

# Embedded DVR User Manual

## 1. PRECAUTIONS

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

DVR should work on proper temperature and humidity.

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.

All pictures not from the same machine, showing illustrative purposes only.

Contact the customer service department when you have any question or want newest software and file.

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## 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 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

#### **LIVE VIEW**

CVBS interface, TV, VGA/HDMI synchronous output.

#### **COMPRESSION**

H.264 video compression, G.711 audio compression, supports D1 25 fps resolution.

#### **RECORDING**

Recording modes include manual, time, alarm, motion detection, etc.; Support SATA HDD and local disk S.M.A.R.T. technology, Support USB backup and internet backup.

#### **PLAYBACK**

Playback search by various conditions, local and network playback; support multiple channel simultaneous playback, support fast, slow, rewind and frame mode; support exact time playback.

#### **CAMERA CONTROL AND ALARM**

Remote camera control, Multi-channel alarm input interface for connecting various types alarm equipment; Motion detection alarm, video loss alarm, masking alarm; Multi-channel alarm output, alarm linkage and on-site lighting control.

#### **COMMUNICATION INTERFACE**

USB 2.0 high speed interface connecting various backup devices; Standard Ethernet interface, work under various networks.

## **NETWORK PROTOCOL**

Support TCP / IP, UDP, RTP / RTSP, DHCP, PPPoE, DDNS, NTP etc.; support network real-time live view, recording, playback, control; built-in WEB Server, IE browser for direct access.

## **OPERATION MODE**

Support the front panel, remote controls, mouse and so on many kinds of operating mode; With simple, intuitive graphical; With simple, intuitive graphical interface.

## **3.3. INSTALLATION**

### **3.3.1. CHECK DVR AND ACCESSORIES**

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

### **3.3.2. HDD INSTALLATION**

#### **Preparation**

Prepare a Cross Screwdriver.



Note: HDD quantity by each model's specifications shall be final, HDD capacity up to 64 TB.

#### **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 7.2.

### **3.3.3. WIRING INSTALLATION**

## Preparing for installation

Camera, displayer, AV cable, cable, mouse, other kinds cables.

## Installation Steps

DVR in a horizontal position, connect camera to video input interface in back panel.

Connect video output to the displayer.

Connect cable to RJ45 interface when access network.

Mouse should be USB interface type, front or back panel USB interface both work.

Power supply.

## Caution

For an external alarm device or PTZ, please refer to the relevant instructions.

DVR power lines should be under all lines connected correctly.



Note the power parameters when access to a variety of power.

## 3.4. PANEL INTRODUCTION

### 3.4.1. FRONT PANEL

Front Panel:



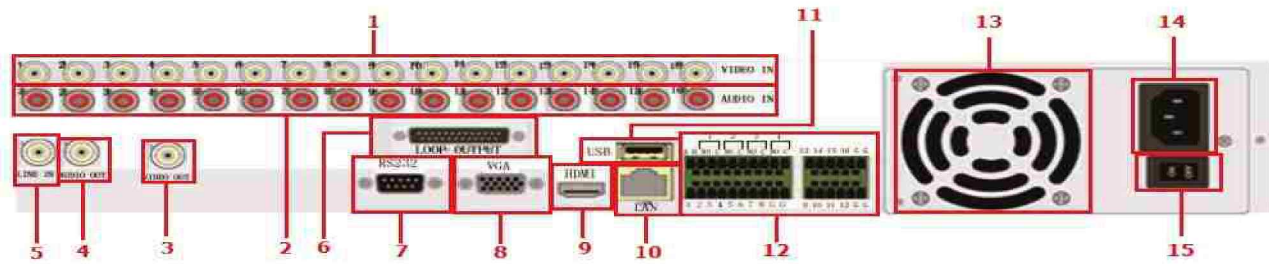
Front panel:

Index	Name	Function
1	Power switch	Receive remote control signal;
2	USB interface	Connect USB devices such as U drive



3	Remote control receiver	Receive remote control signals
4	Power/RUN/REC/ NET/ALARM LED	Light for power on state / the machine to work/video status/ network connection/alarm trigger
5	DVD burner	DVD burning
6	Direction key	Cursor keys , select menu option
	ENTER confirmation key	Menu setup confirmation
7	Channel selection key	Achieving channel selection single , picture to enlarge
8	Function key	Menu key ESC return key
		FN accessibility key PTZ dome control key
		REC video key PLAY playback key
		PRE next PAUSE pause key
		NEXT preceding STOP stop key
		MODE image key MUTE mute key
9	Shuttle key	Playback fast forward Rewind control screen switch

Back Panel:



Back Panel:

No.	Physical interface	ID Description
1	Video input	16-channel video input (BNC)
2	Audio input	16-channel audio input (RCA)
3	Video output	1 channel video output interface(BNC)
4	Audio output	1-channel audio output interface (RCA)
5	Intercom input	1-channel intercom input
6	Extension interface	Loop-out extention interface
7	RS 232 interface	1-channel RS232 communication interface
8	VGA interface	1-channel VGA display interface
9	HDMI interface	HDMI HD output interface
10	LAN interface	1-channel network interface (RJ45)
11	USB interface	1-channel USB Interface (available to U disk backup or mouse)
12	I/O Alarm, serial interface	Alarm input/output interface , PTZ interface
13	Fan outlet interface	ATX power supply fan air outlet
14	Power interface	AC power connector

### Alarm input and output connections

- Alarm input

A. Alarm input is grounding alarm input.

B. Alarm input demand is the grounding voltage signal.

C. When the alarm is connected with two DVRs or connected with DVR and other equipments, it should be isolated by relay.

● **Alarm output**

Alarm output can not be connected with high-power load (no more than 1A). When forming the output loop it must prevent the big current from relay damage. Use the contact isolator when there is a high-power load

● **PTZ decoder connections**

A. The grounding of the PTZ decoder and DVR must be shared otherwise the common-mode voltage will lead to the PTZ control failure. The shielded twisted pair is recommended.

B. Avoid the entrance of high voltage. Make the layout reasonably. Take precaution from the thunder.

C. In the outlying end connect 120Ω resistance paralleled to reduce the inflection and insure the signal quality.

D. The 485 AB lines of DVR can not connected with other 485 output equipments paralleled.

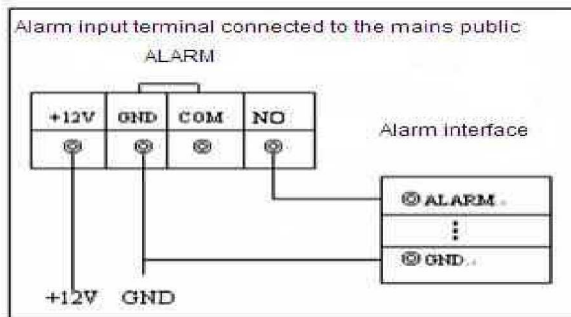
E. The voltage between the AB lines of the decoder must be less than 5V

● **Front equipment grounding note**

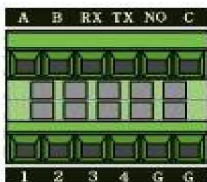
Bad grounding can lead to the burnout of the chip.

● **Alarm input type unlimited**

The DVR alarm output port is constant opening type



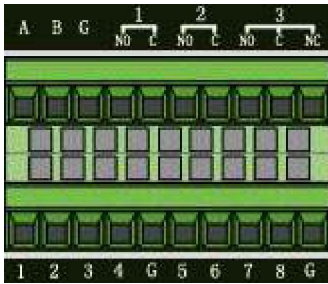
4-CH Alarm Terminal



Icon	Instructions	Icon	Instructions
1-4	Alarm input	G	GND
A、B	RS485	RX、TX	RS232 □
NO、C	Alarm output		

**Note:** Alarm input, the need to ground phase, 【NO】 is opening type.

8-CH and 16-CH Alarm Terminal



Icon	Instructions	Icon	Instructions
1—8	Alarm input	G	GND
A、B	RS485	1 (NO、C)	Alarm output 1
2 (NO、C)	Alarm output 2	3 (NO、C、NC)	Alarm output 3

**Note:** Alarm input, the need to ground phase, 【NO】is opening type, 【NC】is closing type, 【NO】is the common

#### ◆ Alarm input port specification

1 channels alarm input. Alarm input type unlimited.

The grounding and the com port of the alarm sensor are parallel (The alarm sensor is external power supply).

The grounding of the alarm and the DVR should be shared.

The NC port of the alarm sensor must be connected with the DVR alarm input port.

The grounding of the power supply and the alarm sensor must be shared when used in external power supply.

#### ◆ Alarm output port specification

1 channels alarm output. There is external power supply when using the external alarm equipment.

Please refer to the relay relevant parameters to avoid the overload that damages main machine.

#### ◆ Alarm output port relay parameters

#### ◆ Speed dome connections

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

2、 Connect the video line with the DVR video input.

3、 Electrify the speed dome.

## 3.5. MOUSE

In addition to front panel keys and remote control menu, the user can use mouse for menu functions.

Insert mouse with USB interface into machine panel.

### Click Left Button

If the user does not log in, password box will pop up first; click the left mouse button to enter the main menu when real-time monitoring.

Left click mouse the Options icon enter the menu.

Exact Instructions on control

Change the state of check box and dynamic detection block.

Click the combo box drop-down list will pop up.

Under 3D PTZ control mode, click the mouse and drag to lower right can achieve 3D PTZ control .drag from lower right to up left, make 3D PTZ control narrow, details refer to 4.1.2 PTZ.

### **Double Click Left Button**

Select and confirm or open, for example, double-click playback video.

Under multi-screen double click one channel can make the picture full screen; double-click again to return to the previous multi-screen.

### **Click Right Button**

Pop-up context menu under monitor screen

Exit without saving under menu interface.

### **Turning Wheel**

Increase or decrease value when fill digital box Switch combo box options.

Flip up and down for list box.

Achieve PTZ 3D zoom function.

### **Mouse Move**

Select controls in current coordinates to move.

### **Mouse Drag**

Select motion detection area.

Set up regional coverage area.

Select 3D PTZ zoom function.

## **3.6. INPUT METHOD**

In the input box, choose numbers, symbols, case in English input. Click left mouse button to select value; ← means backspace, \_ means a space.

Letter Input Interface



DIAGRAM 3-1 LETTER INPUT INTERFACE

### Number Input Interface



DIAGRAM 3-2 NUMBER INPUT INTERFACE

### Special Symbols Input Interface



DIAGRAM 3-3 SPECIAL SYMBOLS INPUT INTERFACE

### Chinese Input Interface



DIAGRAM 3-4 CHINESE INPUT INTERFACES.

## 3.7. POWER ON/OFF

### 3.7.1. POWER ON

DVR installed correctly, switch on with power light is on, DVR will boot up automatically. Different model have different boot up status, please refer to the Front-panel Introduction.

DVR will detect the hardware when power on, the process will last 20 seconds more or less. After the detection, DVR make a “Buzzing” sound and enter into a multi-screen live view, user can operate now. Please refer to XXX. Main Menu Introduction and Other Introduction.

If recording time contain power up time, DVR will automatically start timing recording when power on .



DIAGRAM 3-5 LIVE VIEW

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

### 3.7.2. POWER OFF

Hold down on-off key to turn off device.

**【Main Menu】** → **【Power off】** → **【Power off】** .



DIAGRAM 3-6 TURN OFF DEVICE

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

### 3.7.3. OUTAGE RECOVERY


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

## 3.8. ICON


### 3.8.1. STATUS ICONS

: Record

: Video loss

: Motion detection

: Channel lock

: Allows screen to switch polling.


### 3.8.2. OPERATION ICON




: Not Selected

: Selected


: Down Menu


: Confirm revise/get into menu.


: Cancel revise /cancel get into menu


: Set parameters

: Save parameters

: Restore factory settings, return to the last set of parameters after the modified parameters,

: Apply current set to the system.

: Copy current set to other channels.

: Enter the configuration menu.

: Config alarm, video detection trigger's processing

### 3.9. LIVE VIEW

Power on DVR and entry into live view mode: there are date, time, channel names icons which indicate recording and alarm status display on screen.

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

When 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. Shows as Diagram 3-7 Alarm Stature:

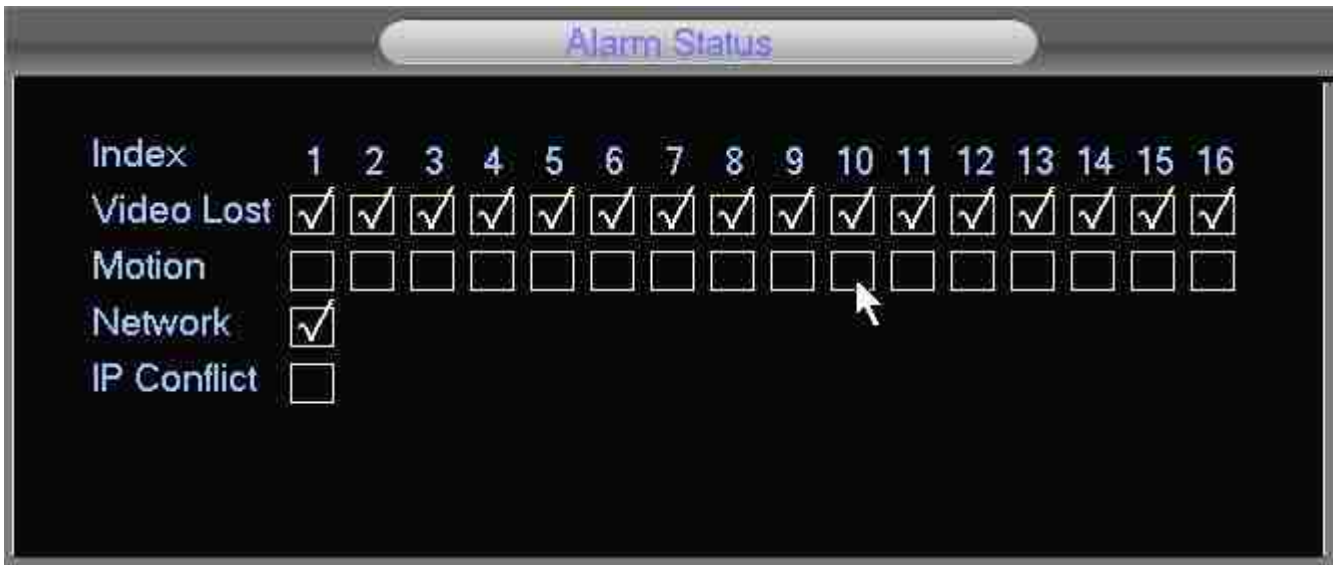


Diagram 3-7 Alarm Status

#### 4 OPERATION GUIDE

##### 4.1 RIGHT BUTTON MANU

Click the right mouse button after booting into the real-time browser interface, action menu pop-up, shows as Diagram 3-8 Right button menu.

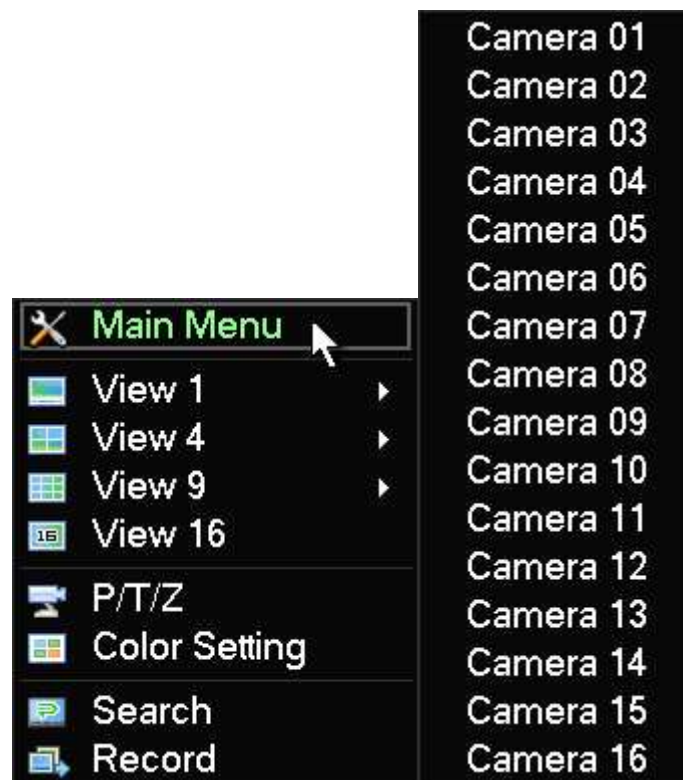


DIAGRAM 3-8 RIGHT BUTTON MENU

#### 4.1.1 SCREEN SWITCHING

Max 16 channel in one screen, user can choose single, four, nine and sixteen channel.

#### 4.1.2 PTZ CONTROL

Get into Output →

P/T/Z, Set PTZ protocol, baud rate, address bits, PTZ can work, for details refer to chapter 6.4.

#### 4.1.3 IMAGE

Adjust the specified screen (single screen) image color hue, brightness, contrast, saturation, gain and white-level parameters set two time periods according to the local environment difference between day and night for each adjustment period set, the device will automatically switch to the best video quality . As shown in Diagram 3-9 Image Color.

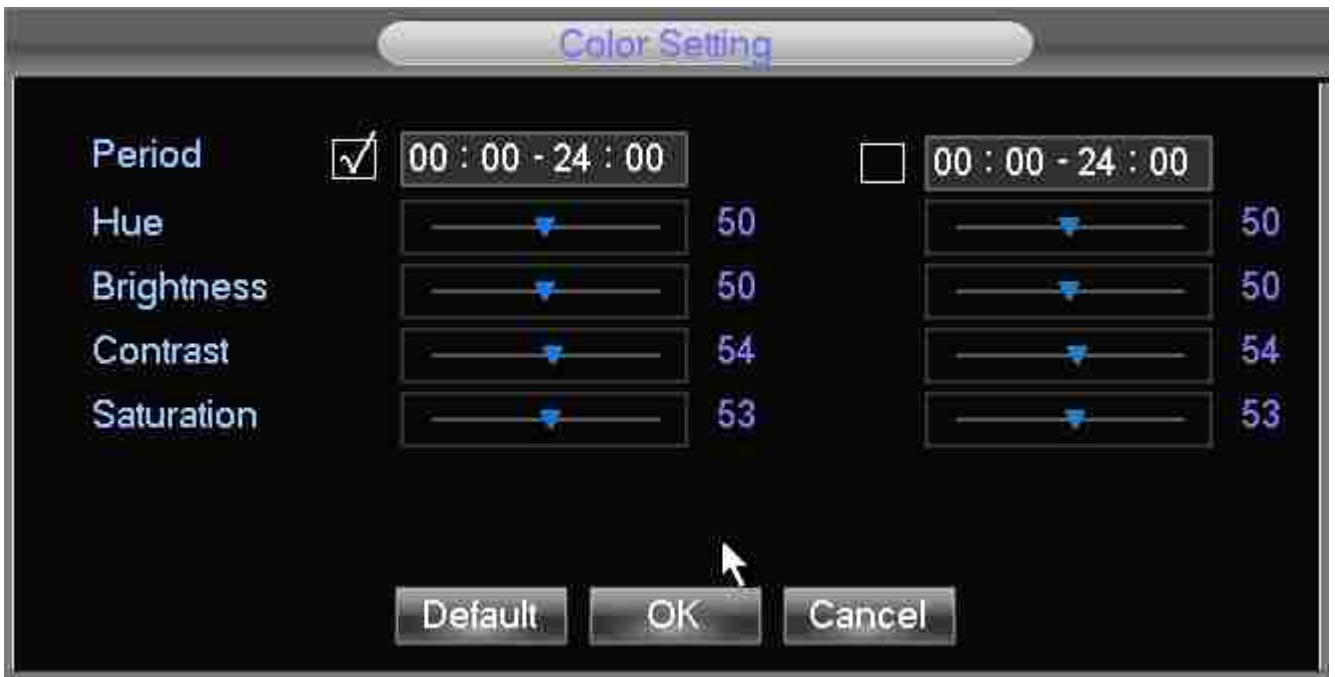


DIAGRAM 3-9 IMAGE COLOR

**【Period】** Two periods can be set according to ambient light during the day and night, device will automatically switch configuration time. Need to select the Enable box.

**【Hue】** Adjust according to image color cast

**【Brightness】** Visual image brightness, according to the environment, reduces or increases the brightness of the image brightness to make the image relatively clear.

【Contrast】 Adjust image of black and white in proportion, the greater ratio, the brighter image.

【Saturation】 Image color purity, the greater value, the more colorful images.

【Gain】 Enlarge the image signal to improve signal quality.

【White Level】 Change the white level reference value, to improve the brightness of the image display.



Note: Different mode different function

#### 4.1.4 RECORDING SEARCH

Refer to 4.3 recording search.

#### 4.1.5 MANUAL RECORDING

Remark: manual user must have "RECORD" right

In live view screen, click on 【Manual Record】 , or press the 【video】 key on remote control into manual recording interface, as shown in Diagram 3-10 Recoding Control.



DIAGRAM 3-10 RECODING CONTROL

【Manual】 The highest priority, no matter what the current status of each channel, the corresponding channels will make common recording when press "Manual" button;

【Schedule】 Record according to recording type in recoding set. (Common motion Detection and alarm);

【Stop】 Stop all channel recording.

To change record status of one channel, firstly check the recording status of the channel is selected non-selected (non-selected indicates that the channel is not recording; selected indicates the channel in recording mode).Then use mouse to click, or use 【◀】 or 【▶】 arrow keys move the active box to the channel, then use 【▲】 or 【▼】 arrow keys or corresponding number key to switch the channel recording status.



Note: All selected can change record status for all channels

#### 4.1.6 ALARM OUTPUT

Refer to chapter 4.6.2 alarm output

#### 4.1.7 MAIN MENU

Click the【Main Menu】, input user name and password, click【OK】to enter the system menu. As shown in Diagram 3-11 system



DIAGRAM 3-11 SYSTEM LOGIN

Default users:

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

FORM 3-1 DEFAULT USERS



Note:

Password security: occur alarm after three time's 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 4.4.5 Uses

Management, Click **123** to toggle the character input method in mouse mode.

## 4.2 MAIN MENU INTRODUCTION

The main menu as shown, there are search, configuration , storage, output, maintain and shutdown .



DIAGRAM 3-12 SYSTEM MANU

**【Search】** Search recoding by type, channel, time and playback.

**【Configuration】** recording, motion detection, abnormal, alarm, system, network and user management configurations.

**【Storage】** HDD management and backup management.

**【Output】** PTZ, alarm output, serial and output mode configuration.

【Maintain】 to display the system log information, version information, stream statistics, and online user and set the factory default, automatic maintenance.

【Shutdown】 Log off the user menu, turn off the machine, restart the system, and switch user and other operations.

### 4.3 SEARCH

In real-time monitoring screen, click the right mouse button, click 【search】 , or enter video playback via main menu interface, as shown in Diagram 3-13 Record Search.

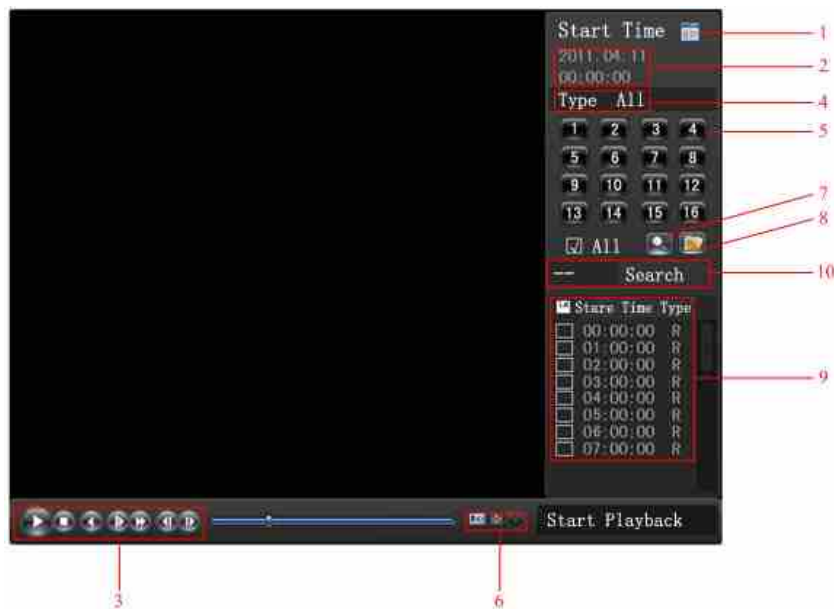




DIAGRAM 3-13 RECORD SEARCH

Index	Type	Description
1	Calendar	Click the calendar icon  to show the record list (only the dates with green background take records.) and then click a specific date to call the record. The list will be upgraded automatically.
2	Time	Select record search start and end time.
3	Play	Playback control: stop/play, pause, fast, slow, previous/next frame in pause.
4	Recoding mode	Choose searched recording mode, including whole, outside alarm, motive detection, whole alarm recording.
5	Channel	Choose searched channel

6	Play	Choose to play the previous or next file; choose to play the previous or next channel.
7	Search	Choose the start time, channel, and click “search” will display results in the list.
8	Backup	Tick “  <p>FORM 3-2 RECORD SEARCH INTERFACE DESCRIPTION</p>

Playback Control:

Key	Description	Remark
Video playback : Fast-forward button ►►	Under playback mode, pressing this key, you can get a variety of fast cycle switching speeds; fast-forward button can be used as slow-release button reverse switch key.	Actual play rate based on version
Video playback : Slow key ◀	Under playback mode, pressing this key, switch cyclically support a variety of slow-release rate, slow release button can be used as fast-forward button reverse switch key.	
Play/pause ►/	Play/pause switch when slow-play	
Backward: Backward key ◀	Single left click backward key	To play backwards and single click again to stop back run under common playback Rewind or single-frame playback, press the play button ►/   to enter the normal playback .
Manual single frame playback	single frame playback by clicking ◀  and  ► when common playback pause	

FORM 3-3 PLAYBACK CONTROL



Remark :

1, the player playback control bar show file playback speed, channel, time, playback progress and other information.

2, playback speed and rewind function are related to DVR version, and please prompt on the player panel shall prevail.

#### 4.4 CONFIGURATION

User can get into configuration through main menu; Function of system , record, network, alarm, account and abnormality as shown in Diagram 3-14 Configuration.



DIAGRAM 3-14 CONFIGURATION


##### 4.4.1 SYSTEM

Get into system configuration:



DIAGRAM 3-15 SYSTEM 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 Format】** :24 hr or 12 hr display mode

**【Language】** : language selections vary by different model)

**【Full HDD】** : 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.

**【Pack Duration】** :To set time length for each record, default is 60 minutes, the maximum is 120 minutes.

**【DVR 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 ( match camera model) .

**【Auto Logout】** : This ranges from 0-60 minutes. 0 means no setting. DVR will automatically let user quit after standby time’s vacancy.

#### 4.4.2 RECORD

Base management

The “Base management” interface:



DIAGRAM 3-16 RECODING CONFIGURATION-BASICALLY CONFIGURATION

**【Channel】** the channel selection

**【Compression】** H.264

**【Resolution】**main stream options are D1/CIF, frame rate scope is different depending on channel and resolution. Vice stream support D1/CIF. Main stream parameters are selectable.

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



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

**【Bit Rate Control】** Constant Bit rate or Variable Bitrates. Bit rate can be setted in Constant 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】** Enable or disable the recording of video and audio per channel.

**【Snapshot】** Select the main stream/extensional stream audio and video resolution coding on and off.

**【Snapshot Mode】** Trigger capture, capture picture when alarming.

**【Picture Size】** CIF capture

**【Picture Quality】** 6 levels

**【Snapshot Rate】** set highest capture rate for single channel, 1s/pc 2s/pc 3s/pc 4s/pc 5s/pc 6s/pc 7s/pc 8s/pc

**【More Configuration】** enter **【Configuration】**

**【Channel Name Display】** show channel name in screen or not

**【Date Display】** show date or not

**【Channel Display】** drag channel title, save instantly, after quitting by right button, position of channel title would not vary in displayer or monitor ,varied position can be shown recorder and WEB interface.

**【Time Display】** drag time title, save instantly, after quitting by right button,position of time title would not vary in displayer or monitor ,varied position can be shown recorder and WEB interface.

**【Video Cover】** 4 zones preview and display protect, privacy zone can adjust area.

**【Preview】** set masking zone, masking zone shown in the screen when display, no masking zone in web and record.

**【Monitor】** set masking zone, masking zone shown in the screen when display or record.

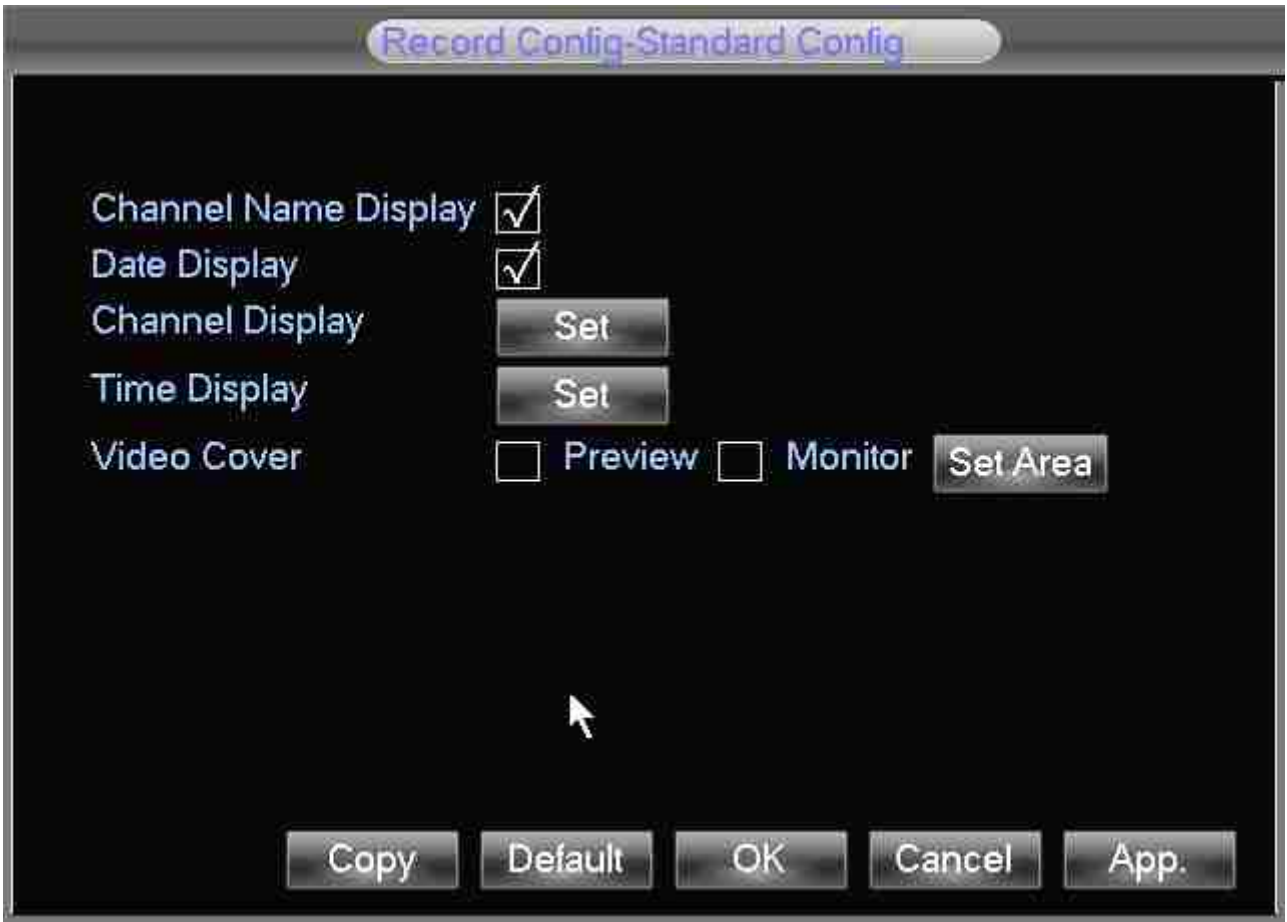


DIAGRAM 3-17 MORE CONFIGURATIONS

**【Copy】** copy one channel's configuration to other record plan

Record Config interface: Diagram 3-18 Recording Configuration-recording plan



DIAGRAM 3-18 RECORDING CONFIGURATION-RECORDING PLAN

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

**【Copy】** copy one channel's configuration to other

**【Edit】** edit plan interface Diagram 3-19 Edit Plan:

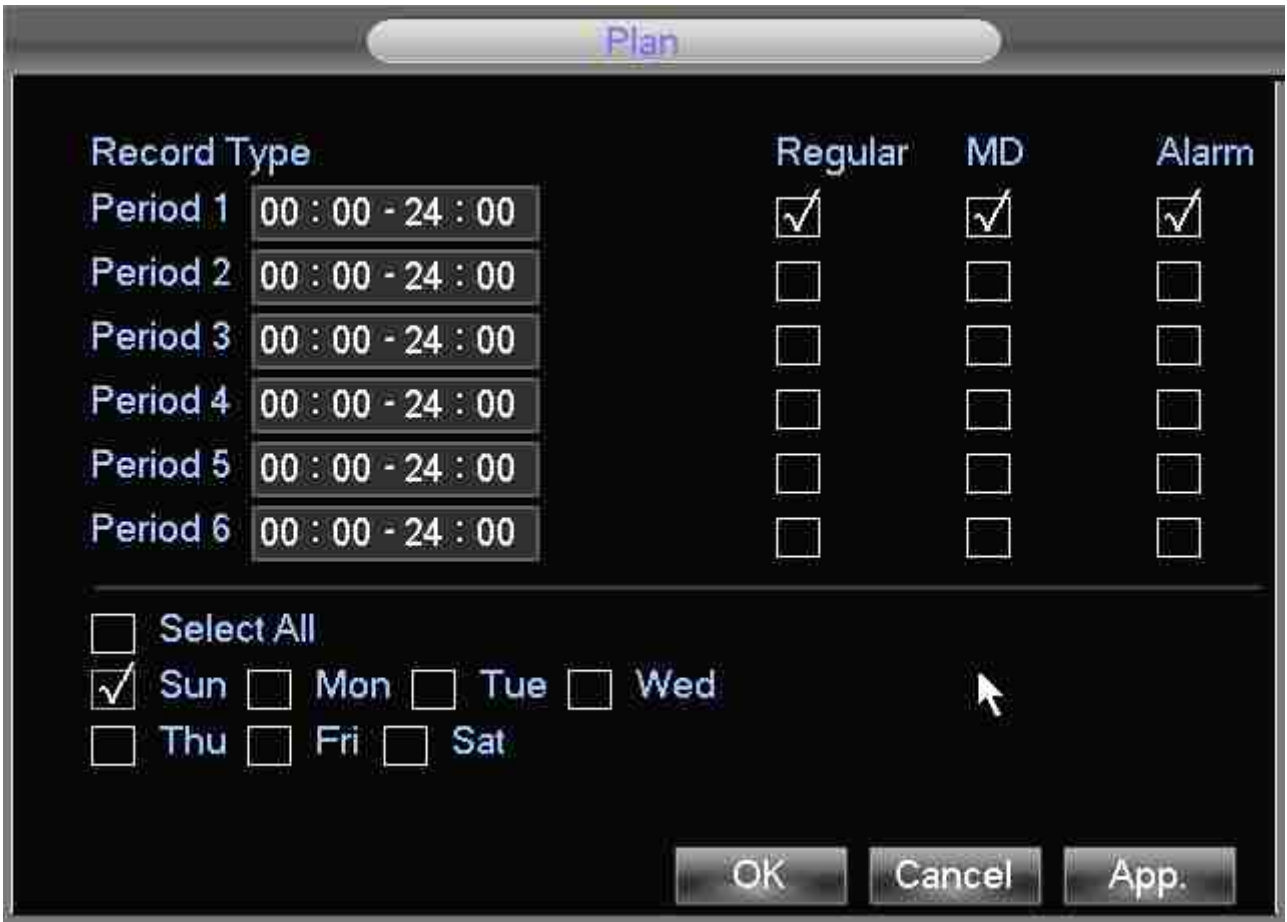


DIAGRAM 3-19 EDIT PLAN

【Time】 recording time, 6 recording time zone can be set every day

【Normal】 for normal record

【Moving Detection】 For Moving detection

【Alarm】 For alarm record

#### 4.4.3 NETWORK

Set the DVR network parameters in "Network" interface. The default IP address is 192.168.1.88

Base setting

Base setting interface 4-13:



DIAGRAM 3-20 NETWORK CONFIGURATION-BASE CONFIGURATIONS

**【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.

**【First DNS Server】** DNS server IP

**【Alternate DNS Server】** DNS alternate IP

**【Physical Address】** physical address of current net port

Advanced

Advance interface (Diagram 3-21 Network Configuration-Advanced):





DIAGRAM 3-21 NETWORK CONFIGURATION-ADVANCED

**【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, which run on a fixed IP address web client.

Select DDNS type (supports various DDNS currently, include CN99 DDNS, NO-IP DDNS, Private DDNS and Dyndns DDNS, Sysdns 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.

Details refer to 6.1 DDNS function

**【NTP】** on/off NTP. Network Time Protocol – allows the DVR to sync with SNTP time server automatically.

Host IP: input IP of NTP server

Port: This SNTP support TCP only, the unique 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 Filter】**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 IPs.

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

**【Network monitoring connections】** 0-32 should be proper. Need Check first then browse real time video on the network, the number of connections depending on network bandwidth, the greater the number, the greater the network load, the impact of video playback smooth

The automatic setting adjusts these settings based on available network resources.

**【Speedy online download】** 0-8 should be proper.

**【Network Transmission QOS】** Fluency priority or Picture Quality priority or self-adaption Y, according to the setting, the network automatically adjusts the stream.

**【Speedy online download】** if enabled, speed is 1.5-2 times to normal speed.

**【HTTP】** default: 80

**【TCP】** default: 8000, variable

**【UDP】** default: 8001, variable

**【UPnP】** Protocol on the router automatically open port mapping, make sure UPnP feature is enabled on the router, details refer to chapter 6.3.3

**【Multicast】** tick 'Multicast' and set a group in 'Set', IP should be limited as follow picture, port no limit.

**【Email】** Set the sender mailbox SMTP server IP address, port, username, password and sender's mailbox, mail SSL Encryption.

Email title support Chinese, English and Arabic numerals input, Max input 32 characters. Max support 3 Receive Addresses and SSL Encryption Mailbox.

**【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 DHCP PPPoE and IP.

#### 4.4.4 ALARM CONFIGURATION

Local alarm

Local Alarm interface (Diagram 3-22 Alarm Configurations):



DIAGRAM 3-22 ALARM CONFIGURATIONS

【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 Diagram 3-23 Alarm Configuration-local alarm  
-Process Mode-Period:



DIAGRAM 3-23 ALARM CONFIGURATION-LOCAL ALARM -PROCESS MODE-PERIOD

【Period】 set alarm active period

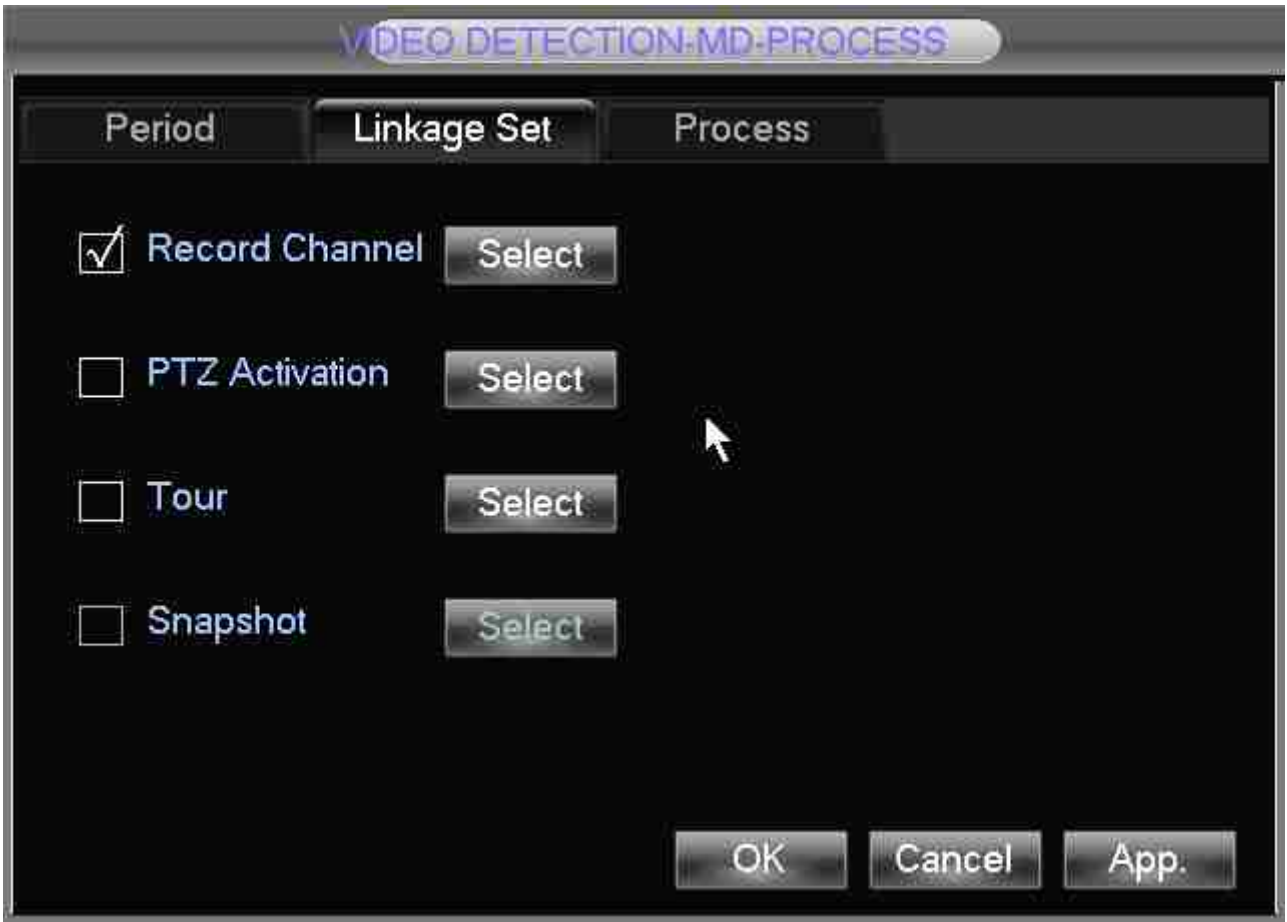


DIAGRAM 3-24 ALARM CONFIGURATION-LOCAL ALARM -PROCESS MODE-LINKAGE

【Linkage】 on/off 【Record Channel】， 【PTZ】， 【Tour】， 【Snapshot】 linkage and select channel.



DIAGRAM 3-25 ALARM CONFIGURATION-LOCAL ALARM –PROCESS MODE-ABNORMITY

**【Abnormity】**: enable or disable **【Alarm Out】**, **【Show Message】**, **【Send Email】** and **【Buzzing】**

Time delay for alarm cancel is 10-300s



Notice: some models have no LOCAL ALARM Function; please refer to the Product Specification.

Video detection

**【motion detection】** motion detection and alarm

**【zone setting】** 22\*18 =396 zones mask

**【Sensibility】** 6 grades

**【management】** as same as local alarm

**【preview】** alarm preview

**【video lose】** detect video loses and alarm

【management】 as same as local alarm

【preview】 alarm preview

#### 4.4.5 USER MANAGEMENT



Note:

Group and user names can be from 1-6 characters in length. Valid characters include letter, numbers, and limited symbols: underline, subtraction sign, dot, 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 cannot be duplicated, and each user can only belong to one group.

User management interface as Diagram 3-26 User Management:





## DIAGRAM 3-26 USER MANAGEMENT

**【Add users】** 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, cannot delete, DVR login in this name automatically if “no user login”, user can revise limits of power then operate some without login.

Enter **【Add users】** 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 config, search log, log delete, upgrade, operation authority, etc.

**【Modify group】** modify existing group information.

**【Modify Password】** change password

Select a username input the old 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.

### 4.4.6 ABNOMITY

Abnormity interface as Diagram 3-27:



DIAGRAM 3-27 ABNORMITY

【No Disk】 alarm when HDD is not present or can not be detected.

【Process】 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】 is same as 【No Disk】 's 【Process Mode】

## 4.5 STORAGE

### 4.5.1 HDD MANAGEMENT

Maintain and manage local HDD: Diagram 3-28 Storage Management



DIAGRAM 3-28 STORAGE MANAGEMENT


#### **Base Configuration**

“Base Config” as Diagram 3-29 HDD management –base configuration, shows DVR storage capacity, available space and working status.



DIAGRAM 3-29 HDD MANAGEMENT -BASE CONFIGURATION

**【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.

HDD S.M.A.R.T intelligent detection



DIAGRAM 3-30 S.M.A.R.T TECHNOLOGY

**Record**

Record menu, as Diagram 3-31 HDD Management -record, shows start-stop time.

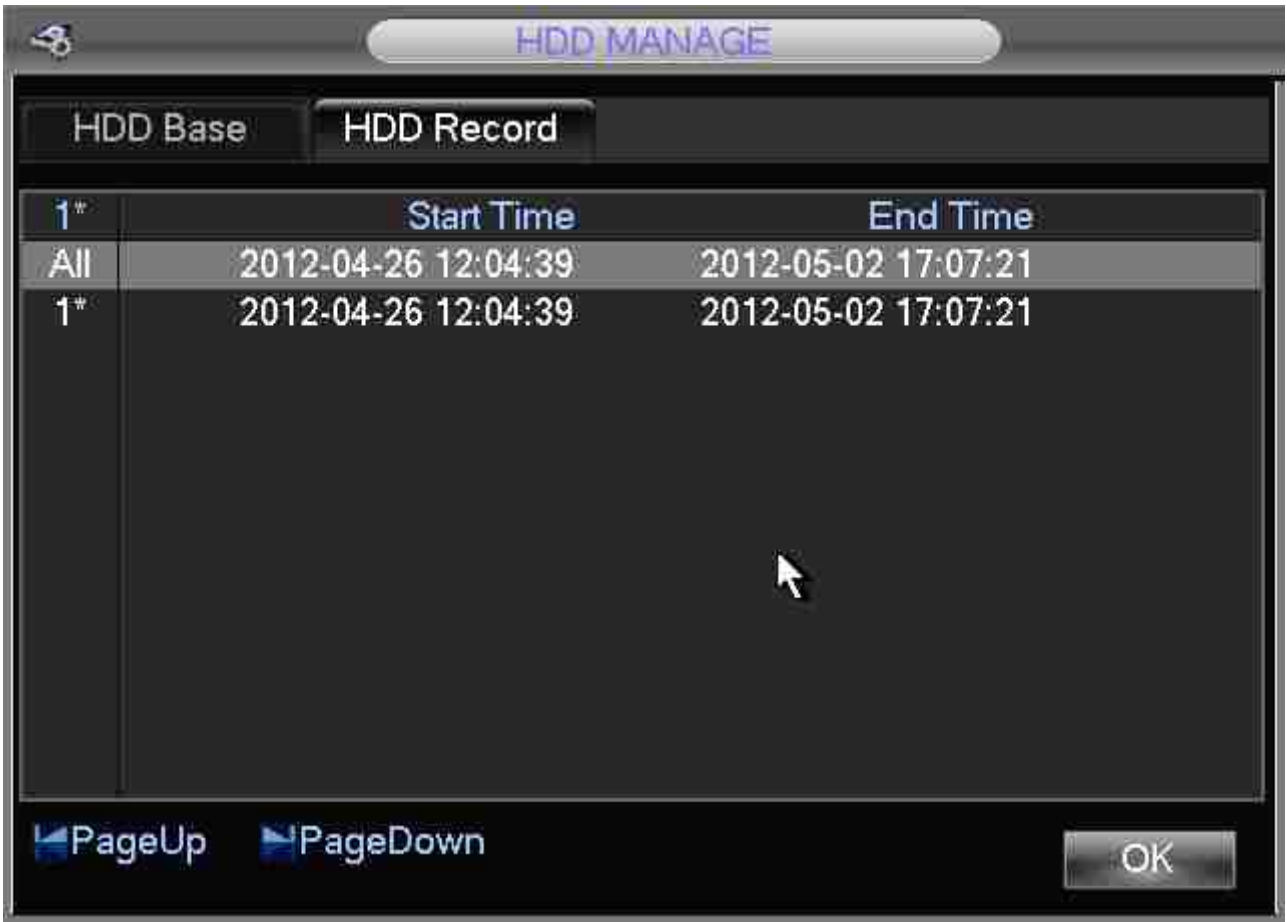


DIAGRAM 3-31 HDD MANAGEMENT -RECORD

#### 4.5.2 RECORD BACKUP

Connect an External USB device with the USB port to backup in the "Record Backup" menu (interface Diagram 3-32 Record Backup).

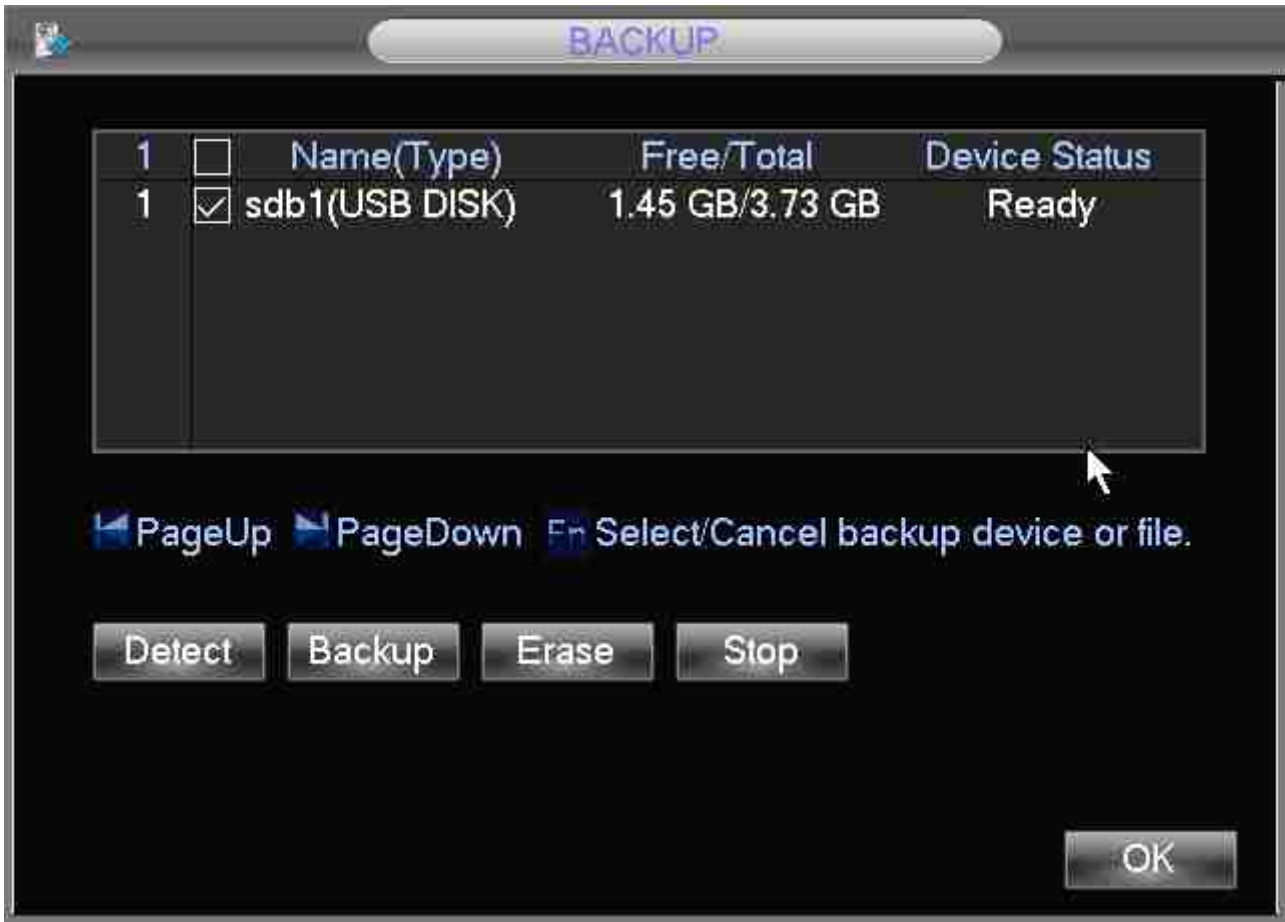


DIAGRAM 3-32 RECORD BACKUP

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

**【Backup】** : tick the external device and click **【Backup】** to enter the backup menu (as Diagram 3-33 Backup).



DIAGRAM 3-33 BACKUP

Select the record start-stop time and click **【Add】** to add in list; duplicate it by inputting the start-stop 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: USB backup carry player automatically

Note: this operation probably cause permanent data loss

#### 4.6 OUTPUT

The following Diagram 3-34 Peripheral Management shows the peripheral management interface





DIAGRAM 3-34 PERIPHERAL MANAGEMENT

#### 4.6.1 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 (Diagram 3-35 PTZ configurations):



DIAGRAM 3-35 PTZ CONFIGURATIONS

**【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.

**【Data Bits】** default: 8

**【Stop Bits】** default: 1

**【Parity】** default: None

#### 4.6.2 ALARM OUTPUT

This menu manages alarm output parameters and displays the current state of Alarms (Diagram 3-36 Alarm Output).

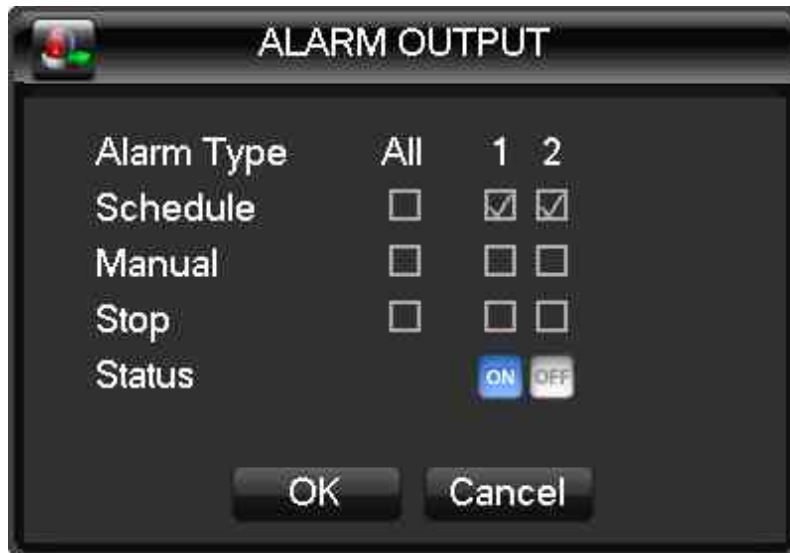


DIAGRAM 3-36 ALARM OUTPUT

**【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

Notice: Some models have no LOCAL ALARM, please refer to the products descriptions.

### 4.6.3 PORT CONFIGURATION

Port Configuration interface (Diagram 3-37 Port Configurations):



DIAGRAM 3-37 PORT CONFIGURATIONS

**【Function】** adjust protocol

General port: upgrade and adjust by port and software;

Keyboard: keyboard connected by port;


Transparent port: transparent transmission of data;

Protocol Port: port information overlay need to set this Agreement;

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 Specifications.

**【Baud Rate】** set baud rate.

【Data Bit】 default: 8

【Stop Bit】 default: 1

【Confirm】 default is N/A

#### 4.6.4 DISPLAY

Display mode can set the unit's display and polling


##### Display Menu



DIAGRAM 3-38 OUTPUT-MENU OUTPUT

【Transparency】 : total 4 grades

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

 Note: 1) Channel name up to 48 half-width characters

2) 16 characters is suitable, otherwise some problems happen when multi-screen

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

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

【Over Info】 : to choose whether overlaying information displays on screen

### Output configuration



DIAGRAM 3-39 OUTPUT- OUTPUT CONFIGURATION

【VGA Output】 to select VGA resolution and refresh rate, default is 1024x768@60Hz.

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

【VGATV Color Set】 to adjust displayer's hue, brightness, contrast, saturation

【TV Color Set】 to adjust monitor or TV's brightness, contrast, saturation

### Tour configuration



DIAGRAM 3-40 OUTPUT-TOUR

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 Setting: click the button at the top right corner of the monitoring picture or press the Shift Key to switch, you can control the tour.

#### 4.7 MAINTAIN

The following picture shows the maintain interface



DIAGRAM 3-41 MAINTENANCE

#### 4.7.1 LOG

【LOG】 display system log information.



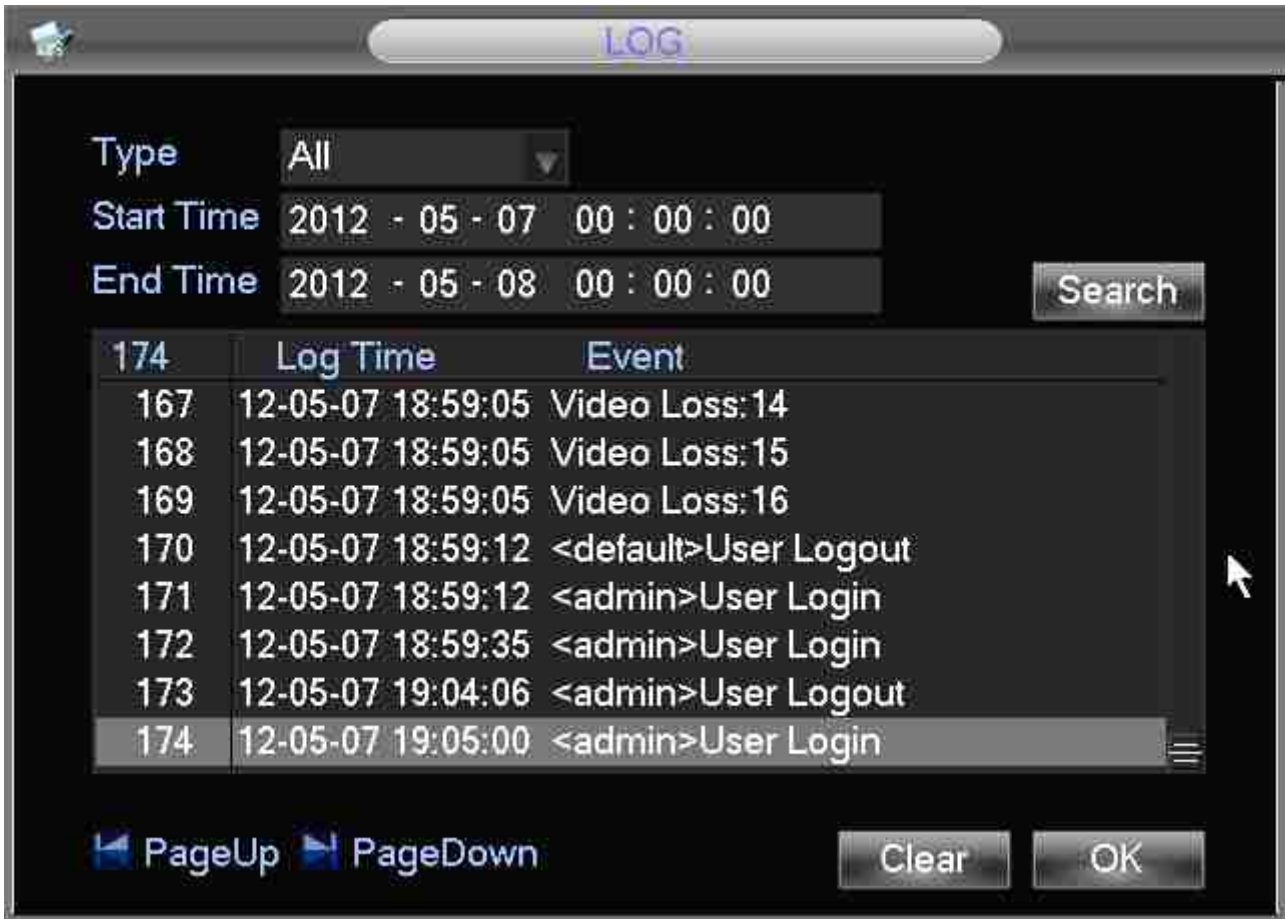


DIAGRAM 3-42 LOG

Select the type and time press the Find, the system will display the log in tabular form, you can also click the backup button to export the log backup to your computer.


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.

Click "delete" to delete all logs.

#### 4.7.2 VERSION

**【Version】** : Show features, software version etc.

**【upgrade】** : Connect a USB flash device which contains the upgrade firmware and click "Upgrade".

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

#### 4.7.3 DEFAULT

【default】 restore (items are selectable) (Diagram 3-43 Restore Default)

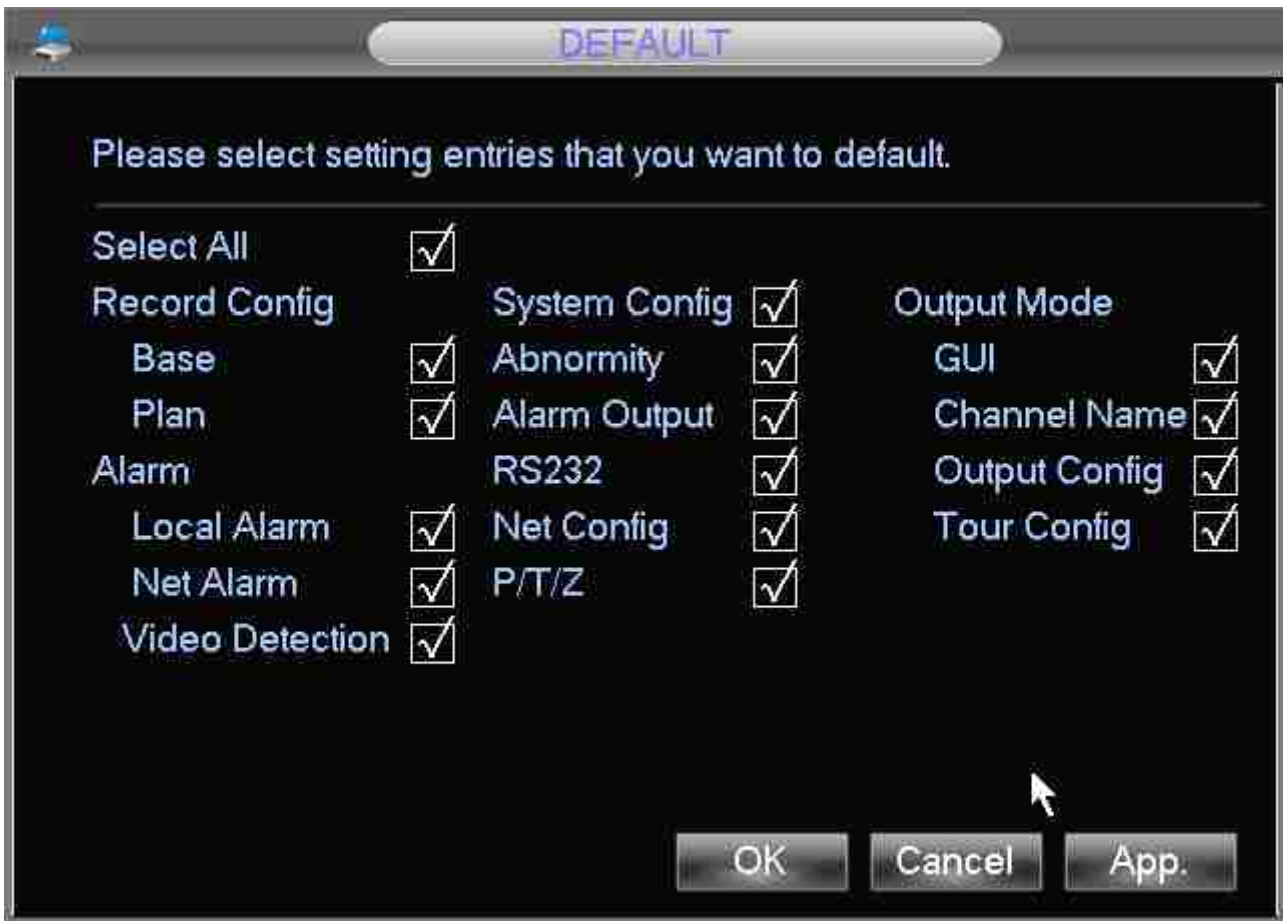



DIAGRAM 3-43 RESTORE DEFAULT

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

#### 4.7.4 BPS

【BPS】 shows video's size, data rate of each channel by wave form.

 Note: Estimated value just for reference

#### 4.7.5 AUTO MAINTAIN

【Auto Maintain】 set auto maintenance items.

#### 4.7.6 ON-LINE USER

【On-line Users】 check the current online user's status.

## 4.8 SHUTDOWN



DIAGRAM 3-44 SHUTDOWNS

**【Menu Logout】** log out of the current user account

**【Shutdown】** shutdown the DVR

**【Restart System】** reboot the DVR

## 5 WEB&CLIENT

### 5.1 WEB OPERATION

#### 5.1.1 NETWORK CONNECTION

H&M Series: Check network connection by LCD on front panel, “” refers connection error, P Series: Check B-Lamp on front panel, light indicates connection

Set IP, subnet mask and gateway for computer and DVR. Please assign the same segment IP address without router, need to set the appropriate subnet mask and gateway with router.

The detail of DVR network configuration please see **【Configuration】** → **【Network Setting】**

Ensure the IP is correct and check whether the DVR is on the network by using the Windows command “ping”.

#### 5.1.2 ACTIVE X CONTROL SETUP & LOGIN / LOG OUT

User can remote access to DVR by Internet Explorer, assuming you have a correct network configuration.

The following interface will popup when you access the IP address in Internet Explorer.

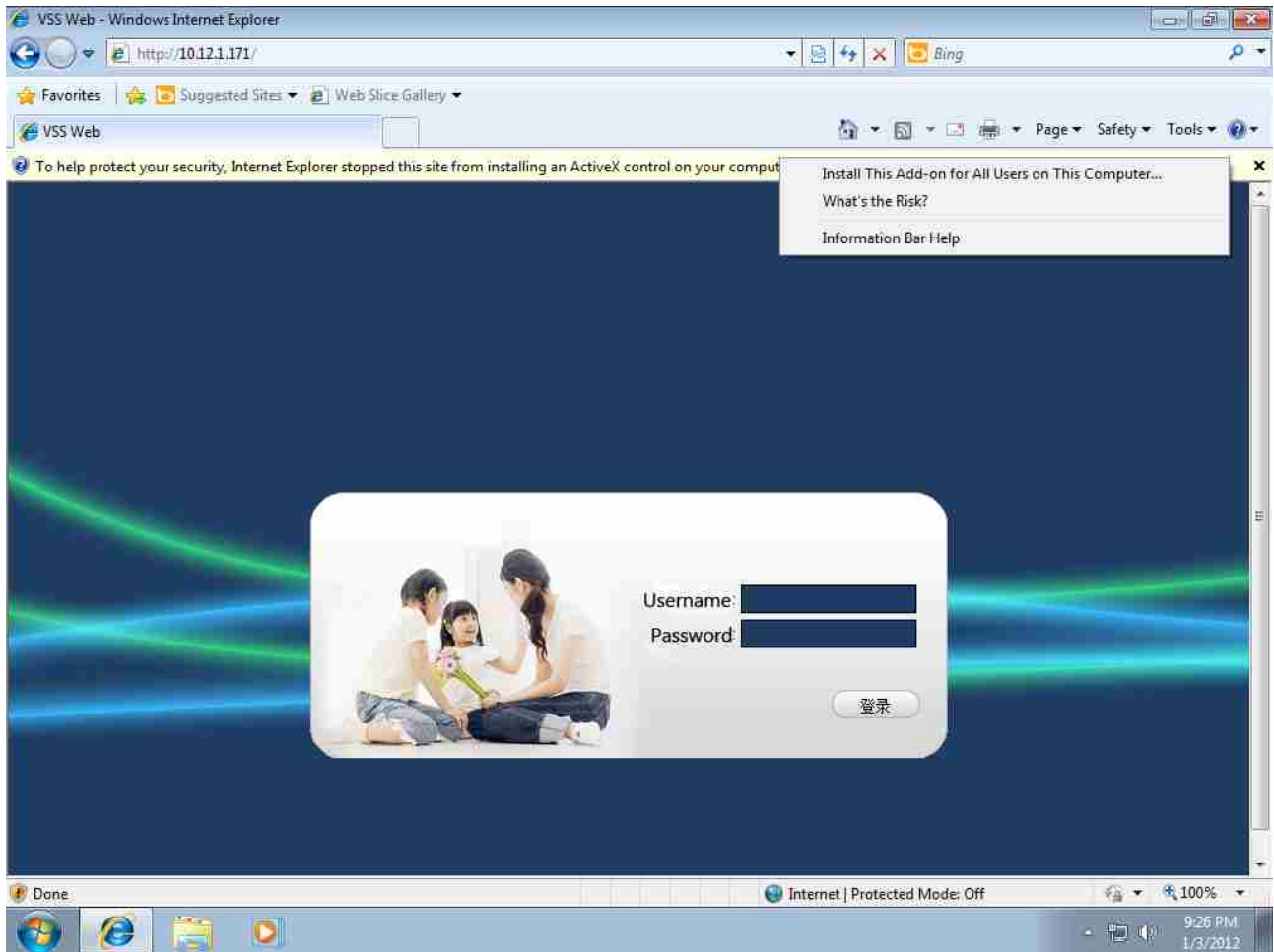


DIAGRAM 5-1 LOGIN SCREEN

Install ActiveX: Right click and choose install. If installation is blocked by Windows, please add the IP as a trusted site or lower your Internet Explorer security settings to allow this.

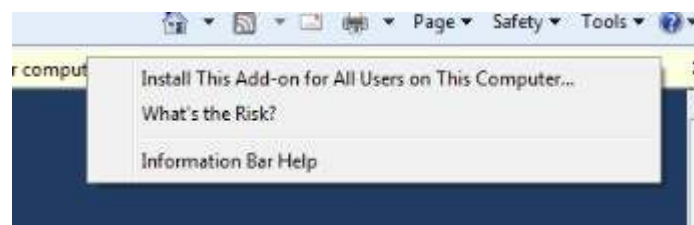


DIAGRAM 5-2 INSTALL CONTROL

The following interface will popup when you input your username, password and click "Login". Interface like Diagram 5-3 Web Interface when user login successfully. Click "Exit" to quit.

### 5.1.3 WEB OPERATION INTERFACE

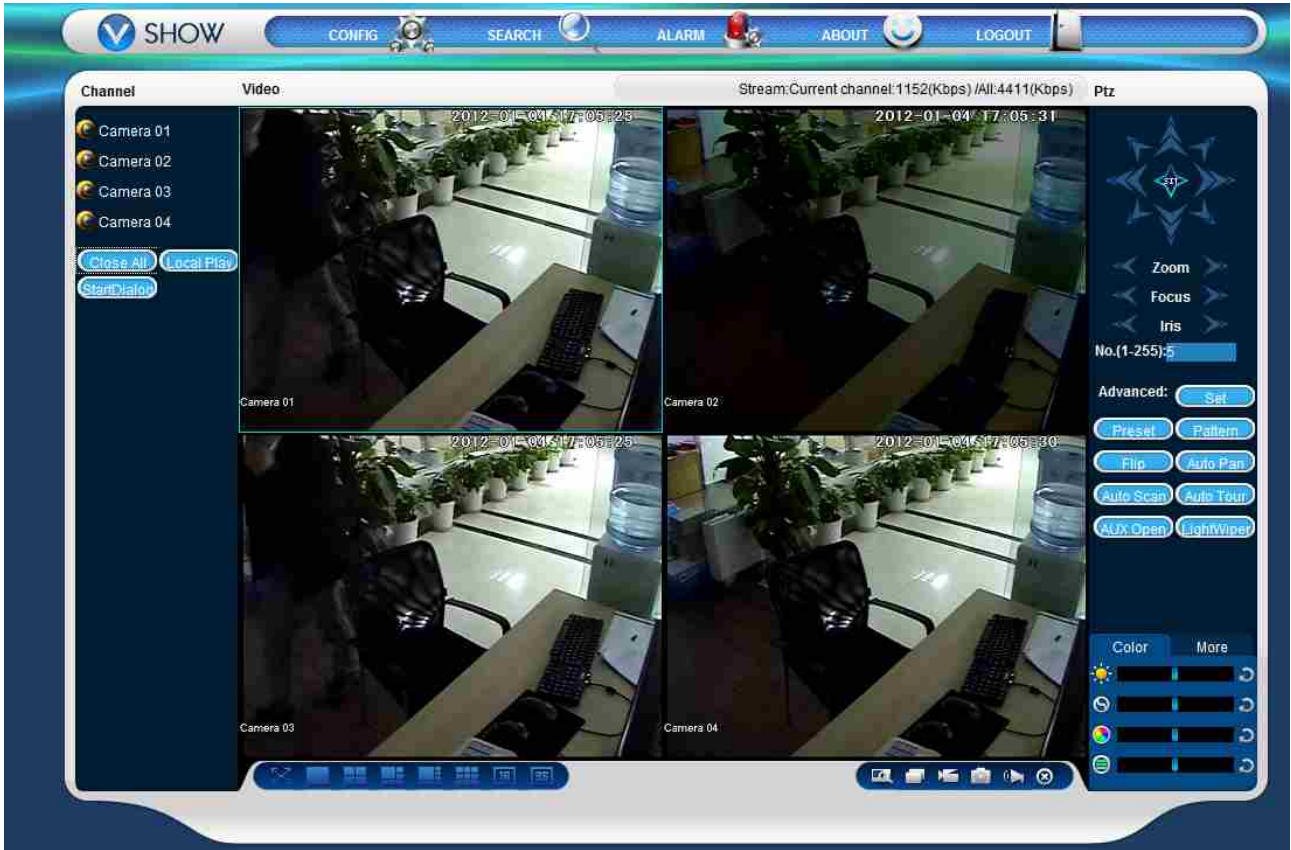


DIAGRAM 5-3 WEB INTERFACE

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 saturation	Image color: modify brightness, contrast and 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.

FORM 5-1 DESCRIPTION

5.1.4 LIVE VIEW

Into the WEB interface, select the focus window in live window, the focus window has a light blue border.

From the left channel column select channel, as shown in Diagram 5-4 Channel Choices:



DIAGRAM 5-4 CHANNEL CHOICES

Click on 2 area in upper right corner can choose open / close the channel of the main stream or secondary stream, shows the current DVR's IP and rate information, as shown in Diagram 5-5 Stream information

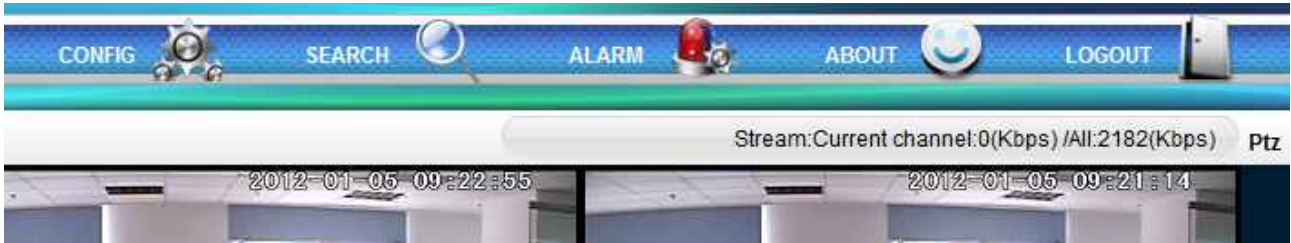







DIAGRAM 5-5 STREAM INFORMATION

Lower left corner shows the current video channel name.

Upper right corner shows the current video time information.

Click “    ” (Lower left corner of the display window) to switch between single screen and multi-screen.

Lower right corner of the display window is function keys, as Diagram 5-6 Function Key, refer to area zoom, Multi-screen switch, local record, capture and mute/unmute audio.




Area zoom: Video images can be enlarged;





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.

 Off video: off the focus window video.

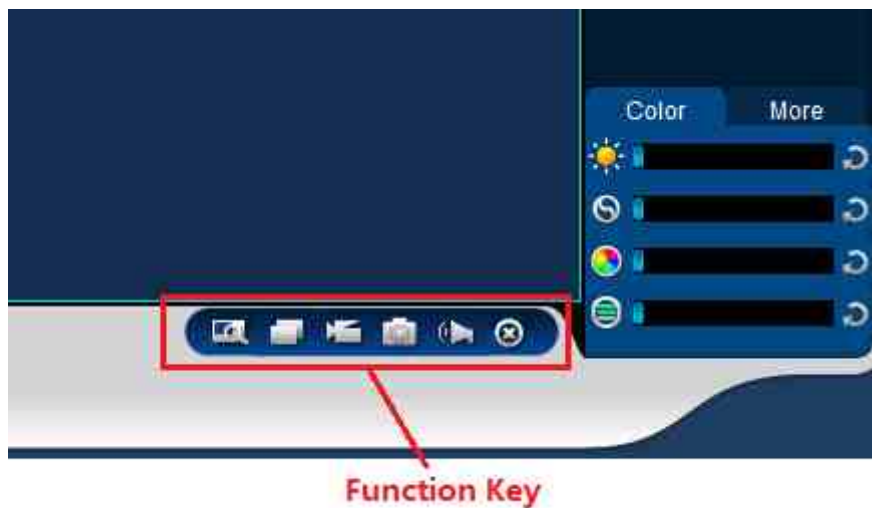


DIAGRAM 5-6 FUNCTION KEY

### 5.1.5 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 direction and 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.



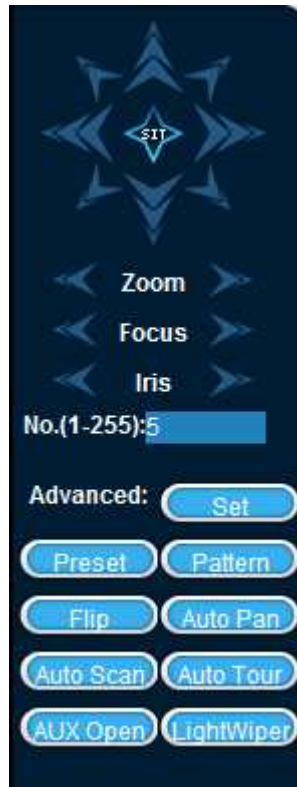


DIAGRAM 5-7 PTZ CONTROL

**Border scan**

Operation: select the camera line scan of the left/right margin by direction button, and click the Settings button in the left /right margin position to determine the left border.

**Preset**

Operation: modify preset position by direction button and inputting a preset number, then click “Add” to save.

**Tour**

Operation: select “Tour”; Point between the first cruise line cruise input box value. 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 an 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

### 5.1.6 CONFIGURATION

Access DVR local configuration menu by click “System Setting”, the further details please refer 【Local operation guide】 (Diagram 5-8 CONFIGURATION).

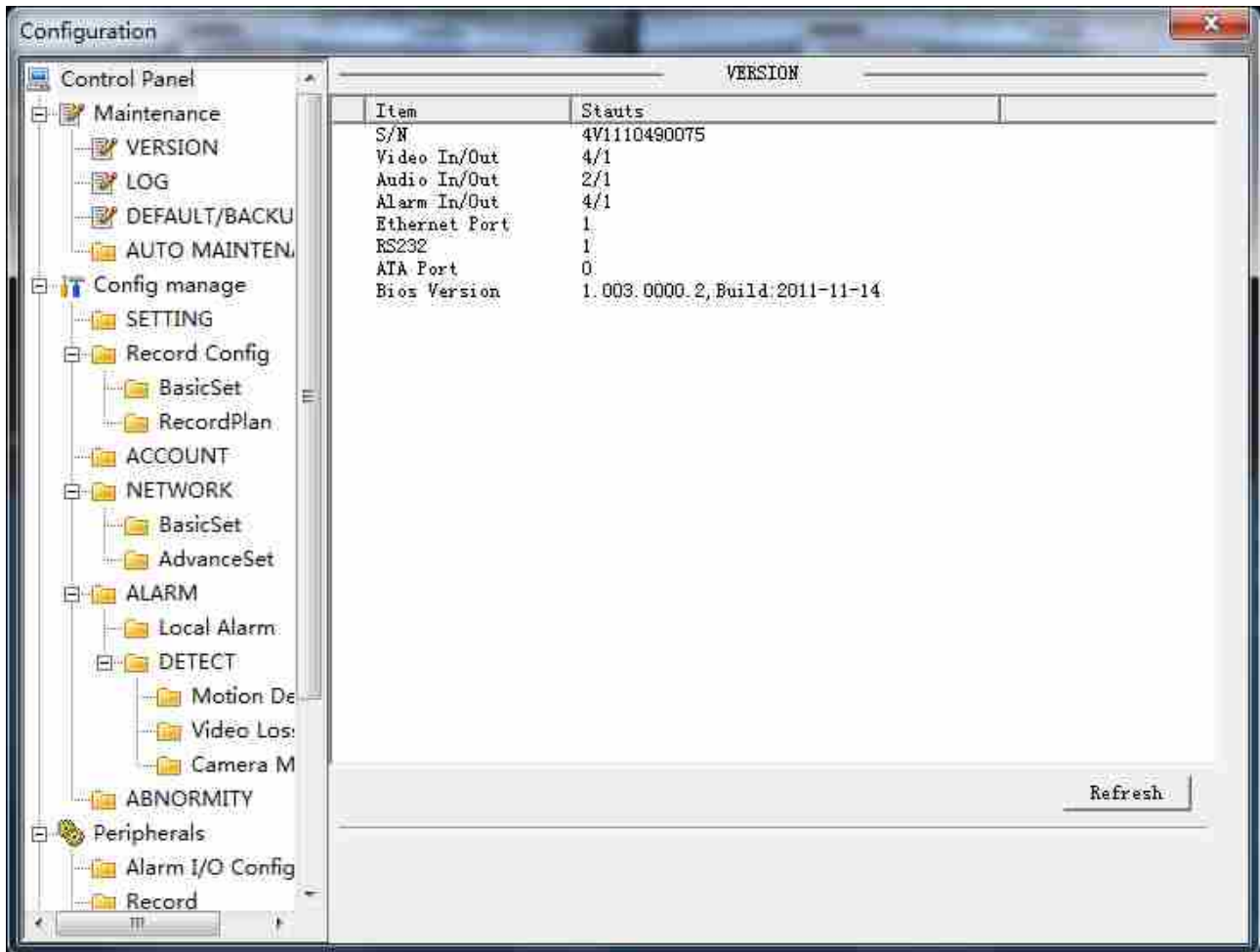


DIAGRAM 5-8 CONFIGURATION

### 5.1.7 SEARCH RECORD

Click “Search record” to open the search interface (Diagram 5-10 ), can search and operate record, alarm, motion, local record

#### Search record

By selecting the record type, start and end times, and click the check button, get a list of files on the DVR. Select the appropriate file and download can be played

## Play

Double click a search result to play in video window. Control the playing video by the control keys on the bottom. At this point, the bottom of the video window will display the video control buttons, video playback can be controlled.



DIAGRAM 5-9 PLAYBACK CONTROL

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

S/N	File Size(KB)	Begin Time	End Time	Record Type	Chan.
1	211901	2012-01-04 10:10:32	2012-01-04 10:39:48	Regular	1
2	563200	2012-01-04 10:40:24	2012-01-04 11:55:51	Regular	1
3	2048	2012-01-04 16:4:20	2012-01-04 16:5:38	Regular	1
4	2048	2012-01-04 16:5:48	2012-01-04 16:6:41	Regular	1
5	2048	2012-01-04 16:10:15	2012-01-04 16:12:12	Regular	1
6	617	2012-01-04 16:12:17	2012-01-04 16:14:3	Regular	1
7	147	2012-01-04 16:17:20	2012-01-04 16:17:45	Regular	1
8	2048	2012-01-04 16:18:32	2012-01-04 16:19:2	Regular	1
9	2048	2012-01-04 16:19:8	2012-01-04 16:19:24	Regular	1
10	2048	2012-01-04 16:19:29	2012-01-04 16:20:57	Regular	1
11	2048	2012-01-04 16:21:34	2012-01-04 16:21:56	Regular	1
12	4096	2012-01-04 16:23:35	2012-01-04 16:29:29	Regular	1
13	5556	2012-01-04 16:37:44	2012-01-04 16:53:25	Regular	1
14	440661	2012-01-04 16:54:34	2012-01-04 18:0:0	Regular	1

DIAGRAM 5-10 SEARCH RECORD

### 5.1.8 ALARM CONFIGURATION

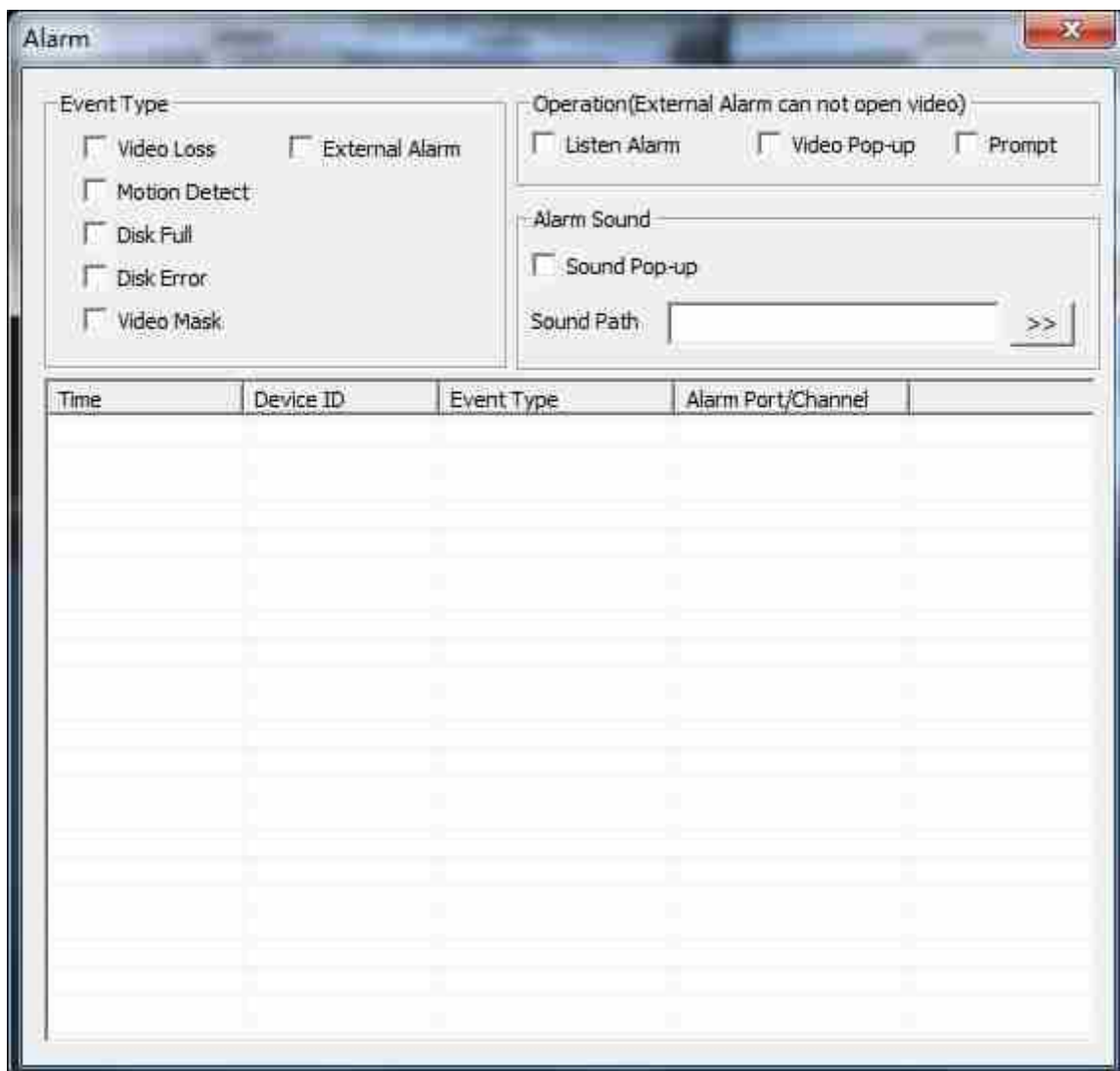
Click the **【Alarm】** to enter the alarm setup menu, user set up and operate the alarm mode, as Diagram 5-11 Alarm .

Choose type of alarm on menu, monitor video loss, motion detection, disk full, disk error, video mask, extennal alarm.

Click **【Video Pop-up】** , open the video loss, motion detection, hard disk full, hard disk failure, video block, video encoder alarm pop-up linkage.

Click **【prompt】** , open the prompts: when an alarm occurs in real-time will pop-up alarm window menu.

Click **【Sound Pop-up】**, you can choose alarm tone pre-recorded on the local hard drive when an alarm occurs, tone file in WAV format.



## DIAGRAM 5-11 ALARM CONFIGURATION

### 5.1.9 ABOUT

Please refer to WEB controls related version information.

### 5.2 CLIENT OPERATION

Please refer to IMS 200 Description

## 6 FUNCTION

### 6.1 DDNS FUNCTION

#### 6.1.1 SUMMARY

Dynamic DNS is a kind of system which point internet domain name to variable IP. According to the rule of internet domain name, domain name must associate with the fixed IP address. Dynamic DNS provide a fixed Name server for the dynamic domain, and then guide the domain search to the IP address of dynamic user through Name server, which can make the outside user connect to the dynamic user's URL.

#### 6.1.2 VSSIP & FNT

VSSIP is a professional dynamic domain name analysis server embedded in our company's DVR, please contact to the dealer or agent for account number of DDNS. Click the enable in the configuration window after getting the account number, and input the account number information and it will do.

FNT is a professional dynamic domain name analysis server embedded in our company's DVR, input username and password,after successful appliaction and click enable,then it is OK.

#### 6.1.3 CN99 (WWW.3322.ORG)

##### **Register**

Register New Users or Login at [www.3322.org](http://www.3322.org).

Click "My Control Panel" at the navigation bar.

Click the left side, "new" under the DDNS.

Fill in the name of the host machine, IP address will automatically detect in the current internet. Leave the Mail Servers blank, and then click the "OK" button.

##### **Embedded DVR Setting**

Open **【Main Menu】** → **【Configuration】** → **【Network】** → **【Advanced】** → **【DDNS】** → Enable

Name	Configuration
DDNS	CN99 DDNS

IP	Members.3322.org
Port	80
Domain name	xxx.3322.org
Username	xxx
Password	xxxxxxx

After setting up the information as above, you can access the Embedded DVR via XXX.3322.org

Notice: The main machine's IP should refer to the information of the website.

#### 6.1.4 NO-IP (WWW.NO-IP.COM)

##### **Register**

Register new username at no-ip, click **【Create Account】** .

Create domain name, click **【Add a Host】** .

##### **Embedded DVR Setting**

Open **【Main Menu】** → **【Management】** → **【Network】** → **【Advanced】** → **【DDNS】** → **【Enable】**

Name	Configuration
DDNS	NO-IP DDNS
IP	dynupdate.no-ip.com
Port	80
Domain name	xxx.xxx.org
Username	xxx
Password	xxxxxxx

#### 6.1.5 DYNDNS DDNS (WWW.DYNDNS.COM)

##### **Register**

To login at dyndns, register an account.

Click on the confirmation link, login the account, click **【Add Host Services】** at [My Services], set your own realm name, and then operate according to the procedure.

### Configuration of the Embedded DVR

Open **【Main Menu】** → **【Management】** → **【Network】** → **【Advanced】** → **【DDNS】** → **【Enable】**

Name	Configuration
DDNS	Dyndns DDNS
IP	Members.dyndns.org
Port	80
Domain name	xxx.xxx.com
Username	xxx
Password	xxxxxx

#### 6.1.6 TEST AND VERIFY DDNS

After setting the Embedded DVR, wait for a few minutes, analysis records will update. Click Operation in the Menu of computer, input “cmd”, click “OK” to open a window. As the Diagram 6-1 Run Command Line Program shows.

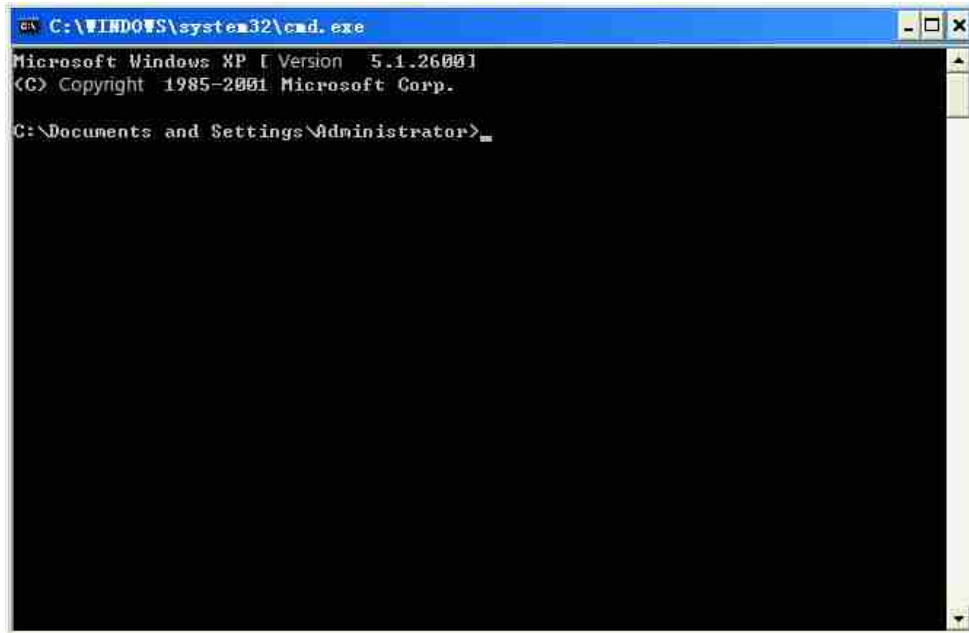


DIAGRAM 6-1 RUN COMMAND LINE PROGRAM

Input “ping+ Domain name” then presses Enter, as the Diagram 6-2 DNS shows.



```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\Administrator>ping zeno0002.vssip.net

Pinging zeno0002.vssip.net [123.157.155.106] with 32 bytes of data:

Reply from 123.157.155.106: bytes=32 time<1ms TTL=128
Reply from 123.157.155.106: bytes=32 time<1ms TTL=128
Reply from 123.157.155.106: bytes=32 time<1ms TTL=128
Reply from 123.157.155.106: bytes=32 time<1ms TTL=128

Ping statistics for 123.157.155.106:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Documents and Settings\Administrator>
```

DIAGRAM 6-2 DNS

The computer will analyse the domain name configured in DVR, and return to the current IP, as the picture shows underlined in red. When the IP correspond to the embedded DVR's IP in Public internet, it means the DDNS is setting right. If they are not, please check the network connection of embedded DVR and DDNS information.

## 6.2 PORT MAPPING

Port mapping is mapping a port of outside web host's IP address to a machine inside web, and provide the service. When user connects to the port of the IP, the server will automatically map the request to the corresponding machine inside LAN.

With the function of port mapping, we can map many ports of a machine's IP address to different machines' different ports inside web. The port mapping can also have other special agent functions, like POP, SMTP, TELNET, etc.

Theoretically, it can provide more than sixty thousand ports.

For example, if we want to map a web server which has an IP address of 192.168.111.10, we just need to input the IP address and TCP port 80 into the port mapping chart of the router.

There are two ways to map the port: UPnP function automatically map and modify the router's port mapping chart by manual.

### 6.2.1 UPNP FUNCTION

In order to get connection to the Embedded DVR through Public network, we need to set the Router to cross the NAT of Embedded DVR. UPnP can make the NAT cross automatically by the UPnP agreement of Embedded DVR, and don't have to set the Router.



Note: to realize the UPnP Function, there must be Router support and enable the UPnP Function.

#### **The first step**

Connect the Router to the network, get to the Menu of the Router, set the Router, and enable the UPnP Function.

Routers made by different manufacturers may have some difference, please refer to the specification carefully before setting the Router.

#### **The second step**

Connect the Embedded DVR to the Router; the configuration will automatically gain the IP address or static IP. After setting up the IP, click the Advanced Config. And get to the XXX, ports and multicast etc. choose to open the Enable at the **【UPnP port mapping】**

#### **The third step**

Enter into the Router management interface; detect the port if there is already a Port mapping. If there is, it shows UPnP setting's finished.

#### **The forth step**

Input the IP address in IE, and add port number of the Embedded DVR, for example: 155.157.12.227:81. If you want to enter by the Client Software, use the TCP port offered by the outer net.



Note: if there are a few embedded DVRs need to set the UPnP function, in order to avoid IP conflict, set the ports of embedded DVR into different ports numbers. Otherwise, it will choose the embedded DVR port set preceded as the first choice.

### 6.2.2 MANUAL PORT MAPPING

#### **The first step**

Connect the Embedded DVR to the Router, set the static IP.

#### **The second step**

Log in Router, enter into the configuration menu of Router, and set the menu. Then get to port, set the IP distributed by the Embedded DVR, and set the rule of port mapping, add HTTP and TCP port into mapping list.

Default access ports of Embedded DVR include HTTP port 80 and TCP port 8000, if the ports are occupied by the other devices, please modify the default port of the Embedded DVR into other vacant ports.

### **The third step**

Input the public net IP address in the IE, and add the port number of the Embedded DVR you want to access after the IP, for example: http://155.157.12.227:81. If you want to access by Client Software, you can use the outer net TCP port directly.



Notice: for detail configuration setting, please refer to the user manual of Router.

## **6.3 NTP FUNCTION**

Enable NTP function; make the time synchronization with both the DVR and GPS clock server, to ensure the accuracy of device time.

### **6.3.1 INTERNET CONFIGURATION**

Get to the **【CONFIGURATION】** → **【NETWORK】** , choose **【Advanced】** , and then choose **【NTP】** to set.

After the device can access the Internet, NTP server can use the standard NTP server as the time. For example, the server of China's national research center (IP address: 210.72.145.44). Input the IP address and domain name of relative server at NTP setting.

To activate NTP, click to choose "Enable".

The interval of changing time is from 1 to 65535 minutes.

### **6.3.2 INTRANET CONFIGURATION**

If DVR work under the intranet ,user can set up a privately-owned server as clock source.NTP address in DVR configuration fill in privately-owned NTP address can work.

Privately-owned NTP server can adopt standard NTP products and accurate time PC system. Please refer to below instruction when adopt PC system as a NTP server.

### **NTP Server Set Up under Windows**

"Start" menu → "Run"(or Win+R), input "regedit" to get into REGEDIT.

Build a new key assignment of DWORD Value under :

HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W32Time\Parameters registry subkey;

Change the value to 1, and save.

Restart the computer.

### **NTP server set up under Linux system**

Due to the particularity of Linux system, for detail way to erect the NTP server, please refer to every editions of the manual.

## 6.4 PTZ

In live screen, right click and select **【PTZ Control】** on control channel, as shown inDiagram 6-3 PTZ control.


### 6.4.1 PTZ CONTROL

From PTZ control menu, set direction step length, zoom, focus, iris, advanced features, auxiliary features, camera settings.



DIAGRAM 6-3 PTZ CONTROL

Step size : Controls PTZ direction and speed, e.g. step size 8 is moved faster than step size 1. (Range 1-8, 8 is max value)

Click  and  of zoom, focus and IRIS to modify zoom, focus and brightness.

Eight direction rotations: up, down, right, left, upleft, upright, lower left, lower right.(Front panel just 4 direction)

Quick location: <SIT>in the middle of the direction arrows, make sure the protocol support this function, only mouse control. Click any point, PTZ will turn to it and move it to the centre of screen

Mouse drag on quick location page, support 4 ~ 16 times variation, drag from top left to bottom right to zoom in box , drag from bottom right to top left for zoom out box .

### Advanced Function

Click page switch into the advanced function, as shown in Diagram 6-4 PTZ-Advanced

**【Preset】** : Input the wanted preset number which has been recorded. Then click the preset button to call the function.

**【Tour】** : Input the tour number and click “tour” to run it or stop tour by “stop” button.

**【Patrol】** : Input the patrol number and click “patrol” to on the function. The camera will work under the created patrol path. Right click to hide the menu.

Click the direction key in menu to stop the patrol.

**【Line】** : Click “line” call the line scan function as per set line to scan, the button will turn to **【Stop】** , if you want to stop the motion, click it.



DIAGRAM 6-4 PTZ-ADVANCED

### AUX

Click “Page Switch” to enter the AUX interface. (Corresponding with protocol) Diagram 6-5 Aux function

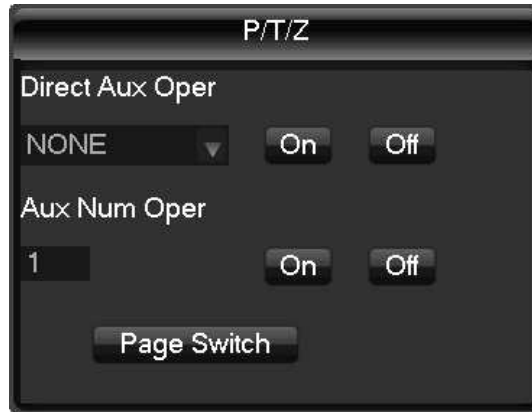


DIAGRAM 6-5 AUX FUNCTION

### PTZ SETTING

Click **【P/T/Z】** to set **【Preset】**, **【Tour】**, **【Pattern】**, **【Border】**. Gray keys represent unsupported function (Diagram 6-6 Preset setting).

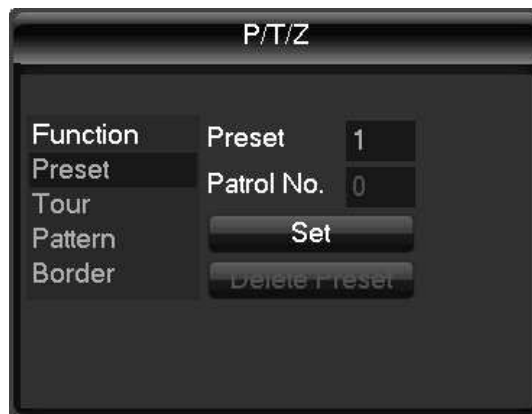


DIAGRAM 6-6 PRESET SETTING

**【Preset】** setting: Diagram 6-6 Preset setting, set camera position through the direction key

Click **【Preset】** and input value number, Click **【Set】** to save these coordinates to that preset number

**【Tour】** setting: Select "Tour", as Diagram 6-7 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. (clear preset cannot be supported by some protocols)



DIAGRAM 6-7 TOUR

**【Pattern】** setting: click **【Pattern】** , as Diagram 6-8 Pattern, record the process as Pattern “X”, click **【Begin】** , back to PTZ control menu to modify **【zoom】** , **【focus】** and **【IRIS】** , etc. then back to below menu for **【Stop】**

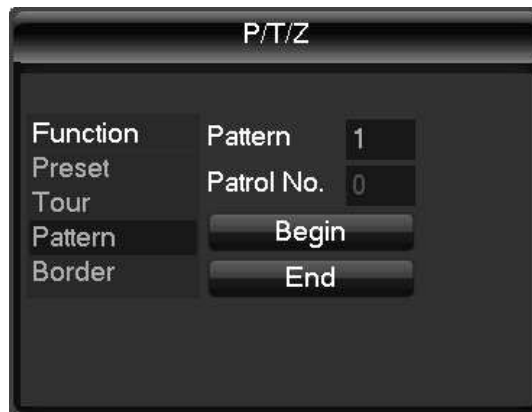


DIAGRAM 6-8 PATTERN

**【Border】** setting: Click **【Border】** , as Diagram 6-9 Border. Move camera to left/right Boundary by direction key and click **【Left Border】** and **【Right Border】** to confirm the setting.

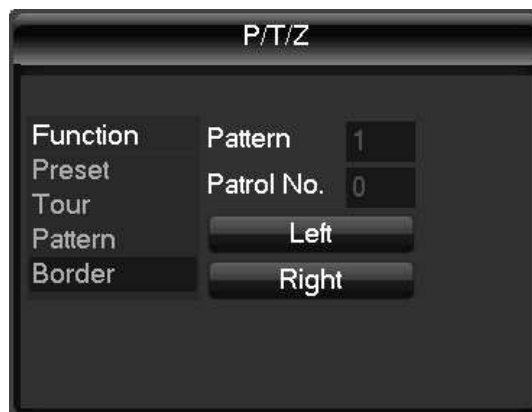


DIAGRAM 6-9 BORDER

## 6.4.2 CAMERA SETTING

Click “Page Switch” to enter the camera setting interface. (Only support part protocol)(Diagram 6-10 Camera Setting) **【Enter】** or **【Exit】** can access or quit the camera setting menu.

Click “Page Switch” to back to interface Diagram 6-3 PTZ control

Direction key is mainly used to internal menu control i.e. camera menu control. The button indicates according to the protocol, such as: shadowed button means unsupported .Up/Down key shift menu item, Left/Right key change function.



DIAGRAM 6-10 CAMERA SETTING

## 6.5 VOICE INTERCOM

### 6.5.1 SUMMARIZE

Embedded DVR Bidirectional Talk: user can talk to remote client software or Web via DVR audio input and output ports; user can listen voice from Client Software and WEB via DVR audio output ports.

Two types of bidirectional talk ---- sharing and standalone ----for different models, exact info please refer to specifications.

### 6.5.2 CONFIGURATION

Local configuration

Connect a microphone to the MIC input port, connect loudspeaker to the audio output port.

If no standalone MIC input port, please connect microphone to the number 1 audio input port



Note: local output needs active audio output device.

Remote PC Configuration



Connect microphone and loudspeaker to computer.

Enable bidirectional talk in IMS software or WEB.

## 6.6 HDD REDUNDANCY

HDD redundancy function can backup the recording file, user can retrieve files by HDD redundancy if single HDD damaged, by which improve the system's safety.

Hard disk redundancy function is through the designated channel data double backup in HDD, so DVR need a standalone HDD for redundancy function.

### **HDD redundancy configuration**

Open main menu enter into the storage configuration, choose one HDD as the redundancy HDD, click setting.

Redundancy HDD must be an independent HDD, user can set several HDDs as a redundancy HDD group. Once a HDD is assigned as redundancy HDD, the recording data can be saved in both normal HDD and redundancy HDD.

Data on redundancy HDD should be automatically cycle coverage, cycle period depends on the recording data and redundant HDD's capacity.



Note: Make sure 2pcs HDD at least in DVR, one for read and write, another for redundancy.

### **Channel redundancy configuration**

User can choose part channels or all channels to set redundancy backup. Please get to **【Configuration】** → **【Record】** , choose redundancy channel, check mark **【Redundancy】** .



Note: the data in channel turn off redundancy only is recorded in normal reading and writing HDD if the redundancy is not enabled.

### **Retrieve HDD redundancy**

User can retrieve backup recording data from redundancy HDD when RW HDD damage or data lost. Firstly, shut down DVR and remove damaged HDD, then restart DVR;

Secondly, Get into **【Main menu】**→**【Storage】**, set redundancy HDD as a reading and writing HDD, then it can be searched.

## 6.7 HDD S.M.A.R.T

S.M.A.R.T: “Self-Monitoring, Analysis and Reporting Technology”

S.M.A.R.T HDD can analysis head, disc, motor, circuit operation, history and default security values via monitor instruction in HDD and surveillance software in host. Alarm will be sent to user automatically when the value is outside the scope of the security situation.

Detection parameters of Seagate HDD for example are divided into seven: ID detection code, Attribute Description, Threshold, Attribute Value, Worst, Date, and Status.

## **1 ID detection code**

ID detection code is not the only; manufacturer can use different ID code or increase or decrease its quantity according to the detected parameter’s quantity.

For example: the ID detection code of WEASTERN DIGITAL’s product is “04”, parameter is Start/Stop Count, but the parameter of same code in Fujitsu’s product is “Number of times the spindle motor is activated”.

## **2 Attribute Description**

Attribute Description: name of detection item. Manufacturer can increase or decrease . As ATA standard update constantly, sometimes different models in same brand maybe different ,but must ensure major test items specified in S.M.A.R.T .(although different manufacturers have specific naming convention ,the essence of monitoring is the same.)

1 Read Error Rate

2 Spin up Time

4 Start/Stop Count

5 Relocated Sector Count

7 Seek Error Rate

9 Power-on Hours Count

10 Spin up Retry Count

194 Power temperatures

195 ECC on the Fly count

197 Current Pending Sector Count

198 Disconnection beyond repair

199 CRC cyclic redundancy check

200 Write Error Count



Note: Different manufacturers and different models have different attribute description ,user has no need to know exact meaning ,attribute detection values enough for them.

### **3 Threshold**

It is specified by manufacturer calculated through a specific formula. If there is a attribute value lower than the threshold, which means HDD become unreliable and data stored is very easy to lose. Composition and size of reliable attribute values is different for different HDD. It should be noted that, ATA standard only provides some SMART parameters; it does not provide a specific value. "Threshold" value is determined by manufacturers based on products' features. Thus, results tested by manufacturer provided detection software is very different from testing software under Windows (such as AIDA32)

### **4 Attribute Value**

Attribute value is the maximum normal value; the general range is from 1 to 253. Typically, the maximum attribute value is 100 (for IBM, Quantum, and Fujitsu) or 253 (for Samsung). Of course, there are some exceptions, for example, some models produced by Western Digital have two different attribute values, and property value is set 200 when initial production, but after then it is changed into 100.

### **5 Worst**

Worst value is the largest non-normal value in HDD's running. It is a value calculate for HDD's cumulative running, it is constantly refreshed according to running cycle, and very closed to the threshold. Whether the HDD is normal by S.M.A.R.T analysis is based on the comparison with threshold. The maximum value appear when new HDD start to use, which would continue to decrease with the everyday use or error happen. Consequently, larger attribute values mean better quality and higher reliability; smaller values mean more possibility of failure increases.

### **6 Dates**

Actual values of HDD's detection items, many items are cumulative values.

### **7 Status**

It is current statues of HDD's every attribute after analyzing and comparing above attribute values by S.M.A.R.T, also is important information to judge HDD healthy or not.

There are three statuses: Normal, Alarm and Error----which is closely related with Pre-failure/advisory BIT.

## 7 APPENDIX

### 7.1 TERMS

#### **Dual-stream**

Dual-stream: one high bit rate stream for the local HD store, QCIF/CIF/2CIF/DCIF/4CIF coding, other low bit rate stream for network transmission, such as QCIF / CIF coding,

#### **I Frame**

I frame: intra frame image, remove redundant information to compress the transmittal data, also called key frames.

#### **B Frame**

B frame: According to time redundant of the source image sequence previously encoded frame and account the source image after the encoded frame to compress transmittal data, also known as bi-directional prediction frame.

#### **P Frame**

P-frame: according to image frame lower than the previous 'time redundant to compress transmittal data, also called predicted frames.

#### **Wide Dynamic**

Bright parts and dark parts in particular can be seen very clearly at the same time. Wide dynamic range is a ratio between the brightest luminance signal value and the darkest value.

#### **S. M. A. R. T**

SMART (Self Monitoring, Analysis and Reporting Technology): now widely used in hard disk data security technology, monitoring system analysis Motor, circuit, HDD and disk head when HDD working, warn when abnormality, sometimes will automatically slow down and back up data.

#### **CVBS**

Composite Video Broadcast Signal, consists of luminance and color signal from the composite baseband signal.

#### **BNC**

Coaxial cable connector, composite video signals or audio signals, commonly use 75 ohm connectors. BNC welding and should pay attention to weld strength and remove burrs, or the signal wire and shield's contact will lead to a substantial attenuation of signal strength

## 7.2 HDD CAPACITY CALCULATION

### 7.2.1 REFERENCE OF HDD CAPACITY CALCULATION

The first time install DVR, please check if the HDD has installed.

The capacity of the HDD

There is no limitation of capacity of single HDD to DVR, please choose the HDD according to the Vedios' saving time.

The choose of the Capacity

Computational formula of HDD Capacity:

Whole HDD Capacity = number of the channels × time in need (hour) × spent of HDD Capacity per hour (MB/hour)

Similarly we can have the formula of recording time:

$$\text{Recordingtime (hour)} = \frac{\text{TotalHDDCapacity (MB)}}{\text{CapacityOccupationperHour (MB/hr)} \times \text{AmountofChannel}}$$



Note: 1GB=1000MB, not 1GiB=1024MiB, so HDD capacity shown in Base Configuration under HDD Management less than real marked.

File size per hour (CBR).

Bit Rate	File	Bit Rate	File	Bit Rate	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

## FORM 7-1 RECORD FILE SIZE

File size is more unpredictable when VBR style, please refer to the real size of recording file.

### 7.2.2 HARD DISK PROBLEM

Use Detection Tool provided by the HDD manufacturer to detect the Function of HDD to solve data problem.

We recommend Seagate and Western Digital.

#### **How to detect Seagate HDD**

- a) Get into [www.seagate.com](http://www.seagate.com), Click Support & Downloads → choose Sea Tools, download tool, as Diagram 7-1:



DIAGRAM 7-1 SEAGATE DOWNLOAD

- b) Double-click to install downloaded file, click installed file to detect the HDD information on PC.  
c) Choose the HDD for detection (other manufacturer's hard disk suitable too) .

#### **How to detect WDC HDD**

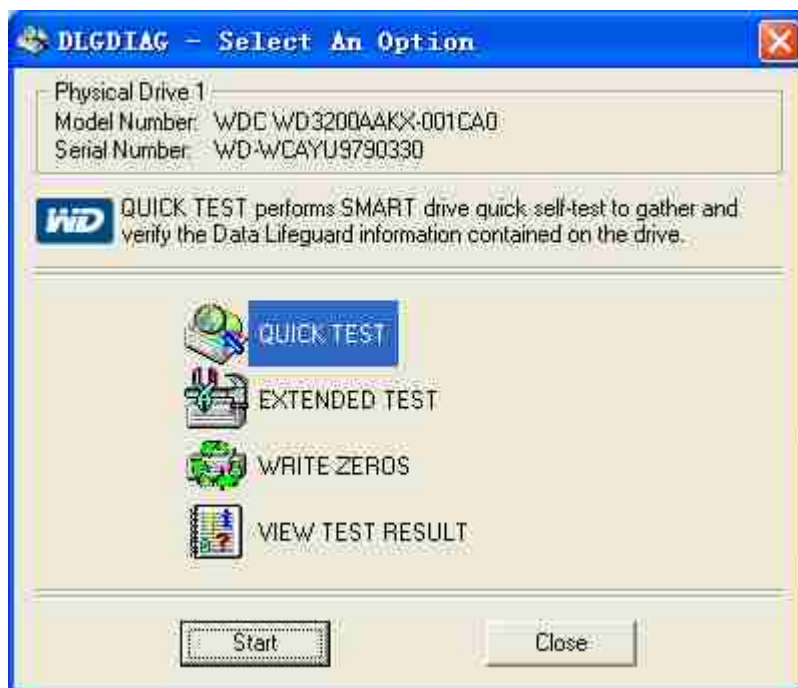
a) Get into [www.wdc.com](http://www.wdc.com) , choose WD support / download / SATA&SAS / WD Caviar / GP, download software as Diagram 7-2 WD Download



DIAGRAM 7-2 WD DOWNLOAD

b) Click Icon to hard disk detection after downloading.

c) Double click hard desk in device list, as Diagram 7-3 WD Detection:



## 7.3 COMMON FAULTS

### **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 supplier.
3. There is an HDD error. Replace faulty HDD.

### **Remote control does not work**

Possible reasons:

1. Check for batteries in remote control , especially Positive and Negative;
2. Check for batteries' power;
3. Check if remote receiver is obscured;
- 3 Check if DVR address correspond to the remote control address .

### **DVR cannot control PTZ**

Possible reasons:

1. RS-485 cable connection error, A, B ports are inversely connected;
2. PTZ decoder, protocol, baud rate, address are incorrect;
3. Parallel connect a 120Ω resistance to resolve signal reflex 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 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

#### **Can not connect DVR through network**

Possible reasons:

- 1, check the physical network connection is correct.
- 2, check the DVR network configuration parameters.
- 3, check whether IP conflicts exist in network.

#### **Download recording can not be played**

Possible reasons:

- 1 Player installation error.
- 2 The USB or HDD device has an error.
- 3 Do not install graphic software later than DX8.1.

#### **Internet Explore Crash**

Possible reasons:

Close IE explore, enter into the tool bar

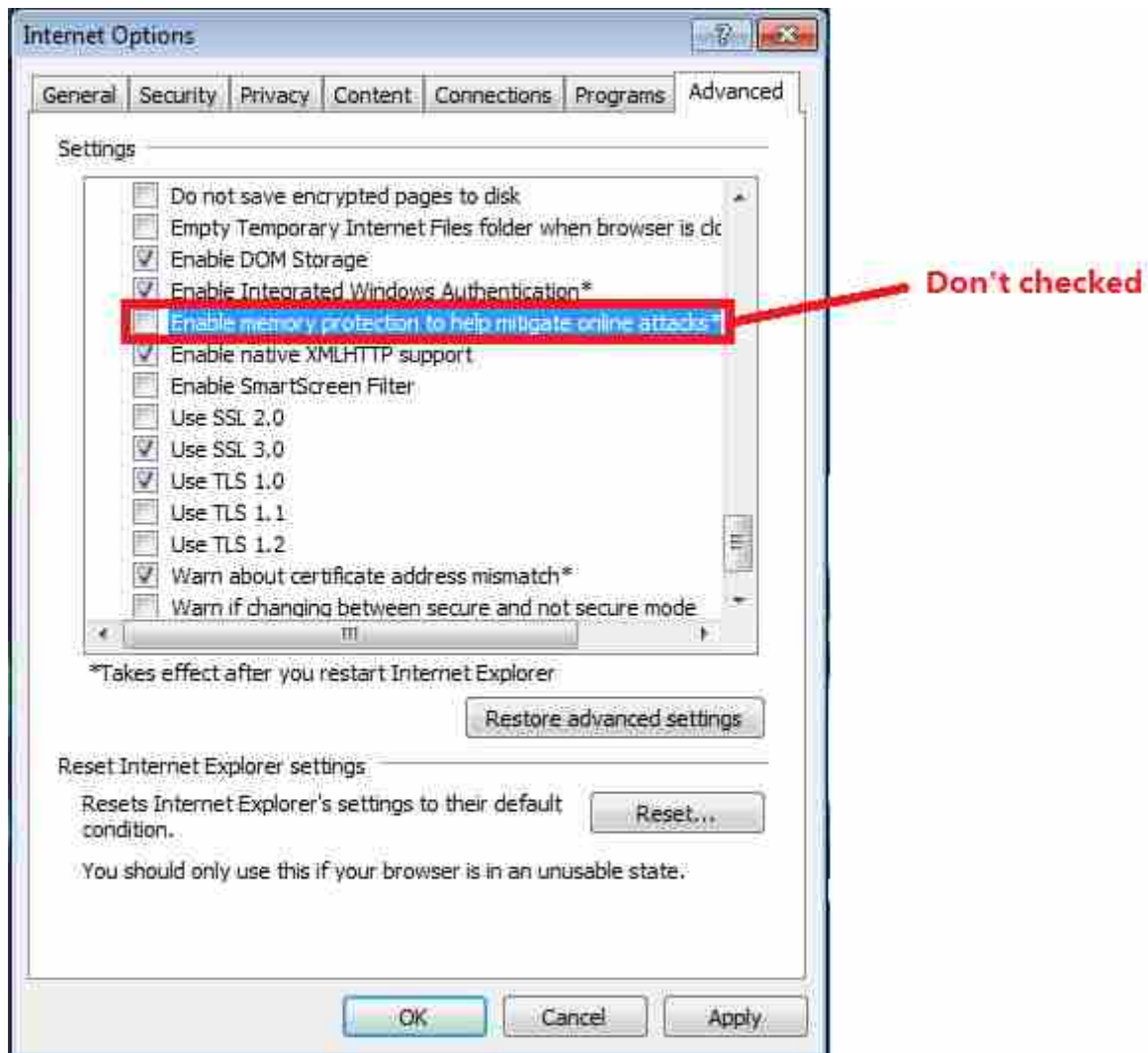


DIAGRAM 7-4 IE TOOL BAR

**Visit under Internet Explorer 9.0**

Possible reasons:

Internet Explorer 9.0 above version visit: Please choose compatible mode.