Digital Video Recorder

User Manual

Regulatory information

FCC information

FCC compliance: This equipment has been tested and found to comply with the limits for a digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC conditions

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

EU Conformity Statement

This product and - if applicable - the supplied accessories too are marked with "CE" and comply therefore with the applicable harmonized European standards listed under the Low Voltage Directive 2006/95/EC, the EMC Directive 2004/108/EC, the RoHS Directive 2011/65/EU.

2012/19/EU (WEEE directive): Products marked with this symbol cannot be disposed of as unsorted municipal waste in the European Union. For proper recycling, return this product to your local supplier upon the purchase of equivalent new equipment, or dispose of it at designated collection points. For more information, see: www.recyclethis.info.

2006/66/EC (battery directive): This product contains a battery that cannot be disposed of as unsorted municipal waste in the European Union. See the product documentation for specific battery information. The battery is marked with this symbol, which may include lettering to indicate cadmium (Cd), lead (Pb), or mercury (Hg). For proper recycling, return the battery to your supplier or to a designated collection point. For more information see: www.recyclethis.info.

Precautions and Declaration Tips

Before connecting and operating your DVR, please be advised of the following tips:

Precautions

- Please place DVRs within the permissible range of temperature and humidity.
- Do not install the DVRs in a damp, dust or soot place.
- Place the product horizontally and pay attention to preventing it from falling.
- Installed in a well-ventilated place and do not block the vent.
- Do not place containers filled with on the device.
- Do not place other equipments above the product.
- Do not disassemble this product.
- Please select the hard disk recommended by manufacturers and suitable for the requirements of the DVR.

Declaration

- Please prevail in kind. The manual is for reference only.
- This manual may contain inaccurate data or printing error.
- The products described in this manual may be updated at any time.
- Screenshots of the manual is not in a machine and only for display.
- If in doubt, obtaining a copy of the latest procedure or the additional document, please contact with the company's after-sales department.

Trademarks and Registered Trademarks

- Windows and Windows mark are trademarks or registered trademarks of Microsoft Corporation in the United States and/or other countries.
- HDMI, HDMI mark and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC.
- The products contained in this manual are authorized by HDMI Licensing LLC with the use right of the HDMI technology.

- VGA is the trademark of IBM.
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Thank you for purchasing our product. If there is any question or request, please do not hesitate to contact dealer. The figures in this manual are for reference only.

Product Introduction

Product Overview

This product is designed specifically for the field of video surveillance and adopts H.264 video compression, hard disk recording, TCP/IP transmission and a Linux based OS in addition to some of the advanced technology in the information technology industry. This enables a more stable, reliable and high picture quality. This product complies with standards of GB 20815-2006《video security surveillance digital video recording》promulgated by the State. At the same time, the product supports the ONVIF protocol(base on《ONVIF ™ Core Specification》Version 2.2) and is compatible with the network cameras which supports ONVIF protocol. This product can realize the switching of DVR mode or mixed mode (Mixed mode can both connect with analog channels and network cameras when the DVR modes only connect with network cameras) ,recording, playback, monitoring, synchronization of audio and video. Besides, the products support advanced control technology and strong network data transmission capacity.

Feature

Real-time monitoring

- Have a composite video signal interface
- Support TV, VGA or HDMI output simultaneously

Compression function

- Use H.264 video compression standard
- G.711 audio compression standard
- Have high definition, low code rate of the video coding and the storage.

Recording function

- Support timing, linkage alarm, motion detection, SATA hard and local hard disk
- DVR data backup
- Network backup

Video playback function

- Achieve searching videos by a variety of conditions, playback in local and network.
- Support multiple videos playback, fast playing, slow playing and frame-by-frame playback.
- Video playback can display the exact time of the incident.
- Provide timeline retrieving page for quick searching.

Camera control and alarm

- Be controlled by the remote camera
- Equip many alarm input interfaces.
- Be connected to various types of alarm devices.
- Dynamic detection, video loss, video block, multiple alarm output
- Scene lighting control can be realized.

Communication Interface

- Equip USB 2.0 high-speed interface or ESATA interface;
- Allow many backup devices;
- Equip standard Ethernet interface;
- Plug and play in a variety of network conditions;

Network functions

- Support TCP / IP, UDP, RTP / RTSP, DHCP, PPPOE, DDNS, NTP etc.
- Support real-time network monitoring, video playback;
- Control and management functions;
- Built-in WEB Server, you can directly access through a browser;

Mode of operation

- You can operate by the front panel or the mouse;
- Equip a simple, intuitive graphical interface;

Table of Contents

Chapter 1 Installation

1.1 Installation Preparation

Preparation

Prepare a Cross Screwdriver.

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 tighten the screws.
- Connect the power and the data lines to the HDD.
- Reinstall the metal top cover and tighten the screws.

Caution

- Only use the HDD specified by the manufacturer.
- The HDD will be formatted automatically during booting and it may cause data loss.
- The total duration of video data saved is decided by the HDD's capability and the DVR's parameters (recording setup, encoding setup).

1.2 DVR Installation

During the installation of the DVR:

1. Use brackets for rack mounting.
2. Ensure there is ample room for audio and video cables.
3. When installing cables, ensure that the bend radius of the cables are no less than five times than its diameter.
4. Connect both the alarm and RS-485 cable.
5. Allow at least 2cm (≈0.75-inch) of space between racks mounted devices.
6. Ensure the DVR is grounded.
7. Environmental temperature should be within the range of -10ºC ~ 55ºC, 14ºF ~ 131ºF.
8. Environmental humidity should be within the range of 10% ~ 90%.

1.3 Hard Disk Installation

Before you start:

Before installing a hard disk drive (HDD), please make sure the power is disconnected from the DVR. A factory recommended HDD should be used for this installation.

Up to 8 SATA hard disks can be installed on your DVR.

Tools Required: Screwdriver.

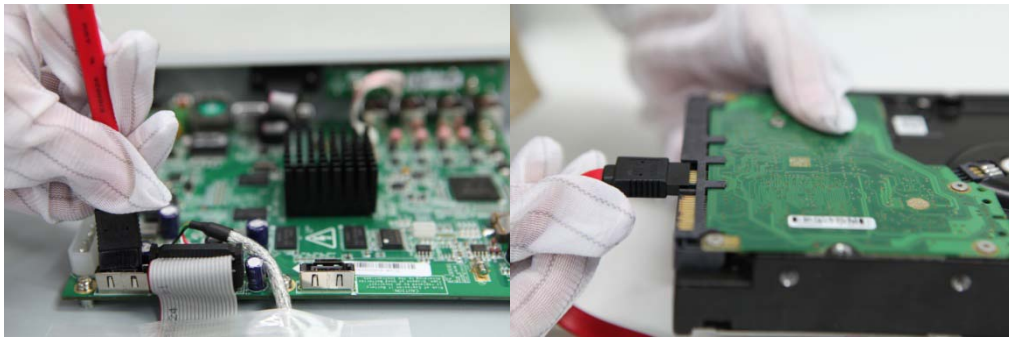
Note: As the installation steps of HDD are similar among different models, here we take the steps

of the FT series as an example.

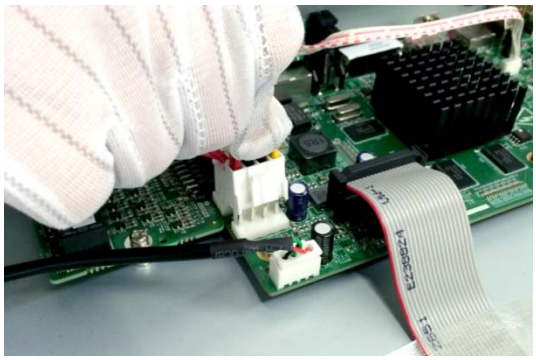
Steps:

1. Remove the cover from the DVR by unfastening the screws on the back and side.

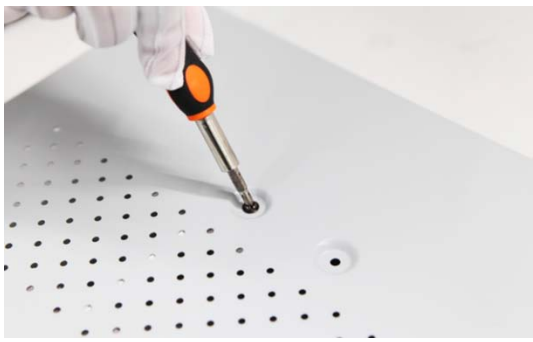
2. Connect one end of the data cable to the motherboard of DVR and the other end to the HDD.



3. Connect the power cable to the HDD.



4. Place the HDD on the bottom of the device and then fasten the screws on the bottom to fix the HDD.



5. Re-install the cover of the DVR and fasten screws.

1.4 Installation of the burner

Preparing for Installation

You need a Phillips screwdriver.

The burner installation steps

Unscrew the screw on the side of the chassis and open the case cover.

Use a screwdriver to remove the bracket fixed in middle of the disk.

Open the front panel door and remove the baffle inside.

Connect the burner data cable and the power cord.

Fix the chassis cover.

Precautions

The installation of the built-in burner is only for specific DVR and affects disk space for installation and interfaces.

Chapter 2 Introduction

2.1 The Front Panel

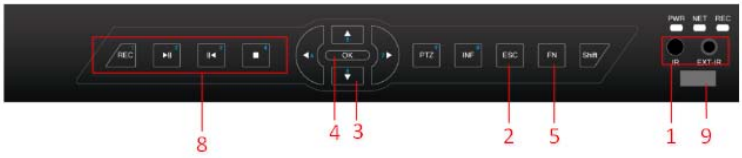


Figure 2. 1 Front Panel of 4/8ch TVI DVR

Figure 2. 2 Front Panel of 16ch TVI DVR

Table 2. 1 Description of Front Panel

Index	Name	Function
1	**IR**	Receive the remote control signal.
2	**Esc**	Back to previous menu, operation cancel; Back to live view when playing back records.
3	**Direction**	Up/Down: Move up or down. Change the settings and increase or decrease the digital. Left/Right: Control the playback control bar of the records.
4	**Enter**	Confirm the operations. Jump to the default button. Enter the menu.
5	**Fn**	The button displays PTZ control and image color when in the state of the single-screen monitoring. Simultaneously press the Fn key and the direction key to complete the settings with the dynamic monitoring area. Press the Fn key to empty all contents of the edit box. Press the key to switch among English, Chinese and figure. Special with the function of each menu page prompts.
6	**Num Lock 1~9**	Digital input（digital input mode）.
		Text input（Text input mode）.
		Image switch（single screen mode）.
7	**REC**	Manually start/Stop recording.
8	**Function keys**	Function keys, Play/Stop Function
9	**USB**	Connect the mouse and HDD.

10	**ON/OFF**	Power on/off.

2.2 The Rear Panel

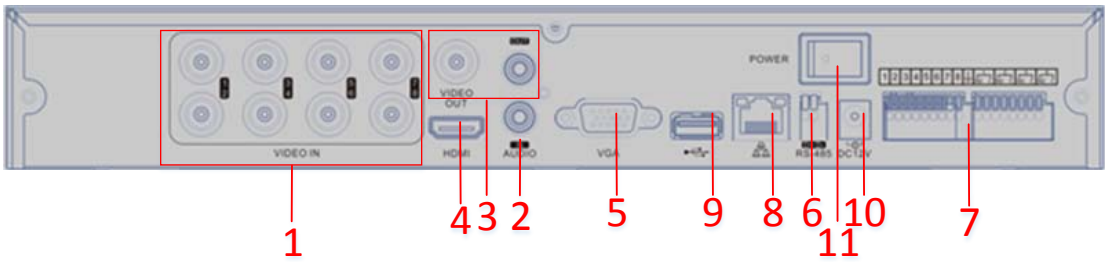


Figure 2. 3 Front Panel of 4/8/16ch TVI DVR

Table 2. 2 Description of Rear Panel

Index	Name	Description
1	**Video in**	BNC interface for TVI and analog video input.
2	**Audio in**	The input interface of the audio signal
3	**Audio out**	The output interface of the audio signal and CVBS
4	**HDMI**	The output interface of the HDMI video signal
5	**VGA**	The output interface of the VGA video signal
6	**RS-485**	The interface drawing of the alarm input, the alarm output and RS-485
7	**Alarm in/out**	The interface of the alarm input, the alarm output
8	**Network interface**	The RJ-45network interface
9	**USB Port**	The USB 2.0 interface
10	**Power Supply**	DC 12V power supply.
11	**Power Switch**	Switch for turning on/off the device.

The output interface of the HDMI video signal

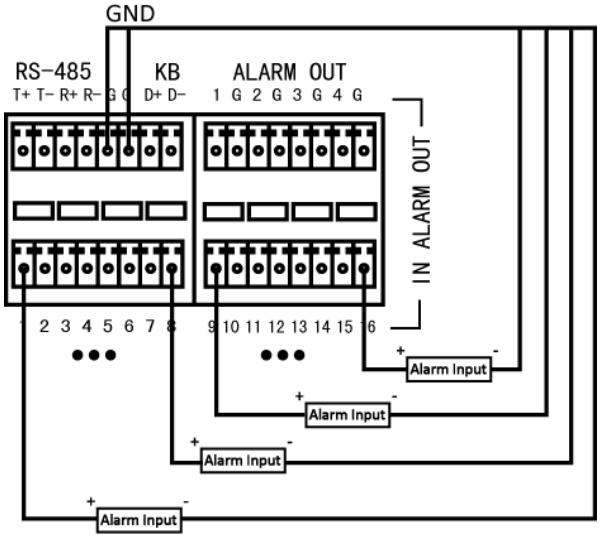
2.3 Peripheral Connections

Wiring of Alarm Input

The alarm input is an open/closed relay. To connect the alarm input to the device, use the following diagram.

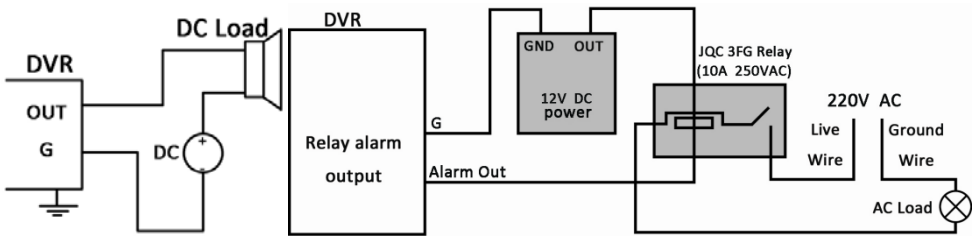
Note:

If the alarm input is not an open/close relay, please connect an external relay between the alarm input and the device.



Wiring of Alarm Output

To connect to an alarm output (AC or DC load), use the following diagram:



DC Load Connection Diagram **AC Load Connection Diagram**

For DC load, the jumpers can be used within the limit of 12V/1Asafely.

To connect an AC load, jumpers should be left open (you must remove the jumper on the motherboard in the DVR). Use an external relay for safety (as shown in the figure above).

There are 4 jumpers (JP1, JP2, JP3, and JP4) on the motherboard, each corresponding with one alarm output. By default, jumpers are connected. To connect an AC load, jumpers should be removed.

Example:

If you connect an AC load to the alarm output 3 of the DVR, then you must remove the JP 3.

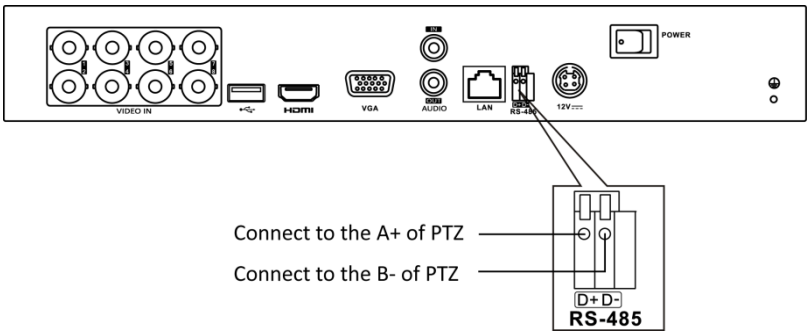
Alarm Connection

To connect alarm devices to the DVR:

1. Disconnect *pluggable block* from the ALARM IN /ALARM OUT terminal block.
2. Press and hold the orange part of the *pluggable block*; insert signal cables into slots and release the orange part. Ensure signal cables are in tight.
3. Connect *pluggable block* back into terminal block.

RS-485 and Controller Connection

For 4/8/16 TVI DVR



To connect PTZ to the DVR:

1. Disconnect *pluggable block* from the RS-485 terminal block.
2. Press and hold the orange part of the *pluggable block*; insert signal cables into slots and release the orange part. Ensure signal cables are in tight.
3. Connect A+ on PTZ to D+ on terminal block and B- on controller to D- on terminal block. Fasten stop screws.
4. Connect *pluggable block* back into terminal block.

To connect a controller to the DVR:

1. Disconnect *pluggable block* from the KB terminal block.
2. Press and hold the orange part of the *pluggable block*; insert signal cables into slots and release the orange part. Ensure signal cables are in tight.
3. Connect Ta on controller to D+ on terminal block and Tb on controller to D- on terminal block. Fasten stop screws.
4. Connect *pluggable block* back into terminal block.

Note: Make sure both the controller and DVR are grounded.

Chapter 3 Basic Operations Guide

3.1 Power on and Off

3.1.1 Power On

Correctly install and power on the DVR. When the power indicator lit up, The DVR will automatically detect hardware state of the device during the starting. The booting process will continue for about 30 seconds. After boot, the equipment sounds and then enters the state of multi-screen real-time video surveillance.

3.1.2 Power Off

Steps:

There are two proper ways to shutdown the DVR. To shutdown the DVR:

- **OPTION 1: Standard shutdown**
  1. Enter the Shutdown menu.
     Menu > Shutdown

Figure 3. 1 Shutdown menu

  2. Select the **Shutdown** button.
  3. Click the **Yes** button.
  4. Turn off the power switch on the rear panel when the note appears.

- **OPTION 2: By operating the front panel**
  1. Press and hold the POWER button on the front panel for 3 seconds.
  2. Enter the administrator's username and password in the dialog box for authentication.
  3. Select the **Shutdown** button and Click the **Yes** button.

3.2 Preview and Login in

3.2.1 Preview

After the device is turned on, you will enter the real-time monitoring interface. Right click and the interface will pop up.

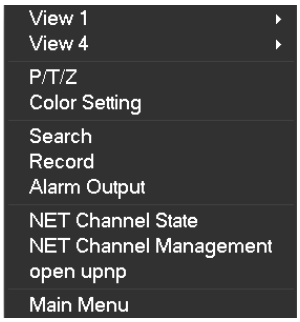


Figure 3. 2 Live view

3.2.2 Login In

Click the image above with [**main menu**], and then input the user name and the password of the DVRto complete the login.

Note: default user name and password *admin, 123456*

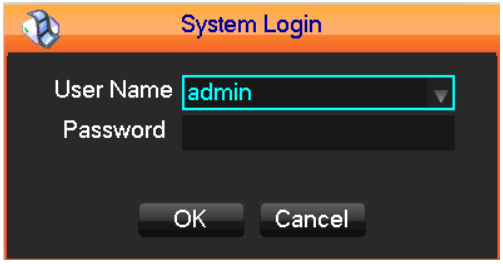


Figure 3. 3 Login

3.3 Mode Switching

The DVR can work in mixed mode or DVR mode. Mixed-mode can be connected with both analog cameras and network cameras while DVR mode can only support IP cameras.

Steps:

1. Enter [**configuration**] – [**system**]-[**channel mode**] to select the mode.
2. Restart to complete the setting.

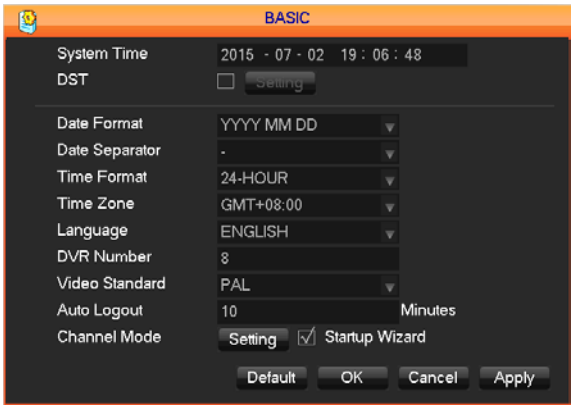


Figure 3. 4 Basic interface

3.4 IP Camera

3.4.1 Add IP Camera

Purpose:

Network channels are used to display remote IPCs. The addition of IPCs shows as the following interface.

Steps:

1. Enter **video** interface
2. Select **Net Channel** tab.

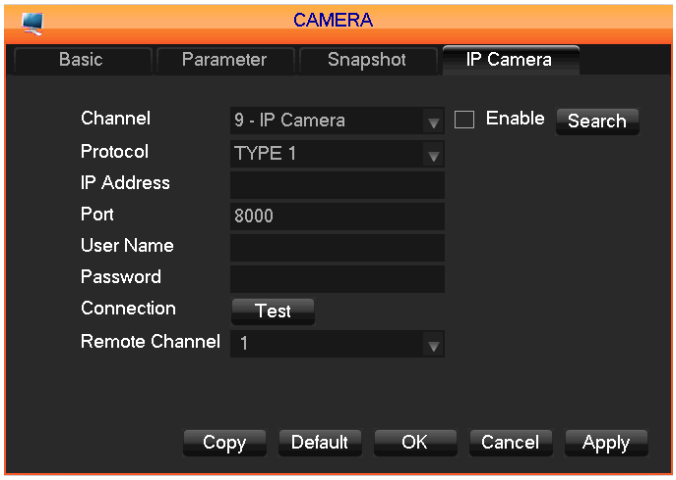


Figure 3. 5 Video interface

3. Check the checkbox after Enable **Open**.

Table 3. 1 Description of Rear Panel

Index	Item	Description
1	**[Channels]**	Choose a local channel to display
2	**[Protocol]**	It is selected according to the type that the IPC supports
3	**[IP]**	Input the IPC's IP address
4	**[Port]**	Fill in the ONVIF port of the IPC.
5	**[Username]**	Fill in the user name of the IPC
6	**[Password]**	Fill in the password of the IPC
7	**[Remote Detect]**	After completing the above parameters, click the detect button to return the connection status

4. Select the appropriate protocol and click search button. Double click the results and it will add the IPC automatically and return to the previous page. Fill in the user name and password to complete.

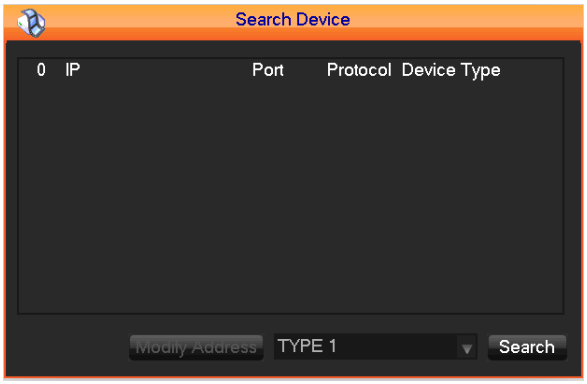


Figure 3. 6 Search Device

Note: The IPCs and the device should in the same LAN.

3.4.2 Status Display

Right click in the real-time monitoring screen and select [net channel] to view the status of the network channels.

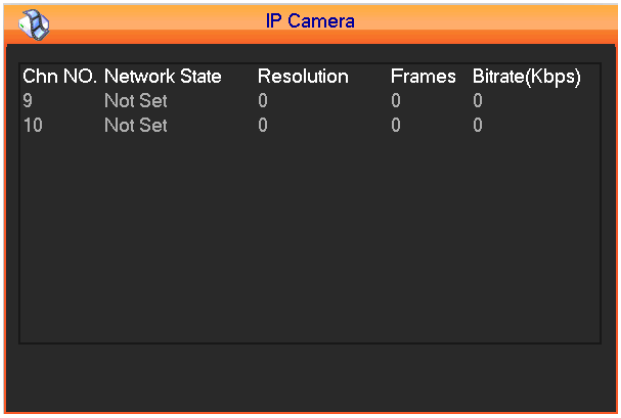


Figure 3. 7 Net Channel

3.5 PTZ Control

When connect with a network ball, right click the corresponding network channel and select [PTZ] to enter into the PTZ interface. If access to a simulated ball machine, enter [Main Menu] - [PTZ] to modify the PTZ protocol, the baud rate and address bits. Then right click in the corresponding channel and select [PTZ].The PTZ control interface is shown as the following interface.

Figure 3. 8 PTZ Control interface

5. Click to enter the PTZ configuration page.

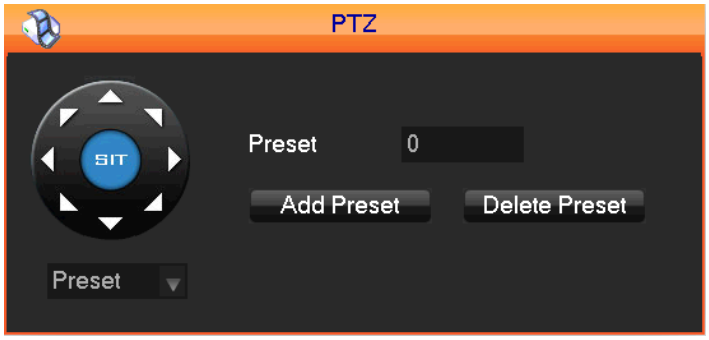


Figure 3. 9 PTZ Configuration

Refer to 4.2 about more details.

3.5.1 PTZ configuration

The direction of PTZ, steps, zoom, focusing, iris, preset points, cruising between points, patrols, sweeping the boundary, calling an auxiliary switch, light switch, horizontal rotation are controlled with the usage of the arrow keys.

The [Step] is mainly used to control directions. The figure can be set from 1 to 8.
Directly click or to adjust zooming, sharpness and brightness adjustment.
PTZ supports eight directions.

3.5.2 Quick location

Quick location: <SIT>is in the middle of the direction arrows. Make sure that the protocol supports this function. PTZ will turn to the clicked point and move it to the centre of screen. It also supports zooming. Drag the mouse in the quick location page. The dragged box supports 4 to 16 times zooming. Hold the mouse and drag it up to complete zoom of the box. Drag it down to narrow the box.

Refer to 7.1.5 about more details.

3.6 Search

In real-time monitoring screen, right click and select【search】to enter the searching interface.

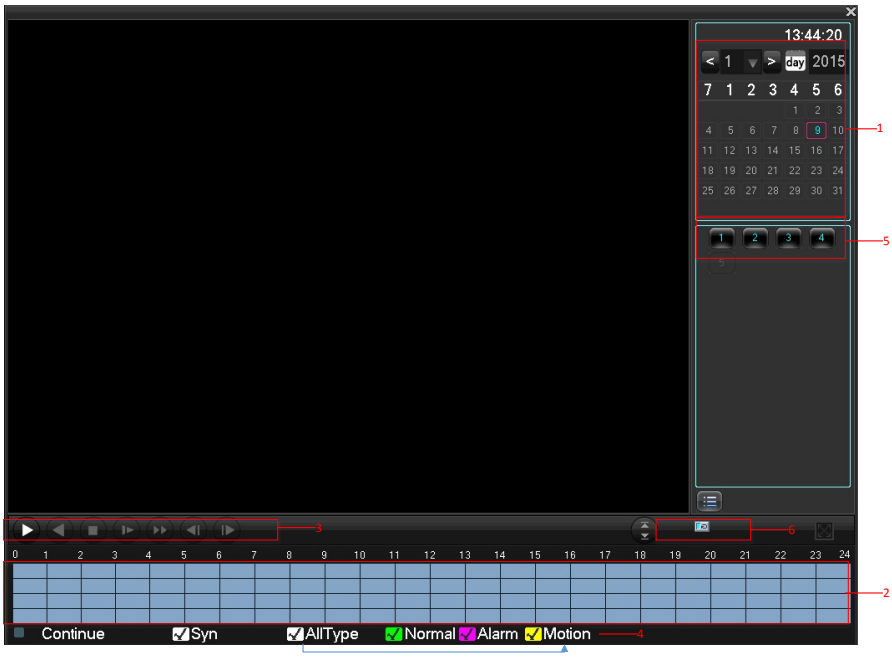


Figure 3. 10 Search interface

Table 3. 2 Description of Rear Panel

Index	Type	Description
1	Calendar	Date and time
2	Choose the time	Input the date and time of records searched.
3	Playback control	It can achieve a full screen, circle playback, stopping / playing, pausing, fast playing, slow playing and the previous/next frame on a suspended state .
4	Recoding mode	There are alarm recording and regular recording for selecting.
5	Select channels to query	Choose the channels for querying.

6	Playback controls	It can achieve a full screen and circle playback.
7	Search	Click the button to search.
8	Backup	Choose files and click "  "to backup. Then select a storage device and recording files.
9	The list of records	128 video records are shown in the list. Type: R—normal record, A—alarm record, M—motion detection record.
10	The channel for playback	Choose a channel in which the record plays back.

3.7 Record

In real-time monitoring screen, right click and select【record】to enter the interface.

Figure 3. 11 Record interface

【**Manual**】It has the highest priority and corresponding channels will record for whole days after chosen.

【**Schedule**】Record according to recoding configuration.

【**Stop**】Stop recording.

3.8 Alarm

3.8.1 Alarm Configuration

- **Detect**

Enter [main menu]-[detect].

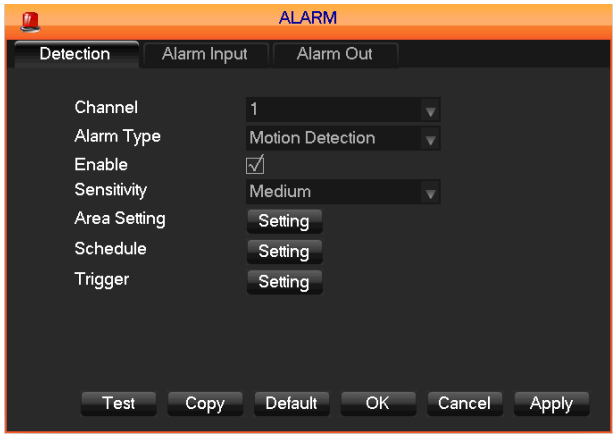


Figure 3. 12 Alarm Detect interface

Table 3. 3 Description of Alarm Detect

Index	Item	Description
1	**[Channel]**	Select the channel
2	**[Alarm type]**	Dynamic monitoring, video loss and video blind can be selected
3	☑	Open the enable switch
4	**[Sensitivity]**	Set sensitivity of the network channels
5	**[Set area]**	It should be set in the IPC
6	**[Process]**	Click the button to set the alarming time, linkage and the handling method.

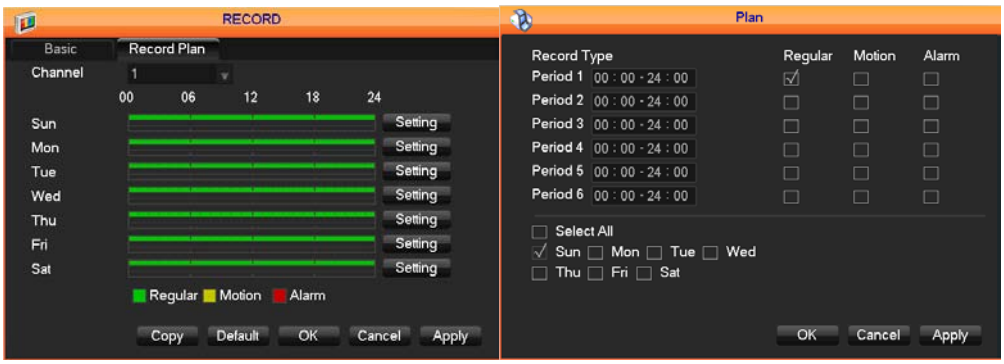


Figure 3. 13 Record interface

[Linkage Set]When produce an alarm, you can activate the linkage of records, PTZ, touring and capturing.

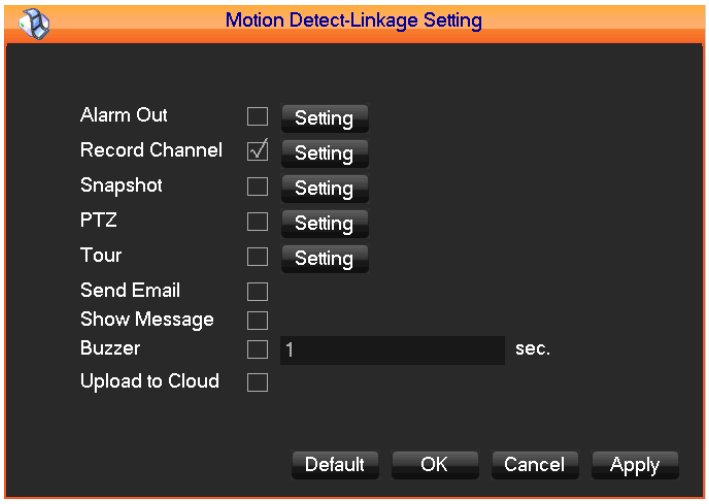


Figure 3. 14 Motion Detect-Link interface

3.8.2 Alarm Input

Enter [main menu]-[alarm]-[alarm input].

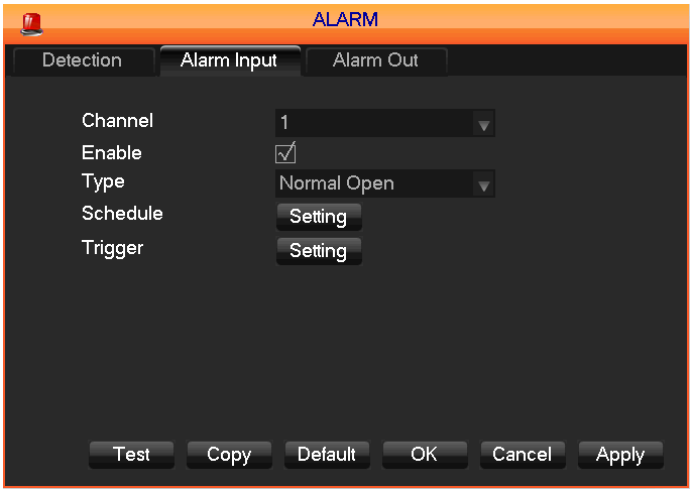


Figure 3. 15 Alarm input interface

Table 3. 4 Description of Rear Panel

Index	Item	Description
1	**【Alarm input channel no.】**	Select a channel
2	**【Enable】**	Select the enable switch
3	**【Type】**	It can be normal open or close
4	**【Process】**	Click the button to set the alarming time, linkage and the handling method.

3.8.3 Alarm Output

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

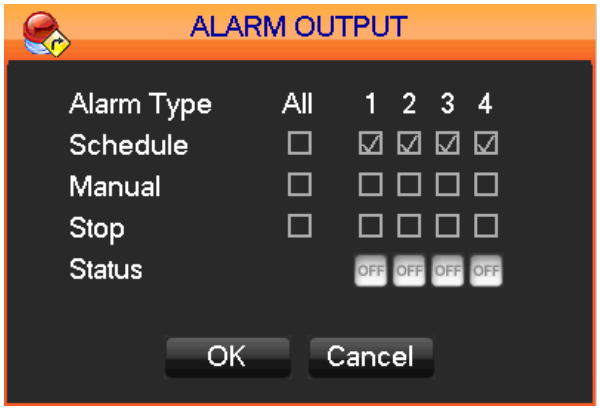


Figure 3. 16 Alarm output interface

Table 3. 5 Description of Alarm output

Index	Item	Description
1	**【Channels】**	The number of channels that are in alarm status
2	**【Schedule】**	Alarm output is in control of alarm configuration
3	**【Manual】**	Alarm output is on and the status is active
4	**【Stop】**	Alarm output is off and the status is inactive
5	**【Status】**	The current status of alarm output

***Note*:** Some models don't have the local alarm; please refer to the products descriptions.

3.8.4 Alarm Status

If you select [**Show Message**] in linkage settings, the following message will pop up when the alarm occurs.

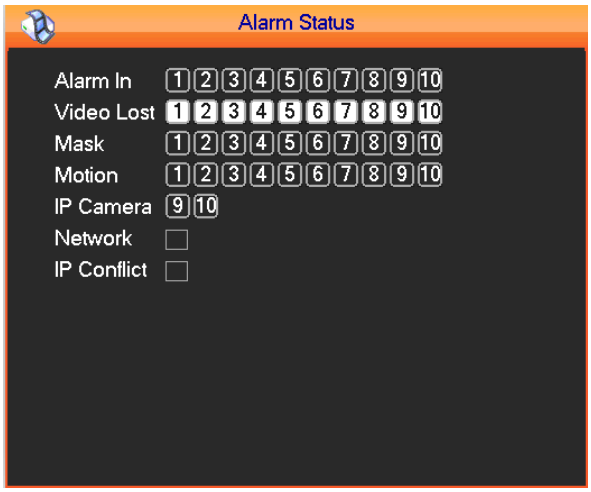


Figure 3. 17 Alarm status interface

3.9 Color Setting

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.

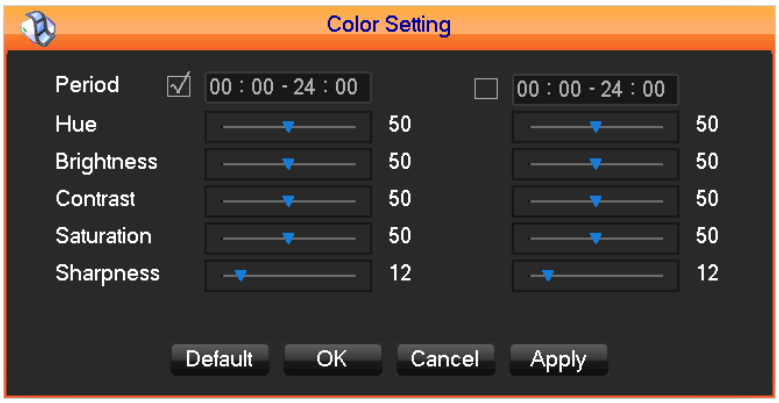


Figure 3. 18 Color Settings interface

Table 3. 6 Description of Color Settings

Index	Item	Description
1	**【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
2	**【Hue】**	Adjust according to color cast of image
3	**【Brightness】**	Visual image brightness, according to the environment, reduces or increases the brightness of the image brightness to make the image relatively clear
4	**【Contrast】**	Adjust image of black and white in proportion, the greater ratio, the brighter image
5	**【Saturation】**	Image color purity, the greater value, the more colorful images.
6	**【Gain】**	Enlarge the image signal to improve signal quality
7	**【White Level】**	Change the white level reference value, to improve the brightness of the image display

Note: Only analog channels support the function.

3.10 The Input Method

In the input box, you can select figures, symbols, English capitalization and the input of Chinese. Click the mouse to complete the input.”← “represents the backspace and “_ “represents a space.

Figure 3. 19 English figures interface

Figure 3. 20 Chinese figures interface

Chapter 4 Parameter Settings

4.1 Introduction of Main Menu

The main menu is shown in the following interface.

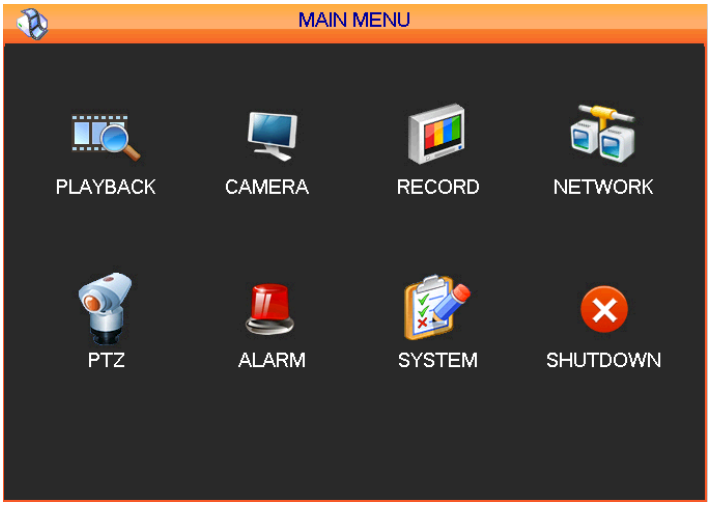


Figure 4. 1 Main Menu interface

Table 4. 1 Description of Main Menu

Index	Item	Description
1	**【Search】**	Search records by types, channels, time and playback records
2	**【Video】**	Set basic, encoding, snaps and net channels
3	**【Record】**	Set basic and record plan
4	**【Network】**	Set base, advanced and apply network
5	**【PTZ】**	Set parameters of PTZ
6	**【Alarm】**	Set alarm information
7	**【System】**	Set basic, display, storage, abnormity, status, maintain, account and RS232
8	**【Shutdown】**	It includes menu logout, shutdown and restart of the system

4.2 Video Settings

This menu contains the basic video settings, video encoding settings, and the capture channel access and network settings.

4.2.1 Basic

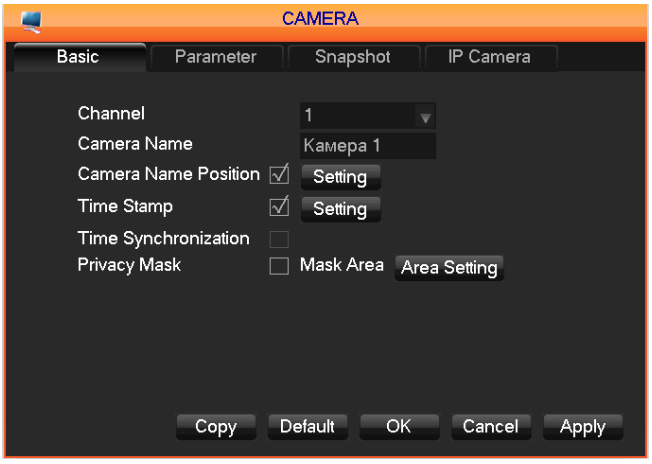


Figure 4. 2 Basic interface

Table 4. 2 Description of Basic

Index	Item	Description
1	**【Channel】**	Select the desired channel
2	**【Channel name】**	Select the channel name
3	**【Channel display】**	Set the position of the channel title
4	**【Time display】**	The position of the time title in the screen
5	**【Time Synchronization】**	Time synchronization of network channels and the device
6	**【Video cover】**	Set protected area of previewing and recording

4.2.2 Encoding settings

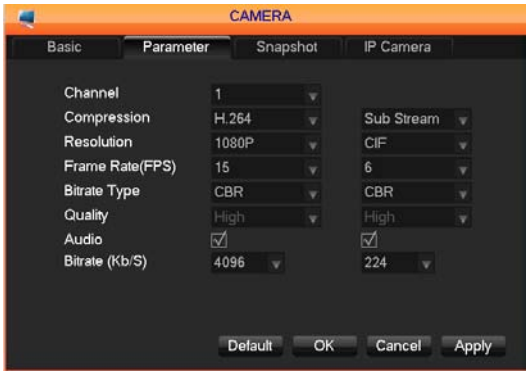


Figure 4. 3 Video interface

Table 4. 3 Description of Video

Index	Item	Description
1	**【Channel】**	Select the desired channel
2	**【Compression】**	H.264
3	**【Resolution】**	The resolution of main stream can be 720P/1080P. Different channels correspond to different resolutions. Frame rate setting range is also different. The channel extension stream resolution can support CIF / QCIF
4	**【Bit Rate】**	Constant Bit rate or Variable Bitrates. Bit rate can be set in Constant Bit rate. There are 6 levels for image quality in Variable Bit rate, 6 is the best but it is fixed in Constant Bit rate
5	**【Audio】**	Choose channels record sound or not

Note: *Resolution and frame rate are vary depending on DVR model.*
Frame Rate: P system: a / s -25 frames / sec. N system: a / s -30 frames / sec.

4.2.3 Snapshot

Figure 4. 4 Snapshot interface

Table 4. 4 Description of Snapshot

Index	Item	Description
1	**【Channel】**	Select a channel
2	**【Mode】**	Trigger: Crawl images when alarm
3	**【Image Size】**	CIF capture
4	**【Image Quality】**	There are 6 levels of quality
5	**【Snapshot frequency】**	set highest capture rate for single channel，1s/pc 2s/pc 3s/pc 4s/pc 5s/pc 6s/pc 7s/pc 8s/pc

4.2.4 Net Channel

First, open the enable switch.

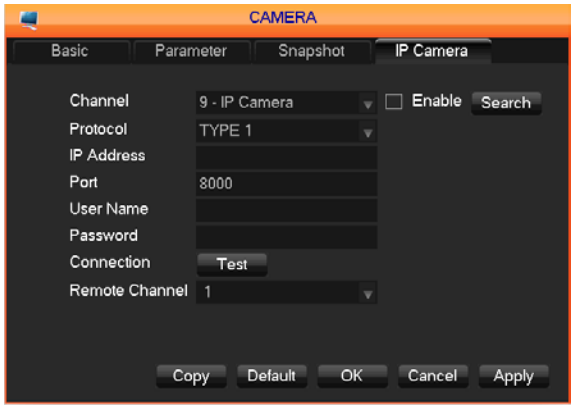


Figure 4. 5 Video-Net channel interface

Table 4. 5 Description of Net Channel

Index	Item	Description
1	**【Channel】**	Select the desired channel
2	**【Protocol】**	Choose a protocol supported by IPCs
3	**【Address IP】**	Input the IP of the IPC
4	**【Port】**	Input the port of the IPC
5	**【User name】**	Input the user name of the IPC
6	**【Password】**	Input the password of the IPC
7	**【Detect】**	After completing of the above settings, click the detection button. The dev ice will connect with the IPC and return the connection status
8	**【Search】**	Select an appropriate protocol and search.Double click the search results,and then the device will automatically be added and return to the network channel interface. You need to fill in the user name and the password

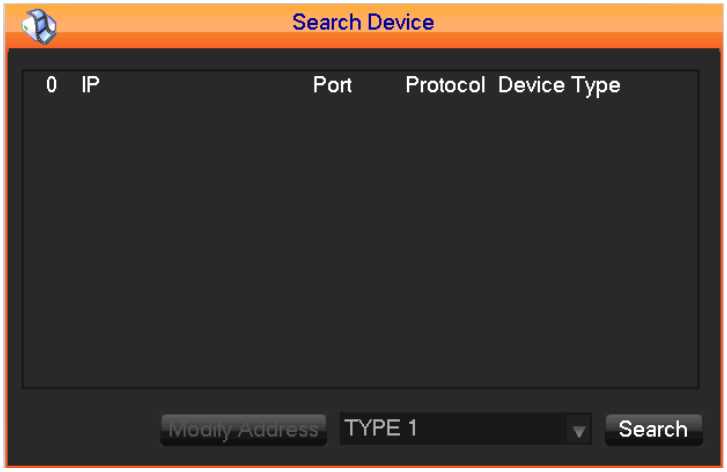


Figure 4. 6 Search Device interface

4.3 Record

Basic

Figure 4. 7 Basic record interface

Table 4. 6 Description of Net Channel

Index	Item	Description
1	**【Video mode】**	Record automatically, manually or not record
2	**【Video expiration time】**	The figure is between 0 to 365
3	**【Video package time】**	The figure is between 5 to 120
4	**【HDD full】**	Overwrite or stop recording
5	**【Channel】**	Select a channel
6	**【Video redundancy】**	Open or close the redundant recording
7	**【Prerecorded】**	The figure is between 0 to 30

Record Plan

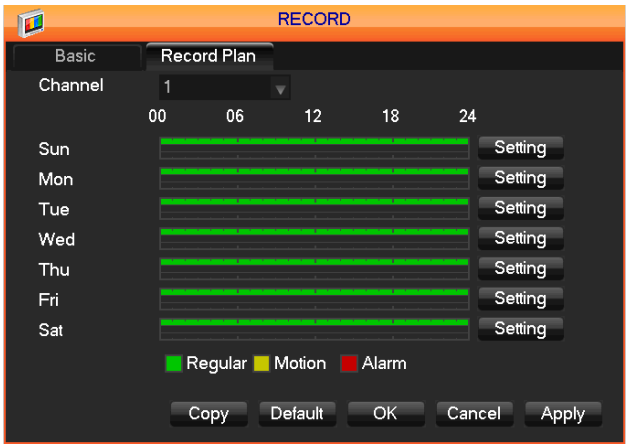


Figure 4. 8 Record Plan interface

Table 4. 7 Description of Record Plan

Index	Item	Description
1	**【Channel】**	Select a channel. It uses green, yellow and red to show motion detection, alarm and regular records correspondingly
2	**【Copy】**	Copy the settings to other channels

Click the set button to enter the following interface.

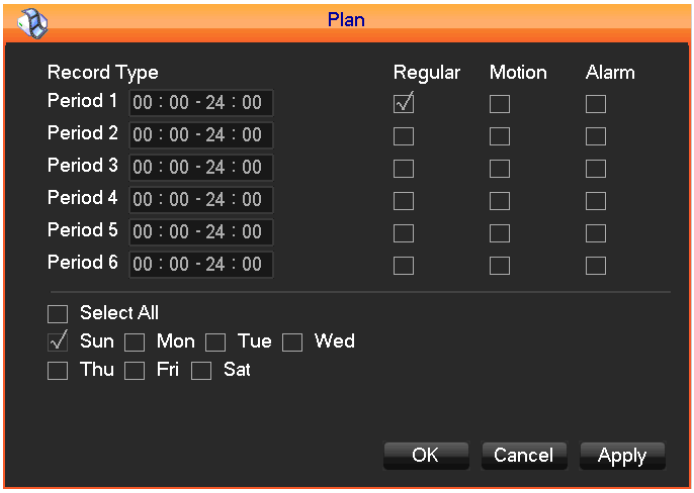


Figure 4. 9 Record Plan interface

Table 4. 8 Description of Record Plan

Index	Item	Description
1	**【Time 】**	Recording time.6 periods can be set every day

2	**【Normal】**	Normal record
3	**【Moving Detection】**	Moving detection
4	**【Alarm】**	Alarm record

4.4 Network

Base

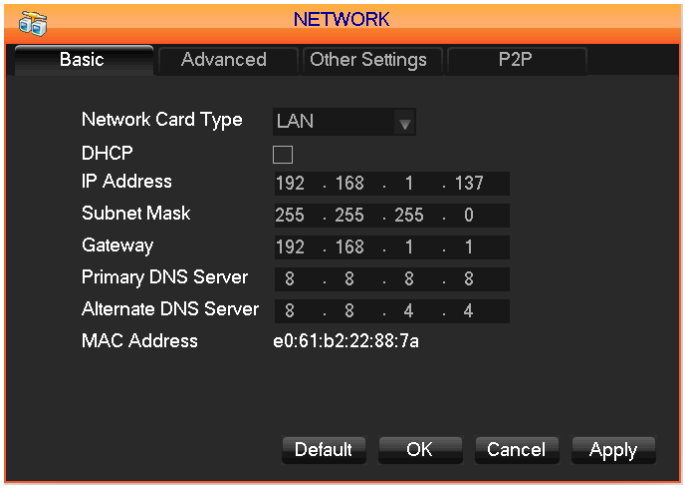


Figure 4. 10 Network interface

Table 4. 9 Description of Network

Index	Item	Description
1	**【DHCP】**	Enable the DVR to obtain an IP address automatically. If it 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.
2	**【IP Address】**	Use（▲▼）or input numbers to modify IP, then set 【subnet mask】 and 【default gateway】for this IP
3	**【First DNS Server】**	DNS server IP
4	**【Alternate DNS Server】**	DNS alternate IP
5	**【Physical Address】**	physical address of current net port

Advance

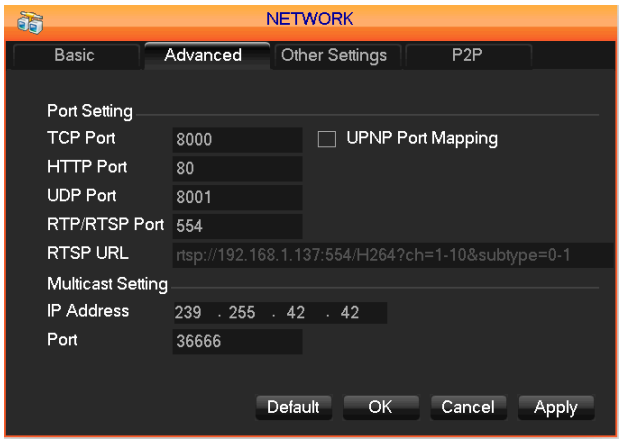


Figure 4. 11 Network advance interface

Table 4. 10 Description of Network advance

Index	Item	Description
1	**【TCP】**	default: 8000, variable
2	**【HTTP】**	default: 80
3	**【UDP】**	default: 8001
4	**【Multicast】**	tick 'Multicast' and set a group in 'Set', IP should be limited as follow picture, port no limit

Net Apply

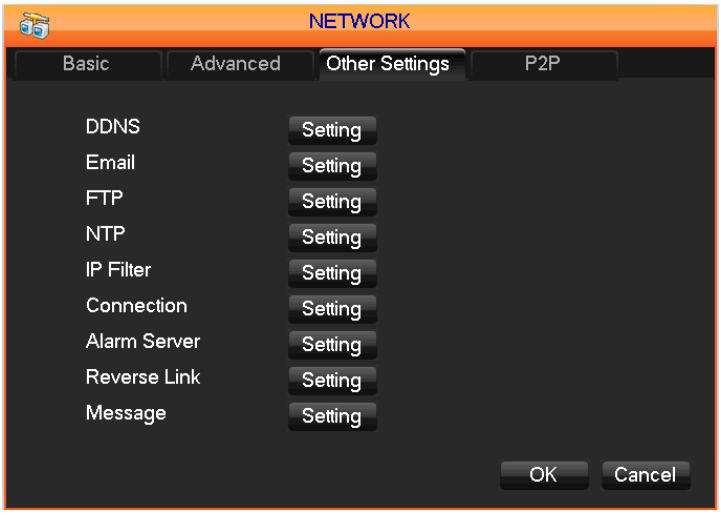


Figure 4. 12 Net Apply interface

Table 4. 11 Description of Network apply

Index	Item	Description
1	**【DDNS】**	Enable the DVR to register a DDNS hostname, which runs on a fixed IP address web client. Select DDNS type（NO-IP DDNS, Dyndns DDNS, HiDView DDNS and so on）Input the registered server's IP, port, username and password. Once completed, you can login in the Web client by inputting the domain name in IE.
2	**【Email】**	Enable the function. Set the SMTP server's port, username, password, the sender's mailbox and receiver's mailbox
3	**【FTP】**	Choose to upload records or images. Set FTP server's IP address and port (Default:21) . Create a account in FileZilla Server in the computer. Fill in the username, password and remote directory which have been created. Set file length, channel, and time for recording, type and date and so on. Tick alarm, motion and general records or images to upload.
4	**【NTP】**	On/Off NTP. The network time protocol allows the DVR to sync with NTP server time automatically. Server IP: Input IP of NTP server. Port：The default port is 123. Update cycle: The interval time is between 1 to 65535 min
5	**【IP Filter】**	DVR authority management. If you enable the white list, only the filled IPs can be connected. This system supports a max of 64 IPs.
6	**【Network Transmission】**	Transfer modes and the number of network connections, downloads
7	**【Alarm server】**	reserved interface

4.5 PTZ Configuration

Confirm the connection of PTZ A, B lines in the DVR and PTZ.

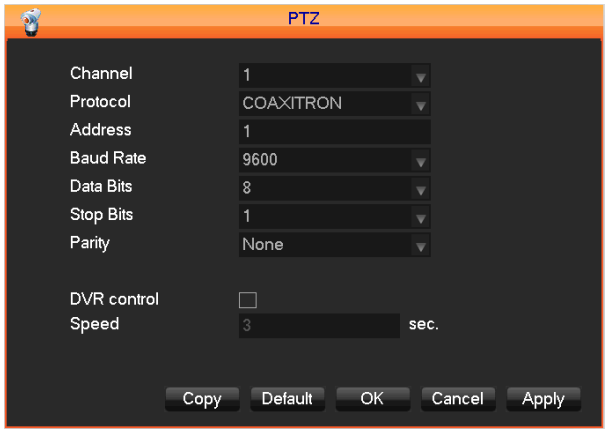


Table 4. 12 PTZ Configuration interface

Description of PTZ Configuration

Index	Item	Description
1	**【Channel】**	Select the channel
2	**【Protocol】**	Select a associated protocol (e.g. PELCOD)
3	**【Address】**	Set address. Default: 1 Note: this address has to correspond with dome address, or the dome will not be controlled
4	**【Baud Rate】**	Select the baud rate. Default is 9600
5	**【Data Bits】**	default: 8
6	**【Stop Bits】**	default: 1
7	**【Parity】**	default: None

4.6 Alarm

4.6.1 Video Detection

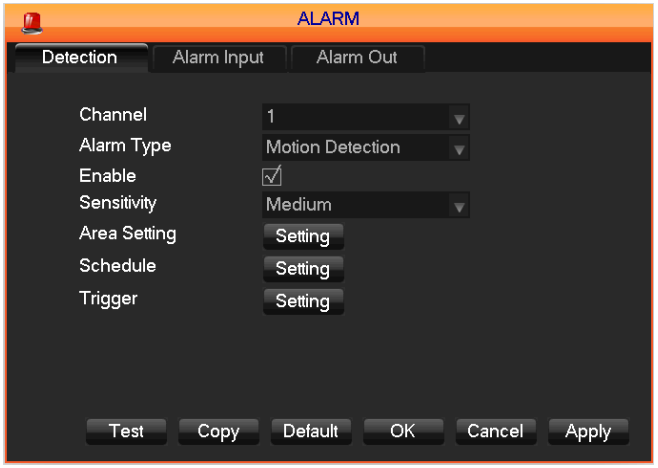


Figure 4. 13 Video detection interface

Table 4. 13 Description of Video detection

Index	Item	Description
1	**【Channel】**	Select a channel
2	**【Alarm type】**	Dynamic monitoring, video loss and video blind
3	☑	Open the enable switch
4	**【Process】**	Set the alarming time, linkage and the handling method
5	**【Area Set】**	The function should be set in the remote IPC
6	**【Linkage Set】**	When a alarm occurs, you can set linkage of records, PTZ, touring and snapshot

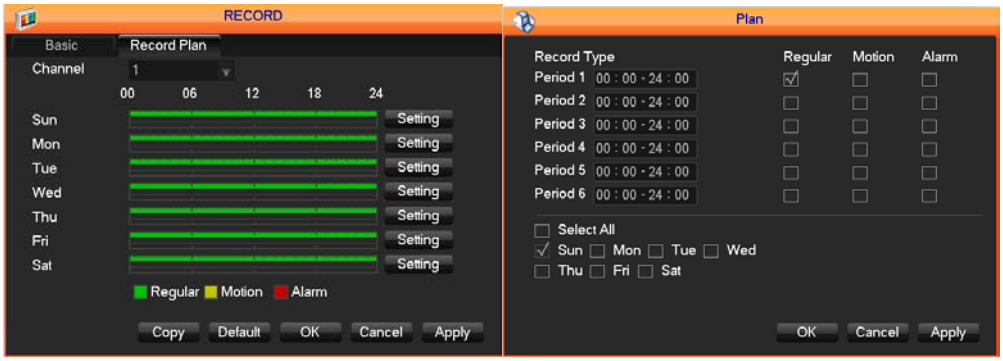


Figure 4. 14 Record interface

4.6.2 Alarm input

Enter [main menu]-[alarm]-[alarm out].

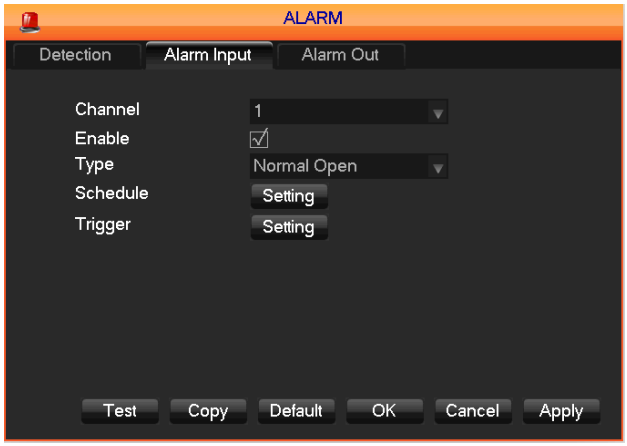


Figure 4. 15 Alarm input interface

Table 4. 14 Description of Alarm input

Index	Item	Description
1	**【Alarm input channel No.】**	Select a channel
2	**【Enable】**	Select it
3	**【Type】**	Normal Open and normal close

4.6.3 Alarm out

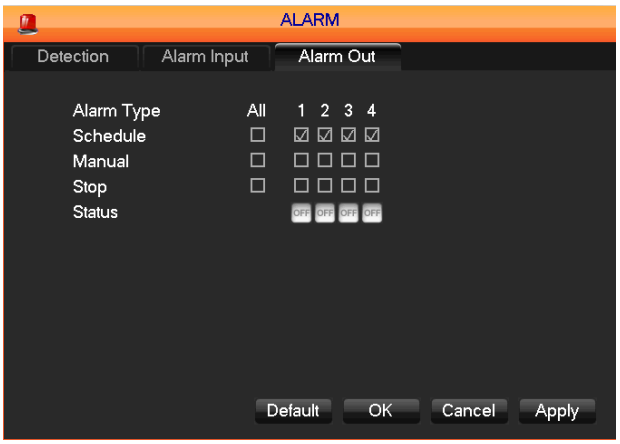


Figure 4. 16 Alarm out interface

Table 4. 15 Description of Alarm out

Index	Item	Description
1	**【Channel】**	Alarm port
2	**【Auto】**	Alarm output is determined by the alarm output menu, while in auto mode
3	**【Manual】**	Alarm output is on and the status is active
4	**【Stop】**	Alarm output is off and the status is inactive
5	**【Status】**	Current status of alarm output

Note: Some models have no local alarm; please refer to the products descriptions.

4.7 System

4.7.1 Basic

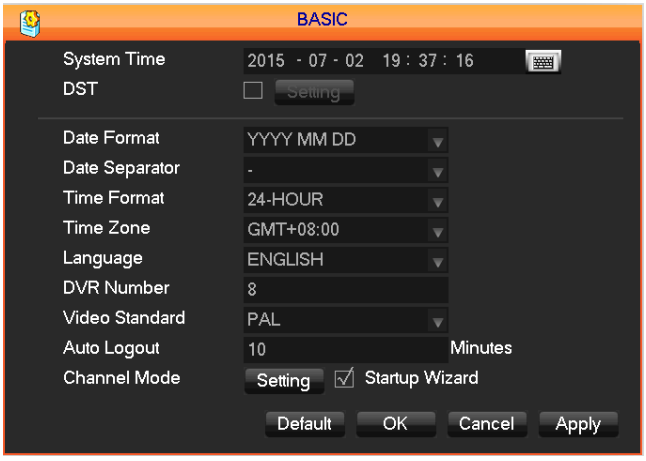


Figure 4. 17 Basic interface

Table 4. 16 Description of System Basic

Index	Item	Description
1	**【System Time】**	Set the current time
2	**【Daylight Saving Time (DST) 】**	Click "DST" to enable the function, and enter the local DST starting and ending time
3	**【Date Format】**	Modify the date display format
4	**【Date Separator】**	Select the separator for date
5	**【Time Format】**	24 hr or 12 hr display mode
6	**【Language】**	Select language
7	**【DVR No.】**	Number more than one DVR, click "Ad" button on remote control and input a number to select the corresponding DVR to operate
8	**【Video Standard】**	PAL/NTSC
9	**【Auto Logout】**	This ranges from 0-60 minutes. 0 means no setting. DVR will automatically let user quit after standby time's vacancy
10	**【Channel mode】**	The selection of local channels and network channels

4.7.2 Display

Output mode

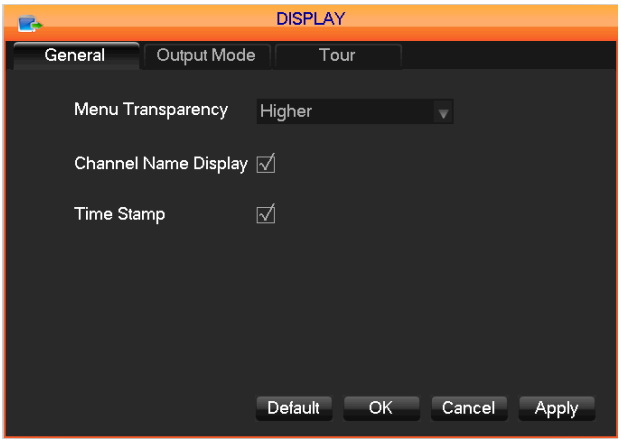


Figure 4. 18 Output Mode interface

Table 4. 17 Description of Output mode

Index	Item	Description
1	**【Menu Transparency】**	Adjust transparency
2	**【VGA Output】**	Select VGA resolution. The default is 1024×768@60Hz

- **Tour configuration**

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

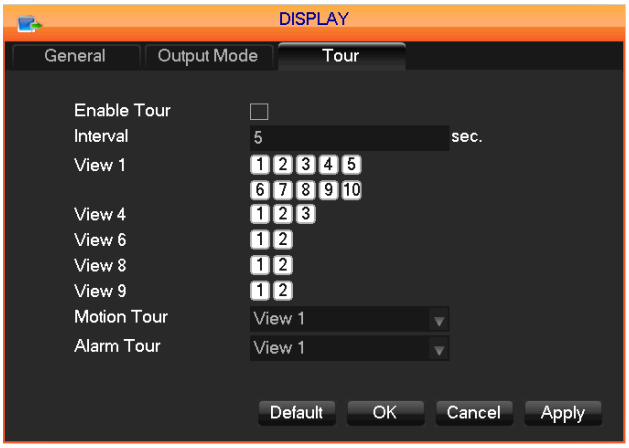


Figure 4. 19 Tour configuration interface

Table 4. 18 Description of Tour configuration

Index	Item	Description
1	**【Motion Tour Type】**	Set the motion detection tour mode
2	**【Alarm Tour Type】**	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.

4.7.3 Storage

- **HDD Management**

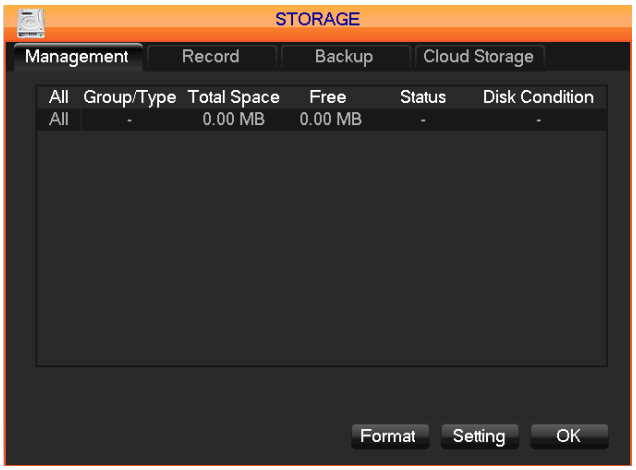


Figure 4. 20 Storage interface

Table 4. 19 Description of Storage

Index	Item	Description
1	**【Format】**	It is possible to format an individual HDD
2	**【Set】**	Set HDD as read-write, read only or redundancy mode. In read only mode, video data cannot be covered

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

- **HDD Record**

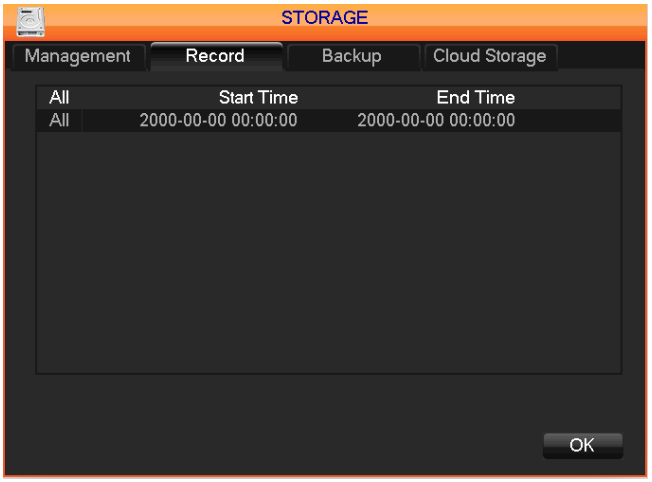


Figure 4. 21 HDD Record interface

- **Backup**

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

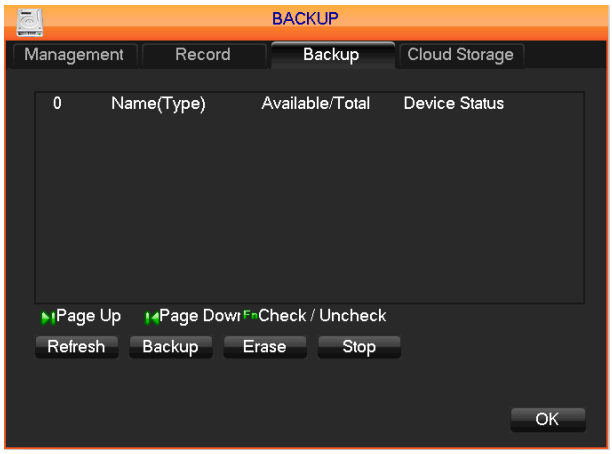


Figure 4. 22 Backup interface

Table 4. 20 Description of Backup

Index	Item	Description
1	**【Detect】**	Identify external USB device and display the device information
2	**【Backup】**	Tick the external device and click【Backup】to enter the backup menu .Select the record start-stop time and click
3	**【Add】**	Add files in list. Tick the record you want and click【Start】to backup and display time remaining
4	**【Delete】**	delete all data in USB backup device

Note: this operation probably cause permanent data loss

4.7.4 Abnormity

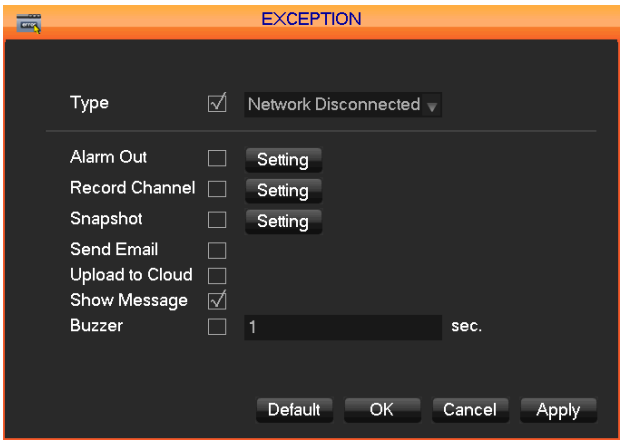


Figure 4. 23 Abnormity interface

Table 4. 21 Description of Abnormity

Index	Item	Description
1	**【Disk low Space】**	Alarm when hard disk capacity is lower than setting
2	**【No Disk】**	Alarm when HDD is not present or cannot be detected
3	**【Network Failure】**	Alarm when network is not connected
4	**【Process Mode】**	includes【Alarm Output】,【Display On Screen】and 【Send Email】,【pushed to phone】and recording linkage
5	**【IP Conflict】**	Alarm when IP address conflict
6	**【Process Mode】**	is same as 【No Disk】's 【Process Mode】
7	**【Disk Error】**	Alarm when there is error in reading and writing hard disk
8	**【Process】**	includes:【Alarm Output】,【show message】,【Send Email】,【linkage record】,【snapshot】and【buzzer】

4.7.5 Status

You can see the BSP and on-line users.

4.7.6 Maintain

You can see logs of the system, product information, default settings and maintain information in the following interfaces.

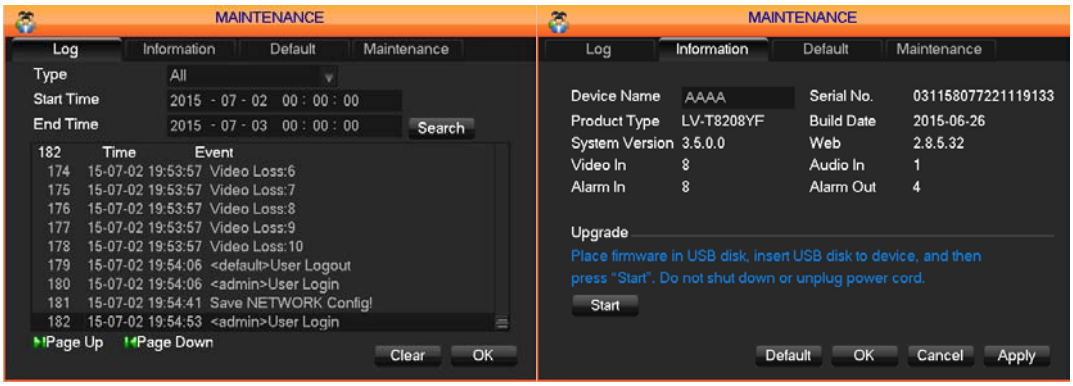


Figure 4. 24 Maintain interface

4.7.7 Account

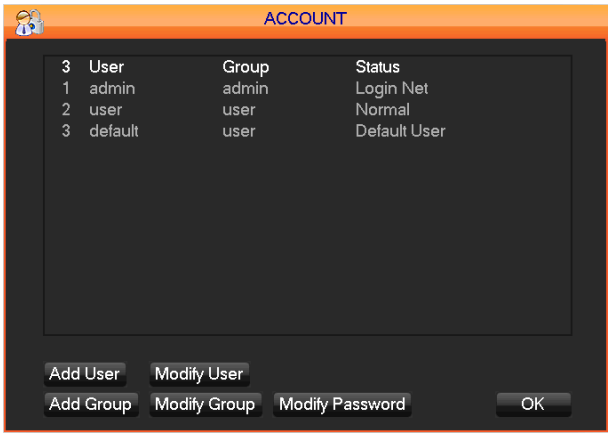


Figure 4. 25 Account interface

Table 4. 22 Description of Account

Index	Item	Description
1	**【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. A user can only belong to one group. User rights cannot exceed group rights.
2	**【Modify users】**	modify existing group member information and authority
3	**【Add group】**	add group and set group authorities. Set a group and authorize 60 items including control panel, shut down, live view、playback, record, record backup, PTZ control, account, system information, alarm in /out setting, system configuration, search log, log delete, upgrade, operation authority, etc.
4	**【Modify group】**	modify existing group information
5	**【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.

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.

4.7.8 RS232

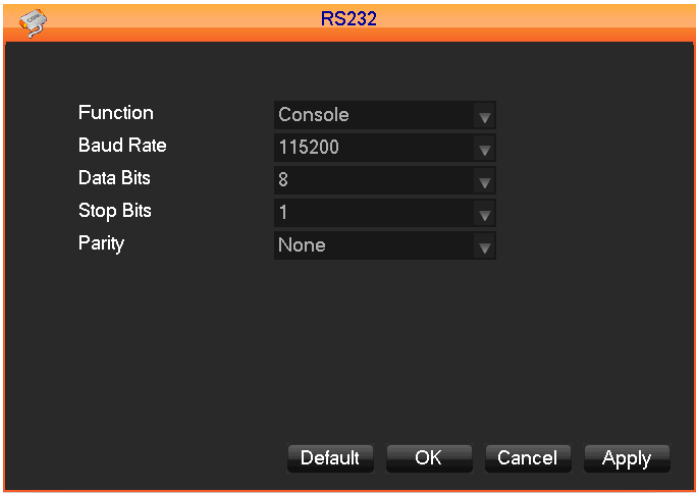


Figure 4. 26 RS232 interface

Table 4. 23 Description of RS232

Index	Item	Description
1	**【Function】**	Select the appropriate the serial
2	**【Baud Rate】**	Set baud rate
3	**【Data Bit】**	Default: 8
4	**【Stop Bit】**	Default: 1
5	**【Parity】**	None

Note: Some models are without an RS-232 port, please see Specifications.

Chapter 5 Web and 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 The control installation and the user login logout

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

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

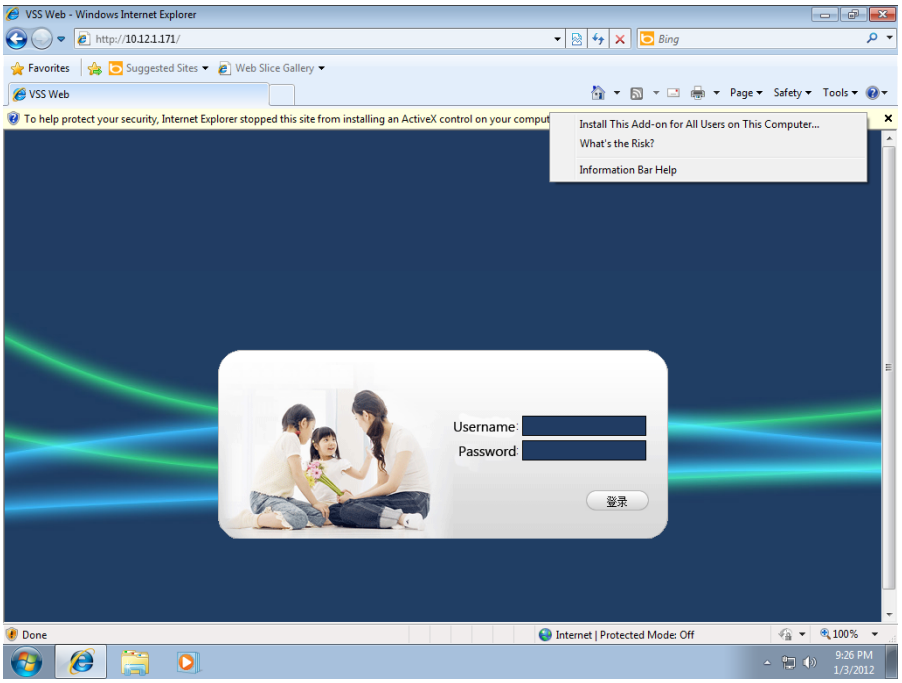


Figure 5. 1 Login Screen

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.

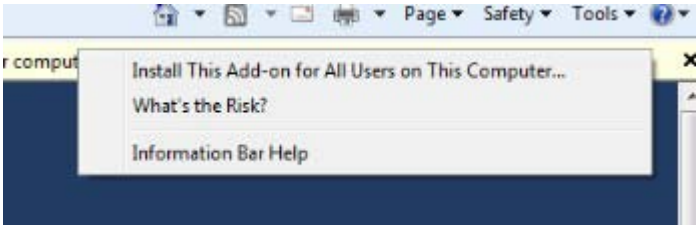


Figure 5. 2 Install Control

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 The Interface of Web Operations

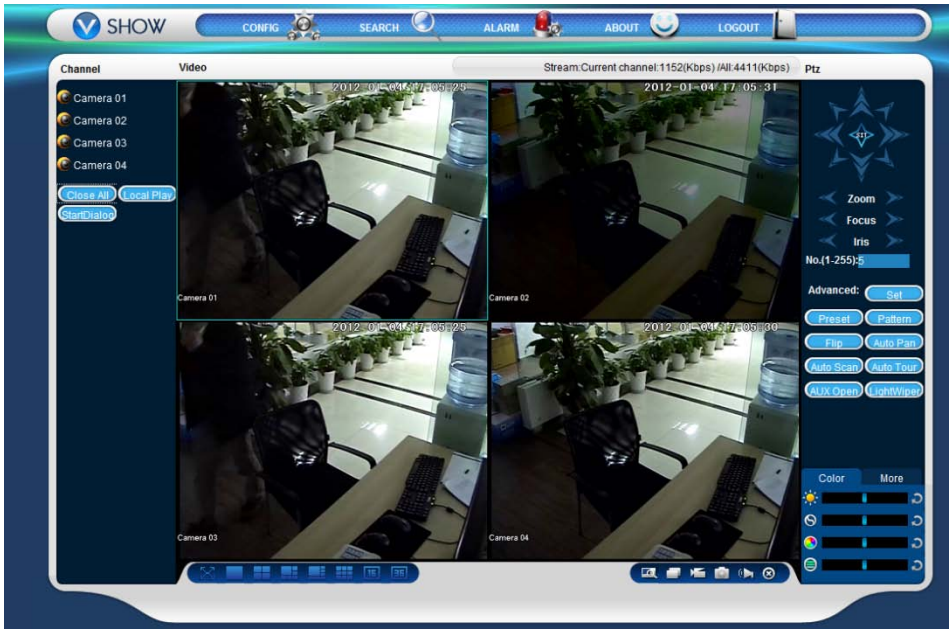


Figure 5. 3 Web main interface

Table 5. 1 Description of Main 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 configuration, record search, alarm setting, exit, etc.

5.1.4 The Real-time Monitoring

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 the following interface.

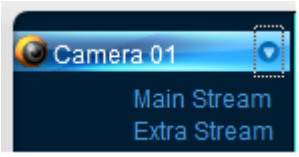


Figure 5. 4 Channel Choices interface

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.

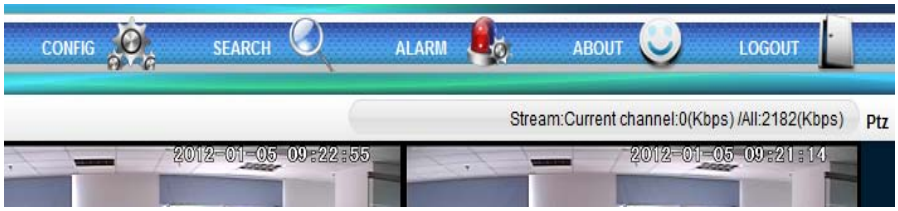


Figure 5. 5 Stream information interface

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 the following interface. Refer to area zoom, switching multi screens, local records, capturing and so on.

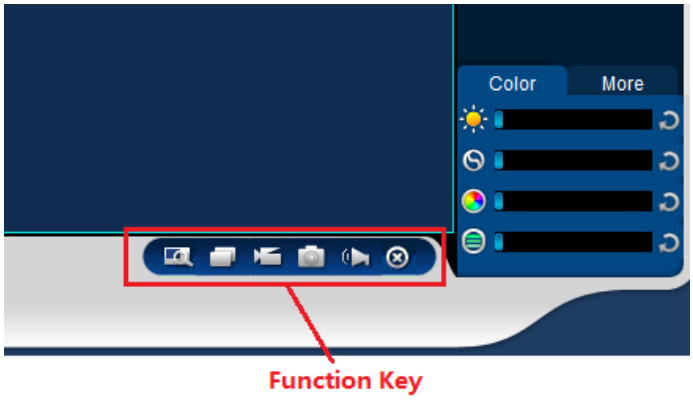


Figure 5. 6 Function Key interface

Table 5. 2 Description of Function Key

Index	Name	Description
1		Area zoom: Video images can be enlarged
2		Multi-screen switch: switch from single screen to multi-screen and vice versa
3		Local record: save and record video to a local HDD while in a live view. Set recording path in configuration
4		Capture: capture of the present channel, set the path in “other
5		Sound: on/off sound
6		Off video: off the focus window video

5.1.5 PTZ Control

Set protocol（see【Setting】→【PTZ】）

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, up-left, up-right, lower left, lower right.

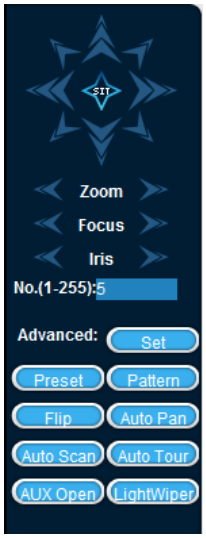


Figure 5. 7 PTZ Control interface

Table 5. 3 Description of PTZ Control

Index	Name	Description
1	**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
2	**Preset**	Operation: modify preset position by direction button and inputting a preset number, then click “Add” to save
3	**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
4	**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
5	**AUX**	On/off one of AUX
6	**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】

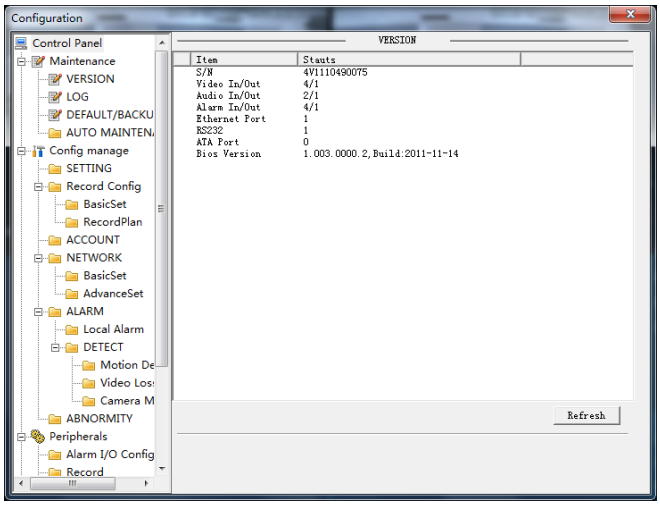


Figure 5. 8 Configuration interface

5.1.7 Search Record

Click “Search record” to open the search interface, can search and operate record, alarm, motion, local record

Figure 5. 9 Search Record interface

Table 5. 4 Description of PTZ Control

Index	Name	Description
1	**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
2	**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
3	Download	select a searched video to download to local

The download speed and percentage are displayed on the bottom of the screen.

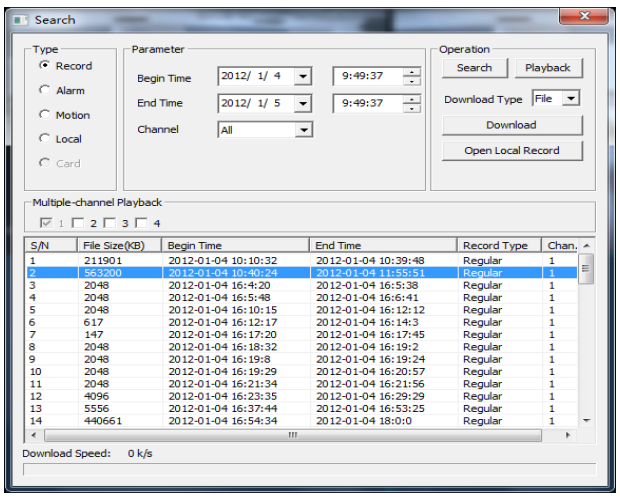


Figure 5. 10 Search interface

5.1.8 Alarm Configuration

Click the 【Alarm】 to enter the alarm setup menu, users can set up and operate the alarm mode.

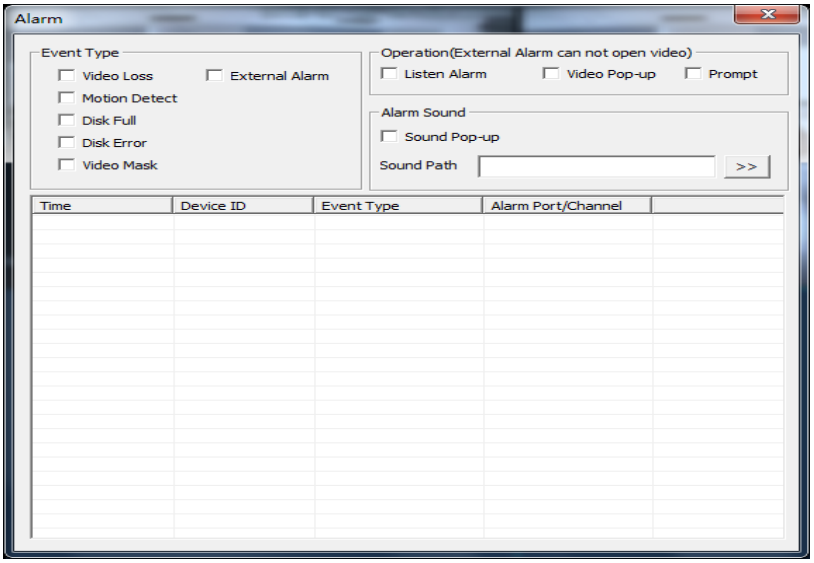


Figure 5. 11 Alarm configuration interface

Choose type of alarm on menu, monitor video loss, motion detection, disk full, disk error, video mask, external 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 prompt: When an alarm occurs in real-time monitoring will popup 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.

5.1.9 About

Please refer to WEB controls related version information.

5.2 The Client Operations

Please refer to description of HiDView.

Chapter 6 Appendix

6.1 Expansion function

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】

Table 6. 1 DDNS Setting

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

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】

Table 6. 2 DDNS Setting

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

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. Interface shows as below.

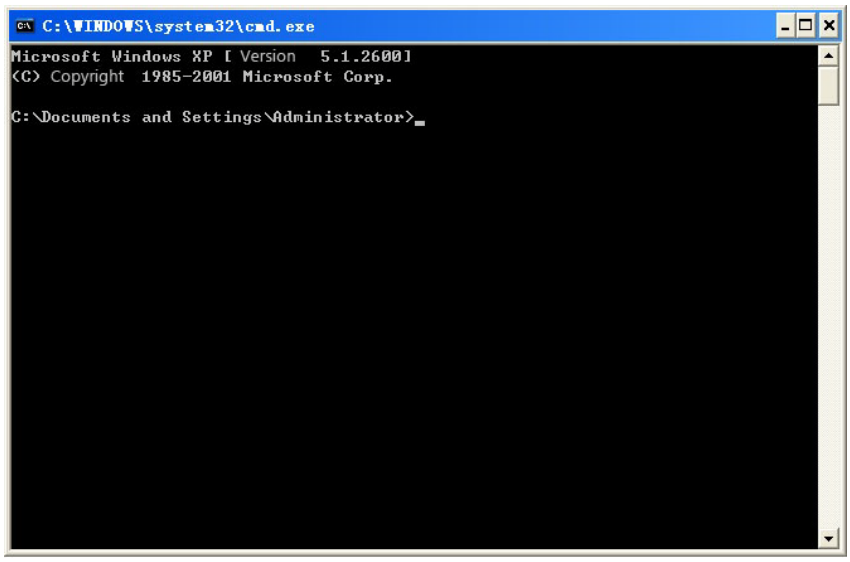


Figure 6. 1 CMD interface

Input “ping+ Domain name” then presses Enter, as the Ping DNS interface

shows.

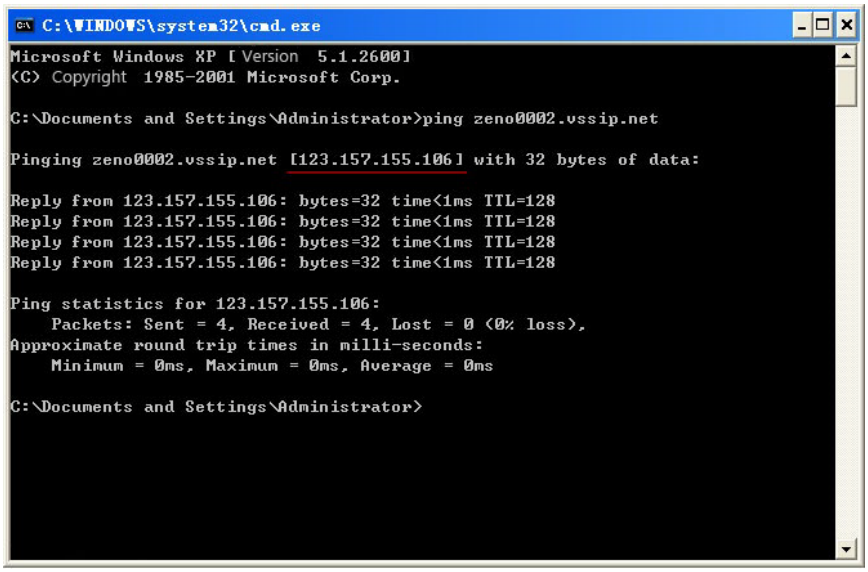


Figure 6. 2 Ping DNS interface

The computer will analyze the domain name which is set in the 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.

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.

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.

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

6.2 PTZ Control

Right click and select PTZ in the corresponding channel. The following interface will pop up.

Figure 6. 3 PTZ Control interface

Table 6. 3 PTZ Control

Index	Name	Description
1	【Preset】	Input the preset point and click the preset button to call the
2	【Tour】	Input the number and click "tour" to call the function
3	【pattern】	Input the path and click "pattern" to call the function

4		switch to the interface of preset or pattern.

- **Preset**

Figure 6. 4 Preset interface

Choose preset and input a figure in the input box. Click [Add Preset] to save. Or input the desired preset value in the preset input box and click [delete preset] to delete.

6.3 HDD Capacity Calculation

6.3.1 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 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:

$$Recording time（hour）= \frac{TotalHDDCapacity（\mathrm{MB}）}{CapacityOccupationperHour（\mathrm{MB}/hr）\times AmountofChannel}$$

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).

Table 6. 4 Record file size

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

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

6.3.2 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， Click Support & Downloads →choose Sea Tools, download tool, as Diagram 7-1:

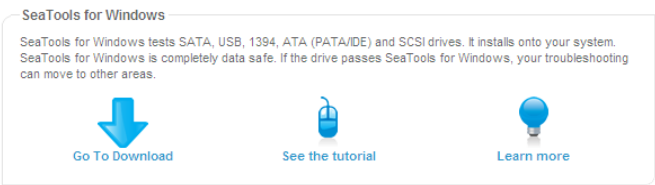


Figure 6. 5 Seagate download

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 , choose WD support / download / SATA&SAS / WD Caviar / GP, download software as WD Download

b)

Figure 6. 6 WD Download

b) Click Icon to hard disk detection after downloading.

c) Double click hard desk in device list, as WD Detection

:

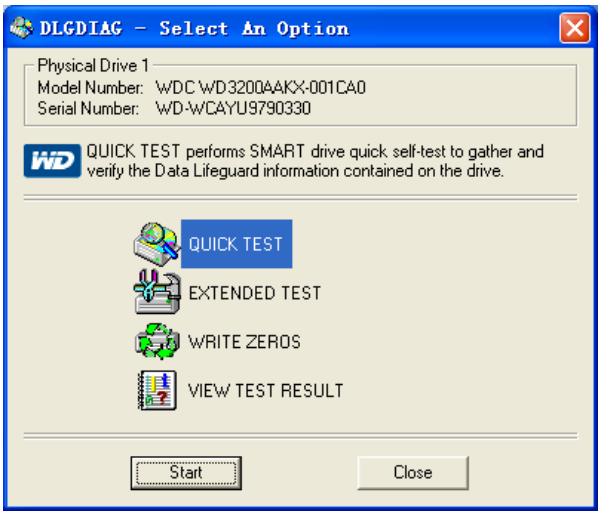


Figure 6. 7 WD Detection

6.4 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 corresponds to the remote 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 on the 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

Fail to 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 records can't 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

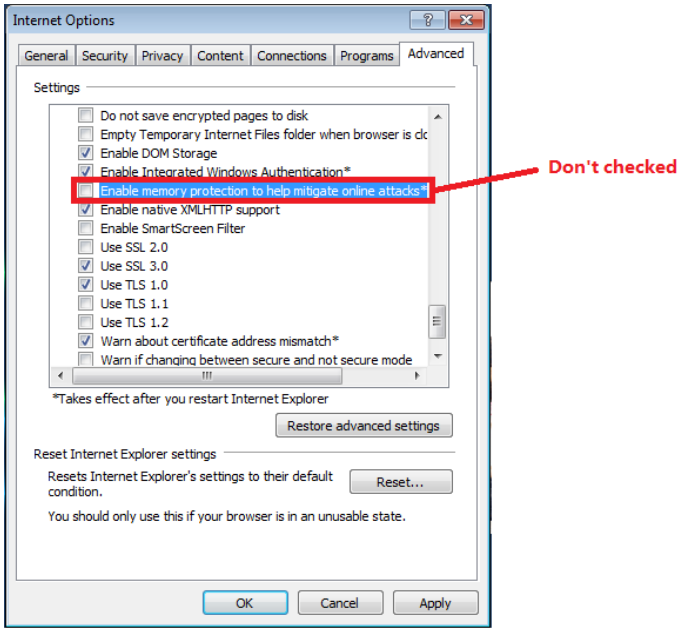


Figure 6. 8 IE tool bar

Internet Explorer 9.0

Possible reasons:

Internet Explore9.0 above version visit: Please choose compatible mode.