



DVR (WITHOUT HDD)
User's Manual

Thanks for purchasing our products, if you have any questions or need, please feel free to contact us. The manual is the DVR (WITHOUT HDD) product manuals, support functions due to the different models differ, please prevail in kind.

This manual is intended for you as an operating system and programming reference tool. You can find information about the features and commands in this manual, as well as a detailed menu tree and Quick Start Guide. Installation section provides the setup and installation of network dome camera information needed. Before installing and using the system to fully understand the information in this manual.

This manual may contain technical inaccuracies, or does not match the product features and operations, or typographical errors. We will update the contents of this manual is based on product enhancements, and will regularly update the product or process improvements or described in this manual. Updated content will be added in the new version, without notice.

Safety Precautions

The purpose of this content is to ensure that users use the product correctly to avoid danger or damage to property. Before using this product, please read this instruction manual carefully and retain it for future reference.

As shown below, precautions are divided into "WARNING" and "CAUTION" in two parts: WARNING: ignoring warnings could result in death or serious injury.

Note: ignore the precautions could result in injury or property damage.



WARNING : - Precaution to prevent the potential danger of death or serious injury



CAUTION: Precautions to prevent the potential danger of injury or property damage.



WARNING:

In the product installation, you must strictly follow all electrical safety procedures and the use of regional countries.

- In the product installation, you must strictly follow all electrical safety procedures and the use of regional countries.
- Please use regular factory supplied power adapter.
- Do not place more than one DVR (WITHOUT HDD) connected to the same power (adapter overload may produce excessive heat or cause a fire).
- When wiring, dismantling and other operations, please be sure do not connect the power.
- The smoke phenomenon recorder, or produce odor, or noise, turn off the power immediately and unplug the power cord and contact your dealer or service center.
- If the device is not working properly, contact your dealer or the nearest service center, do not disassemble or modify the device in any way. (On the issue of unauthorized modification or repair resulting from the Company is not liable).

CAUTION:

- Do not make objects fall to vigorously shake the device or equipment, and to place the device away from the presence of magnetic interference. Avoid installing the surface vibration or vulnerable areas (ignore this may damage the device).
- Installed may not be exposed to rain or very humid areas.
- Avoid placing the device in direct sunlight place, or poorly ventilated location, or near a heat source such as a heater or heating, etc. (ignore this may cause a fire hazard).
- In order to avoid damage to the camera, do not have the camera set up in smoke or
- Steam, the temperature is too high or there is a lot of dust in the workplace.
- When cleaning, use a soft cloth to wipe off the dirt on the housing. When cleaning up dirt, dry cloth should be cleaned when the dirt is hard to remove, use neutral detergent gently wipe clean, do not use alkaline detergents. If there is sticky dust on the lens, use a special lens paper wipes.

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1. Introduction

1.1. Product Brief

The series DVR (WITHOUT HDD) is designed especially for security and defence field which is an outstanding digital surveillance product. It introduces embedded LINUX operating system which is more stable. It introduces standard H.264 mp video compressed format which insures the high quality image, low coding ratio and single frame playing. It introduces TCP/IP network technology which achieves the strong network communication ability and telecommunication ability.

This device can be used individually, but also form a powerful security monitoring network, with professional network video surveillance platform software, which fully reflects its strong networking and remote monitoring capabilities.

The series DVR (WITHOUT HDD) are widely used in power systems, telecommunications sector, banking Security, industrial enterprises, intelligent buildings, intelligent community, urban roads, airports, railway stations and other surveillance applications.

1.2. Main Functions

➤ Real-time surveillance

Spot interface, Analog interface, VGA interface and HDMI interface, surveillance function through monitor or display.

➤ Storage

Non-working hard disk dormancy processing which is convenient to radiate heat, reduce power and extend the life-span

Special storage format which insures the data safety

➤ Compression

Real-time compression by individual hard disk which insures the audio and video signal stable synchronization

➤ Backup

Through SATA interface and USB interface such as USB equipment, removable hard disk and so on

Through net download the files in the hard disk.

➤ Playback

Individual real-time video recording as well as searching, playback, network surveillance, recording check, downloading and so on Multi-playback mode Zoom at arbitrary region.

➤ Net operating

Real-time monitoring can be carried out remotely via the network (including mobile phone) Remote PTZ control Remote video search and real-time playback.

➤ Alarm linkage

Alarm recording, round robin, the screen prompts, beep, mail, FTP

➤ **Communication interface**

With RS485 interface, alarm input and PTZ control With RS232 interface, scalable keyboard connection to the master, and connected to the computer serial port for system maintenance and upgrades, and matrix control With standard Ethernet interfaces, network remote access feature.

➤ **Intelligent operating**

Mouse action function

Fast copy and paste operating for the same setting

2. Unpacking and Cable Connection

2.1. Unpacking

When you receive the product:

First, check whether the packaging equipment has obvious damage. Selection of protective packaging materials during transport can cope with most of the unexpected hit. Then, remove the device; remove the plastic protective film DVR (WITHOUT HDD), check whether there is any visible damage to the outside.

Finally, open the case, check the front panel data cable, power cable, power supply and motherboard fan connector is loose.

➤ **Front panel and rear panel**

Various interfaces on the front panel and the rear panel of the various key functions are described in detail in the specification. Please check carefully whether the product model on the front panel with foil products you ordered the same model.

Label affixed to the rear panel, has a very important significance for our service work, please protect. In the company's after-sales service when you contact us, you will need to provide the model and serial number to order the label.

➤ **Check**

In addition to checking for any obvious signs of damage, but please pay attention to check the front panel data cable, power cable and the motherboard connection is loose.

2.2. Hard Disk Installation

When you use, first install the hard drive, the machine can install two hard drives inside (capacity no limit).



① disassemble the screw



② disassemble the cover

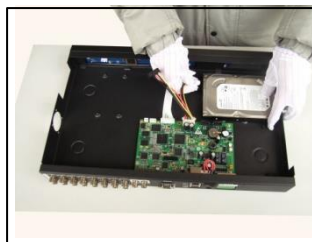


③ fix the screw of hard

disk



④ fix the screw of hard disk



⑤ connect the data wire



⑥ connect the power

wire



⑦ cover the machine



⑧ fix the cover

2.3. Shelf installation

This product chassis specification is standard 1u, so it can be installed in the standard shelf.

Installation steps and attention items:

- Make sure the temperature in the room lower than 35°C (95°F).
- Keep the equipment has 15cm (6 inches) space around in order to air's circulation.
- From bottom to shelf installation.
- When multiple components install in the frame, please take preventive measures to avoid power socket overload.

2.4. Audio/Video Input and Out Connections

2.4.1.Video Input

DVR (WITHOUT HDD) video input port to the BNC input signal requirements: PAL / NTSC BNC (1.0VP-P, 75Ω). Video signal should comply with national standards, a higher signal to noise ratio, low distortion, low interference; image must be clear, invisible change, real and natural color, brightness is appropriate.

Ensure stable and reliable camera signal:

Cameras should be installed in a suitable location, to avoid backlighting, low light conditions, or the use of good results backlight compensation cameras, low-light cameras. Camera and DVR (WITHOUT HDD) power supply should be common ground, and reliable, in order to ensure the normal operation of the camera.

Ensure stable and reliable transmission line:

Using high-quality, shielded coaxial good video, and based on the transmission distance to choose the right model. If the distance is too far, should be based on the specific circumstances, the use of twisted pair, add video compensation equipment, fiber optic transmission and other ways to ensure signal quality.

Video signal line should avoid strong electromagnetic interference to other equipment and lines, especially should avoid high-voltage current string into.

Lugs ensure good contact:

Signal and shield lines should be firm, well-connected, avoid Weld, lap welding, to avoid oxidation.

2.4.2. Select and Connect the Video Output Device

Video output is divided into PAL / NTSC BNC (1.0VP-P, 75Ω) output and VGA output (VGA is optional)

Choose to use computer to replace the monitor should pay attention to the following questions:

- Do not keep long boot state to extend the life of the equipment;
- Regular degaussing, which will help maintain the normal operation of the display?
- Away from strong electromagnetic interference devices.

Use TV as a video output device is an unreliable alternative. It also requires minimizing the use of time and strictly controls the interference power caused by neighbouring devices. Inferior TV leakage risks may cause damage to other equipment.

2.4.3. Audio input

BNC connector (only one to support intercom function)

Audio input impedance is high, and therefore must be used active pickups. Similar to the video input audio transmission requires line to avoid interference, avoid Weld, poor contact, and special attention to prevent a string of high-voltage current into.

2.4.4. Audio output

Audio output signal parameters is generally greater than 200mv 1KΩ (BNC), you can directly connect the low impedance headphones, powered speakers or other sound through power amplifier output

devices. In the case of external speakers and microphone cannot be achieved spatial isolation, it is easy to produce output howling phenomenon. At this point the measures to be taken are:

- The use of directional better pickups.
- Adjust speaker volume, making it lower than the threshold to produce the whistle.
- Multi-use environment using sound-absorbing materials decoration, reduce the reflection of the sound, improve the acoustic environment.
- Adjust the layout of pickups and speakers, but also can reduce the occurrence of howling situations.

2.5. Alarm input and output connections

Before connecting the device, please note the following:

*** Note:** Some Series devices doesn't support alarm input and output functions.

2.5.1. Alarm Input

Alarm input is grounding alarm input.

Alarm input requirements for ground voltage signal.

When the alarms are connected to two DVR (WITHOUT HDD) or simultaneously access the DVR (WITHOUT HDD) or DVR (WITHOUT HDD) and other devices, need to be isolated by relay.

2.5.2. Alarm Output

DVR (WITHOUT HDD) alarm output cannot be connected power load (no more than 1A), should constitute the output loop current is too large to prevent damage to the relay. Require the use of high-power load contactors isolation.

2.5.3. PTZ Decoder connected

- Must do PTZ decoder and DVR (WITHOUT HDD) common ground, otherwise there may be Common-mode voltage will lead to control PTZ. Recommended to use shielded twisted pair with shielding for common ground connection.
- Prevent high voltage in series, rational layout, and good lightning protection measures.
- To be incorporated into the 120 ohm resistor in the remote reduced reflection, to ensure signal quality.
- DVR (WITHOUT HDD) 485 AB line cannot be connected with other 485 output.
- AB line voltage between the decoder requires less than 5V.

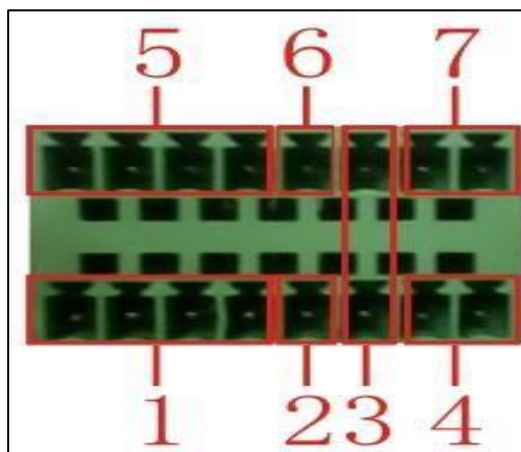
2.5.4. Front-end device requires grounding

Poor grounding may cause the chip to burn.

2.5.5. Any type of alarm input

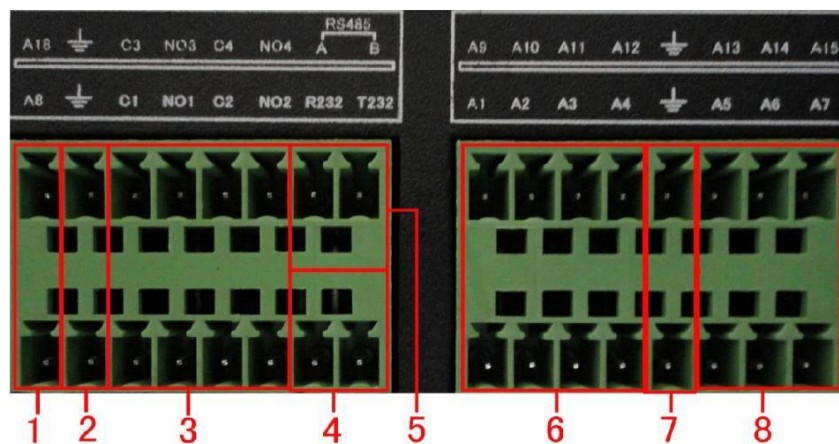
The alarm output unit interface is a normally open type.

8 external alarm interface schematic:



- 1) Alarm input
1,2,3,4
- 2) Ground
- 3) RS232 serial interface to send and receive
- 4) RS485 interface
- 5) Alarm inputs
5,6,7,8
- 6) Ground
- 7) Alarm output

16 External alarm interface schematic:



① ⑥⑧ alarm input ②⑦ ground ③ alarm output RS485④RS232

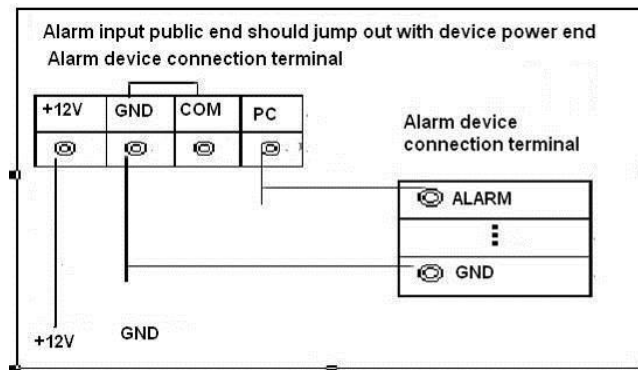
Parameters	Meaning
G	GND
R, T	Send and receive serial interface
A, B	485 communication interface

2.5.6. Alarm Input Port Description

Please refer to the following sheer for more information.

- Grounding alarm inputs. (Normal open or Normal close type)
- Please parallel connect COM end and GND end of the alarm detector (Provide external power to the alarm detector).

- Please parallel connect the ground of the DVR (WITHOUT HDD) and the ground of the alarm detector.
- Please connect the NC port of the alarm sensor to the DVR (WITHOUT HDD) alarm input (ALARM).
- Use the same ground with that of DVR (WITHOUT HDD) if you use external power to the alarm device.



2.5.7. Alarm Output Port Description

- Provide external power to external alarm device.
- To avoid overloading, please read the following relay parameters sheet carefully.
- RS485 A/B cable is for A/B of the PTZ decoder.
- T+, T-, R+, R- are four-wire double duplex RS485 port.
T+ T- : Output wire
R+ R- : Input Wire

2.5.8. Alarm output Relay terminal parameters

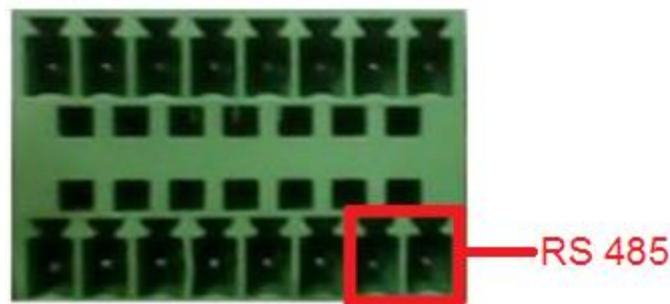
Model: JRC-27F		
Shock material	Silver	
Ratings (Resistive load)	Rated switching capacity	30VDC 2A, 125VAC 1A
	Maximum switching power	125VA 160W
	Maximum switching voltage	250VAC, 220VDC
	Maximum switching current	1A
Insulation	between the same polarity Contacts	1000VAC 1 minute
	between different polarity Contacts	1000VAC 1 minute
	Between coil and contacts	1000VAC 1 minute
Surge voltage	between the same polarity Contacts	1500VAC (10×160us)
Opening time	3ms max	
Turn-off time	3ms max	
Lifetime	Machinery	50×10 ⁶ MIN (3Hz)
	Electrical	200×10 ³ MIN (0.5Hz)
Work environment	-40~+70℃	

Connect Line 485

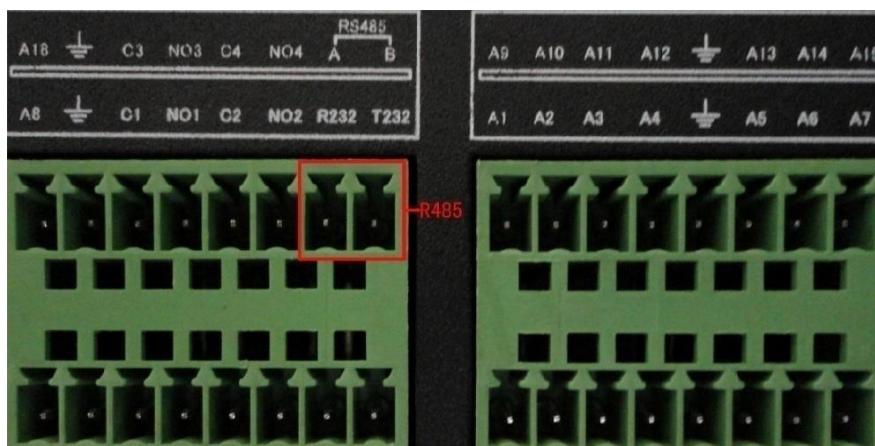
When the DVR (WITHOUT HDD) receives a camera control command, it transmits that command up the coaxial cable to the PTZ device. RS485 is a single-direction protocol; the PTZ device can't return any data to the unit. To enable the operation, connect the PTZ device to the RS485 (A, B) input on the DVR (WITHOUT HDD). Since RS485 is disabled by default for each camera, you must enable the PTZ settings first. This series DVR (WITHOUT HDD) support multiple protocols such as Pelco-D, Pelco-P.

To connect PTZ devices to the DVR (WITHOUT HDD):

- Connect RS485 A, B on the DVR (WITHOUT HDD) rear panel.
- Connect the other end of the cable to the proper pins in the connector on the camera.
- Please follow the instructions to configure a camera to enable each PTZ device on the DVR (WITHOUT HDD)



8 external alarm 485 Schematic



16 external alarm 485 Schematic

2.6. Other Interface

There are other interfaces on the DVR (WITHOUT HDD), such as USB Ports.

3. Basic Operations

3.1. Turn On

Plug the power supply and turn on the power supply switch. Power supply indicator light shining indicates turning on the video recorder. After the start-up you will hear a beep sound. The default setting of video output is multiple-window output mode. If the start-up time is within the video setting time, the timing video recording functions will start-up automatically. Then the video indicator light of corresponding channel is shining and the DVR (WITHOUT HDD) is working normally.

Note:

- Make sure that the input voltage corresponds with the switch of the DVR (WITHOUT HDD) power supply.
- Power supply demands: 220V±10% /50Hz.
- Suggest using the UPS to protect the power supply under allowable conditions.

3.2. Turn Off

There are two methods to turn off the DVR (WITHOUT HDD). Entering [Main Menu] and choosing [Shutdown] in the [Turn off the system] option is called soft switch. Pressing the power supply switch is called hard switch.

Illumination:

- **Auto resume after power failure**

If the DVR (WITHOUT HDD) is shut down abnormally, it can automatically backup video and resume previous working status after power failure.

- **Replace the hard disk**

Before replacing the hard disk, the power supply switch in the real panel must be turned off.

- **Replace the battery**

Before replacing the battery, the setting information must be saved and the power supply switch in the real panel must be turned off. The DVR (WITHOUT HDD) uses button battery. The system time must be checked regularly. If the time is not correct you must replace the battery, we recommend replacing the battery every year and using the same battery type.

Note: The setting information must be saved before replacing the battery otherwise information will lose.

3.3. System Login

When the DVR (WITHOUT HDD) boots up, the user must login and the system provides the corresponding functions with the user preview. There are two user settings - The names are admin, and default. Admin is the super user preview; default's Permissions are preview and video playback. User password can be revised, while their permissions can't be revised; user default is the default

login user whose permission can be revised but not its password. See in Figure 3.1 **Error! Reference source not found.**

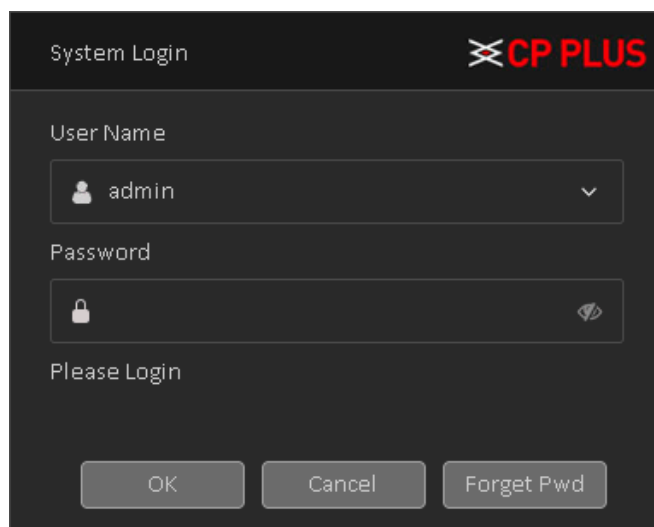
A dark-themed system login dialog box. At the top left is the text "System Login" and at the top right is the "CP PLUS" logo. Below the title bar, there are two input fields: "User Name" with a dropdown menu showing "admin" and a person icon, and "Password" with a lock icon and a toggle eye icon. Below these fields is the text "Please Login". At the bottom are three buttons: "OK", "Cancel", and "Forget Pwd".

Figure 3.1

Password protection: If the password is continuous wrong three times, the alarm will start. If the password is continuous wrong five times, the account will be locked. See in Figure 3.2 (Through Reboot or after half an hour, the account will be unlocked automatically). For your system security, please modify your password after first login.

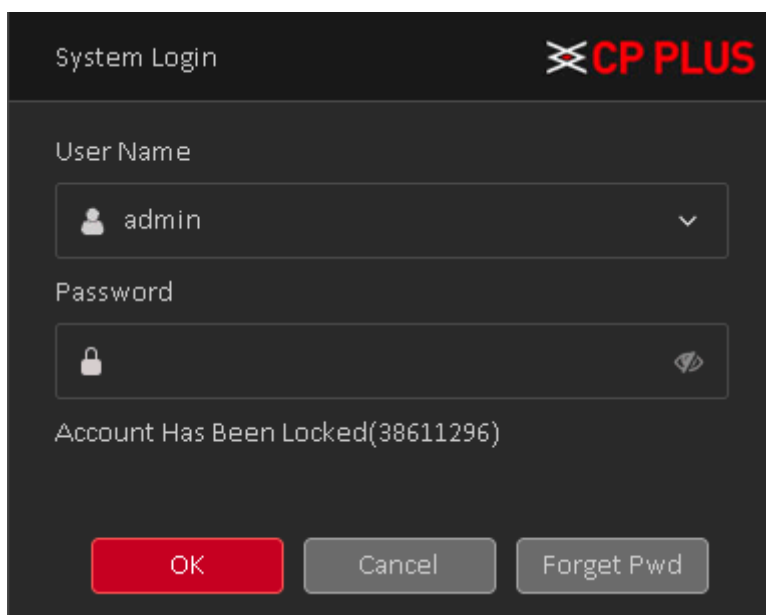
A dark-themed system login dialog box, similar to Figure 3.1, but with an additional message. Below the "Password" field, the text "Account Has Been Locked(38611296)" is displayed. The "OK" button at the bottom is highlighted in red, while "Cancel" and "Forget Pwd" are grey.

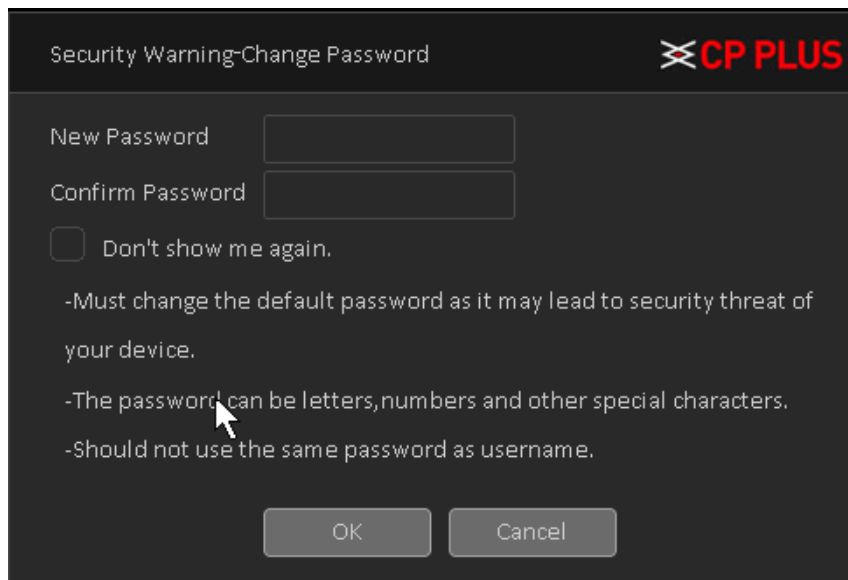
Figure 3.2

3.4. Set/Reset Password

3.4.1. Set Password

For your own safety, please set your administrator default password after you first boot up the device.

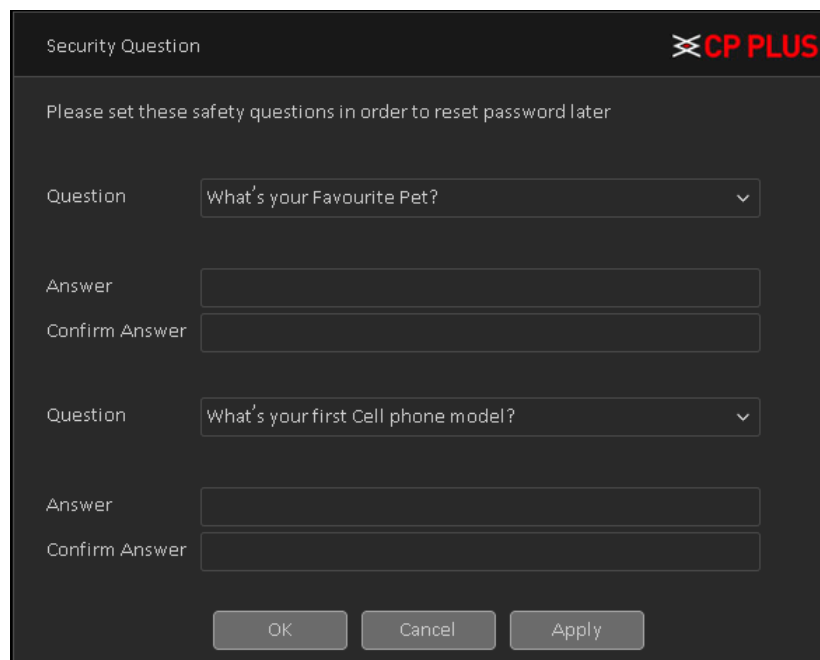
After system booted up, you can see the following interface if it is your first time to use or you have restored default setup. See. Please input a password and then input again to set a password. See in Figure 3.3



The image shows a dark-themed dialog box titled "Security Warning-Change Password" with the "CP PLUS" logo in the top right corner. It contains two input fields for "New Password" and "Confirm Password". Below these is a checkbox labeled "Don't show me again." followed by three lines of instructional text: "-Must change the default password as it may lead to security threat of your device.", "-The password can be letters, numbers and other special characters.", and "-Should not use the same password as username." At the bottom are "OK" and "Cancel" buttons.

Figure 3.3

- You can set security questions here to reset the password in case you forgot. System supports customized setup. Please note you need to set two security questions at the same time. When you reset the password, you need to answer these two security questions too. See in Figure 3.4
- For reset information, please refer to Chapter 3.4.2



The image shows a dark-themed dialog box titled "Security Question" with the "CP PLUS" logo in the top right corner. It contains the instruction "Please set these safety questions in order to reset password later". There are two sets of questions. The first set has a dropdown menu for the question "What's your Favourite Pet?", followed by "Answer" and "Confirm Answer" input fields. The second set has a dropdown menu for the question "What's your first Cell phone model?", followed by "Answer" and "Confirm Answer" input fields. At the bottom are "OK", "Cancel", and "Apply" buttons.

Figure 3.4

After you complete the setup, click OK button, system pops up the following interface for you to confirm. Click OK button to exit. See Figure 3.5

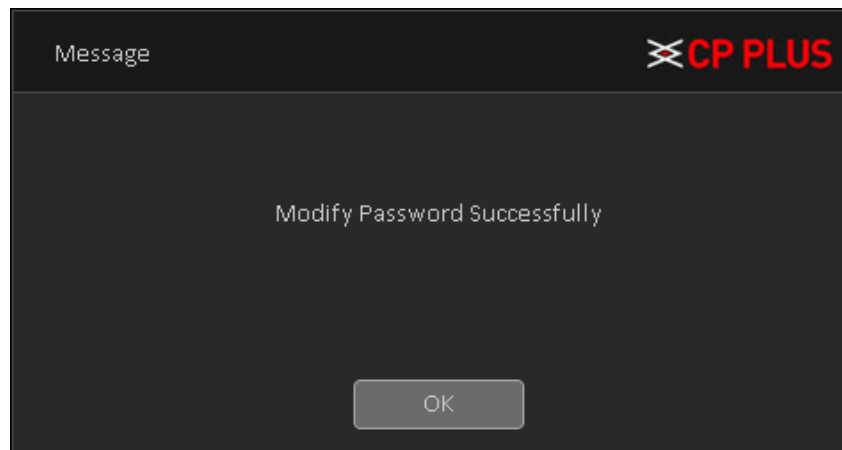


Figure 3.5

3.4.2. Reset Password

Once you forgot password, you can answer the security questions you set in chapter 3.4.1 to reset the password.

In login interface, click . See Figure 3.6.

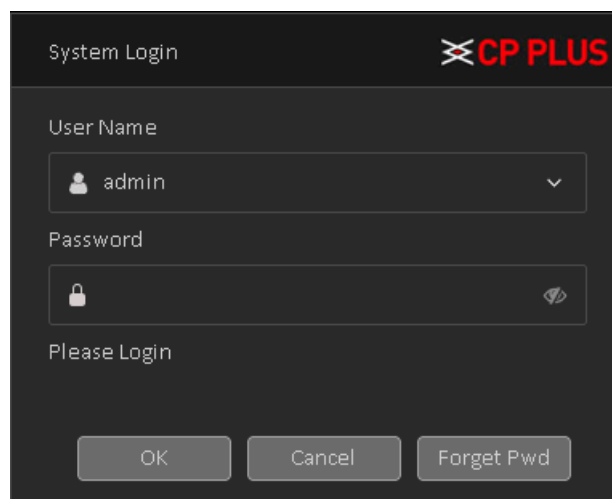
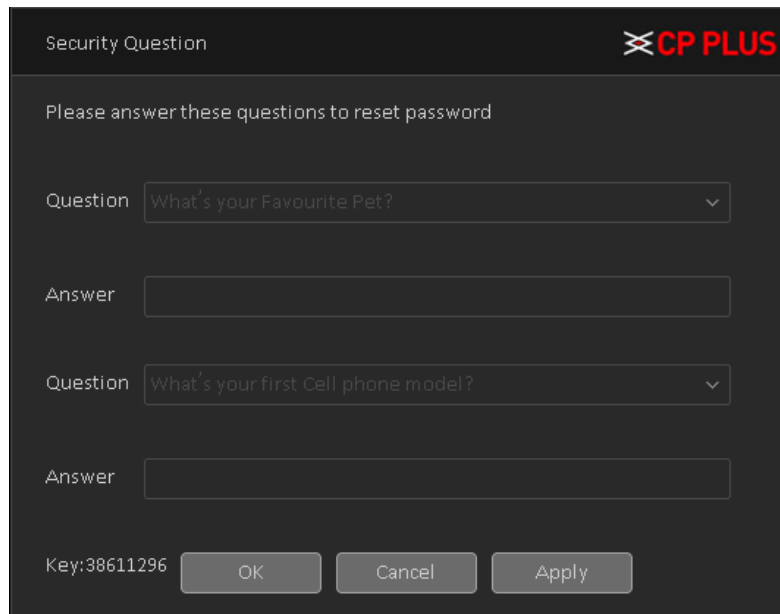


Figure 3.6

System pops up the following dialogue box, please answer the security questions and then input the new password twice. See Figure 3.7



Security Question CP PLUS

Please answer these questions to reset password

Question: What's your Favourite Pet? v

Answer:

Question: What's your first Cell phone model? v

Answer:

Key:38611296 OK Cancel Apply

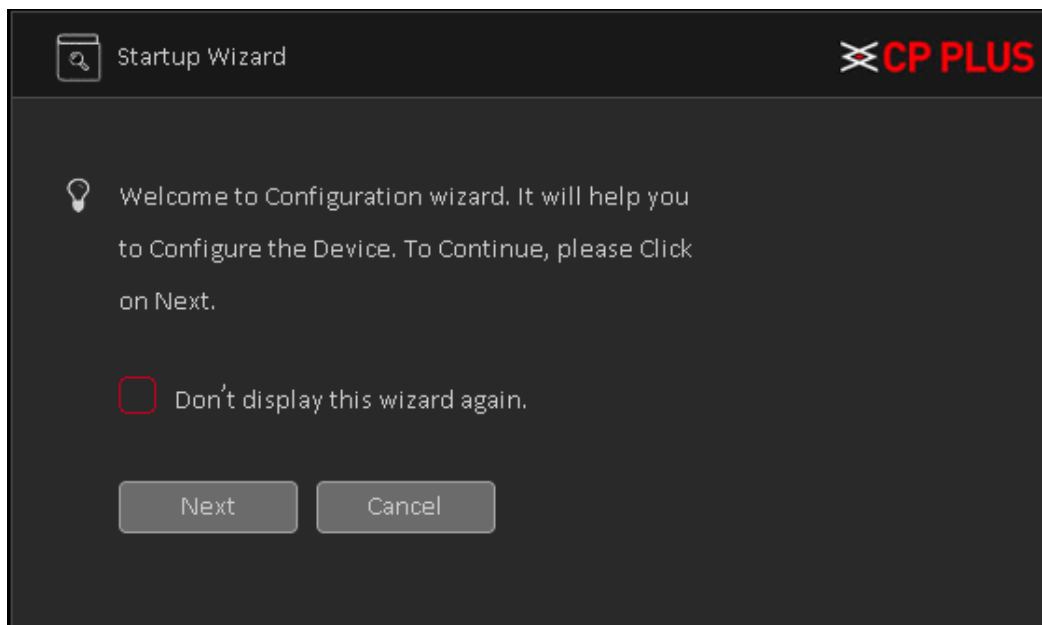
Figure 3.7

3.5. Start-up Wizard

After device successfully booted up, it goes to startup wizard. See Figure 3.8, Click Cancel/Next button, you can see system goes to login interface.

Tips

Check the box Startup button here, system goes to startup wizard again when it boots up the next time. Cancel the Startup button, system goes to the login interface directly when it boots up the next time.



Startup Wizard CP PLUS

💡 Welcome to Configuration wizard. It will help you to Configure the Device. To Continue, please Click on Next.

☐ Don't display this wizard again.

Next Cancel

Figure 3.8

Click Cancel button or Next Step button, system goes to login interface. See Figure 3.9

System consists of two accounts:

- **Username:** admin. **Password:** admin. (administrator, local and network)

- **Username:** default. **Password:** default (hidden user). Hidden user “default” is for system interior use only and cannot be deleted. When there is no login user, hidden user “default” automatically login. You can set some rights such as monitor for this user so that you can view some channel view without login.

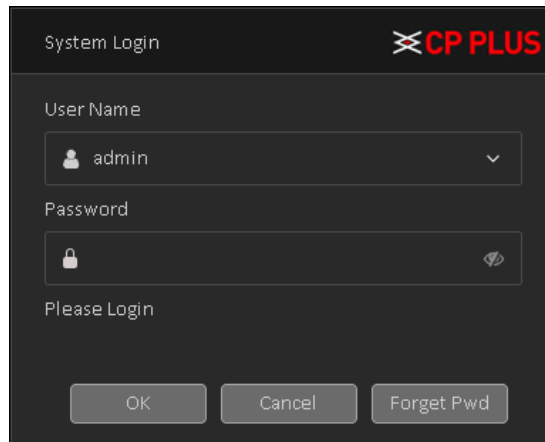


Figure 3.9



Caution

- For security reason, please modify password after you first login.
- Continuous five times login failure will result in account lock!
- Please reboot the device or wait for 30 minutes to try again if your account has been locked.

After input corresponding user name and password, you can click OK button. System goes to the startup wizard.

- When there are all analog channels, the startup wizard includes Date n Time and language, Network Test and Install Mobile App.
- Click OK button, you can go to General interface. See Figure 3.10.

For detailed information, please refer to chapter 4.1.5.1.

Figure 3.10

- Click on Next button, you will go to Network test page. See Figure 3.11

Figure 3.11

- Click on Next button, now you will go to install mobile app. See Figure 3.12. Here you will get QR code link to redirect mobile application for android and IOS base. And also you will get QR code to get serial No. of device for Instaon.

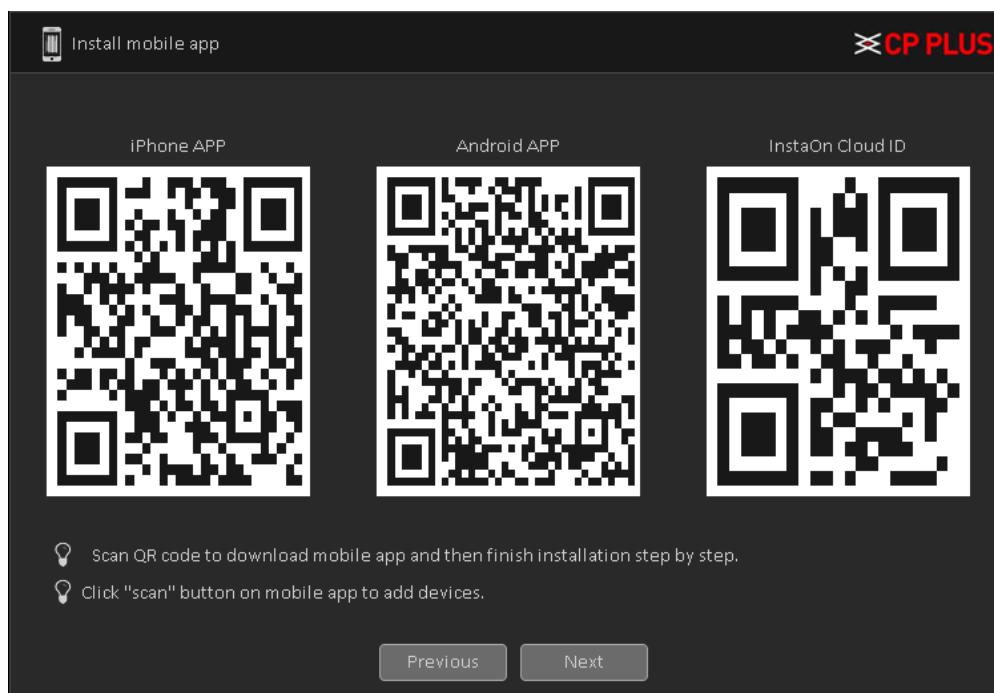


Figure 3.12

- Click Next button, system pops up a dialogue box. Click the OK button, the startup wizard is complete. See Figure 3.13

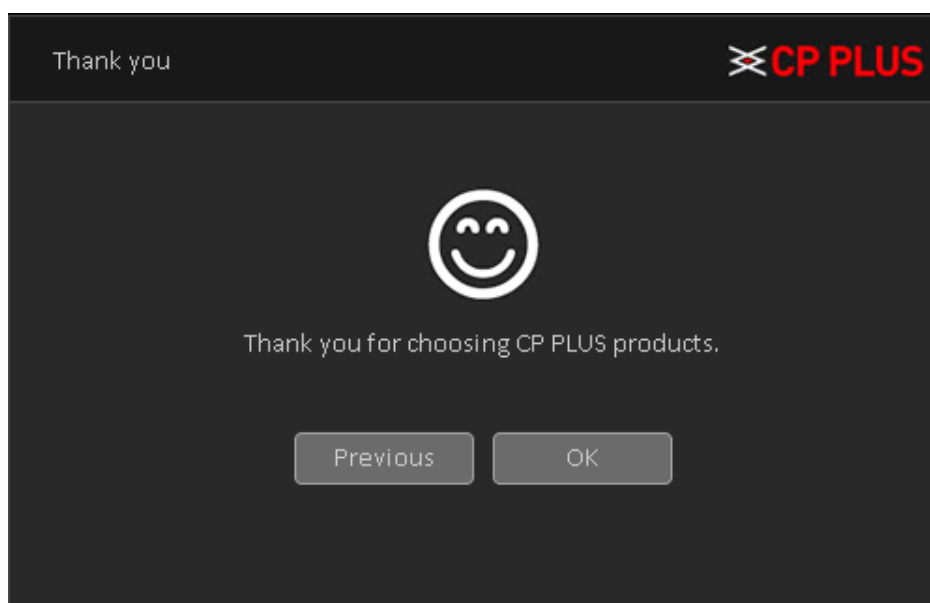






Figure 3.13

3.6. Preview

You can right click mouse to choose the switch between the windows. The system date, time and channel name are shown in each viewing window. The surveillance video and the alarm status are shown in each window.

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

- Use mouse middle scroll wheel to change channel No: You can use mouse middle scroll wheel to switch channel to other channel.
- **Digital Zoom** - It is to zoom in specified zone of current channel. Please drag mouse with left click to select a zone and then click in selected zone. you can view an interface show as Figure 3.14

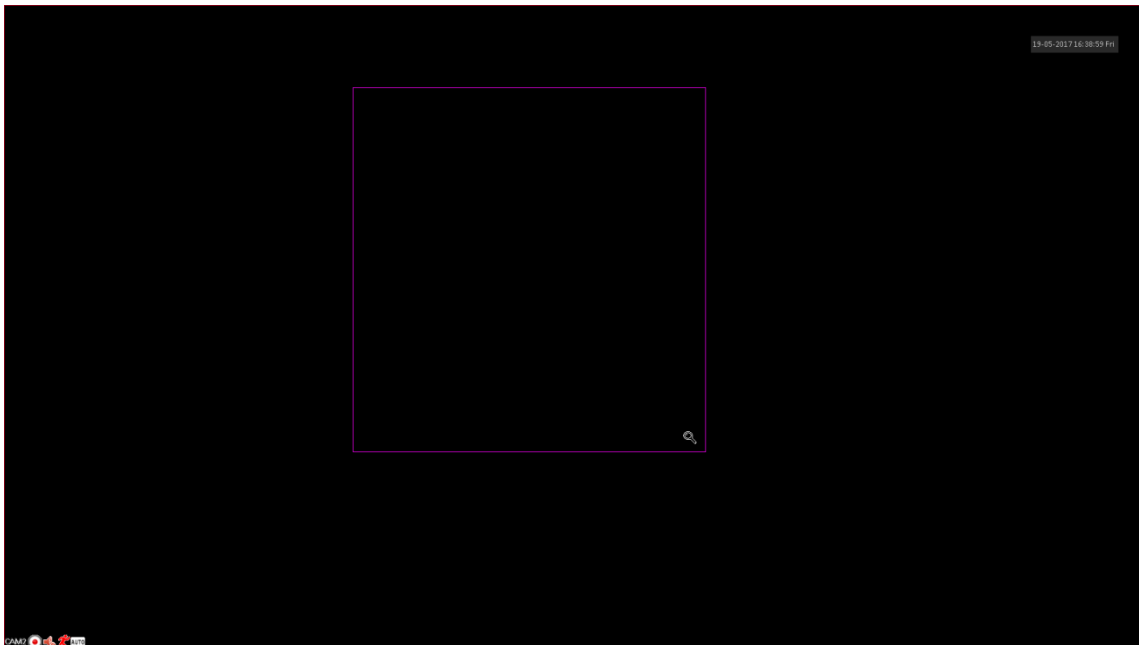





Figure 3.14

- **MIC Sound** - If you have connect a MIC with device and want to get the sound of audio input than please click on  on the same channel to get audio and to disable audio please click on .
- **Signal Mode** – To change camera signal mode please click on  of particular channel window, by clicking this icon it will change channel signal mode like TVI, AHD, CVI and AUTO.

3.7. Right Click Menu

In preview mode you can right click mouse to get a drop-down menu, as in Figure 3.15. The menu includes: **Main Menu**, **PTZ Control**, **Smart Add**, **Signal Type**, **Color Setting**, **Output Adjust**, **Playback**, **Record Mode**, **Window Split Mode** and **Exit**.

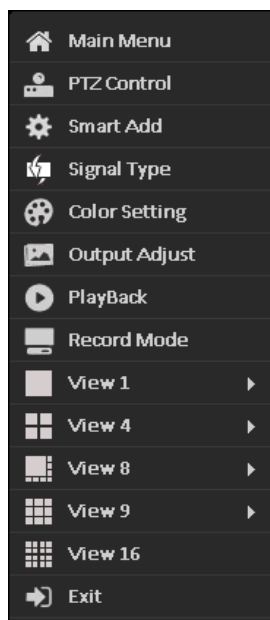


Figure 3.15

3.7.1. Main Menu

See Figure 3.16. Please refer to Chapter 4 for detailed information.

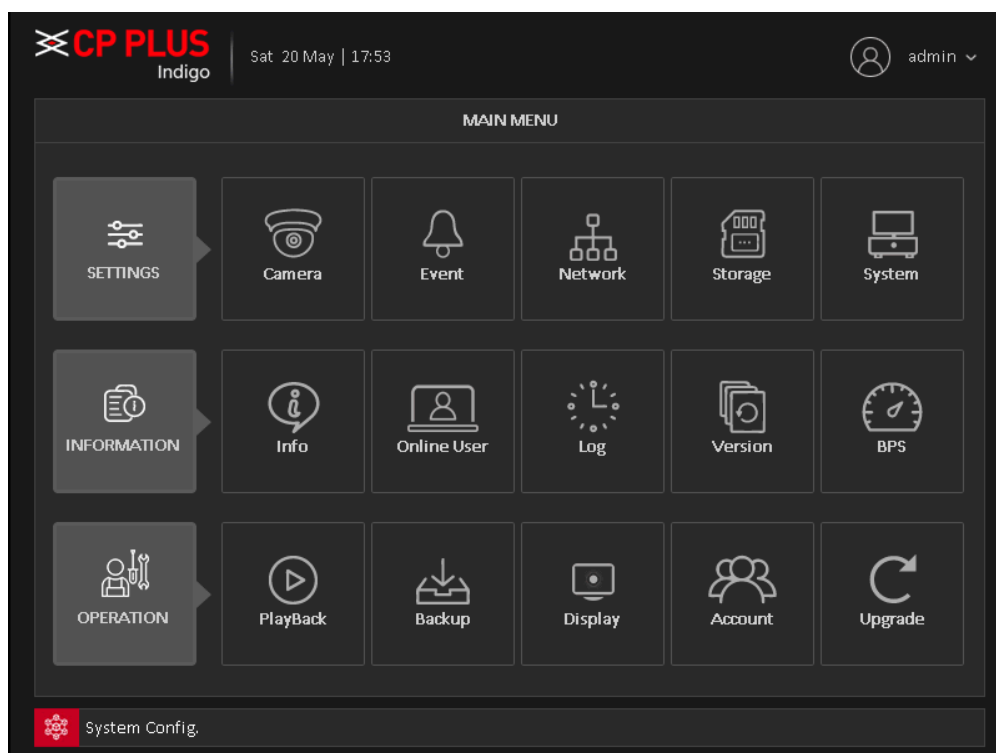


Figure 3.16

3.7.2. Window Switch

System supports 1/4/8/9-window (The options here depend on your product channel amount). You can select from the dropdown list. See Figure 3.17

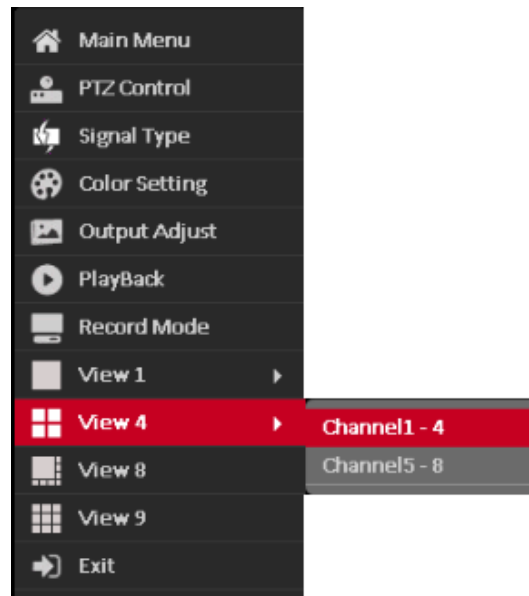


Figure 3.17

3.7.3. PTZ Control

The PTZ setup is shown as in See Figure 3.18 .

Here you can control PTZ Direction, Speed, Zoom, Focus, Iris, Preset, Tour, Scan, Pattern aux function, Light and Wiper, Rotation and Etc.

Note:

- RS485 (A) (B) line connects with DVR (WITHOUT HDD) (A) (B) line. The connection is right.
- Click **[Main Menu] → [System Configuration] → [PTZ Setup]** to set the PTZ parameters.
- The PTZ functions are decided by the PTZ protocols.

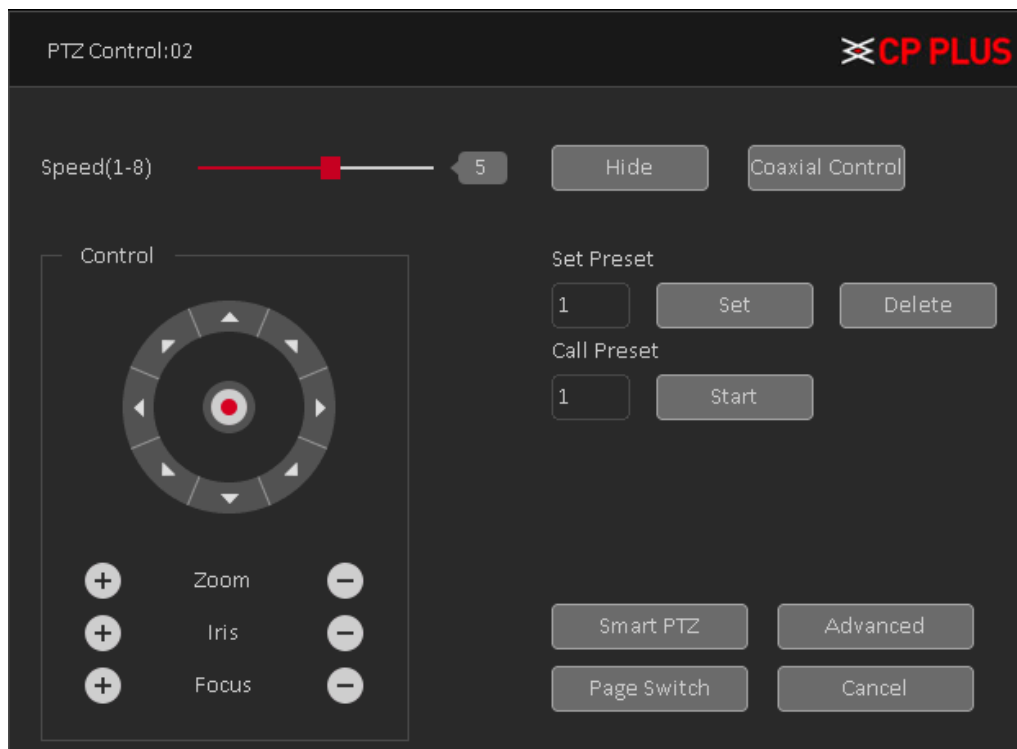








Figure 3.18

- **[Speed]** Speed is to control PTZ movement speed. The value ranges from 1 to 8. The speed 8 is faster than speed 1, default value will be 5.
- **[Hide]** Current interface will be temporarily hidden after click it.
- **[Control]** Control the PTZ rotation, 8 directions is supportive. If you are using direction buttons on the front panel, there are only four directions: up/down/left/right.
- **[Zoom]** Click  /  to adjust the zoom IN or OUT.
- **[Iris]** Click  /  to adjust Iris Value.
- **[Focus]** Click  /  to adjust camera Focus.
- **[Smart PTZ]** Full-Screen show channel image. Left press mouse and control PTZ to rotate orientation. Left press mouse and then rotate the mouse to adjust the zoom Multiple of the camera.

Special Functions: -

- **[Set Preset]** Preset is a specific spot you can focus your PTZ's view on and assign it a number. By activating the preset number your camera will go to the exact spot you specified. It can also be used with the other options such as Tour.

To set a preset, procedure is as follows:

- Move PTZ through direction keys to a selective location.
- Enter your preset no. in and then click on .
- By above procedure you can create No. of preset.

To Delete a Preset Procedure is as follows:

- Enter a preset No. in which you want to delete.
- Then click on to delete particular Preset.
- You can only delete one preset at a time.

To call a Preset, procedure is as follows:

- Enter a preset No. in which you want to call.
- Then Click on , PTZ will turn to preset position.
- You can call only one preset at a time.

- **[Advanced]** To enter a new operation page as shown in Figure 3.19

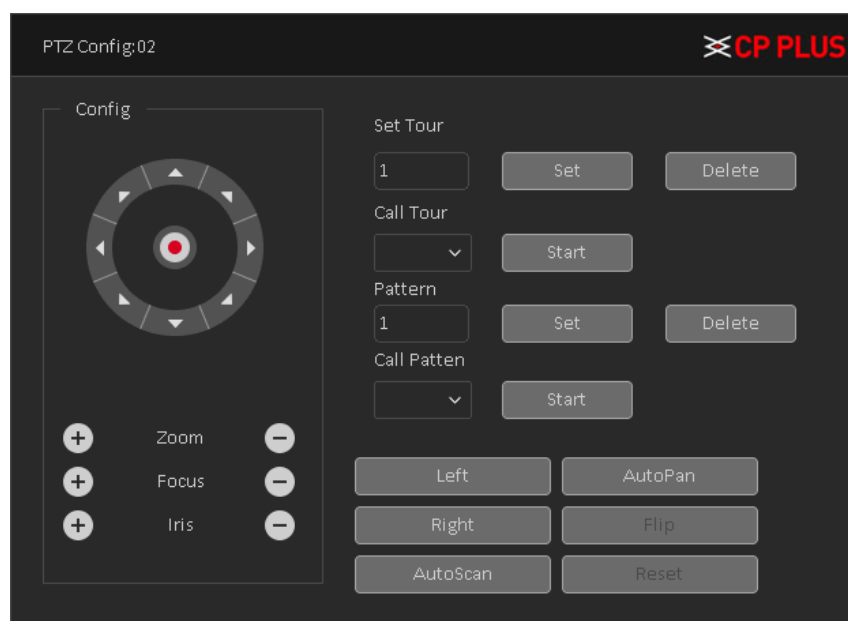


Figure 3.19

- **[Set Tour]** Tour is the collection of preset, which call automatically one by one according to their prefix order.

To set tour, procedure as follow-

- Enter a tour No. in and then click on .
- Now in tour window, select your predefine preset

1
2
3

 which you want to add in tour.
- Input Tour interval, in . It is time duration gap to call next preset.
- Click on button to add selected preset in tour. It will show in Exist Preset, See Figure 3.20

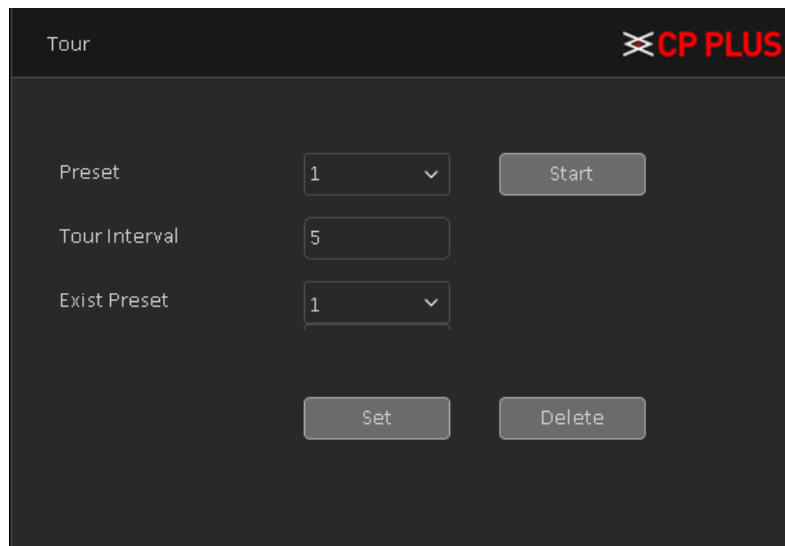


Figure 3.20

- To delete added preset from tour, please select particular tour in Exist Preset and click on .

To delete a tour Procedure is as follows:

- Enter a Tour No. in which you want to delete.
- Then click on to delete particular tour. See Figure 3.19
- You can only delete one tour at a time.

To call a Tour, procedure is as follows:

- Select tour No. in which you want to call.
- Then Click on , PTZ will turn to preset position. See Figure 3.19
- You can call only one preset at a time.

- **[Pattern]** A pattern is similar to a preset but instead of one fixed view assigned to a number you are able to move/zoom the camera for an allotted percentage that lowers the more you adjust it. You can also assign each pattern you create a number.

To set pattern, procedure as follow-

- Enter a patter No. in and then click on .
- Now in pattern window, rotate PTZ to desirable location and path.
- Click on button to save followed path as pattern. See Figure 3.21

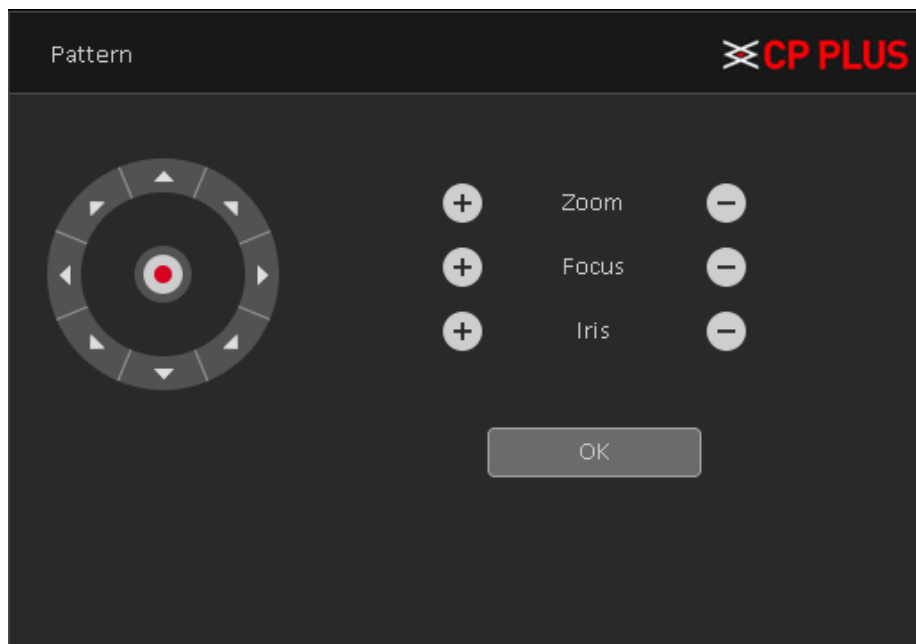


Figure 3.21

To delete a pattern Procedure is as follows:



- Enter a pattern No. in which you want to delete.
- Then click on to delete particular pattern. See Figure 3.19.
- You can only delete one pattern at a time.

To call a Tour, procedure is as follows:

- Select Pattern No. in which you want to call.
- Then Click on , PTZ will start follow pattern path. See Figure 3.19.
- You can call only one preset at a time.

- **[Auto Pan]** This feature consistently rotates the camera in 360° movement.

To start and stop Auto Pan Procedure is as follow:

- Click on ; PTZ will start rotating in 360°.
- To stop Auto Pan, click on  button. See Figure 3.22

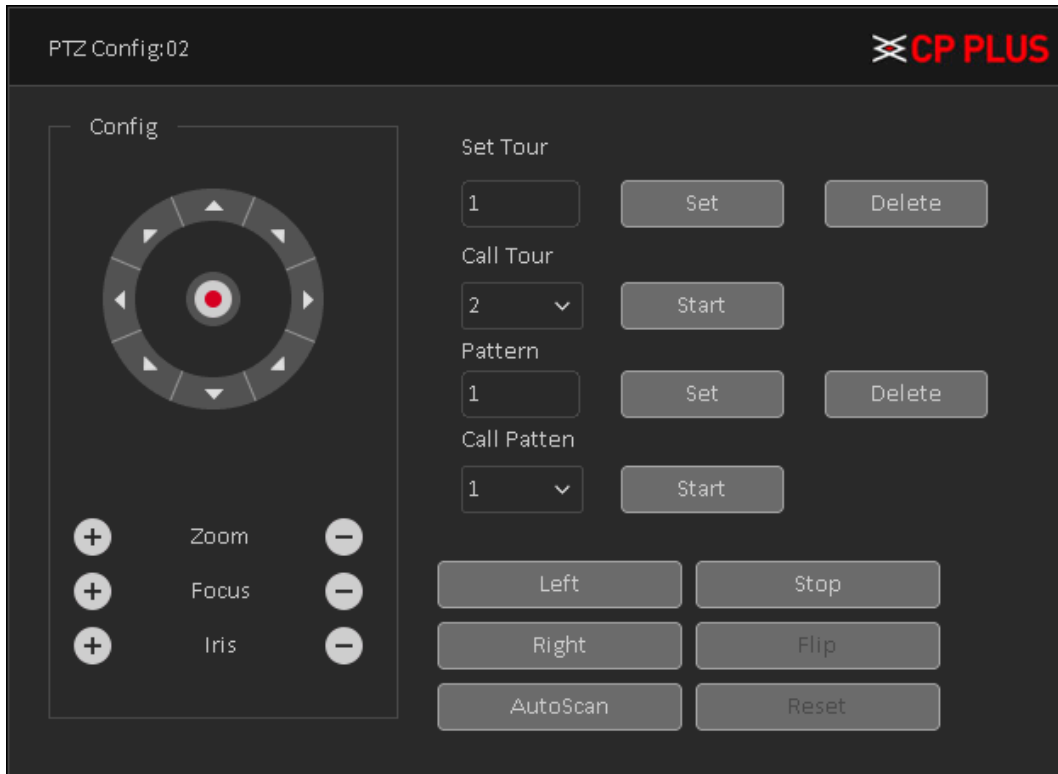




Figure 3.22

- **[Auto Scan]** Auto scan consistently pans between a left border and a right border that you set until turned off. Keep in mind that the left border is the starting position and this feature only goes left to right and continually scans between them, it will not go from the left point to a right point that is positioned lower or higher than the initial point you set the left border at.

To set Auto Scan, procedure as follow-

- Use direction key to rotate PTZ camera to set left limit and then click on .
- Use again direction key to set PTZ camera Right limit and then click on .

To start and stop Auto Scan Procedure is as follow:

- Click on ; PTZ will start rotating in 360°.
- To stop Auto Pan, click on  button. See Figure 3.23

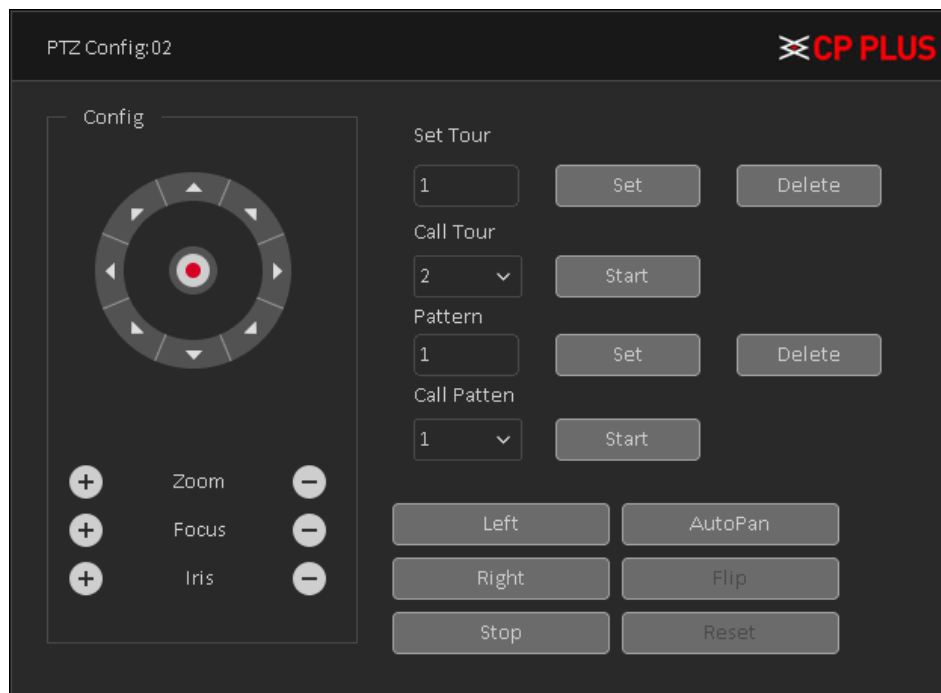


Figure 3.23

- **[Flip]** Rotates the camera 180°.
- **[Reset]** Resets the camera to its default point.

➤ **[Page Switch]** To enter and configure PTZ camera OSD menu options. See Figure 3.24

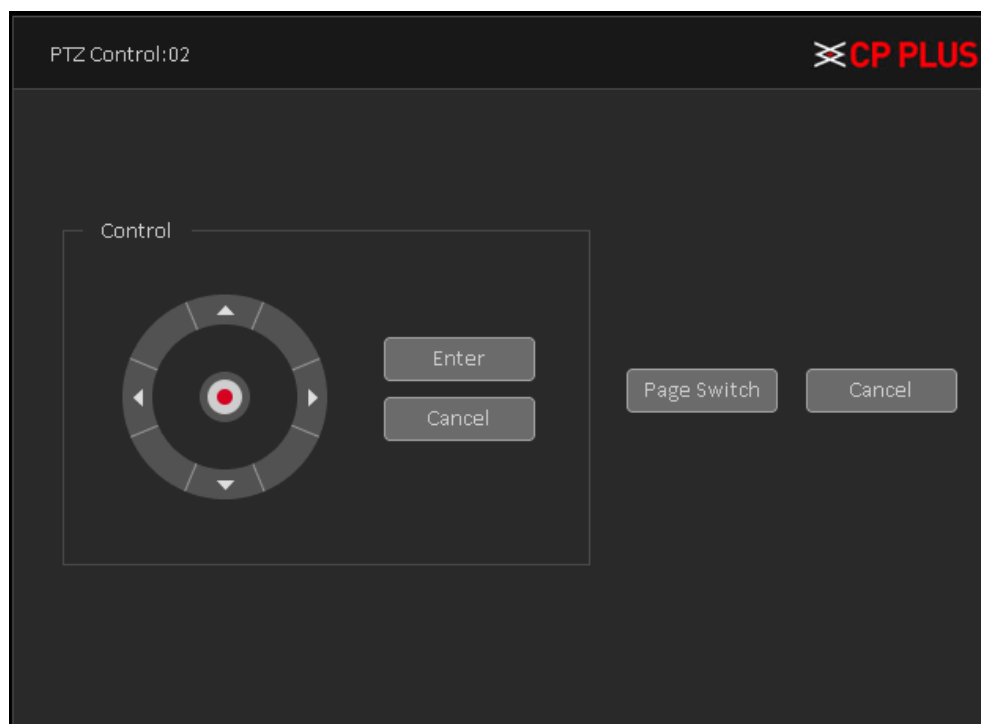


Figure 3.24

3.7.4. Smart Add

Shortcut to add IP camera in DVR (WITHOUT HDD), it automatically search all IP camera in network and auto add in device as per DVR (WITHOUT HDD) DAC mode. See Figure 3.25

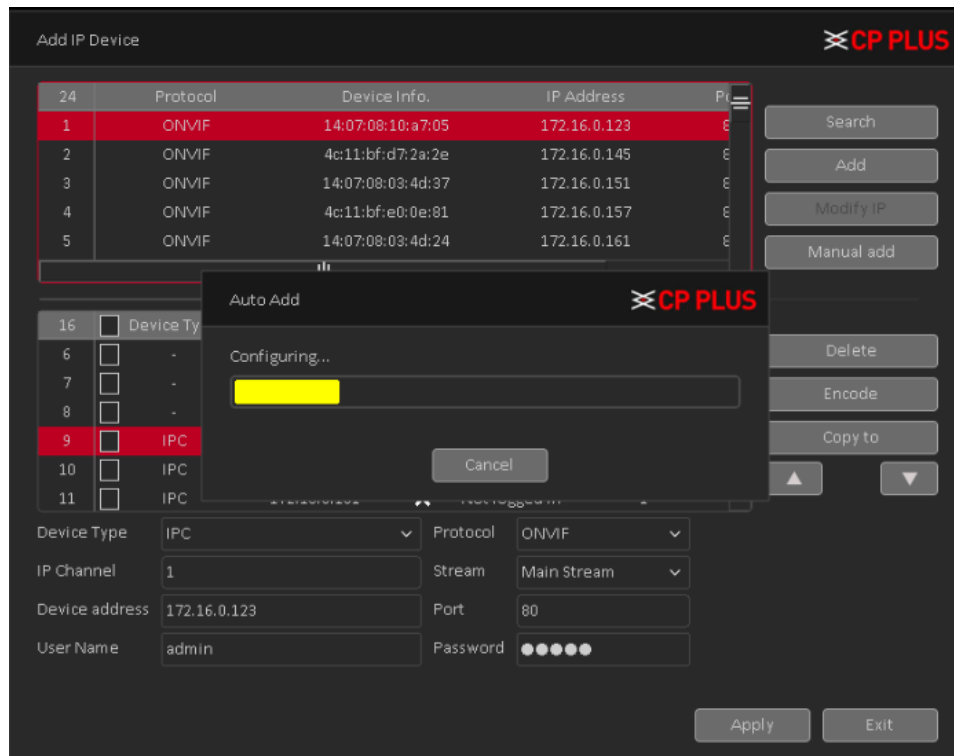


Figure 3.25

3.7.5. Signal Type

Select signal type to get camera video according to camera signal. Like (AHD, HDTVI and HDCVI) or can select auto option to get type signal automatically. See Figure 3.26

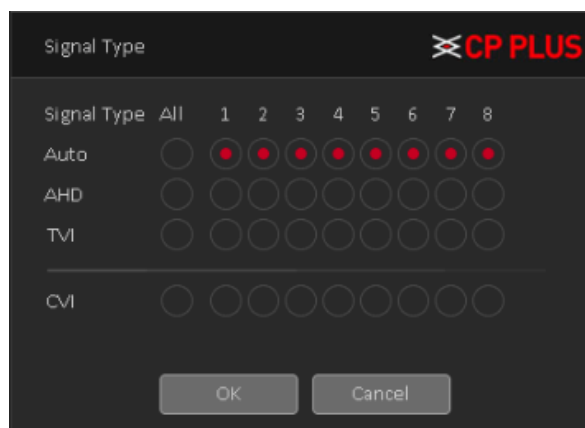


Figure 3.26

3.7.6. Color Setting

Set selected channel color setting (single-screen preview of the current channel, or select channel window of particular camera color setting include: Brightness, Contrast, Saturation, Hue, Gain, Horizontal sharpness, Vertical sharpness. And according to the needs of different image parameters set in two different time periods. See Figure 3.27

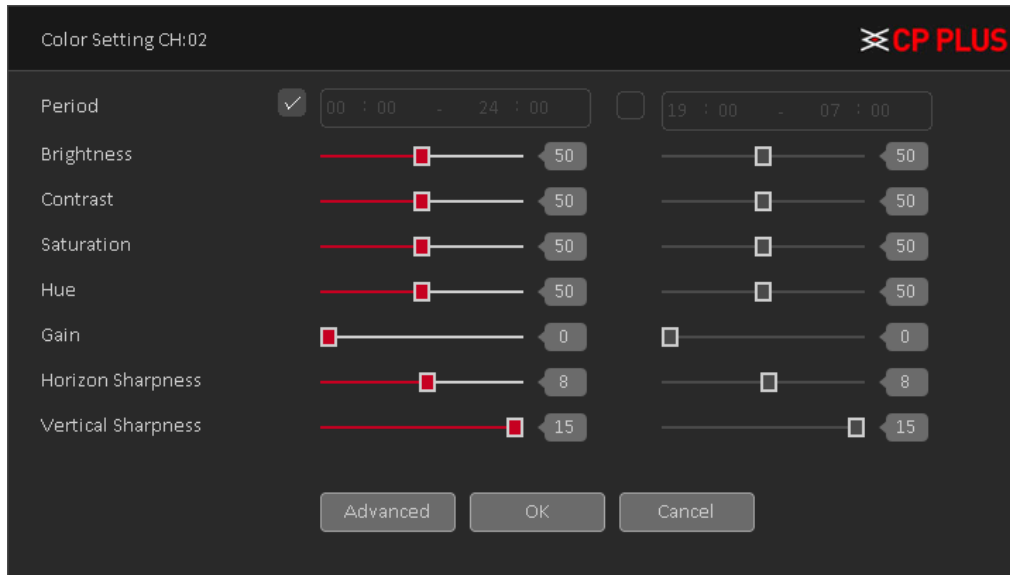


Figure 3.27

3.7.7. Output Adjustment

Adjust output area parameters and output display interface color setting for VGA and HDMI. Output Adjust include: Top Deflate, Bottom Deflate, Left Deflate, Right Deflate, Black Vertical and Black Horizontal including Brightness, Contrast, Saturation and Hue of VGA/HDMI display settings adjustment. See Figure 3.28

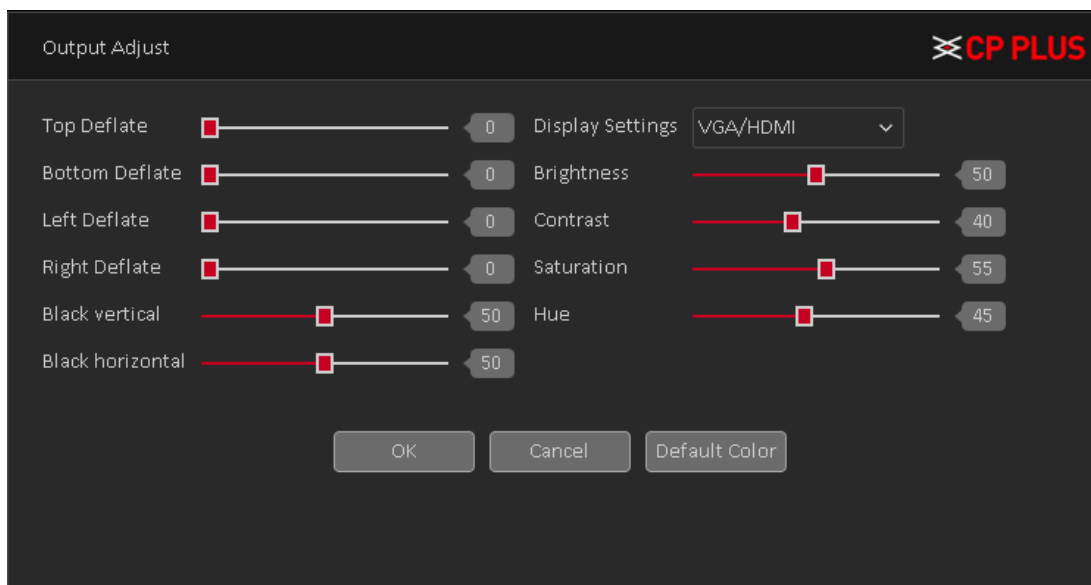


Figure 3.28

3.7.8. Playback

Check Recorded video backup of cameras. See Figure 3.29. Please refer to chapter 4.3.1 for detailed information.

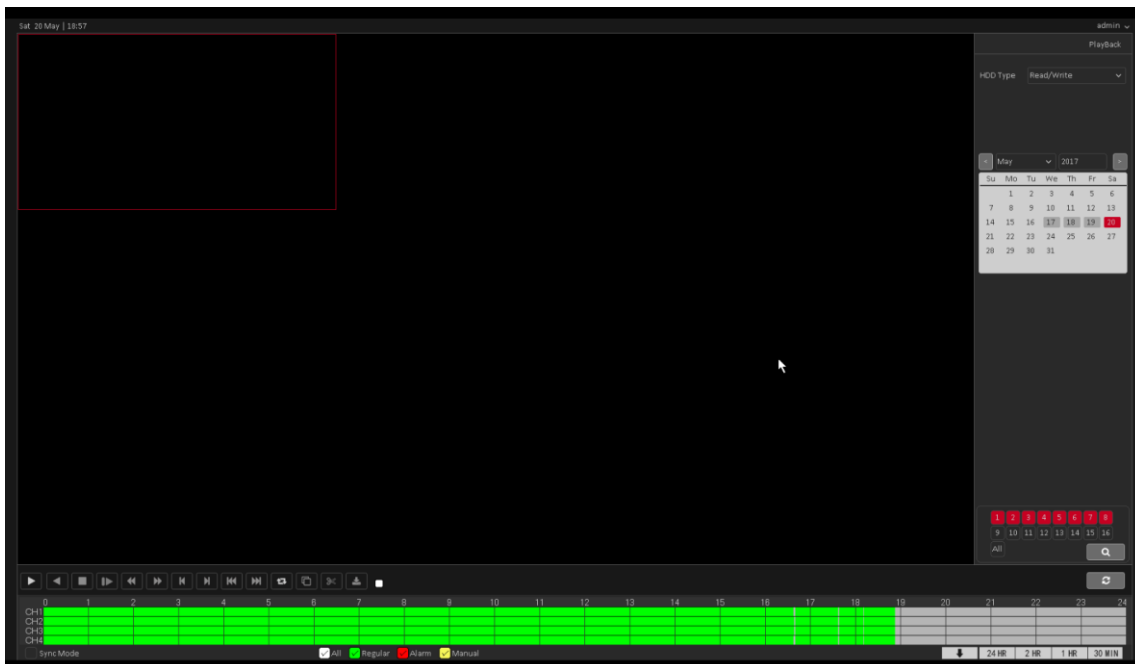




Figure 3.29

3.7.9. Record Mode

Please check current channel status:  means it is not in recording status, and  means it is in recording status. See Figure 3.30.

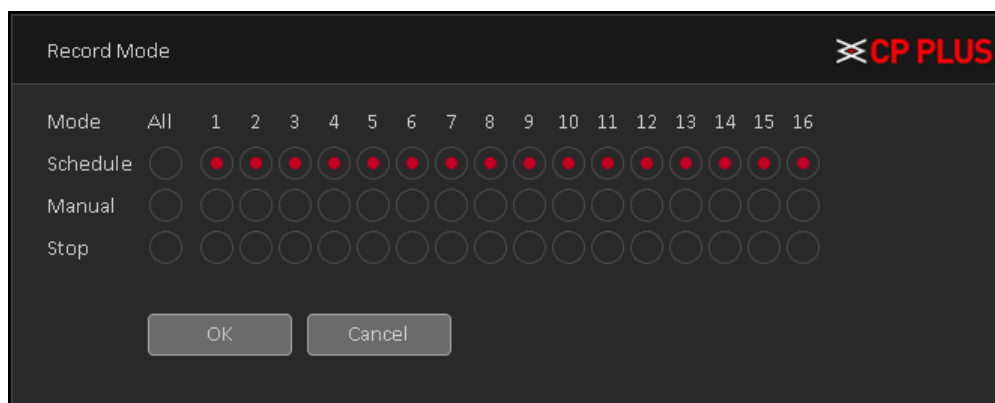


Figure 3.30

- **[Schedule]** Channel records as you have set schedule time. Please refer to chapter 4.1.4.1 for detailed information.
- **[Manual]** The highest priority, after manual setup, all selected channels will begin ordinary recording.
- **[Stop]** Current channel stops recording.
- **[All]** Check all buttons after the corresponding status to enable/disable all-channel schedule/manual record or enable/disable all channels to stop record.

3.7.10. Exit

Logout or Reboot the system. You can use the desktop shortcut menu or enter **[Main Menu]**.
See Figure 3.31

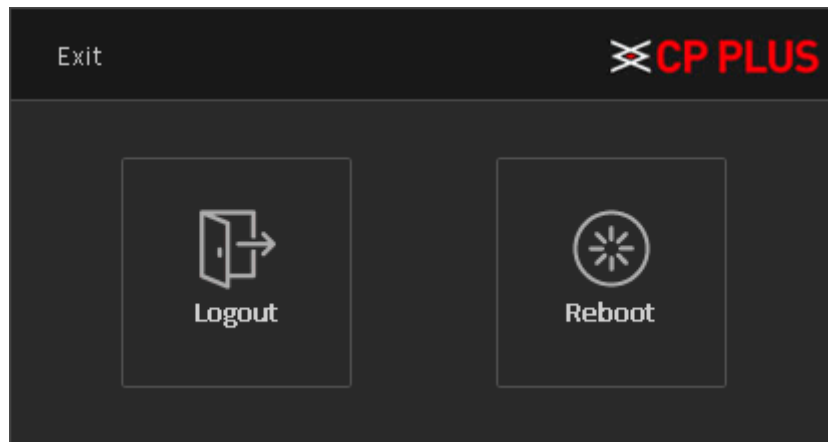


Figure 3.31

4. Main Menu

The Main Menu interface is shown as below. See Figure 4.1



Figure 4.1

4.1. Settings

4.1.1. Camera

4.1.1.1. Encode

When the product is set to DAC mode / full analog channel mode, the system will be set up in the encoding setting function, encoding settings can only function in an analog channel encoding settings.

Set the video / audio encoding parameters including video files, remote monitoring and other image parameters. The left part of each individual channel set encoding parameters, the parameters set on the right part of the secondary stream, dual-stream uses 1080P / 1080N / 720P / 960H / D1 / HD1 / CIF / QCIF encoding rate of the stream all the way to high definition for local storage, support all the way to low bit rate stream (QCIF coding) for network transmission, taking into account local storage and remote network transmission. Dual-stream network bottlenecks in the existing balance between image quality and transmission quality, can break through the bottleneck of the network, the flexibility to select the format according to the network bandwidth stream, to local HD storage, while the rear end of the transmission of low stream networks.

Note: Basic purpose of the sub stream is for multi-channel real-time monitoring, mobile monitoring under poor network.

- **[Channel]** Select the channel you want.
- **[Compression]** System supports H.264
 - **H.264:** It is the High Profile compression algorithm. It has the high encode compression rate. It can achieve high quality encode at low bit stream.
- **[Resolution]** For analog channel, system supports various resolutions, you can select from the dropdown list. Please note the option may vary due to different series. For digital channel, the resolution here refers to the capability of the network camera.
- **[Frame Rate]** It ranges from 1f/s to 25f/s. It depends on channel resolution.
- **[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 Lowest to Highest. The sixth level has the highest image quality.
- **[I Frame Interval]** Here you can set the P frame amount between two I frames. The value ranges from 1 to 12. Recommended value is 2.
- **[Video/audio]** You can enable or disable the video/audio.

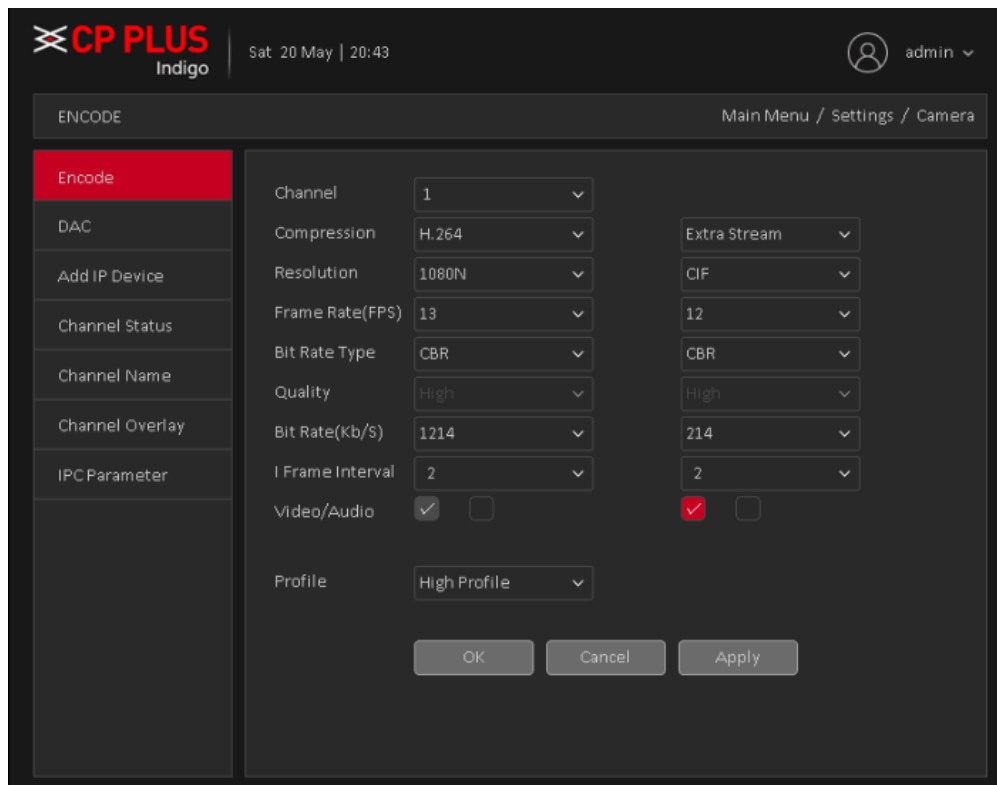


Figure 4.2

4.1.1.2. DAC

It is to set DAC mode. Each mode support HD Analog/IP camera or only HD analog camera or Only IP Camera (Slight function difference may be found). Please note DVR (WITHOUT HDD) needs to restart to activate new mode. The interface is shown as in Figure 4.3

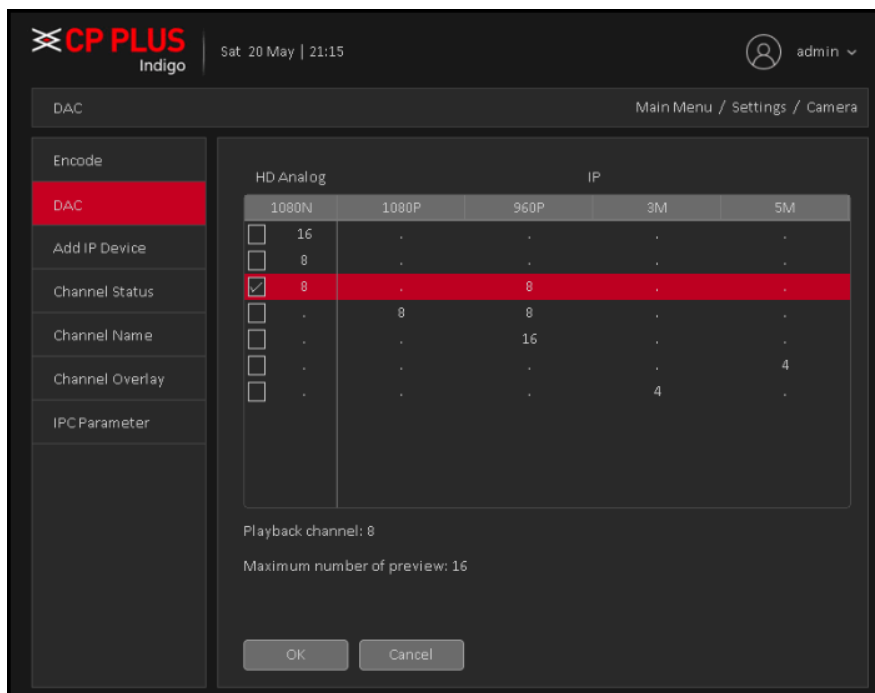


Figure 4.3

Remark: Compatible four types of front-end camera: AHD, HD-TVI, HD-CVI and IPC. Among all of analog channel, every channel attributes mutual independence, inexistence the binding relationship of any channel.

4.1.1.3. Add IP Device

Here you can add/delete IP device and view its corresponding information. See Figure 4.4

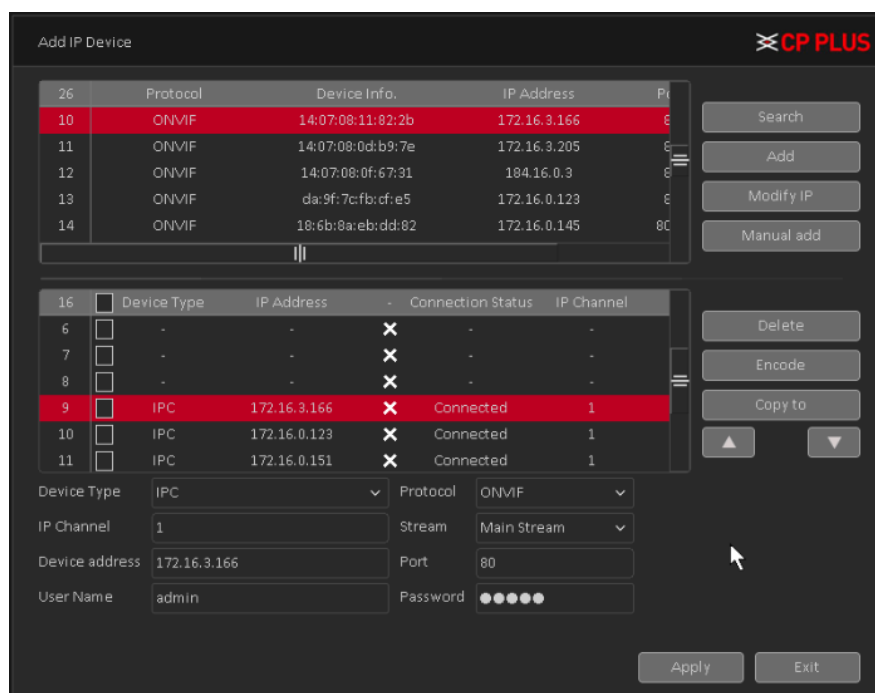



Figure 4.4

- **[Search]** Click it to search IP address. It includes device Protocol, Device Info (MAC Address), IP address and Port. Use your mouse to click , you can refresh display order. Click IP address, system displays IP address in ascending order. Click IP address again, you can see icon, system displays IP address in Descending order. You can click other items to view information conveniently.
- **[Add]** Click it to connect to the selected device and add it to the Added device list.
- **[Modify IP]** Click it to modify IP address of Searched IP devices. Note – it only work with private protocol devices.
- **[Delete]** Click it to delete existing device, if the user wants to change device. Select the existing device and click on Delete.
- **[Encode]** To set encode setting of IPC. Please refer to Chapter 4.1.1.1 for detailed information.
- **[Copy To]** Some information of selected channels can be copied to other channels, such as user name, password, and other device information, as shown below Figure 4.5

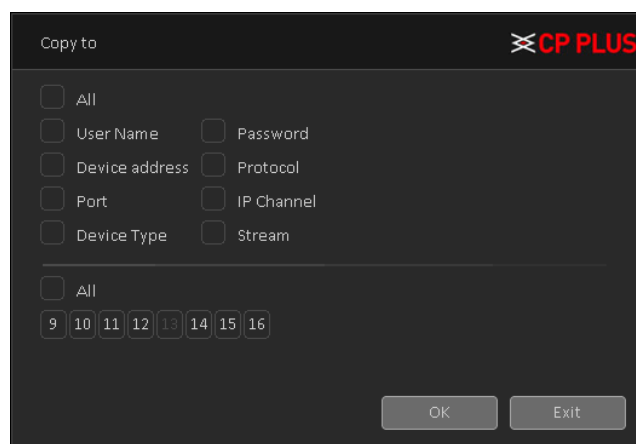


Figure 4.5

- **[Manual Add]** Click it to add the IPC manually at custom level. See Figure 4.6

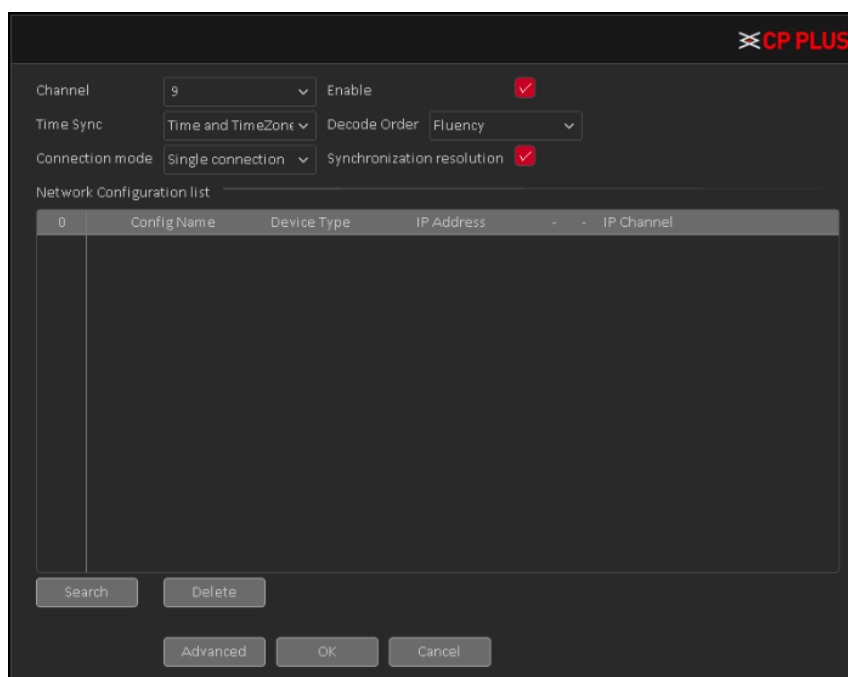


Figure 4.6

- **[Channel]** Select channel no.
- **[Enable]** Open digital channel, tick enable, then can do related settings.

- **[Time Sync]** To disable or select time synchronization mode with device and UTC.
- **[Decode Order]** To select mode of network video stream transmission. It includes: Real Time, Middle and Fluency
- **[Connection Mode]** Can be single connect or multi-link, multi-link modes can connect to several devices, device will be tour displayed one by one, tour interval can be set, no less then 10s;
- **[Delete]** If the user wants to change device, select the existing device, click delete will be ok.
- **[Synchronization Resolution]** To enable resolution modification of network camera through DVR (WITHOUT HDD) end.
- **[Search]** Click on add will come out below page to add new device. See Figure 4.7.

Remote access configuration

0	Protocol	Device Info.	IP Address	Port

Config Name:

Device Type: Protocol:

IP Channel: Stream:

Device address:

Port:

User Name: Password:

Figure 4.7

- **[Config Name]** Device is with default configure title; user can revise it if necessary.
- **[Device Type]** 3 types: IPC, DVR (WITHOUT HDD), And HVR. User can choose as what you like, default is IPC.
- **[Protocol]** There are two protocols Private and ONVIF, the default is Private.
- **[IP Channel]** User can input remote channel title from the device that you want to connect remotely.
- **[Stream]** Optional Main stream and Sub stream, the main stream by default.
- **[Device Address]** To enter remote device IP, the system defaults to 192.168.1.240.
- **[Port]** Default is 25001.
- **[User name]** Default is admin
- **[Password]** Default is admin
- **[Search]** Click the Search button, the following will show the device as shown Figure 4.8, the user can double-click the device IP connections want according to their needs, and you can add the device.

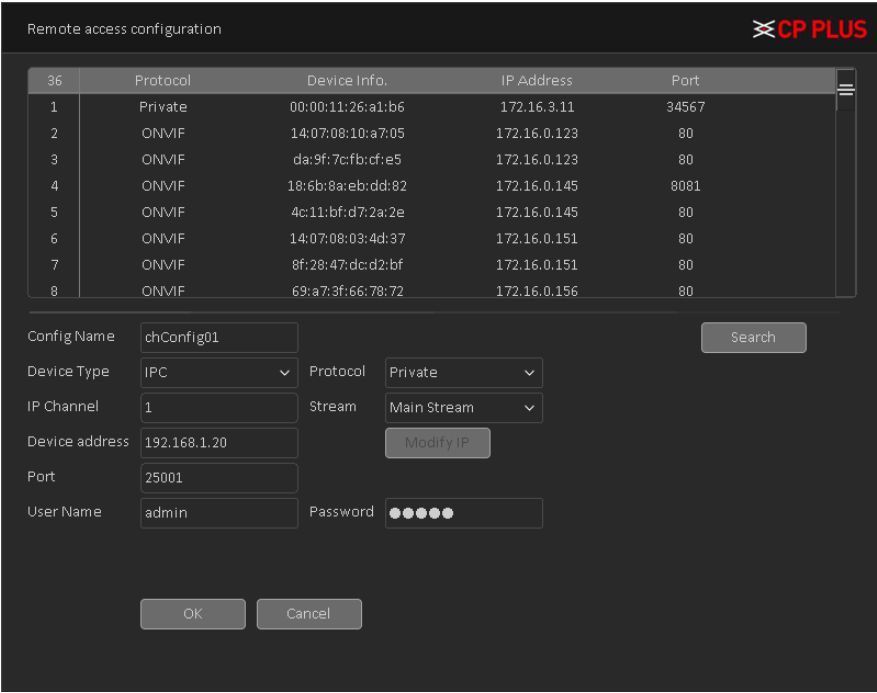


Figure 4.8

Double-click the discovered devices, click the button; you can just add the device to the network settings.

4.1.1.4. Channel Status

Channel status is to show the status of the entire IPC channel when there is what existing, status including Max Resolution, Current Resolution, and Connection Status. See Figure 4.9.

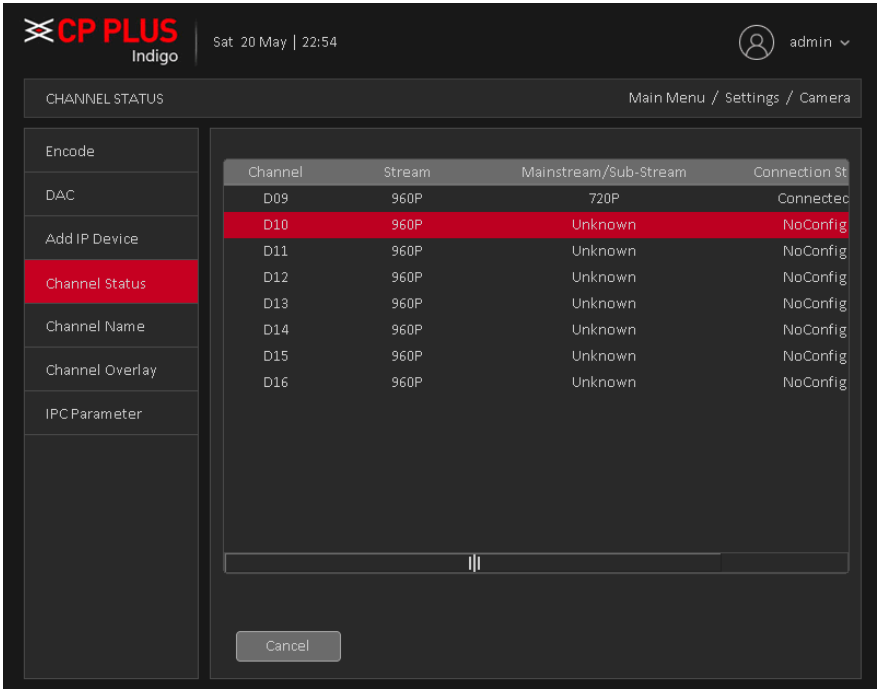


Figure 4.9

4.1.1.5. Channel Name

It is to modify channel name. See Figure 4.10. Please note for digital channel, you can only modify the channel name of the connected network camera.

The screenshot shows the 'CHANNEL NAME' configuration window in the CP PLUS Indigo software. The window has a dark theme. On the left is a sidebar with a menu: Encode, DAC, Add IP Device, Channel Status, Channel Name (highlighted in red), Channel Overlay, and IPC Parameter. The main area displays a grid of 16 channels, labeled Channel1 through Channel16. Each channel has a text input field for its name. Channels 1-8 are labeled 'CAM' followed by a number (e.g., CAM1, CAM2). Channels 9-16 are labeled 'D' followed by a number (e.g., D10, D12). At the bottom of the main area are three buttons: OK, Cancel, and Apply. The top of the window shows the CP PLUS Indigo logo, the date and time 'Sat 20 May | 23:09', and a user profile icon labeled 'admin'.

Figure 4.10

4.1.1.6. Channel Overlay

Channel Overlay interface is shown as in Figure 4.11.

The screenshot shows the 'CHANNEL OVERLAY' configuration window in the CP PLUS Indigo software. The window has a dark theme. On the left is a sidebar with a menu: Encode, DAC, Add IP Device, Channel Status, Channel Name, Channel Overlay (highlighted in red), and IPC Parameter. The main area contains a 'Channel' dropdown menu set to '2'. Below it is a 'Channel Overlay' checkbox that is checked, with a 'Setup' button next to it. At the bottom of the main area are three buttons: OK, Cancel, and Apply. The top of the window shows the CP PLUS Indigo logo, the date and time 'Sat 20 May | 23:23', and a user profile icon labeled 'admin'.

Figure 4.11

- **[Channel]** To select the channel on which user want overlay.
- **[Channel Overlay]** To enable or disable overlay setup.

- **[Setup]** Here is for you to set cover area. You can drag you mouse to set proper section size. In one channel video, system max supports 4 zones in one channel.



- **[Zone]** To select No. of zone for overlay on channel video.

Note – By default overlay will effect on both preview and monitor state, means after setup the channel overlay it will effected on live preview as well as in playback of same channel.

4.1.1.7. IPC Parameter

IPC Parameter interface as shown in Figure 4.12.

Note – IPC parameter will work with only for those IPC which is connected with Private protocol.

Figure 4.12

- **[Channel]** Select a channel from the dropdown list. (*Only those channels will show in dropdown list which was added through private protocol*).
- **[Exposure Mode]** To choose camera exposure as auto (0.1 millisecond – 80 millisecond) or manual (1/50, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000) default is auto.
- **[AE Reference]** To choose auto exposure integer data between 0 ~ 100, default value is 50.
- **[Day/Night Mode]** To choose Automatic, Color or Black and White mode.
- **[IR Cut]** To choose automatically switch or IR synchronous switch, default is automatically.
- **[Image Style]** To set image style as per profile.
- **[Profiles]** To choose camera profile as per camera location, you can choose auto, indoor or outdoor. By default is auto.
- **[ICR Threshold]** To set IR-Cut filter threshold level, value range 10 to 50. By default value is 30.
- **[BLC]** To enable or disable auto exposures according to the environments situation so that the darkest area of the video is cleared.

- **[AE Sensitivity]** To set auto exposure sensitivity level, value range 1 to 10. By default value is 5.
- **[Auto Iris]** To enable or disable auto Iris feature.
- **[Automatic Gain]** To enable or disable auto gain control of camera, user can also set the upper limit of AGC from 0 to 100. Default value is 50.
- **[WDR]** For the WDR scene, this function can lower the high bright section and enhance the brightness of the low bright section. So that you can view these two sections clearly at the same time. User can set upper limit of WDR, value ranges from 0 to 100. Default value is 50.
- **[Defogging]** To enable or disable defogging mode of camera. User can also set the grade for defogging; value ranges from 0 to 100. Default value is 50.
- **[Corridor Mode]** To enable or disable corridor mode of camera. This feature is depending of camera feature.
- **[Slow Shutter]** To choose No, weak, in or strong.
- **[Day noise Level]** To set noise level in day time, value range from 0 to 5. Default is 3.
- **[Night noise Level]** To set noise level in day time, value range from 0 to 5. Default is 3.
- **[Mirroring]** It is to switch video up and bottom limit. This function is disabled by default.
- **[Anti-Flicker]** To enable or disable anti-flicker in the fluorescent light.
- **[Overturn]** To enable or disable overturn.
- **[IR Swap]** To enable or disable IR in day or night.

Important Note – In Camera page add IP device, Channel status and IPC parameter option will show or hide according DAC mode.

4.1.2. Event

4.1.2.1. Motion Detect

By analyzing the video image, when the system detects a mobile signal, motion detection alarm is initiated, and the linkage functions. See Figure 4.13

Note: The front-end equipment and this equipment need to enable this feature. Advanced button same to the right mouse button.

Motion detection function of mixed mode / full analog and digital channels are different: motion detection alarm digital channels only to turn its function at the local end, the corresponding remote device connected to the end of the channel will have motion detection feature is turned on, when the remote device side corresponding channel has motion detection scene occurs, the local side will be able to achieve its alarm function, otherwise the motion detection function cannot be achieved, while the analog channels open as long as the local end manufacturing mobile phenomenon on the line.

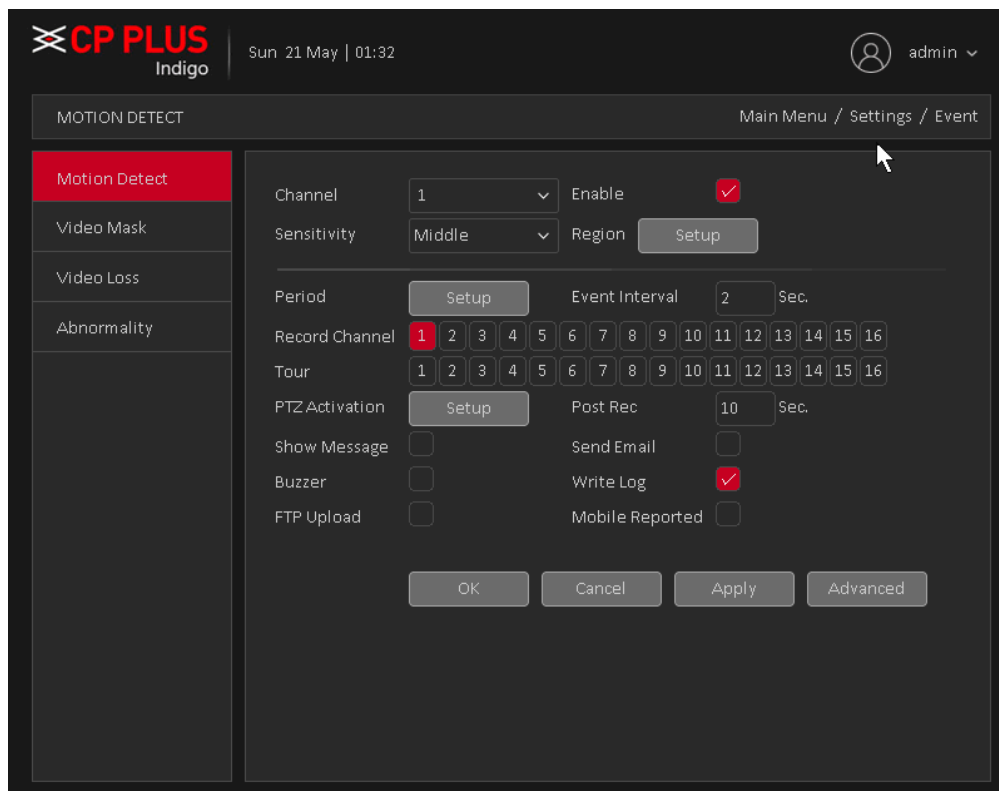


Figure 4.13

- **[Channel]** Select the number of channels to be set, the default one channel to the network camera.
- **[Enabled]** To enable or disable Motion Detect on particular channel.
- **[Sensitivity]** according to the sensitivity level of the lowest, low, medium, high, very high, the highest six-speed optional. By default is Middle.

Note: where only in motion detection settings and only analog channels can set its sensitivity of mixed mode / full analog mode.

- **[Region]** Click setup; enter the settings area is divided into 16X12 blocks, red area for motion detection fortified area. The white area is undefended, Settings area. Hold down the left mouse button, draw settings area. See Figure 4.14 (By default the entire area selected for monitoring area).

Note: Mixed mode / full motion detection in analog mode only regional settings, and only analog channels to set their area.

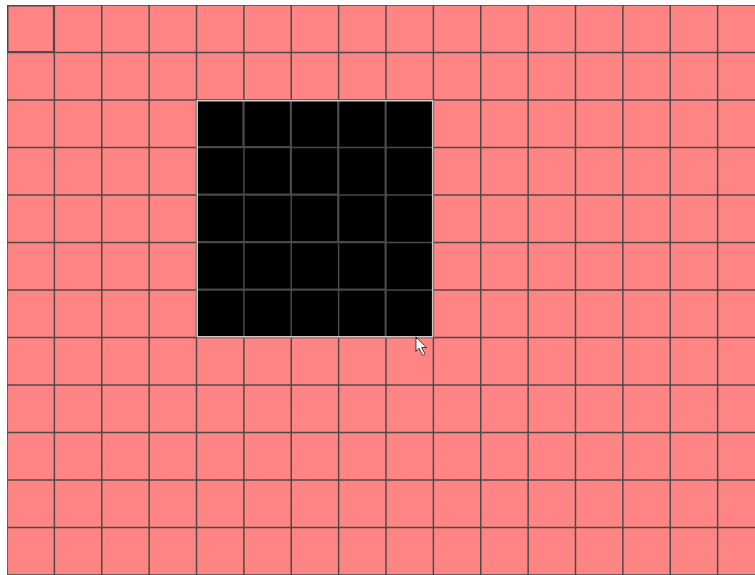


Figure 4.14

- **[Period]** You can also set the alarm time from Monday to Sunday every day 4 time periods, other time will not trigger motion detection alarm information. See Figure 4.15

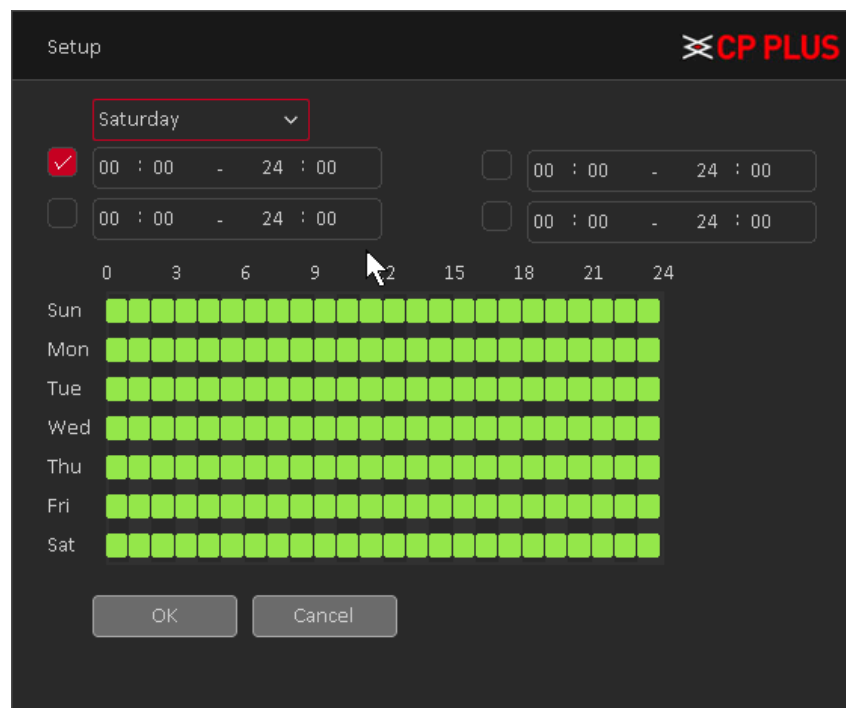


Figure 4.15

- **[Interval]** between two alarms generate alarm information shortest time interval can be set between 0 and 600Sec.
- **[Record channel]** When an alarm is triggered, the camera starts recording, you need to open detection recording.
- **[Tour]** Here you can enable tour function when alarm occurs. System one-window tour.
- **[PTZ Activation]** Here you can set PTZ movement when an alarm occurs. Such as go to preset, tour & pattern when there is an alarm. Click "Setup" button, you can see an interface is shown as in Figure 4.16.

Note: PTZ Activation, you need [shortcut menu] → [PTZ Control], set the preset point, tour between points, intervals and other parameters

Channel	Selection	Value
Channel1	None	0
Channel2	None	0
Channel3	None	0
Channel4	None	0
Channel5	None	0
Channel6	None	0
Channel7	None	0
Channel8	None	0

Buttons: OK, Cancel

Figure 4.16

- **[Post Rec]** After the alarm ends, the length of time to continue the local recording can be set between 10 and 300S.
- **[Show Message]** on the local host screen, pop-up dialog box prompts warning information.
- **[Send Email]** When an alarm is triggered, sends an alarm message to the specified mailbox, through SMTP settings.
- **[Buzzer]** When an alarm occurs, the device sends a "Beep" sound long ring.
- **[Write Log]** Check the box here, system can record motion detect log.
- **[FTP Upload]** Expressed alarm occurs if the selected channel or video capture channel, the video file up to a FTP server.

Note: Upload FTP, need to be set accordingly in the [Network Services].

- **[Buzzer]** When an alarm occurs, the device sends a "Beep" sound long ring.
- **[Mobile reported]:** when an alarm occurs, the device sends a push notification on mobile client.

4.1.2.2. Video Mask

When the device captured video images by outside influence, low light, to set the sensitivity parameter, start the video occlusion alarm, and the linkage function. See Figure 4.17

*Same with motion detection, the DAC mode / full analog and digital channels of video Mask function differently.

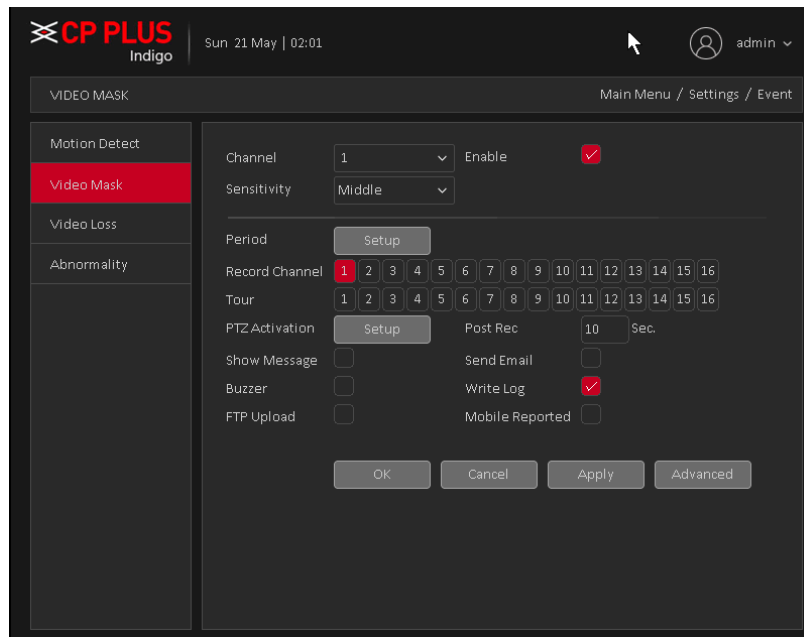


Figure 4.17

Digital channels cannot be used to set the sensitivity. Which is a mixed-mode or full simulation mode can set the sensitivity. Sensitivity level is divided into six kinds, namely: minimum, low, medium, high, very high, the highest. Setting method: Please refer to chapter 4.1.2.1.

4.1.2.3. Video Loss

When the device cannot get channel video signal, the video loss alarm, and the linkage function. See Figure 4.18

*Same with motion detection, the Mixed-mode / full analog and digital channels of video loss function differently.

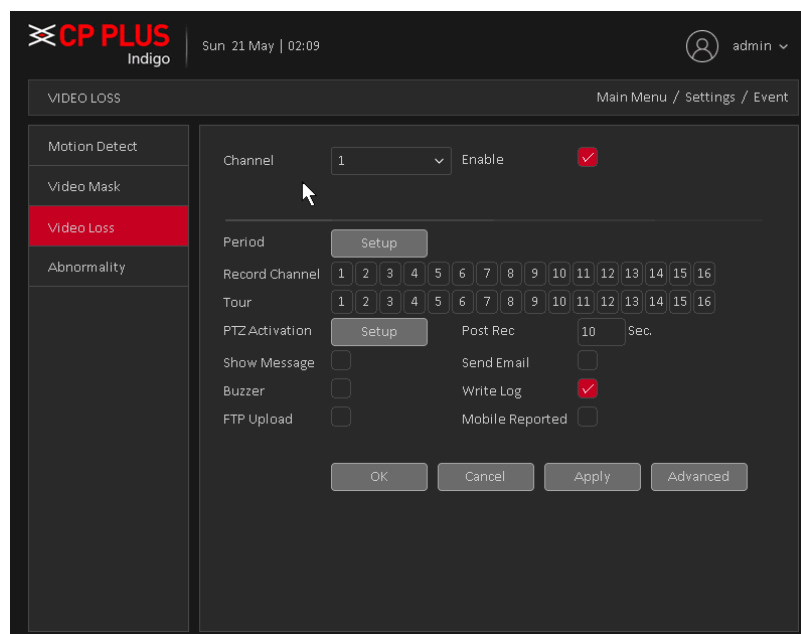


Figure 4.18

Video loss alarm configurations please refer to chapter 4.1.2.1.

Note – By default Video loss function enable for all channel.

4.1.2.4. Abnormality

Some current hardware and software analysis and detection equipment, and when there is an abnormal event is detected, the device responds accordingly, for example, the screen tips, buzzer, Alarm Push, Send Email, etc. See Figure 4.19

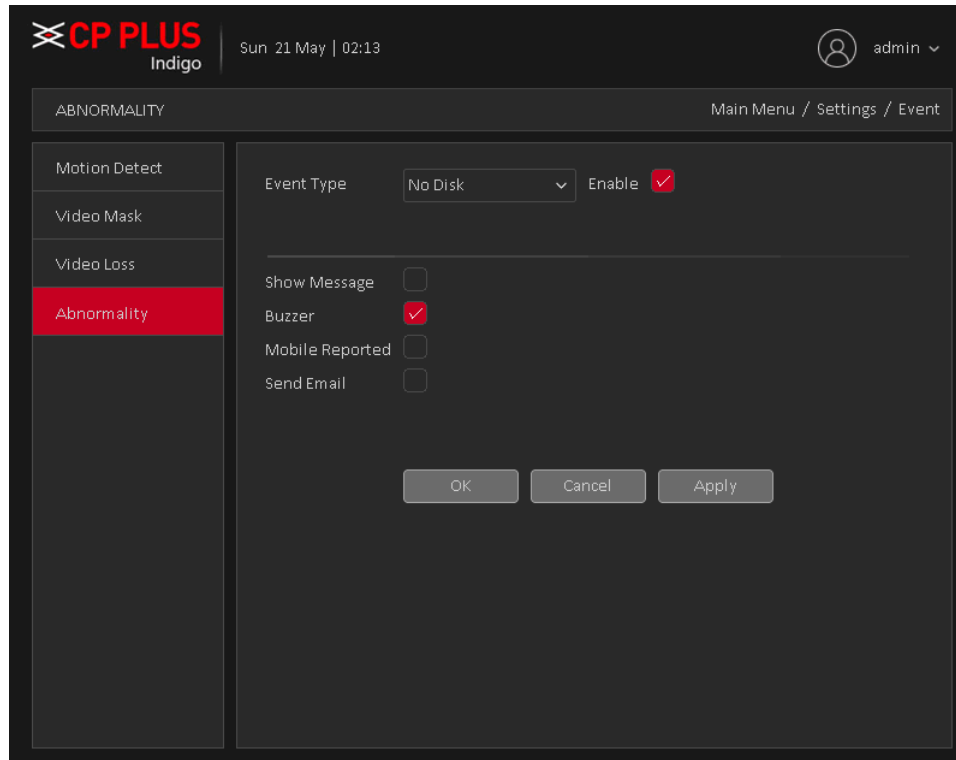


Figure 4.19

- **[Event Type]** in the drop-down box to select the detection of abnormal like – **No Disk, Disk Error, Disk No Space, Net Disconnection, IP Conflict.**
- **[Enable]** ☒ Means open the exception handling feature.
- **[Show Message]** On the local host screen, pop-up dialog box prompts warning information.
- **[Buzzer]** when an alarm occurs, the device sends a "Beep" sound long ring.
- **[Mobile Reported]:** when an alarm occurs, the device sends a push notification on mobile client.
- **[Send Email]:** When an alarm is triggered, sends an alarm message to the specified mailbox, through SMTP setting.
- **[Auto Reboot]** Device will reboot automatically.

4.1.3. Network

4.1.3.1. TCP/IP

The single network adapter interface is shown as in Figure 4.20

The screenshot displays the 'TCP/IP' configuration page in the CP PLUS Indigo web interface. The top header shows the logo, date/time (Sun 21 May | 13:00), and user (admin). The left sidebar has 'TCP/IP' highlighted. The main content area contains the following settings:

- Net Card:** Wire Netcard (dropdown)
- DHCP Enable:** ☒
- IP Address:** 172 . 16 . 0 . 163
- Subnet Mask:** 255 . 255 . 252 . 0
- Gateway:** 172 . 16 . 0 . 1
- Primary DNS:** 8 . 8 . 8 . 8
- Secondary DNS:** 4 . 2 . 2 . 2
- TCP Port:** 25001
- HTTP Port:** 80
- LAN Download:** ☐
- Transfer Model:** Quality Preferred (dropdown)
- RTSP Port:** 554

At the bottom are buttons for OK, Cancel, Apply, and Default.

Figure 4.20

- **[Net Card]** To select Network connection mode Wired or wireless. By default is Wire Netcard.
- **[DHCP Enable]** The Device is connected to the router which DHCP is open, then device will automatically obtain an IP address. By default DHCP enable.
- **[IP Address]** The IP address of the device is used to login network, the default is: 192.168.1.240.
- **[Subnet Mask]** Set the device's subnet mask, to be consistent with the login computer, default is 255.255.255.0.
- **[Default Gateway]:** Set the default gateway of the device, to be consistent with the login computer, the default is 192.168.1.1.
- **[DNS Server]:** Set the device's DNS server, to be consistent with the login computer.
- **[TCP port]:** Set the camera's TCP port, the default port is: 25001.
- **[HTTP port]:** Set the device's HTTP port, the default port is: 80.
- **[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.
- **[Transfer Model]** Set the network transmission strategies, Adaptive / Quality Preferred/ Fluency Preferred.
- **[RTSP]** Set the device's RTSP port, the default port is: 554.

4.1.3.2. DDNS

DDNS setup interface is shown as in Figure 4.21.

The screenshot shows the DDNS configuration page of the CP Plus Indigo interface. On the left, a sidebar contains 'TCP/IP', 'DDNS' (highlighted in red), 'InstaOn Cloud', and 'Advance Settings'. The main content area has a breadcrumb 'Main Menu / Settings / Network'. The DDNS configuration includes a 'DDNS Type' dropdown set to 'CP Plus DDNS', an 'Enable' checkbox, a 'Domain Name' input field, and a 'MAC' field showing '14-07-08-19-7a-01'. The 'DDNS Status' is 'Disconnected'. A 'Notes' section lists three steps: 1. To add a domain name (check 'Enable', input domain name, press 'Apply', then 'OK'); 2. To remove a domain name (uncheck 'Enable', press 'Apply', then 'OK'); 3. Domain name field accepts only alpha numeric characters (a-z, 0-9) are valid. At the bottom are 'Default', 'Apply', 'OK', and 'Cancel' buttons.

Figure 4.21

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

CPPlus DDNS and Client-end Introduction

➤ Background Introduction

Device IP is not fixed if you use ADSL to login the network. The DDNS function allows you to access the DVR (WITHOUT HDD) via the registered domain name. Besides the general DDNS, the CPPlus DDNS works with the device from the manufacturer so that it can add the extension function.

➤ Function Introduction

The CPPlus DDNS has the same function as other DDNS client end. It realizes the bonding of the domain name and the IP address. Right now, current DDNS server is for our own devices only. It automatically refreshes the bonding relationship of the domain and the IP regularly.

➤ Operation

- Select CPPlus DDNS and click on check box to enable DDNS service.
- User can input self-defined domain name in Domain name field.
- Click on Apply button, device will check the availability of defined domain name on DDNS server. If same Domain name already registered on server then it will prompt message neither it will register domain name on server.
- After successfully created Domain Name, click on OK button to save settings.

Important - Do not register frequently. The interval between two registrations shall be more than 60 seconds. Too many registration requests may result in server attack.

4.1.3.3. Instaon Cloud

User can use cell phone to scan the QR code to get download link of cMOB application for iPhone & Android, and also to get serial no. to add on mobile phone. See Figure 4.22

Via the SN from scanning the QR code, you can access the device in the WAN. Please refer to the Instaon operation manual included in the resources CD.

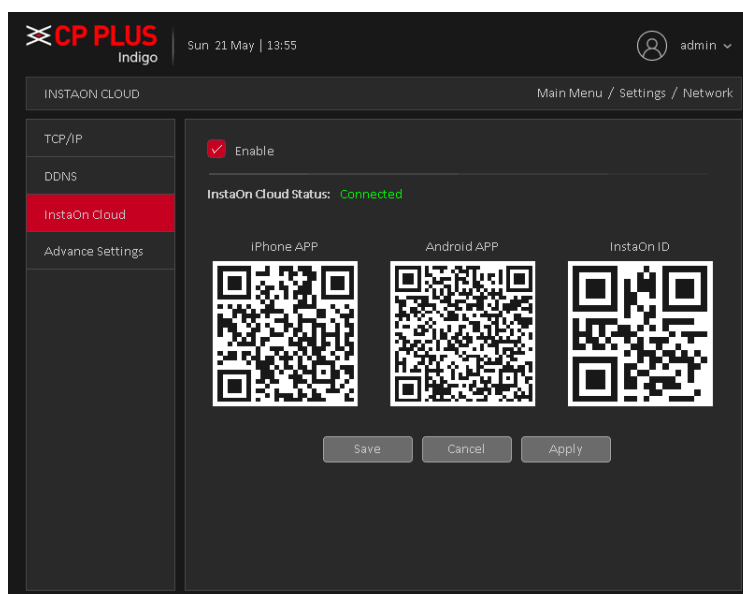


Figure 4.22

4.1.3.4. Advance Settings

To Configure PPPoE, NTP, Email, FTP, Alarm Server, 3G, UPNP, Wifi, RTSP and Mobile Reported. See Figure 4.23

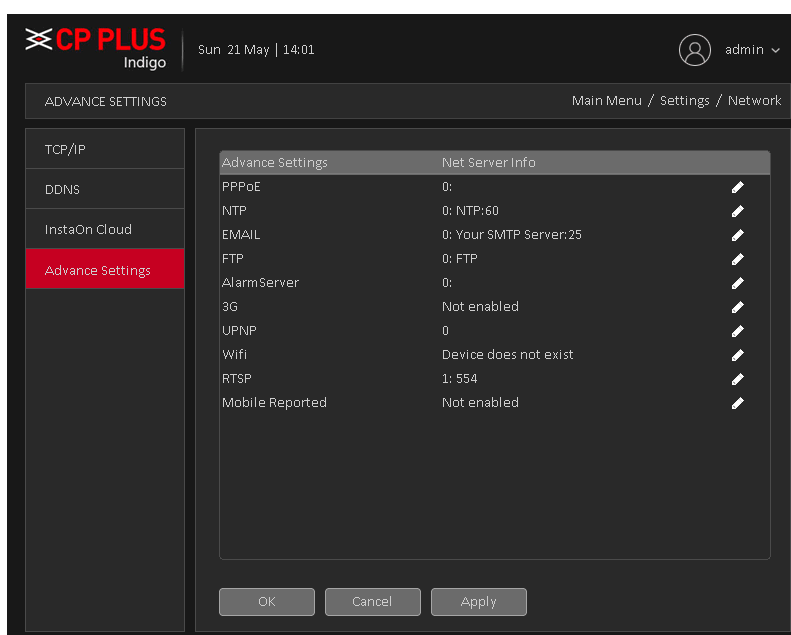


Figure 4.23

4.1.3.4.1. PPPoE

PPPoE interface is shown as in Figure 4.24.

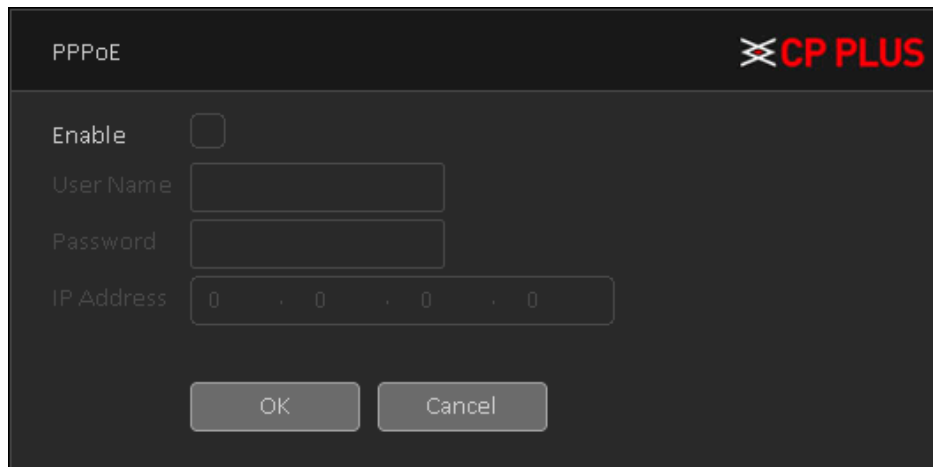


Figure 4.24

- To Enable disable PPPoE.
- Input “User Name” and “Password” you get from your ISP (Internet service provider).
- Click save button, you need to restart to activate your configuration.
- After rebooting, DVR (WITHOUT HDD) will connect to internet automatically. The IP in the PPPoE is the DVR (WITHOUT HDD) dynamic value. You can access this IP to access DVR (WITHOUT HDD) from WAN network.

4.1.3.4.2. NTP

PPPoE interface is shown as in Figure 4.25

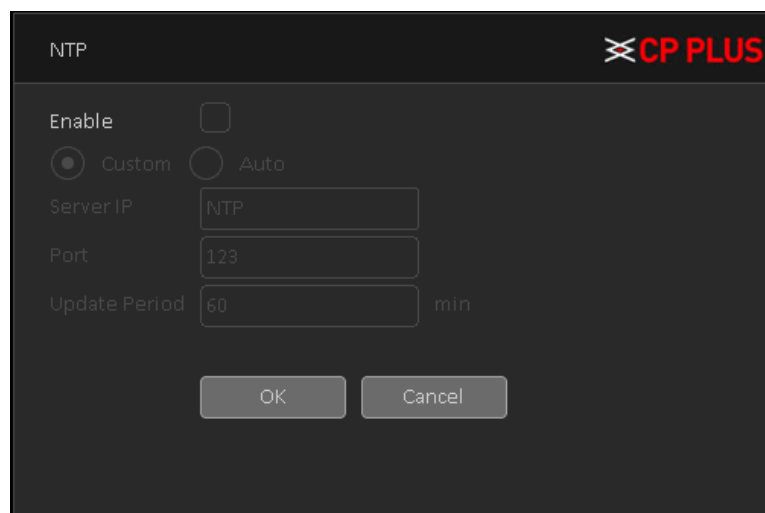


Figure 4.25

- **[Enable]** To enable or disable NTP Service.
- **[Server Address]** Input NTP Server IP address.
- **[Port]** The default NTP port 123, the port settings can be based on actual NTP server.
- **[Update cycle]** NTP server check interval, the default is 10 minutes.

4.1.3.4.3. Email

Set the e-mail addresses for DVR (WITHOUT HDD) sent and received alarm alert information. Email interface is shown as in Figure 4.26.

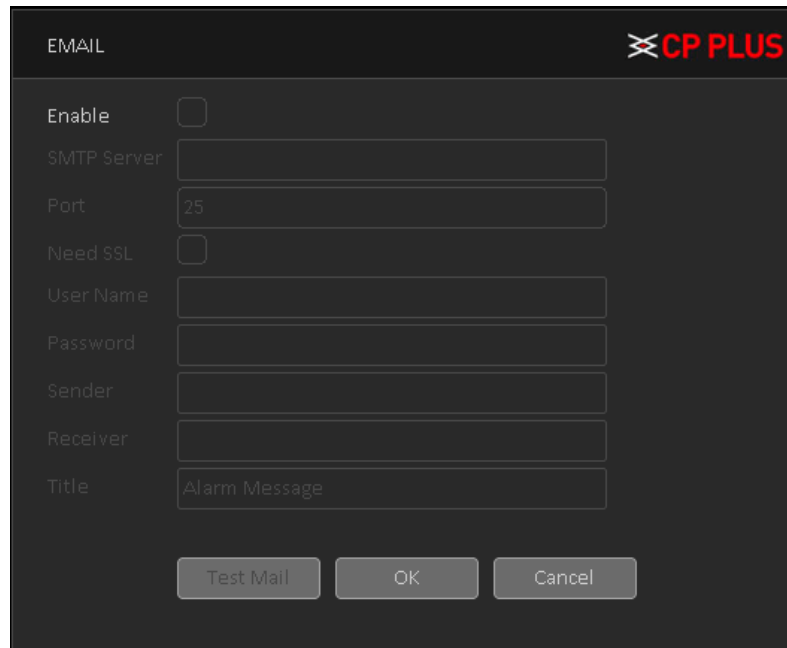


Figure 4.26

- **[Enable]** To enable or disable email service.
- **[SMTP Server]** Input Email SMTP Server address.
- **[Port]** Input SMTP server service port number.
- **[SSL]** To enable or disable SSL encryption.
- **[User Name]** Input the user name of sender Email Box.
- **[Password]** Input the Password for the user name of sender Email Box.
- **[Sender]** Input the sender EMAIL address.
- **[Receiver]** You can set up to three e-mail address, separated by a semicolon, can outbox the same e-mail address.
- **[Title]** Subject of the message, you can set your own.
- **[Test Mail]** Click here to verify above setting.

4.1.3.4.4. FTP

FTP is used when there is an alarm generated, or the alarm linkage video, then user can upload to a specified FTP server specific video. FTP interface is shown as in Figure 4.27

Figure 4.27

- **[Enable]** To Enable or Disable FTP service.
- **[Server IP]** To set IP address of the FTP server.
- **[Port]** To set FTP server service port number, the default port 21.
- **[User name]** Input the user name of FTP Server authentication.
- **[Password]** Input password of FTP server User authentication.
- **[Anonymous]** If choose to be anonymous, then user do not need to set the user name and password.
- **[Maximum File Length]** Each package upload files maximum length, default is 1024MB.
- **[DirName]** To set directory name to upload files.

4.1.3.4.5. Alarm Server

After an alarm, it report alarm information to alarm server. Alarm Server interface is shown as in

Figure 4.28

- **[Protocol type]** To select Protocol, it includes only GENERAL protocol.
- **[Enable]** To enable or disable Alarm server service.
- **[Server Address]** Input IP address of alarm server.
- **[Port number]** Input port number of the Alarm server service.

- **[Alarm Reported]** Enable to report to the police information to the server.
- **[Log reporting]** Enable to report to the server log information.

4.1.3.4.6. 3G

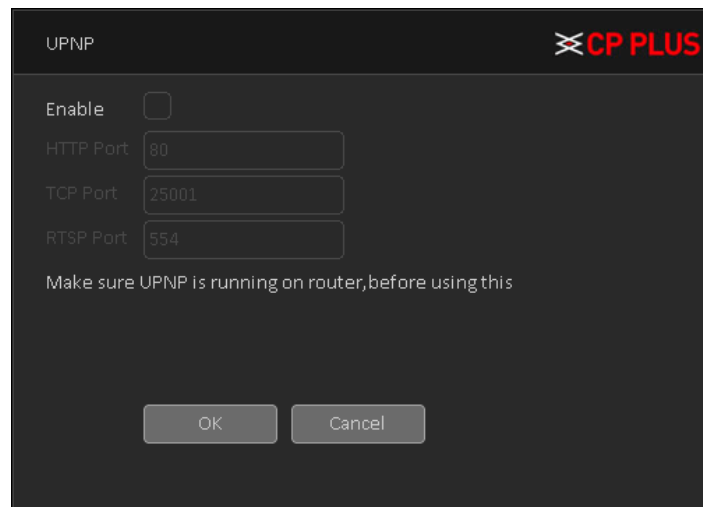
Dial-up Internet access through 3G card, implement client access device, and configure the device. 3G interfaces is shown as in Figure 4.29

Figure 4.29

- **[Enable]** To Enable or disable 3G service.
- **[Network Type]** To select current wireless network signal intensity such as Auto, TD-SCDMA, WCDMA, CDMA1.x, GPRS, EVDO and 4G.
- **[ISP]** To Select ISP predefined Setting for APN, Dial No. User and Password. It includes TATA, AIRCEL, AIRTEL, MTS, BSNL, RELIANCE CDMA, RELIANCE GSM, TATA DOCOMO, MTNL and customized.
- **[Wireless AP]** To input 3G access point.
- **[Dialing number]** Input 3G dialup number.
- **[User name]** Input Dial 3G username
- **[Password]** Input dial user's password.
- **[IP address]:** The IP address of the dial-up number to get.

4.1.3.4.7. UPnP

UPNP protocol can forward service port automatically on the router. UPnP interface is shown as in Figure 4.30

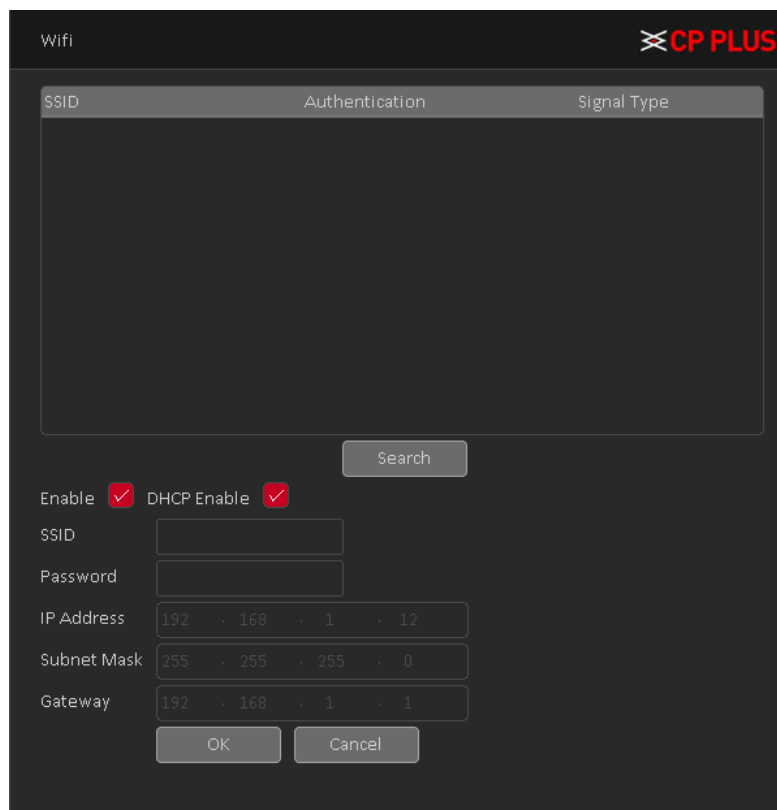


The image shows the UPnP configuration window in the CP PLUS interface. It has a dark background with the 'CP PLUS' logo in the top right corner. The title 'UPNP' is in the top left. There is an 'Enable' checkbox which is currently unchecked. Below it are three input fields: 'HTTP Port' with the value '80', 'TCP Port' with the value '25001', and 'RTSP Port' with the value '554'. A note below the fields says 'Make sure UPNP is running on router,before using this'. At the bottom are 'OK' and 'Cancel' buttons.

Figure 4.30

4.1.3.4.8. Wifi

Connect to the wireless router via the wireless module. To access the device via IP, provided the use of this feature is that the DVR (WITHOUT HDD) has access to WIFI module. Wifi interface is shown as in Figure 4.31.



The image shows the Wifi configuration window in the CP PLUS interface. It has a dark background with the 'CP PLUS' logo in the top right corner. The title 'Wifi' is in the top left. There is a table with three columns: 'SSID', 'Authentication', and 'Signal Type'. Below the table is a 'Search' button. Below the search button are two checkboxes: 'Enable' (checked) and 'DHCP Enable' (checked). Below these are input fields for 'SSID', 'Password', 'IP Address' (192 . 168 . 1 . 12), 'Subnet Mask' (255 . 255 . 255 . 0), and 'Gateway' (192 . 168 . 1 . 1). At the bottom are 'OK' and 'Cancel' buttons.

Figure 4.31

- **[Search]** Click [Search] button to search out available within the current range of the wireless device.
- **[Enable]** To Enable or disable Wifi Service.
- **[DHCP]** To Enable or Disable DHCP.
- **[SSID]** Wireless LAN name; automatically match your connected wireless devices.
- **[Password]** Wi-Fi router's password.
- **[IP address]** Set the device's IP address, default: 192.168.1.12.
- **[Subnet Mask]** Set the device subnet mask, default: 255.255.255.0
- **[Default Gateway]:** Set the device's default gateway, default: 192.168.1.1.

4.1.3.4.9. RTSP

For Real time Streaming Protocol, interface is shown as in Figure 4.32

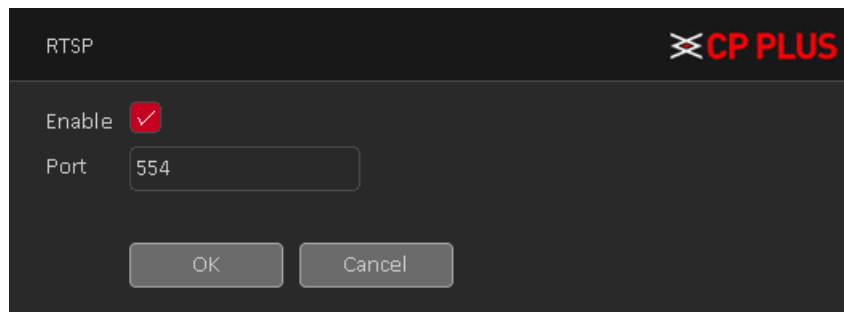


Figure 4.32

- **[Enable]** To Enable or disable RTSP service.
- **[Port]** Customize Port No., default port 554.

4.1.3.4.10. Mobile Reported

To get Push notification on mobile application, interface is shown as in Figure 4.33

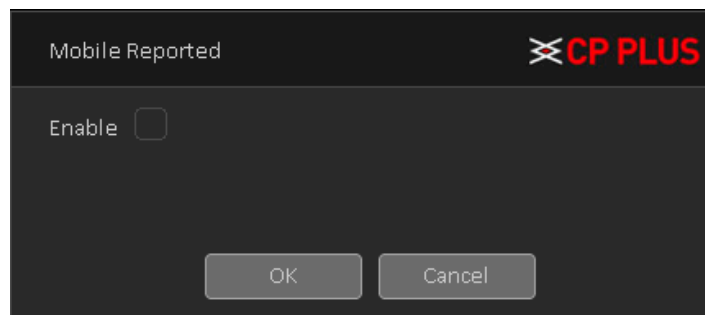


Figure 4.33

- **[Enable]** To Enable or disable Mobile reported service.

4.1.4. Storage

4.1.4.1. Schedule

You need to have proper rights to implement the following operations. Please make sure the HDDs have been properly installed.

After the system booted up, it is in default 24-hour regular mode. You can set record type and time in schedule interface as shown in Figure 4.34.

The screenshot shows the 'SCHEDULE' configuration window in the CP PLUS Indigo system. The window has a dark theme. At the top, there's a header with the CP PLUS Indigo logo, the date 'Sun 21 May | 15:56', and a user profile 'admin'. Below the header, there's a breadcrumb trail 'Main Menu / Settings / Storage'. The left sidebar has two options: 'Schedule' (highlighted in red) and 'HDD Manage'. The main area contains the following settings:

- Channel:** A dropdown menu set to '1'.
- Redundancy:** An unchecked checkbox.
- Rec Duration:** A text input set to '60' followed by 'min'.
- Pre Rec:** A text input set to '5' followed by 'Sec'.
- Mode:** Three radio buttons: 'Schedule' (selected with a red dot), 'Manual', and 'Stop'.
- Week:** A dropdown menu set to 'All'.
- Recording Periods:** A table with four rows (Period 1 to Period 4). Each row has two time inputs (HH : MM - HH : MM) and two checkboxes: 'Regular' and 'Detect'.

	Regular	Detect
Period 1	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Period 2	<input type="checkbox"/>	<input type="checkbox"/>
Period 3	<input type="checkbox"/>	<input type="checkbox"/>
Period 4	<input type="checkbox"/>	<input type="checkbox"/>

At the bottom of the main area, there are four buttons: 'OK', 'Cancel', 'Apply', and 'Advanced'.

Figure 4.34

- **[Channel]** Please select the channel number first. You can select “all” if you want to set for the whole channels.
- **[Redundancy]** System supports redundancy backup function. You can highlight Redundancy button to activate this function. Please note, before enable this function, please set at least one HDD as redundant. (**Main Menu → Storage → HDD Manager**). **Please note this function is null if there is only one HDD.**
- **[Rec Duration]** Here we can define maximum length of recorded file in HDD. It could be 1 ~ 120 Min.
- **[Pre Rec]** Here we can define the pre-record time before the event occurs into the file. It could be 0 ~ 30Sec.
- **[Mode]** Here we can select recording mode like Schedule and Manual or we can stop recording in HDD.
- **[Week day]** There are eight options: ranges from Saturday to Sunday and all.
- **[Record Type]** Please check the box to select corresponding record type. There are two types: Regular/Detect (Motion Detect).
- **Period:** Create time period according to record schedule and record type.

4.1.4.2. HDD Manage

Configure and manage the hard disk. The menu displays current hard disk information: hard disk number, input port, type, status and overall capability. The operation include: setup the Read/Write Disk, Read Only Disk, Redundant Disk, Hard Disk Format, Recover Disk and Disk Partition. Choose the hard disk and click the right function button to execute. See Figure 4.35

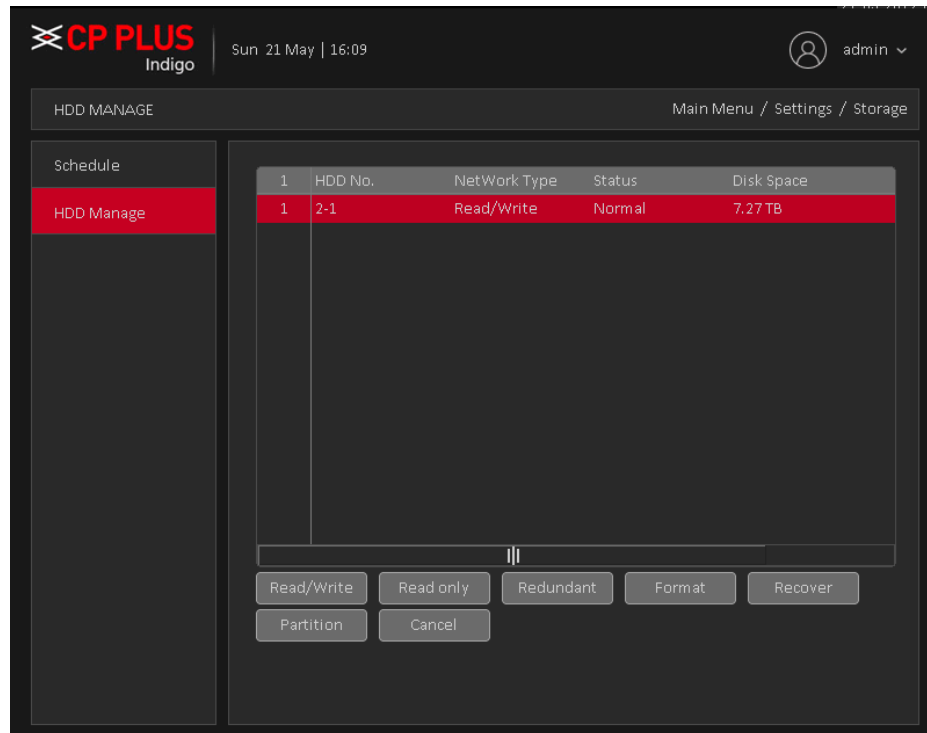


Figure 4.35

- **[Read/Write]** The equipment can read and write data on HDD.
- **[Read Only Disk]** The equipment can read data but cannot write data on HDD.
- **[Redundant Disk]** Double backup the video files in the Read/Write disk.
- **[Format Storage]** To format Selected HDD.

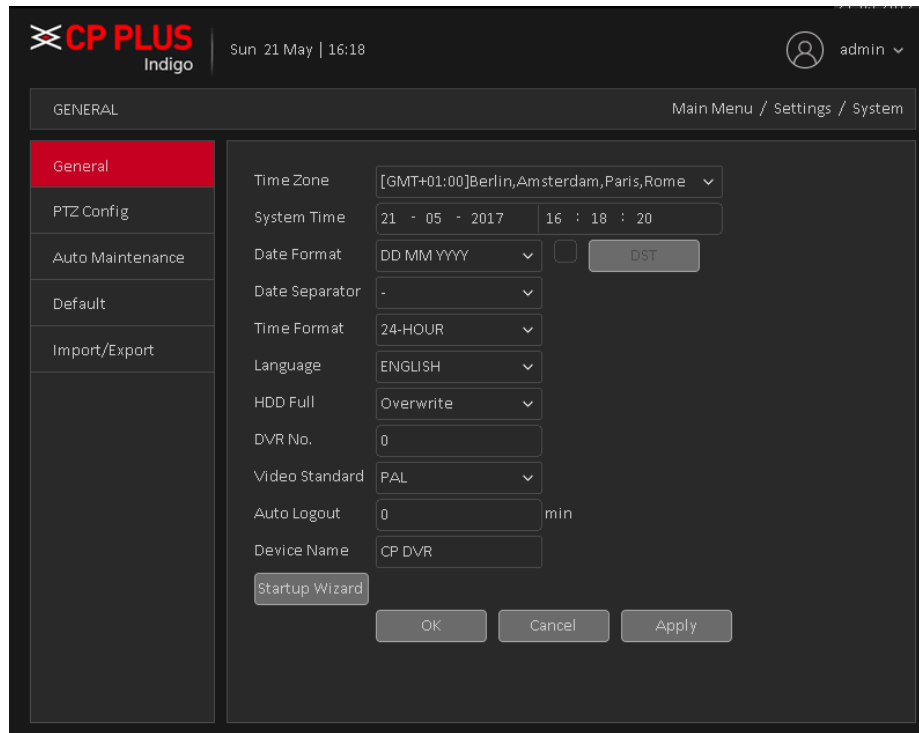
Note: If click on format storage then all data from HDD will be erased. Before format HDD please make sure your Device time and time should be correct.

- **[Recover]** To recover lost data from HDD.
- **[Partition]** To create Partition in selected HDD.

4.1.5. System

4.1.5.1. General

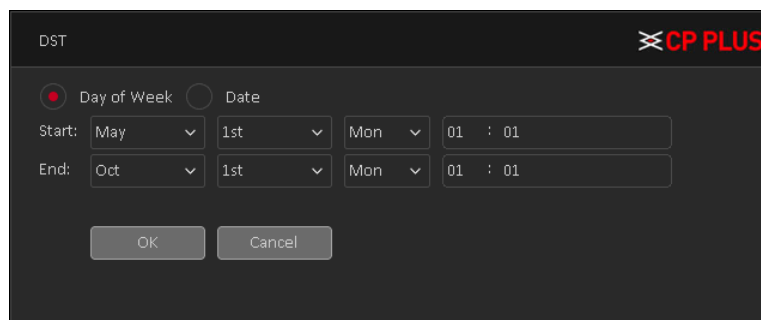
General interface is shown as in Figure 4.36.



The screenshot shows the 'GENERAL' settings page for CP PLUS Indigo. The top bar includes the logo, the date and time 'Sun 21 May | 16:18', and a user profile 'admin'. The left sidebar has a 'General' tab selected, with other options like 'PTZ Config', 'Auto Maintenance', 'Default', and 'Import/Export'. The main area contains various settings: 'Time Zone' is set to '[GMT+01:00]Berlin,Amsterdam,Paris,Rome'; 'System Time' is '21 - 05 - 2017 16 : 18 : 20'; 'Date Format' is 'DD MM YYYY'; 'Date Separator' is '-'; 'Time Format' is '24-HOUR'; 'Language' is 'ENGLISH'; 'HDD Full' is 'Overwrite'; 'DVR No.' is '0'; 'Video Standard' is 'PAL'; 'Auto Logout' is '0 min'; and 'Device Name' is 'CP DVR'. There is a 'Startup Wizard' button and 'OK', 'Cancel', and 'Apply' buttons at the bottom.

Figure 4.36

- **[Time Zone]** To set time zone for DVR (WITHOUT HDD) according to device location. The default is GMT +1:00.
- **[System time]** Set the system date and time manually.
- **[Date Format]** Provide Year/Month/Day, Month/Day/Year, Day/Month/Year three formats.
- **[Daylight Saving Time]:** Daylight Saving Time feature set start time and end of daylight saving time, as shown in Figure 4.37 and Figure 4.38.



The screenshot shows the 'DST' settings page. It has two radio buttons: 'Day of Week' (selected) and 'Date'. Below, there are two rows for 'Start' and 'End'. Each row has dropdowns for month, day, and day of the week, followed by a time input field. The 'Start' row is set to 'May', '1st', 'Mon', and '01 : 01'. The 'End' row is set to 'Oct', '1st', 'Mon', and '01 : 01'. There are 'OK' and 'Cancel' buttons at the bottom.

Figure 4.37

Figure 4.38

- **[Date separator]** Set the preview screen displays the date when the delimited format, provide a "-", ".", "/" three formats.
- **[Time Format]** Select the time format of 12 or 24-hour two kinds, default is 24.
- **[Language]** Set the system language, Simplified Chinese, Traditional Chinese, English and other 20 languages.
- **[HDD Full]** Here is for you to select working mode when hard disk is full. There are two options: Stop Recording or Overwrite. If current working HDD is overwritten or the current HDD is full while the next HDD is no empty, then system stops recording, If the current HDD is full and then next HDD is not empty, then system overwrites the previous files.
- **[DVR NO.]** Here you can set device number.
- **[Video Standard]** Select the video format supports both PAL and NTSC formats.
- **[Auto Logout]** Here is for you to set auto logout interval once login user remains inactive for a specified time. Value ranges from 0 to 60 minutes.
- **[Device Name]** can be set to the name of the device.

4.1.5.2. PTZ Config

The pan/tilt/zoom setup includes the following items. Please select channel first. See Figure 4.39.

Figure 4.39

- **[Channel]** Select the channel on which PTZ connected.
- **[Control Method]** You can select control method from the dropdown list. There are three options: Coaxial, RS485 and All. For CVI series product, please select Coaxial. The control signal is sent to the PTZ via the coaxial cable. For the RS485 mode, the control signal is sent to the PTZ via the RS485 port.
- **[Protocol]** To select the protocols (e.g.: CPPlus, PelcoD).
- **[Address]** Input corresponding PTZ address.
- **[Baud rate]** Select baud rate.
- **[Data bit]** Select data bit.
- **[Stop bit]** Select stop bit.
- **[Parity]** There are five choices: none/odd/even/mark/space.

4.1.5.3. Auto Maintenance

The user can set the time to auto reboot and auto delete file. Auto Maintenance interface is shown as in Figure 4.40

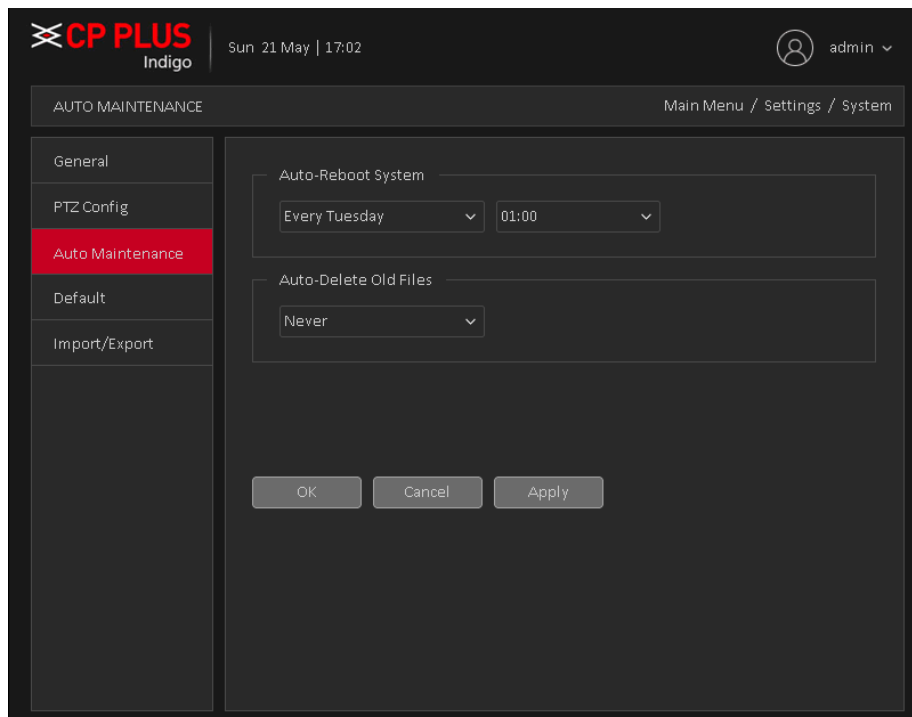


Figure 4.40

4.1.5.4. Default

To Default Device settings, Default interface is shown as Figure 4.41

- General
- Encode
- Schedule
- Alarm Set
- Network
- Advance Settings
- Display
- Account

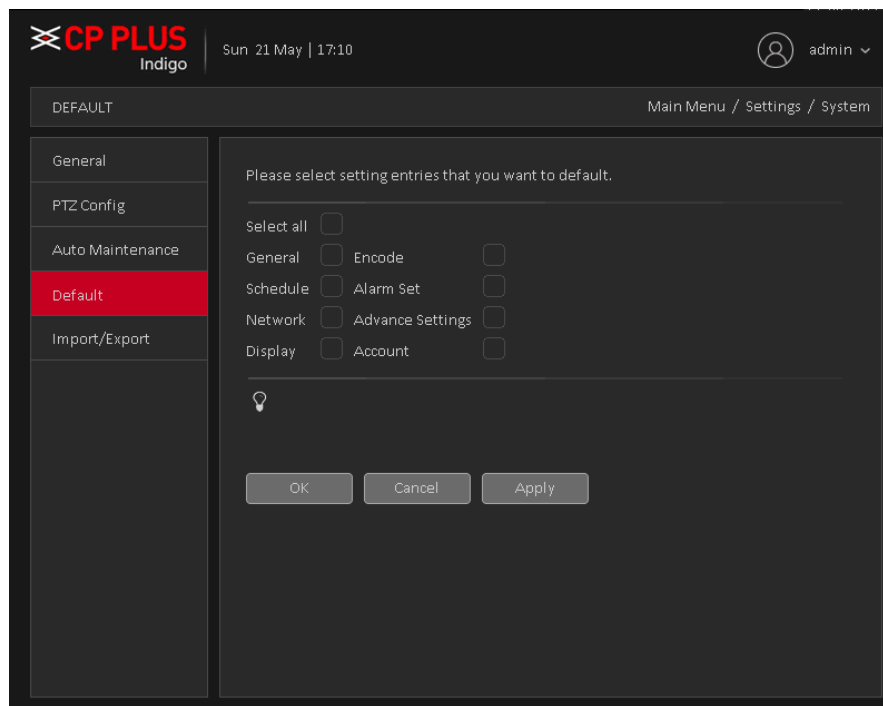



Figure 4.41

Please click 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, language, time display mode, video format, IP address, user account will not maintain previous setup after default operation!

4.1.5.5. Import/Export

Users can export the log info and the configure file from device to connected flash stick, and also can import related configure file from flash stick to settings, which greatly bring convenience to the customers. Import/Export interface is shown as Figure 4.42

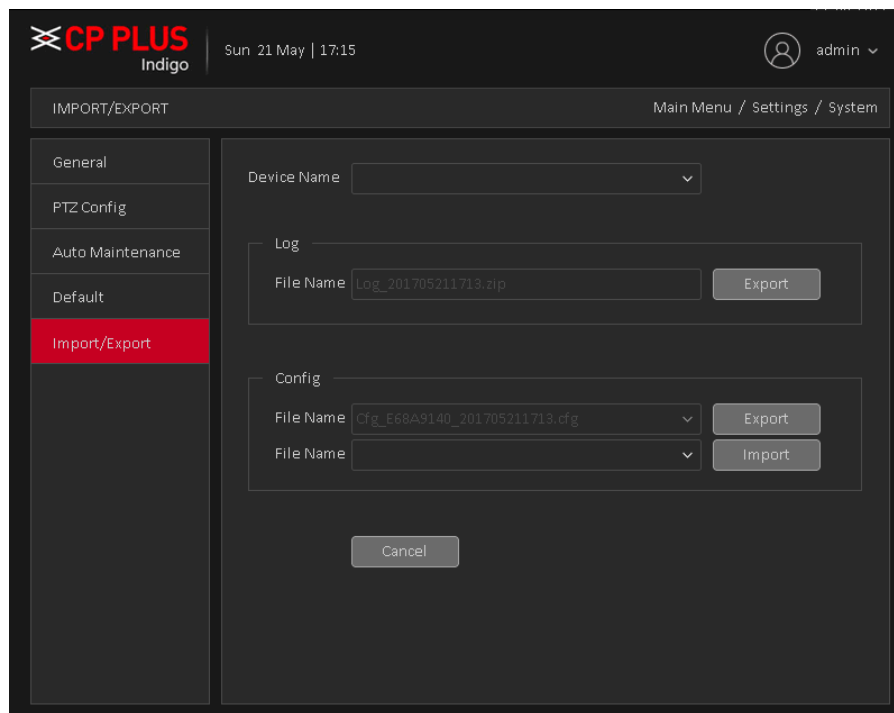


Figure 4.42

Note:

- System cannot open config backup interface again if there is backup operation in the process.
- System refreshes device when you go to the config backup every time and set current directory as the root directory of the peripheral device.
- If you go to the configuration backup interface first and then insert the peripheral device.

4.2. Information

4.2.1. Info

4.2.1.1. HDD info

Display the hard disk information, including HDD info. HDD info interface is shown as in Figure 4.43

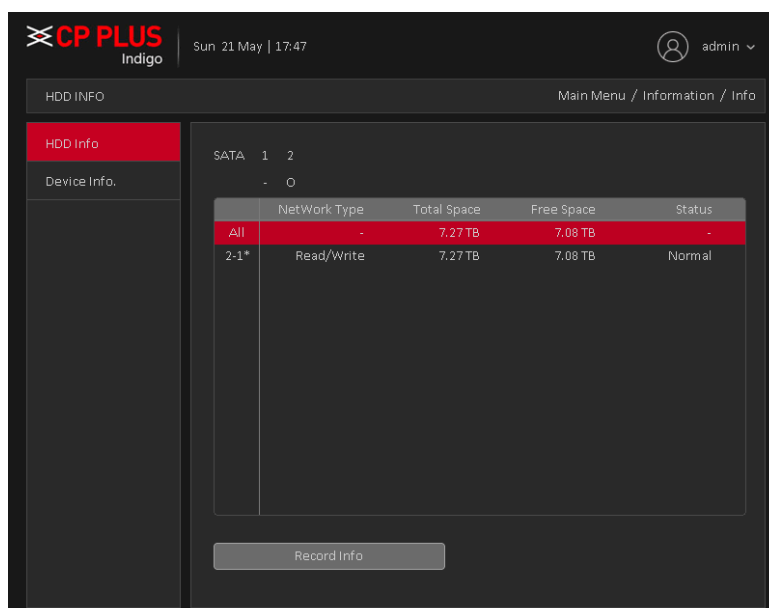


Figure 4.43

Tips :○ means that the hard disk is normal. “-” means that there is no hard disk. If the user needs to change the damaged hard disk, you must shut down the DVR (WITHOUT HDD) and take up all the damaged hard disks, then install a new one.

* Behind serial number means the current working disk such as 1*. If the corresponding disk is damaged, the information will show “ ? ”

4.2.1.2. Device info

Provide device interface info like audio in, alarm in/out to be conveniently used for user. Device info interface is shown as in Figure 4.44

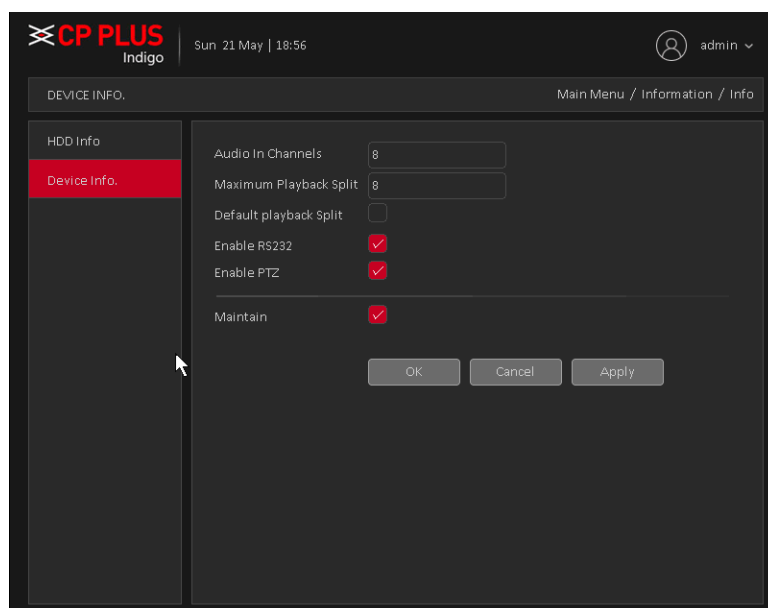


Figure 4.44

4.2.2. Online User

To check the information of network user that connected with local device, also can tick the selected user to break up connection, and will not log in until device reboot. Online user interface is shown as in Figure 4.45

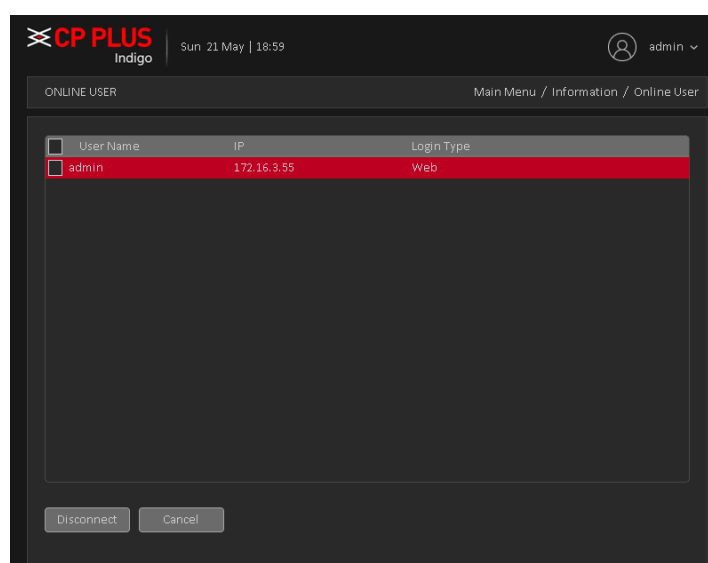


Figure 4.45

4.2.3. Log

To search log information base on the set search mode. Log information include: system operation, configuration operation, data management, alarm affair, recording operation, user management, and file management and so on. Set the time section to look up and click the look up button. The log information will display as a list. (One page is 128 items) Press Page up or Page down button to look up and press delete button to clear all the log information. Log interface is shown as in

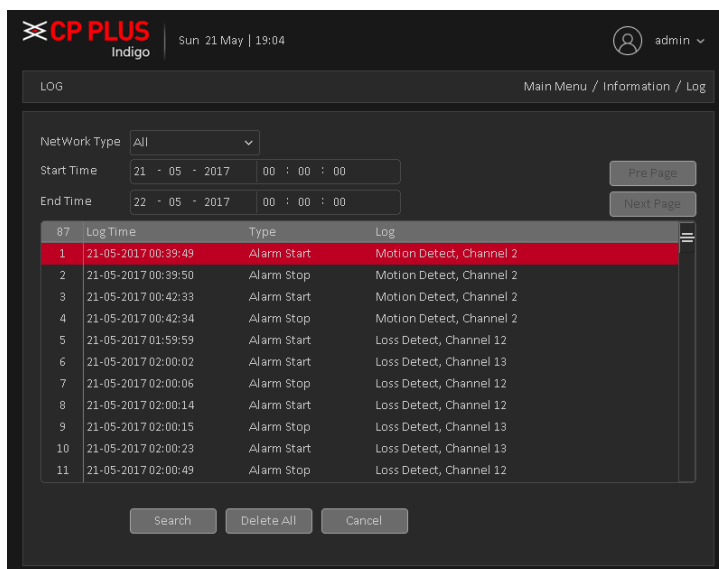


Figure 4.46

4.2.4. Version

Display the basic information such as hardware information, software version, issue date, serial number, and NAT status and so on. Version interface is shown as in Figure 4.47

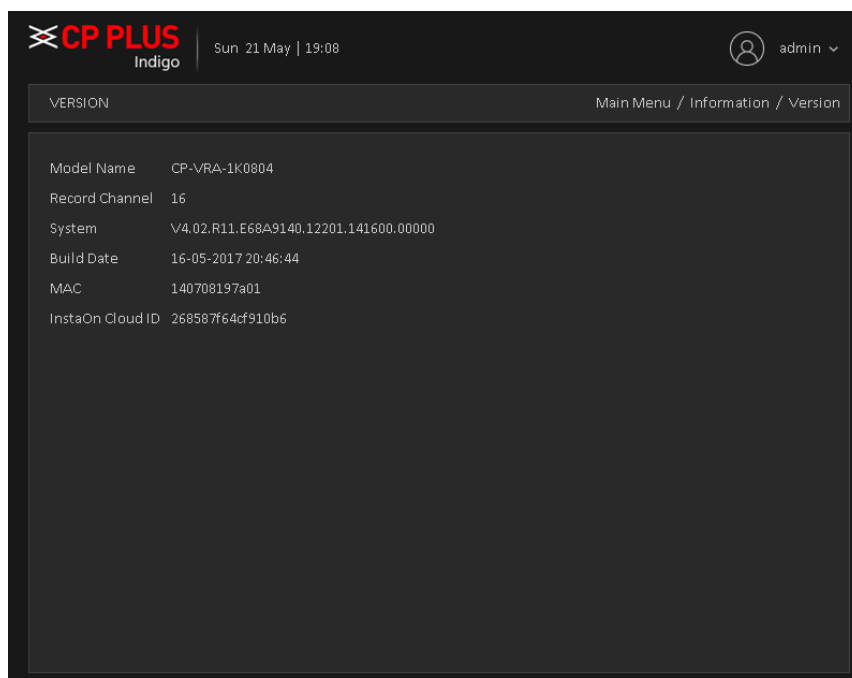
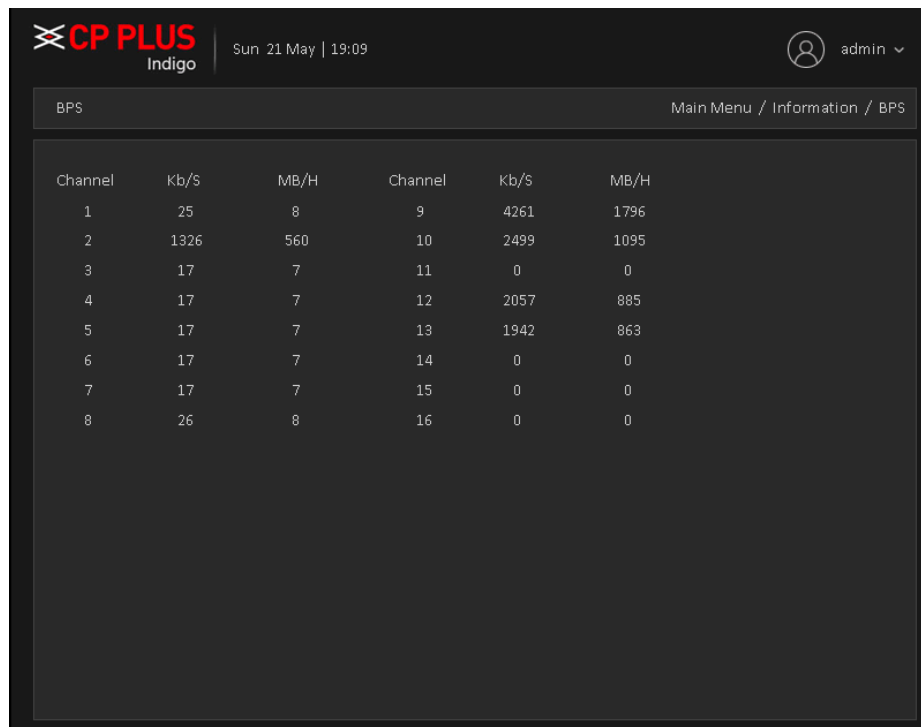


Figure 4.47

4.2.5. BPS

Display the code stream (Kb/S) and hard disk capability (MB/H) in real time. It displays as the wave sketch map. BPS interface is shown as in Figure 4.48



The screenshot shows the CP PLUS Indigo BPS interface. At the top left is the CP PLUS Indigo logo. To its right is the date and time 'Sun 21 May | 19:09'. Further right is a user profile icon labeled 'admin' with a dropdown arrow. Below the header is a navigation bar with 'BPS' on the left and 'Main Menu / Information / BPS' on the right. The main content area contains a table with 6 columns: Channel, Kb/S, MB/H, Channel, Kb/S, and MB/H. The table lists data for 16 channels, with channels 9 through 16 showing zero values for Kb/S and MB/H.

Channel	Kb/S	MB/H	Channel	Kb/S	MB/H
1	25	8	9	4261	1796
2	1326	560	10	2499	1095
3	17	7	11	0	0
4	17	7	12	2057	885
5	17	7	13	1942	863
6	17	7	14	0	0
7	17	7	15	0	0
8	26	8	16	0	0

Figure 4.48

4.3. Operation

4.3.1. Playback

There are two methods for you to play the video files in the hard disk. Through shortcut menu or form [Main Menu] → [Playback]. Playback interface is shown as in Figure 4.49

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

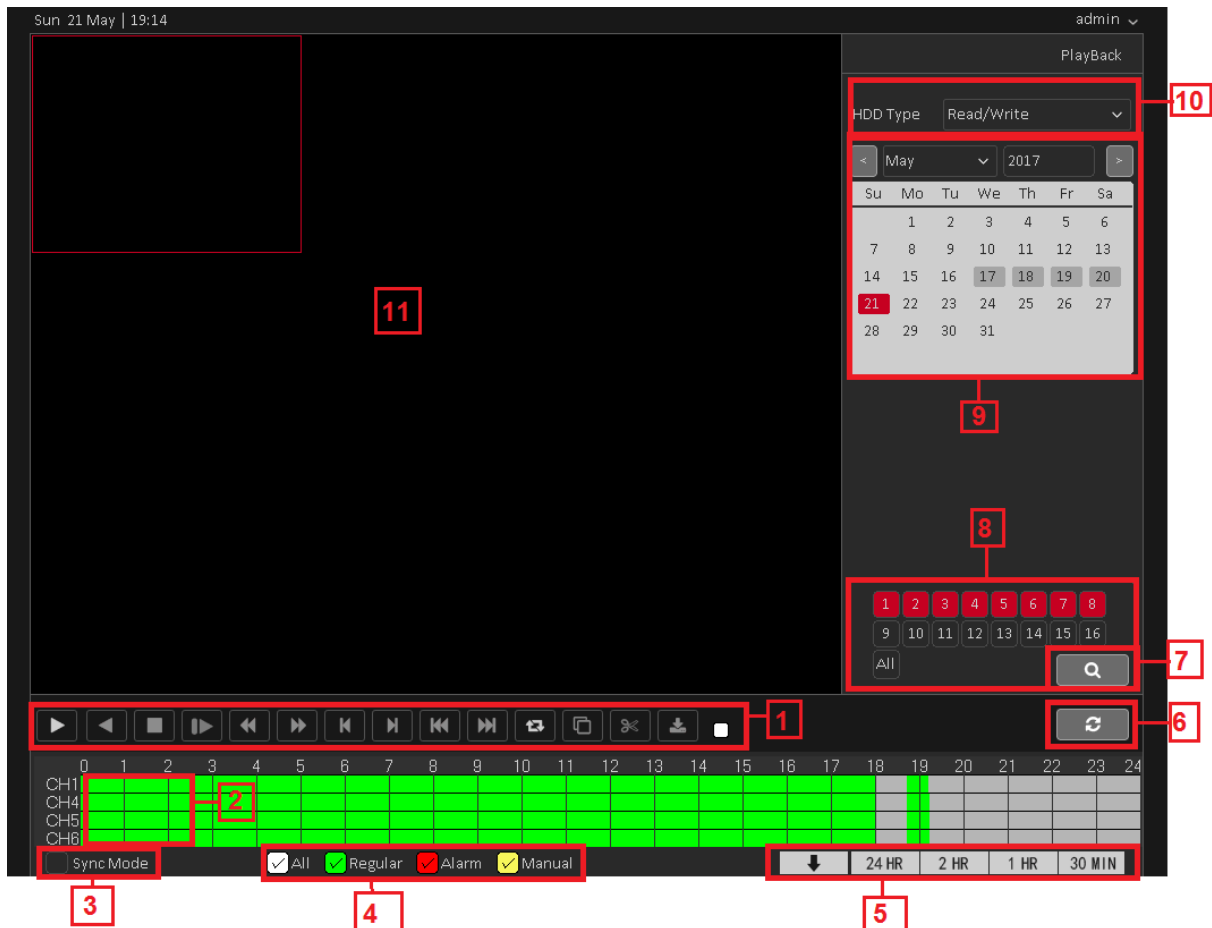

















Figure 4.49

Please refer table for Playback page reference

1. Playback control	2. Recorded files	3. Synchronous	4. Video type
5. Time Split	6. Search by time/switch mode	7. File Search	8. Channel Selection
9. Record Calendar	10. Device Selection	11. Preview Window	

For Playback control please refer below table

Button	Function	Button	Function
	Play/Pause		Play Backward
	Stop		Slow Playback
	Reverse Fast		Fast Playback
	Previous Frame		Next Frame
	Previous File		Next File
	Repeat Playback		Full Screen
	Start Video Clipping		End Video Clipping
	Download		

Note: Play under frame by frame, the playback status should be paused firstly. 【Operation tips】 show function of the key that cursor placed.

Special functions :

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

4.3.2. Backup

By setting the backup device video file to an external storage device. Backup interface is shown as in Figure 4.50

Note: Before backup files, you need to install the files stored to accommodate storage devices. Backup is terminated; it has been copied to a storage device files can be played back independently.

Backup middle is terminated, has been copied to a storage device files can be played back independently.

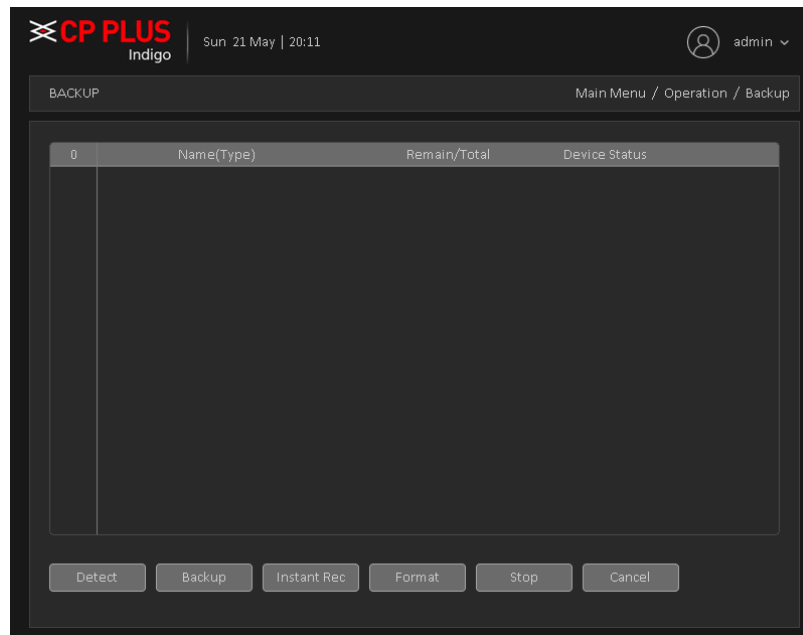


Figure 4.50

- **[Detection]** Detecting storage devices connected to the device, which can be U disk, hard disk and other equipment.
- **[Backup]** Click Backup, Backup dialog box pops up, you can select the backup video files based on type, channel, time and other attributes.

Select backup device and then set channel, file start time and end time. Click add button, system begins search. All matched files are listed below. System automatically calculates the capacity needed and remained. See Figure 4.51.

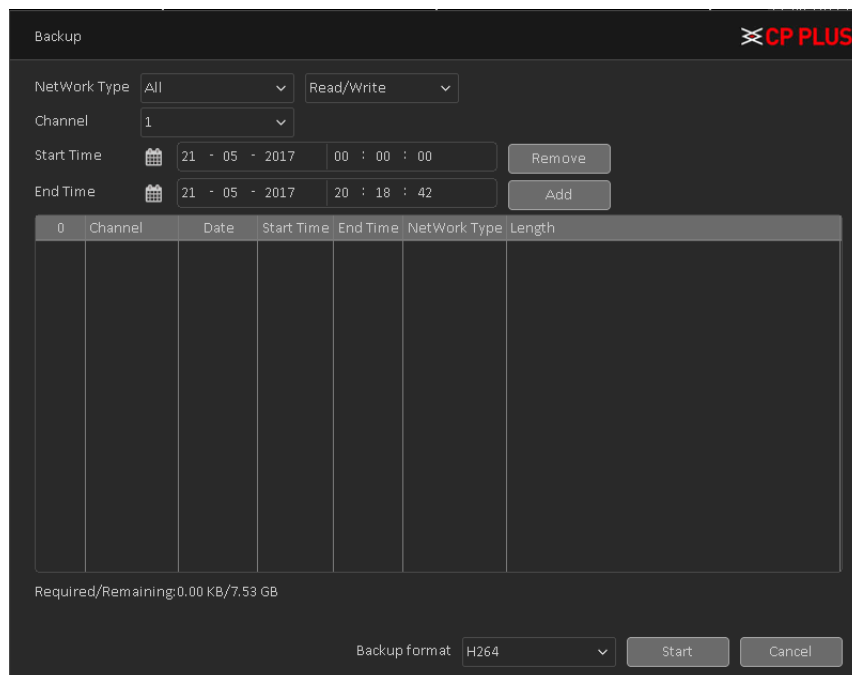


Figure 4.51

Systems only take backup of selected files. Click Start button, system begins copy. At the same time, the backup button becomes stop button. You can view the remaining time and process bar at the left bottom. See Figure 4.52.

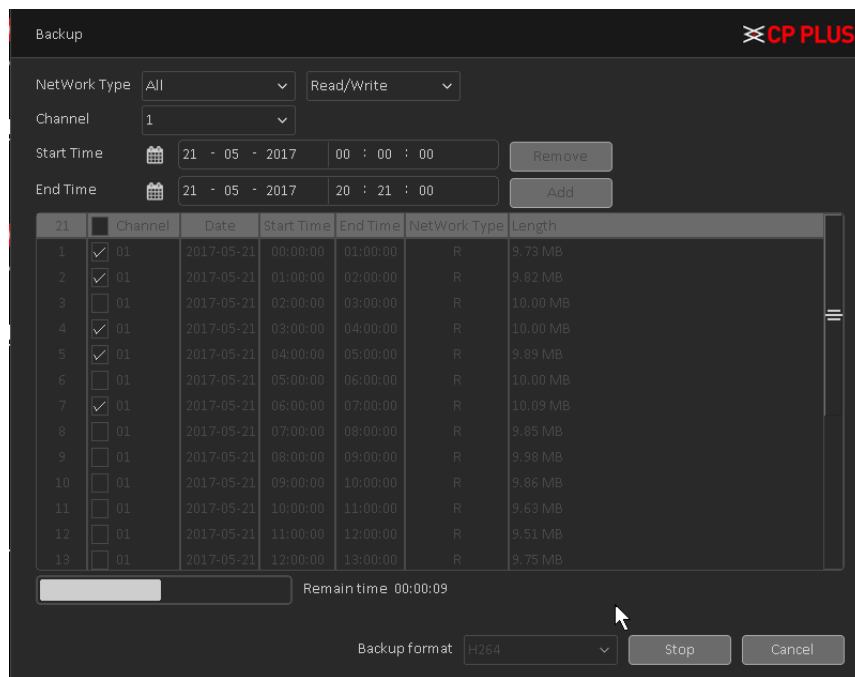


Figure 4.52

When the system completes backup, you can see a dialogue box prompting Backup Finished. See Figure 4.53

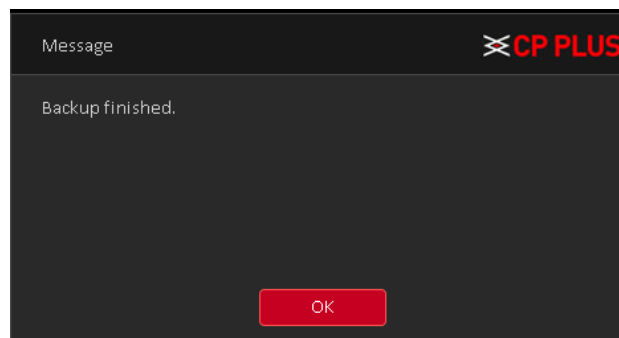


Figure 4.53

Note: When you back up, you can exit the page perform other functions. Burn: Click Burn, burn video will sync selected channel.

- **[Instant Rec]** User can instantly record live stream in backup drives, insert Backup drives like flash drive or external drive in DVR (WITHOUT HDD) when the device detected by system then click on instant Rec. In new window here to select channel No. and click on start button. DVR (WITHOUT HDD) will start recording in backup drive until user click on stop button. See Figure 4.54

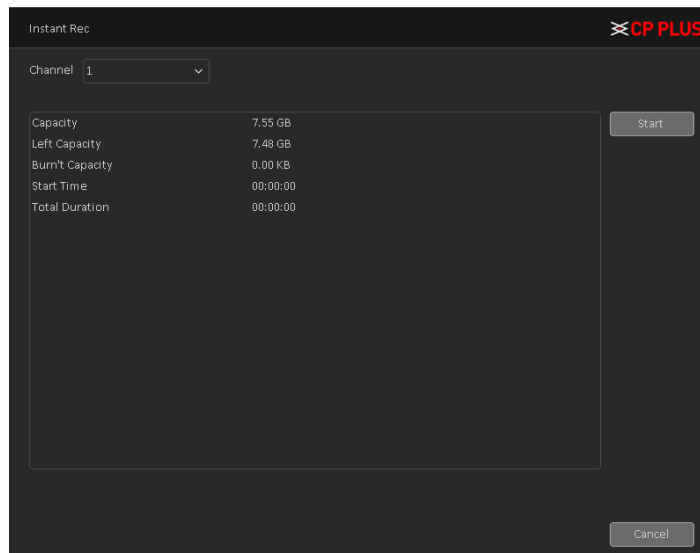


Figure 4.54

- **[Format]** Click here to format detected Backup drive.

4.3.3. Display

Configure the video output parameters including Time Display, Channel Title, Record Status, Transparency, Resolution, Tour, etc. Display interface is shown as in Figure 4.55

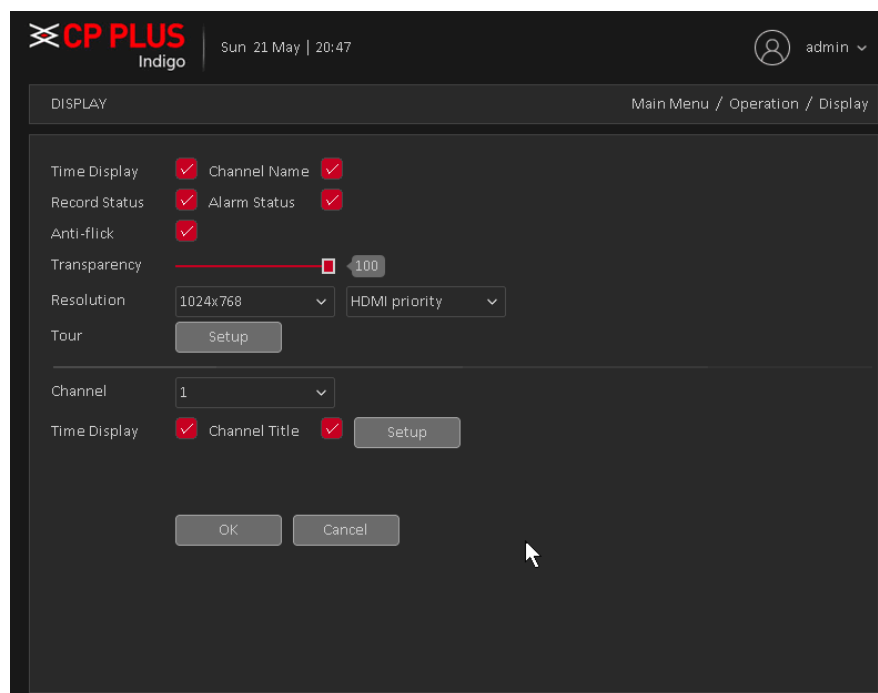



Figure 4.55

- **[Time Display]** Means the selective state. Display the system data and time in the live window.
- **[Channel Title]** Means the selective state. Display the system channel number in the live window.
- **[Record Status]** Means the selective state. Display the recording status in live window.

- **[Alarm Status]** Means the selective state. Display the system alarm status in the live window.
- **[Transparency]** Choose the background image transparency. The range is 10~100.
- **[Resolution]** Set display resolution. It includes: 1024x768, 1280x720, 1280x1024, 1440x900, and 1920x1080. User can also set output mode with HDMI priority or VGA priority.
- **[Tour]** Set the patrol display. Click the tour button in new window, click to enable display tour option.  Mean that the tour mode is enabled. You can choose the single-view, four-view, eight-view of single mode tour or hybrid mode tour. Tour interface is shown as in Figure 4.56.

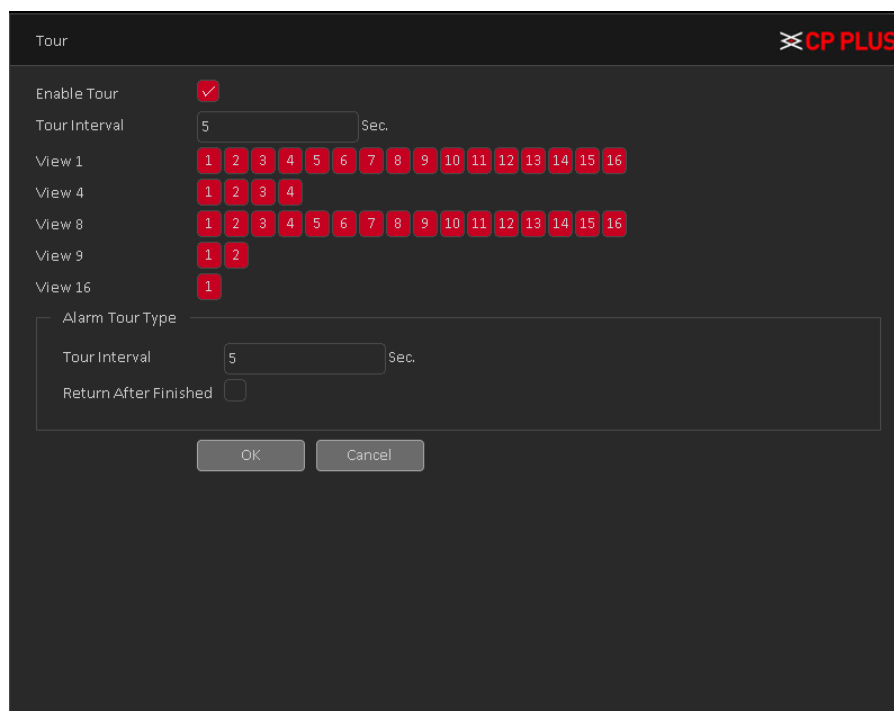


Figure 4.56

- **[Time Display and Channel Title]** Select the channel No. and click on setup button and drag the Channel title or date/Time title to the corresponding position in the screen.

4.3.4. Account

Manage the user preview. Account interface is shown as in Figure 4.57

Note :

- The character length is 8 bytes at most for the following user and user team name. The blank ahead or behind the character string is invalid. The middle blank in the character string is valid. Legal characters include: letter, number, underline, subtraction sign, and dot.
- There is no limit in the user and user group. You can add or delete the user group according to user definition. The factory setup include: user\admin. You can set the team as you wish. The user can appoint the purview in the group.
- The user management include: group/ user. The group and user name cannot be the same. Each user only belongs to one group.



Figure 4.57

- **[Modify User]** Modify the user name has been added, whether reuse, notes, group, class, and permissions. See Figure 4.58

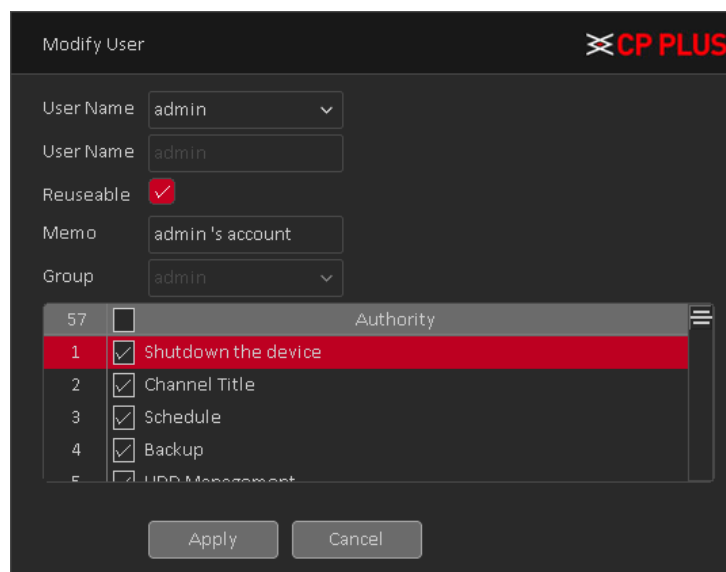


Figure 4.58

- **[Modify Group]** Group name has been added to modify the user group, notes and permissions. See Figure 4.59

Modify Group

Group: admin

Name: admin

Memo: administrator group

		Authority
57	<input type="checkbox"/>	
1	<input checked="" type="checkbox"/>	Shutdown the device
2	<input checked="" type="checkbox"/>	Channel Title
3	<input checked="" type="checkbox"/>	Schedule
4	<input checked="" type="checkbox"/>	Backup
5	<input checked="" type="checkbox"/>	HDD Management
6	<input checked="" type="checkbox"/>	Account
7	<input checked="" type="checkbox"/>	Query System Info

Apply Cancel

Figure 4.59

- **[Modify Password]** Modify user login password. See Figure 4.60

Modify Pwd

User Name: admin

Old Password:

New Password:

Confirm Password:

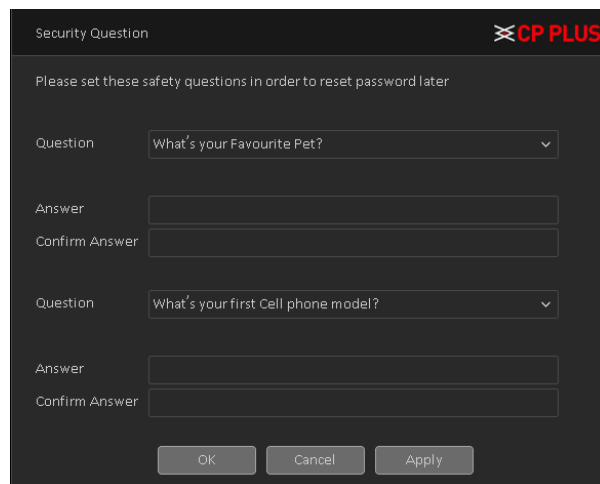
☐ Don't show me again.

Apply Cancel

Figure 4.60

Note: The user who possess the user control purview can modify his/her own or other users password

- **[Forget Password]** User can set security question, it will help to reset password in future if the user miss the password. See Figure 4.61



Security Question CP PLUS

Please set these safety questions in order to reset password later

Question: What's your Favourite Pet?

Answer:

Confirm Answer:

Question: What's your first Cell phone model?

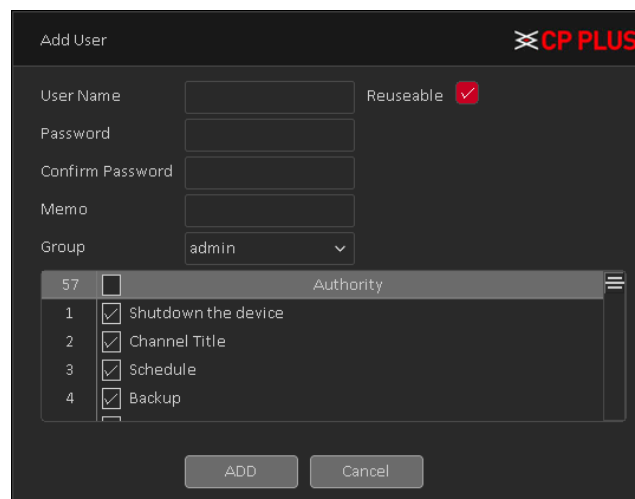
Answer:

Confirm Answer:

OK Cancel Apply

Figure 4.61

- **[Add user]** Set new user name, password, notes, owning group, permissions and other information, can add up to 64 user names. See Figure 4.62



Add User CP PLUS

User Name: Reuseable ☒

Password:

Confirm Password:

Memo:

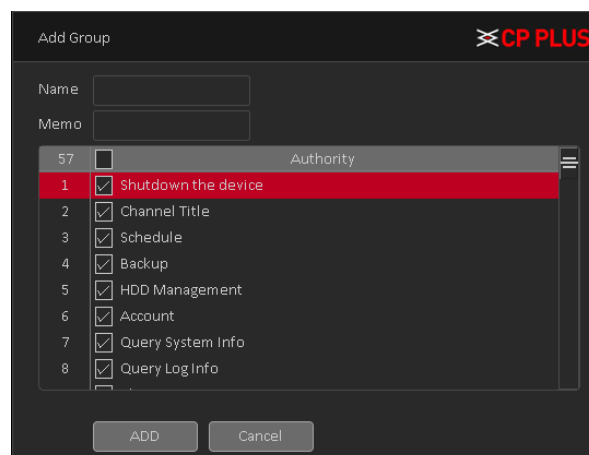
Group: admin

57	<input type="checkbox"/>	Authority
1	<input checked="" type="checkbox"/>	Shutdown the device
2	<input checked="" type="checkbox"/>	Channel Title
3	<input checked="" type="checkbox"/>	Schedule
4	<input checked="" type="checkbox"/>	Backup

ADD Cancel

Figure 4.62

- **[Add Group]** Set the group name new user group, notes, permissions and other information. See Figure 4.63



Add Group CP PLUS

Name:

Memo:

57	<input type="checkbox"/>	Authority
1	<input checked="" type="checkbox"/>	Shutdown the device
2	<input checked="" type="checkbox"/>	Channel Title
3	<input checked="" type="checkbox"/>	Schedule
4	<input checked="" type="checkbox"/>	Backup
5	<input checked="" type="checkbox"/>	HDD Management
6	<input checked="" type="checkbox"/>	Account
7	<input checked="" type="checkbox"/>	Query System Info
8	<input checked="" type="checkbox"/>	Query Log Info

ADD Cancel

Figure 4.63

- **[Delete User]** Delete the selected user, the user cannot delete the admin user.

- **[Delete Group]** Delete the selected user group, when the group contains a user group cannot be deleted. See Figure 4.64

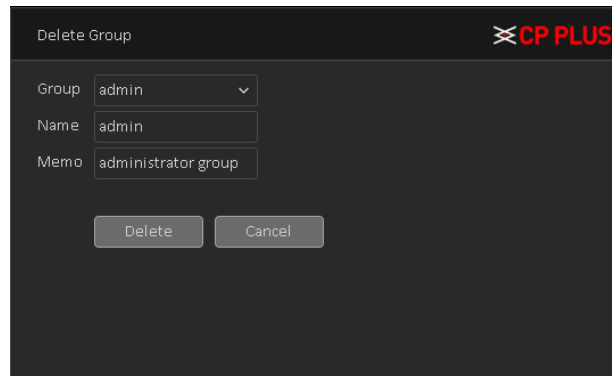
A dark-themed dialog box titled "Delete Group" with the "CP PLUS" logo in the top right corner. It contains three input fields: "Group" with a dropdown menu showing "admin", "Name" with a text box containing "admin", and "Memo" with a text box containing "administrator group". At the bottom are two buttons: "Delete" and "Cancel".

Figure 4.64

4.3.5. Upgrade

To upgrade device firmware, Upgrade interface is shown as in Figure 4.65

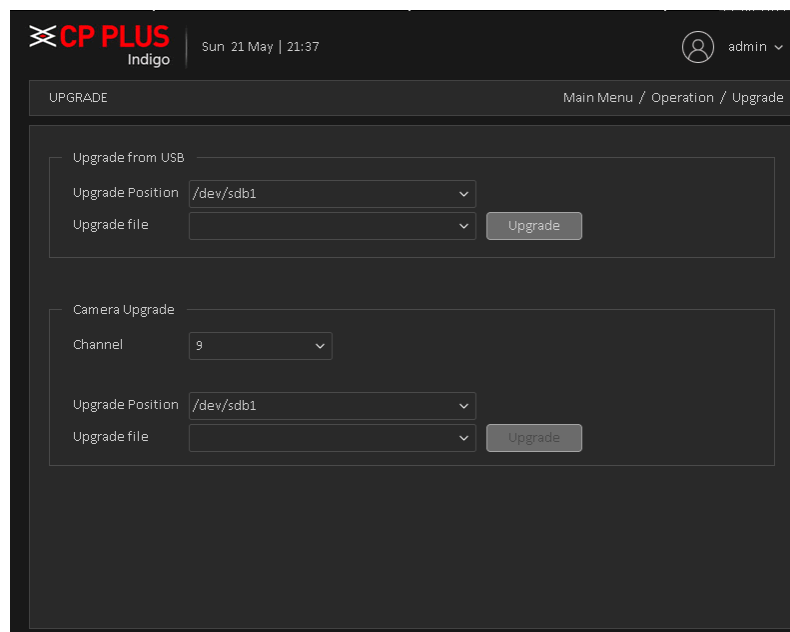
A dark-themed web interface for upgrading firmware. The header includes the "CP PLUS Indigo" logo, the date and time "Sun 21 May | 21:37", and a user profile icon labeled "admin". Below the header is a breadcrumb trail: "Main Menu / Operation / Upgrade". The main content area has two sections. The first section, "Upgrade from USB", contains a dropdown for "Upgrade Position" set to "/dev/sdb1", a dropdown for "Upgrade file", and an "Upgrade" button. The second section, "Camera Upgrade", contains a dropdown for "Channel" set to "9", a dropdown for "Upgrade Position" set to "/dev/sdb1", a dropdown for "Upgrade file", and an "Upgrade" button.

Figure 4.65

- **[Upgrade from USB]** choose USB drive and firmware upgrade file and then click on Upgrade button to start upgrade process.
- **[Camera Upgrade]:** Select the channel no. of which user want to upgrade firmware and after selecting drive, firmware file then click on upgrade. This feature will only work with particular IPC device which added through private protocol.

Note: Please make sure power should not be interrupt during firmware upgrade process; neither Device will be malfunctioned (dead condition).

5. Web Operation

Slightly difference may be found in the interface due to different models.

5.1. Network Connection

Before web client operation, please check the following items:

- Network connection should be proper.
- DVR (WITHOUT HDD) and PC network setup is proper. Please refer to network setup (Main Menu → Setting → Network)
- Use order ping `***.***.***.***` (* DVR IP address) to check connection is OK or not. Usually the return TTL value should be less than 255.
- Current series product supports various browsers such as Safari, fire fox browser, Internet Explorer. Device supports multiple-channel monitor, PTZ control, DVR parameter setup on the Apple PC.

5.2. Login

Open IE and input DVR address in the address bar. For example, if your DVR IP is 192.168.1.240, then please input <http://192.168.1.240> in IE address bar.

System pops up warning information to ask you whether Install control or block. Please click Install button. See Figure 5.1.

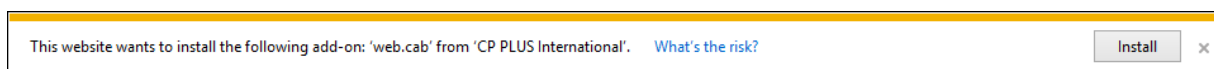


Figure 5.1

After installation, the interface is shown as below. See Figure 5.2.

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.

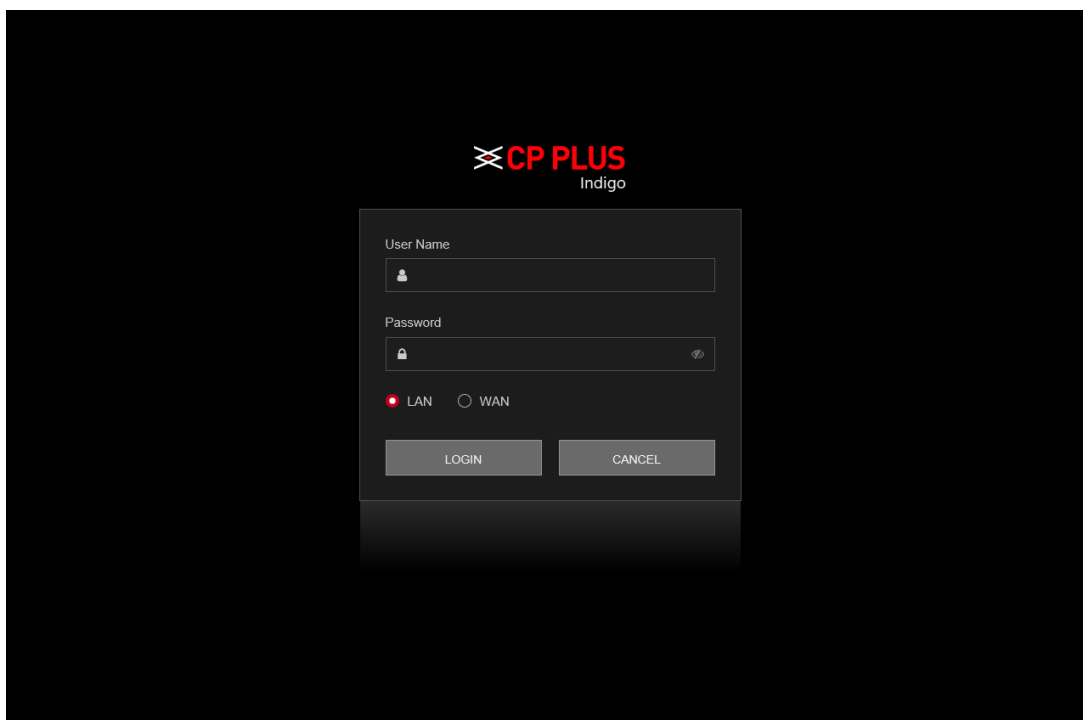


Figure 5.2

System pops up the following dialogue box for you to change default administrator password. See Figure 5.3

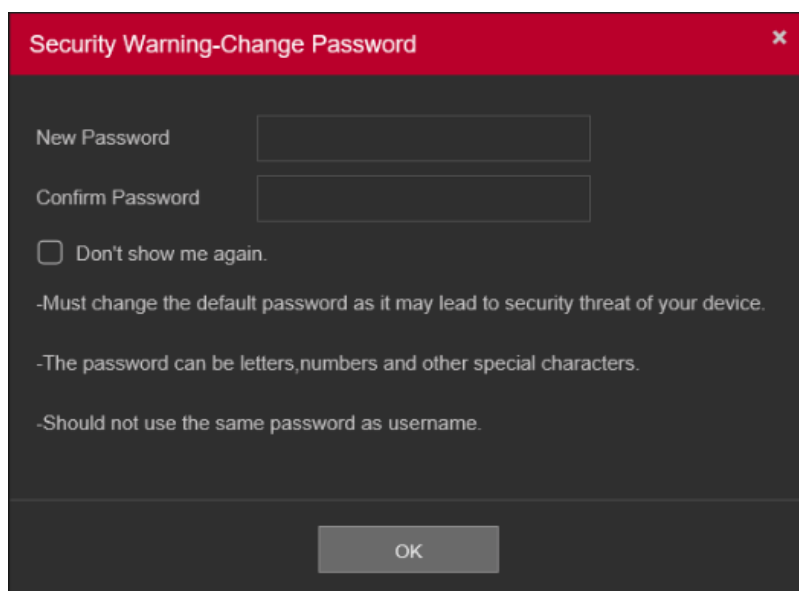


Figure 5.3

For you own safety, please change the default password after you first login.

5.3. LAN Mode

For the LAN mode, after you logged in, you can see the main window. See Figure 5.4

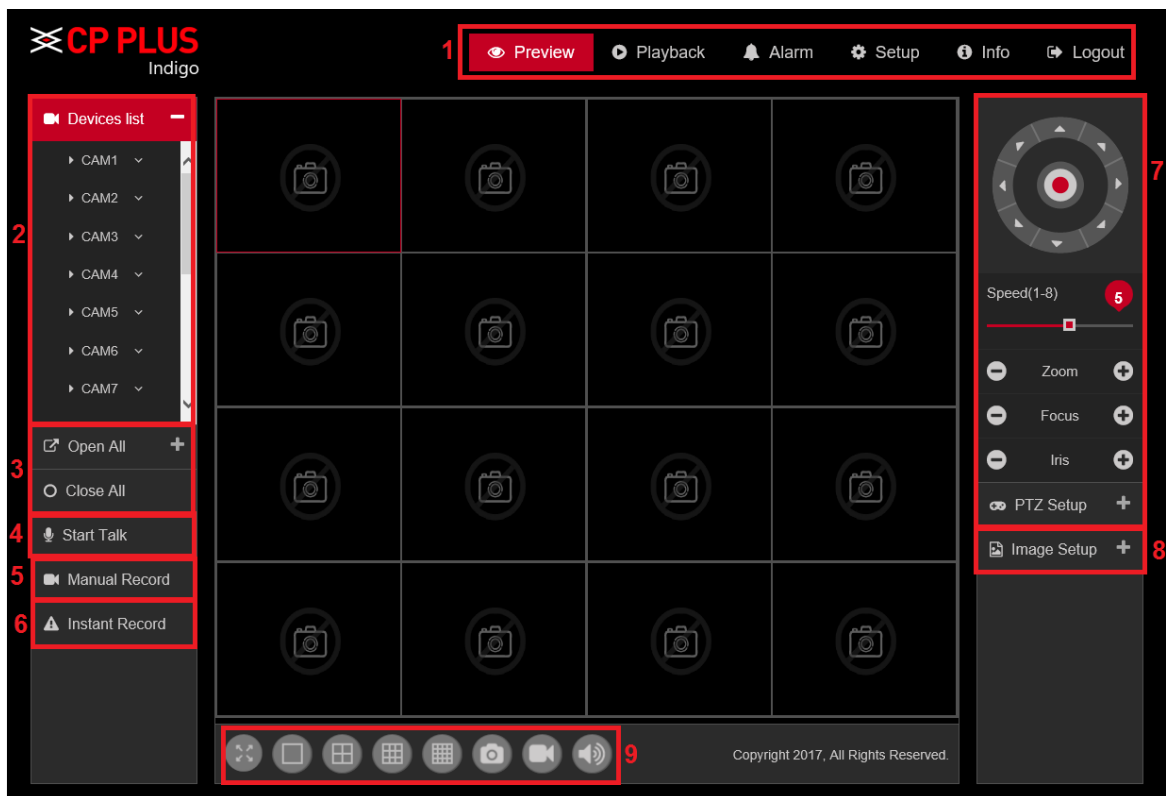


Figure 5.4

This main window can be divided into the following sections.

- **Section 1:** There are five function buttons: Preview, Playback, Alarm, Setup, Info, and Logout.
- **Section 2:** There are channel numbers to open
- **Section 3:** There are two function buttons: Open All to access all cameras and Close all to close all cameras.
- **Section 4:** User can click this button to enable audio talk. After you enable the bidirectional talk, the Start talk button becomes Stop Talk button and it becomes Red.

Note - if 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.

- **Section 5:** User can click this to enable manual record for all channels.
- **Section 6:** Instant record button. Click it, the button becomes Red and system begins manual record. Click it again, system restores previous record mode.
- **Section 7:** PTZ operation panel.
- **Section 8:** Image setup, see in Figure 5.5.



Figure 5.5

- **Section 9:** From left to right, it is to set full screen, 1-window, 4-window, 9-window, 16-window, local snapshot, local recording and Enable/Disable sound.

5.4. Real-Time Monitor

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

Digital zoom: On channel video Left drag the mouse in the zone to zoom in. right click mouse system restores original status.

5.5. PTZ

Before PTZ operation, please make sure you have properly set PTZ protocol. There are eight direction keys. In the middle of the eight direction keys, there is a 3D intelligent positioning key.

Please refer to the following sheet for PTZ setup information.

Parameter	Function
Preset	<ul style="list-style-type: none"> ● Select Preset from the dropdown list. ● Turn the camera to the corresponding position and Input the preset value. Click Add button to add a preset.
Tour	<ul style="list-style-type: none"> ● Select Tour from the dropdown list. ● Input preset value in the column. Click Add preset button, you have added one preset in the tour. ● Repeat the above procedures you can add more presets in one tour. ● Or you can click delete preset button to remove one preset from the tour.

5.6. WAN Login

In WAN mode, after you logged in, the interface is shown as below. See Figure 5.6

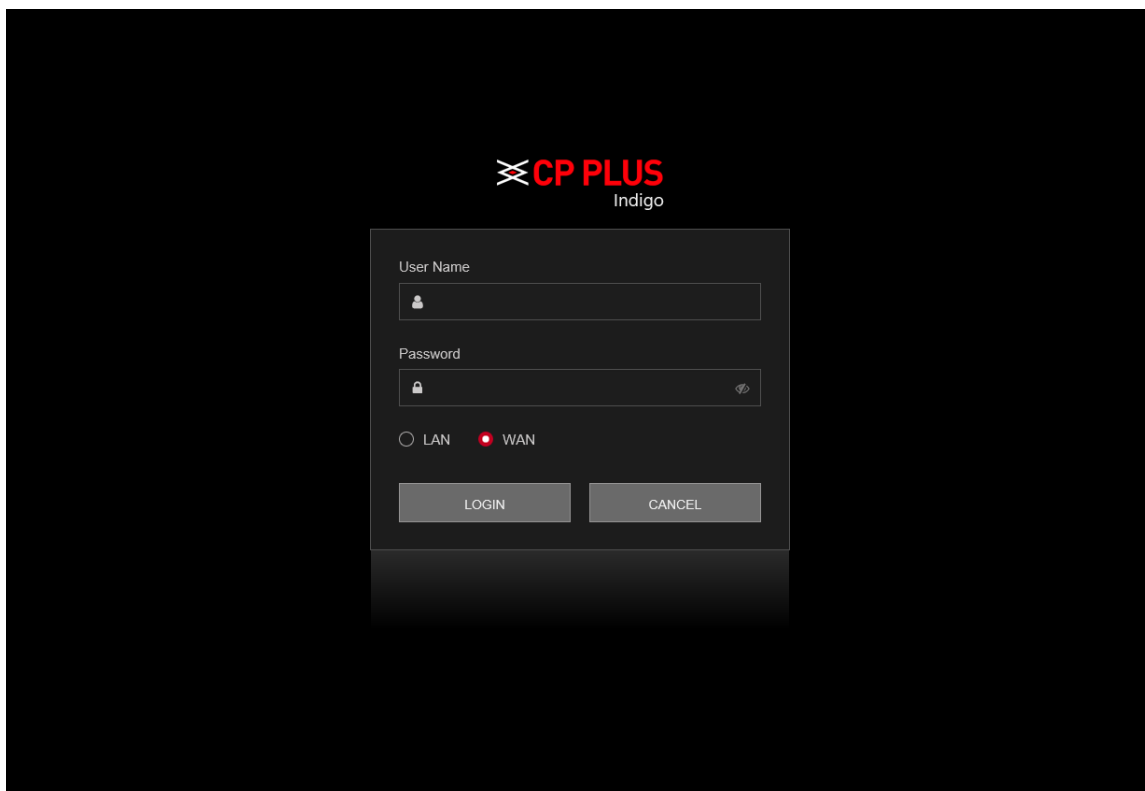


Figure 5.6

Please refer to the following contents for LAN and WAN login difference.

- In the WAN mode, system opens the sub stream of all channels to monitor by default.
- You can select different channels and different monitor modes at the bottom of the interface.

Important

The window display mode and the channel number are by default. For example, for the 16-channel, the max window split mode is 16.

- Multiple-channel monitor, system adopts extra stream to monitor by default. Double click one channel, system switches to single channel and system uses main stream to monitor. You can view there are two icons at the left top corner of the channel number for you reference. M stands for main stream. S stands for sub stream (extra stream).
- If you login via the WAN mode, system does not support alarm activation to open the video function in the Alarm setup interface.

Important

- For multiple-channel monitor mode, system adopts extra stream to monitor by default. You cannot modify manually. All channels are trying to synchronize. Please note the synchronization effect still depends on your network environments.

For bandwidth consideration, system cannot support monitor and playback at the same time. System auto closes monitor or playback interface when you are searching setup in the configuration interface. It is to enhance search speed.

5.7. Playback

Click Playback button, you can see an interface is shown as in Figure 5.7.

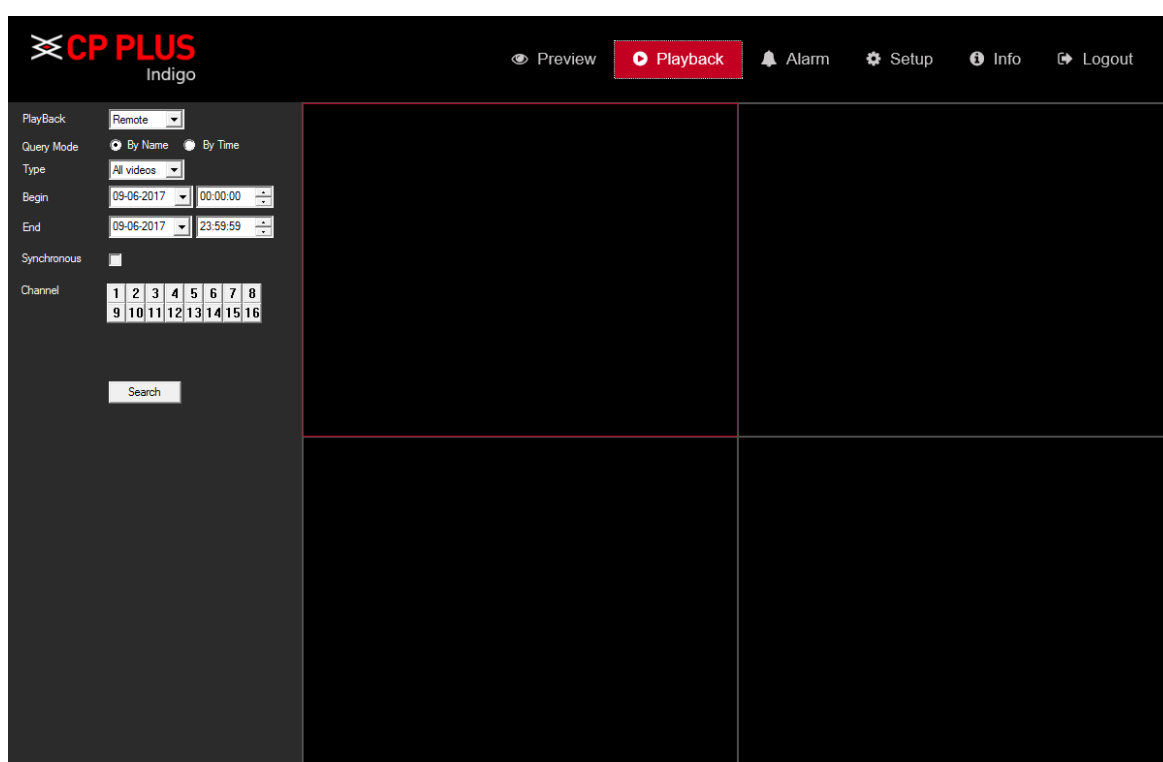









Figure 5.7

Please refer to the following sheet for Playback Page information.

Parameter	Function
Playback Mode	To Select Playback Mode, its include Remote and local. Remote – To get record from device end connect HDD. Local – To get record from local PC through manual Recording
Query Mode	To get playback by Name or by time.

Parameter	Function
Type	To select record type, its includes: Alarm Record, Detect Record, General Record, Manual Record, and etc.
Begin	To input Begin Date and Time from which user want to get playback.
End	To input Date and time, and system will get playback till that date and time.
Synchronous	To Synchronize time with other channel in playback
Channel	To Select Channel, user want to get playback
Search	To search Playback record according to above selection.
Play	To Play selected file.
Page Up	To go previous page
Page Down	To go Next page

Please refer to the following sheet for Playback tool information.

Icon	Function	Icon	Function
	Play		Fast Forward
	Pause		Previous Frame
	Stop		Next Frame
	Slow Forward		

Download - Select the file(s) you want to download and then click download button, you can see an interface shown as in Figure 5.8. Select Record type like H264 or AVI and click on browse button to Select file Destination and click on OK button to start Download.

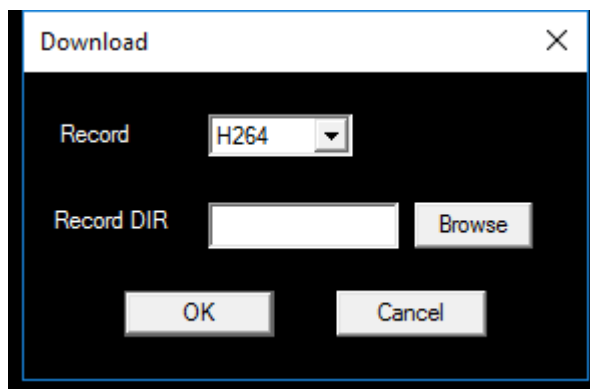


Figure 5.8

5.8. Alarm

Click alarm function, you can see an interface is shown as Figure 5.9. Here you can set device alarm type and alarm sound setup (Please make sure you have enabled audio function of corresponding alarm events).

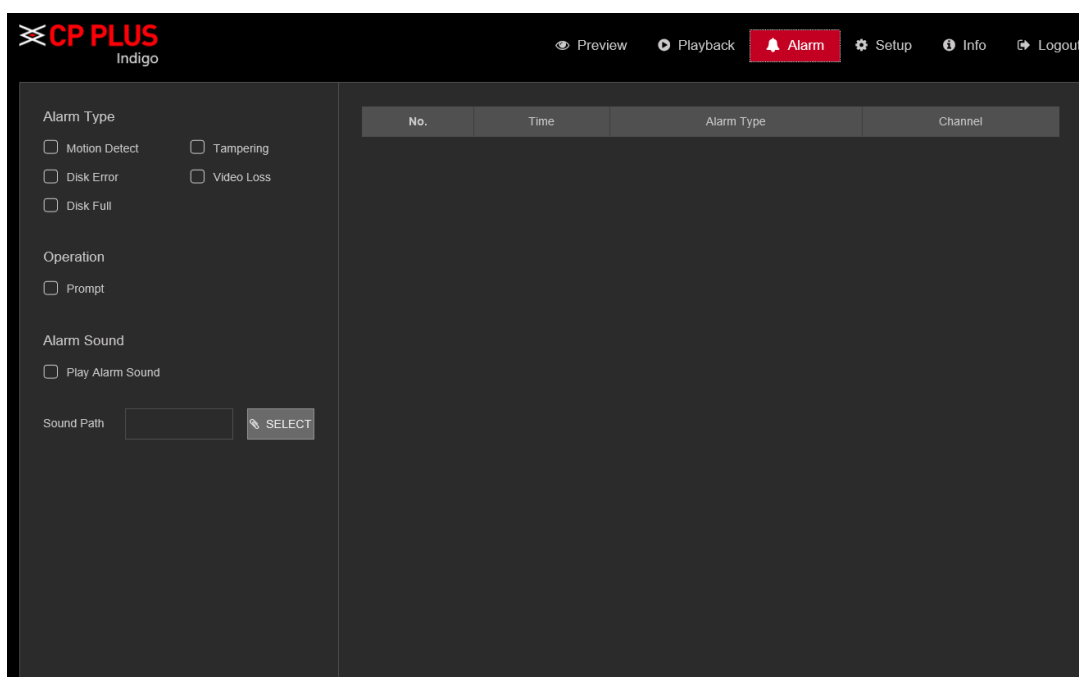


Figure 5.9

Please refer to the following sheet for detailed information.

Type	Parameter	Function
Alarm Type	Video loss	System alarms when video loss occurs.
	Motion Detection	System alarms when motion detection alarm occurs.

Type	Parameter	Function
	Tampering	System alarms when camera is viciously masking.
	Disk full	System alarms when disk is full.
	Disk error	System alarms when disk error occurs.
Operation	Prompt	Check the box here, system can automatically pops up an alarm icon on the Alarm button in the main interface when there is an alarm.
Alarm Sound	Play alarm sound	System sends out alarm sound when an alarm occurs. You can specify as you wish.
	Sound path	Here you can specify alarm sound file.

5.9. Setup

5.9.1. Camera

5.9.1.1. Add IP devices

Add IP device interface is shown as in Figure 5.10

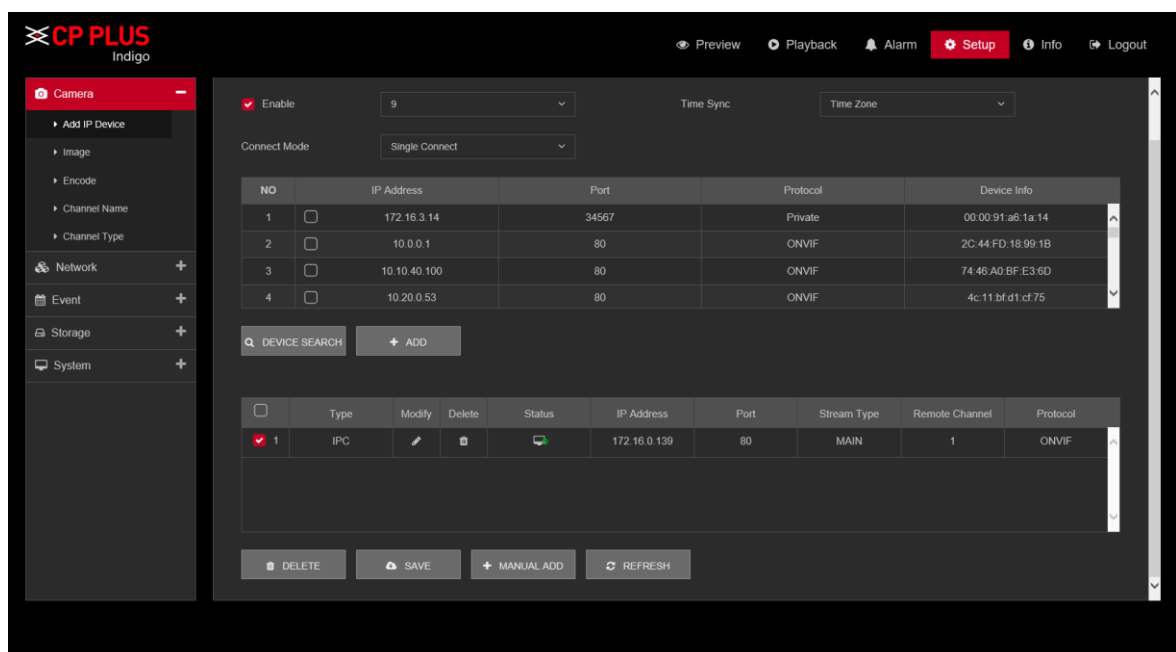


Figure 5.10

Manual Add
×

Device Type

IPC

Protocol

Private

Stream Type

Main Stream

Remote Channel No.

1

IP Address

192.168.0.0

Port

25001

(1~65535)

Username

admin

Password

•••••

default **admin**





SAVE

CANCEL

Figure 5.11

Please refer to the following sheet for log parameter information.

Parameter	Function
Enable	Open digital channel, tick enable, then can do related settings.
Channel	Select Channel No.
Time Sync	To disable or select time synchronization mode with device and UTC
Connect Mode	Can be single connect or multi-link, multi-link modes can connect to several devices, device will be tour displayed one by one, tour interval can be set, no less than 10sec.
Device search	Click Device search button, you can view the searched device information on the list. It includes device IP address, port, protocol, device info.

Parameter	Function
Add	Select a device in the list and then click Add button, system can connect the device automatically and add it to the Added device list. Or you can double click one item in the list to add a device.
Modify	Click  or any device in the Added device list, you can change the corresponding channel setup.
Delete	Click  , you can delete the remote connection of the corresponding channel.
Status	 : Connection succeeded.  : Connection failed.
Delete	Select a device in the Added device list and then click Delete button, system can disconnect the device and remove it from the Added device list.
Save	To Save current setting of Add IP device page.
Manual Add	<p>Click it, the interface is shown as in Figure 5.11. Here you can add network camera manually.</p> <p>Note:</p> <ul style="list-style-type: none"> ● System supports manufactures such as Panasonic, Sony, Dynacolor, Samsung, AXIS, Arecont, Dahua and ONViF standard protocol. ● If you do not input IP address here. System uses default IP 192.168.0.0 and system does not connect to this IP. ● Cannot add two devices at the same time. Click OK button here, system only connect to the corresponding device of current channel.

5.9.1.2. Image

Here you can view device property information. The setups become valid immediately after you set. Image interface is shows as in Figure 5.12.

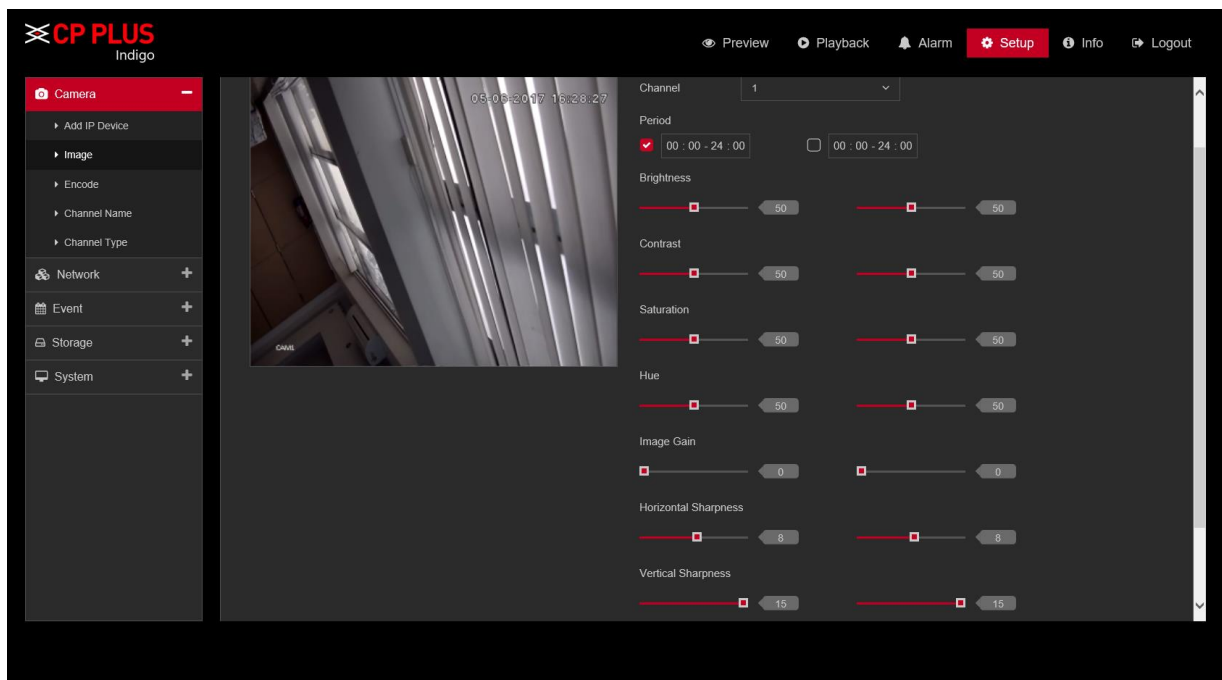


Figure 5.12

Please refer to the following sheet for detailed information.

Parameter	Function
Channel	Please select a channel from the dropdown list.
Period	It divides one day (24 hours) to two periods. You can set different hue, brightness, and contrast for different periods.
Brightness	<p>It is to adjust monitor window brightness. The default value is 50.</p> <p>The larger the number is , the bright the video is. When you input the value here, the bright section and the dark section of the video will be adjusted accordingly. You can use this function when the whole video is too dark or too bright. Please note the video may become hazy if the value is too high. The value ranges from 0 to 100.The recommended value ranges from 40 to 60.</p>
Contrast	<p>It is to adjust monitor window contrast. The value ranges from 0 to 100. The default value is 50.</p> <p>The larger the number is, the higher the contrast is. You can use this function when the whole video bright is OK but the contrast is not proper. Please note the video may become hazy if the value is too</p>

	low. If this value is too high, the dark section may lack brightness while the bright section may over exposure .The recommended value ranges from 40 to 60.
Saturation	<p>It is to adjust monitor window saturation. The value ranges from 0 to 100. The default value is 50.</p> <p>The larger the number is, the strong the color is. This value has no effect on the general brightness of the whole video. The video color may become too strong if the value is too high. For the grey part of the video, the distortion may occur if the white balance is not accurate. Please note the video may not be attractive if the value is too low. The recommended value ranges from 40 to 60.</p>
Hue	<p>It is to adjust monitor video brightness and darkness level. The default value is 50.</p> <p>The bigger the value is, the large the contrast between the bright and dark section is and vice versa.</p>

5.9.1.3. Encode

5.9.1.3.1. Encode

The encode interface is shown as below. See Figure 5.13.

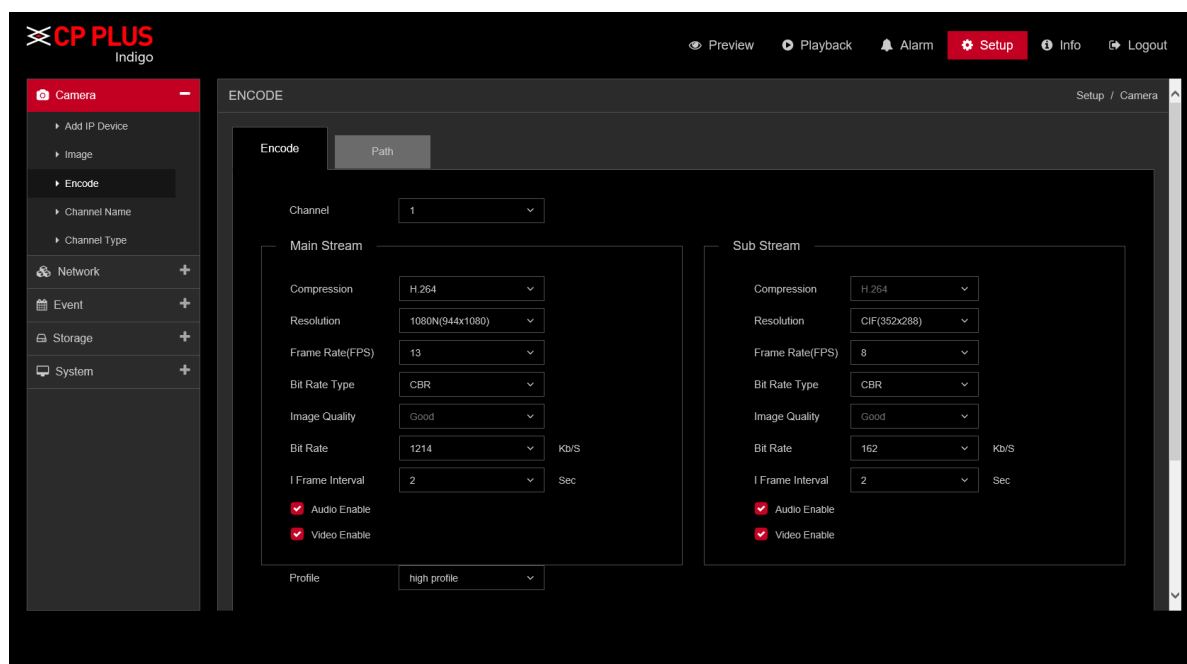


Figure 5.13



Please refer to the following sheet for detailed information.

Parameter	Function
Channel	Please select a channel from the dropdown list.
Video enable	Check the box here to enable extra stream video. This item is enabled by default.
Compression	Compression: System supports H.264. ✧ H.264: It is the High Profile compression algorithm. It has the high encode compression rate. It can achieve high quality encode at low bit stream. Usually we recommend this type.
Resolution	For analog channel, system supports various resolutions, you can select from the dropdown list. Please note the option may vary due to different series. For digital channel, the resolution here refers to the capability of the network camera.
Frame Rate	PAL : 1~25f/s ; NTSC : 1~30f/s.

Bit Rate Type	System supports two types: CBR and VBR. In VBR mode, you can set video quality.
Image Quality	There are six levels ranging from Lowest to Highest. The sixth level has the highest image quality
Bit Rate	Recommended bit rate value according to the resolution and frame rate you have set.
I Frame	Here you can set the P frame amount between two I frames. The value ranges from 1 to 150. Default value is 50. Recommended value is frame rate *2.
Audio/Video Enable	You can enable or disable the video/audio.

5.9.1.3.2. Path

The storage path interface is shown as in Figure 5.14.

Here you can set snap image saved path ( in the preview interface) and the record storage path ( in the preview interface). Please click the Save button to save current setup.

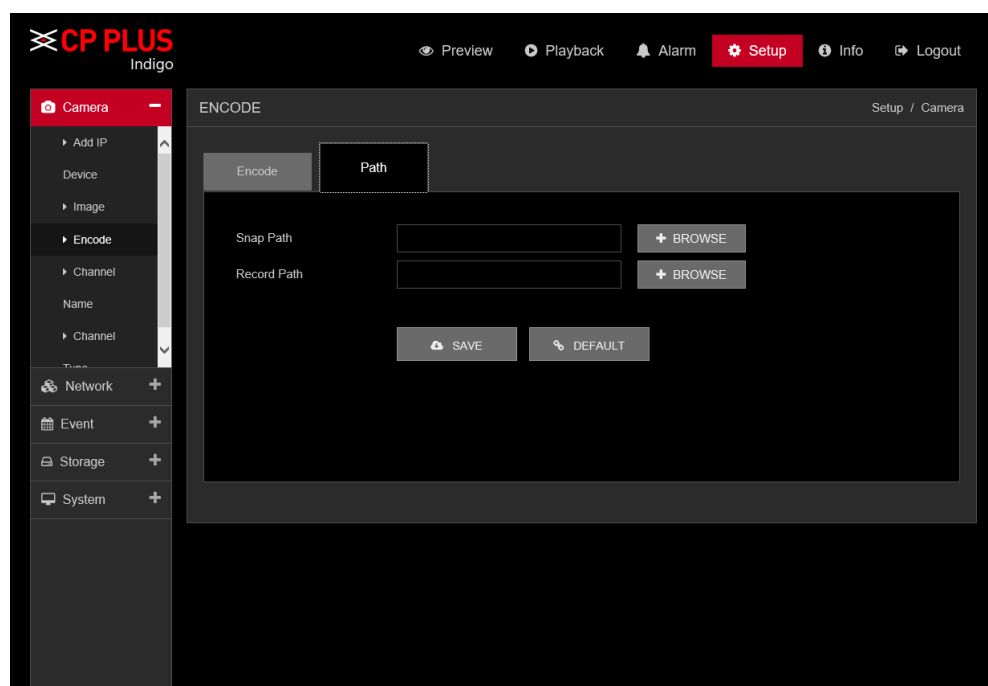


Figure 5.14

5.9.1.4. Channel Name

Here you can set channel name. See Figure 5.15.

Please note this function is for analog channel only. The digital channel name here is read-only.

Channel	Name
Channel1	CAM1
Channel2	CAM2
Channel3	CAM3
Channel4	CAM4
Channel5	CAM5
Channel6	CAM6
Channel7	CAM7
Channel8	CAM8
Channel9	CAM9
Channel10	D10
Channel11	D11
Channel12	D12
Channel13	D13
Channel14	D14
Channel15	D15
Channel16	D16

Figure 5.15

5.9.1.5. Channel Type

It is to set channel type. Each channel supports analog camera HD Analog / Network camera connection. Please note DVR (WITHOUT HDD) needs to restart to activate new setup. The network camera connection shall begin with the last channel. For the 16-channel (or higher) series product, please go to the next page to set. See Figure 5.16.

	HD Analog		IP			
		1080N	1080P	3M	5M	960P
<input type="checkbox"/>		16	0	0	0	0
<input type="checkbox"/>		8	0	0	0	0
<input checked="" type="checkbox"/>		8	0	0	0	8
<input type="checkbox"/>		0	8	0	0	8
<input type="checkbox"/>		0	0	0	0	16
<input type="checkbox"/>		0	0	0	4	0
<input type="checkbox"/>		0	0	4	0	0

Figure 5.16

5.9.2. Network

5.9.2.1. TCP/IP

5.9.2.1.1. TCPIP

TCP/IP interface is shown as in Figure 5.17.

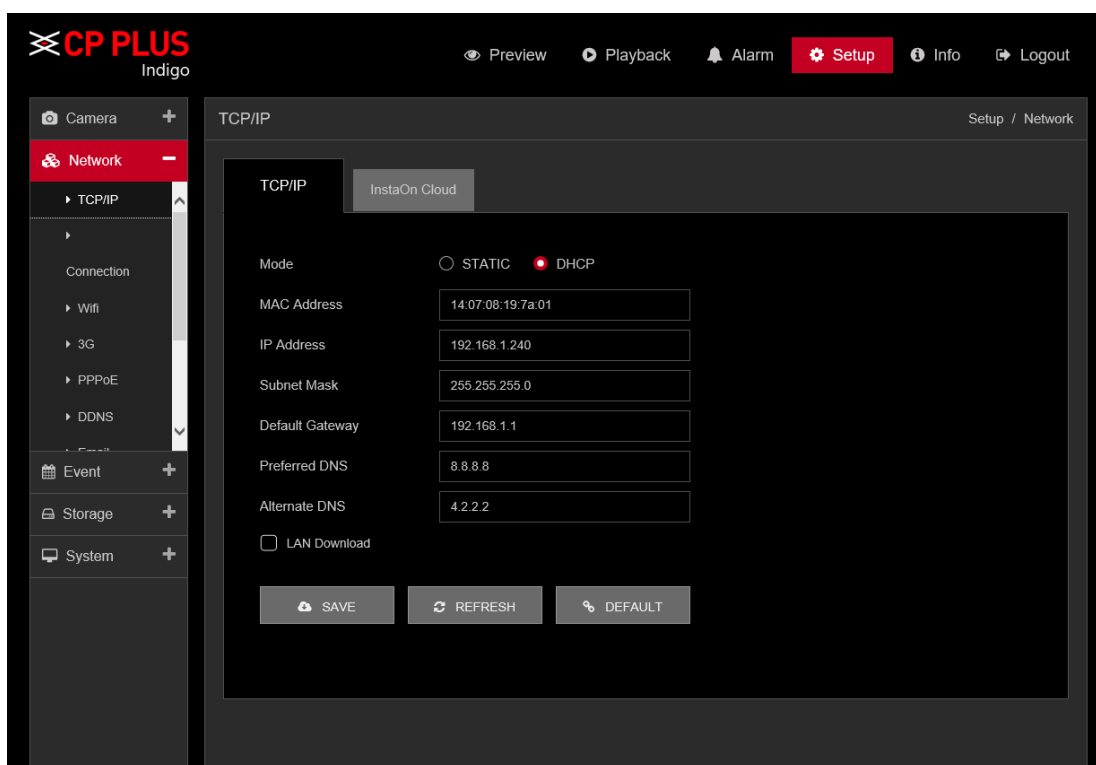


Figure 5.17

Please refer to the following sheet for detailed information.

Parameter	Function
Mode	<p>There are two modes: static mode and the DHCP mode.</p> <ul style="list-style-type: none">● The IP/submask/gateway is null when you select the DHCP mode to auto search the IP.● If you select the static mode, you need to set the IP/submask/gateway manually.● If you select the DHCP mode, you can view the IP/submask/gateway from the DHCP.● If you switch from the DHCP mode to the static mode, you need to reset the IP parameters.● Besides, IP/submask/gateway and DHCP are read-only when the PPPoE dial is OK.
Mac Address	<p>It is to display host Mac address.</p>

IP Address	Please use the keyboard to input the corresponding number to modify the IP address and then set the corresponding subnet mask and the default gateway.
Preferred DNS	DNS IP address.
Alternate DNS	Alternate DNS IP address.
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.

5.9.2.1.2. Instaon

User can use cell phone to scan the QR code to get download link of cMOB application for iPhone & Android, and also to get serial no. to add on mobile phone. See Figure 5.18.

Via the SN from scanning the QR code, you can access the device in the WAN. Please refer to the Instaon operation manual included in the resources CD.

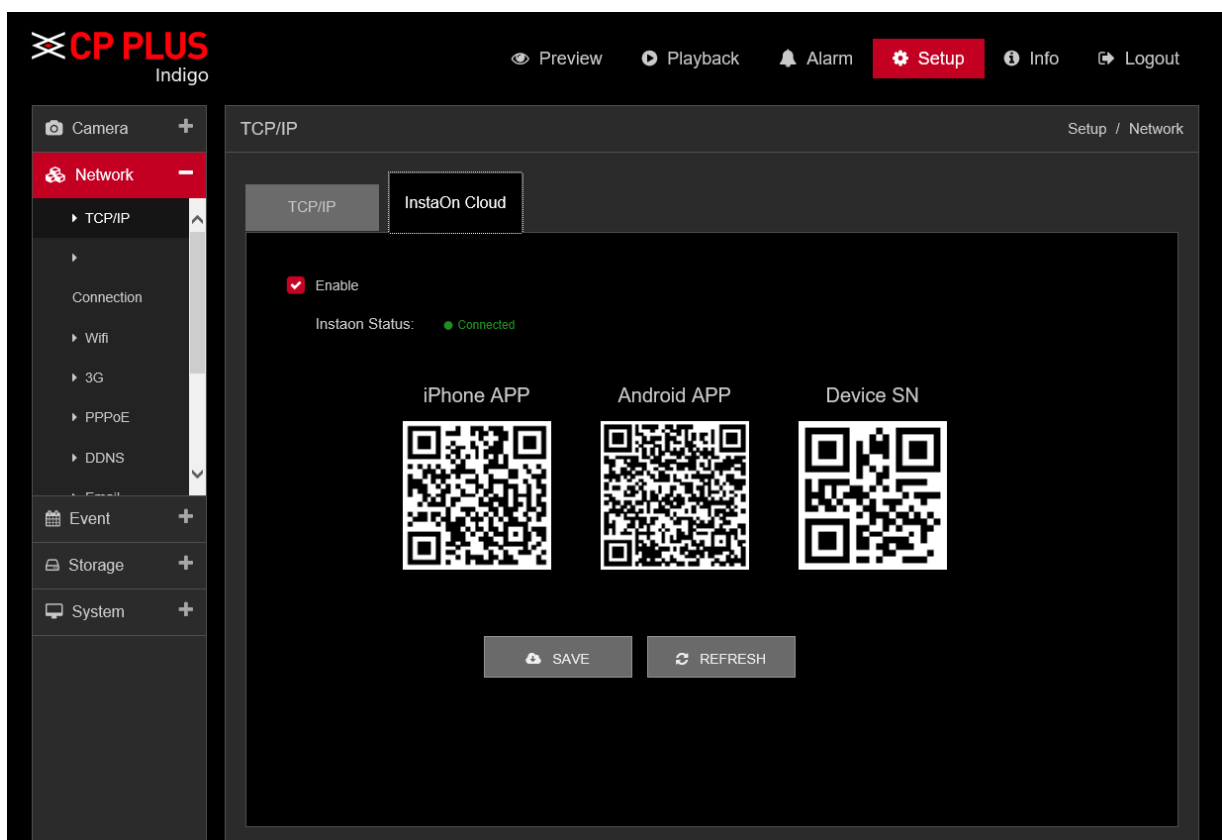


Figure 5.18

5.9.2.2. Connection

The connection interface is shown as in Figure 5.19.

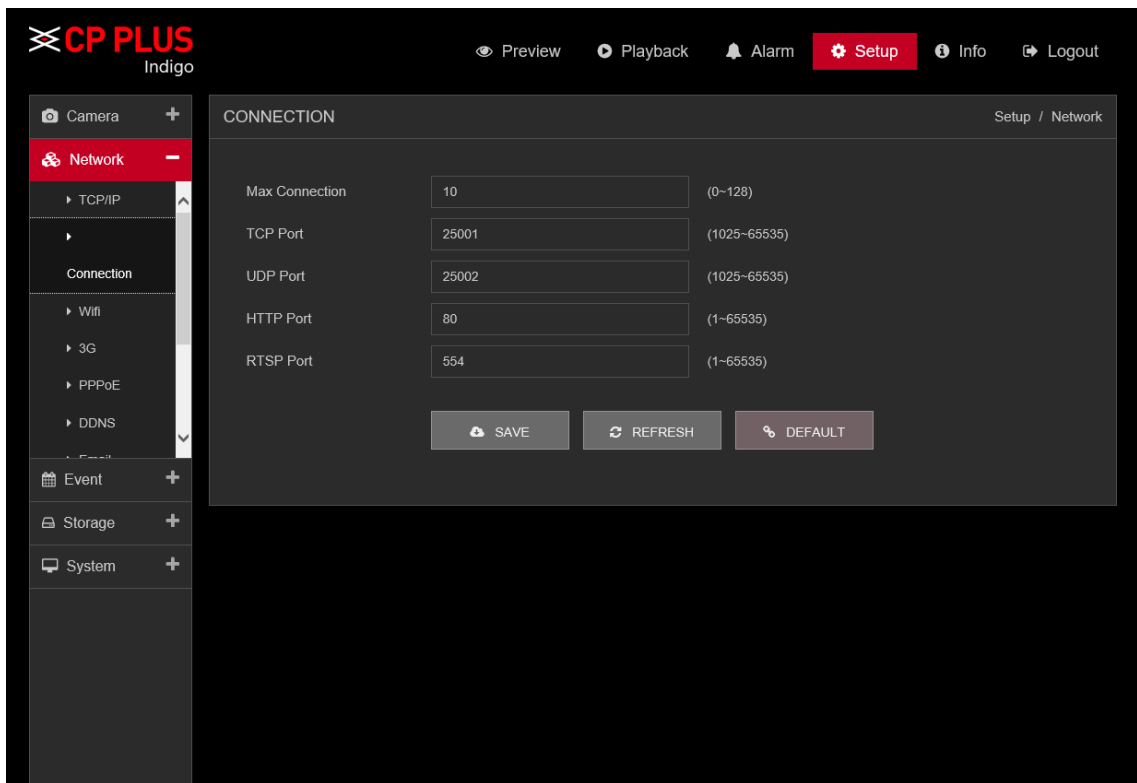


Figure 5.19

Please refer to the following sheet for detailed information.

Parameter	Function
Max connection	It is the max Web connection for the same device. The value ranges from 1 to 120. The default setup is 120.
TCP port	The default value is 37777. You can input the actual port number if necessary.
UDP port	The default value is 37778. You can input the actual port number if necessary.
HTTP port	The default value is 80. You can input the actual port number if necessary.
HTTPS	The default value is 443. You can input the actual port number if necessary.
RTSP port	The default value is 554.

5.9.2.3. Wifi

Please note this function is for the device of WIFI module.

The WIFI interface is shown as in Figure 5.20

Enable ☒

SEARCH SSID

No.	SSID	Authorize Mode	Signal Intensity

SSID:

Password:

IP Address:

Subnet Mask:

Default Gateway:

Figure 5.20

Please check the box to enable WIFI function and then click the Search SSID button. Now you can view all the wireless network information in the following list. Double click a name to connect to it. Click Refresh button, you can view latest connection status.

5.9.2.4. 3G

The CDMA/GPRS interface is shown as in Figure 5.21

CP PLUS Indigo

Preview Playback Alarm Setup Info Logout

Camera Network TCP/IP Connection Wifi 3G PPPoE DDNS Email Event Storage System

3G Setup / Network

CDMA/GPRS Setup

NetWork Type: EVDO ☐ Enable

ISP: Customized

Wireless AP:

Dial Number:

User Name:

Password: DIAL

WLAN Status

IP Address: 0.0.0.0

Subnet Mask: 255.255.255.255

Gateway: 0.0.0.0

SAVE REFRESH DEFAULT

Figure 5.21

Please refer to the following sheet for detailed information.

Parameter	Function
Network type	Here you can select 3G network type to distinguish the 3G module from different ISP. The types include WCDMA, CDMA1x and etc.
ISP	To Select ISP predefine Setting for APN, Dial No. User and Password. It includes TATA, AIRCEL, AIRTEL, MTS, BSNL, RELIANCE CDMA, RELIANCE GSM, TATA DOCOMO, MTNL and customized.
Wireless AP	To input 3G access point.
Dial No.	Input 3G dialup number.
User Name	Input Dial 3G username
Password	Input dial user's password
WLAN Status	The IP address of the dial-up number to get.

5.9.2.5. PPPoE

The PPPoE interface is shown as in Figure 5.22.

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.

Please note, you need to use previous IP address in the LAN to login the device. Please go to the IP address item to via the device current device information. You can access the client-end via this new address.

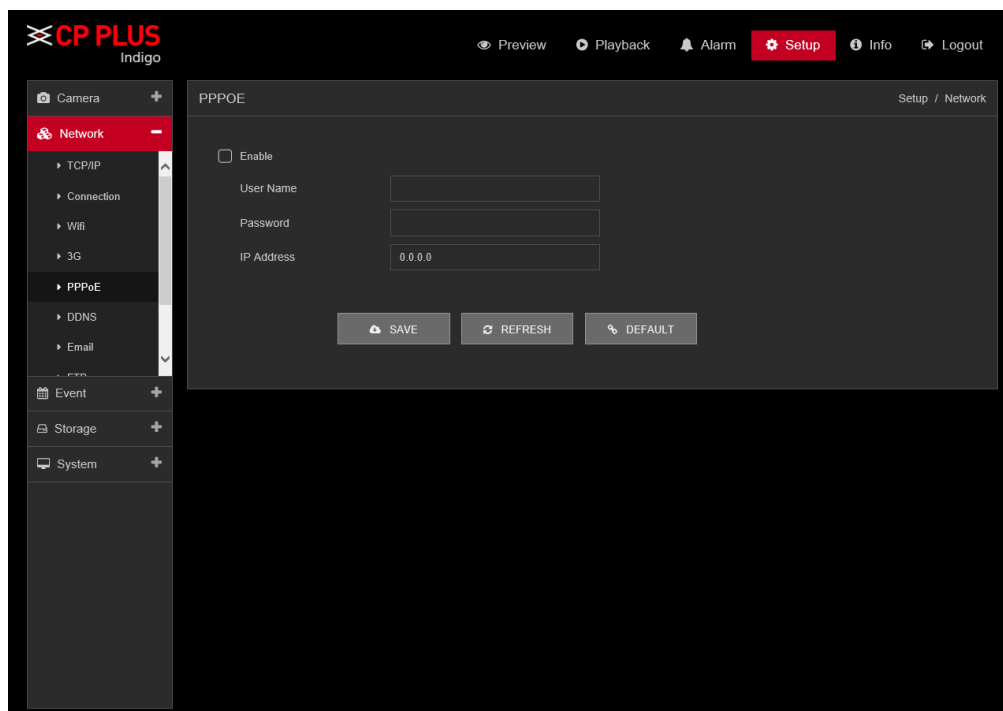


Figure 5.22

5.9.2.6. DDNS

DDNS setup interface is shown as in Figure 5.23.

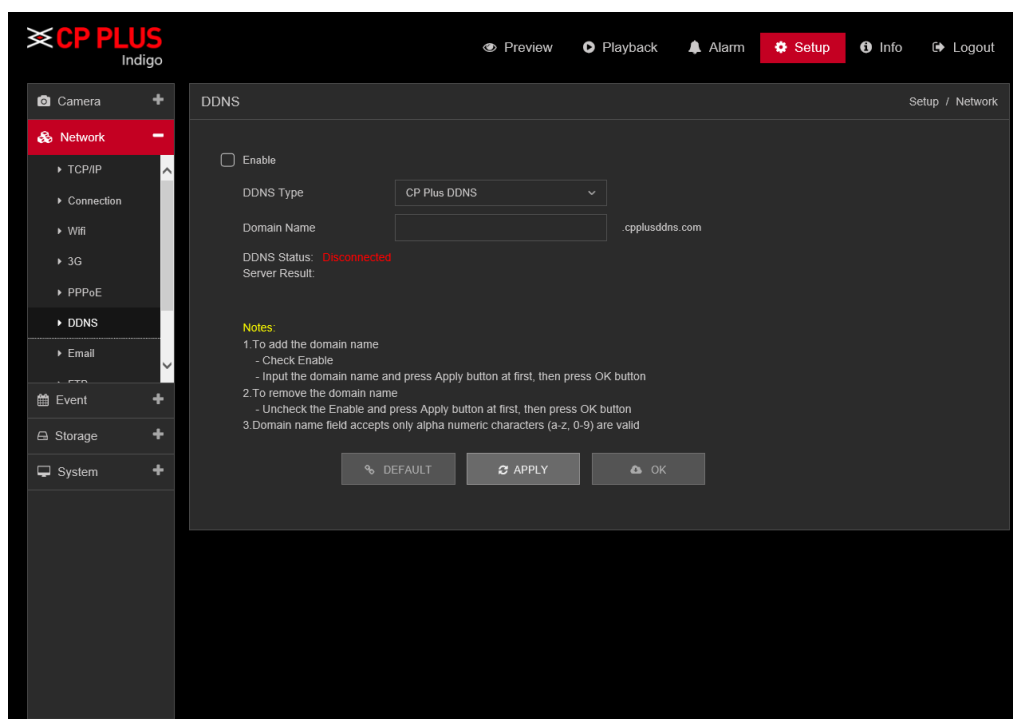


Figure 5.23

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

➤ **Background Introduction**

Device IP is not fixed if you use ADSL to login the network. The DDNS function allows you to access the DVR (WITHOUT HDD) via the registered domain name. Besides the general DDNS, the CPPlus DDNS works with the device from the manufacturer so that it can add the extension function.

➤ **Function Introduction**

The CPPlus DDNS has the same function as other DDNS client end. It realizes the bonding of the domain name and the IP address. Right now, current DDNS server is for our own devices only. It automatically refreshes the bonding relationship of the domain and the IP regularly.

➤ **Operation**

- Select CPPlus DDNS and click on check box to enable DDNS service.
- User can input self-defined domain name in Domain name field.
- Click on Apply button, device will check the availability of defined domain name on DDNS server. If same Domain name already registered on server then it will prompt message neither it will register domain name on server.
- After successfully created Domain Name, click on OK button to save settings.

Important - Do not register frequently. The interval between two registrations shall be more than 60 seconds. Too many registration requests may result in server attack.

5.9.2.7. Email

The email interface is shown as in Figure 5.24.

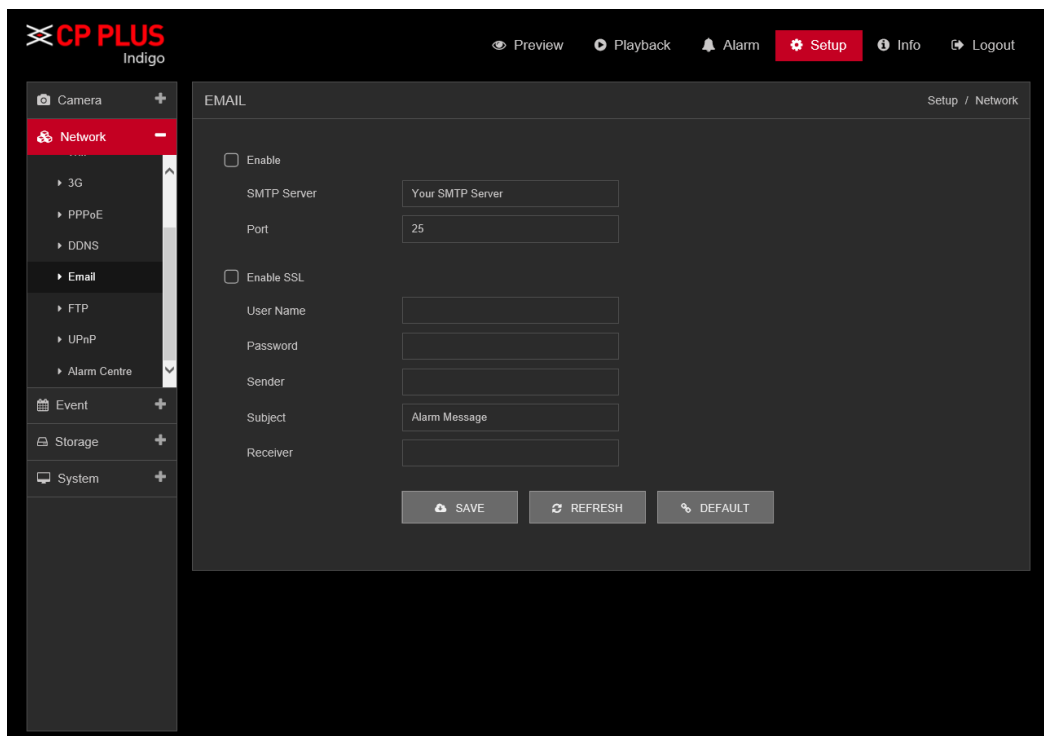


Figure 5.24

Please refer to the following sheet for detailed information.

Parameter	Function
Enable	Please check the box here to enable email function.
SMTP Server	Input server address and then enable this function.
Port	Default value is 25. You can modify it if necessary.
SSL	To enable or disable SSL encryption.
User Name	The user name of the sender email account.
Password	The password of sender email account.
Sender	Sender email address.
Subject	Input email subject here.
Receiver	Input receiver email address here. Max three addresses.

5.9.2.8. FTP

The FTP interface is shown as in Figure 5.25. It is to set FTP IP, port and etc. for remote storage.

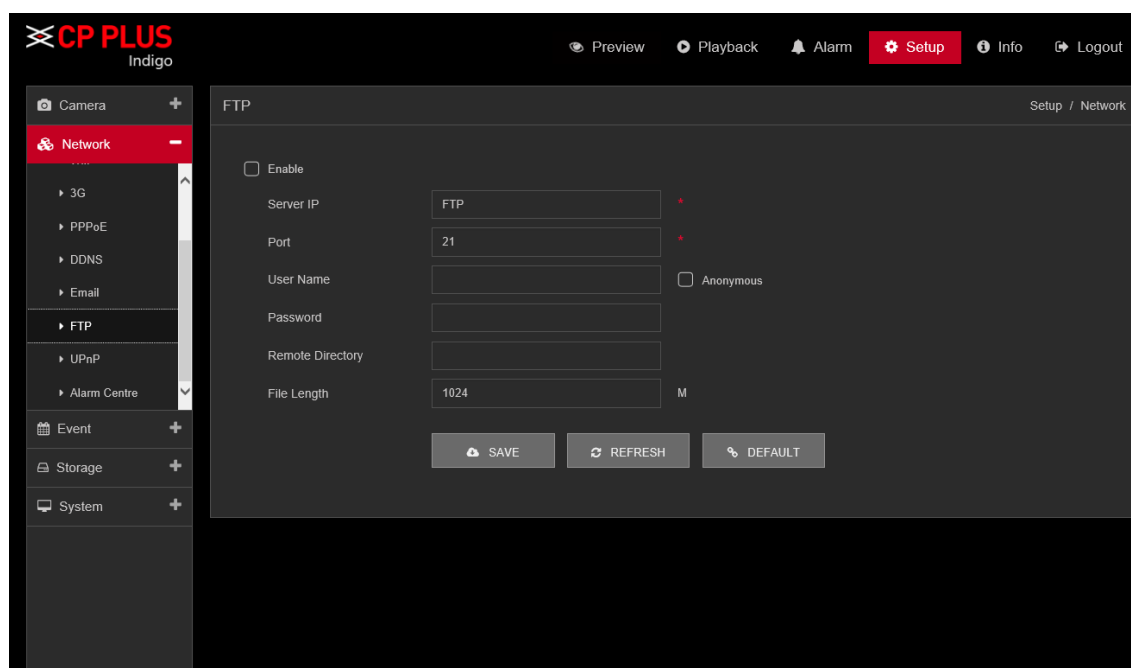


Figure 5.25

Please refer to the following sheet for detailed information.

Parameter	Function
Enable	Please check the box here to enable email function.
Server IP	To set IP address of the FTP server.
Port	To set FTP server service port number, the default port 21.
User Name	Input the user name of FTP Server authentication.
Password	Input password of FTP server User authentication.
Anonymous	If choose to be anonymous, then user do not need to set the user name and password.
Remote Directory	To set directory name to upload files.
File Length	Each package upload files maximum length, default is 1024MB.

5.9.2.9. UPnP

It allows you to establish the mapping relationship between the LAN and the public network. Here you can also add, modify or remove UPnP item. See Figure 5.26.

In the Windows OS, From Start → Control Panel → Add or remove programs. Click the “Add/Remove Windows Components” and then select the “Network Services” from the Windows Components Wizard.

- Enable UPnP from the Web. If your UPnP is enabled in the Windows OS, the DVR (WITHOUT HDD) can auto detect it via the “My Network Places”

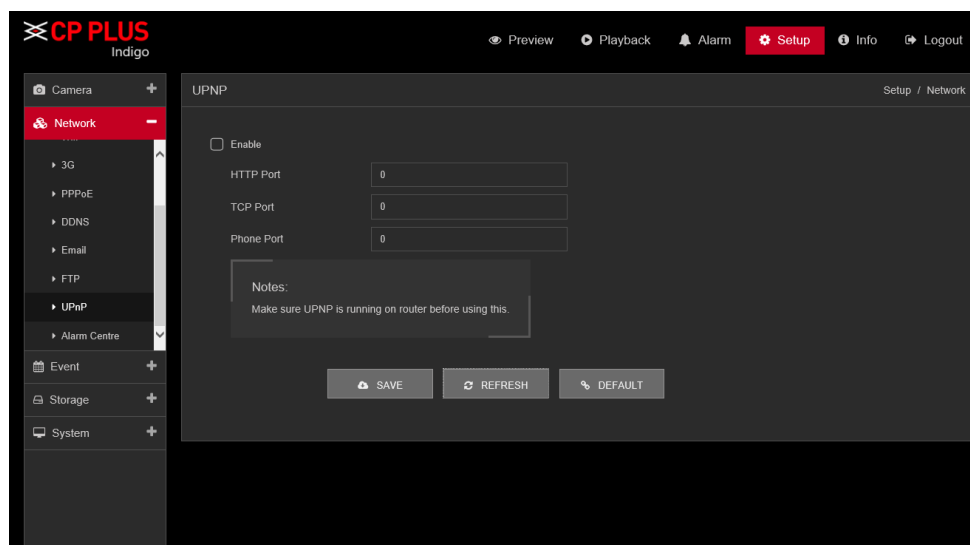


Figure 5.26

5.9.2.10. Alarm Server

The alarm server interface is shown as below. See Figure 5.27.

This interface is reserved for you to develop. System can upload alarm signal to the alarm server when local alarm occurs.

Before you use alarm server, please set server IP, port and etc. When an alarm occurs, system can send out data as the protocol defined, so the client-end can get the data.

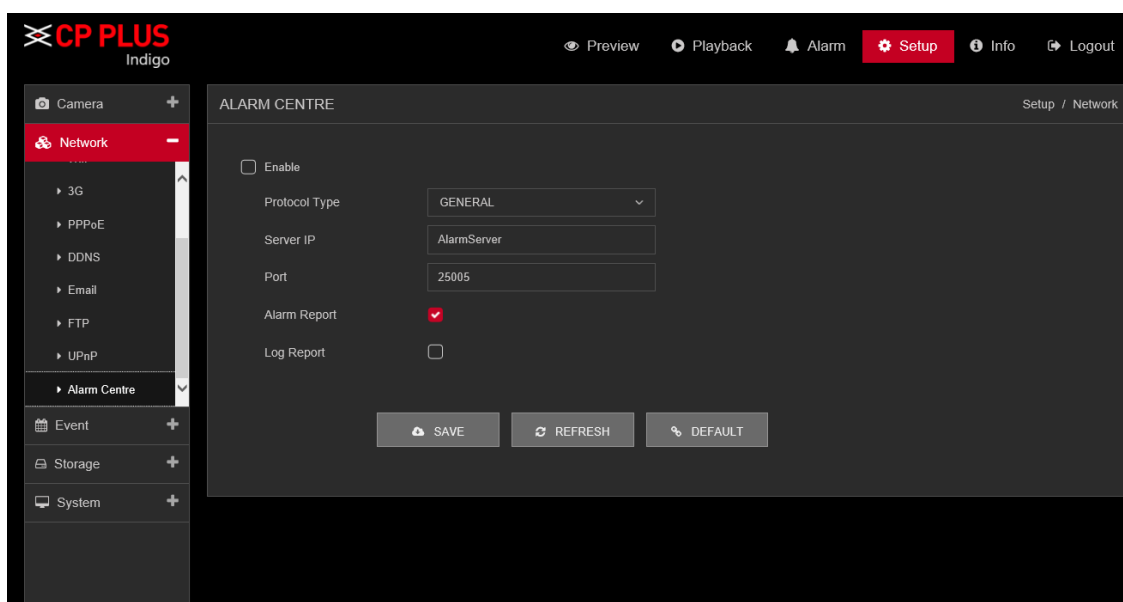


Figure 5.27

5.9.3. Event

5.9.3.1. Detect

5.9.3.1.1. Motion Detect

The motion detect interface is shown as in Figure 5.28.

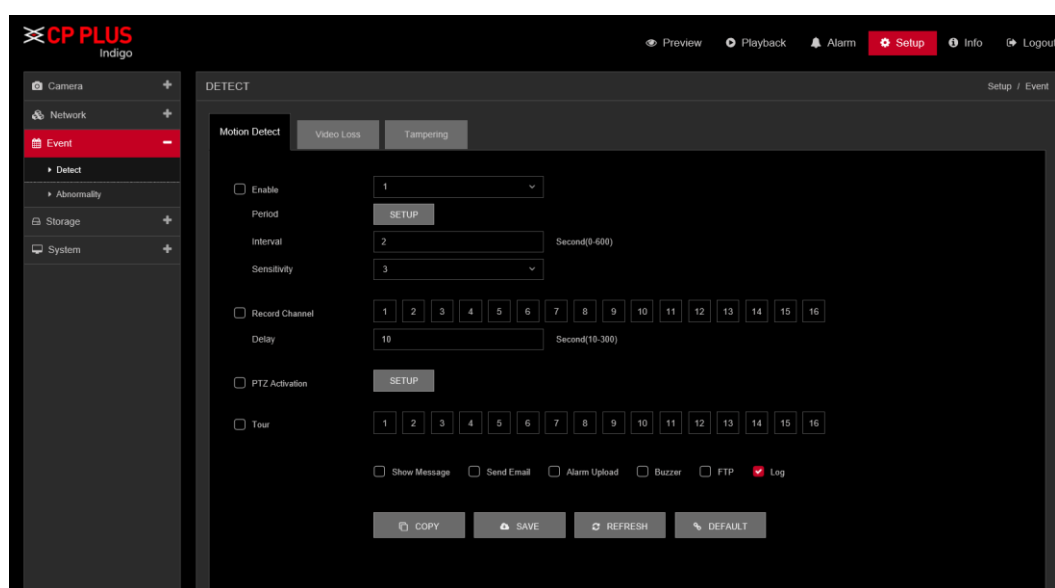


Figure 5.28

Setup

×

Sunday	COPY	
<input checked="" type="checkbox"/>	00 : 00	24 : 00
<input type="checkbox"/>	00 : 00	24 : 00
<input type="checkbox"/>	00 : 00	24 : 00
<input type="checkbox"/>	00 : 00	24 : 00
<input type="checkbox"/>	00 : 00	24 : 00
<input type="checkbox"/>	00 : 00	24 : 00

SAVE

CANCEL

Figure 5.29

PTZ Activation

×

Channel 1	None	0
Channel 2	None	0
Channel 3	None	0
Channel 4	None	0
Channel 5	None	0
Channel 6	None	0
Channel 7	None	0
Channel 8	None	0
Channel 9	None	0
Channel 10	None	0
Channel 11	None	0
Channel 12	None	0
Channel 13	None	0
Channel 14	None	0
Channel 15	None	0
Channel 16	None	0

SAVE

CANCEL

Figure 5.30

Please refer to the following sheet for detailed information.

Parameter	Function
Enable	<p>You need to check the box to enable motion detection function.</p> <p>Please select a channel from the dropdown list.</p>
Period	<p>Motion detection function becomes activated in the specified periods. See Figure 5.29.</p> <p>There are six periods in one day. Please draw a circle to enable corresponding period.</p> <p>Click OK button, system goes back to motion detection interface; please click save button to exit.</p>
Interval	System only memorizes one event during the anti-dither period. The value ranges from 5s to 600s.
Sensitivity	There are six levels. The sixth level has the highest sensitivity.
Record channel	System auto activates motion detection channel(s) to record once an alarm occurs. Please note you need to set motion detect record period and go to Storage → Schedule to set current channel as schedule record.
Delay	System can delay the record for specified time after alarm ended. The value ranges from 10s to 300s.
PTZ Activation	Here you can set PTZ movement when alarm occurs. Such as go to preset X. See Figure 5.30.
Tour	You need to check the box here to enable this function. System begins 1-window or multiple-window tour display among the channel(s) you set to record when an alarm occurs.
Show message	System can pop up a message to alarm you in the local host screen if you enabled this function.
Send Email	If you enabled this function, System can send out an email to alert you when an alarm occurs.
Alarm upload	System can upload the alarm signal to the server (Including alarm server).
Buzzer	Check the box here to enable this function. The buzzer beeps when an alarm occurs.

Parameter	Function
FTP	Expressed alarm occurs if the selected channel or video capture channel, the video file up to a FTP server.
Log	Check the box here, system can record motion detect event log.

5.9.3.1.2. Video Loss

The video loss interface is shown as in Figure 5.31.

After analysis video, system can generate a video loss alarm when the detected moving signal reached the sensitivity you set here.

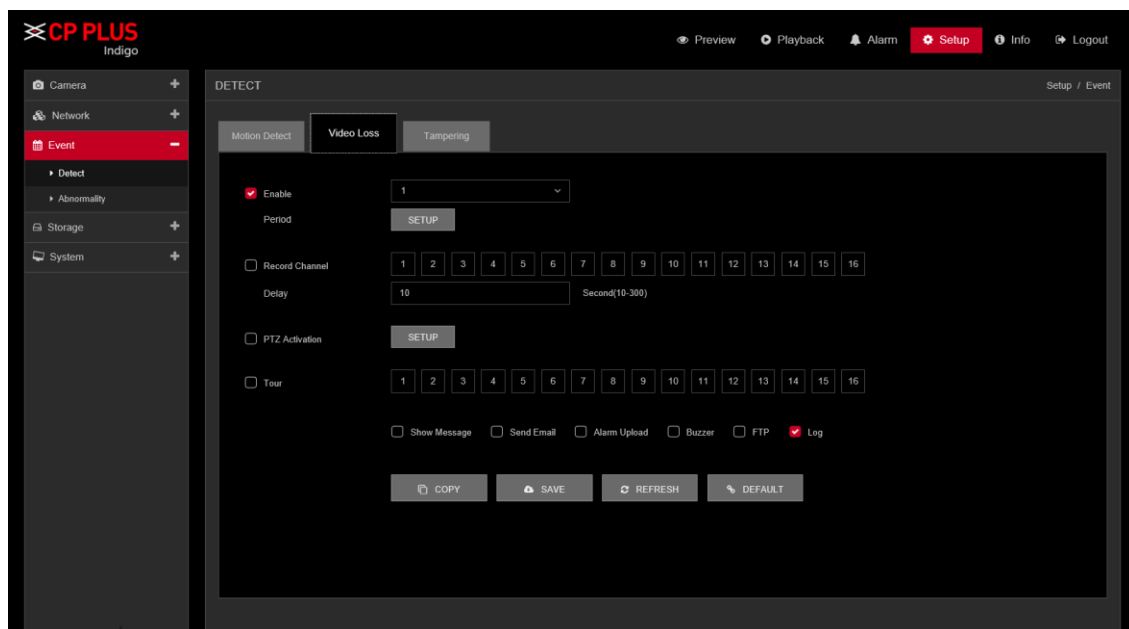


Figure 5.31

Setup

×

Sunday

COPY

☒

00 : 00

24 : 00

☐

00 : 00

24 : 00

☐

00 : 00

24 : 00

☐

00 : 00

24 : 00

☐

00 : 00

24 : 00

☐

00 : 00

24 : 00

SAVE

CANCEL

Figure 5.32

PTZ Activation

×

Channel 1

None

0

Channel 2

None

0

Channel 3

None

0

Channel 4

None

0

Channel 5

None

0

Channel 6

None

0

Channel 7

None

0

Channel 8

None

0

Channel 9

None

0

Channel 10

None

0

Channel 11

None

0

Channel 12

None

0

Channel 13

None

0

Channel 14

None

0

Channel 15

None

0

Channel 16

None

0

SAVE

CANCEL

Figure 5.33

Please refer to the following sheet for detailed information.

Parameter	Function
Enable	You need to check the box to enable/disable Video Loss function. By default Video loss function enable for all channel. Please select a channel from the dropdown list.
Period	<p>Video Loss function becomes activated in the specified periods. See Figure 5.32.</p> <p>There are six periods in one day. Please draw a circle to enable corresponding period.</p> <p>Click OK button, system goes back to Video Loss interface; please click save button to exit.</p>
Interval	System only memorizes one event during the anti-dither period. The value ranges from 5s to 600s.
Sensitivity	There are six levels. The sixth level has the highest sensitivity.
Record channel	System auto activates selected channels to record once an alarm occurs
Delay	System can delay the record for specified time after alarm ended. The value ranges from 10s to 300s.
PTZ Activation	Here you can set PTZ movement when alarm occurs. Such as go to preset X. See Figure 5.33.
Tour	You need to check the box here to enable this function. System begins 1-window or multiple-window tour display among the channel(s) you set to record when an alarm occurs.
Show message	System can pop up a message to alarm you in the local host screen if you enabled this function.
Send Email	If you enabled this function, System can send out an email to alert you when an alarm occurs.
Alarm upload	System can upload the alarm signal to the server (Including alarm server).
Buzzer	Check the box here to enable this function. The buzzer beeps when an alarm occurs.
FTP	Expressed alarm occurs if the selected channel or video capture channel, the video file up to a FTP server.
Log	Check the box here, system can record Video Loss event log.

5.9.3.1.3. Tampering

The tampering interface is shown as in Figure 5.34.

After analysis video, system can generate a tampering alarm when the tampering signal reached the sensitivity you set here.

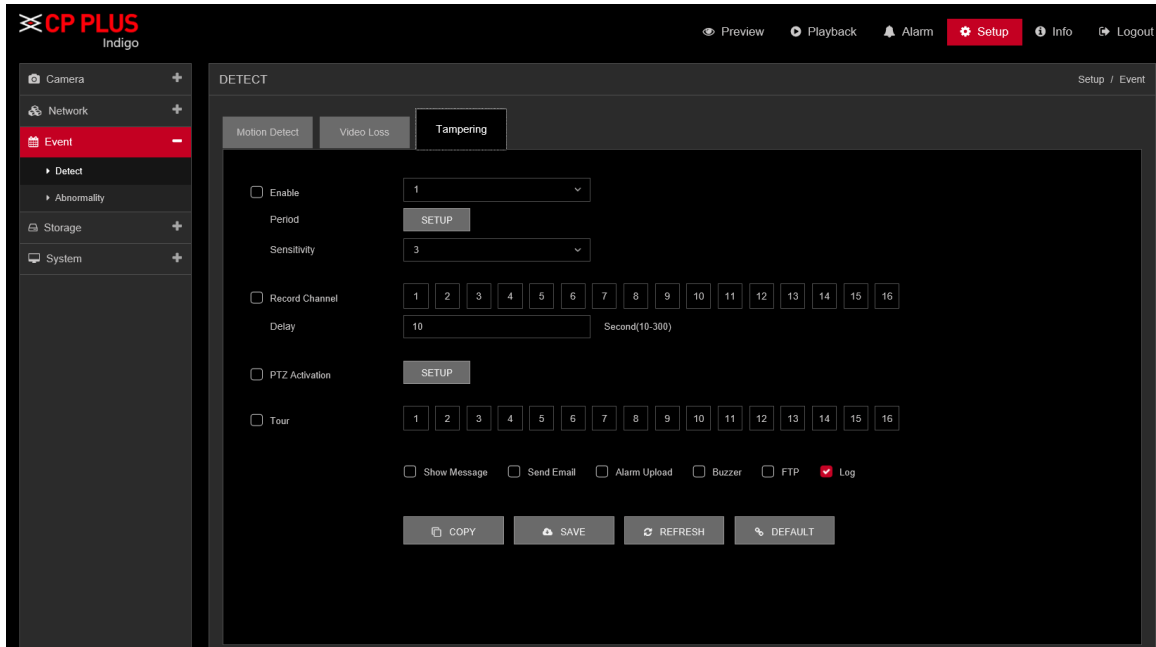


Figure 5.34

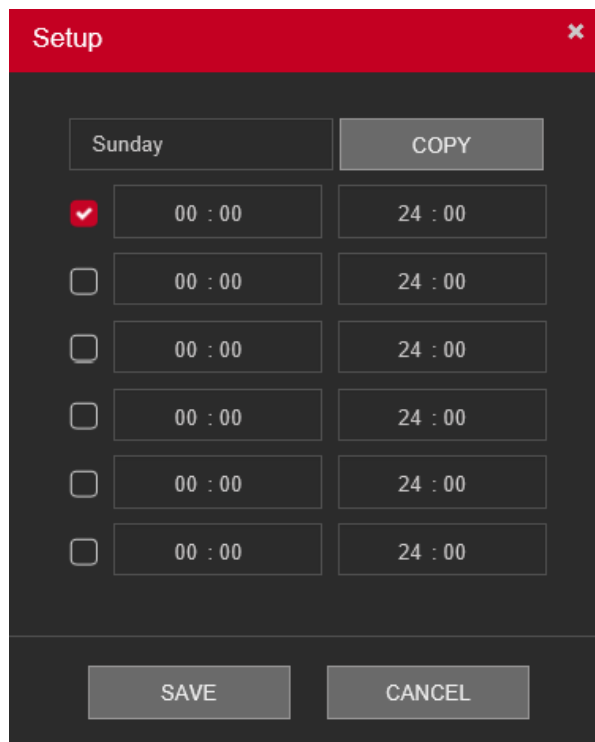


Figure 5.35

The image shows a 'PTZ Activation' dialog box with a red title bar and a close button. It contains 16 rows, each representing a channel from Channel 1 to Channel 16. Each row has a dropdown menu currently showing 'None' and a numeric input field currently showing '0'. At the bottom of the dialog are two buttons: 'SAVE' and 'CANCEL'.

Figure 5.36

Please refer to the following sheet for detailed information.

Parameter	Function
Enable	You need to check the box to enable/disable tampering function. Please select a channel from the dropdown list.
Period	<p>Tampering function becomes activated in the specified periods. See Figure 5.35.</p> <p>There are six periods in one day. Please draw a circle to enable corresponding period.</p> <p>Click OK button, system goes back to Tampering interface; please click save button to exit.</p>
Interval	System only memorizes one event during the anti-dither period. The value ranges from 5s to 600s.
Sensitivity	There are six levels. The sixth level has the highest sensitivity.

Parameter	Function
Record channel	System auto activates selected channels to record once an alarm occurs
Delay	System can delay the record for specified time after alarm ended. The value ranges from 10s to 300s.
PTZ Activation	Here you can set PTZ movement when alarm occurs. Such as go to preset X. See Figure 5.36.
Tour	You need to check the box here to enable this function. System begins 1-window or multiple-window tour display among the channel(s) you set to record when an alarm occurs.
Show message	System can pop up a message to alarm you in the local host screen if you enabled this function.
Send Email	If you enabled this function, System can send out an email to alert you when an alarm occurs.
Alarm upload	System can upload the alarm signal to the server (Including alarm server).
Buzzer	Check the box here to enable this function. The buzzer beeps when an alarm occurs.
FTP	Expressed alarm occurs if the selected channel or video capture channel, the video file up to a FTP server.
Log	Check the box here, system can record tampering event log.

5.9.3.2. Abnormality

It includes two types: HDD and Network Error.

- **HDD includes:** No disk, disk error, disk no space.
- **Network includes:** Net Disconnection, IP conflict, and MAC conflict.

5.9.3.2.1. HDD Error

The HDD Error interface is shown as in Figure 5.37.

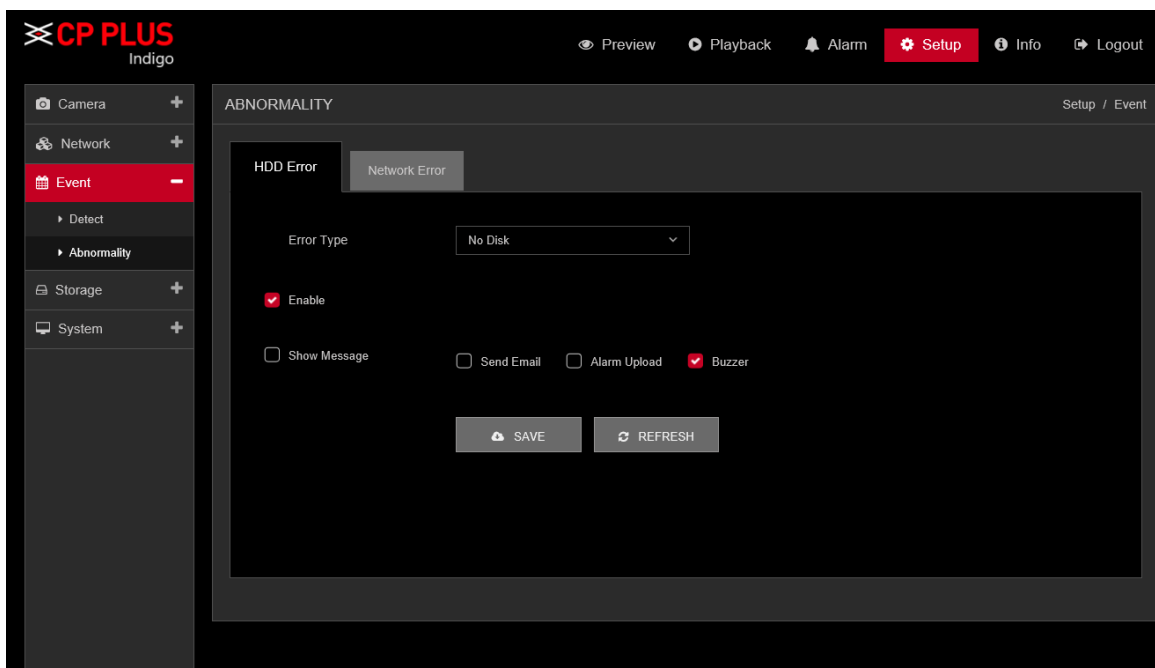


Figure 5.37

Please refer to the following sheet for detailed information.

Parameter	Function
Event Type	The abnormal events include: No Disk, Disk error, Disk No Space. You can set one or more items here. Less than: You can set the minimum percentage value here (For disk no space only). The device can alarm when capacity is not sufficient.
Enable	Check the box here to enable selected function.
Show message	System can pop up a message to alarm you in the local host screen if you enabled this function.
Alarm upload	System can upload the alarm signal to the Server (Including alarm Server).
Send Email	If you enabled this function, System can send out an email to alert you when an alarm occurs.
Buzzer	Check the box here to enable this function. The buzzer beeps when an alarm occurs.
Auto Reboot	If you enable this function then system will reboot automatically when event occurred. This function is only for Disk error event.

5.9.3.2.2. Network Error

The Network Error interface is shown as in Figure 5.38.

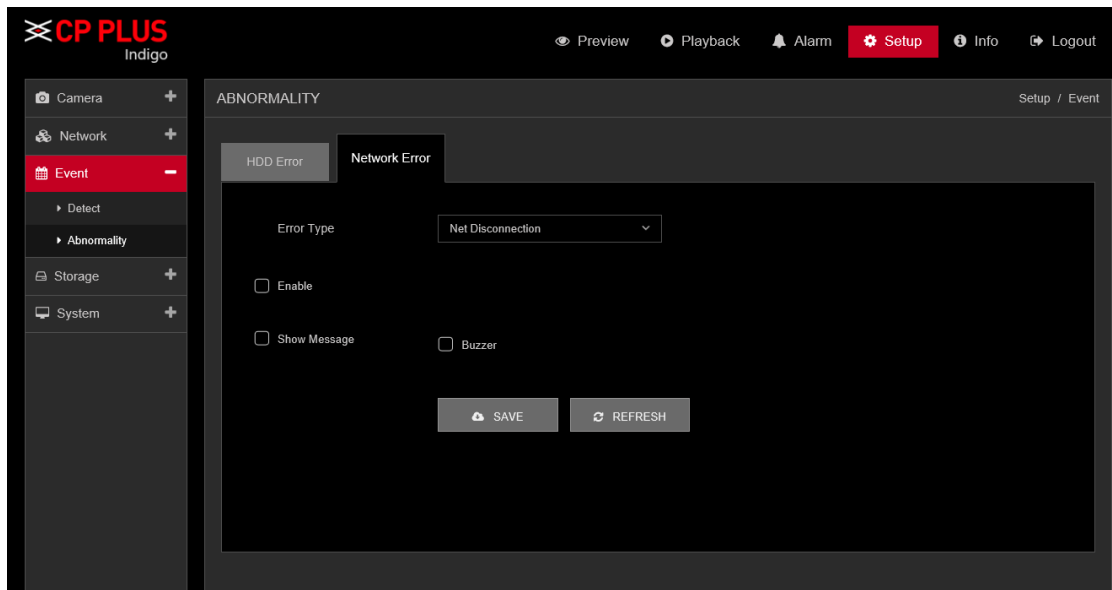


Figure 5.38

Please refer to the following sheet for detailed information.

Parameter	Function
Event Type	The abnormal events include: Net Disconnection and IP Conflict. You can set one or more items here. By default IP Conflict enable.
Enable	Check the box here to enable selected function.
Show message	System can pop up a message to alarm you in the local host screen if you enabled this function.
Buzzer	Check the box here to enable this function. The buzzer beeps when an alarm occurs.

5.9.4. Storage

5.9.4.1. Schedule

In this interfaces, you can add or remove the schedule record setup. See Figure 5.39.

There are three record modes: Regular (auto), Motion Detect and Alarm. There are six periods in one day.

You can view the current time period setup from the color bar.

- Green color stands for the Regular Record.

- Yellow color stands for the Motion Detect Record.
- Red color stands for the Alarm Record.
- Blue color stands for MD & Alarm Record.

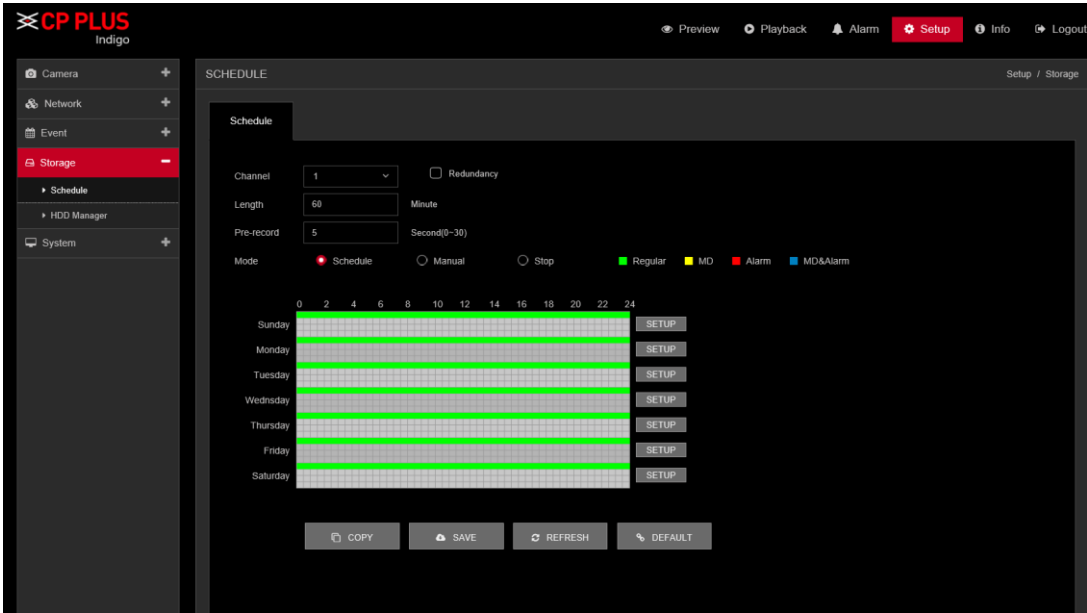


Figure 5.39

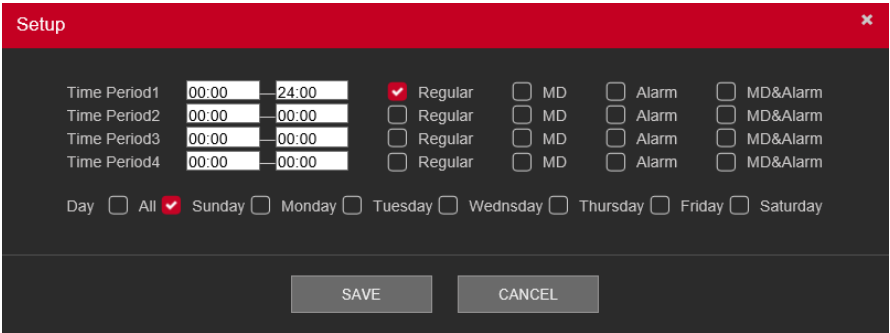


Figure 5.40

The image shows a 'Select Channel' dialog box with a red header and a dark grey body. It contains a list of 16 channels, each with a checkbox. 'Channel 1' is selected with a red checkmark. At the bottom, there are two buttons: 'SAVE' and 'CANCEL'.

Channel	Selected
All	<input type="checkbox"/>
Channel 1	<input checked="" type="checkbox"/>
Channel 2	<input type="checkbox"/>
Channel 3	<input type="checkbox"/>
Channel 4	<input type="checkbox"/>
Channel 5	<input type="checkbox"/>
Channel 6	<input type="checkbox"/>
Channel 7	<input type="checkbox"/>
Channel 8	<input type="checkbox"/>
Channel 9	<input type="checkbox"/>
Channel 10	<input type="checkbox"/>
Channel 11	<input type="checkbox"/>
Channel 12	<input type="checkbox"/>
Channel 13	<input type="checkbox"/>
Channel 14	<input type="checkbox"/>
Channel 15	<input type="checkbox"/>
Channel 16	<input type="checkbox"/>

Figure 5.41

Please refer to the following sheet for detailed information.

Parameter	Function
Channel	Please select a channel from the dropdown list.
Redundancy	Check the box here to enable redundancy function. Please note this function is null if there is only one HDD.
Length	Here is for you to specify record duration. The value ranges from 1 to 120 minutes. Default value is 60 minutes.
Pre-record	Please input pre-record time here. The value ranges from 0 to 30.
Mode	To select record mode, where user can select schedule, Manual or stop.
Setup (Sunday to Saturday)	Click the Setup button, you can set record period. See Figure 5.40. There are six periods in one day. If you do not check the date at the bottom of the interface, current setup is for today only.
Copy	Copy function allows you to copy one channel setup to another. After setting in channel, click Copy button, you can go to interface Figure 5.41. You can see current channel name is already tick such as channel 1. Now you can select the channel you want to paste such as channel 5/6/7. If you want to save current setup of channel 1 to all channels, you can click the first box "ALL". Click the OK button to save current copy setup. Click the OK button in the Encode interface, the copy function succeeded.

5.9.4.2. HDD Manager

The interface is shown as in Figure 5.42. Here you can see HDD information. You can also select the read-only, read-write, redundancy (if there are more than on HDD) format operation and so on.

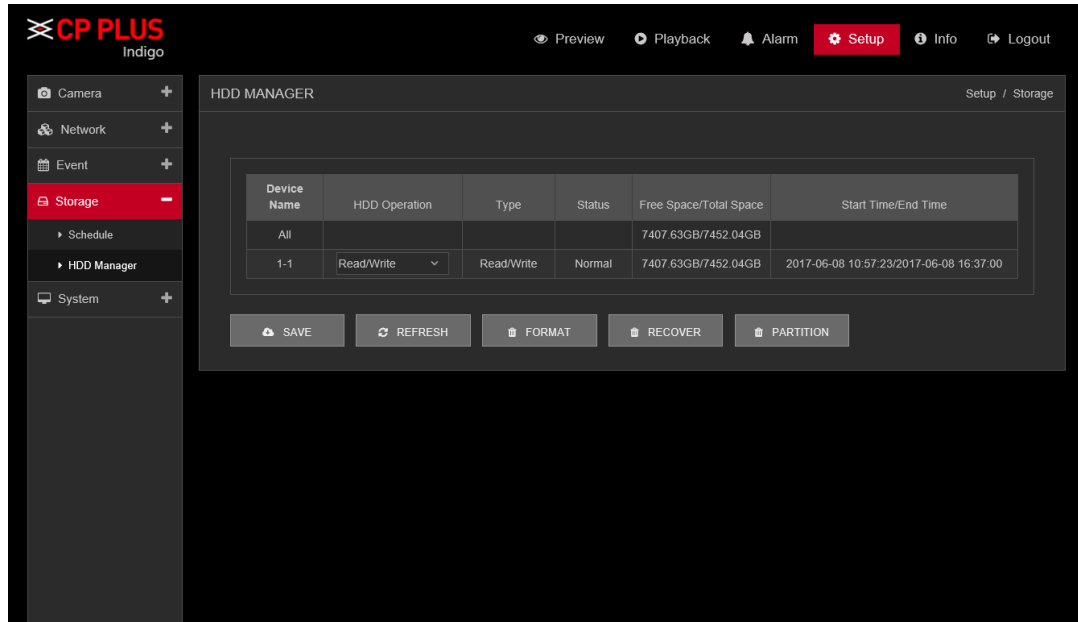


Figure 5.42

Please refer to the following sheet for detailed information.

Parameter	Function
Read/Write	The equipment can read and write data on HDD.
Read Only	The equipment can read data but cannot write data on HDD.
Redundant	Double backup the video files in the Read/Write disk.
Format	To format Selected HDD. Note: If click on format storage then all data from HDD will be erased. Before format HDD please make sure your Device time and time should be correct.
Recover	To recover lost data from HDD.
Partition	To create Partition in selected HDD.

5.9.5. System

5.9.5.1. General

The general interface includes General, Date & Time.

5.9.5.1.1. General

The general interface is shown as in Figure 5.43.

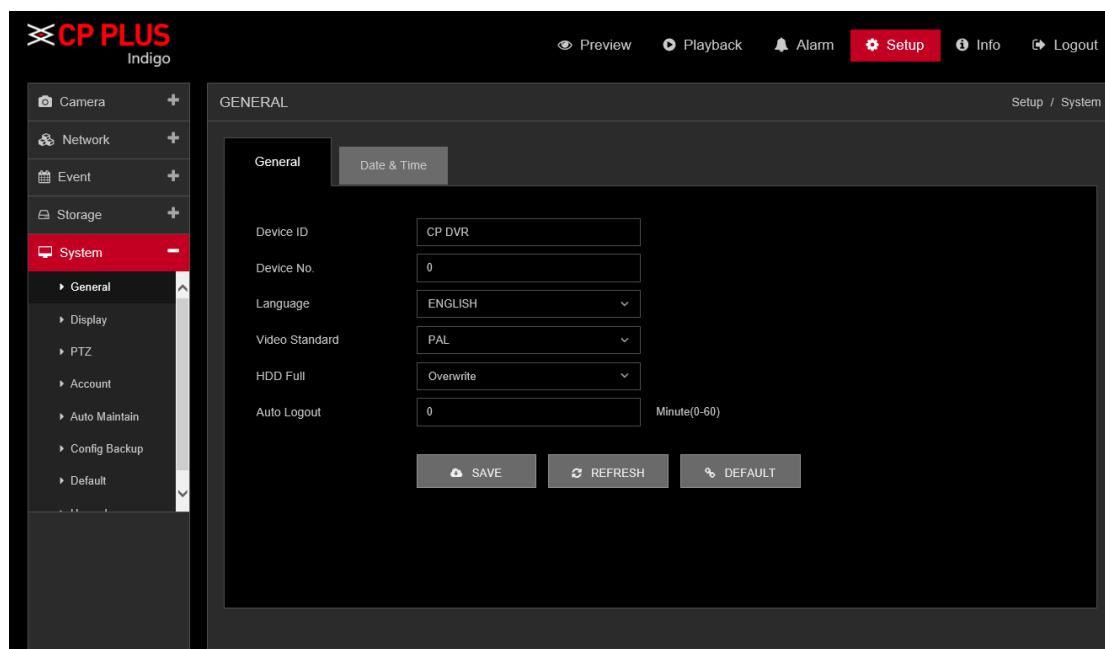


Figure 5.43

Please refer to the following sheet for detailed information.

Parameter	Function
Device ID	It is to set device name.
Device No.	It is to set device No.
Language	You can select the language from the dropdown list. Please note the device needs to reboot to get the modification activated.
Video Standard	This is to display video standard such as PAL and NTSC
HDD full	Here is for you to select working mode when hard disk is full. There are two options: Stop Recording or Overwrite. <ul style="list-style-type: none">• Stop Recording: If the current HDD is full then system stops recording.• Overwrite: If the current HDD is full then system overwrites

	the previous files.
Auto Logout	Here is for you to set auto logout interval once login user remains inactive for a specified time. Value ranges from 0 to 60 minutes.

5.9.5.1.2. Date & Time

The date and time interface is shown as in Figure 5.44.

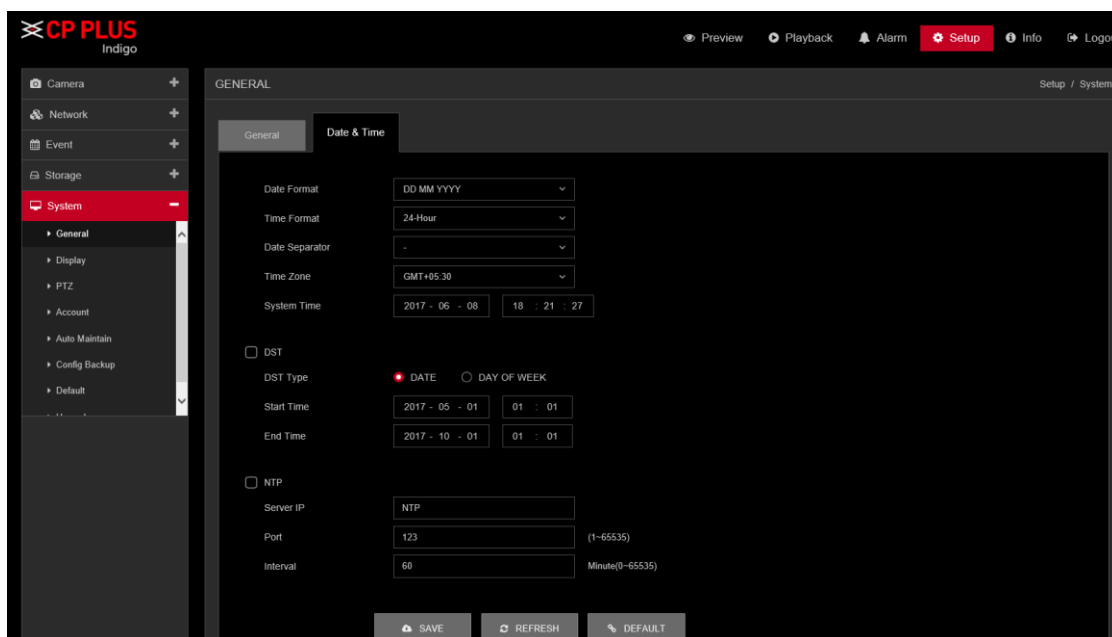


Figure 5.44

Please refer to the following sheet for detailed information.

Parameter	Function
Date format	Here you can select date format from the dropdown list. It includes: YYYY MM DD, MM DD YYYY and DD MM YYYY
Time Format	There are two options: 24 Hour and 12 hour.
Date Separator	Set the preview screen displays the date when the delimited format, provide a "-", ".", "/" three formats.
Time zone	The time zone of the device. By default it is +1:00
System time	It is to set system time. It becomes valid after you set.
DST	Here you can set day night save time begin time and end time. You can set according to the date format or according to the week format.
NTP	You can check the box to enable NTP function.

NTP Server IP	You can set the time server address.
Port	It is to set the time server port.
Interval	It is to set the sync periods between the device and the time server.

5.9.5.2. Display

Display Interface is shown as in Figure 5.45.

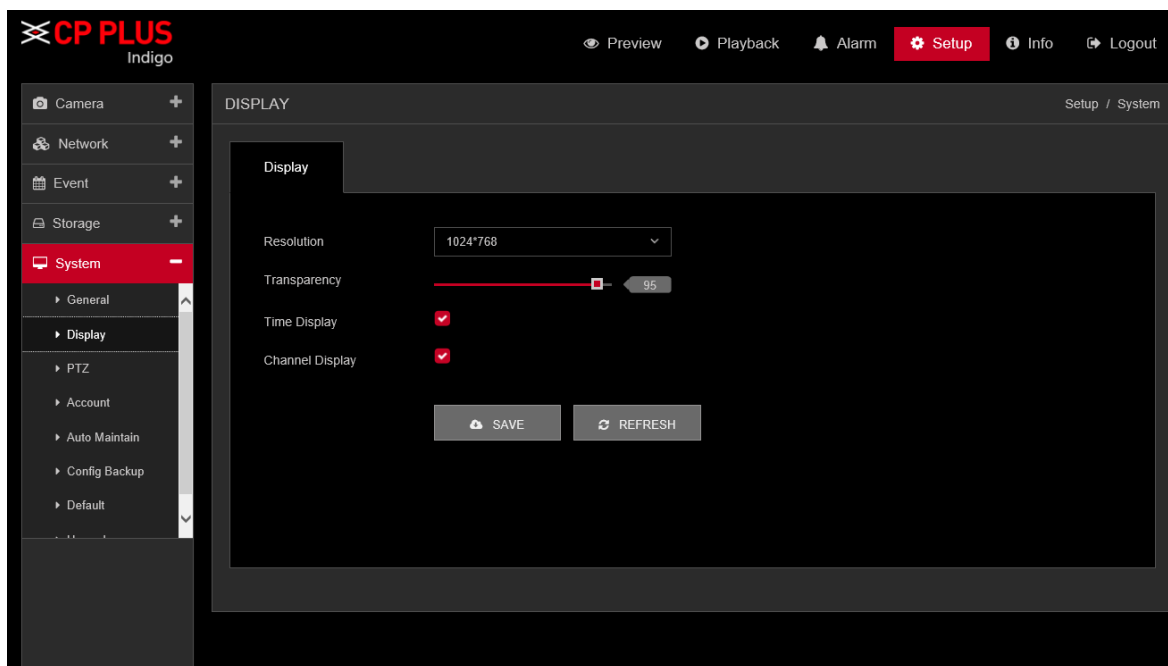


Figure 5.45

Please refer to the following sheet for detailed information.

Parameter	Function
Resolution	There are four options: 1920×1080, 1280×1024, 1280×720, and 1024×768 (Default). Please note the system needs to reboot to activate current setup.
Transparency	Here is for you to adjust transparency. The value ranges from 10 to 100.
Time Display / Channel Display	Check the box here, you can view system time and channel number on the monitor video.

5.9.5.3. PTZ

The PTZ interface is shown as in Figure 5.46.

Before setup, please check the following connections are right:

- PTZ and DVR (WITHOUT HDD) RS485 connection is should be proper. PTZ A B line should be connects with DVR (WITHOUT HDD) RS 485 port A B.
- PTZ address should be known.

Click Save button after you complete setup, you can go back to the monitor interface to control speed dome.

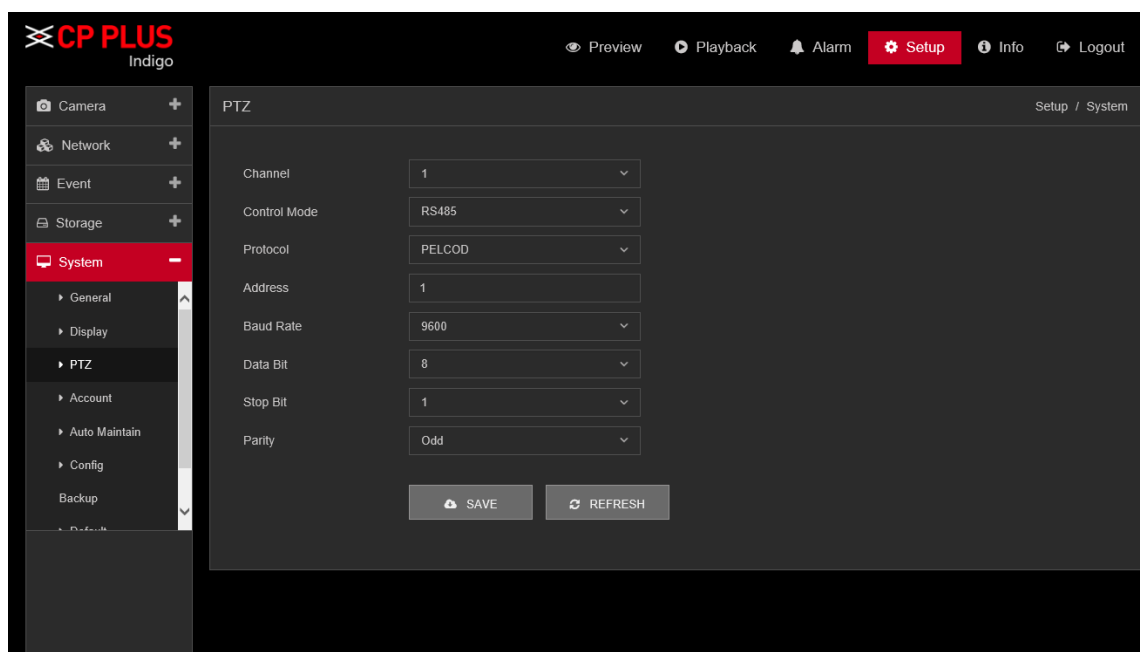


Figure 5.46

Please refer to the following sheet for detailed information.

Parameter	Function
Channel	Select speed dome connected channel.
PTZ type	There are three types: RS485/Coaxial/All. Please select RS485 mode if you are connect RS485 cable to connect to the Speed dome (PTZ). Please select Coaxial mode if you are connecting to the HDCVI PTZ camera.
Protocol	Please select protocol from the dropdown list.
Address	Set corresponding dome address. Default value is 1. Please note your setup here shall comply with your dome address; otherwise you cannot 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.

Parameter	Function
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.

5.9.5.4. Account

Note:

- For the character in the following user name or the user group name, system max supports 6-digits. The space in the front or at the end of the string is null. The valid string includes: character, number, and underline.
- The user amount default setup is 64 and the group amount default setup is 20. The factory default setup includes two levels: user and admin. You can set the corresponding group and then set the rights for the respective user in the specified groups.
- User management adopts group/user modes. The user name and the group name shall be unique. One user shall be included in only one group.

5.9.5.4.1. User

In this interface you can add/remove user and modify user name. See Figure 5.47.

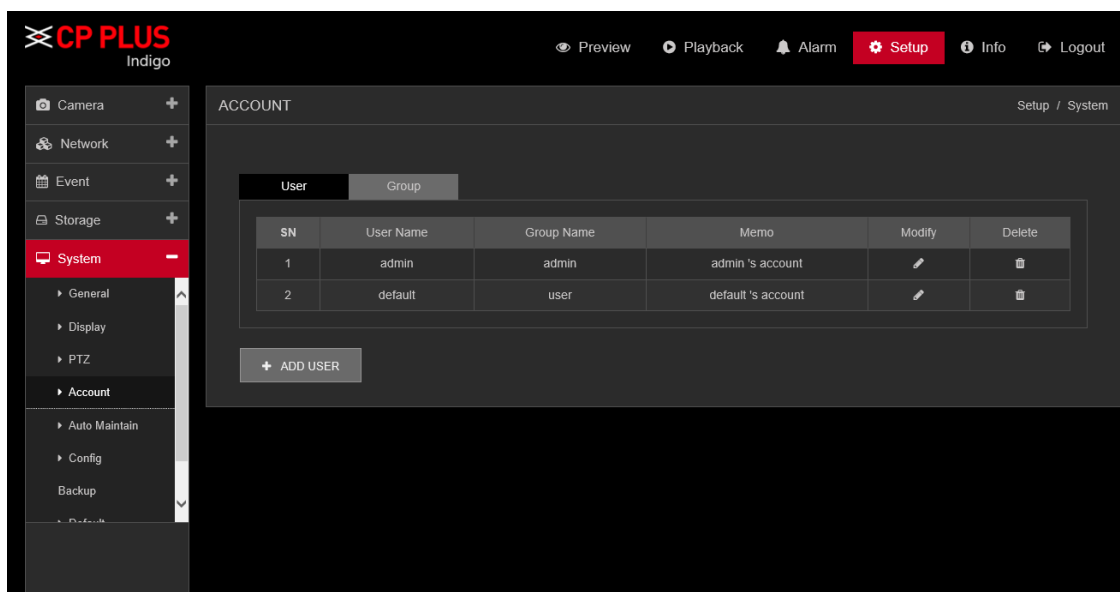


Figure 5.47

Add user: It is to add a name to group and set the user rights. See Figure 5.48. There are two default users: admin (password: admin) and hidden user “default”. Hidden user “default” is for system interior use only and cannot be deleted. When there is no login user, hidden user “default” automatically login. You can set some rights such as monitor for this user so that you can view some channel view without login. Here you can input the user name and password and then select one group for current user.

Please note the user rights shall not exceed the group right setup. For convenient setup, please make sure the general user has the lower rights setup than the admin.

Add User

User Name:

Password:

Confirm Password:

Group:

Memo:

Authority

System Manager | Playback | Monitor

- ☐ All
- ☐ Shutdown
- ☐ Backup
- ☐ System Info
- ☐ Upgrade
- ☐ Display
- ☐ RS232
- ☐ Event
- ☐ Default
- ☐ Import/Export
- ☐ Channel Title
- ☐ Hdd Management
- ☐ Log Search
- ☐ Auto Maintain
- ☐ General
- ☐ Network
- ☐ PTZ Setting
- ☐ Speak
- ☐ Schedule
- ☐ Account
- ☐ Clear Log
- ☐ TourConfig
- ☐ Encode
- ☐ Alarm Set
- ☐ PTZ Control
- ☐ Channel Management

SAVE CANCEL

Figure 5.48

Modify user

It is to modify the user property, belonging group, password and rights. See Figure 5.49.

Modify password

It is to modify the user password. You need to input the old password and then input the new password twice to confirm the new setup. Please click the OK button to save.

Please note, the password ranges from 1-digit to 8-digit. It shall include the alpha-numeric and special characters. For the user of the account rights, he can modify the password of other users.

Modify User

✕

User Name

admin

☒ Modify Password

Old Password

New Password

Confirm Password

Group

admin

Memo

admin 's account

Authority

System Manager

Playback

Monitor

☒ All

☒ Shutdown

☒ Backup

☒ System Info

☒ Upgrade

☒ Display

☒ RS232

☒ Event

☒ Default

☒ Import/Export

☒ Channel Title

☒ Hdd Management

☒ Log Search

☒ Auto Maintain

☒ General

☒ Network

☒ PTZ Setting

☒ Speak

☒ Schedule

☒ Account

☒ Clear Log

☒ TourConfig

☒ Encode

☒ Alarm Set

☒ PTZ Control

☒ Channel Management

SAVE

CANCEL

Figure 5.49

5.9.5.4.2. Group

The group management interface can add/remove group, modify group password and etc. The interface is shown as in Figure 5.50.

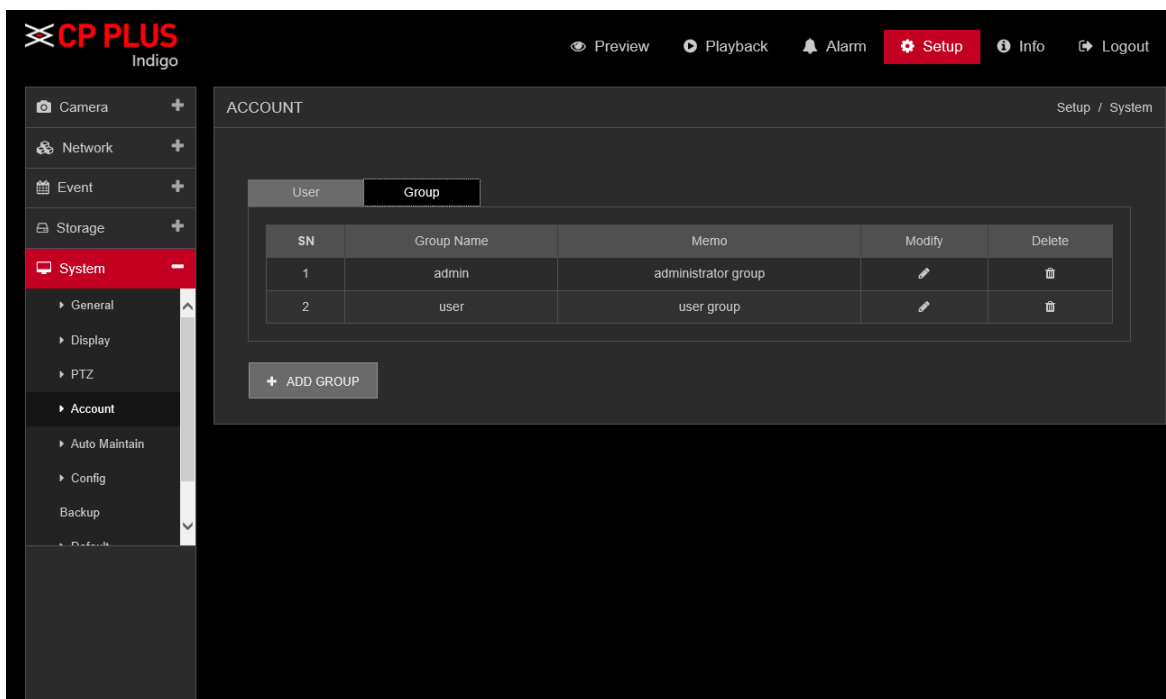


Figure 5.50

Add group: It is to add group and set its corresponding rights. See Figure 5.51.

Please input the group name and then check the box to select the corresponding rights. It includes: shutdown/reboot device, live view, record control, PTZ control and etc.

Add Group

Group Name

Memo

Authority

System Manager

Playback

Monitor

☐ All

☐ Shutdown

☐ Backup

☐ System Info

☐ Upgrade

☐ Display

☐ RS232

☐ Event

☐ Default

☐ Import/Export

☐ Channel Title

☐ Hdd Management

☐ Log Search

☐ Auto Maintain

☐ General

☐ Network

☐ PTZ Setting

☐ Speak

☐ Schedule

☐ Account

☐ Clear Log

☐ TourConfig

☐ Encode

☐ Alarm Set

☐ PTZ Control

☐ Channel Management

SAVE

CANCEL

Figure 5.51

Modify group

Click the modify group button, you can see an interface is shown as in Figure 5.52. Here you can modify group information such as remarks and rights.

Modify Group

Group Name: admin

Group Name: admin

Memo: administrator group

Authority

System Manager | Playback | Monitor

- ☒ All
- ☒ Shutdown
- ☒ Backup
- ☒ System Info
- ☒ Upgrade
- ☒ Display
- ☒ RS232
- ☒ Event
- ☒ Default
- ☒ Import/Export
- ☒ Channel Title
- ☒ Hdd Management
- ☒ Log Search
- ☒ Auto Maintain
- ☒ General
- ☒ Network
- ☒ PTZ Setting
- ☒ Speak
- ☒ Schedule
- ☒ Account
- ☒ Clear Log
- ☒ TourConfig
- ☒ Encode
- ☒ Alarm Set
- ☒ PTZ Control
- ☒ Channel Management

SAVE CANCEL

Figure 5.52

5.9.5.5. Auto Maintain

The Auto Maintain interface is shown as in Figure 5.53.

Here you can select auto reboot and auto delete old files interval from the dropdown list. If you want to use the auto delete old files function, you need to set the file period. Click Manual reboot button, you can restart device manually.

CP PLUS Indigo

Preview Playback Alarm Setup Info Logout

Camera Network Event Storage System

General Display PTZ Account

AUTO MAINTAIN Setup / System

Auto Reboot: Every Tuesday 01:00

Auto Delete Old Files: Never

MANUAL REBOOT

SAVE REFRESH

Figure 5.53

5.9.5.6. Config Backup

The interface is shown as in Figure 5.54

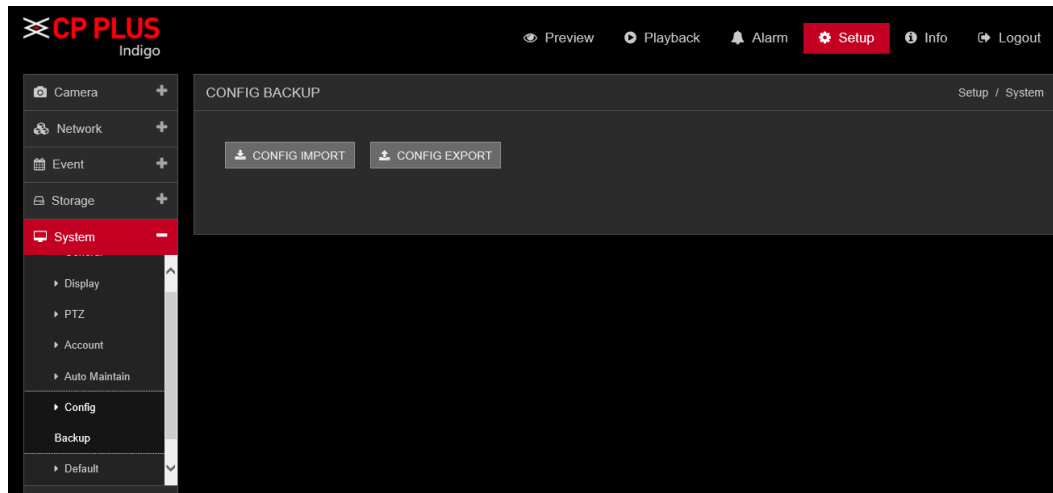


Figure 5.54

Please refer to the following sheet for detailed information.

Parameter	Function
Config Import	It is to import the local setup files to the system.
Config Export	It is to export the corresponding WEB setup to your local PC.

5.9.5.7. Default

The default setup interface is shown as in Figure 5.55.

Here you can select General / Encode / Record / Alarm Set / Network / Net Setting / GUI Display / Account / RS232. Or you can check the all box to select all items.

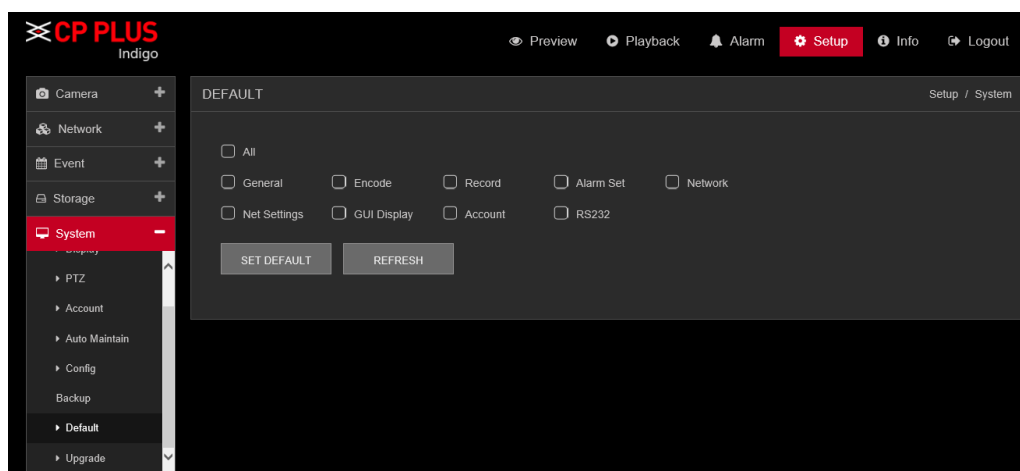


Figure 5.55

5.9.5.8. Upgrade

The upgrade interface is shown as in Figure 5.56.

Please select the upgrade file and then click the update button to begin update. Please note the file name shall be as *.bin. During the upgrade process, do not unplug the power cable, network cable, or shutdown the device.

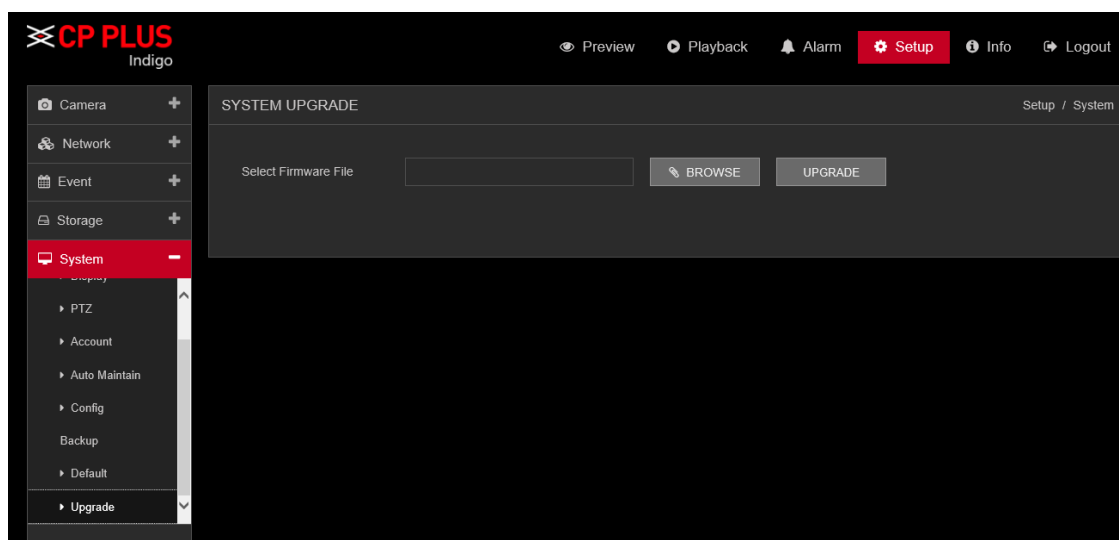


Figure 5.56

Note: Please make sure power and network should not be interrupted during firmware upgrade process, neither Device will be malfunctioned (dead condition). Improper upgrade program may also result in device malfunction!

5.10. Info

5.10.1. Version

The version interface is shown as in Figure 5.57.

Here you can view Model Name, Record Channel, Alarm Input / Output information, Device Serial No., System Version, Build date and etc. Please note the following information is for reference only.

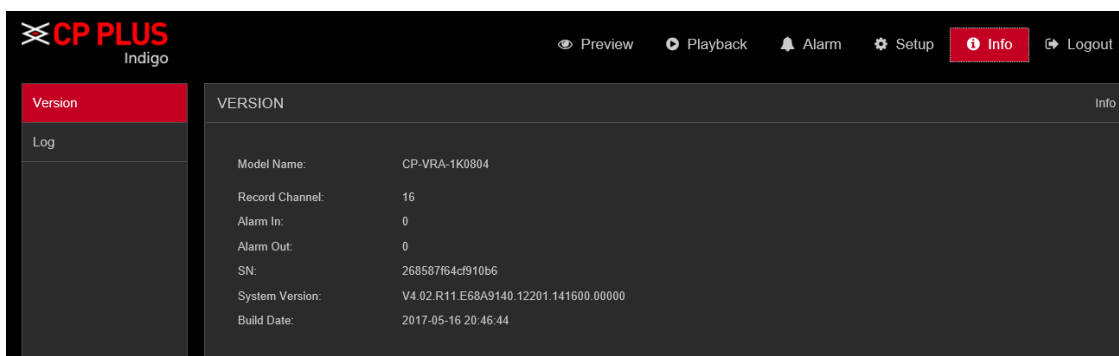


Figure 5.57

5.10.2. Log

Log interface is shown as in Figure 5.58

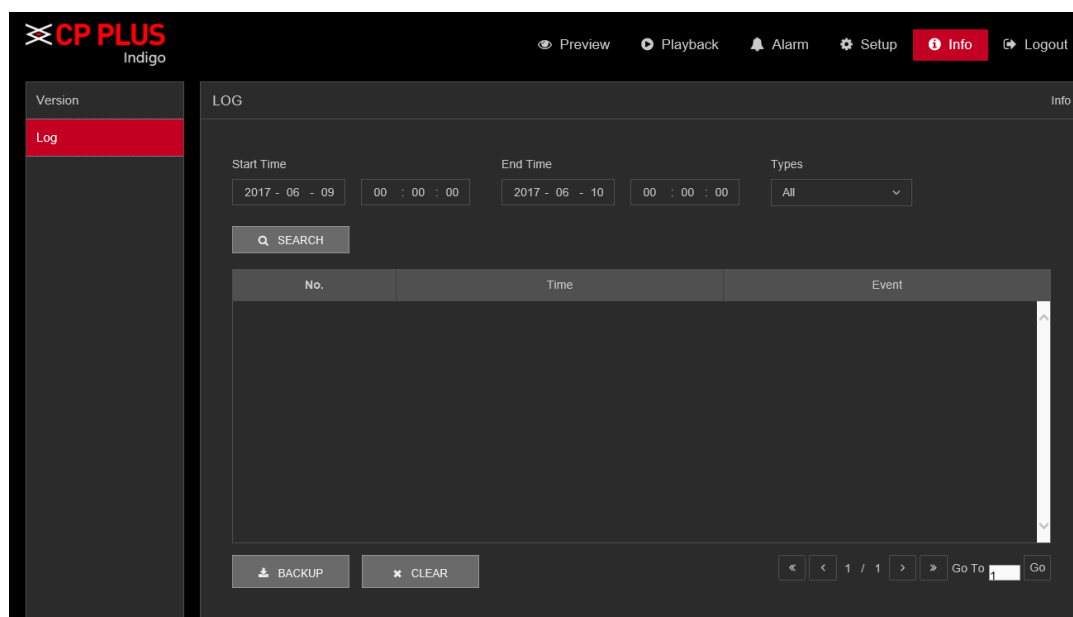


Figure 5.58

Please refer to the following sheet for log parameter information.

Parameter	Function
Type	Log types include: system operation, configuration operation, data operation, event operation, record operation, user management, log clear.
Start time	Set the start time of the requested log.
End time	Set the end time of the requested log.
Search	You can select log type from the drop down list and then click search button to view the list. You can click the stop button to terminate current search operation.
Detailed information	You can select one item to view the detailed information.
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.

Note

- If there is no HDD, system max supports 1024 logs.
- If you have connected to the unformatted HDD, system max supports 5000 logs.
- If you have connected to the formatted HDD, system max supports 500,000 logs.
- System operation logs are saved in system memory. Other types of logs are saved in the HDD. If there is no HDD, other types of logs are saved in the system memory too.
- The logs are safe when you format the HDD. But the logs may become loss once you removed the HDD.

5.11. Logout

Click log out button, system goes back to log in interface. See Figure 5.59. You need to input user name and password to login again.

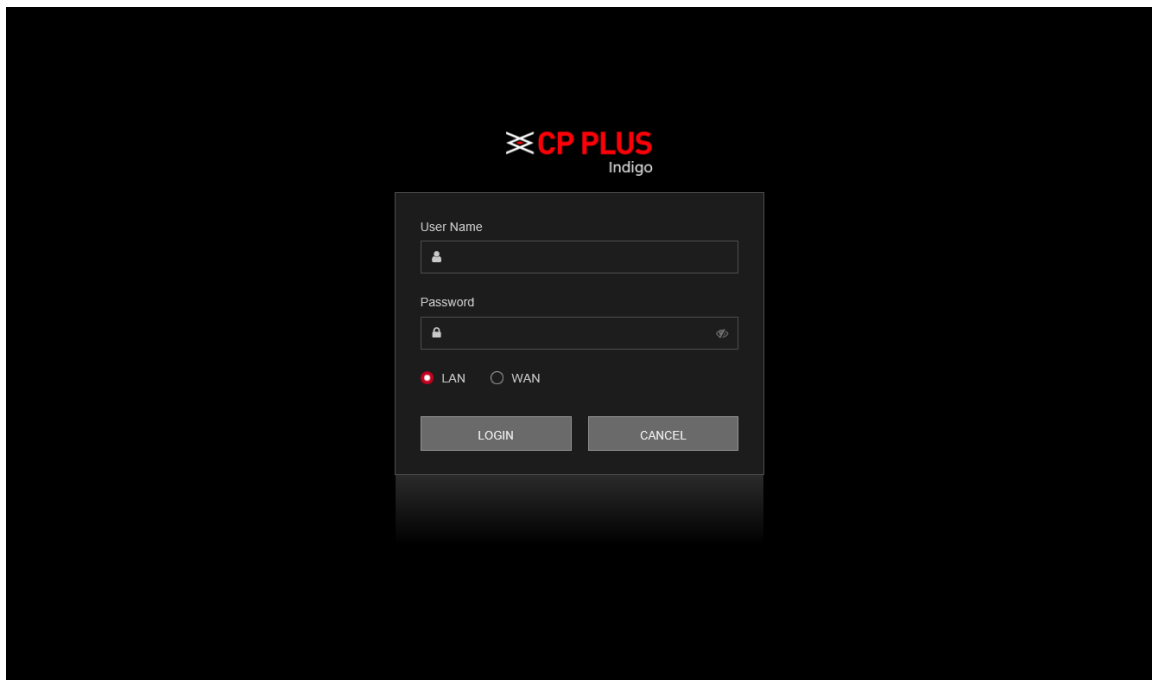


Figure 5.59

Appendix A HDD Capacity Calculation

Calculate total capacity needed by each DVR (WITHOUT HDD) 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 DVR (WITHOUT HDD) 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 DVR (WITHOUT HDD)

Step 4: According to Formula (4) to calculate total capacity (accumulation) q_T that is needed for all channels in DVR (WITHOUT HDD) during **alarm video recording (including motion detection)**.

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

In the formula % means alarm occurrence rate

You can refer to the following sheet for the file size in one hour per channel. (All the data listed below are for reference only.)

Bit stream size (max)	File size	Bit stream size (max)	File size
96K	42M	128K	56M
160K	70M	192K	84M
224K	98M	256K	112M
320K	140M	384K	168M
448K	196M	512K	225M
640K	281M	768K	337M
896K	393M	1024K	450M
1280K	562M	1536K	675M
1792K	787M	2048K	900M

Appendix B Earthing

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 lightning 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-phase lightning arrester and 380V three-phase 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.

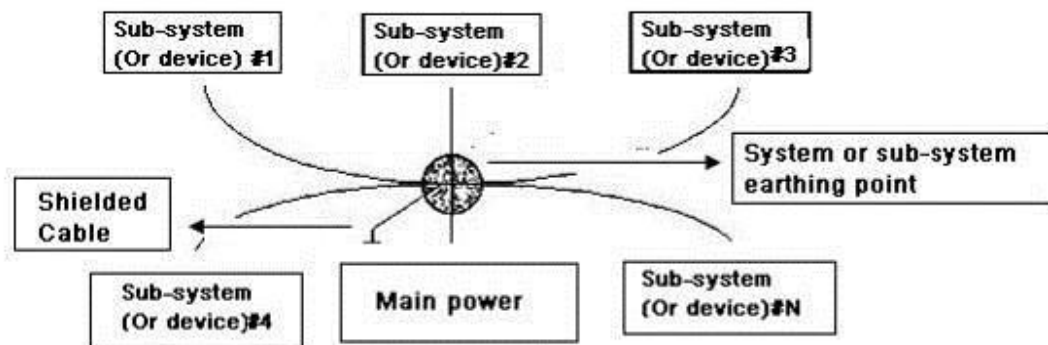
Please note, when you select the lightning arrester, please pay attention to the port type and the earthing reliability. In some important environment, you need to use special shielded cable. Do not parallel connect the thunder proof ground cable with the ground cable of the lightning rod. Please make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

2. The earthing modes

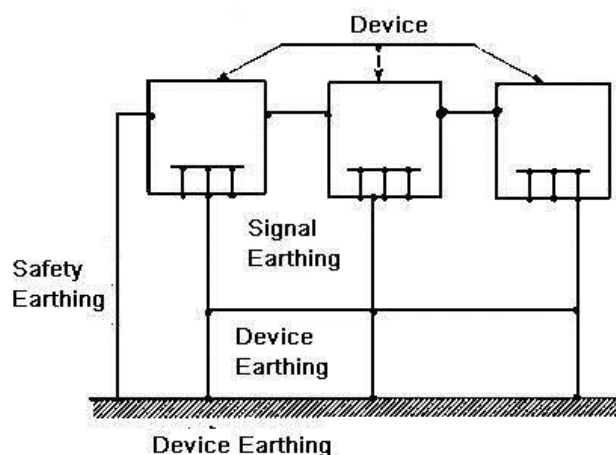
We all know the earthing is the most complicated technology in the electromagnetism compatibility design since there is no systematic theory or module. The earthing has many modes, but the selection depends on the system structure and performance. The following are some successfully experience from our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

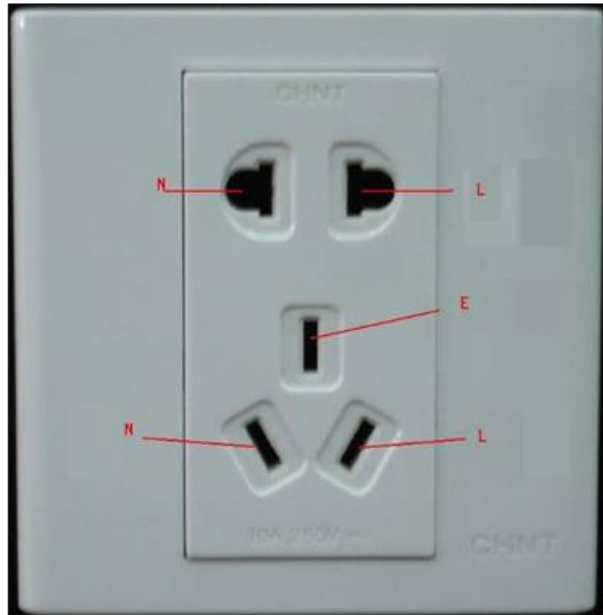
When considering the earthing, you need to think about two aspects: The first is the system compatibility, and the other is the external interference coupling into the earth circuit, which results in system error. For the external interference is not regular, it is not easy to resolve.

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 20mm^2 .
- The ground cable of the monitor system cannot 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 4mm^2 .
- 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 three 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.



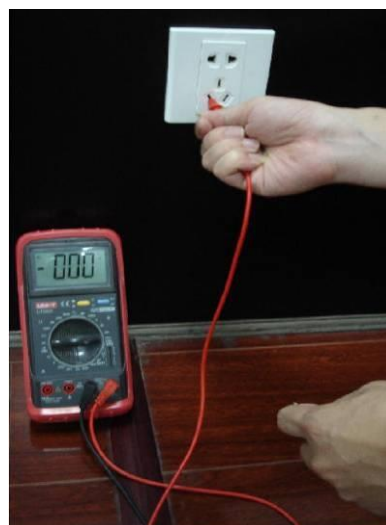
For L (live cables)

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.



Note:

- This manual is for reference only. Slight difference may be found in the user interface.
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