NVS User’s Manual

Version 1.2.0

Table of Contents

Welcome

Thank you for purchasing our NVS!
This user's manual is designed to be a reference tool for the installation and operation of your system.
Here you can find hardware installation, cable connection information and general operations; also here you can find web operation instruction.
Before installation and operation please read the following safeguards and warnings carefully!

Important Safeguards and Warnings

1．Electrical safety

All installation and operation here should conform to your local electrical safety codes.
We assume no liability or responsibility for all the fires or electrical shock caused by improper handling or installation.

2．Transportation security

Heavy stress, violent vibration or water splash are not allowed during transportation, storage and installation.

3．Installation

Keep upwards. Handle with care.
Do not apply power to the NVS before completing installation.
Do not place objects on the NVS

4．Qualified engineers needed

All the examination and repair work should be done by the qualified service engineers.
We are not liable for any problems caused by unauthorized modifications or attempted repair.

5．Environment

The NVS should be installed in a cool, dry place away from direct sunlight, inflammable, explosive substances and etc.
This series product shall be transported, storage and used in the environment ranging from 0℃ to 55 ℃

6. Accessories

Be sure to use all the accessories recommended by manufacturer.
Before installation, please open the package and check all the components are included.
Contact your local retailer ASAP if something is broken in your package.

7. Lithium battery

Improper battery use may result in fire, explosion, or personal injury!
When replace the battery, please make sure you are using the same model!

1 FEATURES AND SPECIFICATIONS

1.1 Overview

This series product is an excellent digital monitor product. It adopts embedded Linux OS to maintain reliable operation. Popular H.264 compression algorithm and G.711 audio compression technology realize high quality, low bit stream. Unique frame by frame play function is suitable for detailed analysis. It has various functions such as record, playback, monitor at the same time and can guarantee audio video synchronization. This series product has advanced technology and strong network data transmission function.

This series device adopts embedded design to achieve high security and reliability. It can work in the local end, and at the same time, when connecting it to the professional surveillance software (PSS), it can connect to security network to realize strong network and remote monitor function.

This series product can be widely used in various areas such as banking, telecommunication, electric power, interrogation, transportation, intelligent resident zone, factory, warehouse, resources, and water conservancy.

1.2 Features

This series product has the following features:

- **Real-time monitor**

It has analog output port, VGA port. You can use monitor or displayer to realize surveillance function.
System supports TV/VGA output at the same time.

- **Storage function**

Special data format to guarantee data security and can avoid vicious data modification.

- **Compression format**

Support multiple-channel audio and video. An independent hardware decodes the audio and video signal from each channel to maintain video and audio synchronization.

- **Backup function**

Support backup operation via USB port (such as flash disk, portable HDD, burner)
Client-end user can download the file to local HDD to backup via network.

- **Network operation**

Support network remote real-time monitor, remote record search and remote PTZ control.

- **Communication port**

RS485 port can realize alarm input and PTZ control.
Standard Ethernet port can realize network access function.

- **PTZ control**

Support PTZ decoder via RS485.

Support various decode protocols to allow the PTZ to control the speed dome.

Slight function differences may be found due to different series.

1.3 Specifications

SD card backup series

	Parameters	1-channel	2-channel	4-channel
System	Main Processor	High-performance industrial embedded micro controller		
	OS	Embedded LINUX		
	System Resources	Multiplex operations: Multiple-channel record, multiple-channel playback and network operation simultaneously		
	Interface	User-friendly graphical user interface		
	Input Devices	USB mouse		
	Input Method	Arabic number, English character, donation and extension Chinese (optional)		
Compression Standard	Video Compression	H.264		
	Audio Compression	G.711A		
Video monitor	Video Input	1-CH composite video input: (NTSC/PAL) BNC ($1.0V_{P-P,}$ 75Ω)	2-CH composite video input: (NTSC/PAL) BNC ($1.0V_{P-P,}$ 75Ω)	4-CH composite video input: (NTSC/PAL) BNC ($1.0V_{P-P,}$ 75Ω)
	Video Output	1-ch PAL/NTSC, BNC (1.0VP- P, 75Ω) composite video signal output. 1-ch VGA output. Support TV/VGA video output at the same time.		
	Video Standard	PAL (625 line, 50f/s), NTSC (525 line, 60f/s)		
	Record Speed	Real-time Mode: PAL 1f/s to 25f/s per channel and NTSC 1f/s to 30f/s per channel		
	Video Partition	1 windows(Optional)	1/2 windows	1/4 windows
	Monitor Touring Resolution (PAL/NTSC)	Support monitor tour functions such as alarm, motion detection, and schedule auto control.		
		PAL(625TV Line, 50f/s), NTSC(525TV line,60f/s)		
		Real-time monitor: D1 704×576/704×480		
		Main stream: D1 704×576/ 704×480 HD1 352×576/ 352×480 2CIF 704×288/ 704×240 CIF 352×288/ 352×240 QCIF 176×144/176×120		
	Image Quality	6-level image quality (Adjustable)		
	Privacy mask	Support one privacy mask of user-defined size in full screen. Support max 4 zones.		
	Image Information	Channel information, time information and privacy mask zone.		
	TV Adjust	Adjust TV output zone suitable to anamorphic video.		
	Channel Lock Channel	Cover secret channel with blue screen though system is encoding normally.		

	Information	Screen-lock function to prevent unauthorized user seeing secret video.		
		Channel name, recording status, screen lock status, video loss status and motion detection status are shown on the bottom left of display screen.		
	Color Configuration	Hue, brightness, contrast, saturation and gain setup for each channel.		
	Image Quality	6-level image quality (Adjustable)		
Audio Audio	Audio Input Audio Output	1ch 200-2000mV 10KΩ(RCA)	2ch 200-2000mV 10KΩ(RCA)	4ch 200-2000mV 10KΩ(RCA)
		1-ch audio input, 3.5mm JACK MIC IN		
	Bidirectional Audio	1-ch audio output, 3.5mm JACK LINE OUT		
	Audio Talk	Reuse audio output		
Storage Function	Backup Mode	Hot-swappable SD card		
		Support download and save		
Network Function	Network control	View monitor channel remotely.		
		NVS configuration through client-end and web browser		
		Upgrade via client or browser to realize remote maintenance.		
		View alarm information such as external alarm, motion detection and video loss via client.		
		Support network PTZ lens control		
		File download backup and playback		
		Multiple devices share information via corresponding software such as PSS and DSS.		
		Network alarm input and output		
		Bidirectional audio.		
Motion Detection and Alarm	Motion Detection	Zone setup: support 396((PAL 22×18, NTSC 22×15)) detection zones. Various sensitivity levels. Alarm can activate record or external alarm or screen message prompt.		
	Video Loss	Alarm can activate screen message prompt.		
Interface	USB Interface	1 USB 2.0 ports.		
	Network connection	RJ45 10M/100M self-adaptable Ethernet port		
	RS485	PTZ control port Support various PTZ control protocols.		
	Antenna Interface	1 antenna interface which can be used to connect wireless module antenna		
System Information	Hard Disk Information	Display HDD current status		
	Data Stream Statistics	Data stream statistics for each channel (in wave mode)		
	Log statistics	Backup to 1024 log files. Support various search engines such as time and type.		
	Version	Display version information: channel amount, system version and release date.		
	On-line user	Display current on-line user		
User Management	User Management	Multi-lever account management		
		Multi-lever user management; various management modes		

		Integrated management for local user, serial port user and network user. Configurable user power.
		Support account /group and its corresponding rights modification. No limit to the user or group amount.
	Password Authentication	Password modification Administrator can modify other user's password.
		Account lock strategy Five times login failure in thirty minutes may result in account lock. Buzzer beeps once the password error occurred third times.
Upgrade		ConfigTool
Login, Logout and Shutdown		Password login protection to guarantee safety
Environmental	Power	DC +12V / 3.3A
	Power Consumption	＜5W
	Working Temperature	-40℃－＋55℃
	Working Humidity	10%－90%
	atmospheric pressure	86kpa～106kpa
	Dimension (W*D*H)	137mm*162mm*30mm
	Weight	1.3KG
	Installation Mode	Desktop installation

HDD backup series:

	Parameter	1-channel	2-channel	4-channel
System	Main Processor	High-performance industrial embedded micro controller		
	OS	Embedded LINUX		
	System Resources	Multiplex operations: Multiple-channel record, multiple-channel playback and network operation simultaneously		
	Interface	User-friendly graphical user interface		
	Input Devices	USB mouse		
	Input Method	Arabic number, English character, donation and extension Chinese (optional)		
	Shortcut Function	Copy/paste operation, USB mouse right-key shortcut menu, double click USB mouse to switch screen.		
Compression Standard	Video Compression	H.264		
	Audio Compression	G.711A		
Video monitor	Video Input	1-CH composite video input: (NTSC/PAL) BNC ($1.0V_{P-P}$, 75Ω)	2-CH composite video input: (NTSC/PAL) BNC ($1.0V_{P-P}$, 75Ω)	4-CH composite video input: (NTSC/PAL) BNC ($1.0V_{P-P}$, 75Ω)
	Video Output	1-ch PAL/NTSC, BNC (1.0VP- P, 75Ω) composite video signal output. 1-ch VGA output. Support TV/VGA video output at the same time.		

	Video Standard	PAL (625 line, 50f/s), NTSC (525 line, 60f/s)		
	Record Speed	Real-time Mode: PAL 1f/s to 25f/s per channel and NTSC 1f/s to 30f/s per channel		
	Video Partition	1 windows(Optional)	1/2 windows	1/4 windows
	Monitor Touring	Support monitor tour functions such as alarm, motion detection, and schedule auto control.		
	Resolution (PAL/NTSC)	PAL(625TV Line,50f/s),NTSC(525TV line,60f/s)		
		Real-time monitor： D1 704×576/704×480		
		Main stream: D1 704×576/ 704×480 HD1 352×576/ 352×480 2CIF 704×288/ 704×240 CIF 352×288/ 352×240 QCIF 176×144/176×120		
		Support dual streams. Extra stream resolution CIF 352×288/ 352×240 , QCIF 176×144/176×120		
	Image Quality	6-level image quality (Adjustable)		
	Privacy mask	Support one privacy mask of user-defined size in full screen. Support max 4 zones.		
	Image Information	Channel information, time information and privacy mask zone.		
	TV Adjust	Adjust TV output zone suitable to anamorphic video.		
	Channel Lock	Cover secret channel with blue screen though system is encoding normally. Screen-lock function to prevent unauthorized user seeing secret video.		
	Channel Information	Channel name, recording status, screen lock status, video loss status and motion detection status are shown on the bottom left of display screen.		
	Color Configuration	Hue, brightness, contrast, saturation and gain setup for each channel.		
Audio	Audio Input	1-ch 200-2000mv 10KΩ(BNC)	2-ch 200-2000mv 10KΩ(BNC)	
	Audio Output	1-ch audio output 200-3000mv 5KΩ(BNC)		
	Bidirectional Audio	Reuse the first channel audio input port to realize bidirectional talk function.		
Hard disk	Hard Disk	1 built-in SATA port. Support 1 HDD.		
	Hard Disk Occupation	Audio：PCM 28.8MByte/h Video：56-900MByte/h		
Storage Function	Backup Mode	Support peripheral USB backup device. (Flash disk, portable disk and etc.)		
		Support USB burner (extension function).		
		Support network download and backup		
Network Function	Network control	View monitor channel remotely.		
		NVS configuration through client-end and web browser		
		Upgrade via client or browser to realize remote maintenance.		
		View alarm information such as external alarm, motion detection and video loss via client.		

		Support network PTZ lens control
		File download backup and playback
		Multiple devices share information via corresponding software such as PSS and DSS.
		Network alarm input and output
		Bidirectional audio.
Motion Detection and Alarm	Motion Detection	Zone setup: support 396((PAL 22×18, NTSC 22×15)) detection zones. Various sensitivity levels. Alarm can activate record or external alarm or screen message prompt.
	Video Loss	Alarm can activate screen message prompt.
Interface	USB Interface	1 USB 2.0 ports.
	Network connection	RJ45 10M/100M self-adaptable Ethernet port
	RS485	PTZ control port Support various PTZ control protocols.
	Antenna Interface	1 antenna interface which can be used to connect wireless module antenna
System Information	Hard Disk Information	Display HDD current status
	Data Stream Statistics	Data stream statistics for each channel (in wave mode)
	Log statistics	Backup to 1024 log files. Support various search engines such as time and type.
	Version	Display version information: channel amount, system version and release date.
	On-line user	Display current on-line user
User Management	User Management	Multi-lever user management; various management modes Integrated management for local user, serial port user and network user. Configurable user power.
		Support user /group and its corresponding rights modification. No limit to the user or group amount.
	Password Authentication	Password modification Administrator can modify other user's password.
		Account lock strategy Five times login failure in thirty minutes may result in account lock. Buzzer beeps once the password error occurred third times.
Upgrade		USB, ConfigTool.
Login, Logout and Shutdown		Password login protection to guarantee safety
		Right authentication when shut down to make sure only those proper people can turn off NVS
General Parameter	Power	DC +12V /3.3A
	Power Consumption	12W (Exclude HDD)
	Working Temperature	0℃－＋55℃
	Working Humidity	10%－90%
	Air Pressure	86kpa－106kpa
	Dimension (W*D*H)	325 x242 x55mm (Cushion included)
	Weight	2.5 KG(Exclude HDD)

	Installation Mode	Desktop installation

2 Overview and Controls

This section provides information about front panel and rear panel. When you install this series NVS for the first time, please refer to this part first.

2.1 Front Panel

2.1.1 SD backup series

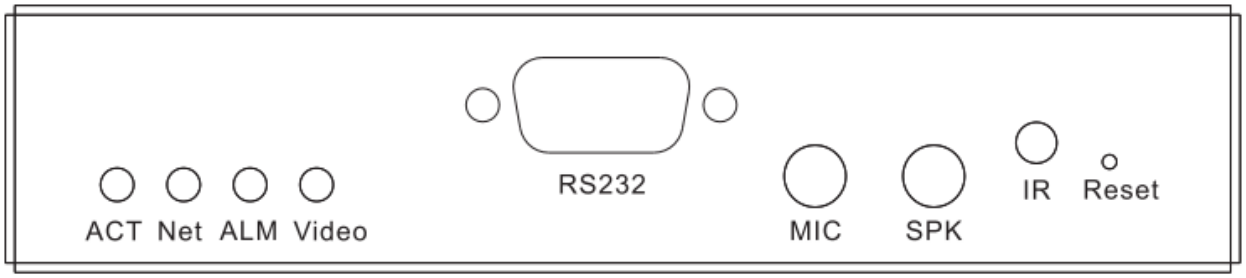


Figure 2-1

Please refer to the following sheet for detailed information.

Icon	Name	Color	Function
ACT	Power status indication light	Red & green	• Power on: red. • In normal operation: green light always on. • In upgrading: green light flickers. • Power off/disconnected: off.
NET	Wireless network status indication light	Green	• Wireless internet in normal connection: always on. • Wireless internet in unusual connection: off.
ALM	Alarm status indication light	Red	• Armed: always on. • Alarm data in transmission: flickers. • Disarmed: off.
Video	Video transmission/ record status indication light	Blue	• Video in normal transmission: on. • In recording: flickers. • No video in transmission: off.
RS232	232 debug COM		To debug COM, set IP and transmit transparent COM data.
MIC	MIC		• Audio input port, passive MIC analog audio signal input. • Input level: 10mV-200mVp-p; input impendence: 600k ohms-20k ohms.
SPK	Speaker: SPK		• Audio input port, bidirectional talk analog signal output. • Output level: 2Vrms; Output impendence: 10k ohms.

Icon	Name	Color	Function
Reset	Reset		Back to factory mode after pressing the button for 3 seconds.
IR			Reserved.

2.1.2 HDD backup series

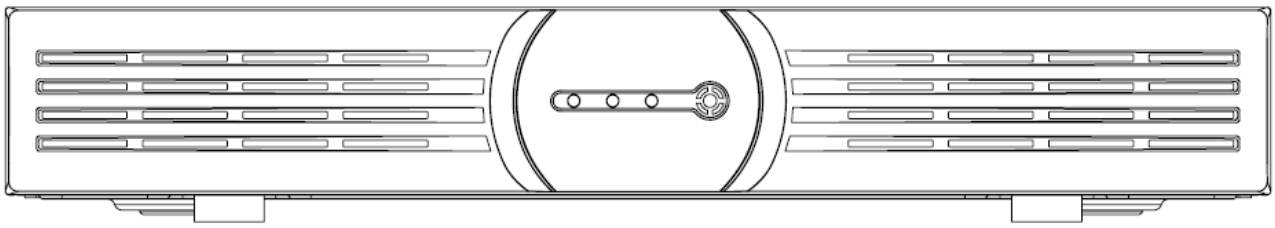


Figure 2-2

Please refer to the following sheet for detailed information.

Icon	Name	Function
	Network status indication light	The red light becomes on when the network connection is not proper.
	Power status indication light	The red light is on when the power connection is proper.
	HDD status indication light	The red light is on when the HDD malfunction occurred.

2.2 Rear Panel

2.2.1 SD backup series

1ch:

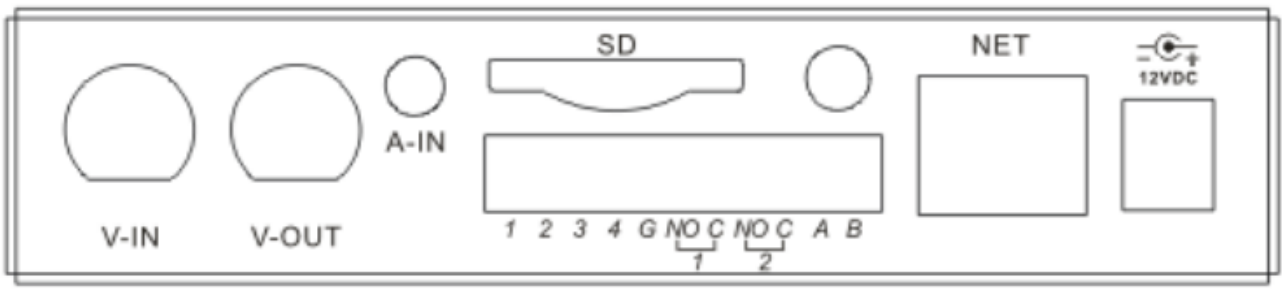


Figure 2-3

Name		Connector	Function
V-IN	Video input port	BNC	Receive analog video signals from camera, dome and other front-end devices.
V-OUT	Video input port	BNC	Video output port. Output analog video signal. It can connect to the monitor to view analog video.
A-IN	Audio output port		Input analog audio signal.

Name		Connector	Function
SD	SD card port		Insert SD card.
1/2/3/4	Alarm Input Port 1～4		Alarm input port, receive signal from external alarm.
G	Ground		Shared ground end.
NO/C-1 NO/C-2	2ch alarm output		•Output alarm signal to the alarm device. •NO/C-1: NO alarm output 1 •NO/C-2: NO alarm output 2
A, B			You can connect to the control devices such as speed dome PTZ.
ANT			To connect wireless antenna in order to receive 3G wireless signal.
NET			10M/100M self-adaptive Ethernet interface.
12VDC			•Input 12V DC •When supply power via PoE. the power of cameras shall be less than 3W

2ch /4ch:

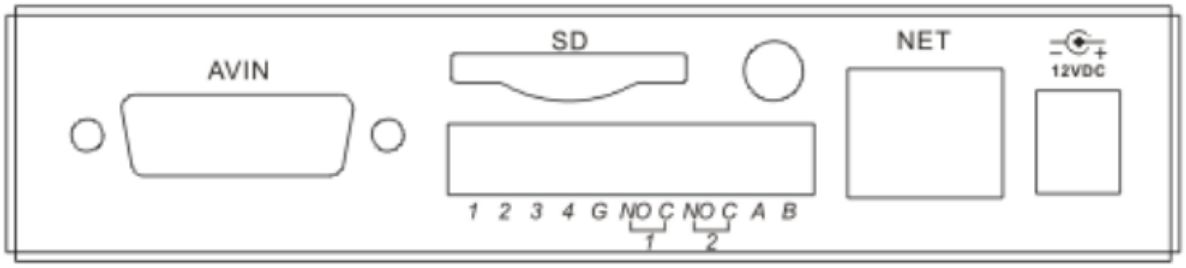


Figure 2-4

Port Name		Connector	Function
AVIN	Audio input port	BNC	1～4-ch audio input port to receive analog audio signals from microphone.
	Audio input port	BNC	1～4-ch video input port to receive analog video signals from camera, dome and other front-end devices.
	Video input port	BNC	Video output port. Output analog video signal. It can connect to the monitor to view analog video.
A-IN	Audio input port		Input analog audio signal.
SD	SD card port		Insert SD card.
1/2/3/4	Alarm Input Port 1～4		Alarm input port, receive signal from external alarm.

Port Name		Connector	Function
G	Alarm input ground		Shared ground
NO/C-1 NO/C-2	2ch alarm output		•Output alarm signal to the alarm device. •NO/C-1: NO alarm output 1 •NO/C-2: NO alarm output 2
A、B			RS485 port. You can connect to the control devices such as speed dome PTZ.
ANT			To connect wireless antenna in order to receive 3G wireless signal
NET			10M/100M self-adaptive Ethernet interface
12VDC			•Input 12V DC POE •When supply power via PoE. the power of cameras shall be less than 3W

2.2.2 HDD backup series

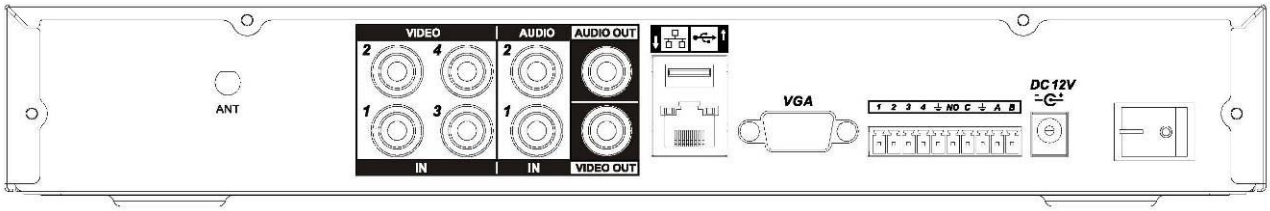


Figure 2-5

Port Name		Connector	Function
AUDIO IN 1～4	Audio input port	BNC	1～4-ch audio input port to receive analog audio signals from microphone. The first channel audio input also used as the audio talk input port.
VIDEO IN 1～4	Video input port	BNC	1～4-ch video input port to receive analog video signals from camera, dome and other front-end devices.
AUDIO OUT 1	Audio output port	BNC	Audio output port. Output analog audio signal to the devices such as sound box.
VIDEO OUT 1	Video output port	BNC	Video output port. Output analog video signal. It can connect to the monitor to view analog video.
	Network Port		10M/100M self-adaptive Ethernet port. Connect to the network cable.
	USB Port		Connect to USB mouse.
VGA	Video output port	VGA	VGA video output port. Output analog video signal. It can connect to the monitor to view analog video.

Port Name		Connector	Function
1～4	Alarm Input Port 1～4	I/O Port	● Alarm input channel amount is 4 ● When your alarm input device is using external power, please make sure the device and the NVS have the same ground.
⏚	Ground end		Alarm input ground end.
NO	Alarm Output Port1		• Output alarm signal to the alarm device. Please make sure there is power to the external alarm device. • NO：Normal open alarm output port. • C：Alarm output public end.
C			
A	RS485 Port		RS485_A port. It is the cable A. You can connect to the control devices such as speed dome PTZ.
B			RS485_B.It is the cable B. You can connect to the control devices such as speed dome PTZ.
ANT	Antenna Port		To connect wireless antenna in order to receive 3G wireless signal
DC 12V	Power input port		Input 12V DC
Power Button			Power on/off button.

When connect the Ethernet port, please use crossover cable to connect the PC and use the straight cable to connect to the switcher or router.

2.3 Connection Sample

The connection sample is shown as below..

The following figure is based on the 4-channel series product of SD backup series and HDD backup series respectively.

2.3.1 Network system

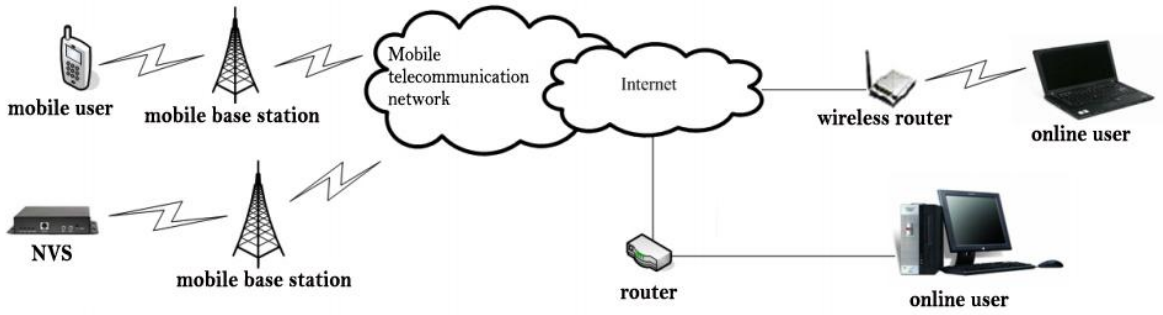


Figure 2-6

2.3.2 HDD backup series

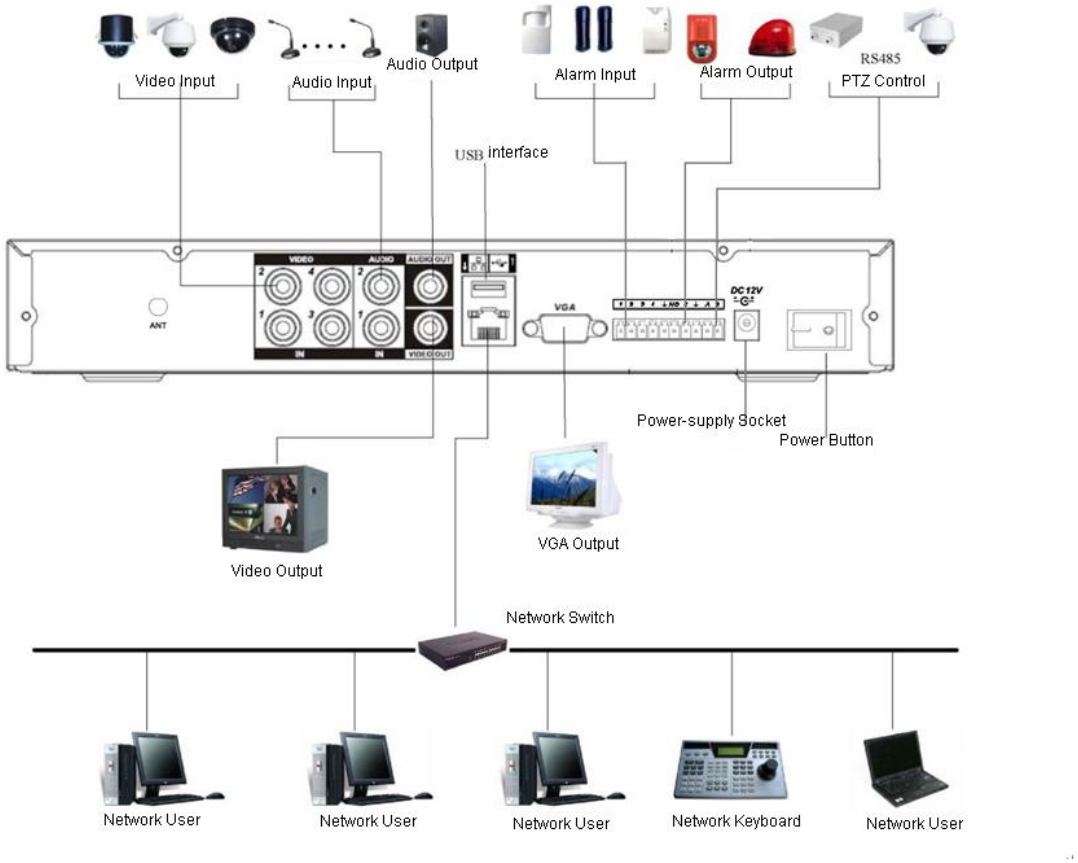
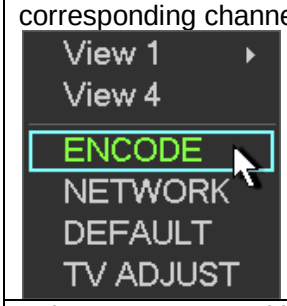


Figure 2-7

2.4 Mouse Control

Left click mouse	System pops up password input dialogue box if you have not logged in. In real-time monitor mode, you can go to the main menu.
	When you have selected one menu item, left click mouse to view menu content.
	Implement the control operation.
	Modify checkbox or motion detection status.
	Click combo box to pop up drop down list

	In input box, you can select input methods. Left click the corresponding button on the panel you can input numeral/English character (small/capitalized). Here ← stands for backspace button. __ stands for space button. In English input mode: _stands for input a backspace icon and ← stands for deleting the previous character.  In numeral input mode: _ stands for clear and ← stands for deleting the previous numeral. When input special sign, you can click corresponding numeral in the front panel to input. For example, click numeral 1 you can input "/", or you can click the numeral in the on-screen keyboard directly. 
Double left click mouse	Implement special control operation such as double click one item in the file list to playback the video.
	In multiple-window mode, double left click one channel to view in full-window. Double left click current video again to go back to previous multiple-window mode.
Right click mouse	In real-time monitor mode, pops up shortcut menu: one-window, four-window, Pan/Tilt/Zoom, color setting, search, record, main menu. Among which, Pan/Tilt/Zoom and color setting applies for current selected channel. If you are in multiple-window mode, system automatically switches to the corresponding channel. 
	Exit current menu without saving the modification.
Press middle button	In numeral input box: Increase or decrease numeral value.
	Switch the items in the check box.
	Page up or page down
Move mouse	Select current control or move control
Drag mouse	Select motion detection zone
	Select privacy mask zone.

3 Installation and Connections

Note: All the installation and operations here should conform to your local electric safety rules.

3.1 Check Unpacked NVS

When you receive the NVS from the forwarding agent, please check whether there is any visible damage. The protective materials used for the package of the NVS can protect most accidental clashes during transportation. Then you can open the box to check the accessories.
Please check the items in accordance with the list on the warranty card. Finally you can remove the protective film of the NVS.

3.2 About Front Panel and Real Panel

For detailed information of the function keys in the front panel and the ports in the rear panel, please refer to the appendix for detailed information.
The model in the front panel is very important; please check according to your purchase order.
The label in the rear panel is very important too. Usually we need you to represent the serial number when we provide the service after sales.

3.3 HDD Installation

This series NVS has only one SATA HDD. Please use HDD of 7200rpm or higher.
You can refer to the Appendix for recommended HDD brand.
Please follow the instructions listed below to install hard disk.

1. Loosen the screws of the upper cover and side panel.

2. Fix four screws in the HDD (Turn just three rounds).

3. Place the HDD in accordance with the four holes in the bottom.

4. Turn the device upside down and then turn the screws in firmly.

5. Fix the HDD firmly.

6. Connect the HDD cable and power cable.

	
7. Put the cover in accordance with the clip and then place the upper cover back.	8. Secure the screws in the rear panel and the side panel.

Note:

- You can connect the HDD data cable and the power cable first and then fix the HDD in the device.
- Please pay attention to the front cover. It adopts the vertical sliding design. You need to push the clip first and then put down.

3.4 Connecting Power Supply

Please check input voltage and device power button match or not.
We recommend you use UPS to guarantee steady operation, NVS life span, and other peripheral equipments operation such as cameras.

3.5 Connecting Video Input and Output Devices

Please note the following figure is based on the general series product.

3.5.1 Connecting Video Input

The video input interface is BNC. The input video format includes: PAL/NTSC BNC(1.0V_{P-P}, 75Ω.
The video signal should comply with your national standards.
The input video signal shall have high SNR, low distortion; low interference, natural color and suitable lightness.

Guarantee the stability and reliability of the camera signal:

The camera shall be installed in a cool, dry place away from direct sunlight, inflammable, explosive substances and etc.
The camera and the NVS should have the same grounding to ensure the normal operation of the camera.

Guarantee stability and reliability of the transmission line

Please use high quality, sound shielded BNC. Please select suitable BNC model according to the transmission distance.
If the distance is too long, you should use twisted pair cable, and you can add video compensation devices or use optical fiber to ensure video quality.
You should keep the video signal away from the strong electromagnetic interference, especially the high tension current.

Keep connection lugs in well contact

The signal line and shielded wire should be fixed firmly and in well connection. Avoid dry joint, lap welding and oxidation.

3.5.2 Connecting Video Output

Video output includes a BNC(PAL/NTSC BNC(1.0VP- P, 75Ω)output ,and a VGA output.
When you are using pc-type monitor to replace the monitor, please pay attention to the following points:

- To defer aging, do not allow the pc monitor to run for a long time.
- Regular demagnetization will keep device maintain proper status.
- Keep it away from strong electromagnetic interference devices.

Using TV as video output device is not a reliable substitution method. You also need to reduce the working hour and control the interference from power supply and other devices. The low quality TV may result in device damage.

3.6 Connecting Audio Input & Output, Bidirectional Audio

3.6.1 Audio Input

These series products adopt BNC port.
Due to high impedance of audio input, please use active sound pick-up.
Audio transmission is similar to video transmission. Try to avoid interference, dry joint, loose contact and it shall be away from high tension current.

3.6.2 Audio Output

The audio output signal parameter is usually over 200mv 1KΩ (BNC). It can directly connect to low impedance earphone, active sound box or amplifier-drive audio output device.
If the sound box and the pick-up cannot be separated spatially, it is easy to arouse squeaking. In this case you can adopt the following measures:

- Use better sound pick-up with better directing property.
- Reduce the volume of the sound box.
- Using more sound-absorbing materials in decoration can reduce voice echo and improve acoustics environment.
- Adjust the layout to reduce happening of the squeaking.

4 Overview of Navigation and Controls

Important

- Slight difference may be found in the interface. All the interfaces listed below are based on the 4-channel series product.

Before operation, please make sure:

- You have properly installed HDD and connect all the cable connections.
- The provided input power and the device power are matched.
- The external power shall be DC +12V.
- Always use the stable current, if necessary UPS is a best alternative measure.

4.1 Login, Logout & Main Menu

4.1.1 Login

After system booted up, default video display is in multiple-window mode.

You can see the login interface after right clicking any menu item. See Figure 4-1.

System consists of four accounts:

- **Username:** admin. **Password:** admin. (administrator, local and network)
- **Username:** 888888. **Password:** 888888. (administrator, local only)
- **Username:** 666666. **Passwords:** 666666(Lower authority user who can only monitor, backup and etc.)
- **Username**: default. **Password**: default(hidden user)

You can use USB mouse, front panel, or keyboard to input.

About input method: Click 

to switch between numeral, English character (small/capitalized) and denotation.

Note:

For security reason, please modify password after you first login.

Within 30 minutes, three times login failure will result in system alarm and five times login failure will result in account lock!

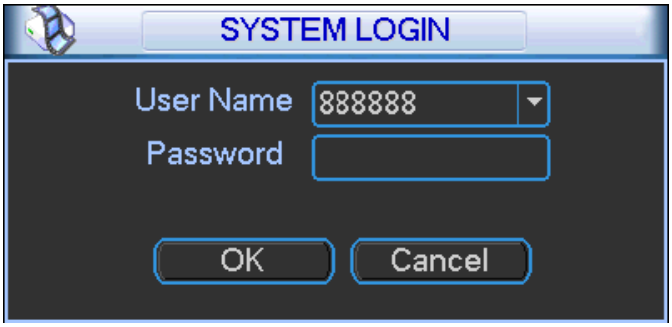


Figure 4-1

4.1.2 Shutdown

Press the power button in the rear panel to shutdown.

Note:

Please open the case and then unplug the power cable before you replace the HDD!

4.1.3 Auto Resume after Power Failure

The system can automatically backup video and resume previous working status after power failure.

4.1.4 Replace Button Battery

Please make sure to use the same battery model if possible.

We recommend replace battery regularly (such as one-year) to guarantee system time accuracy.

Note:

Before replacement, please save the system setup, otherwise, you may lose the data completely!

4.2 Record

4.2.1 Preview Zoom Function

Move your mouse to the left top corner of the preview interface; you can see the preview zoom button. See Figure 4-2. Left click the icon; you can see a hook icon. Now you have enabled the preview zoom function. You can drag the mouse to zoom in the image.

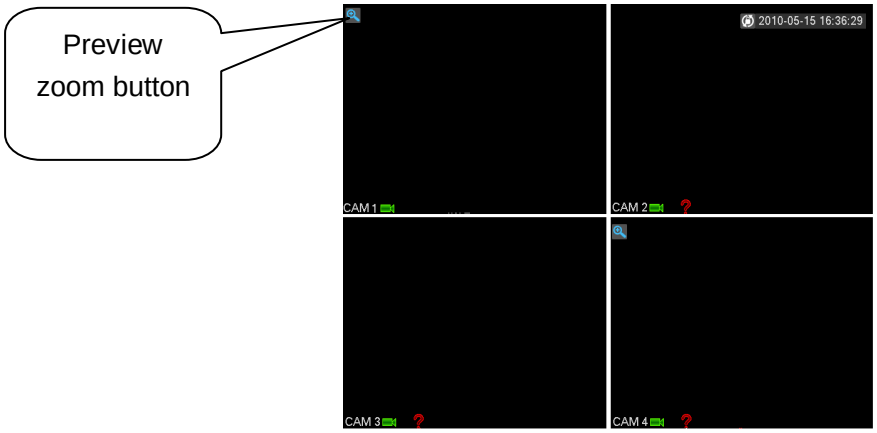


Figure 4-2

4.2.2 Live Viewing

After you logged in, the system is in live viewing mode. You can see system date, time and channel name.

1		Recording status	**3**		Video loss
2		Motion detection	**4**		Camera lock

4.3 Encode

Encode setting includes the following items. See Figure 4-3.

Please note some series do not support extra stream.

- Channel: Select the channel you want.
- Compression: System supports H.264.

- Resolution: System supports various resolutions, you can select from the dropdown list. For this model, main stream supports D1 (PAL: 25f/s. NTSC: 30f/s.)/HD1/2CIF/CIF/QCIF. The extra stream supports CIF/QCIF. Please note the resolution may vary due to different channels.
- Frame rate: It ranges from 1f/s to 25f/s in PAL mode and 1f/s to 30f/s in NTSC mode.
- Bit rate type: System supports two types: CBR and VBR. In VBR mode, you can set video quality.
- Quality: There are six levels ranging from 1 to 6. The sixth level has the highest image quality.
- Video/audio: You can enable or disable the video/audio.
- Overlay: Click overlay button, you can see an interface is shown in Figure 4-4.
- Cover area (Privacy mask): Here is for you to set privacy mask section. You can drag you mouse to set proper section size. In one channel video, system max supports 4 zones.

✧ Preview/monitor: privacy mask has two types. Preview and Monitor. Preview means the privacy mask zone can not be viewed by user when system is in preview status. Monitor means the privacy mask zone can not be view by the user when system is in monitor status.

✧ Time display: You can select system displays time or not when you playback. Please click set button and then drag the title to the corresponding position in the screen.

✧ Channel display: You can select system displays channel number or not when you playback. Please click set button and then drag the title to the corresponding position in the screen.

Please highlight icon  to select the corresponding function.

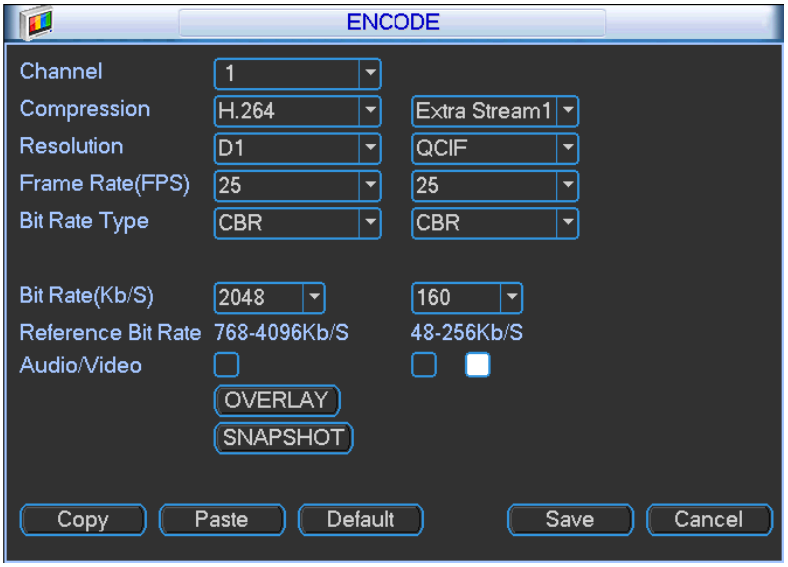


Figure 4-3

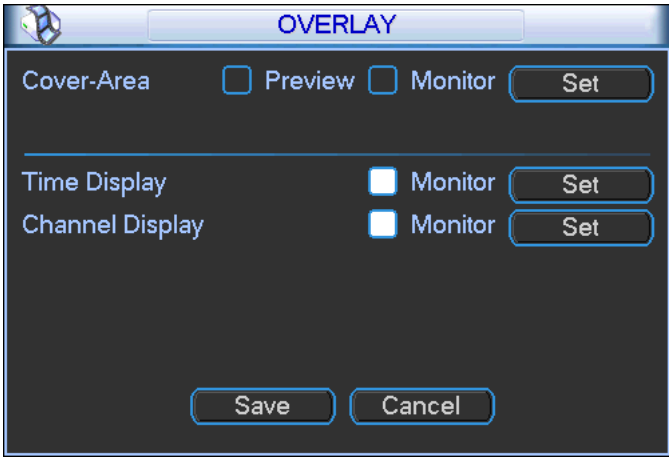


Figure 4-4

4.3.1 Snapshot

4.3.1.1 Schedule Snapshot

In Encode interface, click snapshot button to input snapshot mode, size, quality and frequency. See Figure 4-5.

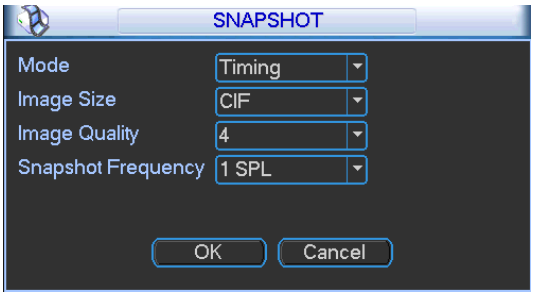


Figure 4-5

4.3.1.2 Activation Snapshot

In Encode interface, click snapshot button to input snapshot mode, size, quality and frequency. See Figure 4-6. After you enabled this function, system can snapshot when the corresponding alarm occurred.

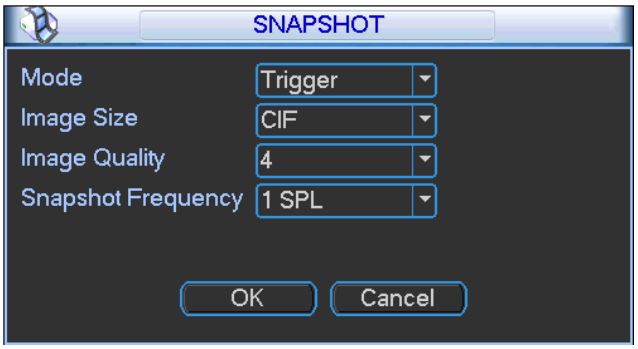


Figure 4-6

4.3.1.3 Priority

Please note the activation snapshot has the higher priority than schedule snapshot. If you have enabled these two types at the same time, system can activate the activation snapshot when an alarm occurs, and otherwise system just operates the schedule snapshot.

4.4 Network

Here is for you to input network information. See Figure 4-7.

- IP address: Here you can input IP address.
- DHCP: It is to auto search IP. When enable DHCP function, you can not modify IP/Subnet mask /Gateway. These values are from DHCP function. If you have not enabled DHCP function, IP/Subnet mask/Gateway display as zero. You need to disable DHCP function to view current IP information. Besides, when PPPoE is operating, you can not modify IP/Subnet mask /Gateway.
- TCP port: Default value is 37777. You can modify if necessary.
- UDP port: Default value is 37778. You can modify if necessary.
- HTTP port: Default value is 80.
- Max connection: system support maximal 20 users. 0 means there is no connection limit.
- Preferred DNS: DNS IP address.
- Alternate DNS: DNS alternative IP address.
- Transfer mode: Here you can select the priority between fluency/video qualities.
- LAN download: System can process the downloaded data first if you enable this function. The download speed is 1.5X or 2.0X of the normal speed.

After completing all the setups please click save button, system goes back to the previous menu.

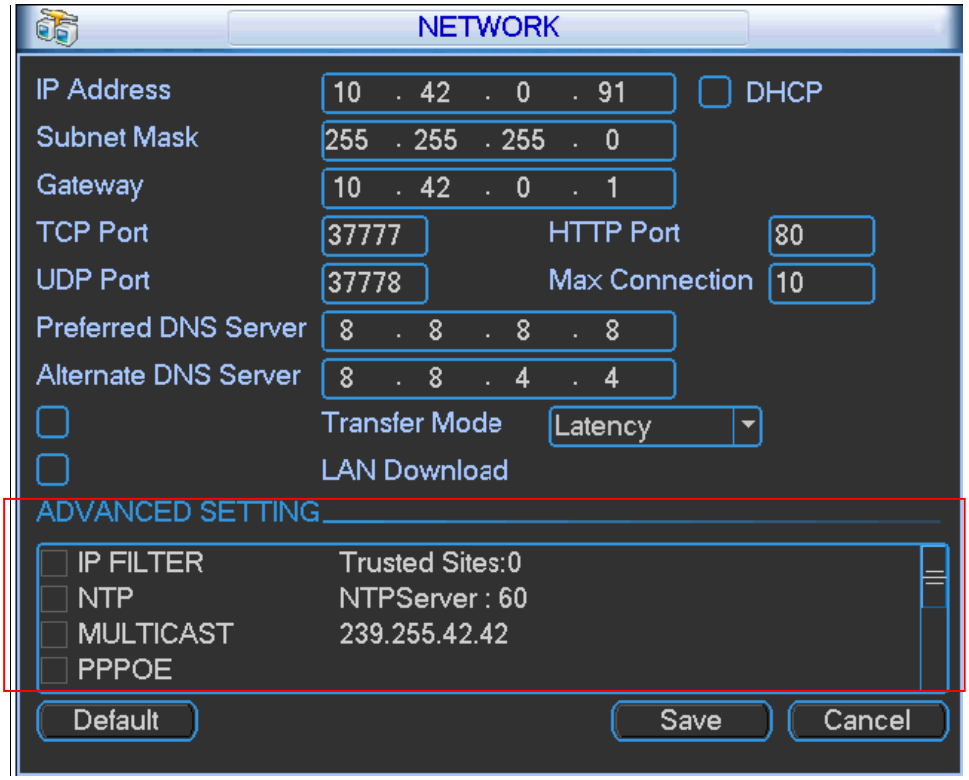


Figure 4-7

4.4.1 Advanced Setup

Advanced setup interface is shown as in Figure 4-8. Please draw a circle to enable corresponding function and then double click current item to go to setup interface.

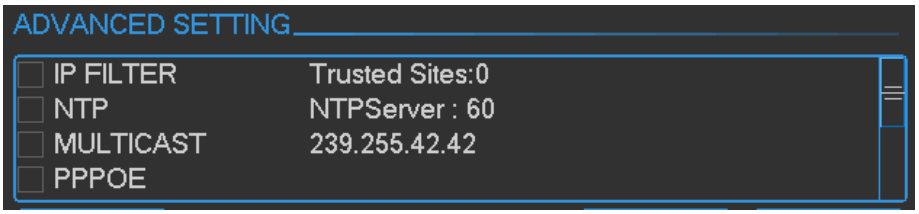


Figure 4-8

4.4.1.1 IP Filter

IP filter interface is shown as in Figure 4-9. You can add IP in the following list. The list supports max 64 IP addresses.

Please note after you enabled this function, only the IP listed below can access current NVS.

If you disable this function, all IP addresses can access current NVS.

Figure 4-9

4.4.1.2 Multiple Cast Setup

Multiple-cast setup interface is shown as in Figure 4-10.

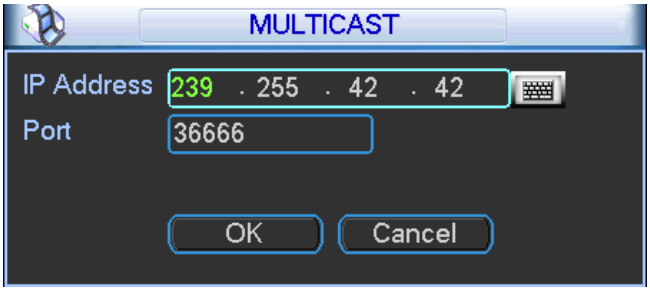


Figure 4-10

Here you can set a multiple cast group. Please refer to the following sheet for detailed information.

- IP multiple cast group address -224.0.0.0-239.255.255.255

-“D” address space

- The higher four-bit of the first byte=”1110”

- Reserved local multiple cast group address

-224.0.0.0-224.0.0.255

-TTL=1 When sending out telegraph

-For example

224.0.0.1 All systems in the sub-net

224.0.0.2 All routers in the sub-net

224.0.0.4 DVMRP router

224.0.0.5 OSPF router

224.0.0.13 PIMv2 router

- Administrative scoped addressees

-239.0.0.0-239.255.255.255

-Private address space

- Like the single broadcast address of RFC1918
- Can not be used in Internet transmission
- Used for multiple cast broadcast in limited space.

Except the above mentioned addresses of special meaning, you can use other addresses. For example:

Multiple cast IP: 235.8.8.36

Multiple cast PORT: 3666.

After you logged in the Web, the Web can automatically get multiple cast address and add it to the multiple cast groups. You can enable real-time monitor function to view the view.

Please note multiple cast function applies to special series only.

4.4.1.3 PPPoE

PPPoE interface is shown as in Figure 4-11.

Input “PPPoE name” and “PPPoE password” you get from your ISP (Internet service provider). Click save button, you need to restart to activate your configuration.

After rebooting, NVS will connect to internet automatically. The IP in the PPPoE is the NVS dynamic value. You can access this IP to visit the unit.

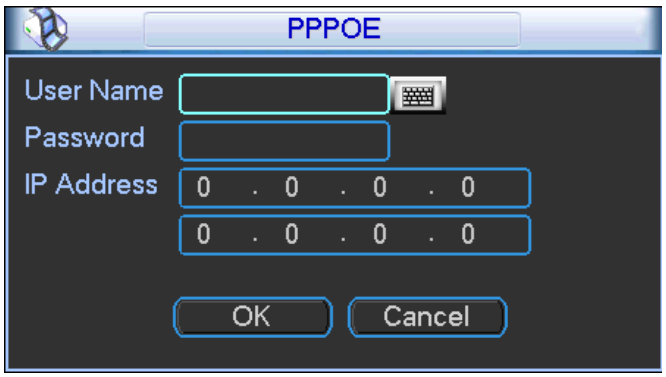


Figure 4-11

4.4.1.4 NTP Setup

You need to install SNTP server (Such as Absolute Time Server) in your PC first. In Windows XP OS, you can use command “net start w32time” to boot up NTP service.

NTP setup interface is shown as in Figure 4-12.

- Host IP: Input your PC address.
- Port: This series NVS supports TCP transmission only. Port default value is 123.
- Update interval: minimum value is 1. Max value is 65535. (Unit: minute)
- Time zone: select your corresponding time zone here.

Here is a sheet for your time zone setup.

City /Region Name	Time Zone
London	GMT+0
Berlin	GMT+1
Cairo	GMT+2
Moscow	GMT+3
New Deli	GMT+5
Bangkok	GMT+7
Beijing (Hong Kong)	GMT+8
Tokyo	GMT+9
Sydney	GMT+10
Hawaii	GMT-10
Alaska	GMT-9
Pacific Time(P.T)	GMT-8
American Mountain Time(M.T)	GMT-7
American Central Time(C.T)	GMT-6
American Eastern Time(E.T)	GMT-5
Atlantic Time	GMT-4
Brazil	GMT-3
Middle Atlantic Time	GMT-2

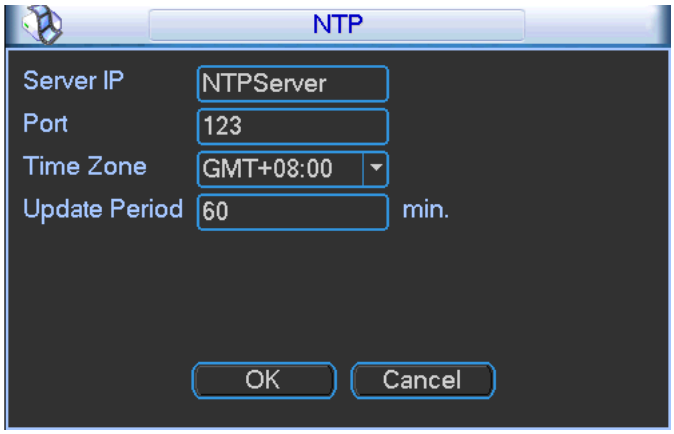


Figure 4-12

4.4.1.5 DDNS Setup

DDNS setup interface is shown as in Figure 4-13.

You need a PC of fixed IP in the internet and there is the DDNS software running in this PC. In other words, this PC is a DNS (domain name server).

In network DDNS, please select DDNS type and highlight enable item. Them please input your PPPoE name you get from you IPS and server IP (PC with DDNS) . Click save button and then reboot system.

Click save button, system prompts for rebooting to get all setup activated.

After rebooting, open IE and input as below:

http：//(DDNS server IP)/(virtual directory name)/webtest.htm

e.g.: http：//10.6.2.85/NVS_DDNS/webtest.htm.)

Now you can open DDNSServer web search page.

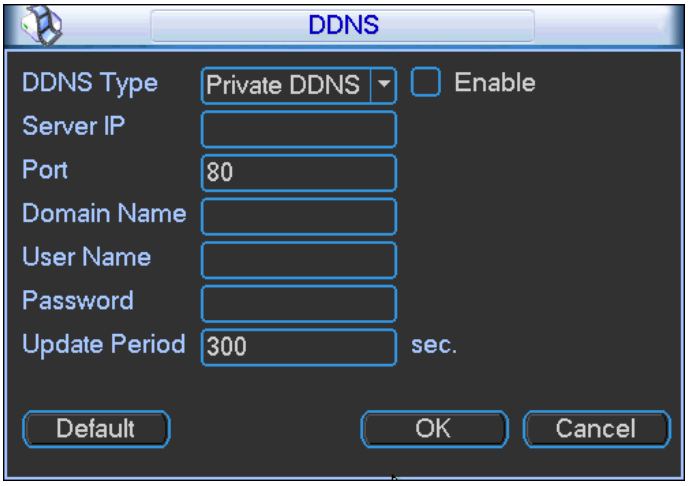


Figure 4-13

Please note NNDS type includes: CN99 DDNS、NO-IP DDNS、Private DDNS、Dyndns DDNS and sysdns DDNS. All the DDNS can be valid at the same time, you can select as you requirement.

Private DDNS function shall work with special DDNS server and special Professional Surveillance Software (PSS).

4.4.1.6 Email

The email interface is shown as below. See Figure 4-14.

- SMTP server: Please input your email SMTP server IP here.
- Port: Please input corresponding port value here.
- User name: Please input the user name to login the sender email box.
- Password: Please input the corresponding password here.
- Sender: Please input sender email box here.
- Title: Please input email subject here. System support English character and Arabic number. Max 32-digit.
- Receiver: Please input receiver email address here. System max supports 3 email boxes.
- SSL enable: System supports SSL encryption box.
- Interval: The send interval ranges from 0 to 3600 seconds. 0 means there is no interval.
- Health email enable: Please check the box here to enable this function. This function allows the system to send out the test email to check the connection is OK or not.
- Interval: Please check the above box to enable this function and then set the corresponding interval. System can send out the email regularly as you set here. Click the Test button, you can see the corresponding dialogue box to see the email connection is OK or not.

Please note system will not send out the email immediately when the alarm occurs. When the alarm, motion detection or the abnormity event activates the email, system sends out the email according to the interval you specified here. This function is very useful when there are too many emails activated by the abnormity events, which may result in heavy load for the email server.

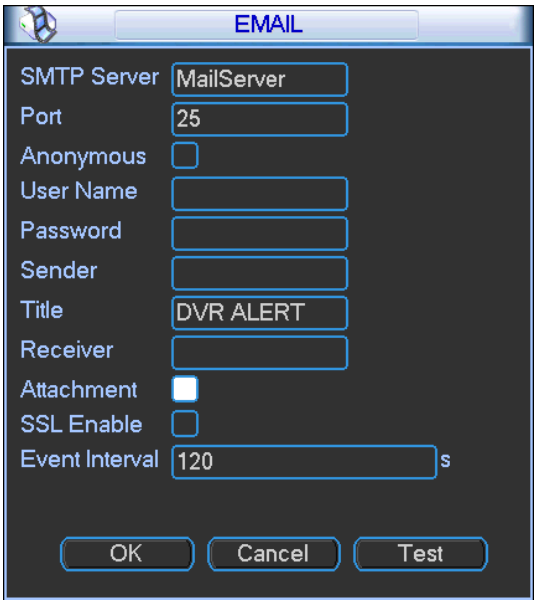


Figure 4-14

4.4.1.7 FTP

You need to download or buy FTP service tool (such as Ser-U FTP SERVER) to establish FTP service.

Please install Ser-U FTP SERVER first. From “start” -> “program” -> Serv-U FTP Server -> Serv-U Administator. Now you can set user password and FTP folder. Please note you need to grant write right to FTP upload user. See Figure 4-15.

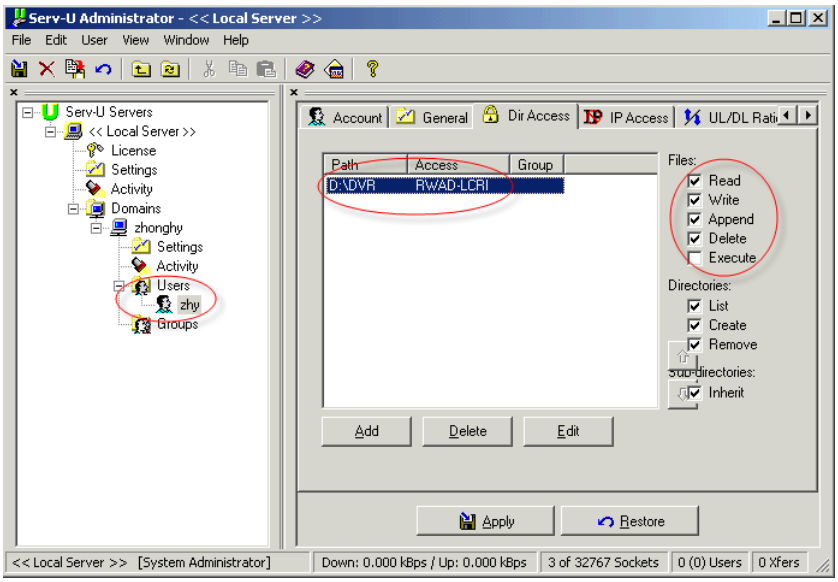


Figure 4-15

You can use a PC or FTP login tool to test setup is right or not.

For example, you can login user ZHY to FTP://10.10.7.7 and then test it can modify or delete folder or not. See Figure 4-16.

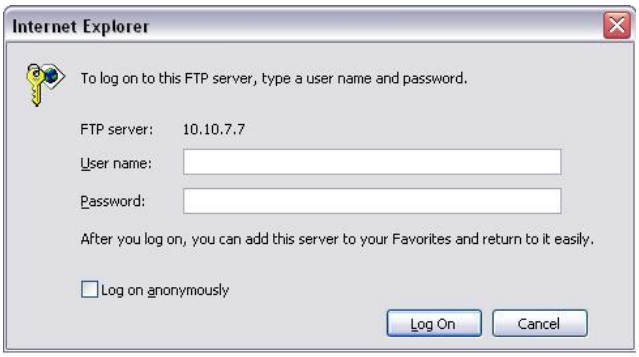


Figure 4-16

System also supports upload multiple NVSs to one FTP server. You can create multiple folders under this FTP.

In Figure 4-7, select FTP and then double click mouse. You can see the following interface. See Figure 4-17.

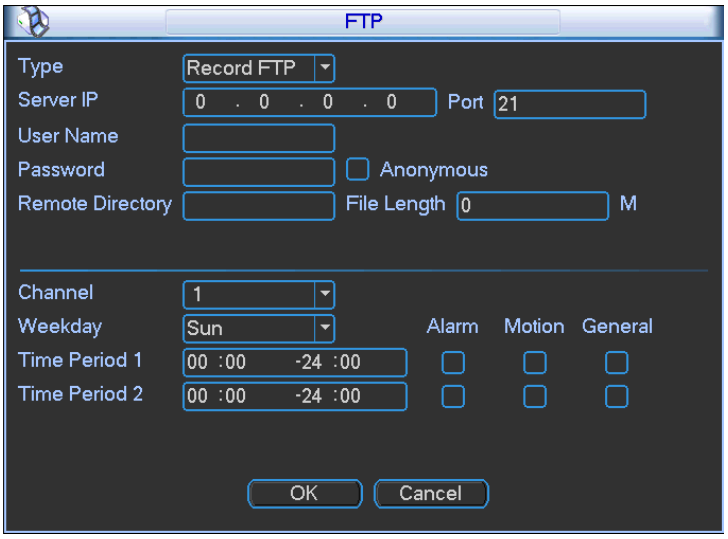


Figure 4-17

Please highlight the icon  in front of Enable to activate FTP function.

Here you can input FTP server address, port and remote directory. When remote directory is null, system automatically create folders according to the IP, time and channel.

User name and password is the account information for you to login the FTP.

File length is upload file length. When setup is larger than the actual file length, system will upload the whole file. When setup here is smaller than the actual file length, system only uploads the set length and auto ignore the left section. When interval value is 0, system uploads all corresponding files.

After completed channel and weekday setup, you can set two periods for one each channel.

4.4.1.8 3G Setup

This function is quite useful when you can not realize cable transmission. See Figure 4-20.

Please check the 3G enable/disable button and active button to enable this function. Click the Set button after the period to set the 3G transmission time. You do not need to set the network type. The system can auto recognize. Please input ANP/VPN account, dial account, user name,

and user password. You can adopt default dial setup if the service operator has not provided special account.

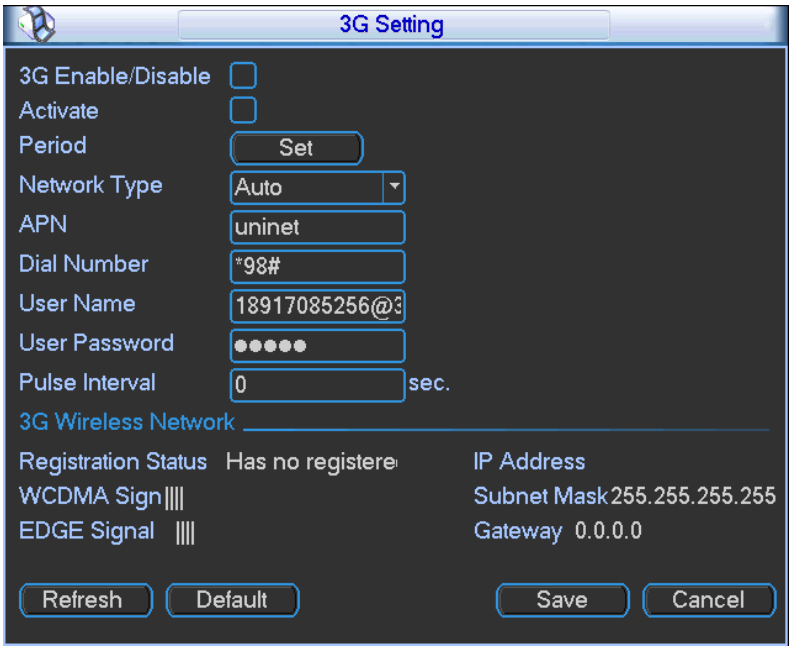


Figure 4-18

4.4.1.9 Alarm Centre

This interface is reserved for you to develop.

4.5 Default

Click default icon, system pops up a dialogue box. You can highlight to restore default factory setup. See Figure 4-19.

- Select all
- General
- Encode
- Schedule
- RS232
- Network
- Alarm
- Detect
- Pan/tilt/zoom
- Channel name

Please highlight icon to select the corresponding function.

After all the setups please click save button, system goes back to the previous menu.

Warning!

System menu color, date and time, user account will not maintain previous setup after default operation!

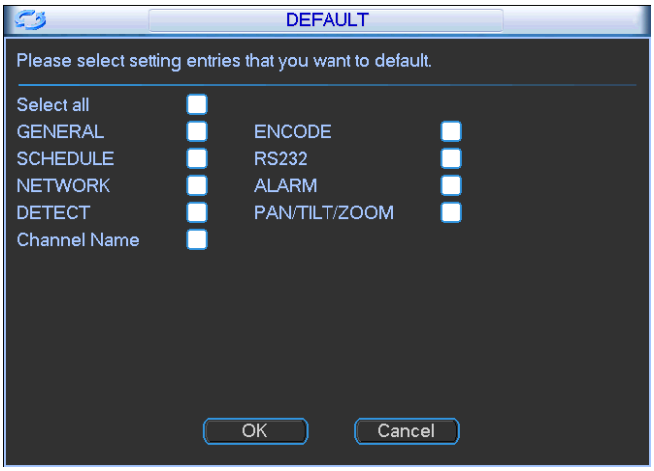


Figure 4-19

4.6 TV Adjust

Here is for you to adjust TV output setup. See Figure 4-20.

Please drag slide bar to adjust each item.

After all the setups please click OK button, system goes back to the previous menu.

Figure 4-20

5 WEB OPERATION

Important

Slight difference may be found in the interface. All the interfaces listed below are based on the 4-channel series product.

5.1 Network Connection

Before web operation, please check the following items:

- Network connection is right
- NVS and PC network setup is right. Please refer to network setup(main menu->setting->network)
- Use order ping ***.***.***.***(* NVSIP address) to check connection is OK or not. Usually the return TTL value should be less than 255.
- Open the IE and then input NVSIP address.
- System can automatically download latest web control and the new version can overwrite the previous one.
- If you want to un-install the web control, please run *uninstall webrec2.0.bat*. Or you can go to C:\Program Files\webrec to remove single folder. Please note, before you un-install, please close all web pages, otherwise the un-installation might result in error.

5.2 Login

Open IE and input NVS address in the address column. For example, if your NVS IP is 10.10.3.16, then please input http:// 10.10.3.16 in IE address column. See Figure 5-1.

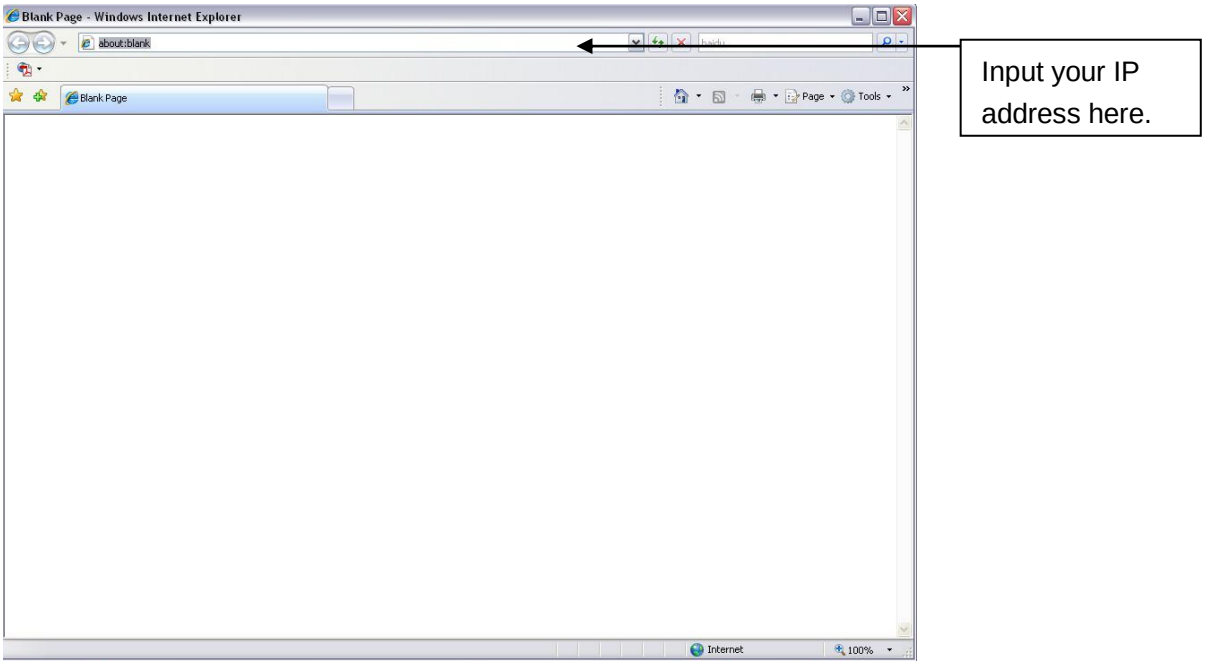


Figure 5-1

System pops up warning information to ask you whether install webrec.cab control or not. Please click yes button.

If you can't download the ActiveX file, please modify your settings as follows. See Figure 5-2.

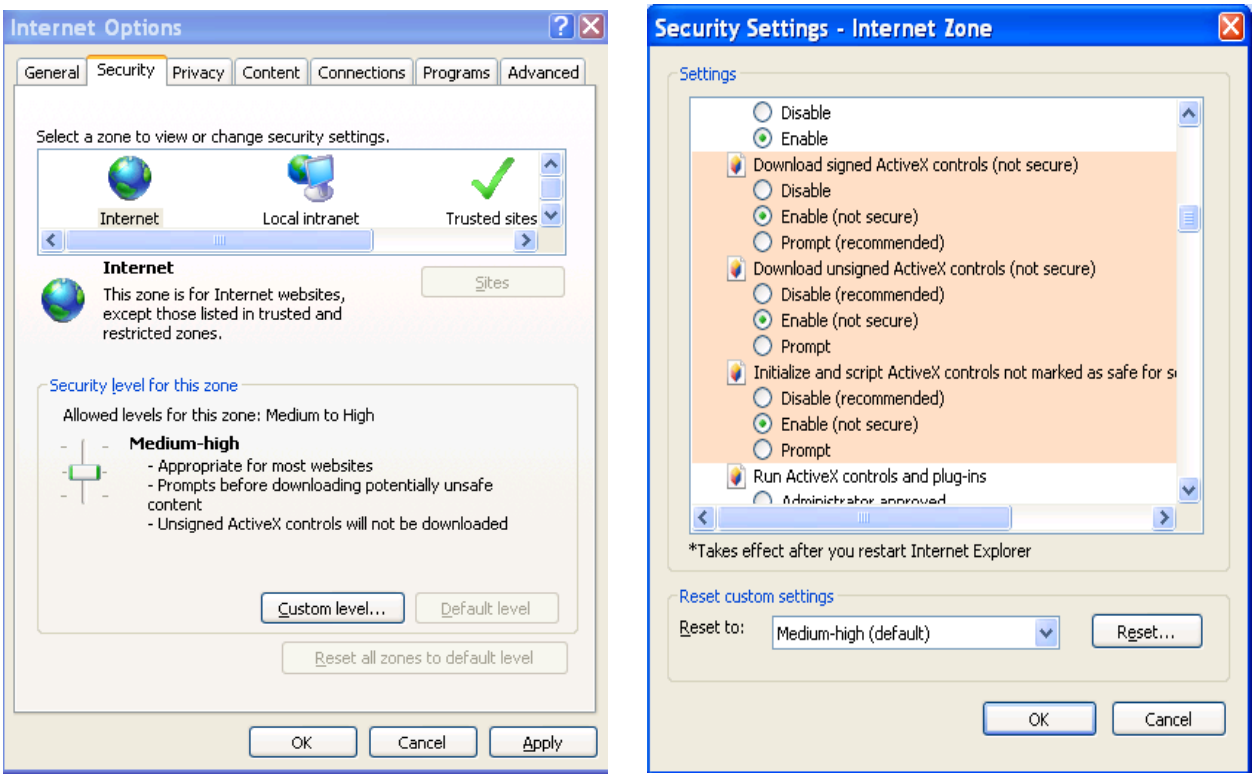


Figure 5-2

After installation, the interface is shown as below. See Figure 5-3.

Please input your user name and password.

Default factory name is **admin** and password is **admin**.

Note: For security reasons, please modify your password after you first login.

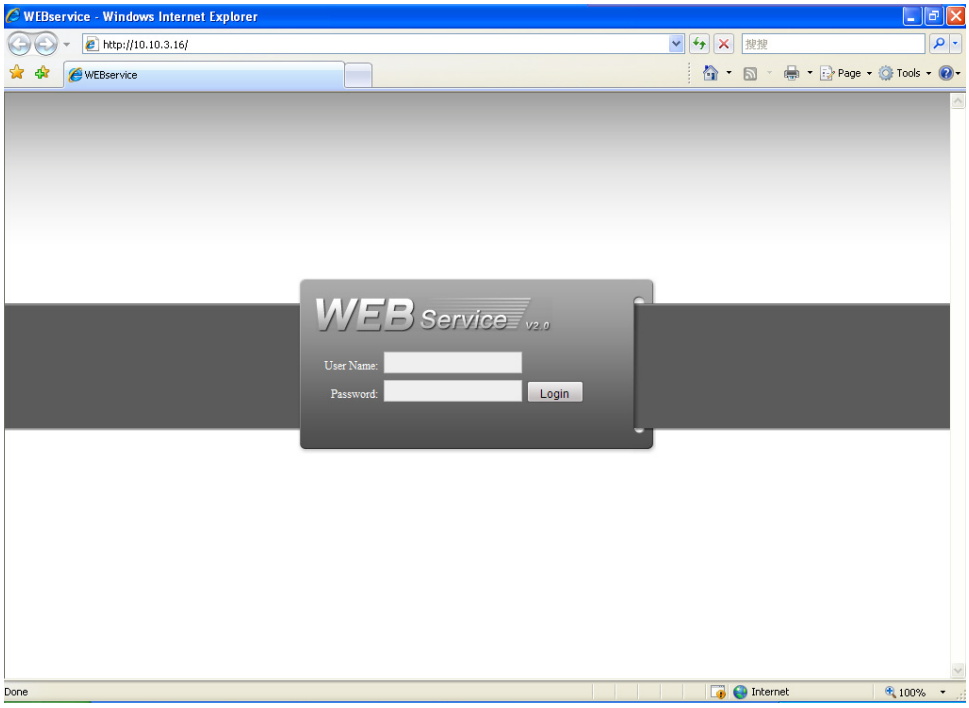


Figure 5-3

After you logged in, you can see the main window. See Figure 5-6.

This main window can be divided into the following sections.

- Section 1: there are five function buttons: configuration (chapter 5.3), search (chapter 5.4), alarm (chapter 5.5), about (chapter 5.6), log out (chapter 5.7).
- Section 2: there are channel number and three function buttons: start dialog and local play, refresh.
- Section3: there are PTZ (chapter 5.2.2), color (chapter 5.2.3) button and you can also select picture path and record path.
- Section 4:real-time monitor window. Please note current preview window is circled by a green rectangle zone.
- Section 5: Here you can view window switch button. You can also select video priority between fluency or real-time.
  - ✧ System monitor window switch supports full screen/1-window/4-window/6-window/8-window/9-window/13-window/16-window/20-window/25-window/36-window. See Figure 5-4.

Figure 5-4

✧ Preview window switch. System support 1/4/8/9/16-window real-time preview. Please you need to have the proper rights to implement preview operation. You can not preview if you have no right to preview the either channel. See Figure 5-5. Please note this series device does not support this function.

Figure 5-5

Figure 5-6

5.2.1 Real-time Monitor

In section 2, left click the channel name you want to view, you can see the corresponding video in current window.

On the top left corner, you can view device IP, channel number, network monitor bit stream.

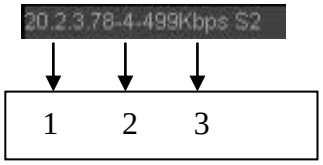


Figure 5-7

On the top right corer, there are six unction buttons. See Figure 5-8.

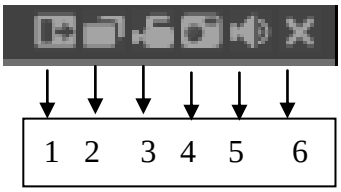


Figure 5-8

- 1: Digital zoom: Click this button and then left drag the mouse in the zone to zoom in. right click mouse system restores original status.
- 2: Change show mode: resize or switch to full screen mode.
- 3: Local record. When you click local record button, the system begins recording and this button becomes highlighted. You can go to system folder RecordDownload to view the recorded file.
- 4: Capture picture. You can snapshoot important video. All images are memorized in system client folder \download\picture (default).
- 5: Audio :Turn on or off audio.(It has no relationship with system audio setup)
- 6: Close video.

Please refer to Figure 5-9 for main stream and extra stream switch information.

Figure 5-9

Open All

You can click it to open all channels.

Refresh

You can use button to refresh camera list.

Start Dialogue

You can click this button to enable audio talk. Click 【▼】 to select bidirectional talk mode. There are two options: DEFAULT/G711a.

Please note, the audio input port from the device to the client-end is using the first channel audio input port. During the bidirectional talk process, system will not encode the audio data from the 1-channel.

Local Play

The Web can playback the saved (Extension name is dav) files in the PC-end.

Click local play button, system pops up the following interface for you to select local play file. See Figure 5-10.

Figure 5-10

5.2.2 PTZ

Before PTZ operation, please make sure you have properly set PTZ protocol.

Click PTZ button, the interface is shown as in Figure 5-11.

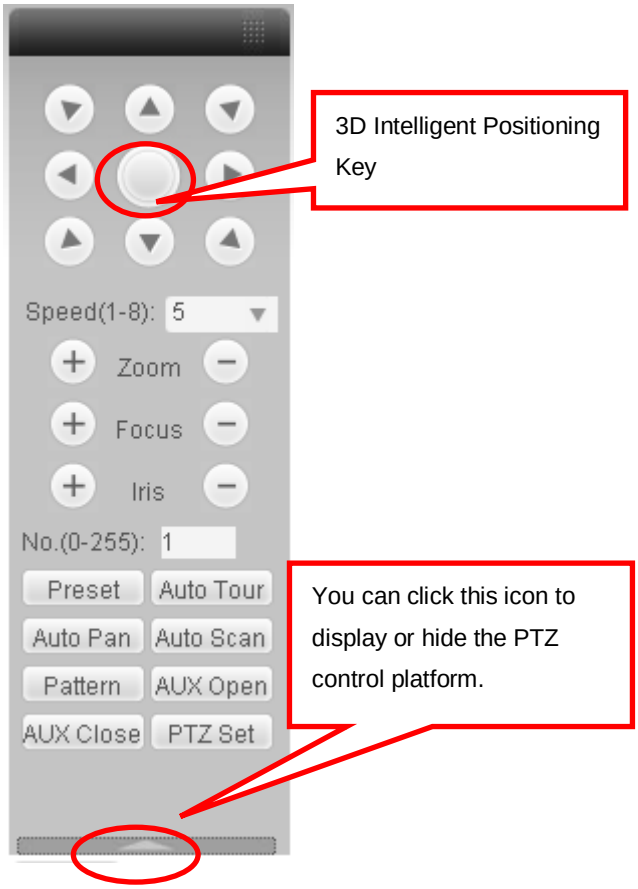


Figure 5-11

5.2.2.1 Direction key and 3D positioning key

In Figure 5-11 there are eight direction keys.

In the middle of the eight direction keys, there is a 3D intelligent positioning key.

Click 3D intelligent positioning key, system goes back to the single screen mode. Drag the mouse in the screen to adjust section size. It can realize PTZ automatically.

5.2.2.2 Speed

System supports eight-level speed. You can select from the dropdown list. Speed 2 is faster than speed 1.

5.2.2.3 Zoom/Focus/Iris

Here is a sheet for you reference.

Name	Function key	Function	Function key	Function
Zoom		Near		Far
Focus		Near		Far
Iris		close		Open

In Figure 5-11, click PTZ setup button you can see the following interface. See Figure 5-12.

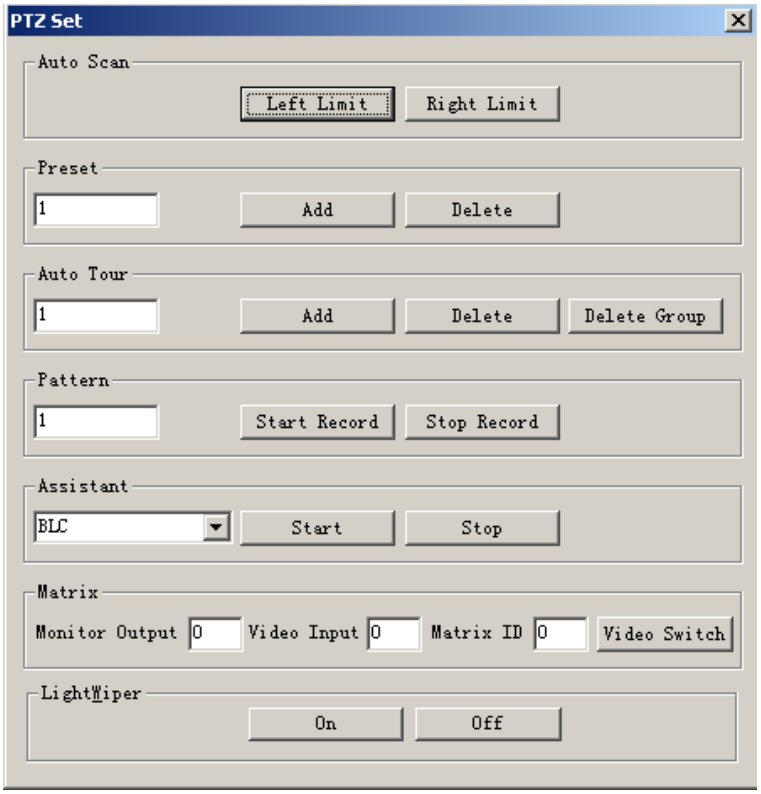


Figure 5-12

5.2.2.4 Auto Scan

In Figure 5-12, move the camera to you desired location and then click left limit button. Then move the camera again and then click right limit button to set a right limit.

5.2.2.5 Pattern

In Figure 5-12, you can input pattern value and then click start record button to begin PTZ movement. Please go back to Figure 5-11 to implement camera operation. Then you can click stop record button. Now you have set one pattern.

5.2.2.6 Preset

In Figure 5-12, move the camera to your desired location and then input preset value. Click add button, you have set one preset.

5.2.2.7 Auto tour

In Figure 5-12, input auto tour value and preset value. Click add button, you have added one preset in the tour.

Repeat the above procedures you can add more presets in one tour.

5.2.2.8 Assistant

You can select the assistant item from the dropdown list. See Figure 5-13.

5.2.2.9 Matrix

This series product supports matrix extension function. You can control the video input and output switch

5.2.2.10 Light and wiper

If your PTZ protocol supports the light and wiper control function. You can enable/disable the light or the wiper.

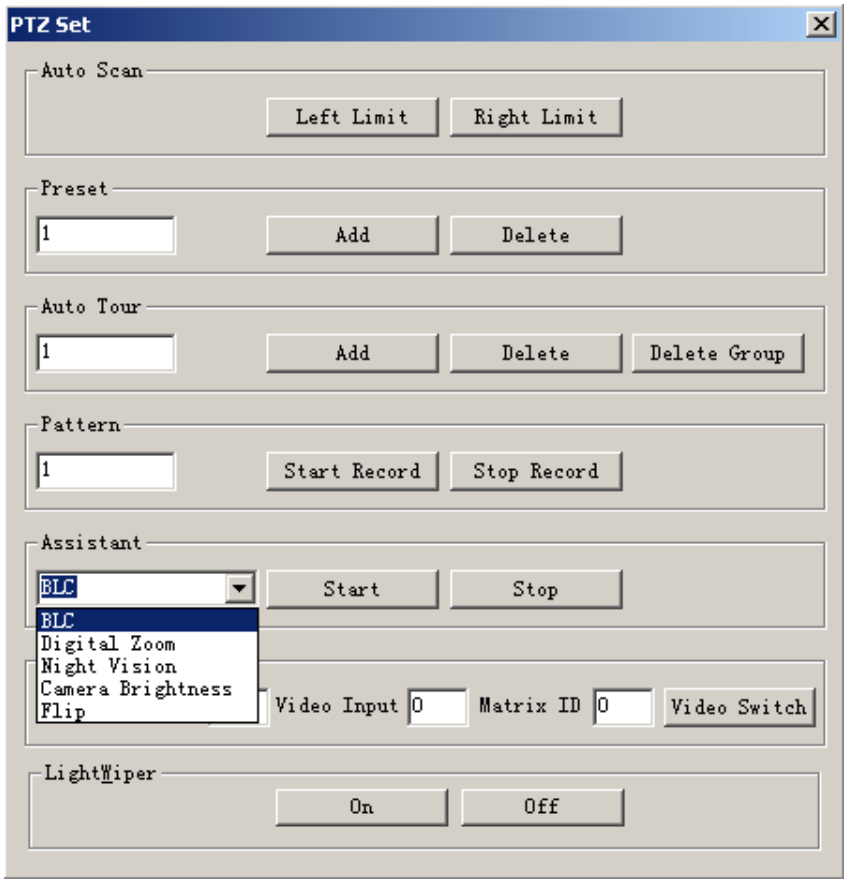


Figure 5-13

5.2.3 Color

Click color button in section 3, the interface is shown as in Figure 5-14.

Here you can select one channel and then adjust its brightness, contrast, hue and saturation. (Current channel border becomes green).

Or you can click default button to use system default setup.

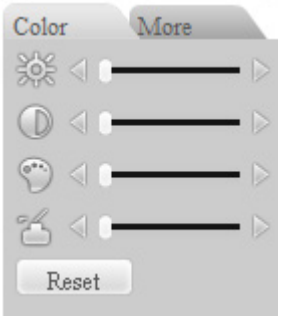


Figure 5-14

5.2.4 Picture Path and Record Path

Click more button in Figure 5-14, you can see an interface is shown as in Figure 5-15.

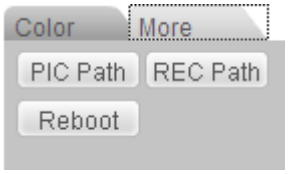


Figure 5-15

Click the record item; you can see there are two options: DAV/ASF.
Click picture path button, you can see an interface is shown as in Figure 5-16.
Please click choose button to modify path.

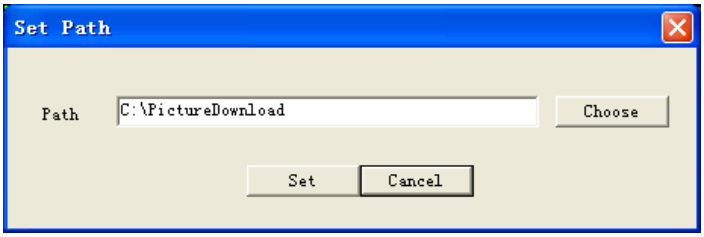


Figure 5-16

Click record path button, you can see an interface is shown as in Figure 5-17.
Please click choose button to modify path.

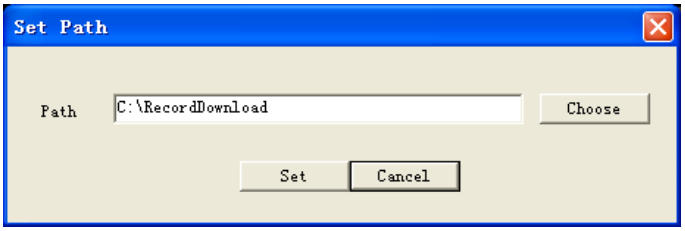


Figure 5-17

Click reboot button, system pops up the following dialogue box. See Figure 5-18.
Please click OK to reboot.

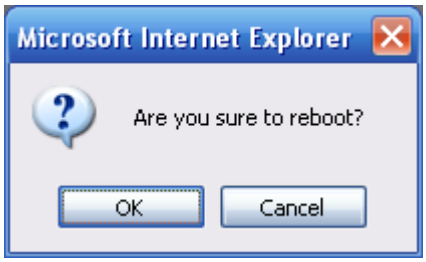


Figure 5-18

If there is local use logged in the system menu, or the Web logged in user has no right to reboot the device system pops up a dialogue box to alert you.

5.3 Configure

5.3.1 System Information

5.3.1.1 Version Information

Here you can view device hardware feature and software version information. See Figure 5-19.

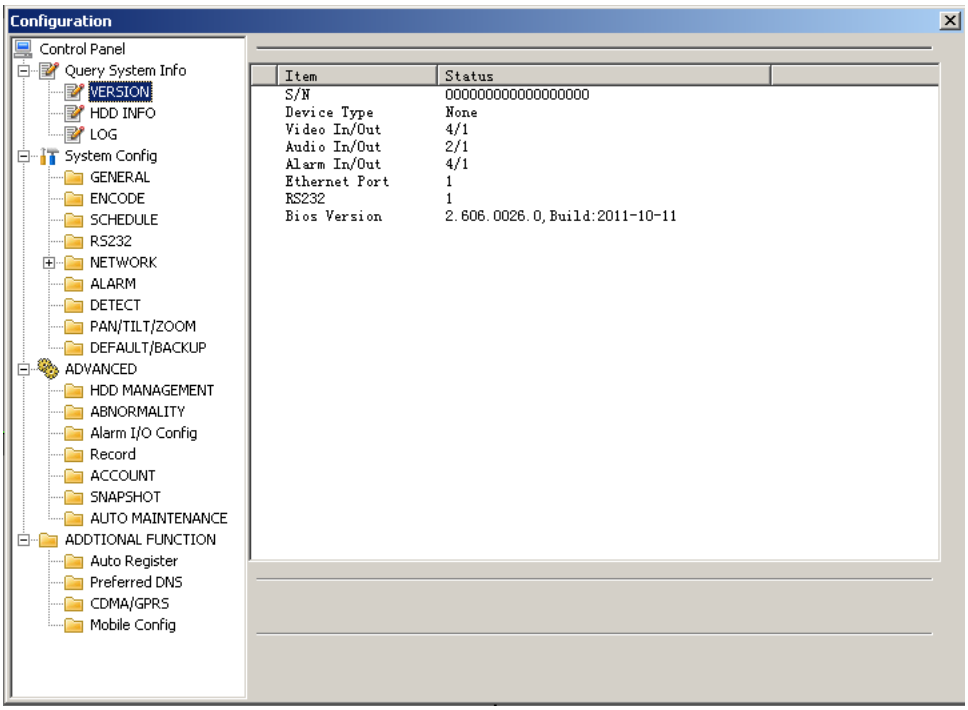


Figure 5-19

5.3.1.2 HDD information

Here you can view local storage status, free capacity and total capacity. See Figure 5-20.

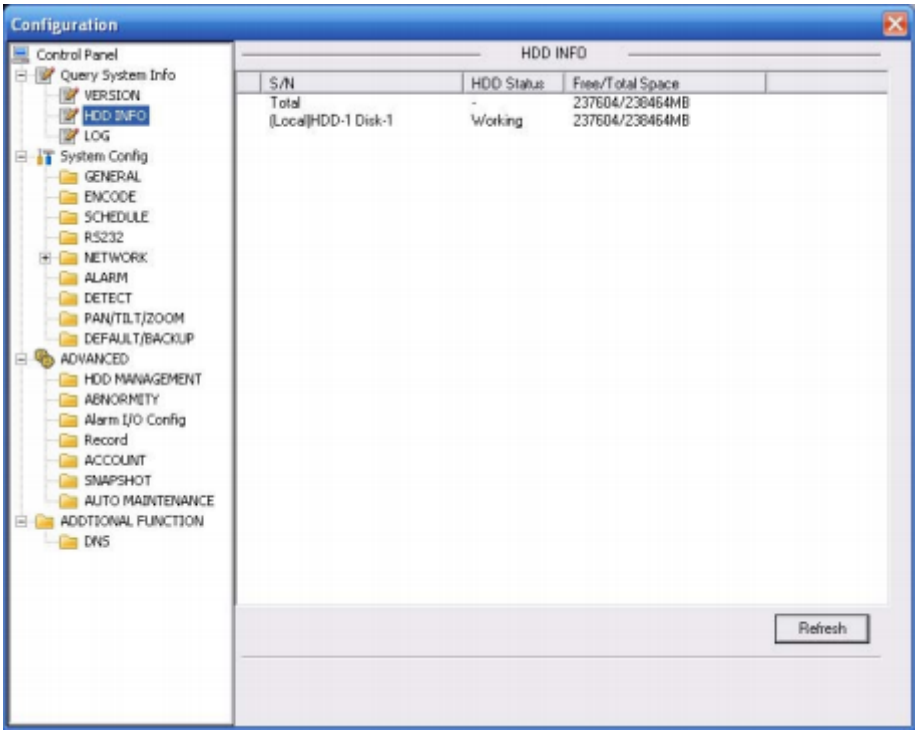


Figure 5-20

5.3.1.3 Log

Here you can view system log. See Figure 5-21.

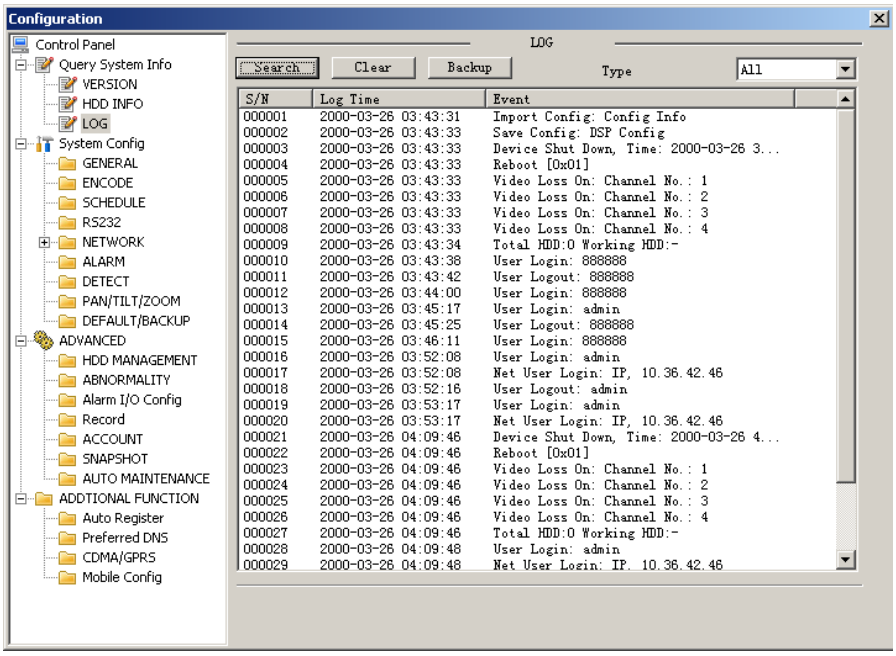


Figure 5-21

Click backup button, the interface is shown as in Figure 5-22.

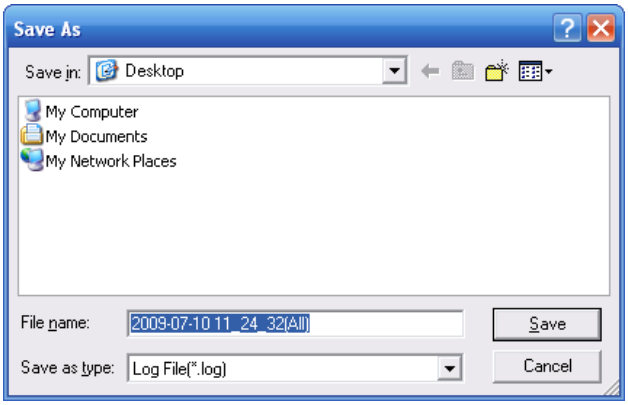


Figure 5-22

Please refer to the following sheet for log parameter information.

Parameter	Function
Type	Log types include: system operation, configuration operation, data management, alarm event, record operation, user management, log clear and file operation.
Search	You can select log type from the drop down list and then click search button to view the list.
Clear	You can click this button to delete all displayed log files. Please note system does not support clear by type.
Backup	You can click this button to backup log files to current PC.

5.3.2 System Configuration

Please click save button to save your current setup.

5.3.2.1 General Setup

Here you can set system time, record length, video format and etc. See Figure 5-23.

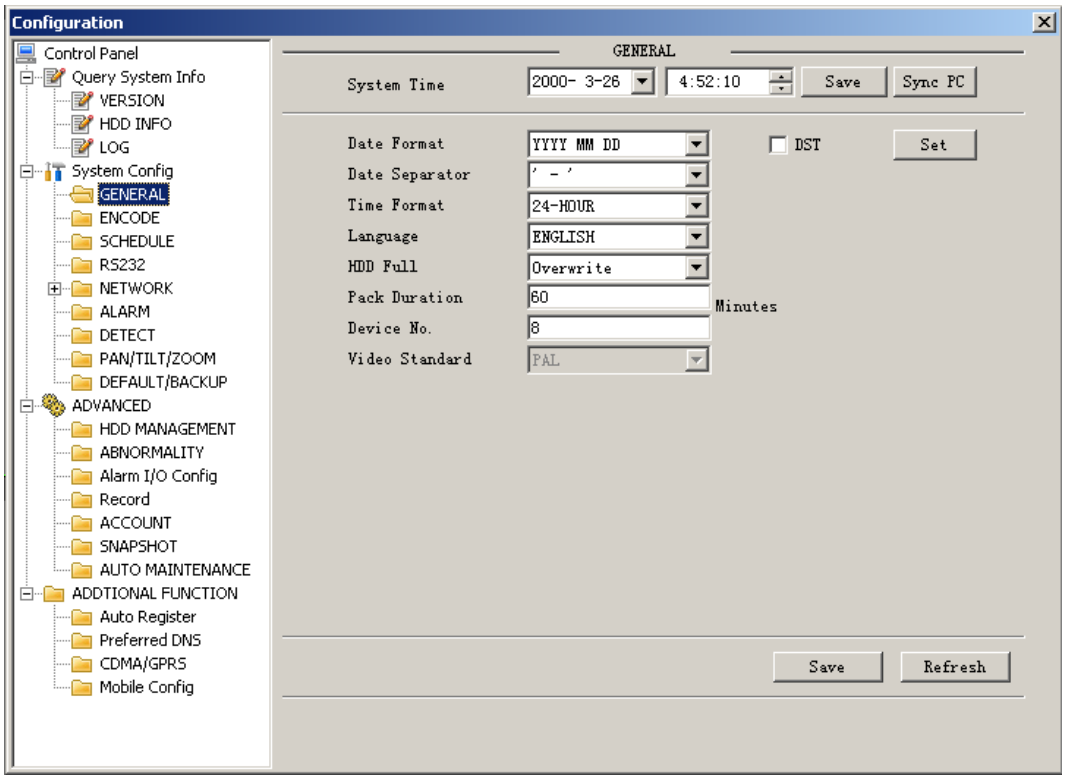


Figure 5-23

Please refer to the following sheet for detailed information.

Parameter	Function
DST	Here you can set day night save time begin time and end time.
Language	You can select the language from the dropdown list. Device needs to reboot to get the modification activated.
HDD Full	There are two options: stop recording or overwrite the previous files when HDD is full. When current working HDD is overwriting or it is full now, system stops record. If current working HDD is full now, system goes to overwrite the previous file.
Pack Duration	Here you can select file size. The value ranges from 1 to 120.Default setup is 60 minutes.
Device No	When you are using one remote control (not included in the accessory bag) to manage multiple devices, you can give a serial numbers to the device. Please current series product **does no**t support this function.
Video Standard	There are two options: PAL/NTSC. Please note, for the Web user, this information is for reference only. You can not modify.

5.3.2.2 Encode

Encode interface is shown as in Figure 5-24.

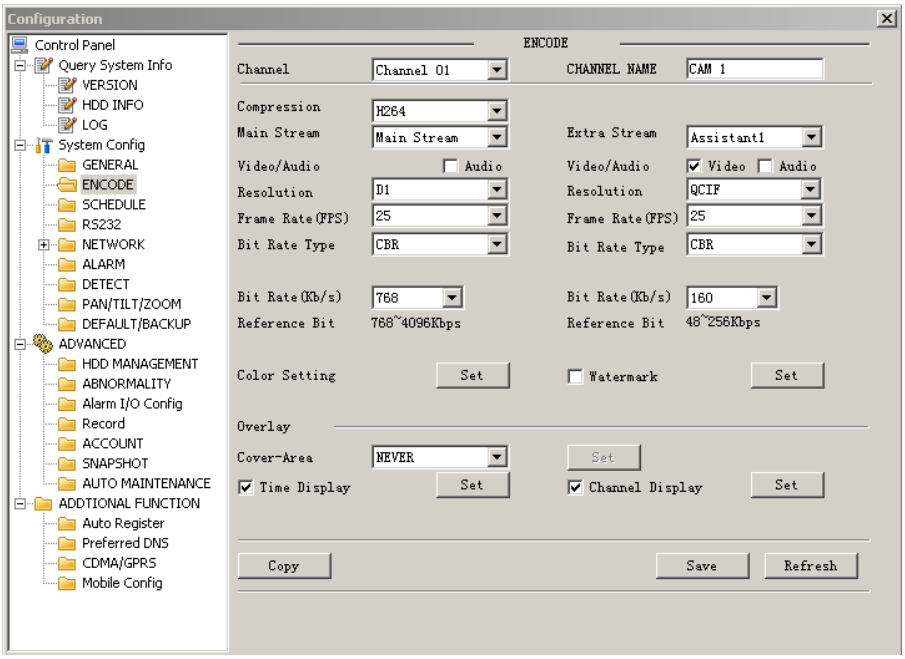


Figure 5-24

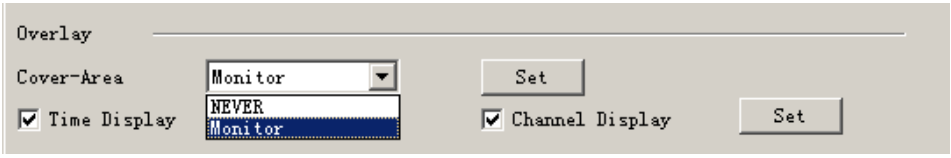


Figure 5-25

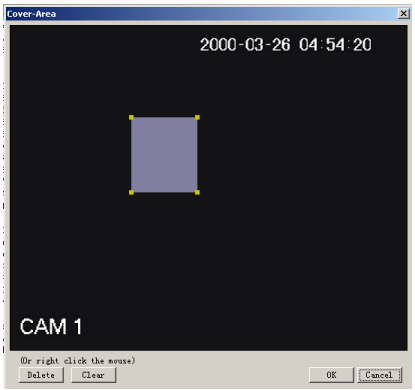


Figure 5-26

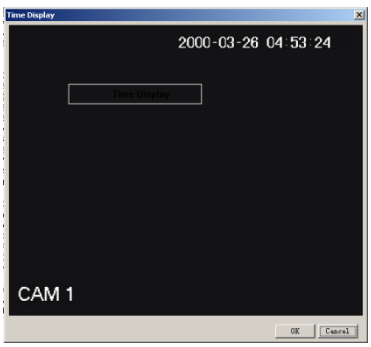


Figure 5-27

Please refer to the following sheet for detailed information.

Parameter	Function
Channel	Here is for you to select a monitor channel.
Channel Name	Here is to display current channel name. You can modify it.
Compression	H.264
Audio/Video	For the main stream, recorded file only contains video by default. You need to draw a circle here to enable audio function. For extra stream, you need to draw a circle to select the video first and then select the audio if necessary.
Resolution	For this model, main stream supports D1 (PAL: 25f/s. NTSC: 30f/s.)/HD1/2CIF/CIF/QCIF. The extra stream supports CIF/QCIF. Please note the resolution may vary due to different channels.
Frame Rate	PAL：1～25f/s；NTSC：1～30f/s
Bit Rate Type	There are two options: VBR and CBR. Please note, you can set video quality in VBR mode only.
Quality	The value ranges from 1 to 6. The level 6 is the best video quality.
Bit Rate	• In CBR, the bit rate here is the max value. In dynamic video, system needs to low frame rate or video quality to guarantee the value. • The value is null in VBR mode. • Please refer to recommend bit rate for the detailed information.
Recommended Bit	Recommended bit rate value according to the resolution and frame rate you have set.
Color Setting	Here you can set video brightness, contrast ness, hue, saturation and gain. The value ranges from 0 to 100.Default value is 50. Please note, some series devices do not support OSD transparent setup function.
Cover area (privacy mask)	• Here you can privacy mask the specified video in the monitor video. See Figure 5-26. • One channel max supports 4 privacy mask zones. • The privacy mask includes two options: Never/monitor. Never: It means do not enable privacy mask function. Monitor: the privacy mask zone can not be viewed in monitor mode. See Figure 5-25.
Time Title	• You can enable this function so that system overlays time information in video window. • OSD transparent value ranges from 0 to 255. 0 means complete transparent. • You can use the mouse to drag the time tile position. See Figure 5-27.
Channel Title	• You can enable this function so that system overlays channel information in video window. • OSD transparent value ranges from 0 to 255. 0 means complete transparent. • You can use the mouse to drag the channel tile position.

Parameter	Function
Copy	It is a shortcut menu button. You can copy current channel setup to one or more channels. The interface is shown as in Figure 5-28
Save	You can click save button after you complete setup for one channel, or you can complete the whole setups and then click save button.
Refresh	Click this button to get device latest configuration information.

Click copy interface, the interface is shown as in Figure 5-28.

If you have completed the setup for channel 1, you can click 3 to copy current setup to channel 3. Or you can click 2, 3, and 4 to copy current setup to channel 2, channel 3 and channel 4.

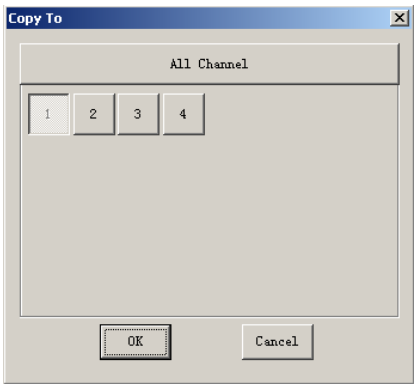


Figure 5-28

5.3.2.3 Schedule

Here you can set different periods for various days. There are max six periods in one day. See Figure 5-29.

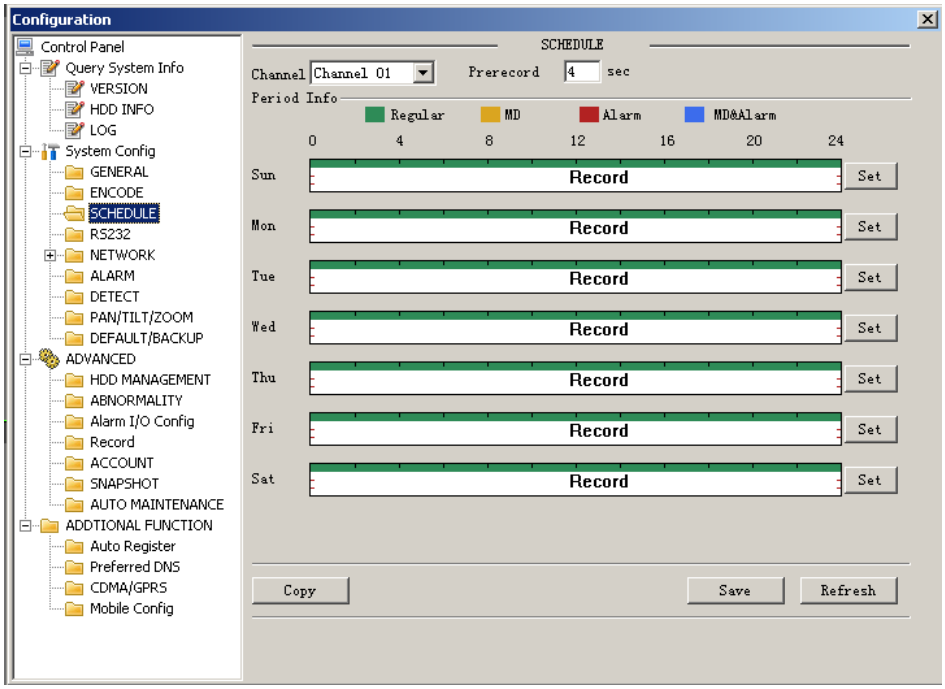


Figure 5-29

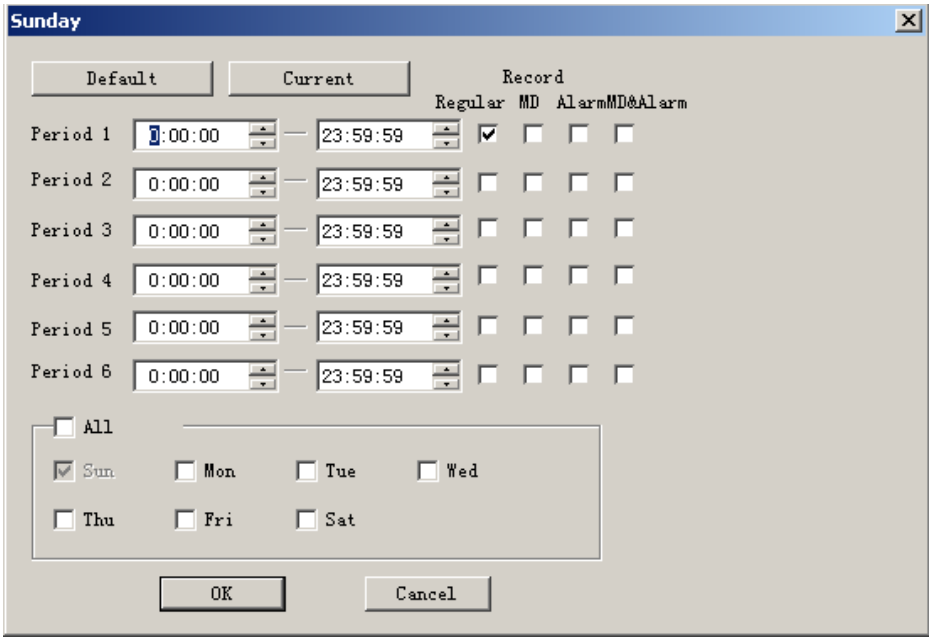


Figure 5-30

Please refer to the following sheet for detailed information.

Parameter	Function
Channel	Please select a channel first.
Pre-record	Please input pre-record value here. System can record the three to five seconds video before activating the record operation into the file. (Depends on data size).
Setup	• In Figure 5-29, click set button, you can go to the corresponding setup interface. See Figure 5-30. • Please set schedule period and then select corresponding record or snapshot type: schedule/snapshot, motion detection/snapshot, and alarm/snapshot. • Please select date (Current setup applies to current day by default. You can draw a circle before the week to apply the setup to the whole week.) • After complete setup, please go back to Figure 5-29 and then click save to save current time period setup.
Copy	It is a shortcut menu button. You can copy current channel setup to one or more (all) channels. The interface is shown as in Figure 5-28.
Save	You can click save button after you complete setup for one channel, or you can complete the whole setups and then click save button.
Refresh	Click this button to get device latest configuration information.

5.3.2.4 Network

Network interface is shown as in Figure 5-31.

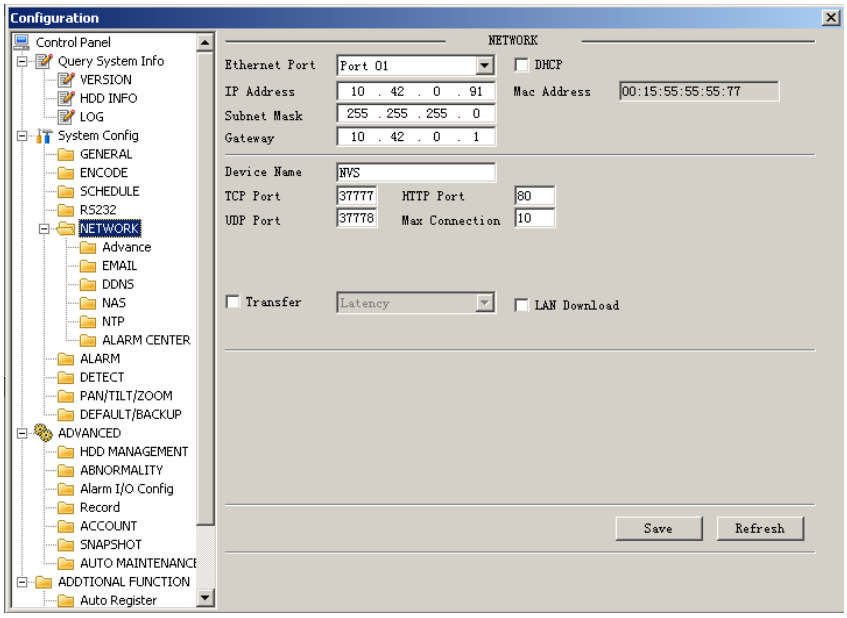


Figure 5-31

Please refer to the following sheet for detailed information.

Parameter	Function
Ethernet	Please select the network card first.
DHCP	Dynamically get IP address. You can get the device IP from the DHCP server if you enabled this function.
TCP Port	Default value is 37777. You can modify if necessary.
HTTP Port	Default value is 80.

Email

The email interface is shown as in Figure 5-32.

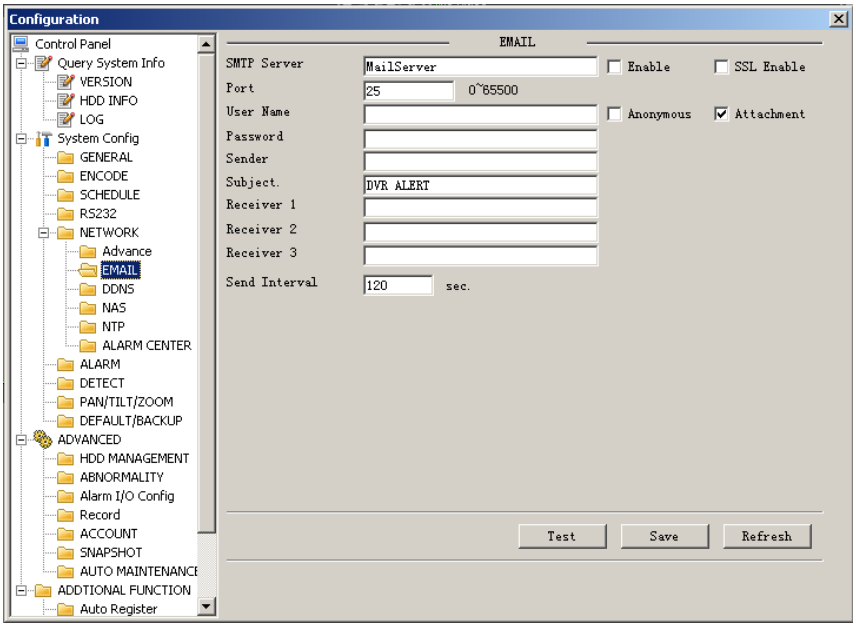


Figure 5-32

Please refer to the following sheet for detailed information.

Parameter	Function
SMTP Server	Input server address and then enable this function.
Port	Default value is 25. You can modify it if necessary.
User Name	The sender email account user name.
Password	The sender email account password.
Sender	Sender email address.
Subject	Input email subject here.
Address	Input receiver email address here. Max input three addresses.

DDNS

The DDNS interface is shown as in Figure 5-33.

Please make sure your NVS support this function.

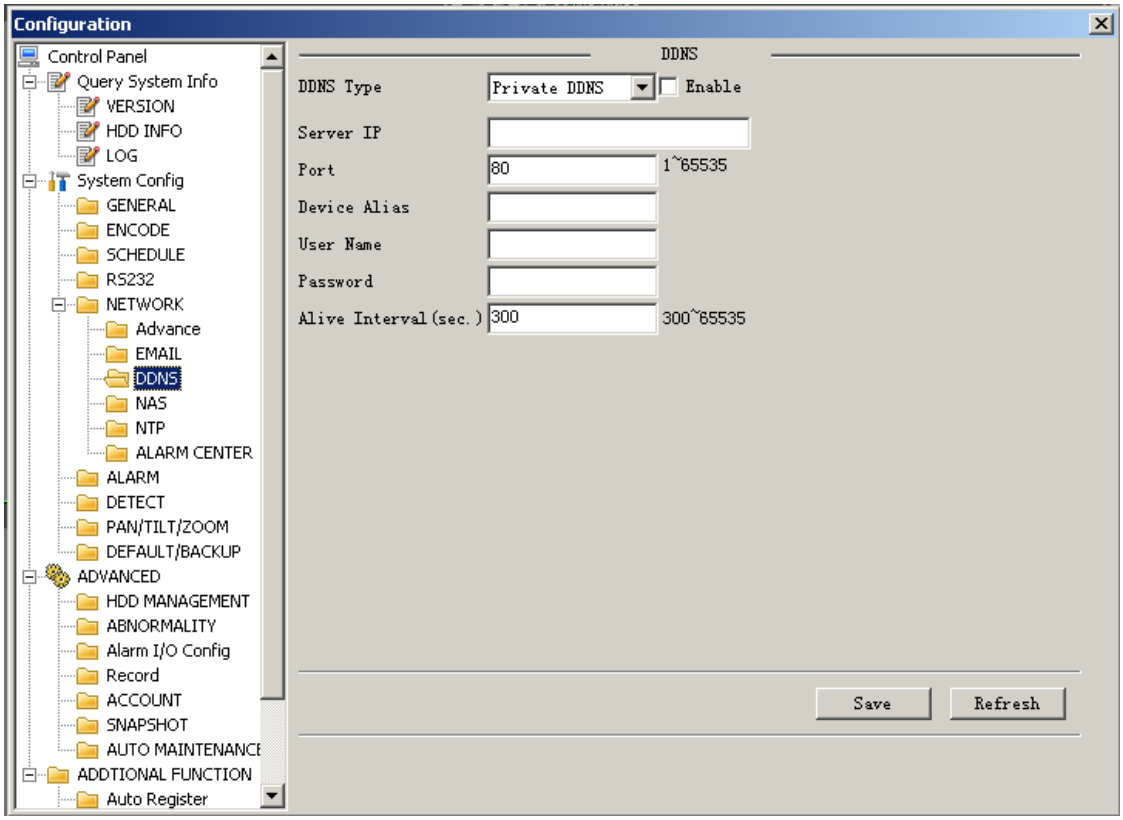


Figure 5-33

Please refer to the following sheet for detailed information.

Parameter	Function
Server Type	You can select DDNS protocol from the dropdown list and then enable DDNS function. The private DDNS protocol means you use your self-defined private protocol to realize DDNS function.
Server IP	DDNS server IP address
Server Port	DDNS server port.
Domain Name	Your self-defined domain name.
User	The user name you input to log in the server.

Parameter	Function
Password	The password you input to log in the server.
Interval	• Device sends out alive signal to the server regularly. • You can set interval value between the device and DDNS server here.

NAS

NAS interface is shown as in Figure 5-34.

Please make sure your NVS support this function.

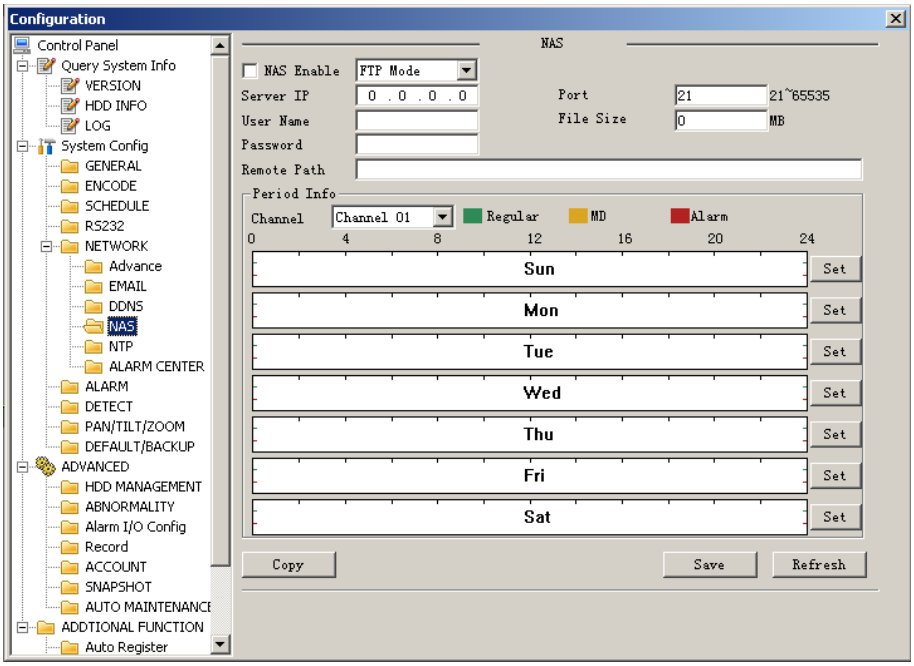


Figure 5-34

Please refer to the following sheet for detailed information.

Parameter	Function
NAS enable	Please select network storage protocol and then enable NAS function.
Server IP	Input remote storage server IP address.
Port	Input Remote storage server port number.
User Name	Log in user account.
File length	The file length you upload to the FTP. When setup is larger than the actual file length, system will upload the whole file. When setup here is smaller than the actual file length, system only uploads the set length and auto ignore the left section. When interval value is 0, system uploads all corresponding files.
Password	The password you need to log in the server.
Remote Path	Remote storage file path.
Save	You can click save button after you complete setup for one channel, or you can complete the whole setups and then click save button.

Parameter	Function
Refresh	Click this button to get device latest configuration information.

NTP

The NTP interface is shown as in Figure 5-35.

Here you can realize network time synchronization. Please enable current function and then input server IP, port number, time zone and update interval. Please note the SNTP supports TCP transmission only and its port shall be 123.The update interval ranges from 1 to 65535. Default value is 10 minutes.

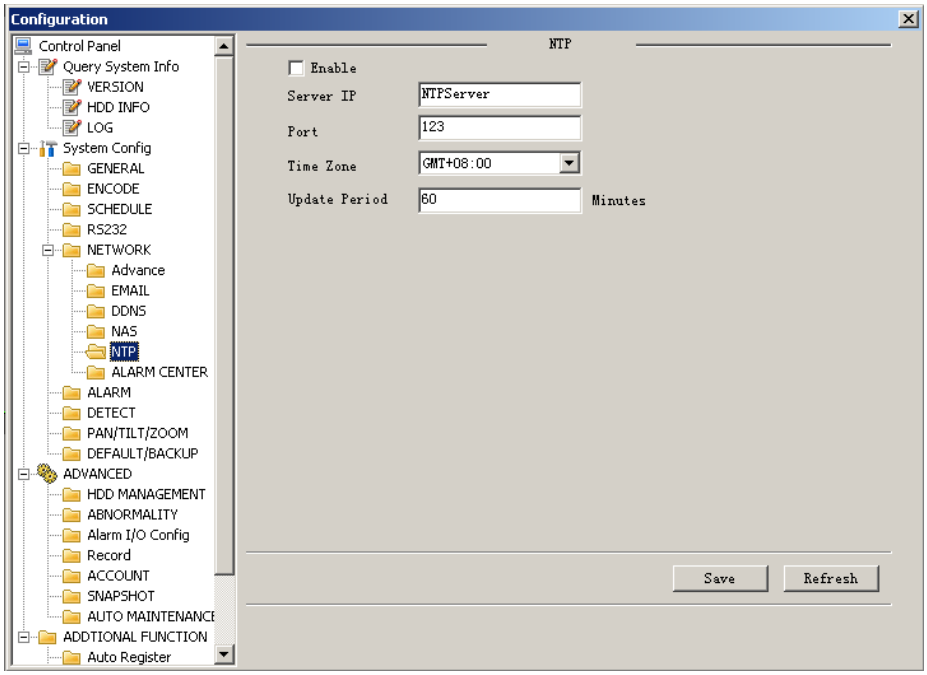


Figure 5-35

You can refer to the following sheet for time zone information.

City /Region Name	Time Zone
London	GMT+0
Berlin	GMT+1
Cairo	GMT+2
Moscow	GMT+3
New Deli	GMT+5
Bangkok	GMT+7
Beijing (Hong Kong)	GMT+8
Tokyo	GMT+9
Sydney	GMT+10
Hawaii	GMT-10
Alaska	GMT-9
Pacific Time(P.T)	GMT-8
American Mountain Time(M.T)	GMT-7
American Central Time(C.T)	GMT-6
American Eastern Time(E.T)	GMT-5
Atlantic Time	GMT-4
Brazil	GMT-3
Middle Atlantic Time	GMT-2

Alarm Centre

Alarm centre interface is shown as below. See Figure 5-36.

This interface is for you to develop. The alarm signal can be uploaded to the alarm centre when there is local alarm.

Please set the corresponding parameters such as server IP, port and etc.

The system can send out the data as the protocol defined to the client-end.

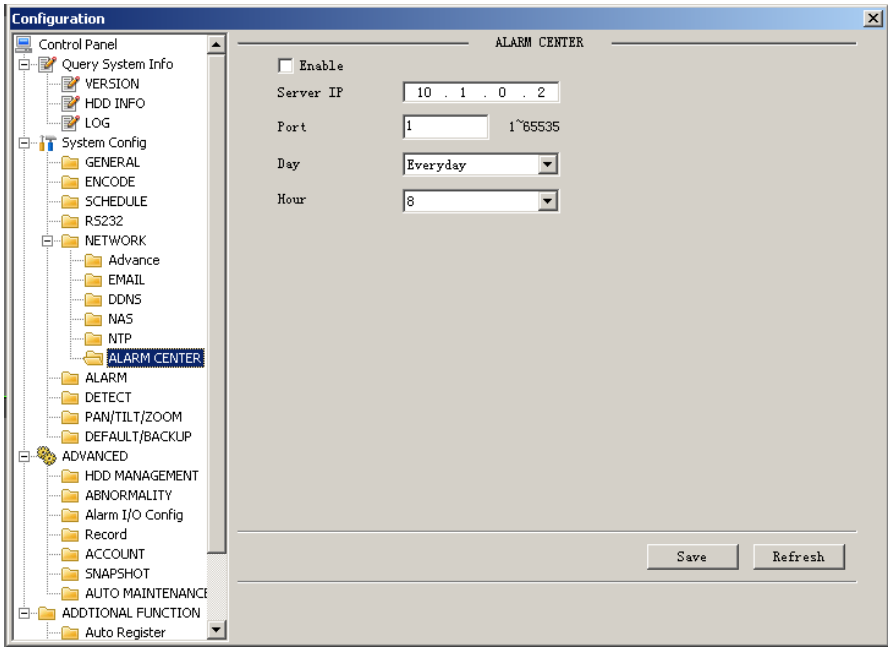


Figure 5-36

Advanced

The advanced interface is shown as in Figure 5-37.

- Multiple cast

Please refer to chapter 4.4.1.2 for detailed multiple cast setup information.

- PPPoE

Please input the PPPoE user name and password you get from the IPS (internet service provider) and enable PPPoE function. Please save current setup and then reboot the device to get the setup activated.

Device connects to the internet via PPPoE after reboot. You can get the IP address in the WAN from the IP address column.

Note:

After PPPoE successful dial, you need to go to the device local end to get device current IP address and then use the client-end to access this IP address.

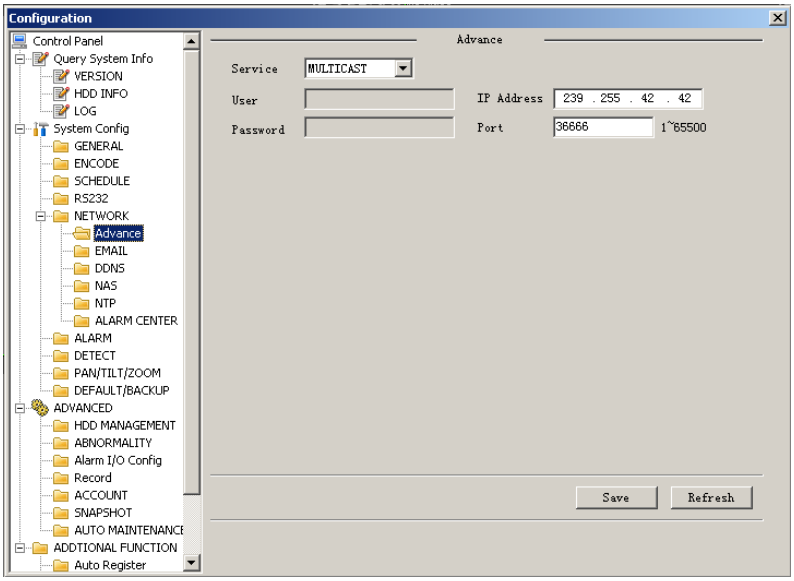


Figure 5-37

5.3.2.5 Detect

Analysis the video, system enable motion detection alarm when it detects the motion signal reached the specified sensitivity.

The detection interface is shown as in Figure 5-38.

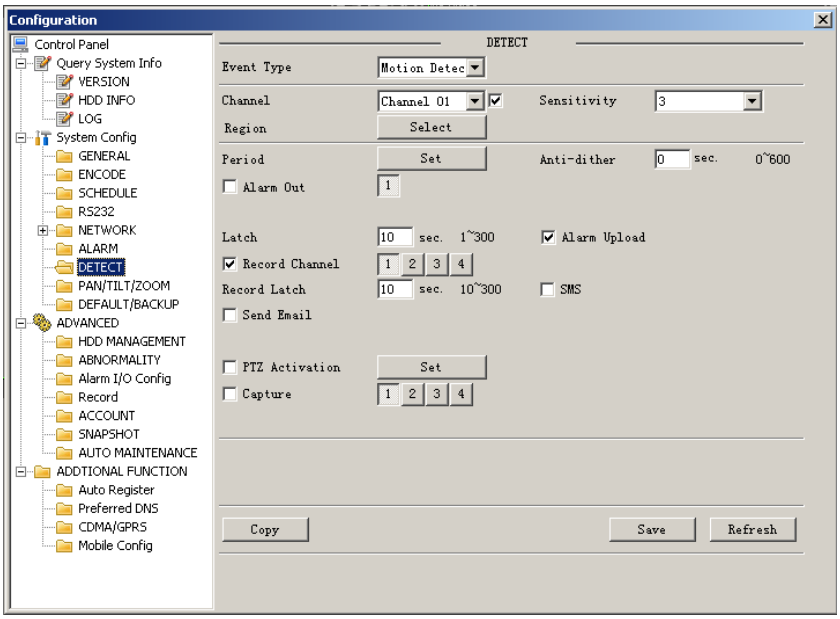


Figure 5-38

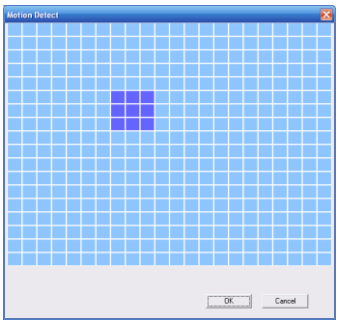


Figure 5-39

Please refer to the following sheet for detailed information.

Parameter	Function
Event Type	There are three types: Motion detection/video loss/Camera Masking.
Channel	Select channel name from the dropdown list.
Enable	You need to draw a circle to enable motion detection function.
Sensitivity	There are six levels. The sixth level has the highest sensitivity.
Region	• Region: If you select motion detection type, you can click this button to set motion detection zone. The interface is shown as Figure 5-39. There are PAL 22X18/NTSC 22X15 zones. Right click mouse you can go to full-screen display mode. Do remember clicking OK button to save your motion detection zone setup.
Period	• Motion detection function becomes activated in the specified periods. • There are six periods in one day. Please draw a circle to enable corresponding period. • Select date. If you do not select, current setup applies to today only. You can select all week column to apply to the whole week. • Click OK button, system goes back to motion detection interface; please click save button to exit.
Anti-dither	System only memorizes one event during the anti-dither period. The value ranges from 0s to 15s.
Alarm latch	System can delay the alarm output for specified time after alarm end The default value is 10s
Alarm upload	System can upload the alarm signal to the centre (Including alarm centre.
Record channel	System auto activates motion detection channel (multiple choices) to record once alarm occurs (working with motion detection function). Please note you need to set motion detection record period and set current period as auto record.
Record latch	System can delay the record for specified time after alarm ended. The value ranges from 10s to 300s.
Email	If you enabled this function, System can send out email to alert you when alarm occurs and ends.
Tour	• Display the selected video in local monitor window. • Tour interval and tour mode are set in NVS local menu.
PTZ Activation	• Here you can set PTZ movement when alarm occurs. Such as go to preset x when there is an alarm.
Capture	You need to input capture channel number so that system can backup motion detection snapshot file.
Copy	It is a shortcut menu button. You can copy current channel setup to one or more (all) channels.
Save	You can click save button after you complete setup for one channel, or you can complete the whole setups and then click save button.
Refresh	Click this button to get device latest configuration information.

5.3.2.6 PTZ

PTZ interface is shown as in Figure 5-40.

Please note, before operation please make sure you have set speed dome address. And NVS and speed dome connection is OK.

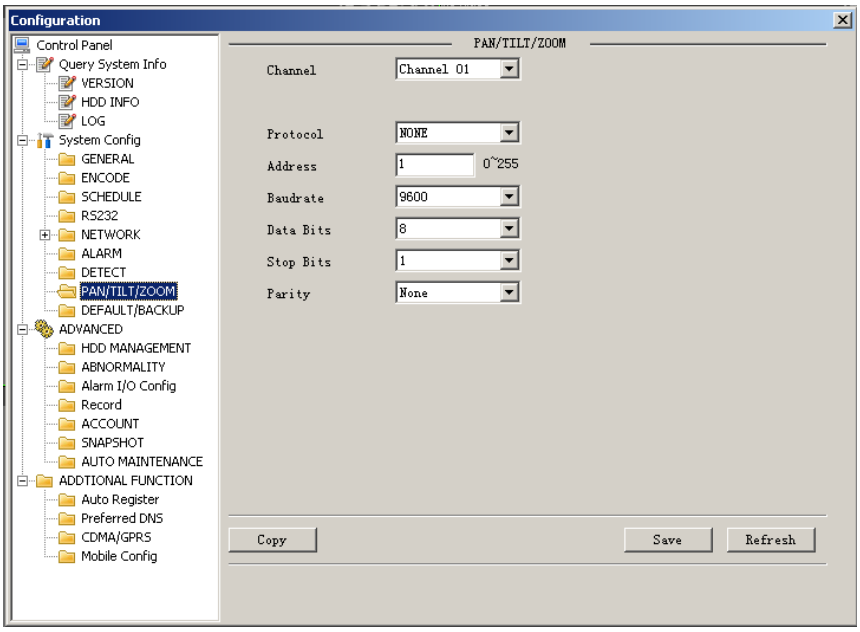


Figure 5-40

Please refer to the following sheet for detailed information.

Parameter	Function
Channel	You can select monitor channel from the dropdown list. .
Protocol	Select the corresponding dome protocol.(such as PELCOD)
Address	Set corresponding dome address. Default value is 1. Please note your setup here shall comply with your dome address; otherwise you can not control the speed dome.
Baud Rate	Select the dome baud rate. Default setup is 9600.
Data Bit	Default setup is 8. Please set according to the speed dome dial switch setup.
Stop bit	Default setup is 1. Please set according to the speed dome dial switch setup.
Parity	Default setup is none. Please set according to the speed dome dial switch setup.
Save	You can click save button after you complete setup for one channel, or you can complete the whole setups and then click save button.
Refresh	Click this button to get device latest configuration information.

5.3.2.7 Default & Backup

Default: Restore factory default setup. You can select corresponding items.

Backup: Export current configuration to local PC or import configuration from current PC.

Please refer to Figure 5-41.

Please note system **can not** restore some information such as network IP address.

Figure 5-41

Please refer to the following sheet for detailed information.

Parameter	Function
Select All	Restore factory default setup.
Export Configuration	Export system configuration to local PC.
Import Configuration	Import configuration from PC to the system.

5.3.3 Advanced

5.3.3.1 HDD Management

HDD management includes net storage management and local storage management.

Please note, if you want to use local storage function, your storage device need to support current function.

Please select the storage device first and then you can see the items on your right become valid. You can check the corresponding item here. See Figure 5-42

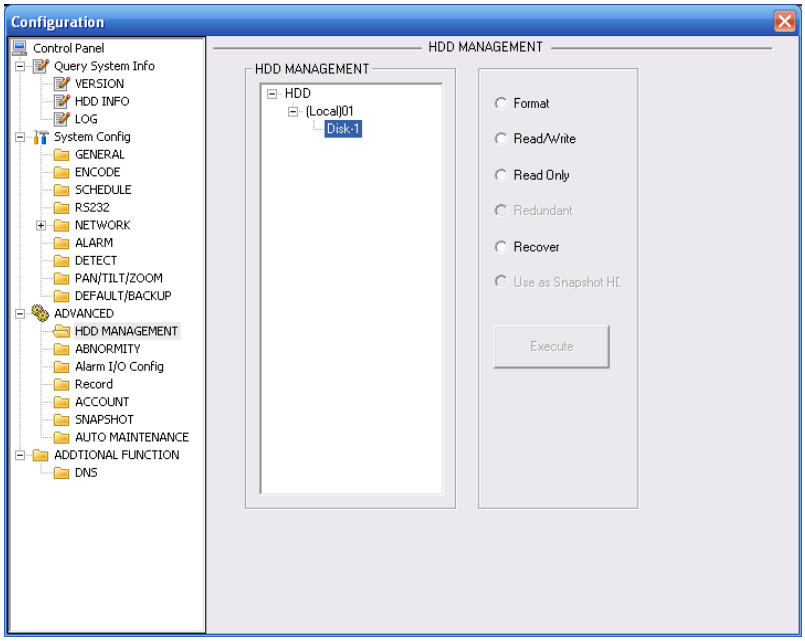


Figure 5-42

Please refer to the following sheet for detailed information.

Parameter	Function
Format	Clear data in the disk.
Read/write	Set current SD card as read/write
Read only	Set current card as read.
Recover	Recover dada after error occurs.

Please note system needs to reboot to activate current setup.

5.3.3.2 Record

Record control interface is shown as in Figure 5-43.

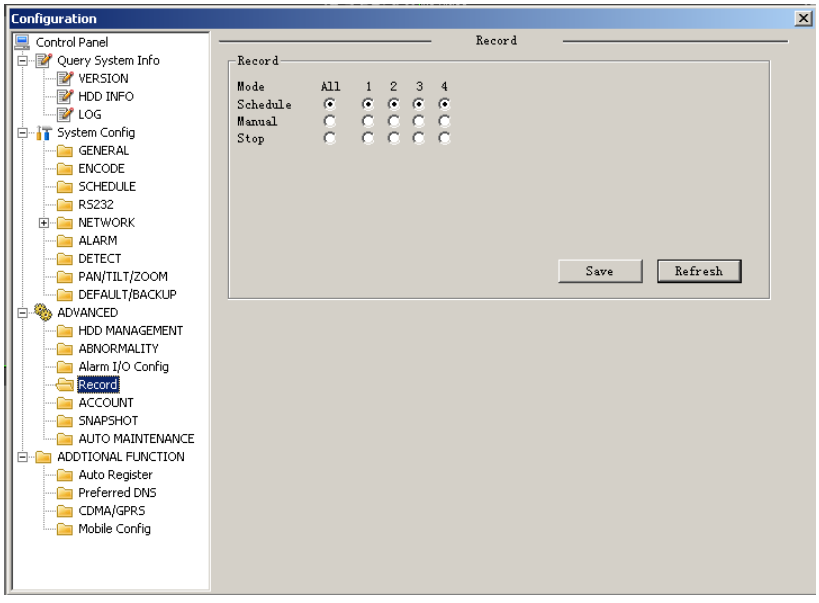


Figure 5-43

Please refer to the following sheet for detailed information.

Parameter	Function
Auto	System enables auto record function as you set in record schedule setup.
Manual	Enable corresponding channel to record no matter what period applied in the record setup.
Stop	Stop current channel record no matter what period applied in the record setup.

5.3.3.3 Account

Here you can add, remove user or modify password. See Figure 5-44.

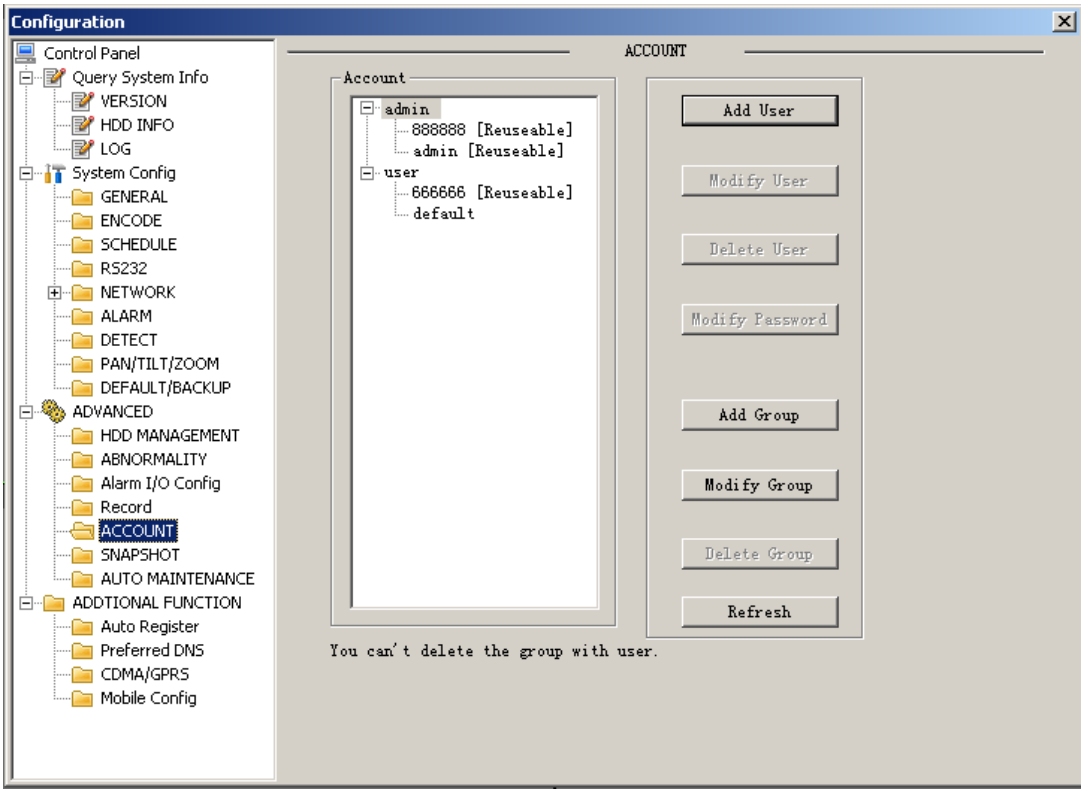


Figure 5-44

5.3.3.3.1 Modify Password

Click password button, the interface is shown as in Figure 5-45.

Here you can modify account password.

Please select the account from the dropdown list, input the old password and then input the new password twice. Click the Save button to confirm current modification.

For the users of user account right, it can modify password of other users.

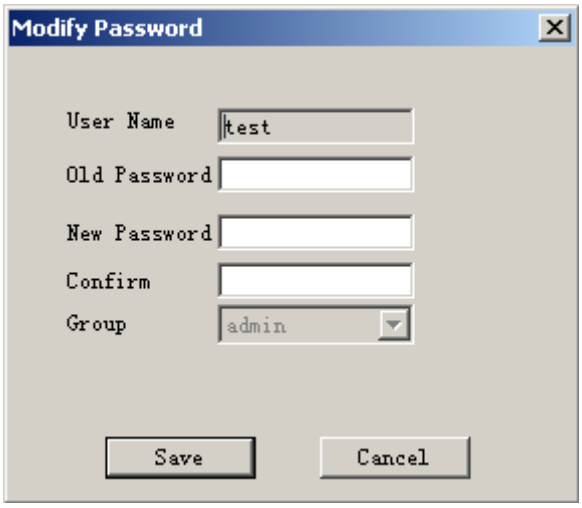


Figure 5-45

5.3.3.3.2 Add/Modify Group

Click add group button, the interface is shown as below. See Figure 5-46.

Here you can input group name and then input some memo information if necessary.

There are total 60 rights such as control panel, shut down, real-time monitor, playback, record, record file backup, PTZ, user account, system information view, alarm input/output setup, system setup, log view, clear log, upgrade system, control device and etc.

The modify group interface is similar to the Figure 5-46.

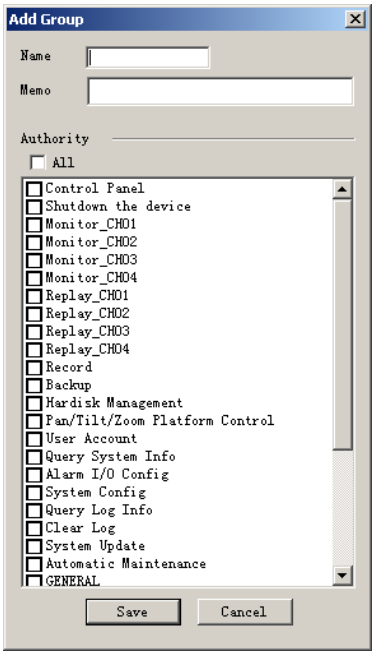


Figure 5-46

5.3.3.3.3 Add/Modify User

Click add user button, the interface is shown as in Figure 5-47.

Please input the user name, password, select the group it belongs to from the dropdown list.

Then you can check the corresponding rights for current user.

For convenient user management, usually we recommend the general user right is lower than the admin account.

The modify user interface is similar to Figure 5-47.

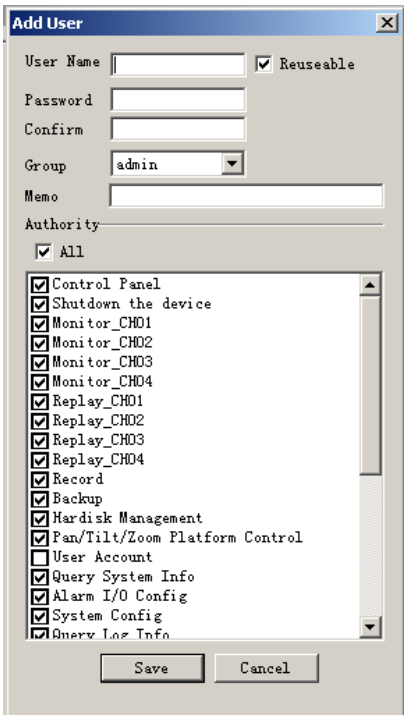


Figure 5-47

5.3.3.4 Auto Maintenance

Here you can select auto reboot and auto delete old files interval from the dropdown list. See Figure 5-48.

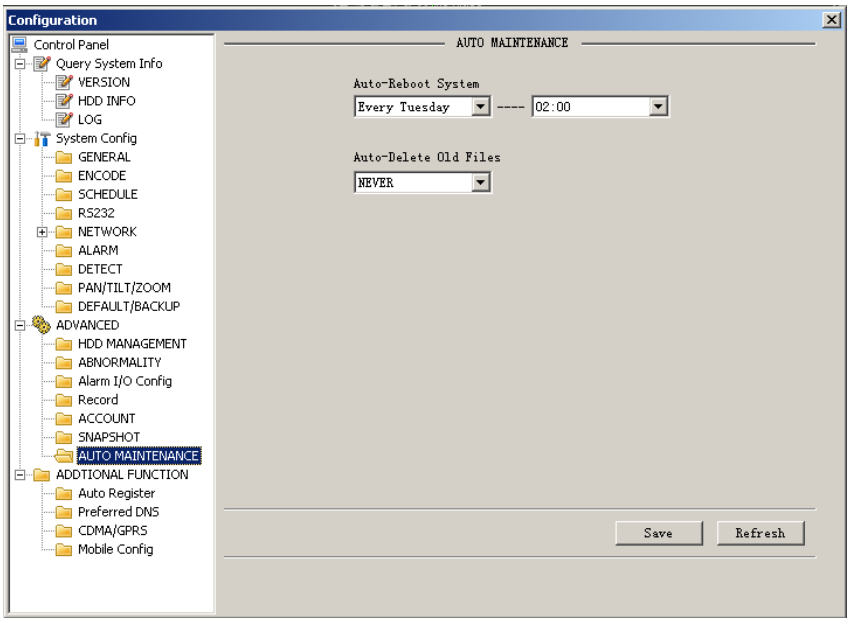


Figure 5-48

5.3.3.5 Snapshot

Snapshot interface is shown as in Figure 5-49.

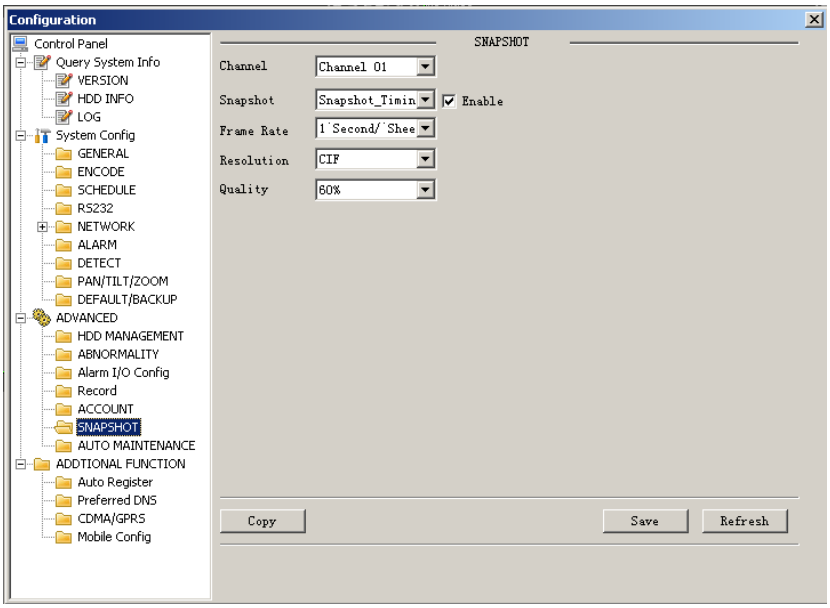


Figure 5-49

Please refer to the following sheet for detailed information.

Parameter	Function
Channel	It is the monitor channel.
Snapshot mode	There are two modes: Timing and activation.
Frame rate	You can select from the dropdown list. The value ranges from 1f/s to 7f/s.
Resolution	You can select from the dropdown list. There are two options: CIF/QCIF.
Quality	You can select from the dropdown list. Here is for you to set video quality. There are six options: 10％, 30％, 50％, 60％, 80％、100％. 100% is the best quality.

5.3.3.6 Abnormity

The abnormity interface is shown as below. See Figure 5-50.

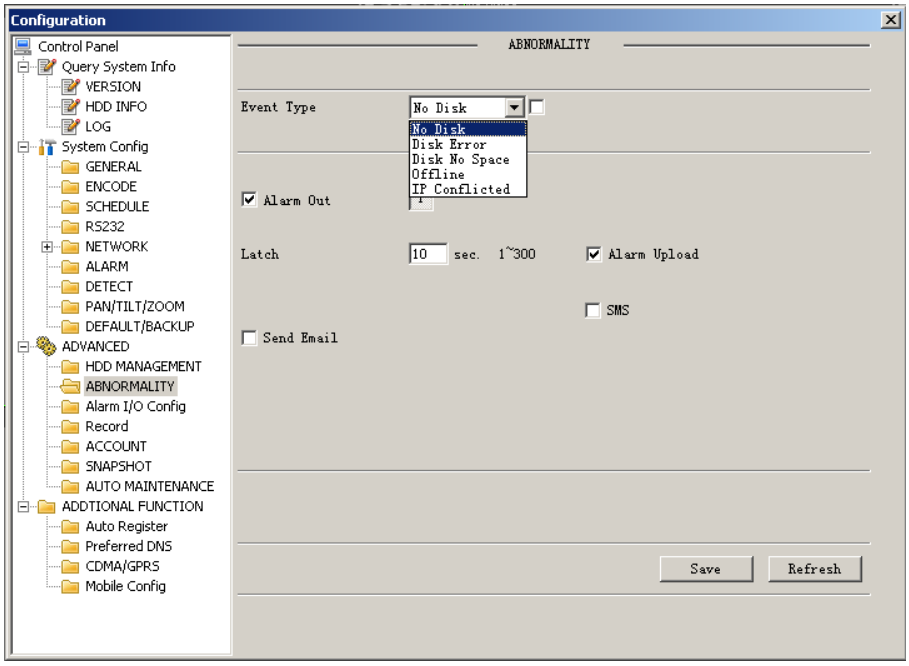


Figure 5-50

Please refer to the following sheet for detailed information.

Parameter	Function
Event Type	• The abnormal events include: no disk, no space, disk error, net error. • You need to draw a circle to enable this function.
Latch	The alarm output can delay for the specified time after alarm stops. Then system disables alarm and corresponding activation output. The default value is 10s.
Send email	If you enable this function, system can send out email to alarm the specified user.
Alarm upload	System can upload the alarm signal to the network (includes the alarm centre.)
Show message	System can display alarm information in local NVS screen.

5.3.4 Additional Function

5.3.4.1 Auto Register

Auto register interface is shown as below. See Figure 5-51.

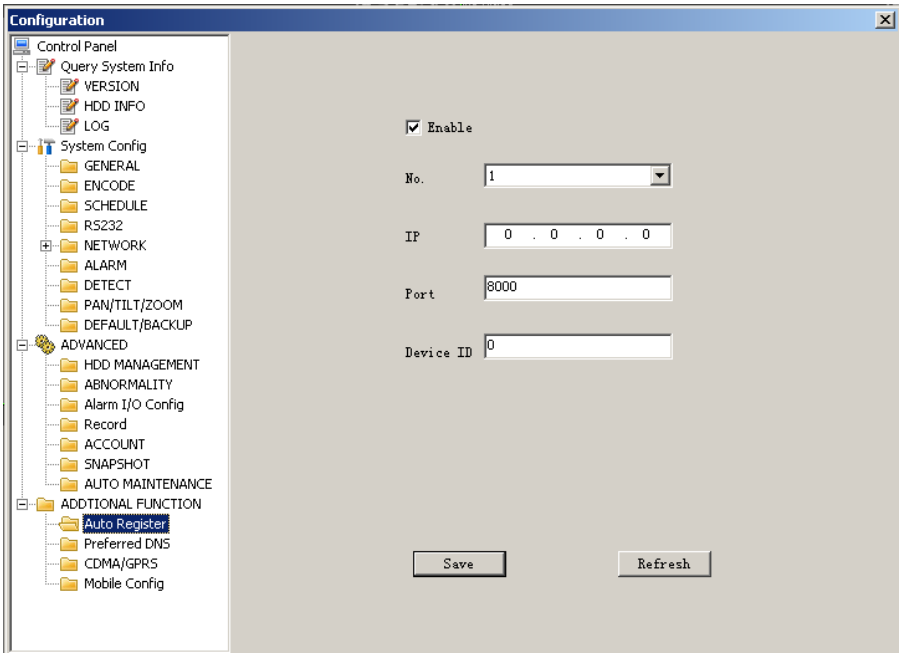


Figure 5-51 Auto Register

Please refer to the following sheet for detailed information.

Parameter	Function
Enable	Enable auto register function.
No.	Device management server number.
IP	Device management server IP address.
Port	Server port number.
Device ID	Device ID in the device management server.

5.3.4.2 Preferred DNS

Here you can set server or local operator DNS address. See Figure 5-52.

This function is useful when you input domain name in some item. Otherwise system can not parse the domain name.

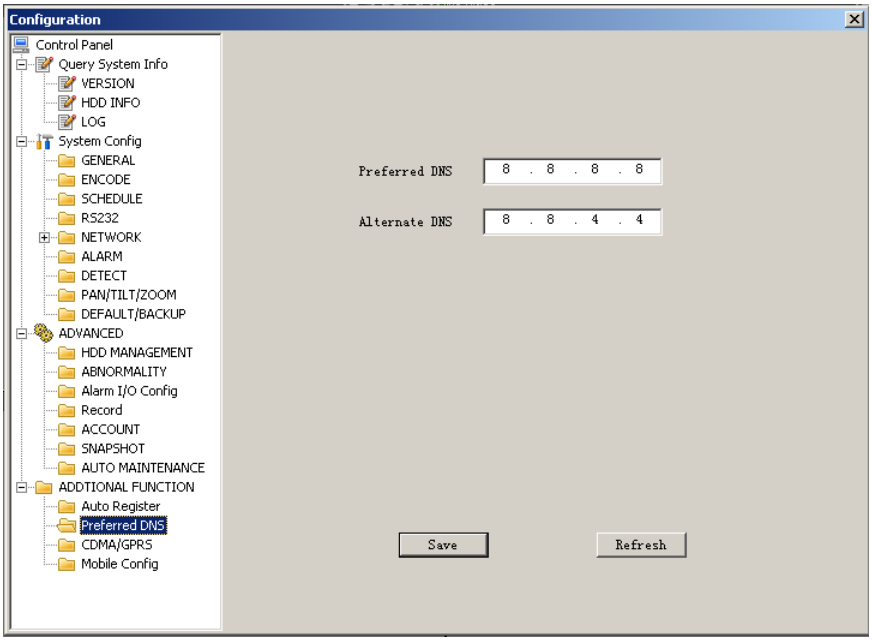


Figure 5-52

5.3.4.3 CDMA/GPRS

The CDMA/GPRS interface is shown as below. See Figure 5-53.

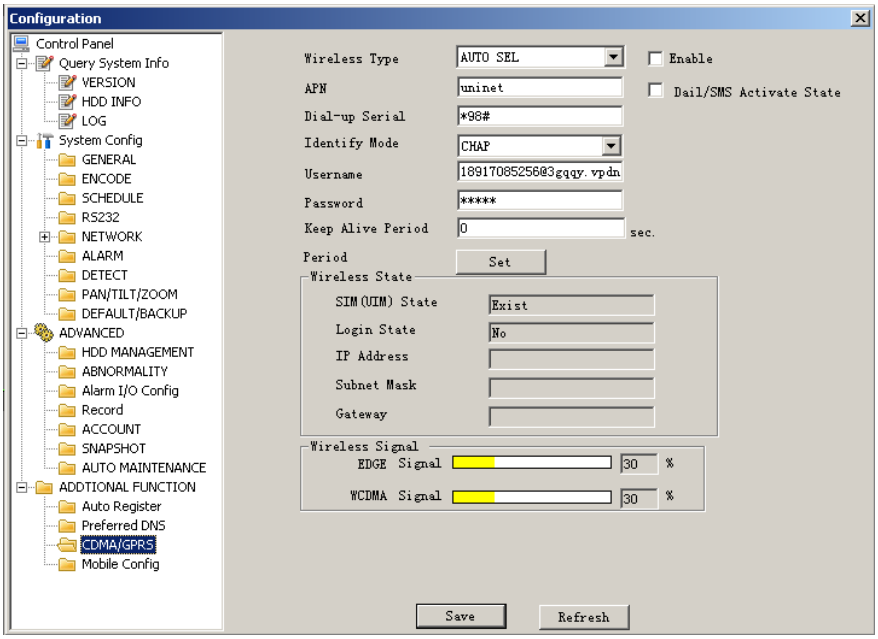


Figure 5-53 CDMA/GPRS

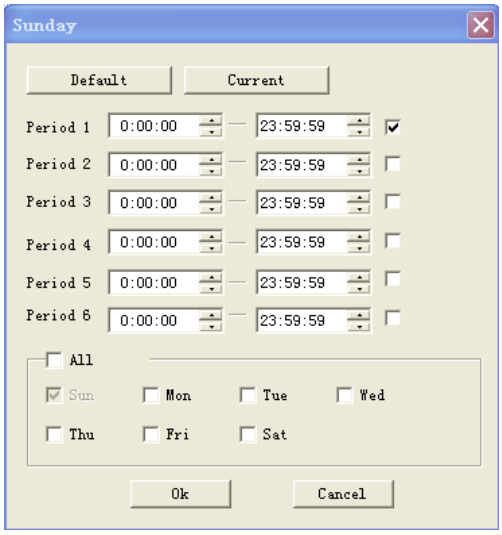


Figure 5-54 Schedule Setup

Please refer to the following sheet for detail information.

Parameter		Function
Wireless type		You can select from the dropdown list.
Enable		Please check the box to enable the selected function.
APN		Please input the connection name here.
Dial/SMS activate state		There are two types for the device to connect to the 3G. It includes the dial-up and sms.
Dial-up number		Please input 3G network dialup number here.
Username		The user name for you to login the 3G network.
Password		The password for you to login the 3G network.
Keep alive time		You can set dialup duration. Default value is 30s.
Period		Click set button, the interface is shown as in Figure 5-54. You can set the period to connect to the 3G network. System only enables wireless network dialup function during the specified period. There are max six periods in one day.
Wireless network status	Login status	You can see device has registered to the 3G network or not.
	IP address	After the Radius server verification, you can see the device IP address the DHCP server allocated to.
	Subnet mask	After the Radius server verification, you can see the device subnet mask the DHCP server allocated to.
	Gateway	After the Radius server verification, you can see the device gateway the DHCP server allocated to.

Wireless signal	CDMA_1X signal	You can view current 3G network signal. • After the device connected to the EVDO module,you can view CDMA_1x network signal. • After the device connected to the W-CDMA or TD module,you can view the EDGE network signal.
	EVDO signal	You can view current 3G network signal. • After the device connected to the EVDO module,you can view EVDO signal. • After the device connected to the W-CDMA module,you can view W_CDMA network signal here. • After the device connected to TD module,you can view TD-SCDMA network signal here.
Save		Click this button to save current setup.
Refresh		Click this button to get device latest configuration.

5.3.4.4 Mobile Configuration

Mobile configuration interface is shown as in Figure 5-55.

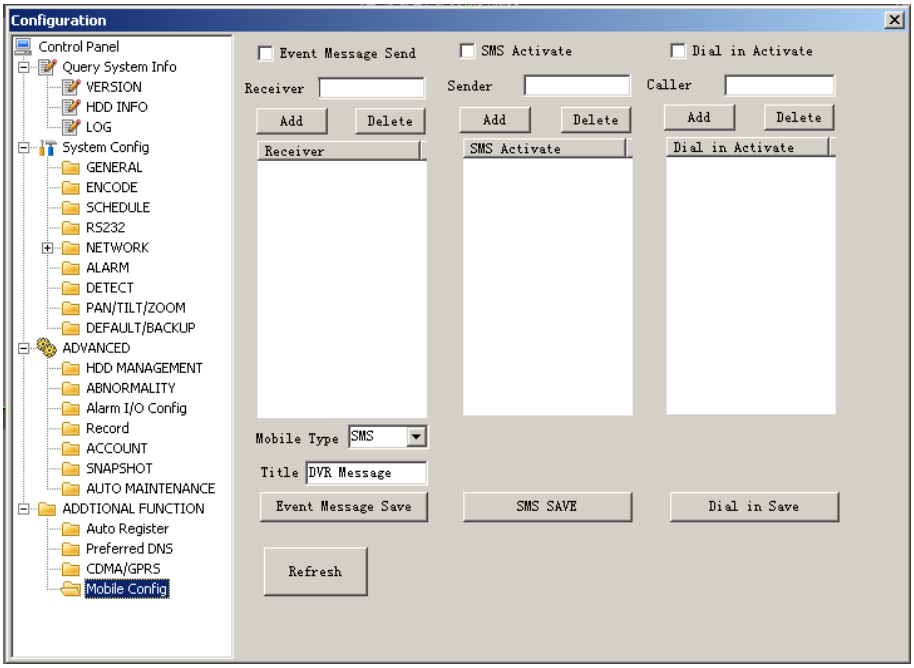


Figure 5-55 Mobile Configuration

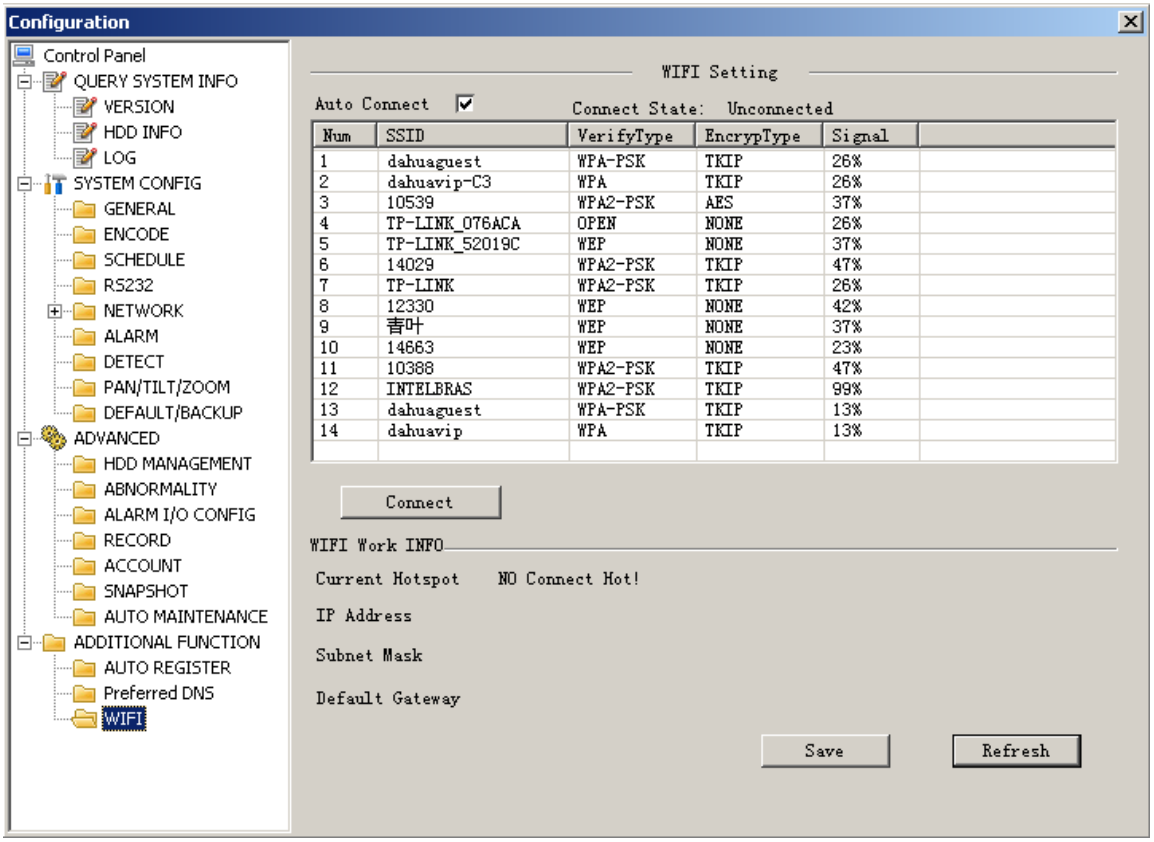
Please refer to the following sheet for detail information.

Parameter	Function
Send event message	Device can send the event message (alarm information, motion detection and etc) to the mobile user. You can check the box to enable the function.
Receiver	You can input one or more mobile number(s) here to receive the message.
SMS activate	The mobile user can send out message to activate the device to connect to the 3G network. You need to check the box to enable current function.
Sender	You can input several senders' mobile number here.

Dial activate	The mobile user can give a call to activate the device to connect to the 3G network. You need to check the box to enable current function.
Caller	You can input several senders'' mobile number here.
Add	Click it to add the corresponding mobile phone user.
Delete	Click it to remove the corresponding mobile phone user.
Message type	There are two types: SMS and MMS. Right now system supports SMS only.
Title	You can input message subject here.
Event message save	System can save the message receiver number so that device can send out alarm (motion detect) message to the specified mobile phone(s).
SMS save	System can save the mobile phone number which can send out the message to activate the device. Before the operation, please make sure you device can connect to the 3G network and you have enabled the 3G function. When the specified mobile number sends out the message “on” to the device, the device begins 3G dial up and then connect to the 3G network. When the specified mobile number sends out the message “off” to the device, the device disconnects the network and then becomes offline.
Dial save	System can save the mobile phone number which can dial the device to enable it to connect to the 3G network. Before the operation, please make sure you device can connect to the 3G network and you have enabled the 3G function. When the specified mobile phone number gives a call to the device, the user can hear device prompt: The user is busy now. Then the device begins dial up and connects to the 3G network.
Refresh	Click this button to get device latest configuration.

5.3.4.5 WIFI

It is to set WIFI wireless network and display corresponding network status information. Extension Config-WIFI setup interface is shown as below.:



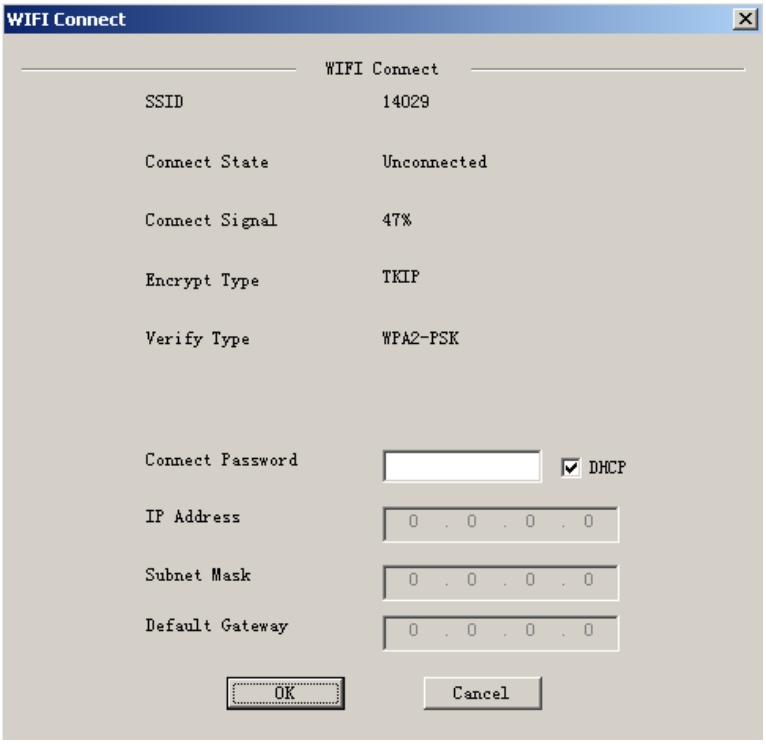
Auto connect: System auto connects to the previous hotspot after device reboot or disconnection resulting from the environment factors.

Connect: Select a hotspot from the list and then connect.

Disconnect: After successfully connected to one hotspot, the connect button becomes disconnect button for you to disconnect. (Note: When the Auto connect function is enabled, device will connect again automatically within a short time. Please disable Auto connect function and click Save button first and then click the Disconnect button to terminate connection.)

IP address: It is the IP address after the device successfully connected to the wireless router.

Double click one hotspot; you can see an interface is shown as below.



It is to set hotspot such as DHCP, static IP setup, and connection password setup.

5.4 Search

Click search button, you can see an interface is shown as in Figure 5-56.
Please select record playback mode, and then select start time, end time and channel. Then please click search button, you can see the corresponding files in the list.

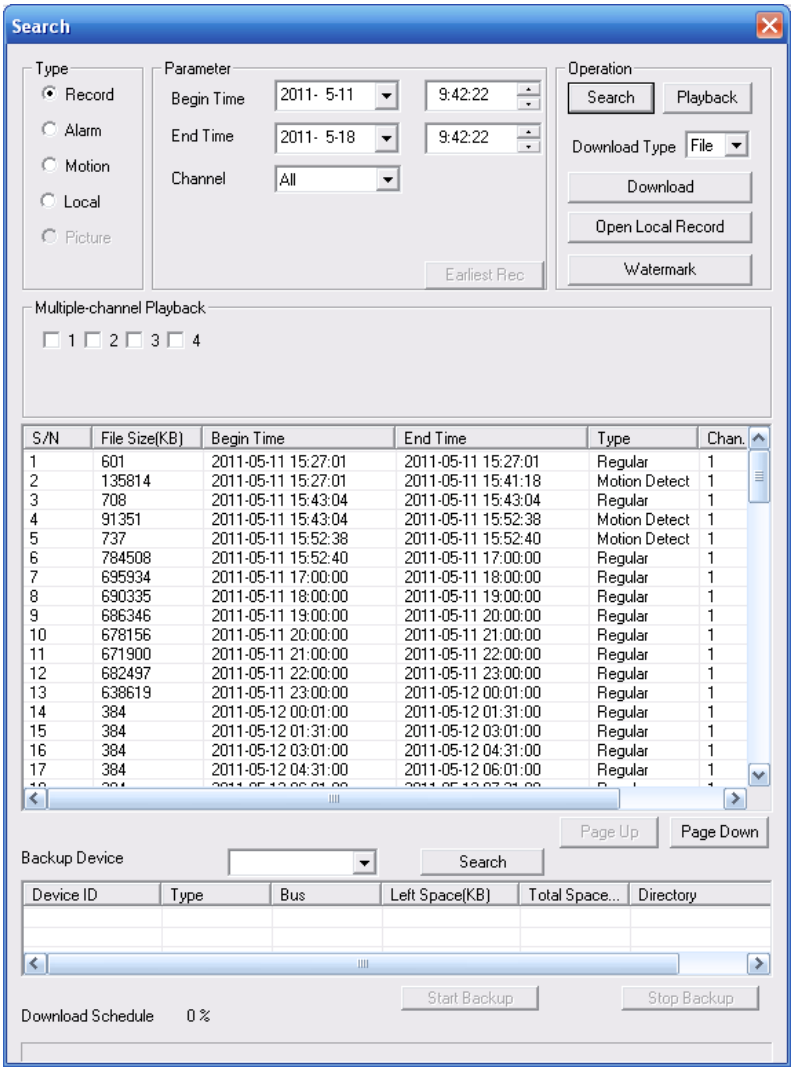


Figure 5-56

Select the file(s) you want to download and then click download button, system pops up a dialogue box shown as in Figure 5-57, and then you can specify file name and path to download the file(s) to your local pc.

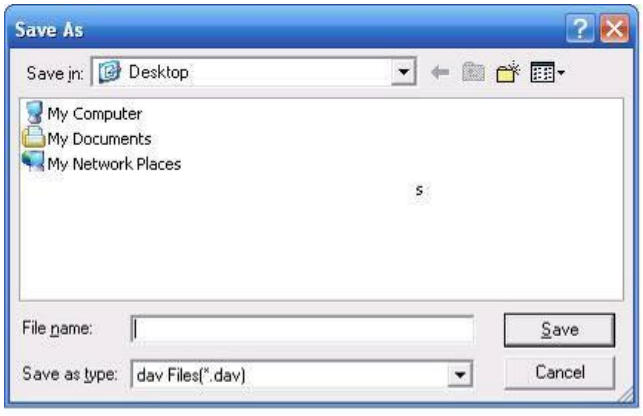


Figure 5-57

Now you can see system begins download and the download button becomes stop button. You can click it to terminate current operation.

At the bottom of the interface, there is a process bar for your reference. See Figure 5-58.

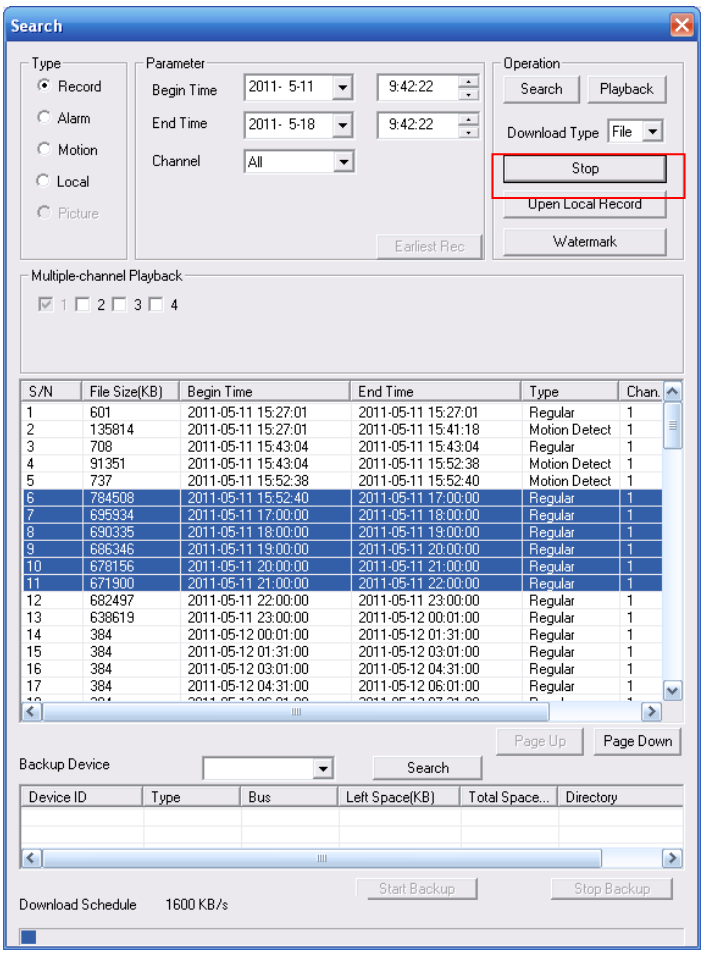


Figure 5-58

When download completed, you can see a dialogue box shown as in Figure 5-59. Please click OK to exit.

Figure 5-59

Please refer to the following sheet for detailed information.

Type	Parameter	Function
Type	Record	Search general record, alarm record and motion detection record.
	Alarm	Search alarm record.
	Motion Detection	Search motion detection record.
	Local	Search local record.
	Snapshot	Search snapshot file.
	Card	This function is not available in current device.
Item	Begin time	Set the file start time. You can select from the dropdown list.
	End time	Set the file end time. You can select from the dropdown list.
	Channel	Select the channel from the dropdown list.

Type	Parameter	Function
Operation	Search	Click this button you can view the recorded file matched your requirements. There are 100 files in one screen. You can use pg up/down button to view more files.
	Playback	Select the file first and then click playback button to view the video.
	Download type	Download by file: Select the file(s) and then click download button. Download by time: Download the recorded file(s) within your specified period.
	Download	Select the file you need (multiple choices) and then click download button, you can see system pops up a dialogue box. See Figure 5-57. Input the downloaded file name, specify the path and then click OK button. You can see system begins download and the download becomes stop button. There is a progress bar for your reference.
	Open local record	Select local record to play.
Multiple-channel playback		System supports playback one file in several monitor channels.

During the playback process, you can see there are control buttons such as play, pause, stop. slow play and fast play in the play process bar. You can view current playback file channel name, time and data statistics.

In the search result interface, you can select one or more files to download to your local PC.

The playback control bar is shown as below. See Figure 5-60.

1: Play

2: Pause

3: Stop

4: Slow play

5: Fast play

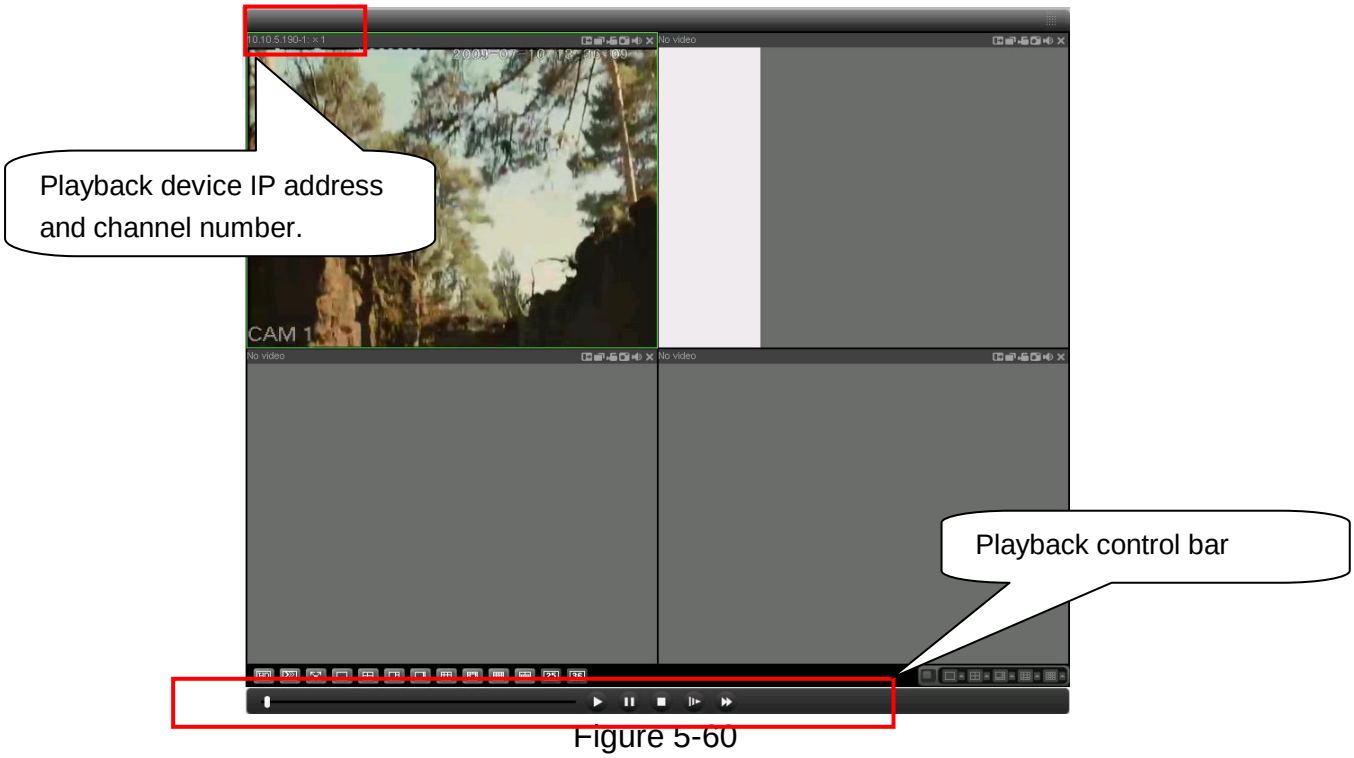


Figure 5-60

5.5 Alarm

Click alarm function, you can see an interface is shown as in Figure 5-61.
Here you can set device alarm type and alarm sound setup. Please make sure your device has enabled the alarm upload function.

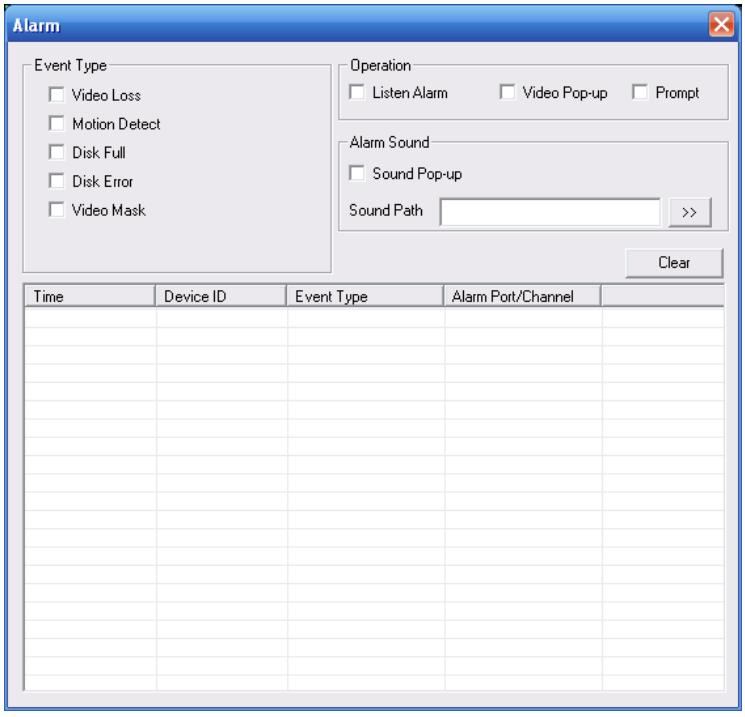


Figure 5-61

5.6 About

Click about button, you can view current web information. See Figure 5-62.

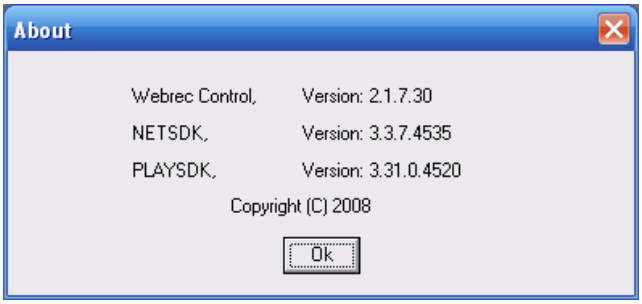


Figure 5-62

5.7 Log out

Click log out button, system goes back to log in interface. See Figure 5-63.
You need to input user name and password to login again.

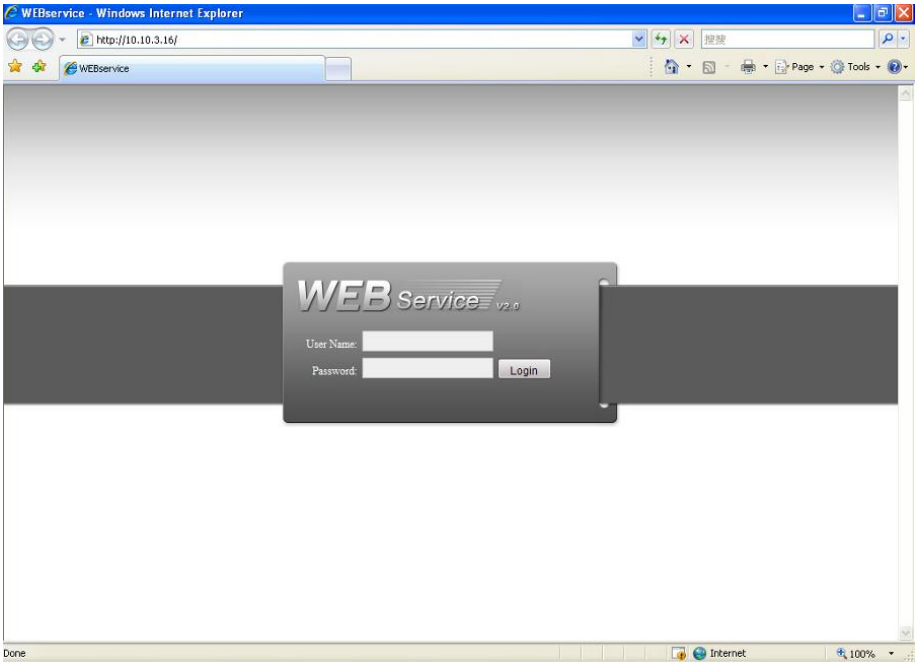


Figure 5-63

5.8 Un-install Web Control

You can use web un-install tool “uninstall web.bat” to un-install web control.

Please note, before you un-installation, please close all web pages, otherwise the un-installation might result in error.

6 Professional Surveillance System

Besides Web, you can use our Professional Surveillance Software (PSS) to login the device. For detailed information, please refer to *PSS user's manual.*

7 FAQ

1. NVS can not boot up properly.

There are following possibilities:

- Input power is not correct.
- Power connection is not correct.
- Power switch button is damaged.
- Program upgrade is wrong.
- HDD malfunction or something wrong with HDD ribbon.
- Seagate DB35.1,DB35.2,SV35 or Maxtor 17-g has compatibility problem. Please upgrade to the latest version to solve this problem.
- Front panel error.
- Main board is damaged.

2. NVS often automatically shuts down or stops running.

There are following possibilities:

- Input voltage is not stable or it is too low.
- HDD malfunction or something wrong wit the ribbon.
- Button power is not enough.
- Front video signal is not stable.
- Working environment is too harsh, too much dust.
- Hardware malfunction.

3. System can not detect hard disk.

There are following possibilities:

- HDD is broken.
- HDD ribbon is damaged.
- HDD cable connection is loose.
- Main board SATA port is broken.

4. There is no video output whether it is one-channel, multiple-channel or all-channel output.

There are following possibilities:

- Program is not compatible. Please upgrade to the latest version.
- Brightness is 0. Please restore factory default setup.
- There is no video input signal or it is too weak.
- Check privacy mask setup or your screen saver.
- NVS hardware malfunctions.

5. Real-time video color is distorted.

There are following possibilities:

- When using BNC output, NTSC and PAL setup is not correct. The real-time video becomes black and white.
- NVS and monitor resistance is not compatible.
- Video transmission is too long or degrading is too huge.

- NVS color or brightness setup is not correct.

6. Can not search records via the Web.

There are following possibilities:

- HDD ribbon is damaged.
- HDD is broken.
- Upgraded program is not compatible.
- The recorded file has been overwritten.
- Record function has been disabled.

7. There is no audio when monitor.

There are following possibilities:

- It is not a power picker.
- It is not a power acoustics.
- Audio cable is damaged.
- NVS hardware malfunctions.

8. There is audio when monitor but there is no audio when system playback.

There are following possibilities:

- Setup is not correct. Please enable audio function
- Corresponding channel has no video input. Playback is not continuous when the screen is blue.

9. Time display is not correct.

There are following possibilities:

- Setup is not correct
- Battery contact is not correct or voltage is too low.
- Crystal is broken.

10. NVS can not control PTZ.

There are following possibilities:

- Front panel PTZ error
- PTZ decoder setup, connection or installation is not correct.
- Cable connection is not correct.
- PTZ setup is not correct.
- PTZ decoder and NVS protocol is not compatible.
- PTZ decoder and NVS address is not compatible.
- When there are several decoders, please add 120 Ohm between the PTZ decoder A/B cables furthest end to delete the reverberation or impedance matching. Otherwise the PTZ control is not stable.
- The distance is too far.

11. Motion detection function does not work.

There are following possibilities:

- Period setup is not correct.

- Motion detection zone setup is not correct.
- Sensitivity is too low.
- For some versions, there is hardware limit.

12. Can not log in client-end or web.

There are following possibilities:

- For Windows 98 or Windows ME user, please update your system to Windows 2000 sp4. Or you can install client-end software of lower version. Please note right now, our NVS is not compatible with Windows VISTA control.
- ActiveX control has been disabled.
- No dx8.1 or higher. Please upgrade display card driver.
- Network connection error.
- Network setup error.
- Password or user name is invalid.
- Client-end is not compatible with NVS program.

13. There is only mosaic no video when preview or playback video file remotely.

There are following possibilities:

- Network fluency is not good.
- Client-end resources are limit.
- There is multiple-cast group setup in NVS. This mode can result in mosaic. Usually we do not recommend this mode.
- There is privacy mask or channel protection setup.
- Current user has no right to monitor.
- NVS local video output quality is not good.

14. Network connection is not stable.

There are following possibilities:

- Network is not stable.
- IP address conflict.
- MAC address conflict.
- PC or NVS network card is not good.

15. Burn error /USB back error.

There are following possibilities:

- Burner and NVS are in the same data cable.
- System uses too much CPU resources. Please stop record first and then begin backup.
- Data amount exceeds backup device capacity. It may result in burner error.
- Backup device is not compatible.
- Backup device is damaged.

16. Keyboard can not control NVS.

There are following possibilities:

- NVS serial port setup is not correct
- Address is not correct

- When there are several switchers, power supply is not enough.
- Transmission distance is too far.

17. Record storage period is not enough.

There are following possibilities:

- Camera quality is too low. Lens is dirty. Camera is installed against the light. Camera aperture setup is not correct.
- HDD capacity is not enough.
- HDD is damaged.

18. Can not playback the downloaded file.

There are following possibilities:

- There is no media player.
- No DXB8.1 or higher graphic acceleration software.
- There is no DivX503Bundle.exe control when you play the file transformed to AVI via media player.
- No DivX503Bundle.exe or ffdshow-2004 1012 .exe in Windows XP OS.

19. Forgot local menu operation password or network password

Please contact your local service engineer or our sales person for help. We can guide you to solve this problem.

20. After successful WIFI connection, device can not connect to the wireless IP of the device.

There are following possibilities:

- There are too many wireless router and the frequency band setup are the same. Please set the frequency band first.
- Device wire IP and wireless IP address are in the same IP segment.

Daily Maintenance

- Please use the brush to clean the board, socket connector and the chassis regularly.
- The device shall be soundly earthed in case there is audio/video disturbance. Keep the device away from the static voltage or induced voltage.
- Please unplug the power cable before you remove the audio/video signal cable, RS232 or RS485 cable.
- Do not connect the TV to the local video output port (VOUT).It may result in video output circuit.
- Always shut down the device properly. Please use the shutdown function in the menu, or you can press the power button in the front pane for at least three seconds to shut down the device. Otherwise it may result in HDD malfunction.
- Please make sure the device is away from the direct sunlight or other heating sources. Please keep the sound ventilation.

- Please check and maintain the device regularly.
- After recording stops, please wait 15 seconds before removing the SD card in order to ensure its data completeness.
- Please do not set the SD card as the storage medium of scheduled recording, or it will shorten its life span and get damaged.

Appendix A HDD Capacity Calculation

Calculate total capacity needed by each NVS according to video recording (video recording type and video file storage time).

Step 1: According to Formula (1) to calculate storage capacity q_i that is the capacity of each channel needed for each hour, unit Mbyte.

$$q_i = d_i \div 8 \times 3600 \div 1024 \quad (1)$$

In the formula: d_i means the bit rate, unit Kbit/s

Step 2: After video time requirement is confirmed, according to Formula (2) to calculate the storage capacity m_i, which is storage of each channel needed unit Mbyte.

$$m_i = q_i \times h_i \times D_i \quad (2)$$

In the formula:

h_i means the recording time for each day (hour)

D_i means number of days for which the video shall be kept

Step 3: According to Formula (3) to calculate total capacity (accumulation) q_T that is needed for all channels in the NVS during **scheduled video recording**.

$$q_T = \sum_{i=1}^{c} m_i \quad (3)$$

In the formula: c means total number of channels in one NVS

Step 4: According to Formula (4) to calculate total capacity (accumulation) q_T that is needed for all channels in NVS during **alarm video recording (including motion detection)**.

$$q_T = \sum_{i=1}^{c} m_i \times a\% \quad (4)$$

In the formula：$a\%$ means alarm occurrence rate

Appendix BCompatible Backup Device List

Compatible USB drive list

NOTE: Please upgrade the NVS firmware to latest version to ensure the accuracy of the table below. If you use the USB drive, please confirm the format FAT or FAT32.

Manufacturer	Model	Capacity
Sandisk	Cruzer Micro	512M
Sandisk	Cruzer Micro	1G
Sandisk	Cruzer Micro	2G
Sandisk	Cruzer Freedom	256M
Sandisk	Cruzer Freedom	512M
Sandisk	Cruzer Freedom	1G
Sandisk	Cruzer Freedom	2G
Kingston	DataTraveler Ⅱ	1G
Kingston	DataTraveler Ⅱ	2G
Kingston	DataTraveler	1G
Kingston	DataTraveler	2G
Maxell	USB Flash Stick	128M
Maxell	USB Flash Stick	256M
Maxell	USB Flash Stick	512M
Maxell	USB Flash Stick	1G
Maxell	USB Flash Stick	2G
Kingax	Super Stick	128M
Kingax	Super Stick	256M
Kingax	Super Stick	512M
Kingax	Super Stick	1G
Kingax	Super Stick	2G
Netac	U210	128M
Netac	U210	256M
Netac	U210	512M
Netac	U210	1G
Netac	U210	2G
Netac	U208	4G
Teclast	Ti Cool	128M
Teclast	Ti Cool	256M
Teclast	Ti Cool	512M
Teclast	Ti Cool	1G
SanDisk	cruzer mirco	2G
SanDisk	cruzer mirco	8G
SanDisk	Ti Cool	2G
SanDisk	Hongjiao	4G
Lexar	Lexar	256MB
Kingston	Data Traveler	1G
Kingston	Data Traveler	16GB
Kingston	Data Traveler	32GB
Aigo	L8315	16GB
Sandisk	250	16GB
Kingston	Data Traveler Locker+	32GB
Netac	U228	8GB

Compatible SD Card List

Please refer to the following sheet for compatible SD card brand.

Brand	Standard	Capacity	Card type
Transcend	SDHC6	16GB	SD
Kingston	SDHC4	4GB	SD
Kingston	SD	2GB	SD
Kingston	SD	1GB	SD
Sandisk	SDHC2	8GB	Micro-SD
Sandisk	SD	1GB	Micro-SD

Compatible Portable HDD List

Please refer to the following sheet for compatible portable HDD brand.

Brand	Model	Capacity
YDStar	YDstar HDD box	40G
Netac	Netac	80G
Iomega	Iomega RPHD-CG" RNAJ50U287	250GB
WD Elements	WCAVY1205901	1.5TB
Newsmy	Liangjian	320GB
WD Elements	WDBAAR5000ABK-00	500GB
WD Elements	WDBAAU0015HBK-00	1.5TB
Seagate	FreeAgent Go(ST905003F)	500GB
Aigo	H8169	500GB

Compatible USB DVD Burner List

NOTE: Please upgrade the NVS firmware to latest version to ensure the accuracy of the table below. And you can use the USB cable with the model recommended to set USB burner.

Manufacturer	Model
Sony	DRX-S70U
Benq	TW200D

Compatible SATA DVD Burner List

NOTE: Please upgrade the NVS firmware to latest version to ensure the accuracy of the table below.

Manufacturer	Model
Pioneer	DVR-215CHG
Panasonic	SW-9588-C
Sumsung	TS-H653
Sony	DRU-V200S
Sony	DRU-845S
Samsung	TS-H653
Pioneer	DVR-217CHG
LG	GH22NS30

Compatible SATA HDD List

NOTE: Please upgrade the NVS firmware to latest version to ensure the accuracy of the table below. And SATA HDD should be used for the NVS with SATA port.

Manufacturer	Series	Model	Capacity	Port Mode
Seagate	Barracuda.10	ST3750640AS	750G	SATA
Seagate	Barracuda.10	ST3500630AS	500G	SATA
Seagate	Barracuda.10	ST3400620AS	400G	SATA
Seagate	Barracuda.10	ST3320620AS	320G	SATA
Seagate	Barracuda.10	ST3250620AS	250G	SATA
Seagate	Barracuda.10	ST3250820AS	250G	SATA
Seagate	Barracuda.10	ST3160815AS	160G	SATA
Seagate	Barracuda.10	ST380815AS	80G	SATA
Seagate	Barracuda.9	ST3160811AS2	160G	SATA
Seagate	Barracuda.9	ST3120811AS2	120G	SATA
Seagate	Barracuda.9	ST380811AS2	80	SATA
Seagate	Barracuda.9	ST380211AS2	80G	SATA
Seagate	Barracuda.11	ST3750330AS	750G	SATA
Seagate	Barracuda.11	ST3500320AS	500G	SATA
Seagate	Barracuda 7200.11	ST31500341AS	1.5T	SATA
Seagate	Barracuda ES.2	ST31000340NS	1T	SATA
Seagate	Pipeline HD.2	ST31000424CS	1T	SATA
Seagate	Pipeline HD.2	ST3320311CS	320G	SATA
Seagate	Barracuda	ST31000340AS	1T	SATA
Seagate	ES.2	ST31000340AS	1T	SATA
Seagate	SV35.2	ST3160815SV	160G	SATA
Seagate	SV35.2	ST3250310SV	250G	SATA
Seagate	SV35.2	ST3320620SV	320G	SATA
Seagate	SV35.2	ST3500320SV	500G	SATA
Seagate	SV35.2	ST3750640SV	750G	SATA
Seagate	SV35.2	ST3320320SV	320G	SATA
Seagate	SV35.2	ST3500630SV	500G	SATA
Seagate	SV35.3	ST31000340SV	1T	SATA
Seagate	SV35.3	ST3250310SV	250G	SATA
Seagate	SV35.3	ST3750330SV	750G	SATA
Seagate	SV35.5	ST3250311SV	250G	SATA
Seagate	SV35.5	ST3500410SV	500G	SATA
Seagate	SV35.5	ST31000525SV	1TB	SATA
Seagate	SV35.5	ST310005258V	1TB	SATA
Maxtor	DiamondMax 20	STM3320820AS	320G	SATA
Maxtor	DiamondMax 20	STM3250820AS	250G	SATA
Maxtor	DiamondMax 21	STM3160211AS	160G	SATA
Maxtor	DiamondMax 21	STM380211AS	80G	SATA
Maxtor	DiamondMax 21	STM340211AS	40G	SATA
Western Digital	CE series	WD5000AVJS	500G	SATA
Western Digital	CE series	WD3200AVJS	320G	SATA
Western Digital	CE series	WD2500AVBS	250G	SATA

Western Digital	CE series	WD10EVCS	1T	SATA
Western Digital	Cariar SE	WD3200JD	320G	SATA
Western Digital	Cariar SE	WD3000JD	300G	SATA
Western Digital	Cariar SE	WD2500JS	250G	SATA
Western Digital	Cariar SE	WD2000JD	200G	SATA
Western Digital	Cariar SE	WD1600JD	160G	SATA
Western Digital	Cariar SE	WD1600JS	160G	SATA
Western Digital	Cariar SE	WD1200JS	120G	SATA
Western Digital	Cariar SE	WD800JD	80G	SATA
Western Digital	Cariar	WD1600AABS2	160G	SATA
Western Digital	Cariar	WD800BD	80G	SATA
Western Digital	Cariar SE16	WD7500KS2	750G	SATA
Western Digital	Cariar SE16	WD5000KS2	500G	SATA
Western Digital	Cariar SE16	WD4000KD2	400G	SATA
Western Digital	Cariar SE16	WD3200KS2	320G	SATA
Western Digital	Cariar SE16	WD2500KS2	250G	SATA
Western Digital	RE series	WD5000ABYS	500G	SATA
Western Digital	RE2 series	WD7500AYYS	750G	SATA
Western Digital	Caviar Green series	WD20EADS	2T	SATA
Western Digital	Caviar Green series	WD15EADS	1.5TB	SATA
Western Digital	Western Digital	WD10EVVS-63M5BO	1TB	SATA
Western Digital	Western Digital	WD20EVDS-63T3B0	2TB	SATA
Western Digital	Western Digital	WD15EVDS-63V9B0	1.5TB	SATA
Western Digital	Western Digital	WD10EVVSWDV-GP	1TB	SATA
Western Digital	Western Digital series	WD5000AVVS-63M8BO	500GB	SATA
Western Digital	Western Digital	WD20EURS-63Z9B1	2TB	SATA
Western Digital	Western Digital	WD10EURS-630AB1	1TB	SATA
SAMSUNG	/	HA101UJ/CE	1T	SATA
SAMSUNG	Spinpoint F1 CE	HA751LJ	750G	SATA
SAMSUNG	/	HA101UJ/CE	1TB	SATA
SAMSUNG	/	HD103SI/CE	1TB	SATA
SAMSUNG	/	HD154UI/CE	1.5TB	SATA
HITACHI	Cinema	HCS545050GLA380	500GB	SATA
HITACHI	Cinema	HCP725050LA380	500GB	SATA
HITACHI	Deskstar	HDS721010KLA330	1TB	SATA
HITACHI	Hitachi series	HCT721010SLA360	1TB	SATA
HITACHI	Hitachi	HCS5C1050CLA382	500GB	SATA
HITACHI	Hitachi	HCS5C1050CLA382	1TB	SATA
HITACHI	Hitachi	HCS721010CLA332	1TB	SATA

APPENDIX C Compatible CD/DVD Device List

NOTE: Please upgrade the NVS firmware to latest version to ensure the accuracy of the table below. And you can use the USB cable with the model recommended to set USB burner.

Manufacturer	Model	Port Type	Type
Sony	DRX-S50U	USB	DVD-RW
Sony	DRX-S70U	USB	DVD-RW
Sony	AW-G170S	SATA	DVD-RW
Samsung	TS-H653A	SATA	DVD-RW
Panasonic	SW-9588-C	SATA	DVD-RW
Sony	DRX-S50U	USB	DVD-RW
BenQ	5232WI	USB	DVD-RW

Appendix DCompatible Displayer List

Please refer to the following sheet for the compatible device information.

Brand	Model	Dimension (Unit: inch)
BENQ(LCD)	ET-0007-TA	19-inch(wide screen)
DELL(LCD)	E178FPc	17-inch
BENQ(LCD)	Q7T4	17-inch
SANGSUNG(LCD)	SMT-1922P	19-inch
BENQ(LCD)	Q7T3	17-inch
LENOVO(LCD)	LXB-L17C	17-inch
SANGSUNG(LCD)	225BW	22-inch(wide screen)
LENOVO(CRT)	LXB-FD17069HB	17-inch
LENOVO(CRT)	LXB-HF769A	17-inch
LENOVO(CRT)	LX-GJ556D	17-inch
SAMSUNG(LCD)	T190	19-inch
PHILIPS(LCD)	HWC9190I	20-inch
BENQ(LCD)	ET-0021-B	
DELL(LCD)	E1909Wf	19-inch
SANGSUNG(LCD)	T240	24-inch
DELL(LCD)	E170Sc	17-inch
BENQ(LCD)	G2219HD	19-inch
LG(LCD)	W194ST	19-inch

Appendix E Compatible Switcher List

Please refer to the following sheet form compatible switcher list.

Brand	Model	Network Working Mode
D-LinK	DES-1016D	10/100M self-adaptive
D-LinK	DES-1008D	10/100M self-adaptive
Ruijie	RG-S1926S	There are five network modes： 1. AUTO 2. HALF-10M 3. FULL-10M 4. HALF-100M 5. FULL-100M
H3C	H3C-S1024	10/100M self-adaptive
TP-LINK	TL-SF1016	10/100M self-adaptive
TP-LINK	TL-SF1008+	10/100M self-adaptive

Appendix F Compatible Wireless Mouse List

Please refer to the following sheet for compatible SD card brand.

Brand	Model
SUNT讯拓	V80
Rapoo	3500
Logitech	M215
Shuangfeiyan	Tianyao G7-630

Appendix GEarthing

1. What is the surge?

Surge is a short current or voltage change during a very short time. In the circuit, it lasts for microsecond. In a 220V circuit, the 5KV or 10KV voltage change during a very short time (about microseconds) can be called a surge. The surge comes from two ways: external surge and internal surge.

- The external surge: The external surge mainly comes from the thunder lightning. Or it comes from the voltage change during the on/off operation in the electric power cable.
- The internal surge: The research finds 88% of the surge from the low voltage comes from the internal of the building such as the air conditioning, elevator, electric welding, air compressor, water pump, power button, duplicating machine and other device of inductive load.

The lightning surge is far above the load level the PC or the micro devices can support. In most cases, the surge can result in electric device chip damage, PC error code, accelerating the part aging, data loss and etc. Even when a small 20 horsepower inductive engine boots up or stops, the surge can reach 3000V to 50000V, which can adversely affect the electronic devices that use the same distribution box.

To protect the device, you need to evaluate its environment, the lighting affection degree objectively. Because surge has close relationship with the voltage amplitude, frequency, network structure, device voltage-resistance, protection level, ground and etc. The thunder proof work shall be a systematic project, emphasizing the all-round protection (including building, transmission cable, device, ground and etc.). There shall be comprehensive management and the measures shall be scientific, reliable, practical and economic. Considering the high voltage during the inductive thundering, the International Electrotechnical Committee (IEC) standard on the energy absorbing step by step theory and magnitude classification in the protection zone, you need to prepare multiple precaution levels.

You can use the lightning rod, lightning strap or the lightning net to reduce the damage to the building, personal injury or the property,

- The lightning protection device can be divided into three types:
  Power lightning arrester: There are 220V single-phrase lightning arrester and 380V three-phrase lightening arrester (mainly in parallel connection, sometimes use series connection) You can parallel connect the power lightning arrester in the electric cable to reduce the short-time voltage change and release the surge current. From the BUS to the device, there are usually three levels so that system can reduce the voltage and release the current step by step to remove the thunderstorm energy and guarantee the device safety. You can select the replaceable module type, the terminal connection type and portable socket according to your requirement.
- Signal lightning arrester: This device is mainly used in the PC network, communication system. The connection type is serial connection. Once you connected the signal lightning arrestor with the signal port, it can cut the channel of the thunderstorm to the device, and on the other hand, it can discharge the current to the ground to guarantee the device proper

work. The signal lightning arrester has many specifications, and widely used in many devices such as telephone, network, analog communication, digital communication, cable TV and satellite antenna. For all the input port, especially those from the outdoor, you need to install the signal lightning arrester.

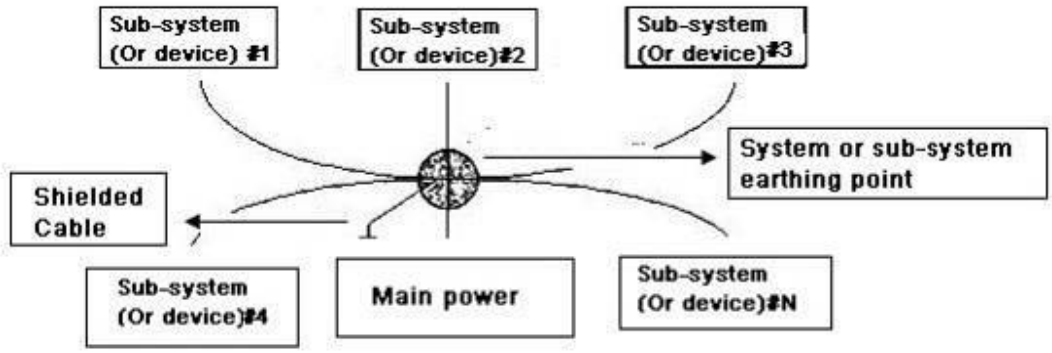
- Antenna feed cable lightning arrester: It is suitable for antenna system of the transmitter or the device system to receive the wireless signal. It uses the serial connection too.

Please note, when you select the lighting arrester, please pay attention to the port type and the earthing reliability. In some important environment, you need to use special shielded cable. Do not parallel connect the thunder proof ground cable with the ground cable of the lightning rod. Please make sure they are far enough and grounded respectively.

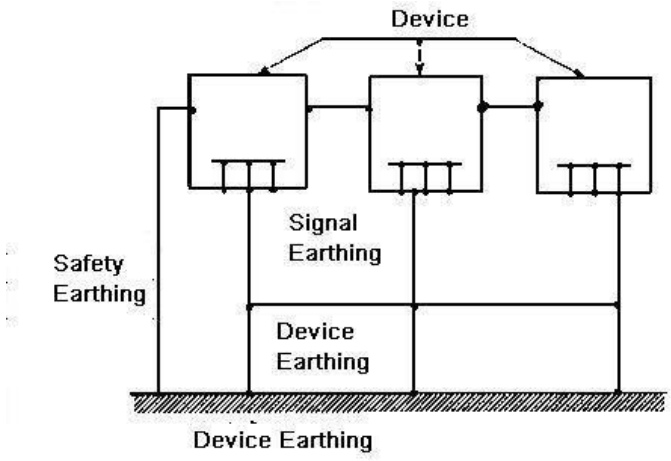
2. The earthing modes

We all know the earthing is the most complicated technology in the electromagnetism compatibility design since there is no systematic theory or module. The earthing has many modes, but the selection depends on the system structure and performance. The following are some successfully experience from our past work.

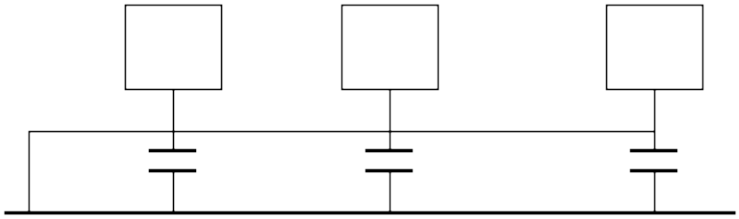
One-point ground: In the following figure you can see there is a one-point ground. This connection provides common port to allow signal to be transmitted in many circuits. If there is no common port, the error signal transmission occurred. In the one-point ground mode, each circuit is just grounded only and they are connected at the same port. Since there is only one common port, there is no circuit and so, there is no interference.



Multiple-point ground: In the following figure, you can see the internal circuit uses the chassis as the common point. While at the same time, all devices chassis use the earthing as the common port. In this connection, the ground structure can provide the lower ground resistance because when there are multiple-point grounds; each ground cable is as short as possible. And the parallel cable connection can reduce the total conductance of the ground conductor. In the high-frequency circuit, you need to use the multiple-point ground mode and each cable needs to connect to the ground. The length shall be less than the 1/20 of the signal wavelength.



Mixed ground: The mix ground consists of the feature of the one-point ground and multiple-point ground. For example, the power in the system needs to use the one-point ground mode while the radio frequency signal requires the multiple-point ground. So, you can use the following figure to earth. For the direct current (DC), the capacitance is open circuit and the circuit is one-point ground. For the radio frequency signal, the capacitance is conducive and the circuit adopts multiple-point ground.



When connecting devices of huge size (the device physical dimension and connection cable is big comparing with the wave path of existed interference), then there are possibility of interference when the current goes through the chassis and cable. In this situation, the interference circuit path usually lies in the system ground circuit.

When considering the earthing, you need to think about two aspects: The first is the system compatibility, and the other is the external interference coupling into the earth circuit, which results in system error. For the external interference is not regular, it is not easy to resolve.

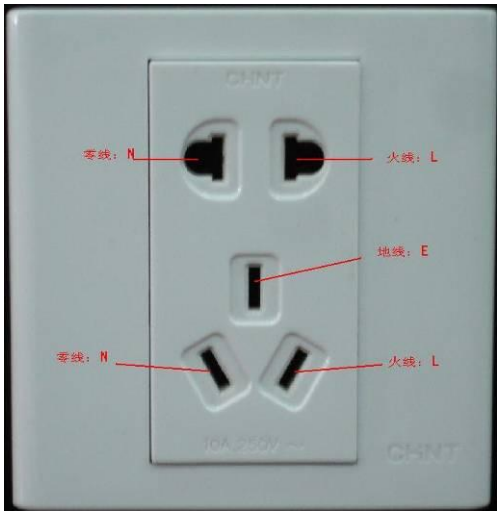
3. Thunder proof ground method in the monitor system

- The monitor system shall have sound thunder proof earthing to guarantee personnel safety and device safety.
- The monitor system working ground resistance shall be less than 1Ω.
- The thunder proof ground shall adopt the special ground cable from the monitor control room to the ground object. The ground cable adopts copper insulation cable or wire and its ground section shall be more than 20mm2.
- The ground cable of the monitor system can not short circuit or mixed connected with the strong alternative current cable.
- For all the ground cables from the control room to the monitor system or ground cable of other monitor devices, please use the copper resistance soft cable and its section shall be more than 4mm2.

- The monitor system usually can adopt the one-point ground.
- Please connect the ground end of 3-pin socket in the monitor system to the ground port of the system (protection ground cable)

4. The shortcut way to check the electric system using the digital multimeter

For 220V AC socket, from the top to the bottom, E (ground cable), N (neutral cable), L(live cable). Please refer to the following figure.



There is a shortcut way to check these thee cables connection are standard or not (not the accurate check).

Importance

In the following operations, the multimeter range shall be at 750V!

For E (earth cable)

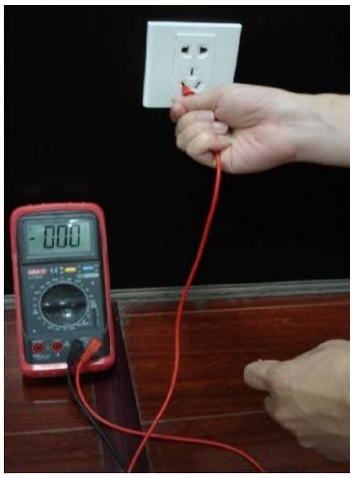
Turn the digital multimeter to 750V AC, use your one hand to hold the metal end, and then the other hand insert the pen to the E port of the socket. See the following figure. If the multimeter shows 0, then you can see current earth cable connection is standard. If the value is more than 10, then you can see there is inductive current and the earth cable connection is not proper.

For L (live cable)

Turn the digital multimeter to 750V AC, use your one hand to hold the metal end, and then the other hand insert the pen to the L port of the socket. See the following figure. If the multimeter shows 120, then you can see current live cable connection is standard. If the value is less than 60, then you can see current live cable connection is not proper or it is not the live cable at all.

For N (Neutral cable)

Turn the digital multimeter to 750V AC, use your one hand to hold the metal end, and then the other hand insert the pen to the N port of the socket. See the following figure. If the multimeter shows 0, then you can see current N cable connection is standard. If the value is more than 10, then you can see there is inductive current and the neutral cable connection is not proper. If the value is 120, then you can know misconnected the neutral cable to the live cable.



Appendix H Toxic or Hazardous Materials or Elements

Component Name	Toxic or Hazardous Materials or Elements					
	Pb	Hg	Cd	Cr VI	PBB	PBDE
Sheet Metal(Case)	○	○	○	○	○	○
Plastic Parts(Panel)	○	○	○	○	○	○
Circuit Board	○	○	○	○	○	○
Fastener	○	○	○	○	○	○
Wire and Cable/AC Adapter	○	○	○	○	○	○
Packing Material	○	○	○	○	○	○
Accessories	○	○	○	○	○	○

Note

O: Indicates that the concentration of the hazardous substance in all homogeneous materials in the parts is below the relevant threshold of the SJ/T11363-2006 standard.

X: Indicates that the concentration of the hazardous substance of at least one of all homogeneous materials in the parts is above the relevant threshold of the SJ/T11363-2006 standard. During the environmental-friendly use period (EFUP) period, the toxic or hazardous substance or elements contained in products will not leak or mutate so that the use of these (substances or elements) will not result in any severe environmental pollution, any bodily injury or damage to any assets. The consumer is not authorized to process such kind of substances or elements, please return to the corresponding local authorities to process according to your local government statutes

Note:

- **This manual is for reference only. Slight difference may be found in the user interface.**
- **All the designs and software here are subject to change without prior written notice.**
- **If there is any uncertainty or controversy, please refer to the final explanation of us.**
- **Please visit our website or contact your local retailer for more information.**