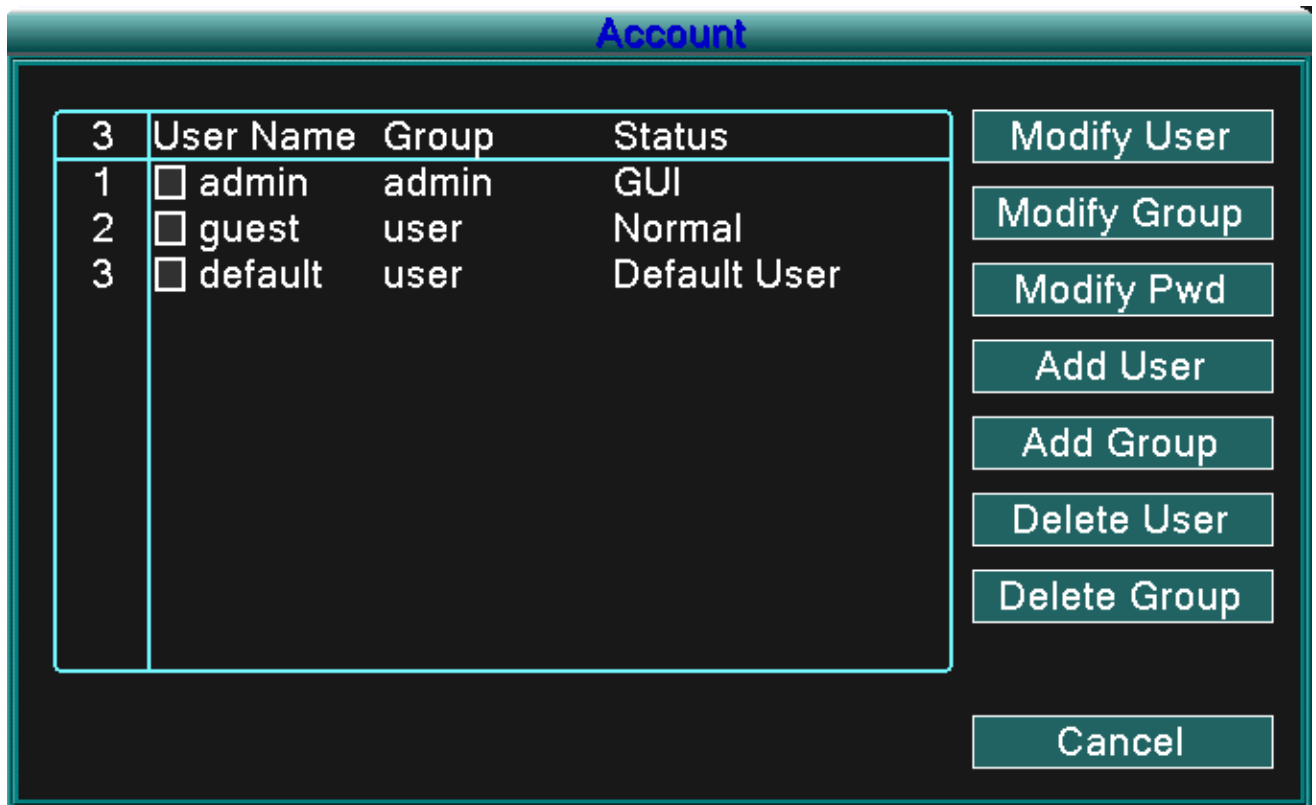
4.5.3 Account

Manage the user account.

Note: 1. The character length is 8 bytes at most for the user and user group names. Blanks cannot be

used at the beginning or end of the character string but is acceptable as separation points within the string. Legal characters include: letters, numbers, underlining, dash, and periods.

2. There is no limit with the user and user groups. You can add or delete the user groups according to user requirements. The factory setup includes: user\admin. You can set the groups as you wish. The user can appoint the administrator in the group.
3. The user responsibilities include group/ user. The group and user names cannot be the same. Each user can only belong to one group.



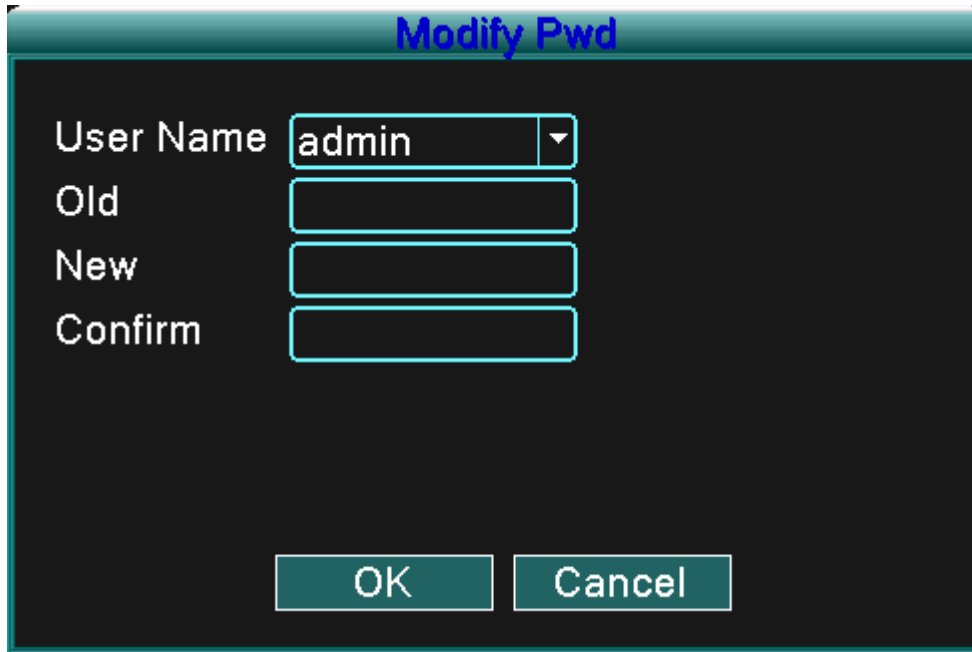
Picture 4.9 Account

【Modify User】 Modify the existing user attributes.

【Modify Group】 Modify the existing team attributes.

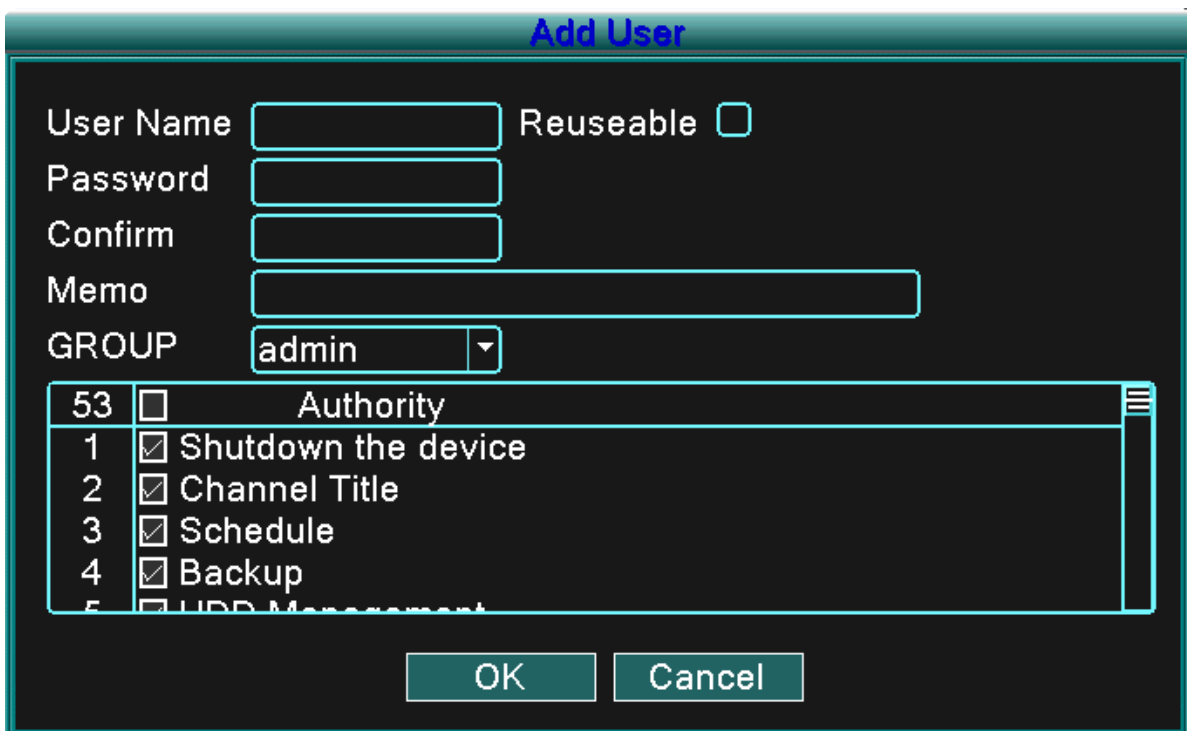
【Modify PWD】 Modify the user password. You can set 1-6 bit passwords. Blanks cannot be used at the beginning or end of the character string but is acceptable as separation points within the string.

Note: The user who possesses the administrator user control can modify his/her own or other user's passwords.



Picture 4.10 Modify Password

【Add user】 Add a user in the team and set the user's accountability. Enter the menu interface and input the user name and password. Choose the team and choose the area of accountability (area that can be used by multiple users at the same time). Once the team is chosen the user oversees the subclass of the team. The common user's accountability should be set lower than the advanced user.



Picture 4.11 add user

【Add Group】 Add a user team and set their range of accountability. There are 36 different possible areas: shut down the device, real time surveillance, playback, recording setup, video file backup, ETC.



Picture 4.12 Add Group

【Delete User】 Delete the current user. Choose the user and click Delete User button.

【Delete Group】 Delete the current group. Choose the group and click Delete Group button.

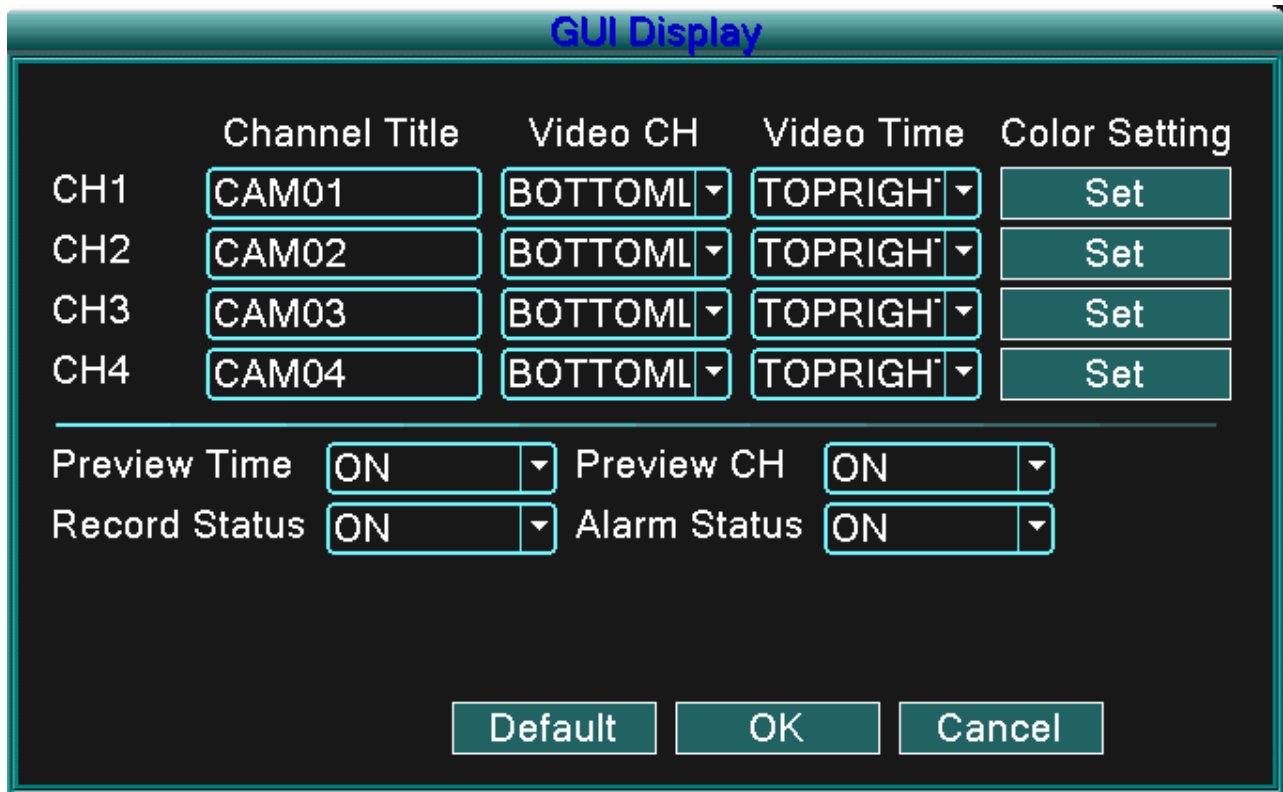


Picture 4.13 Delete Group

4.5.4 GUI Display

Configure the video output parameters including the front output mode.

Front output: The local preview mode includes: channel title, time display, channel title, record status, and alarm status.



Picture 4.14 GUI Display

【Channel Title】 Click the channel name modify button and enter the channel name menu. Modify the channel name. The 16 Chinese characters and 25 letters are supportive.

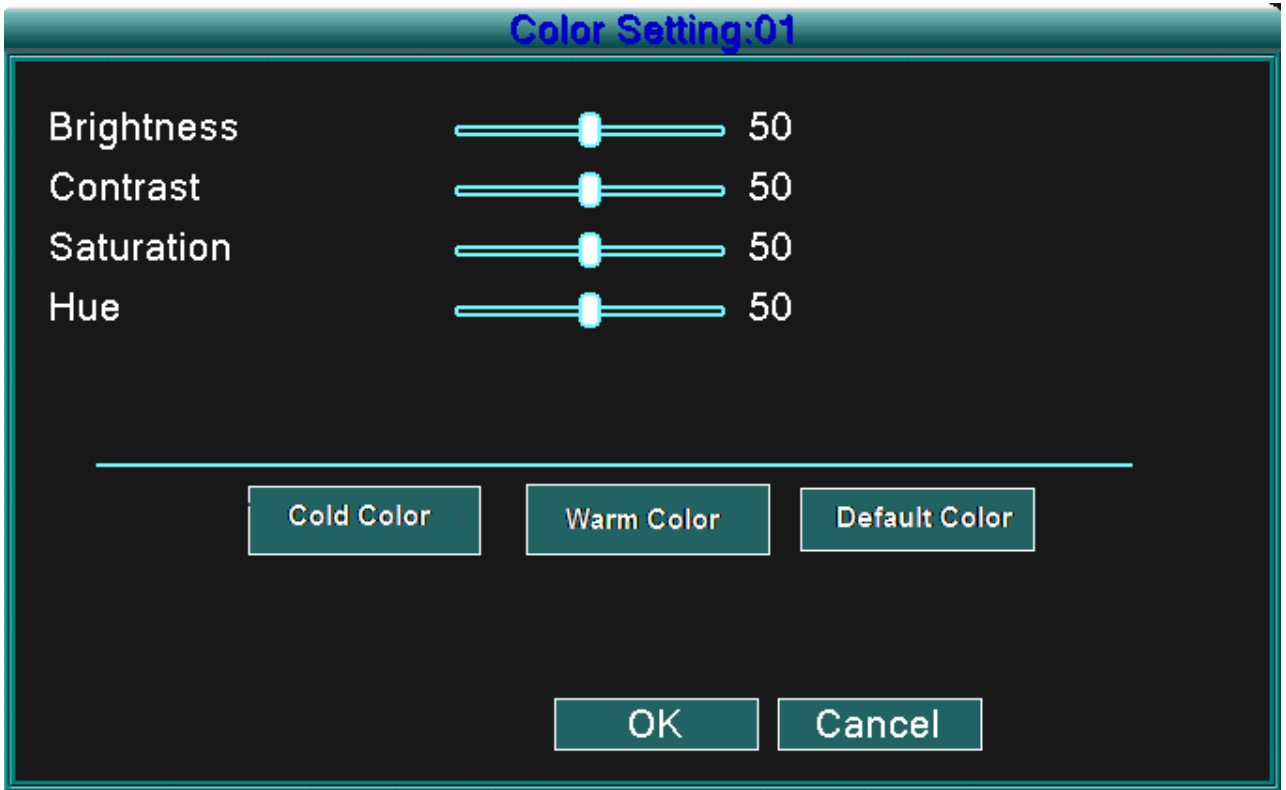
【Preview Time】 Displays the system data and time in the surveillance window.

【preview Channel】 Displays the system channel number in the surveillance window.

【Record Status】 Displays the system recording status in the surveillance window.

【Alarm Status】 Displays the system alarm status in the surveillance window.

【Color Setting】 Sets the selective image parameters (current channel for single window display and cursor place for multi-window display). You can press the “Set” button to enter the interface and set the different parameters - the image parameters include: tonality, brightness, contrast, saturation.



Picture 4.15 Color Setting

Note: Clicking the “Default” button will return all configured settings to default settings.

4.5.5 Video

Configure video parameters in the local preview mode include: Resolution, Video Standard, Tour Time and Output Adjust.



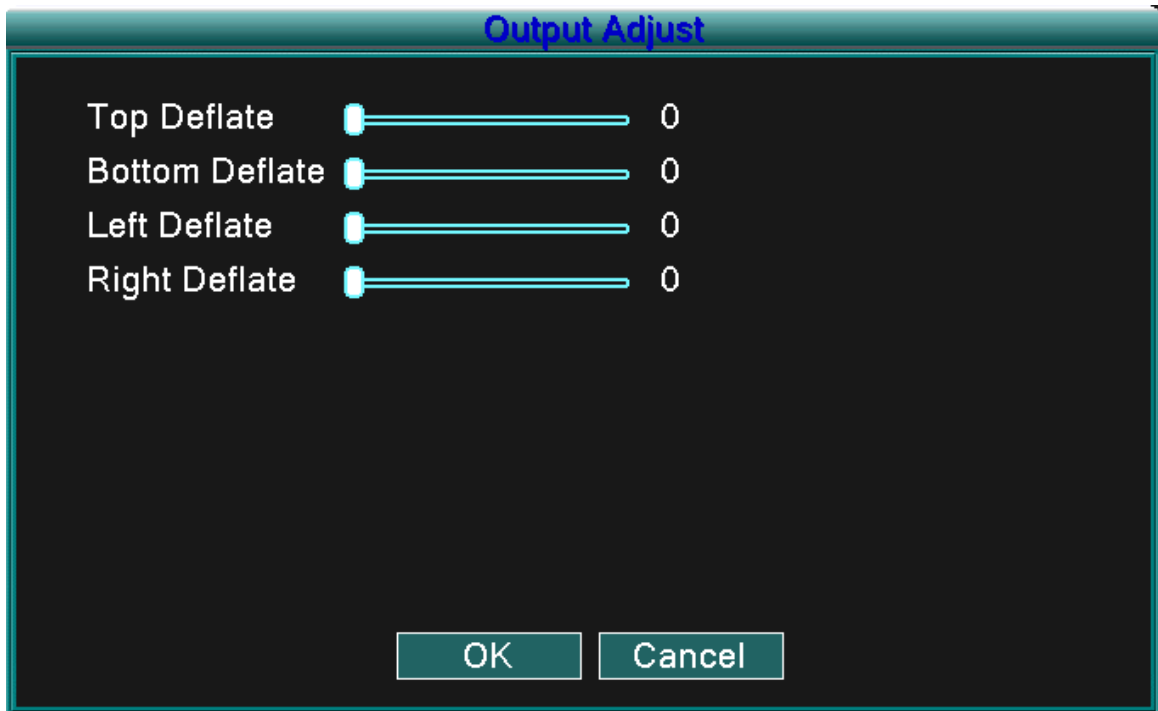
Picture 4.16 Video

【Resolution】 Set display resolution.

【Video Standard】 Set the video standard as PAL or NTSC.

【Tour Time】 Set the patrol switch interval. The set range is 5-120 seconds.

【Output Adjust】 Adjust TV output area parameters.



Picture 4.17 Output Adjust

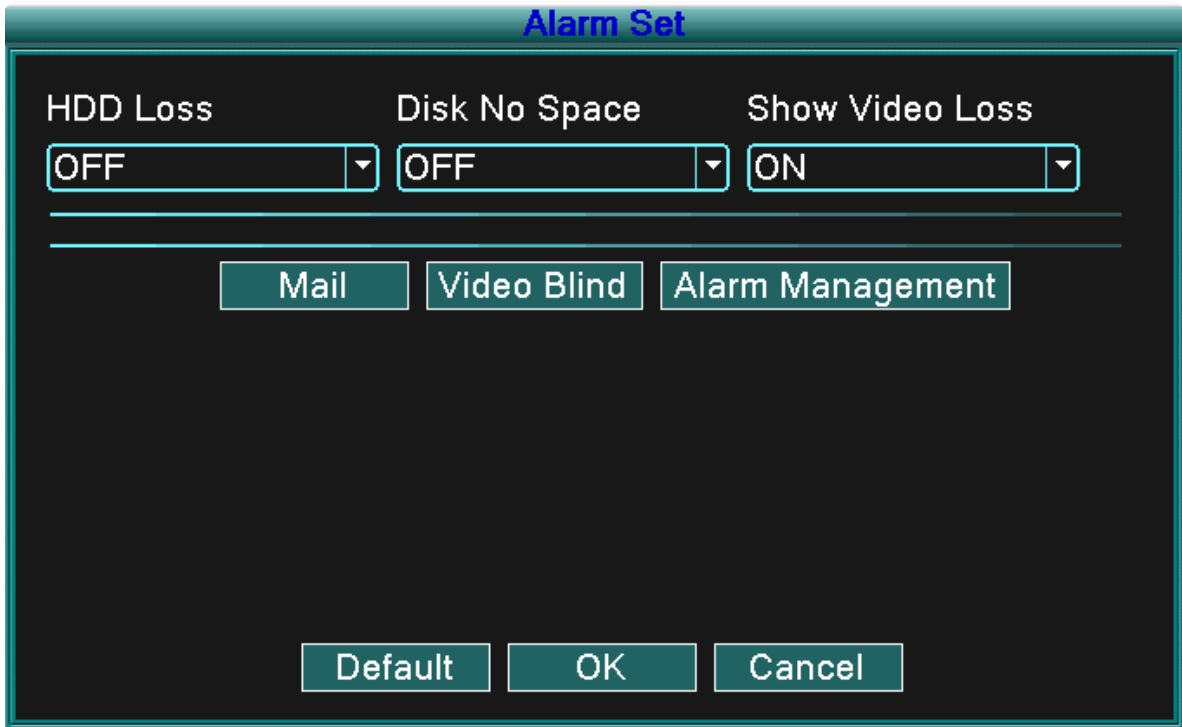
4.6 Advanced

Configure advanced parameters:

Alarm Set, Version, Motion Detect, Mobile Monitor, Auto Maintain and Network.

4.6.1 Alarm Set

Alarm functions include: HDD Loss, Disk No Space, Show Video Loss, Mail, Video Blind, and Alarm Management.

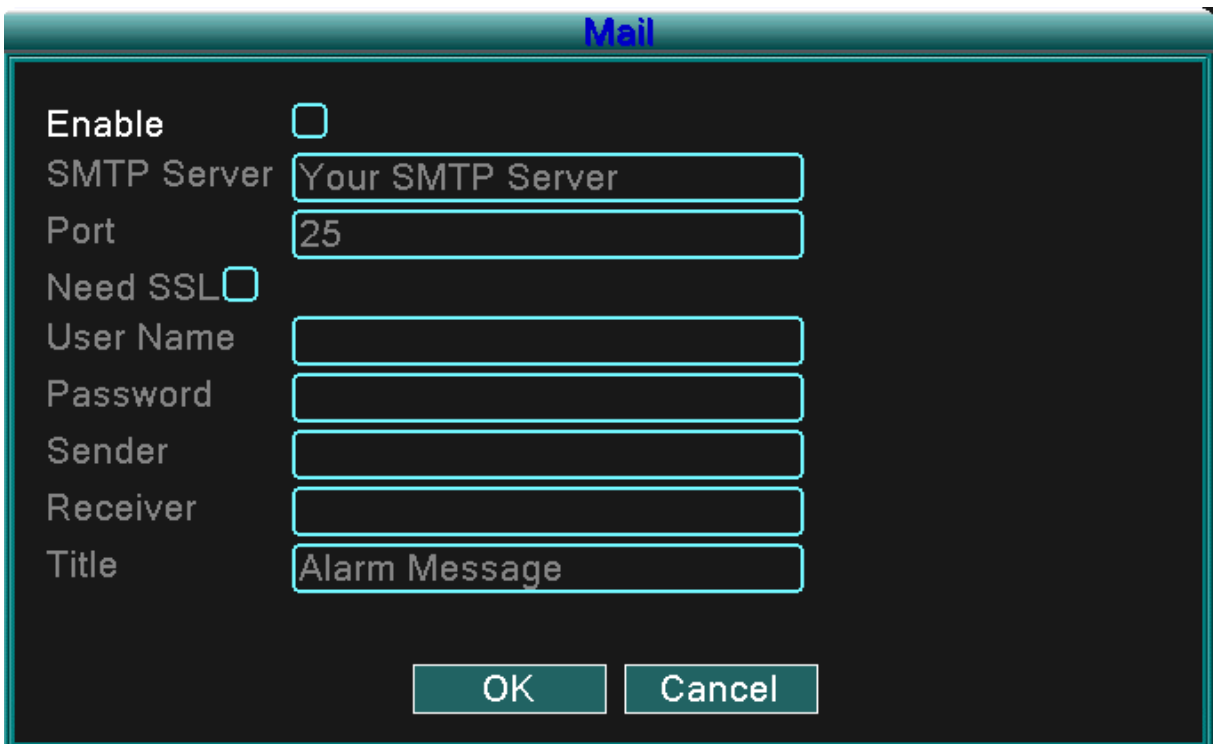


Picture 4.18 Alarm Set

According to your configured parameters, when an event occurs the device will alert you by: displaying a message, sounding a buzzer, and/or sending an email.

4.6.1.1 Mail

If the alarm is turned on, an email regarding alarm information will be sent to all appointed addresses.



Picture 4.19 Email

SMTP server: Email server address. It could be an IP address or domain name. Domain name can be translated only if the correct DNS is configured.

Port: Email server port number.

SSL: Requires Secure Socket Layer protocol to login.

User Name: Email server user name.

Password: Input users corresponding password.

Sender: Alarm notice sender's email address.

Receiver: Email address of appointed receivers when the alarm is turned on. You can set a maximum of three receivers.

Title: The name you assign for the alarm notification that is sent.

4.6.1.2 Video Blind

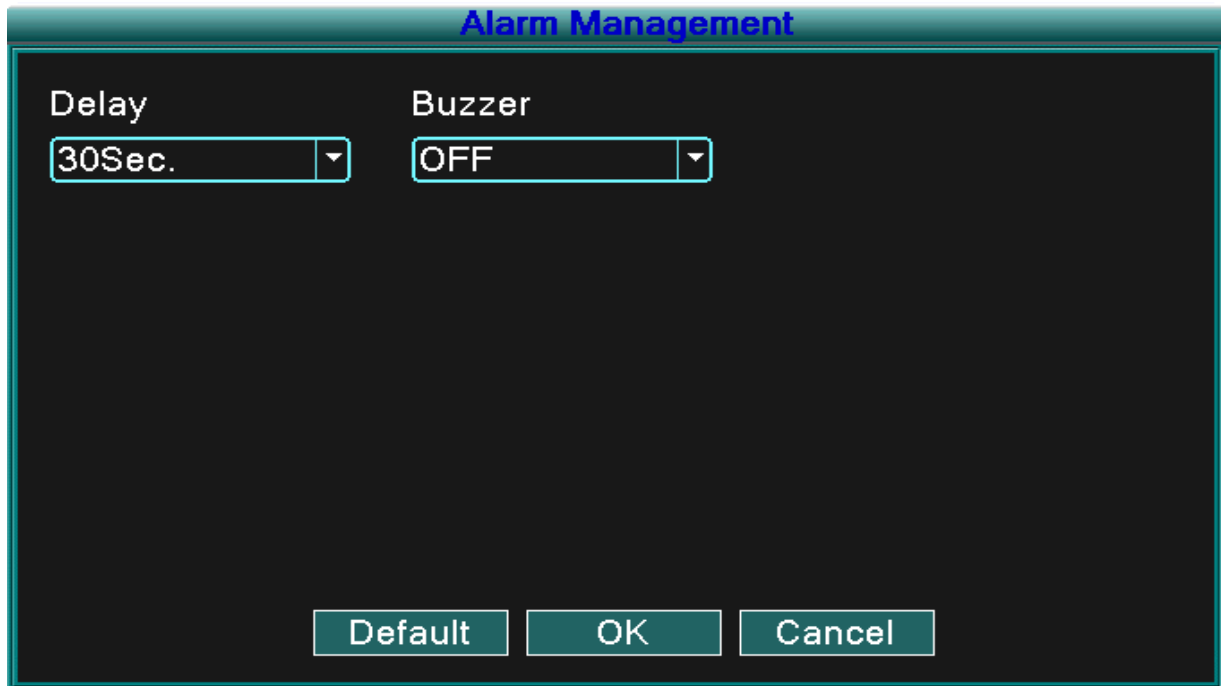
When the video image is obscured by the environment, such as excessive brightness or reaching the set sensitive parameters, the camera mask function is turned on and the linked function (such as Send email, show message, or buzzer) is turned on.

Channel	Status	Sensitivity	Send Email	Show Message
CH1	OFF	Middle	OFF	OFF
CH2	OFF	Middle	OFF	OFF
CH3	OFF	Middle	OFF	OFF
CH4	OFF	Middle	OFF	OFF

Default OK Cancel

Picture 4.20 Video Blind

4.6.1.3 Alarm Management



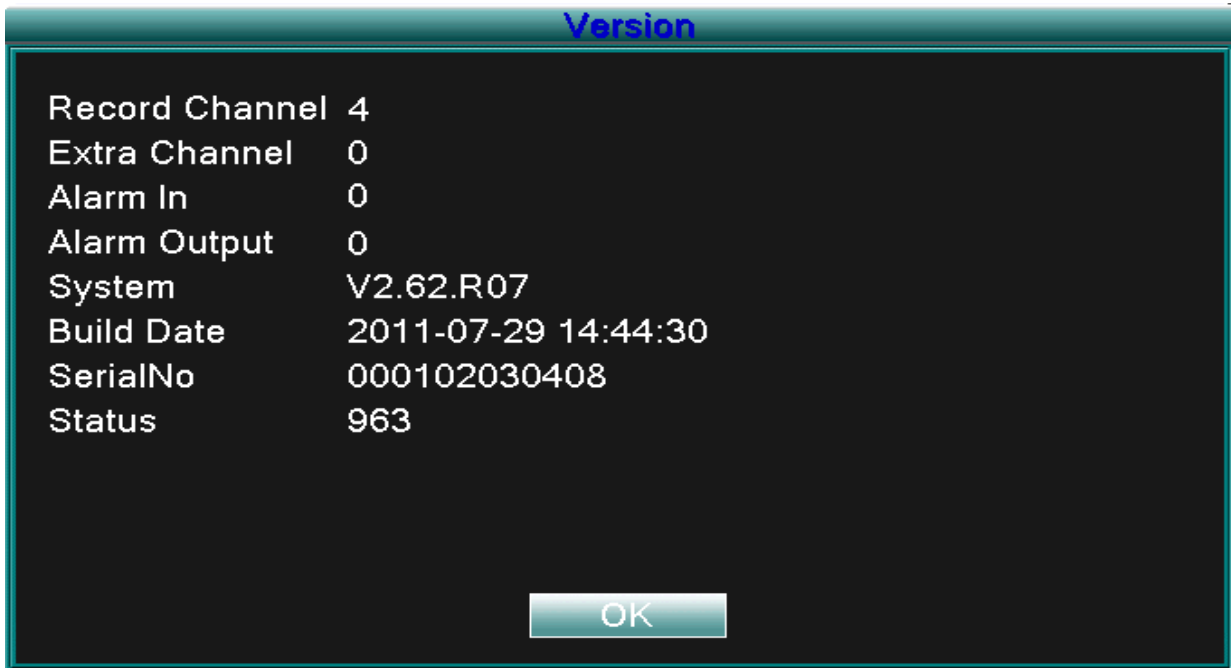
Picture 4.21 Alarm Management

【Delay】 Set the record time When an event (HDD Loss, Disk No Space, Video Loss, and Video Blind) occurs.

【Buzzer】 You can set the Buzzer status as ON or OFF.

4.6.2 Version

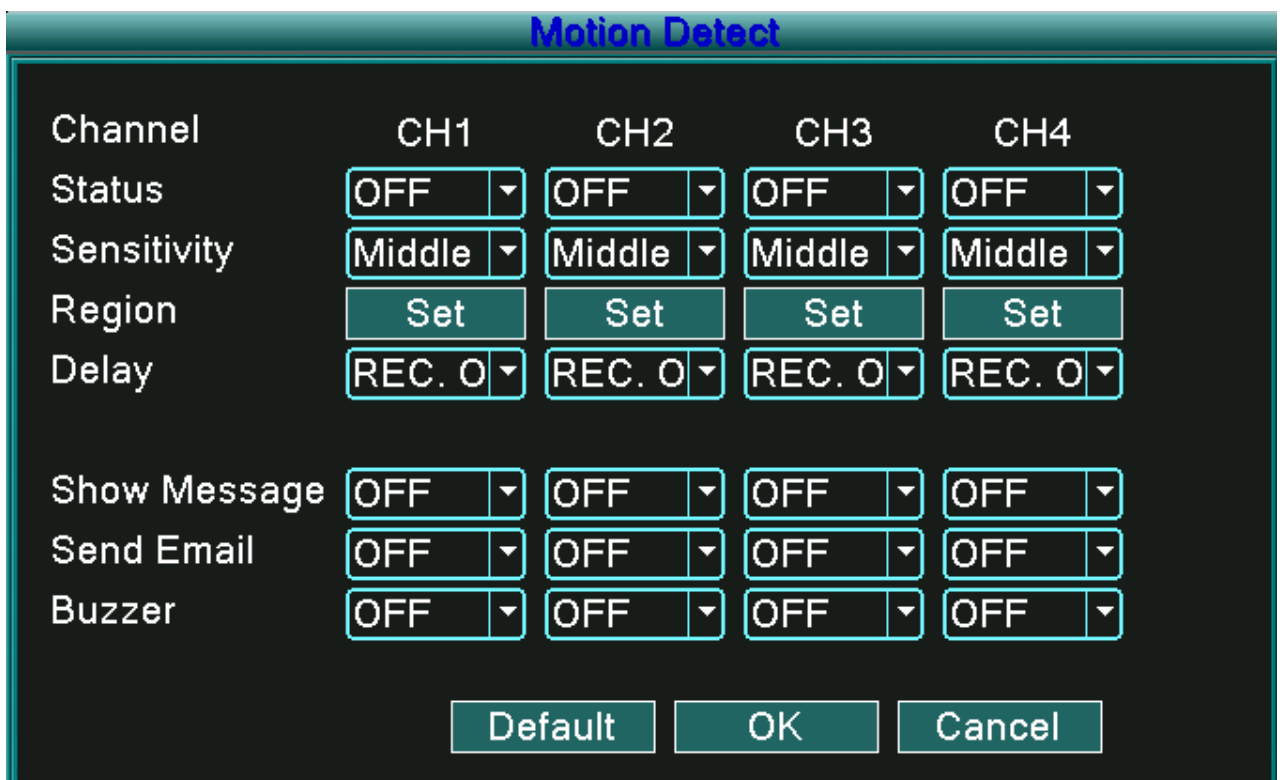
Displays basic information regarding the system such as: hardware information, software edition, and issue data, ETC.



Picture 4.19 Version

4.6.3 Motion Detect

When the system detects a motion signal that reaches the set sensitivity point, the motion detect alarm activates and the linked function (such as Send email, show message, or buzzer) is turned on.



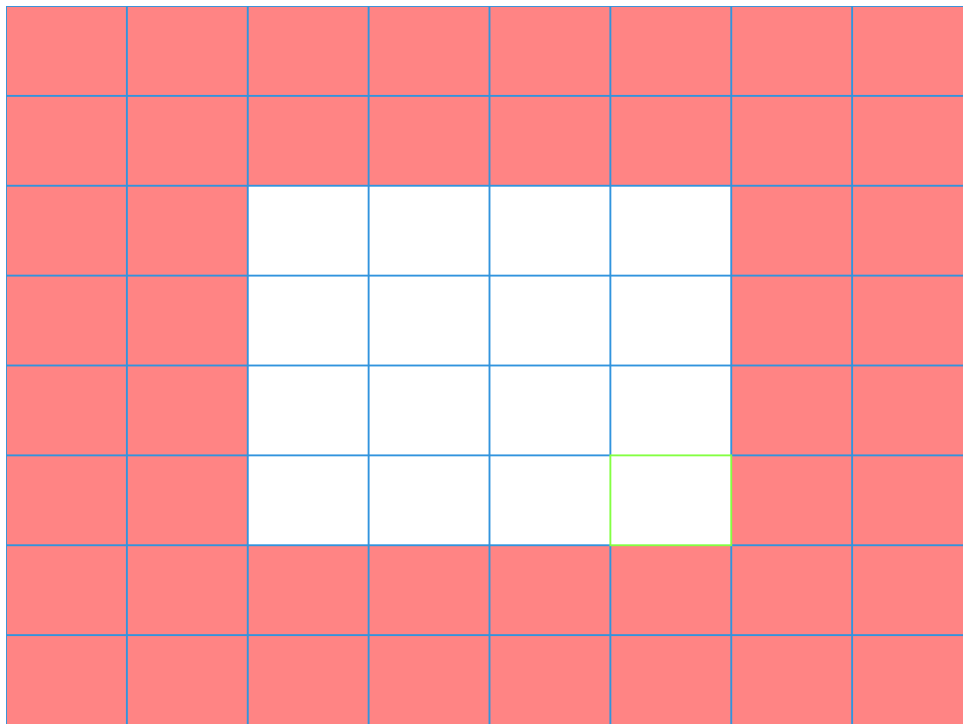
Picture 4.20 Motion Detect

【Channel】 Choose the set motion detect channel.

【Status】 Indicates if the motion detect function is on or off.

【Sensitivity】 Choose six sensitivity options.

【Region】 Click setup and enter the setup area. The area is divided into an 8x8 grid. Green block is the current cursor area, yellow blocks are the dynamic detect defensive area, and black blocks are the unfenced areas. You can set the area by dragging the mouse to draw the area.



Picture 4.21 Region

【Delay】 Delay a few moments and stop when the alarm state is turned off. The range is 10~300 seconds.

【Delay】 When alarm is over, recording will last 10~300sec and then stop.

【Show message】 The alarm information dialog box will open in the local host computer screen.

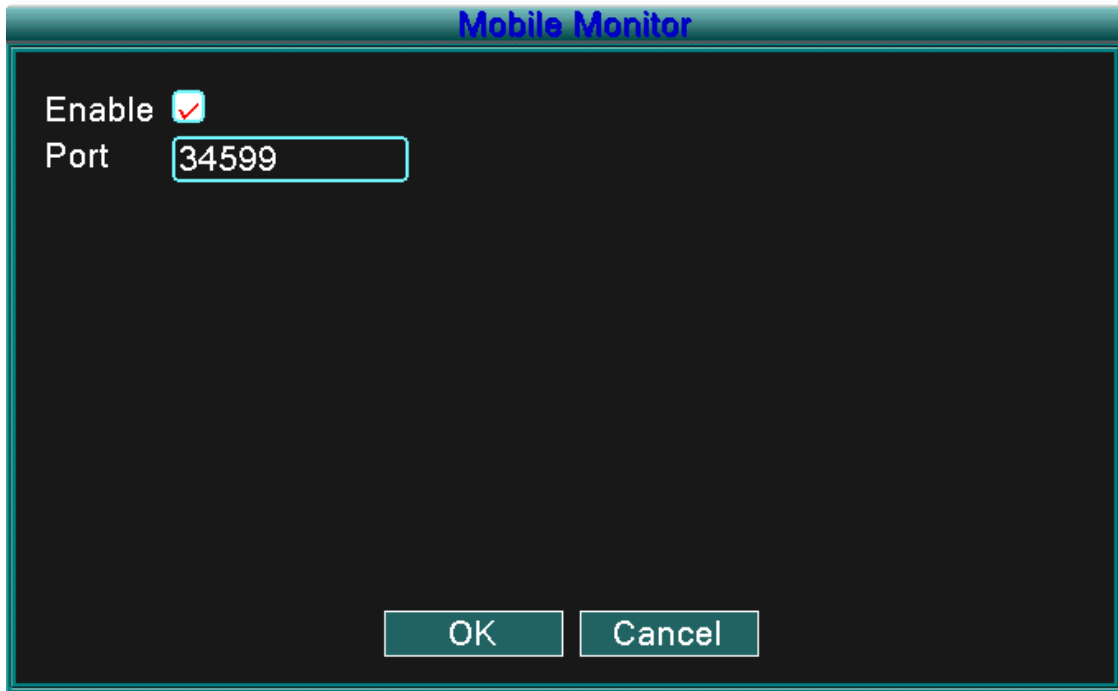
【Send EMAIL】 Means sending an email to user when the motion detect alarm is activated.

Note: Set in the [Net Service] to send email.

【Buzzer】 Buzzer alarm will sound twice when the motion detect alarm is activated.

4.6.4 Mobile Monitor

To monitor the system by mobile device, please make a router mapping of this port and use CMS to monitor and operate it by protocol.



Picture 4.22 Mobile Monitor

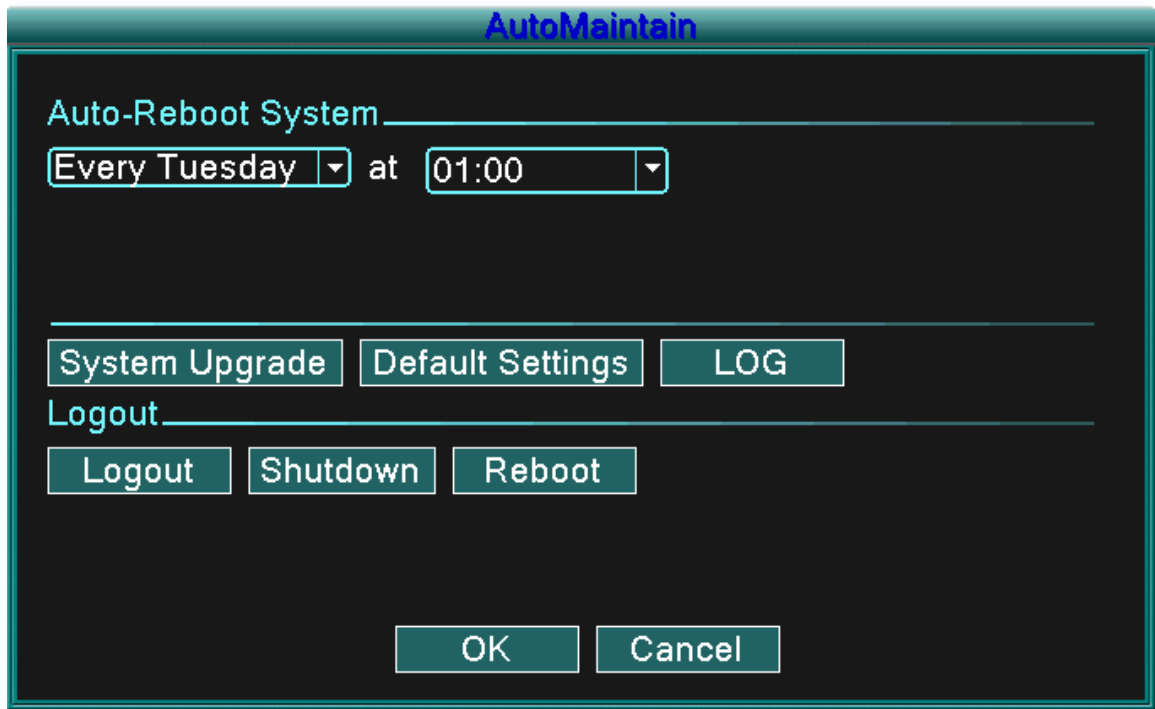
【Enable】 Select it to activate function.

【Port】 The port used for mobile monitoring which you need to make a router mapping of if want to monitor by mobile device.

4.6.5 Auto Maintain

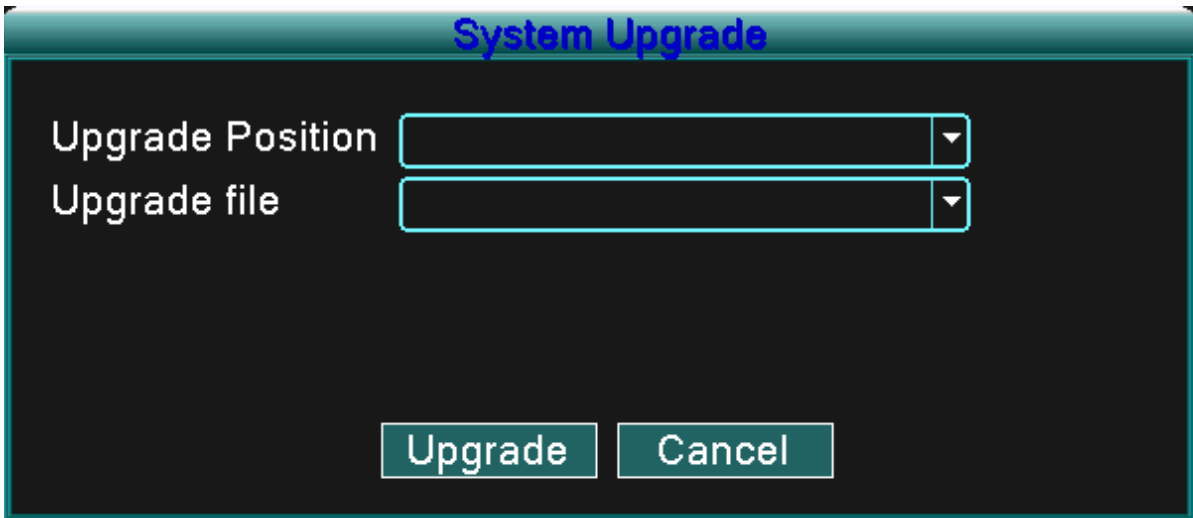
The user can set parameters to include:

Auto reboots time, System Upgrade, Default Settings, Log, Log out, Shut down, reboot, ETC.



Picture 4.23 Auto maintain

【Upgrade】



Picture 4.25 Upgrade

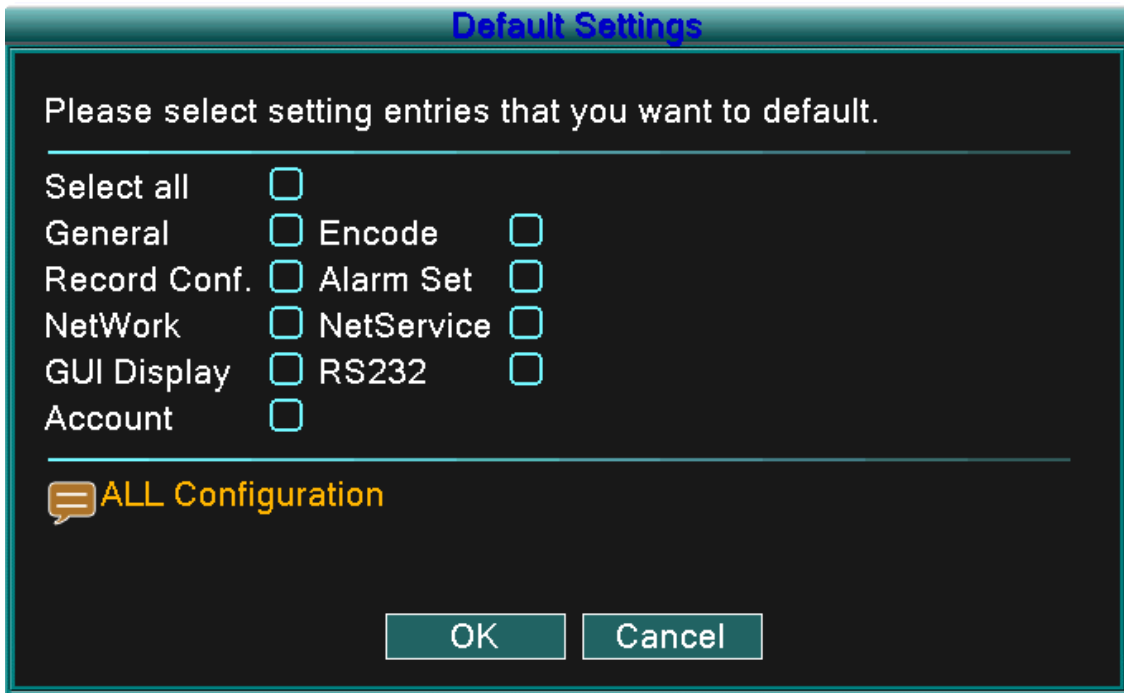
Upgrade Position: Choose USB interface.

Upgrade file: Choose the file which needs upgraded.

Note: After Upgrade operation, the DVR will reboot.

【Default Settings】

The system restore to the default setup. You can choose the items according to the menu.

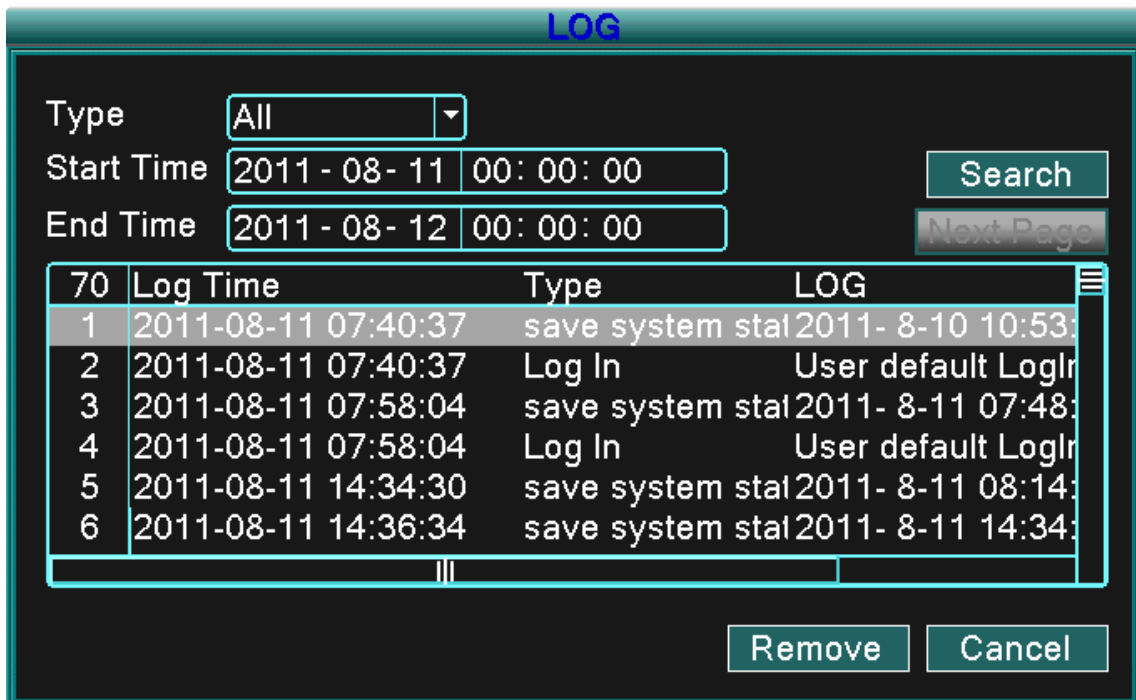


Picture 4.24 Restore

【Log】

Look up system log according to the set mode.

Log information includes: system operation, configuration operation, data management, alarm affair, recording operation, user management, and file management, ETC. Set the time section to look up and click the look up button. The log information will display as a list (one page equals 128 items). Click Page up or Page down button to search log and click Remove button to clear that log information.



Picture4.26 LOG

【logout】 Quit the menu and password is required for next entry.

【shutdown】 Quit the system. Power off DVR.

【reboot】 Quit the system. Reboot system.

4.6.6 PTZ Configure

The screenshot shows a 'PTZ Config' window with a table of settings for four channels. Each setting is a dropdown menu. At the bottom are three buttons: 'Default', 'OK', and 'Cancel'.

Channel	CH1	CH2	CH3	CH4
Protocol	PELCOD	PELCOD	PELCOD	PELCOD
Baudrate	4800	4800	4800	4800
Data Bits	8	8	8	8
Stop Bits	1	1	1	1
Parity	None	None	None	None
Address	1	1	1	1

Buttons: Default, OK, Cancel

Picture 4.27 PTZ Configuration

【Channel】 Choose the dome camera input channel.

【Protocol】 Choose the corresponding dome protocol. (PELCOD as an example)

【Baud rate】 Choose the corresponding dome baud rate length. You can control the PTZ and division. Default: 115200.

【Data bits】 Include 5-8 options. Default: 8.

【Stop bits】 Include 2 options. Default: 1.

【Parity】 Includes odd check, even check, sign check, blank check. Default: void.

【Address】 Set as the corresponding dome address. Default: 1. (Note: The address must be consistent with the dome address.)

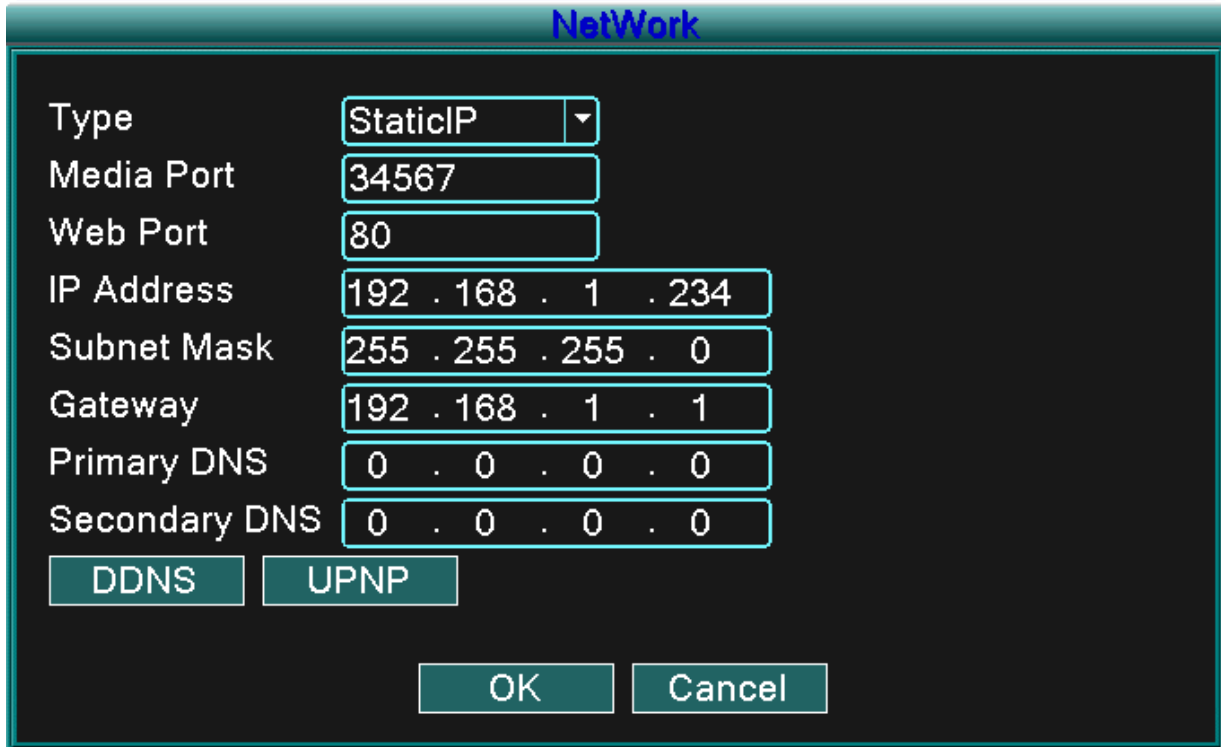
Note: Clicking the “Default” button will replace all configurations with default settings.

4.6.7 Network

Network setup includes:

Static IP, DHCP, PPPoE, DDNS, UPNP, ETC.

【Static IP】



The screenshot shows a 'NetWork' configuration window with the following fields and values:

Type	StaticIP
Media Port	34567
Web Port	80
IP Address	192 . 168 . 1 . 234
Subnet Mask	255 . 255 . 255 . 0
Gateway	192 . 168 . 1 . 1
Primary DNS	0 . 0 . 0 . 0
Secondary DNS	0 . 0 . 0 . 0

Below the fields are two buttons: **DDNS** and **UPNP**. At the bottom are **OK** and **Cancel** buttons.

Picture4.28 Network

【Type】 select Static IP mode.

【TCP/Media port】 Default: 34567.

【HTTP/Web port】 Default: 80.

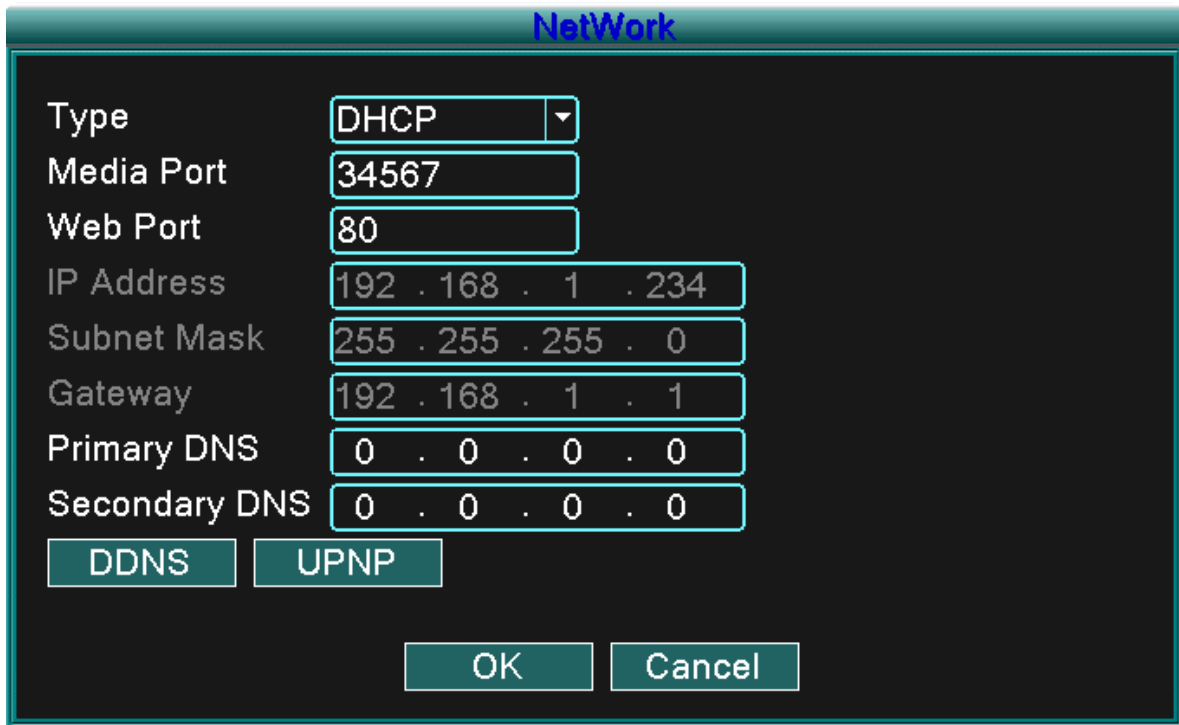
【IP address】 Set the IP address. Default: 192.168.1.10.

【Subnet mask】 Set the subnet mask code. Default: 255.255.255.0.

【Gateway】 Set the default gateway. Default: 192.168.1.1.

【DNS setup】 Domain Name Server. It translates the domain name into an IP address. The IP address is given by network provider. The address must be set and the system rebooted to become effective.

【DHCP】 Get the IP address from the router automatically.



Picture4.29 DHCP

【Type】 select DHCP IP mode.

【TCP/Media port】 Default: 34567.

【HTTP/Web port】 Default: 80.

【DNS setup】 Domain Name Server. It translates the domain name into IP address. The IP address is given by the network provider. The address must be set and the system rebooted to become effective.

【PPPoE】

The screenshot shows a configuration window titled "NetWork" with a dark background. The fields are as follows:

Type	PPPOE
Media Port	34567
Web Port	80
User Name	
Password	
IP Address	
Primary DNS	202 . 118 . 232 . 108
Secondary DNS	202 . 118 . 232 . 108

Below the fields are two buttons: "DDNS" and "UPNP". At the bottom are two buttons: "OK" and "Cancel".

Picture 4.30 PPPOE

Input the user name and password that ISP (Internet service provider) provides. After saving reboot your system to become effective. Then the DVR will build a network connection based on the PPPoE. The IP address will change into a dynamic IP address after the above operation is successful.

Operation: After the PPPoE dialup is successful the IP address [IP address] is obtain and entered as the current IP address and then use this IP address to visit the DVR through user port.

【DDNS】

Is the abbreviation of Dynamic Domain Name Server.

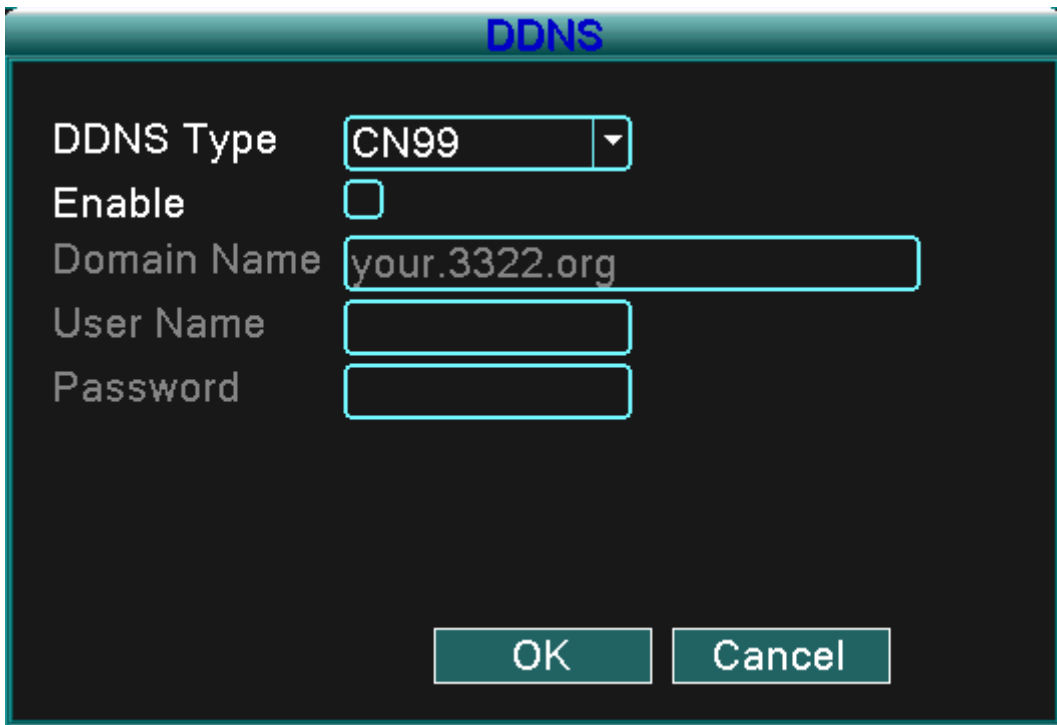
Local domain name: Provide the domain name registered by DDNS.

User name: Provide the account name registered by DDNS.

Password: Provide the password registered by DDNS.

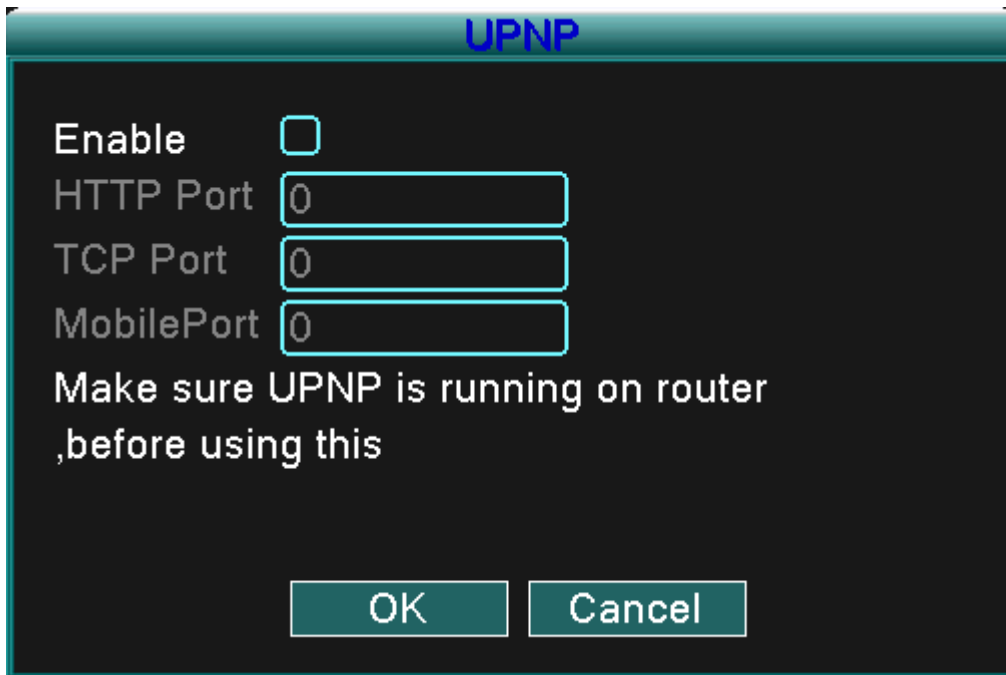
When the DDNS is successfully configured and started, you can connect by entering the domain name in the IE address column to monitor.

Note: The DNS setup must be configured correctly in the network setup.



Picture 4.31 DDNS setup

【UPNP】UPNP protocol can auto port forwarding on router, make sure UPNP is running on router before using it.



Picture 4.32

【Enable】 Choose Enable to make sure all UPNP settings are available

【HTTP】Router will automatically distribute HTTP port for the device, when IE viewing, it will require this port setting (e.g. 60.12.9.26:66)

【TCP】 Router will automatically distribute TCP port for the device, when monitoring via CMS, it will require this port setting.

【Mobile Port】 Router will automatically distribute Mobile Port for the device, when mobile monitor, it will require this port setting.

5 FAQ and maintenance

5.1 FAQ

1. The DVR cannot boot up normally.

Possible reasons:

1. The power supply is not correct.
2. Verify power switch is ON.
3. Power supply may be damaged.
4. The program update is incorrect.
5. The hard disk is damaged or the hard disk cables are broken or not connected.
6. The front panel array is damaged.
7. The main board of the DVR is damaged.

2. The DVR reboots automatically or stops working after a few minutes.

Possible reasons:

1. The input voltage is not stable or too low.
2. The hard disk is damaged or the hard disk cables are broken or not connected.
3. Video signal is not stable.
4. Too much dust or poor environment conditions.
5. The DVR hardware is damaged.

3. System cannot detect hard disk.

Possible reasons:

1. The hard disk power supply line is not connected.
2. The cables of the hard disk are damaged or not connected properly.
3. The hard disk is damaged.
4. The SATA port of main board is damaged.

4. There are no video outputs in single channel, multiple channels, or all channels.

Possible reasons:

1. The software program and drivers may need to be updated.
2. The image brightness is set to 0. Please restore the default settings.

3. There is no video input signal or the signal is too weak.
4. The channel protection or the screen protection is set.
5. The DVR hardware is damaged.

5. Real-time image problems such as the image color or the brightness distortion.

Possible reasons:

1. When using the BNC output, the option between the N mode or PAL mode is incorrect and the image becomes black and white.
2. The DVR is not matched the monitor impedance.
3. The video transmission distance is too far or the loss of the video transmission line is too large.
4. The color and brightness setting of the DVR is incorrect.

6. I cannot find the video files in local playback mode.

Possible reasons:

1. The data line of the hard disk is damaged.
2. The hard disk is damaged.
3. Update the program with the original program files.
4. The video files to look up are hidden or within another file.
5. The recording function is not set to ON.

7. The local video is not clear.

Possible reasons:

1. The image quality is bad.
2. The reading program is incorrect, reboot the DVR.
3. The data line of the hard disk is damaged.
4. The hard disk is damaged.
5. The DVR hardware is damaged.

8. There is no audio signal in the surveillance window.

Possible reasons:

1. It is not an active audio channel.
2. The audio files are damaged.
3. The audio lines are damaged.

4. The DVR hardware is damaged.

9. There is audio signal in the surveillance window but no audio signal during playback.

Possible reasons:

1. The audio option is not chosen in the settings.
2. The allocated channel is not connected with the video.

10. The time is wrong.

Possible reasons:

1. Incorrect settings.
2. The battery is bad or the voltage is too low.
3. The DVR hardware is damaged.

11. The DVR cannot control the PTZ.

Possible reasons:

1. There is something wrong with the PTZ.
2. The settings, connection, or the installation of the PTZ decoder is incorrect.
3. The connections are not correct.
4. The DVR PTZ settings are incorrect.
5. The protocols of the PTZ decoder and the DVR are not matched.
6. The address of the PTZ decoder and the DVR are not matched.
7. When multiple decoders are connected, the far port of the PTZ decoder line A (B) must connect to a 120 Ω resistance to reduce the reflection, otherwise the PTZ control is not stable.
8. The distance is too far.

12. The motion detect function is not working,

Possible reasons:

1. The time range setting is incorrect.
2. The motion detect area setting is incorrect.
3. The sensitivity is too low.
4. Limited by some hardware version.

13. I cannot login via web or CMS.

Possible reasons are as followed:

1. The systems are Windows® 98 or ME. Update to Windows® 2000 SP4 or higher version.
2. ActiveX is disabled.
3. The driver version must be higher than dx8.1. Update the display card driver.
4. Network connection failure.
5. Network setting issues.
6. Invalid password or user name.
7. The CMS does not match the DVR program version.

14. The image is not clear or there is no image in network preview state or video file playback state.

Possible reasons:

1. Network is not stable.
2. The user machine resources are limited.
3. Choose the play-in-team mode in the network setup of DVR.
4. The region shelter or channel protection is set.
5. The user has no surveillance authority.
6. The real-time image of the hard disk recording machine itself is not clear.

15. Network connection is not stable.

Possible reasons:

1. Network is not stable.
2. IP address conflict.
3. MAC address is conflict.
4. The net card of the DVR is bad.

16. There is something wrong with the USB backup or writing to a CD.

Possible reasons:

1. The rewritable CD drive and the hard disk share the same data lines.
2. The data file is too large, stop recording and backup.
3. The data exceeds the backup storage limit.
4. The backup equipment is not compatible.
5. The backup equipment is damaged.

17. The keyboard cannot control the DVR.

Possible reasons:

1. The serial port of the DVR is not set correctly.
2. The address is not correct.
3. When multiple transformers are connected, the power supply is not large enough. Please give each transformer an individual power supply.
4. The distance is too far.

18. The remote control is not working,

Possible reasons:

1. The remote control address is not correct.
2. The remote control distance is too far or the angle is too large.
3. The batteries are low on power.
4. The remote control IR on the front panel of the DVR is damaged.

19. The storage time is not enough.

Possible reasons:

1. The hard disk capacity is too small.
2. The hard disk is damaged.

20. The downloaded files cannot play.

Possible reasons:

1. There is no media player.
2. There is no DX8.1 software or higher edition.
3. There is no DivX503 Bundle.exe file to play AVI video files.
4. The DivX503 Bundle.exe and ffdshow-2004 1012 .exe files must be installed in the Windows® XP system.

21. I cannot remember the advanced code or network code in the local menu operation.

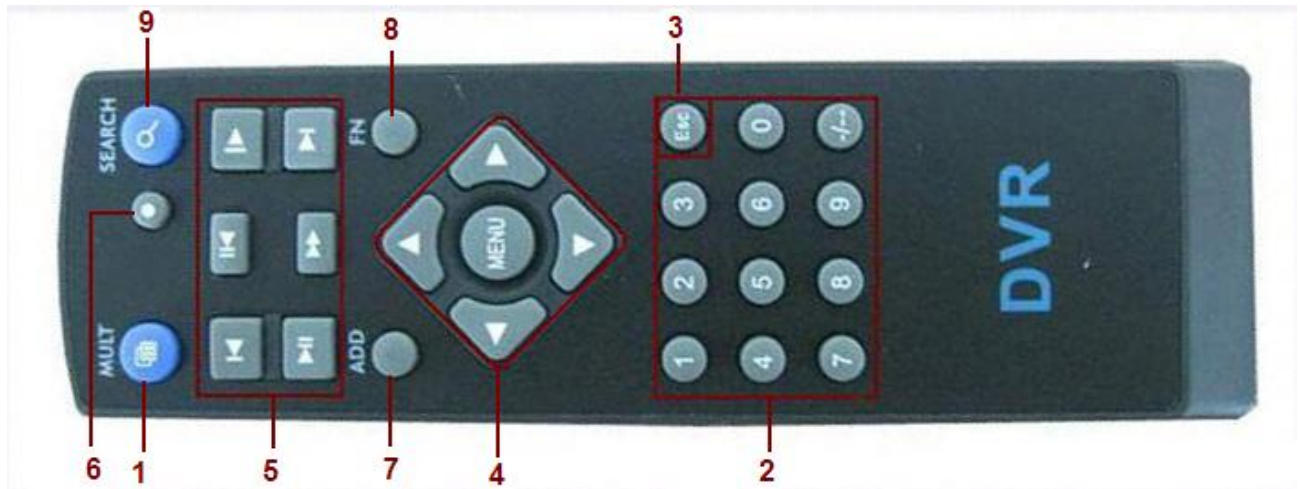
Please contact your local IP service.

5.2 Maintenance

1. Please ensure the system is grounded to prevent video or audio signal interference and the DVR from static or inductive electricity.
2. Do not disconnect the video signal line, RS-232 port, or RS-485 port with the power on.

3. Do not connect a TV to the local video output port (VOUT) of DVR. It will damage the video output circuit.
4. Do not turn the power switch off directly. Please use the shutdown function in the menu or click the turn-off button in the panel to protect the hard disk.
5. Please keep the DVR away from heat resource.
6. Please keep the DVR ventilated for better heat radiation.
7. Please check the system and maintain regularly.

Appendix 1. Remote control operation



Item number	Name	Function
1	Multi-window button	Split screens button
2	Numeric button	Code input/number input/channel switch
3	【Esc】	Exit button
4	Direction button	Up, Down, Left, Right, and Enter/Menu button.
5	Record/Playback control	Control recording/playback
6	Record mode	Enter short menu as “record mode” button
7	ADD	Input the number of DVR to control
8	FN	Assistant function
9	Search	Search record files to playback.

Appendix 2. Mouse operation

The USB ports support mouse operations.

NOTE: Units with front and rear mouse USB ports can only utilize one port at a time – if a USB device is connected to one of the ports the other is automatically deactivated. The bottom rear USB port is designated for USB backup drives.

Operation	Function
Double left click	Double click one item in the file list to playback the video.
	Double click the playback video to zoom in or out.
	Double click the channel to make it display full screen.
	Double click again to resume the multi-window display.
Left click	Choose the associated function in the menu
Right click	Open the desktop shortcut menu in a preview state
	Current shortcut menu in the main menu
Press middle button	Add or subtract number in the number setting
	Switch the items in the combo box
	Page up or down in the list
Move mouse	Choose the widget or move the item in the widget
Drag mouse	Set the motion detect area
	Set the cover area

Appendix 3. Hard disk capability calculation

Verify the following when installing the hard drive in the DVR for the first time:

1. Hard disk capacity

There is no limit for recording machine. We recommend 120G~ 250G sizes to keep better stability.

2. Overall capacity option

The hard disk capacity formula is:

Overall capacity (M) = channel number*time (hour) *capacity in an hour (M/hour)

The recording time formula is:

$$\text{Recording time (hour)} = \frac{\text{overall capacity (M)}}{\text{Capacity in an hour (M/hour) *channel number}}$$

The DVR introduces the H.264 compression technology. Its dynamic range is very large so the hard disk capacity calculation is based on the estimation values of each channel creating files in an hour.

Example:

For one 500G HDD, real time CIF for recording, it will keep recording for about 25 days. HDD spaces per channel are 200M/H, if 4channels real time CIF at 24hours recording uninterrupted, it can last: $500G/(200M/H*24H*4ch) = 26$ days

Appendix 4. Technical Specifications

	Type	4ch	8ch	16ch
System	Main processor	High performance embedded microprocessor		
	Operation system	Embedded LINUX operation system		
	System resource	synchronous multi-channel recording, synchronous multi-channel sub-code stream, synchronous multi-channel playback, synchronous network operation		
Interface	Operation interface	16 bit true color graphical menu interface, mouse operation supportive		
	display	1/4 image display	1/4/8/9 image display	1/4/8/9/16 image display
Video	Video standard	PAL 625line,50 f/s; NTSC 525 line,60 f/s		
	Surveillance image quality	PAL, D1(704x576);NTSC, D1(704x480)		
	Playback image quality	PAL,D1(704x576);NTSC, D1(704*480)		
	Video compression	H.264 mp		
	Video control	6 options		
	Recording speed	100/120fps (D1)	200/240fps(CIF), 50/60fps D1	400/480fps CIF
	Motion detect	64(8x8) detection areas, multiple sensitivity		
Audio	Audio compression	G711A		
	Bidirectional Talk	Support		
Record	Recording mode	manual >alarm>motion detect>timing		

And Playback	Playback	Any channels playback, multiple channels playback		
	Search mode	Time searching, calendar searching, affair searching, channel searching, information searching		
Storage And backup	Space Occupation	Audio: 28.8MB/H Video:25~450MB/H		
	Recording storage	Hard disk, network		
	Backup mode	Network, USB flash, USB movable HDD,USB DVD-RW		
Port	Video input	4 BNC	8 BNC	16 BNC
	Video output	1 BNC, 1 VGA		
	Audio input	4 RCA		1 RCA
	Audio output	1 RCA		
	Network port	RJ45 10M/100M		
	PTZ control port	1 RS485		
	USB port	2* USB2.0 ports		
	Hard disk port	1 SATA port		
Other	Power supply	12V/2A external power supply		
	Power consumption	<15W (without hard disk)		
	Working temperature	0 ~55 °C		
	Working humidity	10%—90%		
	Air pressure	86kpa—106kpa		
	Size	260*200*43mm		
	Weight	2kg (without hard disk)		
	Installation	Desktop		