LEOPARD SECURITY

H.264 NVR User's Guide

Model: LI-NVR-6109

Rev 1.0
July, 2013

Preface

Congratulations on your purchase of this product. Read this manual carefully and keep it in a safe place for any future reference.

About this manual

This user manual has been designed to provide you with information regarding your NVR and its many features and functions. Information in this document has been carefully checked for accuracy; however, no guarantee is given to the correctness of the contents. The information in this document is subject to change without notice.

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Important Safeguards

1) Please read this manual carefully before installing and using the machine to ensure your interests.
2) Do not use the power that does not match the power adapter.
3) Make sure to connect the ground to avoid thunder damage to the main chip before using the product.
4) Do not use the machine where it is likely to be exposed to rain or humid.
5) Do not install the machine in dusty places, and avoid mechanical vibration and shock.
6) Keep the machine in a well-ventilated place and avoid direct sunlight and high-temperature.
7) If possible, choose a dedicated NVR hard drive to meet a long time, a large amount of data read and write.
8) Please buy a hard drive from the formal channels to ensure quality.
9) Disconnect the power of each device to avoid live-swappable before connection with other devices.
10) If there are objects or liquid accidentally fall into the machine, immediately disconnect the power supply, and ask qualified technicians test before using it again.
11) If the machine is not used for a long time, please completely take off the power and keep the power cord away from the power outlet.
12) This machine is a precision machine and the user can not repair it. Please contact qualified technical or distributors.

Contents

Introduction

This section covers unpacking your new NVR, its key features, and basic technical information about the product. Refer to later chapters for information on setting up and configuring the product in more detail.

Package contents

The package should contain all the following contents. If anything is missing or appears damaged, contact your dealer immediately.

1. Network Video Recorder (NVR) (1)
2. 12V DC Power Adapter (1)
3. Remote Control (1)
4. Mouse (1)
5. Software CD (1)
6. User's Guide (1)

1. Product Introduction

1.1 Product outline

This device is a digital monitoring and recording product specially designed for the security field. It adopts standalone embedded processor and Linux operating system.
The device combines with the latest technology in the IT field, such as video and audio compression/decompression, large capacity HDD record, TCP/IP network etc. The code is embedded in the FLASH chip, which makes the system running more steadily. With the use of professional network video surveillance platform (network) software, it can fully reflect its strong networking and remote monitoring capability.
It can be used for the security protection in the fields of banking, electronic power, telecommunications, justice, traffic, residence, factory, warehouse, water conservancy facilities and other areas and departments.

1.2 Key features

- Video Input: Network 9-CH
- Video Output: 1-CH CVBS(BNC), 1-CH VGA and 1-CH HDMI
- Alarm Input/Output: 4-CH Alarm Input and 1-CH Alarm Output
- Compression: H264
- Recording Playback: Max support 4-CH 960P or 2-CH 1080P synchronously playback
- Backup: Support HDD,USB Flash Disk store & backup
- Support Motion detection and private masking
- Support Remote Control
- Touch panel, easy to customize the front panel
- Support remote view over IE interface or Smartphone.
- Support ONVIF, it can widely connect network cameras, network video servers and network speed dome from various well-known brands

1.3 Technical Spec

Model	LI-NVR-6109
System	
Main processor	High performance embedded microprocessor-20A
Operating system	Embedded LINUX OS
Video	
Network Video Input	9-CH
Network video bandwidth	64Mbps
Video output	1-CH CVBS(BNC), 1-CH VGA and 1-CH HDMI
Video compression format	H.264
Display Image Resolution	720P@30fps;960P@30fps;1080P@30fps
Playback Image Resolution	720P@30fps;960P@30fps;1080P@30fps
Motion Detection	Can setup 192(16 x 12)pcs motion detection area
Privacy Masking	Depends on ip camera
Audio	
Audio Input	9-CH IPC Composite Audio
Audio Output	1-CH (support two-way audio)
Audio compression format	adpcm
Two-way audio	1-CH
Recording	
Recording Mode	Manual, Motion Detection, Time and Alarm
Recording storage	HDD, Network
Frame rate	NTSC 30fps; PAL 25fps
Recording Playback	Max support 4-CH 960P or 2-CH1080P synchronously playback
Backup Mode	Support HDD,USB Flash Disk store & backup
Alarm	
Alarm Input	4-CH Alarm Input
Alarm Output	1-CH Alarm Output
Other	
Network	1x10/100Mbps,RJ45 port
RS485	Standard 485 port, support half-duplex, green terminal port
USB	3 USB 2.0 ports
HDD	Support 2pcs SATA HDD inside
Power	DC +12V /4A
Power consumption	16W-18W(not include HDD and PoE)
Operation temperature	0℃－＋55℃
Operation humidity	10%－90%
Dimension	335MM*252MM*50mm(1U height)
Weight	2.0--2.12KG(not include HDD)

2. Product Views

2.1 Front panel

Figure 1: NVR front panel

Buttons	Description
	Press to open the main menu or confirm
	Press to back to last step
	Press to move cursor left; in PTZ mode, press to pan camera left
	Press to move cursor right; in PTZ mode, press to pan camera right
	Press to move cursor up; in PTZ mode, press to pan camera up
	Press to move cursor down; in PTZ mode, press to pan camera down
	Press to open Record Mode window
	Press to open Playback interface

Indicators	Description
NET	LED will turn on if view the video over Network
REC	LED will turn on when recording
ALARM	LED will turn on if there is alarm
HDD	LED will turn on if the NVR includes hard drive
POWER	Power Status

2.2 Rear panel

Figure 2: NVR Rear panel

Interfaces	Description
DC 12V	Power input , DC 12V
RS485	RS485 control interface
LAN	To connect Ethernet
USB1/2	To connect USB device
VGA	To connect VGA monitor
HDMI	HDMI video output interface
Video Output	Video output to connect TV or monitor (BNC)
Audio IN	To connect audio signal input
Audio Output	To connect audio output
ALARM	Alarm control interface

2.3 Remote Control

Buttons	Description
1	Mute button
2	Search: Press to open Playback interface
3	Number/Channel buttons: In menu interface, press buttons 0~9 to enter values; in live viewing interface, press to view channels in full-screen.
4	ESC: Press to back to last step
6	**Navigation/Menu**: ▲: Move cursor up; ▶: Move cursor right; ◀: Move cursor left; ▼: Move cursor down; **Menu**: In menu interface, press to confirm selections; in playback and preview interface, press to view system information.
7	Press to play/pause video playback
9	Fast-forward when playback
10	Press to open Record Mode window
11	Slow-down when playback

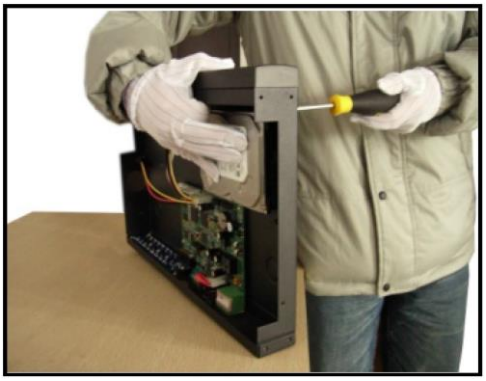
3. Hard Drive Installation

After you open the case, you should check whether there are obvious signs of damage and if the data line with front panel, power supply and the connection to the motherboard is loose.

For initial use, please install the hard drive. Two hard drives can be installed in the case.

1) Dismantle the screws of the case

2) Install the screws to fix HDD



3) Connect the data line and power line of HDD

4) If the hard drive is used at the first time, please format the hard drive in Main Menu→Advanced→HDD Management.

Note: Please keep the sticker which is very important to our after-sales service. When you contact our company's after-sales service, Please offer us the model name and series number on the sticker.

4. Basic Function Operation

4.1 System Login

When the NVR boots up, the user must login and the system provides the corresponding functions with the user purview. There is one user settings. The name is **Admin** and has no password. **Admin** is the super user purview. User **Admin**'s password can be revised, while their permissions can't be revised.

Figure 3: System Login

Password protection: If the password is continuous wrong ten times, the account will be locked. (Through reboot or after half an hour, the account will be unlocked automatically).
For your system security, please modify your password after first login.

4.2 Main Menu

Main Menu includes various function operations.

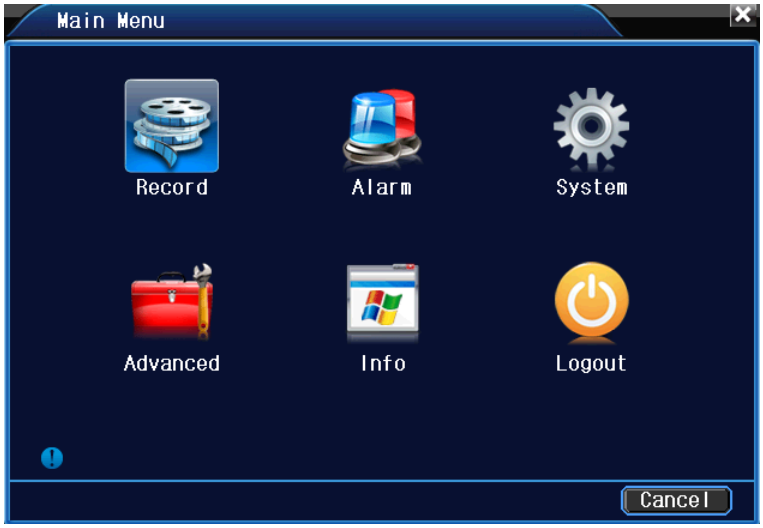


Figure 4: Main Menu

4.3 Record Config

Set the recording parameters in the surveillance channel. The system is set 24 hours consecutive recording in the first startup. You can enter **Main Menu → Record→ Record Mode** to set.

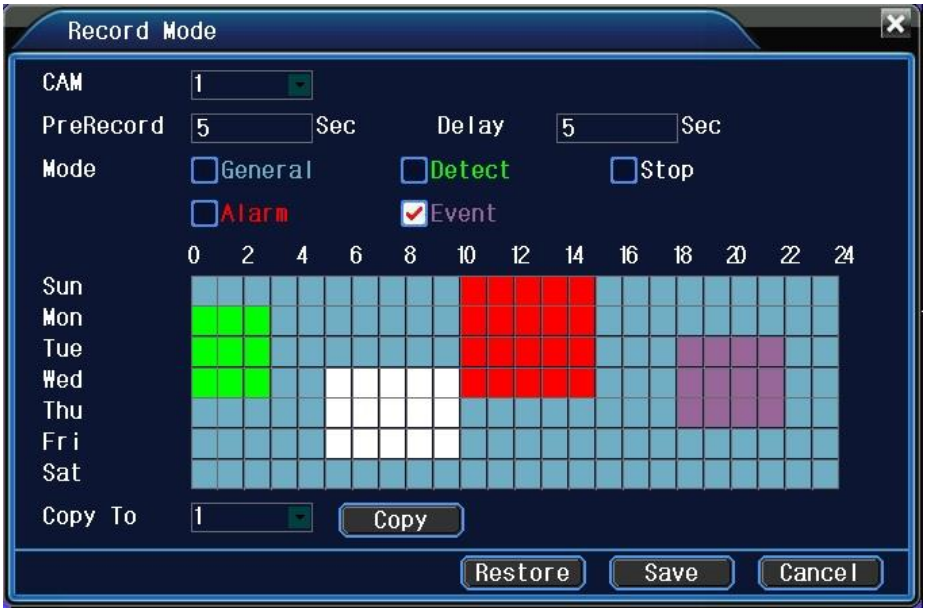


Figure 5: Record Config

CAM	Choose the corresponding channel number to set the channel. Choose the all option to set the entire channels.
PreRecord	Record 1-30 seconds before the action. (time length is decided by the code stream)
Mode	Set video state: general，detect，alarm，event，stop. • **General:** Perform the regular recording in the set time section. • **Detect:** Trigger the "motion detect", "camera mask" or "video loss" signal. When above alarm is set as opening recording, the "detection recording" state is on. • **Alarm:** Trigger the external alarm signal in the set time section. When above alarm is set as opening recording, the "detection recording" state is on. • **Event:** All record except general record
Period	Set the time section of common recording, The recording will start only in the set range. First select one of the record mode, then click the left key or drag to select the period.
Copy to	Copy the current channel settings to other channels.
Restore	restore the record configuration to default.

4.4 Playback

There are two methods for you to play the video files in the hard disk.

- ✓ In the desktop shortcut menu.
- ✓ **Main menu→Record→Playback**

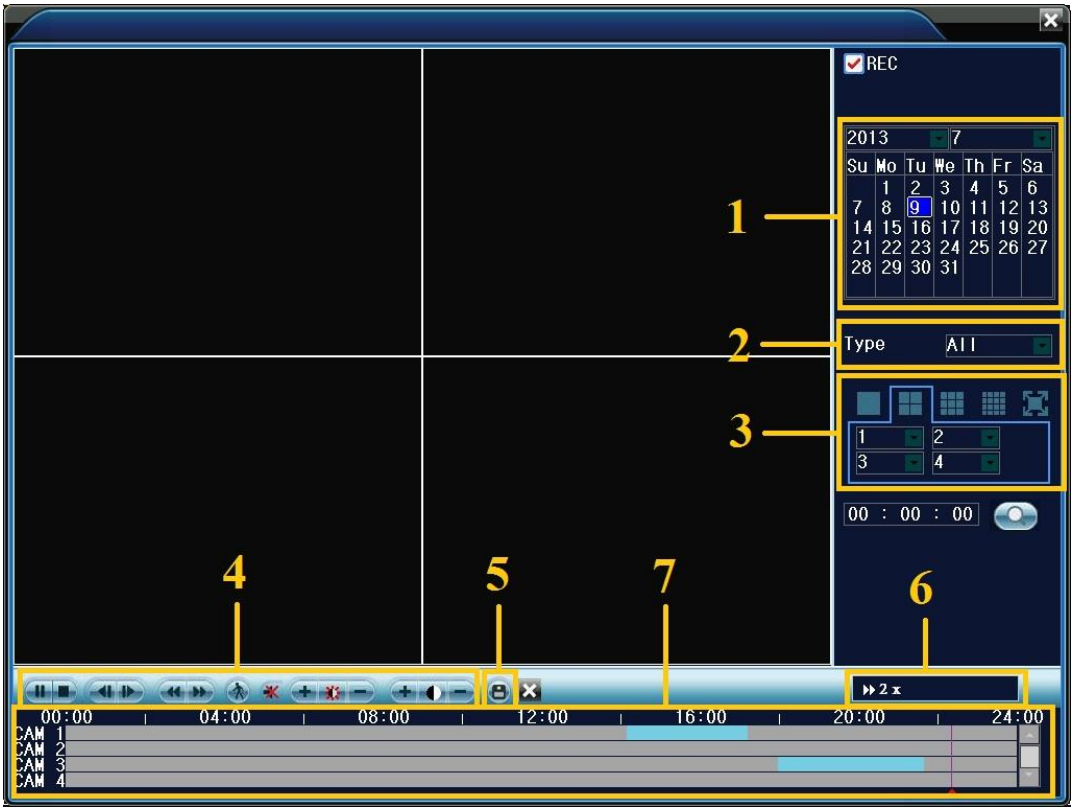


Figure 6: video playback

1. Date and time	Choose the date and time. Date with white border means the system date. Red background means this day has record files.
2. Record type	Normal, motion detection, alarm or others. In the video searched, blue means normal, green means motion, red means alarm.
3. Channels	Choose the channels to display
4. Playback control	To control playback
5. Files backup	Go to backup files. Click the button and operate as followed. **Note**: The storage must be installed before the file backup. If the backup is terminated, the already backup can playback individually.
6. Speed hint	Show the fast or slow playback speed.
7. Timeline	Recorded video will be shown in timeline.

Special functions	
Single channel view	double-click the channel to see the single channel and next double-click to back
Full screen view	click the right key to see full screen view
Accurate playback	Input time (h/m/s) in the time column  and then click play  button. The system can operate accurate playback according to the searching time.
Local zoom	When the system is in single-window full-screen playback mode, you can drag your mouse in the screen to select a section and then left click mouse to realize local zoom. You can left click mouse again to exit.
Smart search	Click the button to see the next record clip during MD record playback in single channel.
Zoom timeline	Double-click the left key on timeline bar to see the record in the hour 

4.5 Backup

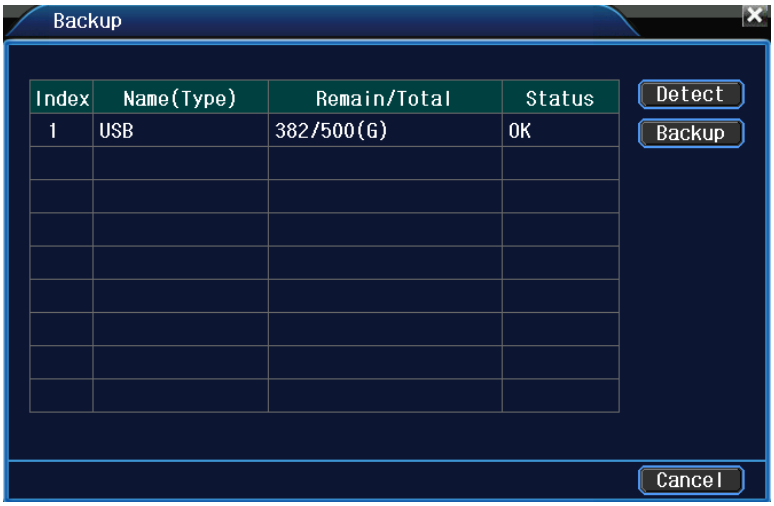


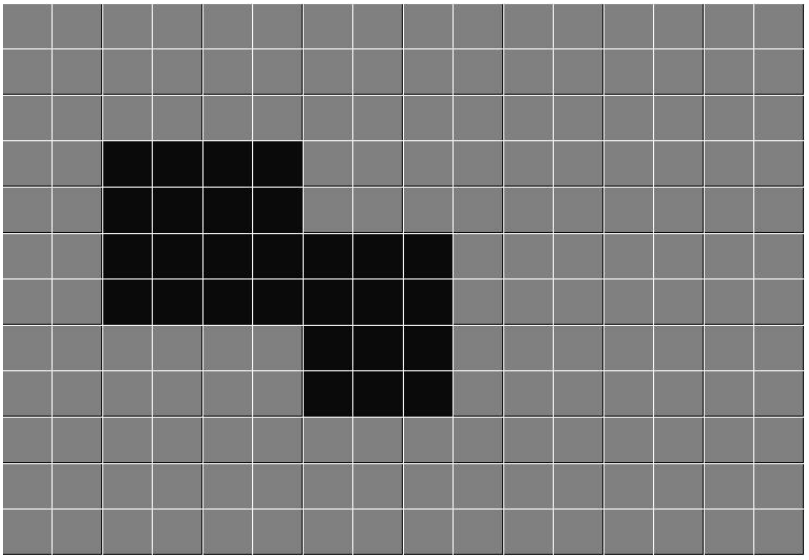
Figure 7: Detect the storage

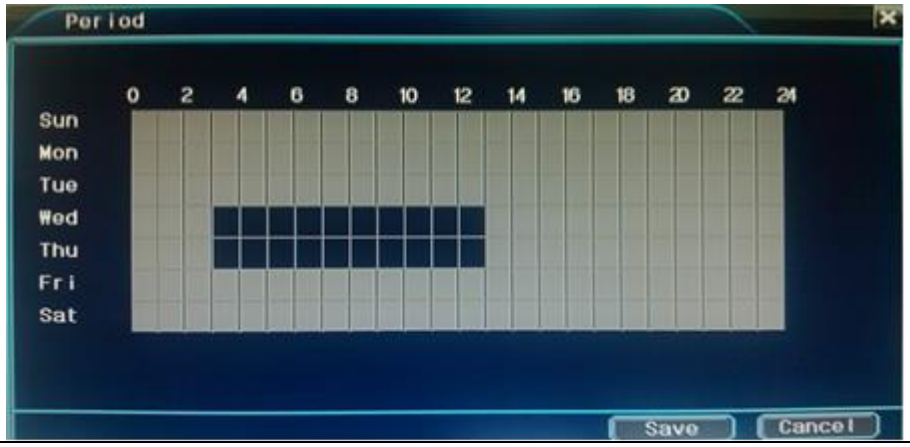
Detect	Detect the storage connected with the NVR such as hard disk or universal disk.
Backup	Click backup button and the dialog box is popped up. You can choose the backup file according to the type, channel and time.

4.6 Motion Detect

When system detects the motion signal that reaches the set sensitivity, the motion detect alarm is on and the linkage function is turned on.

Figure 8: Motion Detect

CAM	Choose the set motion detect channel.
Enable	☑ means that the motion detect function is on.
Sensitivity	Choose in the six options according to the sensitivity.
Region	Click setup and enter the set area. The area is divided into 16 x12 blocks. Grey block means the dynamic detect defensive area. Black block means the unfenced area. You can set the area as followed, Drag the mouse and draw the area. 

Period	Trigger the motion detect signal in the set time section. You can set according to week or set uniformly. Each day is divided into four time sections. ■ means the set valid. 
Interval	Trigger the motion detect signal in the set time section. Click the left key of mouse or drag on the time blocks to select period .Grey means the set valid.
Alarm output	Start the external equipment of corresponding linkage alarm when the motion detection alarm is turned on.
Delay	Delay a few moments and stop when the alarm state is turned off. The range is 10~300 seconds.
Record channel	Choose the recording channel (multiple options supportive). Trigger the video signal when the alarm is turned on. **Note**: Set in the **Record Mode** and perform the linkage recording. Start detecting video files in the corresponding time section.
Tour	■ means that the selective channel is single window alternate patrol preview. The interval is set in the **Main Menu→System→Tour**
PTZ Activation	Set the PTZ activation when the alarm is turned on. **Note**: PTZ activation is set in the **Shortcut menu→PTZ control**. Set the patrol between spots, trail patrol and so on.
Show message	Pop the alarm information dialog box in the local host computer screen.
Send EMAIL	☑ means sending an email to user when alarm is turned on. **Note**: Set in the **Net Server** and send email.
FTP upload	☑ means upload the alarm images to your ftp when alarm is turned on.
Buzzer	Device buzzers when NVR detects alarm.

Other alarm setting: Please refer to "Motion Detect".

4.7 Network

Figure 9: Network

Net Card	You can choose cable network card or wireless network card
DHCP Enable	Obtain IP address automatically(not suggested) **Note**: DHCP server is preinstalled.
IP address	Set the IP address. Make it in the same segment with other network devices in LAN.
Subnet mask	Set the subnet mask code. Refer to the subnet mask setting of other network devices in LAN.
Gateway	Set the default gateway. Refer to the gateway setting of other network devices in LAN.
DNS setup	Domain Name Server. It translates the domain name into IP address. The IP address is offered by network provider. Refer to the DNS setting of other network devices in LAN.
HTTP port	Web port. Default: 80.
CMD port	Command port. Default: 6001.
TCP port	Media port. Default: 6002.
Mobile port	Default：6003
P2P	Enable or disable p2p function.

4.8 Net Server

Figure 10: Net Server

PPPOE

The Point-to-Point Protocol over Ethernet (PPPoE) is a network protocol for encapsulating PPP frames inside Ethernet frames.

Enable	Choose Enable to make sure all PPPOE settings available.
User Name	Apply the PPPOE user name.
Password	Input the password corresponding to the user.
IP Addr	Input IP address

NTP

Network Time Protocol (NTP) is a networking protocol for clock synchronization between computer systems over packet-switched, variable-latency data networks.

Enable	Choose Enable to make sure all NTP settings available.
Server IP	Input the NTP server IP
Time Zone	Select the Time zone
Update Period	Set the update period

EMAIL

If the alarm is turned on or the alarm linkage photos are taken, send an email about the alarm information and the photos to appointed address.

SMTP server	Email server address. It could be an IP address or domain name. Domain name can be translated only it is the correct DNS configuration.
Port	Email server port number.
User Name	Apply the email server user name.
Password	Input the password corresponding to the user.
Sender	Set the email sender address
Receiver	Send the email to appointed receivers when the alarm is turned on. You can set three receivers at most.
Snapshot	Enable or disable alarm snapshot.

IP FILTER

IP filter can be set to block IP addresses which you do not want to get by this NVR.

Enable	Choose Enable to make sure all IP Filter settings available.
Restricted	You can select Blacklist or whitelist
Add	Input the IP address which can be added to the Banned IP list.
Banned IP	All the IP addresses which are banned would be in this Banned IP list.

DDNS

Dynamic DNS (DDNS) is a method of automatically updating a name server in the Domain Name System (DNS), often in real time, with the active DNS configuration of its configured hostnames, addresses or other information.

Enable	Choose Enable to make sure all DDNS settings available.
DDNS Type	Choose ddns service provider.
User name	Provide the account registered by DDNS.
Password	Provide the password registered by DDNS.
Domain name	Provide the domain name registered by DDNS. When the DDNS is successfully configured and start, you can connect the domain name in the IE address column to visit. **Note**: The DNS setup must be configured correctly in the network setup.

UPNP

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

Enable	Choose Enable to make sure all UPNP settings available.
HTTP	Route will automatically distribute HTTP port for the device, when IE viewing, it need this port(eg. 60.12.9.26:66)
TCP	Router will automatically distribute TCP port for the device, when monitoring via CMS, it need this port.
Mobile Port	Router will automatically distribute Mobile Port for the device, when mobile monitor, it need this port.

FTP

File Transfer Protocol (FTP) is a standard network protocol used to transfer files from one host to another host over a TCP-based network, such as the Internet.

Enable	Choose Enable to make sure all FTP settings available.
Server IP	Input FTP server IP address
Port	FTP server port number
User Name	Input User name
Password	Input the password corresponding to the user.
Anonymous	Select anonymous or not
DirName	Specify the file path

ARSP

Domain name auto register.

Set your user name, click "Enter" to register, click "Save" to save. If successful, you will get the domain name : username.edvrddns.com
Make sure the network setup is correct before setting up ARSP. When the ARSP is successfully configured and start, you can input the domain name in the IE address column to visit.

4.9 PTZ control

PTZ Operation interface is as followed.

Figure 11: PTZ control Interface

CAM	Choose the dome camera input channel.
Speed	Set the PTZ rotation range. Default range: 1 ~ 8.
Zoom	Click − / + button to adjust the zoom multiple of the camera.
Focus	Click − / + button to adjust the focus of the camera.
Iris	Click − / + button to adjust the iris of the camera.
Direction control	Control the PTZ rotation. 8 directions control is supportive. (4 directions in Front panel is supportive)
High speed PTZ	Full-screen show channel image. Left press mouse and control PTZ to rotate orientation. Left press mouse and then rotate the mouse to adjust the zoom multiple of the camera. Click "PTZ Trace" to begin.
Note: 1. Decoder A (B) line connects with NVR A (B) line. Make sure the connection is right before use. 2. Click **Main menu→System →PTZ config** to set the PTZ parameters. 3. The PTZ functions are decided by the PTZ protocols.	

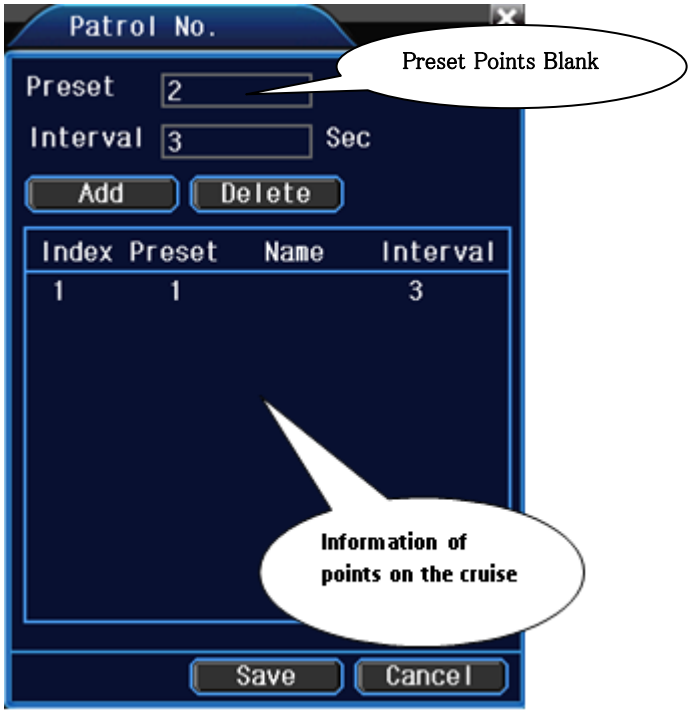
Special functions
1. Preset
Set a location for the preset, calls the preset points, PTZ automatically turns to the setting position.

1) Preset option
Set a location for the preset, procedure is as follows:
Step 1: In above Picture, click the Direction button will turn into preset position.
Step 2: Write the preset points in the input blank, and you can also set the name of the point, then click the **Set** button. The preset point is ok now.
Step 3: Repeat step 1 and 2 to set other preset points.
Clear Preset: Input preset points, click **Delete** button, remove the preset。

2) Preset Point Calls
In above picture, write the preset points in the **preset** input blank, then click button **Goto**, PTZ turn to the corresponding preset point.

2. Cruise between Points

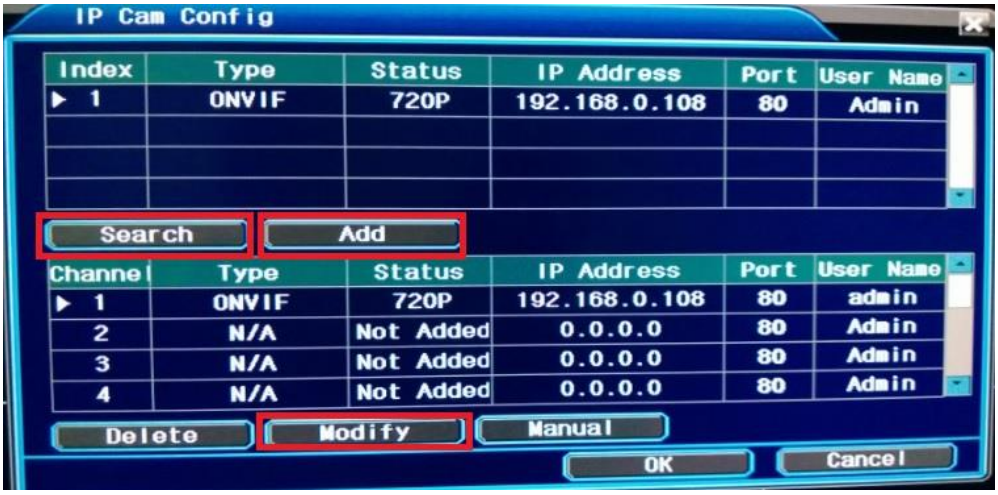
Multiple preset points connected cruise lines, call cruise between points, the PTZ run around on the line.



1) Cruise Between Points Settings
   Cruise lines is connected by multiple preset points, setting procedure is as follows:
   Step 1: set your preset points .
   Step 2: click button **Patrol No.**, then write proper value into the Preset Points blank and interval blank, then click button **Add** .
   Step 3:click **Save**.
   Remove Preset: click the preset point item in the information box, then click Delete button.The preset point will be removed after that.
2) The Calls of Cruise between Points
   Click right key in preview interface,select **PTZ tour→Start Cruise**. PTZ begins to work on the cruise line. Click **Stop Cruise** to stop cruise.
   You can also click the **start/stop** button in PTZ control interface to start or stop the cruise.

4.10 Add IPCam to NVR

To add IP cameras to NVR, please go to **Main Menu→System→IP Cam Config**. Click **Search** and NVR will search the IP cameras in LAN automatically. Click **Add** after the search. You can click "change" to modify the configuration of the ip cam.



5. Restore factory settings

✓ Click **Logout** in **Main Menu**, there is a **Restore Reboot** button.

✓ You can also go to **Main Menu→Advanced →Restore**.

Glossary

- **H264**: H.264/MPEG-4 Part 10 or AVC (Advanced Video Coding) is a standard for video compression, and is currently one of the most commonly used formats for the recording, compression, and distribution of high definition video.

- **NVR**: A network video recorder (NVR) is a software program that records video in a digital format to a disk drive, USB flash drive, SD memory card or other mass storage device. An NVR contains no dedicated video capture hardware.
- **PPPOE**: The Point-to-Point Protocol over Ethernet (PPPoE) is a network protocol for encapsulating PPP frames inside Ethernet frames.

- **NTP**: Network Time Protocol (NTP) is a networking protocol for clock synchronization between computer systems over packet-switched, variable-latency data networks.

- **DDNS**: Dynamic DNS (DDNS) is a method of automatically updating a name server in the Domain Name System (DNS), often in real time, with the active DNS configuration of its configured hostnames, addresses or other information.

- **DHCP**: Dynamic Host Configuration Protocol. A system by which each piece of equipment on a network is allocated an address IP dynamically.

- **Ethernet**: The most widely used local area network (LAN) access method, defined by the IEEE as the 802.3 standard.

- **FTP**: File Transfer Protocol. A standard protocol designed for transferring files over a TCP/IP net-work.

- **IP**: Internet Protocol. The network layer protocol in the TCP/IP communications protocol suite (the "IP" in TCP/IP). IP contains a network address and allows messages to be routed to a different network or subnet.

- **LED:** Light Emitting Diode. A semiconductor device that emits light when a voltage is applied.

- **Motion detection**: Camera function that causes an alert to be triggered when movement is detected in the field of view.

- **Protocol:** Standards governing the transmission and reception of data.

- **Resolution:** Screen resolution is expressed as a matrix of dots. For example, the

VGA resolution of 640x480 means 640 dots (pixels) across each of the 480 lines.

- **RJ-45:** Registered Jack 45. RJ-45 type connections are used in Ethernet devices.
- **Static IP address:** A static IP address that is assigned manually and never changes.
- **TCP/IP**: Transmission Control Protocol/Internet Protocol. A communications protocol developed under contract from the U.S.