

## **IR Waterproof Fixed IPC User's Manual**



**V1.0.1**

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## **Welcome**

Thank you for purchasing our IR waterproof fixed IP camera!

This user's manual is designed to be a reference tool for your system.

Please read the following safeguard and warnings carefully before you use this series product!

Please keep this user's manual well for future reference!

# Important Safeguards and Warnings

## 1 . Electrical safety

All installation and operation here should conform to your local electrical safety codes.

Before you replace the SD card, please unplug the power cable and then remove the shell

We assume no liability or responsibility for all the fires or electrical shock caused by improper handling or installation.

We are not liable for any problems caused by unauthorized modification or attempted repair.

## 2 . Installation

Do not apply power to the IP camera before completing installation.

Do not put object on the IP camera.

## 3 . Environment

This series IP camera should be installed in a cool, dry place away from direct sunlight, inflammable, explosive substances and etc.

Thunder-proof device is recommended to be adopted to better prevent thunder.

The grounding studs of the product are recommended to be grounded to further enhance the reliability of the camera.

## 4. Daily Maintenance

Current series IPC has no power button. Please unplug all corresponding power cables before your installation.

Use the dry soft cloth to clean the device.

If there is too much dust, please use the water to dilute the mild detergent first and then use it to clean the device. Finally use the dry cloth to clean the device.

## 5. Accessories

Please open the accessory bag to check the items one by one in accordance with the list below.

Contact your local retailer ASAP if something is missing or damaged in the bag.

Accessory Name	Amount
IPC Unit	1
12V power adapter	1
MD9M data converter cable	1
Quick Start Guide	1
Warranty Card	1
Certificate Card	1
CD	1

# 1 General Introduction

## 1.1 Overview

This series IP camera integrates the traditional camera and network video technology. It adopts audio and video data collection, transmission together. It can connect to the network directly without any auxiliary device.

This series IPC uses standard H.264 video compression technology and G.711a audio compression technology, which maximally guarantee the audio and video quality.

This series IPC supports real-time monitor and listening at the same time. It supports analog video output and dual-way bidirectional talk. It supports the IR night vision function. In the night environments, the device can use the IR light to highlight the object which is suitable for the surveillance function in the low illumination environments. The built-in protection enclosure has the sound waterproof function suitable for use in the outdoor environments.

It can be used alone or used in a network area. When it is used lonely, you can connect it to the network and then use a network client-end. Due to its multiple functions and various uses, this series IPC is widely used in many environments such office, bank, road monitor and etc.

## 1.2 Features

<b>User Management</b>	<ul style="list-style-type: none"><li>● Different user rights for each group, one user belongs to one group.</li><li>● The user right shall not exceed the group right.</li></ul>
<b>Data Transmission</b>	<ul style="list-style-type: none"><li>● Wire data transmission via the Ethernet port.</li></ul>
<b>Storage Function</b>	<ul style="list-style-type: none"><li>● Support central server backup function in accordance with your configuration and setup in alarm or schedule setting</li><li>● Support record via Web and the recorded file are storage in the client-end PC.</li><li>● Support local Micro SD card hot swap, support short-time storage when encounter disconnection. Please note the SD card can storage the image only.</li></ul>
<b>Alarm Function</b>	<ul style="list-style-type: none"><li>● Real-time respond to external local alarm input, wireless alarm input and video detect( within 200MS) as user pre-defined activation setup and exert corresponding message in screen and audio prompt(allow user to pre-record audio file)</li><li>● Real-time video detect: motion detect, camera masking, video loss.</li></ul>
<b>Network Monitor</b>	<ul style="list-style-type: none"><li>● IPC supports one-channel audio/video data transmit to network terminal and then decode. Delay is within 500ms (network bandwidth support needed)</li><li>● Max supports 10 connections.</li><li>● Adopt the following audio and video transmission protocol: HTTP, TCP, UDP, MULTICAST and etc.</li><li>● Support web access, widely used in WAN.</li></ul>
<b>Network Management</b>	<ul style="list-style-type: none"><li>● Realize IPC configuration and management via Ethernet.</li><li>● Support device management via web or client-end.</li></ul>
<b>Peripheral Equipment</b>	<ul style="list-style-type: none"><li>● Support peripheral equipment management, each peripheral equipment control protocol and interface can be set freely.</li><li>● Support serial port (RS232/RS485) transparent data transmission.</li></ul>

<b>Power</b>	<ul style="list-style-type: none"> <li>External power adapter DC12V</li> </ul>
<b>PoE (For -P series product only)</b>	<ul style="list-style-type: none"> <li>This function is for -P series product only. Support Power over Ethernet (PoE). Conform to the IEEE802.3af standard.</li> <li>Connect the device to the switcher or the router that supports the PoE function to realize the network power supply.</li> <li>To guarantee proper performance, please make sure the power sourcing device can supply at least 10W power.</li> </ul>
<b>Assistant Function</b>	<ul style="list-style-type: none"> <li>Log function</li> <li>Support PAL/NTSC</li> <li>Support system resource information and running status real-time display.</li> <li>Built-in IR light. Support IR night vision.</li> <li>The enclosure conforms to the IP66. Sound waterproof function.</li> <li>Backlight compensation: screen auto split to realize backlight compensation to adjust the bright.</li> <li>Support video watermark function to avoid vicious video modification.</li> </ul>

## 1.3 Specifications

### 1.3.1 Performance

Please refer to the following sheet for IPC performance specification.

Parameter		Specification		
		FW625 Series	FW645 Series	FW665 Series
Camera	Sensor Type	1/3-inch SONY Supper HAD CCD		
	Resolution	420TVL	480TVL	540TVL
	Pixel	PAL: 500 (H) *582 (V) NTSC: 510 (H) *492 (V)	PAL: 752 (H) *582 (V) NTSC: 768 (H) *494 (V)	
	Lens Mode	M12*0.5		
	Video Format	PAL/NTSC		
	Shutter	1/50 (1/60) ~1/1000005		
	Min. Illumination	Color 0.5Lux/F1.2 B/W 0.05Lux/F1.2 (IR mode 0Lux)	Color 0.3Lux/F1.2 B/W 0.03Lux/F1.2 (IR mode 0Lux)	Color 0.1Lux/F1.2 B/W 0.01Lux/F1.2 (IR mode 0Lux)
	Auto Iris	N/A		
	Analog Output	Supported		
	SNR	>50dB		
Video	Standard	PAL: 1f/s~25f/s, NTSC: 1f/s~30f/s		
	Encode Capability	H.264 encode, 5CIF		
	Encode Bit	D1 (704*576/704*480)		

	Stream	HD1 (352*576/352*480) CIF (352*288/352*240) QCIF (176*144/176*128)
	Video Recording Speed	PAL: 1-ch 1f/s~25f/s adjustable NTSC: 1-ch 1f/s~30f/s adjustable
IR Distance		10~20M (For IR series product)
Network Capacity		Max support 10 network users to monitor simultaneously TCP output capacity 75Mbps UDP output capacity 85Mbps
Power Consumption		<7W
Power		DC 12V
Temperature		-10°C~+50°C
Working Environment Humidity		10%~90%
Dimension(H*W*D)		82.7*80.2*153.5mm

### 1.3.2 Function Specification

Please refer to the following sheet for function specification information.

Specification		Note
CCD Video Process	Backlight compensation control	Auto
	White balance adjustment	Auto
	Contrast ness adjustment	Auto
	Bright ness adjustment	Auto
	Electronic shutter control	Auto
	Color/B&W(Day/Night) switch	Auto <b>Note</b> The color/B&W (Day/Night) switch here just an electronic switch. System removes the color elements and reserves the B&W elements. It is not a filter switch.
Video	Resolution	D1/HD1/CIF/QCIF
	Video compression	Standard H.264 encode/decode format d
	Motion Detection	Take 18*22 pix as a macro unit. Support 396 detection zones. Sensitivity level ranges from 1 to 6.
	Dual-stream	1-channel real-time D1 + 1-channel real-time CIF
Audio	Bidirectional Talk	Bidirectional talk. Delay within 200ms
	Audio Listening	Audio listening. 1-ch MIC input.
Network		WEB access via IE browser.
		PPPoE dial function
		DHCP auto get IP address
		DDNS
		SMTP email function
		NTP time synchronization.
		DNS domain parse

		IP address filter
		IP address auto search function
Record	Schedule Record	Support max 6 periods. (This series product <b>does not</b> support this function.)
	Manual Record	After enabling manual record, no matter system is in schedule or alarm status or not, system just begins recording.
	Alarm Record	System automatically enables recording function when alarm occurred.
	Motion Detection Record	When video changes, system automatically enables record operation.
OSD	Time Title Display	There are 255 layers. 0 is the bottom layer and 255 is the highest layer. 0 means completely transparent and 255 is opaque.
	Channel Title Display	Please refer to the above information.
	Privacy Mask	Max supports 8 zones.
Storage	Local Micro SD storage	Support high-speed card/low-speed card
	Based on SDK network storage	Supported
Alarm	Network alarm/local alarm output	1-ch local/network alarm output
	Local alarm/network alarm input	2-ch local/network alarm input
Event Management	Activate alarm via motion detection or external input	Please enable pre-record function when activating the alarm
	Upload image email.	Upload automatically
	Send out alarm notice via email, HTTP and external port.	Support de-jitter when alarm occurs frequently.
	Support video short time buffer storage before or after alarm	Pre-record is 2Mbytes. Buffer storage video of 5s.
Control	RS485 PTZ control	Support semi-duplex communication way.
On-line Upgrade	Network remote upgrade	Use upgrade tool.
Device Management	Network client-end Log in the client-end software in the PC to monitor IPC.	
Parameter Configuration	IPC provides device information, video information, COM setup, record setup, motion detection setup, alarm setup, OSD information interfaces to modify system setup.	
	IPC provides running information such as user port, log, status, user management, email setup, date modification.	
Log	System can record the important event log record Record the following information: System operation, setup operation, alarm event, record management, user management, clear log.	
Water Mark	To avoid vicious video modification.	
Power supply	DC12V power supply	

RESET	Support hardware reset. System needs to reboot to activate the default setup.
Port ESD protection	9-pin input and output port
	Network port
	12V power adapter
9-pin I/O Port	One analog video output port
	One audio input port
	One audio output port
	Two alarm input port
	One alarm output port
	One network interface (RJ45 10M/100M self-adaptive Ethernet port)
Others	One red/green running status indication light.
	One RESET conversion cable
	IR light (For IR series product only)
Installation	Pendant installation

### 1.3.3 Factory Default Setup

Please refer to the following sheet for factory default setup information.

Function Configuration Type		Item Name	Default setup
General Setup		Date format	Y-M-D
		DST	Disable by default
		Date separator	' _ '
		Time format	24H
		Language	Simplified Chinese
		When HDD is full	Overwrite
		Record duration	60M
		Device No.	8
		Video type	PAL
Encode Setup	Main Stream	Channel	Channel01
		Encode mode	H.264
		Audio/Video enable	Enable audio and video
		General bit stream	General bit stream
		Resolution	D1
		Frame rate	25
		Bit stream control	VBR
		Quality	Good
		Bit stream value	2048
		I frame interval control	50
		Extra Stream	Extension Stream
	Audio/Video enable		Enable audio and video
	Resolution		CIF
	Frame rate		25
	Bit stream control		VBR
	Quality		Good
	Bit stream value		512
	I frame interval control	50	
			Image Color

			Hue:50
		Watermark	Enable Watermark: all Watermark type: character Watermark: DigitalCCTV
		Privacy Mask	Never
		Time title	Enable. OSD transparent :128
		Channel title	Enable. OSD transparent :128
Record Setup	Channel		Ch01
	Pre-record		5 seconds.
	Time Setup	Start Time	0:00:00
		End Time	23:59:59
		Record	Period 1:Enable motion detection/alarm
		Snapshot	Period 1: Enable motion detection/alarm
		Week	Sunday
COM Setup	Option		COM01
	Function		General
	Data bit		8
	Stop bit		1
	Baud rate		115200
	Parity		None
Network Setup	Ethernet		Port 01
	DHCP		Disable
	IP address		192.168.1.108
	Subnet mask		255.255.0.0
	Gateway		192.168.0.1
	Device name		Device factory default name
	TCP port		37777
	HTTP port		80
	UDP port		37778
	Network user connection amount		10
	Network transmission QoS		Disable
	Remote host		Multiple broadcast group
	Enable		Disable
	IP address		255.255.255.0
	Port		36666
	Email setup		Enable
	Multiple DDNs		Disable
	NAS setup		Disable
	NTP setup		Disable
	Alarm server		Disable
	Alarm Setup	Event type	
Alarm input		Input 01, disable	
Type		Normal open	
Setup		Period: Start time 0:00:00 End time:23:59:59 Period 1:enable Week: Sunday	
Anti-dither		0 second	
General output		Disable	

	Alarm latch	10 seconds	
	Record channel	1, enable	
	Record latch	10 seconds	
	Send email	Disable	
	PTZ activation	Disable Event type: never Address: 0	
	Snapshot	Disable	
Video Detection	Event type	Motion detection	
	Channel	Ch01, Disable	
	Sensitivity	3	
	Time period setup	Period: Start time 0:00:00 End time:23:59:59 Period 1:enable Week: Sunday	
	Anti-dither	5 seconds	
	General output	Disable	
	Alarm latch	10 seconds	
	Record channel	Disable	
	Record latch	10 seconds	
	Send email	Disable	
	PTZ activation	Event type: Never Address: 0 Disable	
	Snapshot	Disable	
	PTZ Setup	Channel	Ch01
Protocol		DH-SD1	
Address		1	
Baud rate		115200	
Data bit		8	
Stop bit		1	
Parity		None	
Default and Backup	All	Disable	
	General	Disable	
	Encode	Disable	
	Record	Disable	
	COM	Disable	
	Network	Disable	
	Alarm	Disable	
	Video detection	Disable	
	Display output	Disable	
Channel No.	Disable		
Advanced	Record control	Auto. Ch1 (This series device <b>does not</b> support this function.)	
	Abnormity	Even Type	No HDD, Disable
		General Output	Disable
		Alarm Latch	10 seconds
		Send email	Disable
	User account	admin--- password: admin (reusable) 888888--- password: 888888(reusable) 666666--- password: 666666(reusable) default--- password: tluafed	
	Snapshot	Channel	Ch01

		Snapshot mode	Scheduled
		Frame rate	1f/s
		Resolution	D1
		Quality	60%
	Auto maintain	Auto reboot	2.00 each day
	Auto delete old files	Never	
Auto Registration	Enable		Disable
	SN		1
	IP		0.0.0.0
	Port		7000
	Device ID		Dahua
DNS Setup	DNS		202.101.172.35
	Alternative DNS		202.101.172.35
IP Filter			Disable

## 2 Structure

### 2.1 Device Ports

This series product structure is shown as in Figure 2-1.

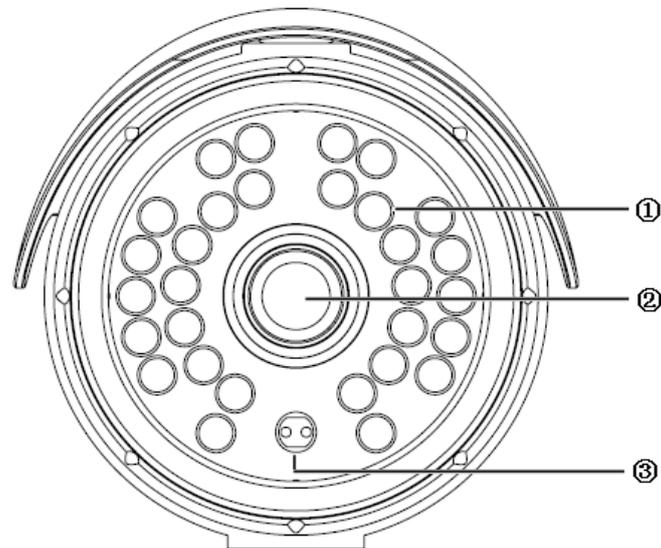


Figure 2-1

Please refer to the following sheet for detailed information.

Port	Port Name	Function
Port 1	IR light	Send out the IR compensation light to enhance the night vision effect.
Port 2	/	Device lens.
Port 3	Photosensitive resistance	It is to enable/disable the IR light according to the environment light illumination.

### 2.2 Framework and Dimension

The bracket dimension is shown as in Figure 2-2, Figure 2-3, Figure 2-4. The unit is mm.

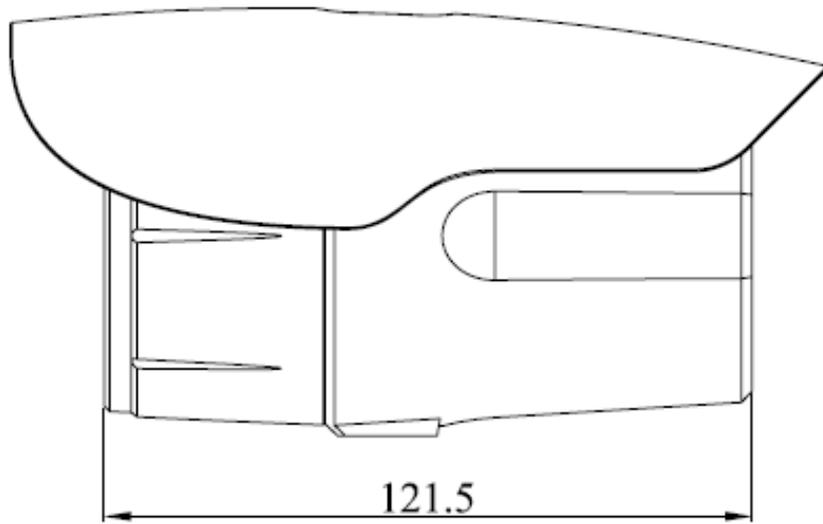


Figure 2-2

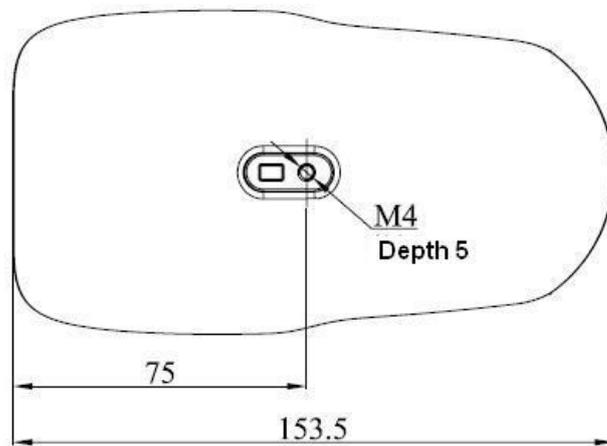


Figure 2-3

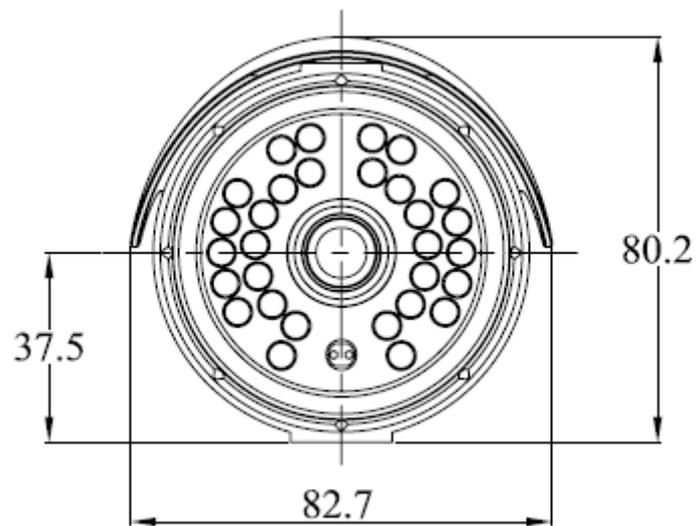


Figure 2-4

## 2.3 Multiple-function Composite Cable

You can refer to the following figure for multiple-function composite cable information. See Figure 2-5.



Figure 2-5

Please refer to the following sheet for detailed information.

Port Name	Function	Connection	Note
VIDEO OUT	Video output port	BNC	Output analog video signal. It can connect to the TV monitor to view the video.
AUDIO IN	Audio input port	RCA	Input audio signal. It can receive the analog audio signal from the pickup.
AUDIO OUT	Audio output port	RCA	Output audio signal to the devices such as the sound box.
+12V DC	Power input port	/	Power port. Input 12V DC
I/O	I/O cable port	/	Connect to MD9M data converter cable.
LAN	Network port	Ethernet port	Connect to standard Ethernet cable.

Please refer to the follow sheet for detailed information of MD9M data converter cable.

Port Name	Cable Color	Name	Note
I/O Port Pin	Yellow	RS485_A	RS485_A port. It is to control the PTZ.
	Black	RS485_B	RS485_B port. It is to control the PTZ.
	Red	ALARM_COM	Alarm output public port.
	Brown	ALARM_IN1	Alarm input port 1. It is to receive the on-off signal from the external alarm source.
	Grey	ALARM_IN2	Alarm input port 2. It is to receive the on-off signal from the external alarm source.

Port Name	Cable Color	Name	Note
	White	ALARM_NO	Alarm output port. It is to output the alarm signal to the alarm device. NO: normal open alarm output port. It works with the ALARM_COM port.
	Blue	RESET	It is to restore factory default setup. When the device is working properly, please connect the blue cable (restore default setup port) to the orange cable (GND signal) for 5 seconds, the device can resume factory default setup.
	Orange	GND	Ground port

## 2.4 Bidirectional talk

### 2.4.1 Device-end to PC-end

#### Device Connection

Please connect the speaker or the pickup to the first audio input port in the device rear panel.

Then connect the earphone or the sound box to the audio output port in the PC.

Login the Web and then enable the corresponding channel real-time monitor.

Please refer to the following interface to enable bidirectional talk.

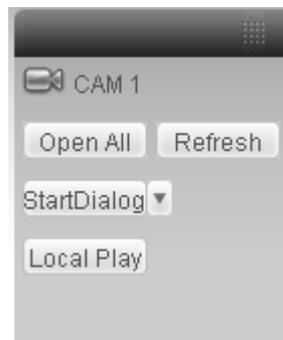


Figure 2-6

#### Listening Operation

At the device end, speak via the speaker or the pickup, and then you can get the audio from the earphone or sound box at the pc-end.

### 2.4.2 PC-end to the device-end

#### Device Connection

Connect the speaker or the pickup to the audio output port in the PC and then connect the earphone or the sound box to the first audio input port in the device rear panel.

Login the Web and then enable the corresponding channel real-time monitor.

Please refer to the above interface (Figure 2-6) to enable bidirectional talk.

#### Listening Operation

At the PC-end, speak via the speaker or the pickup, and then you can get the audio from the earphone or sound box at the device-end.

## 2.5 Alarm Setup

The alarm interface is shown as in Figure 2-7. Please follow the steps listed below for local alarm input and output connection.

- 1) Connect the alarm input device to the alarm input port (grey or brown pin of I/O port cable).
- 2) Connect the alarm output device to the alarm output port (White-pin) and alarm output public port (Red-pin). The alarm output port supports NO (normal open) alarm device only.
- 3) Open the Web, go to the Figure 2-7. Please set the alarm input 01 port for the brown-pin (the 1<sup>st</sup> channel) of I/O port cable. The alarm input 02 is for the grey-pin (the 2<sup>nd</sup> channel) of I/O port cable. Then you can select the corresponding type (NO/NC.)
- 4) Set the WEB alarm output. The alarm output port of the alarm output 01 device (The white-pin of the I/O port cable).

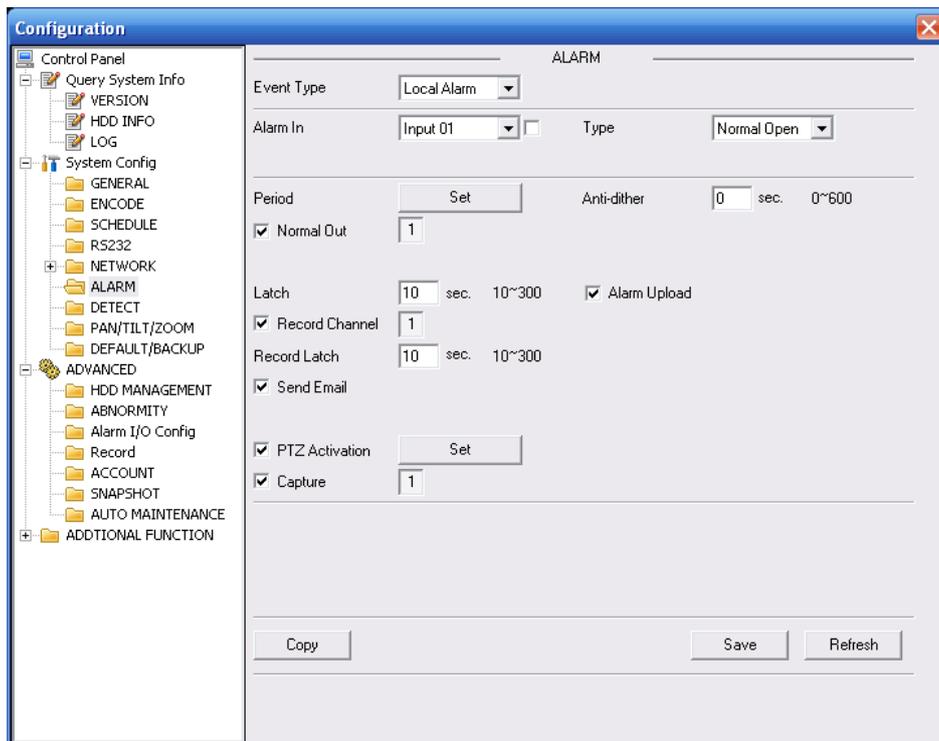


Figure 2-7

## 3 Installation

### 3.1 Bracket Installation

Please follow the steps listed below to install the bracket. Please refer to Figure 3-1 for reference.

- Please line up the installation holes of the bottom of the device to the installation holes in the front part of the bracket. Then insert the screws to the holes to fasten the device on the bracket.
- Dig four holes in the wall or the surface, and then input the expansion bolts to the holes and secure.
- Put the four fixed holes of the bottom of the bracket to the four holes you just dug in the wall or surface. Put the four fixed screws to the four holes of the bracket and then secure firmly. Finally you can fix the bracket in the wall or surface.

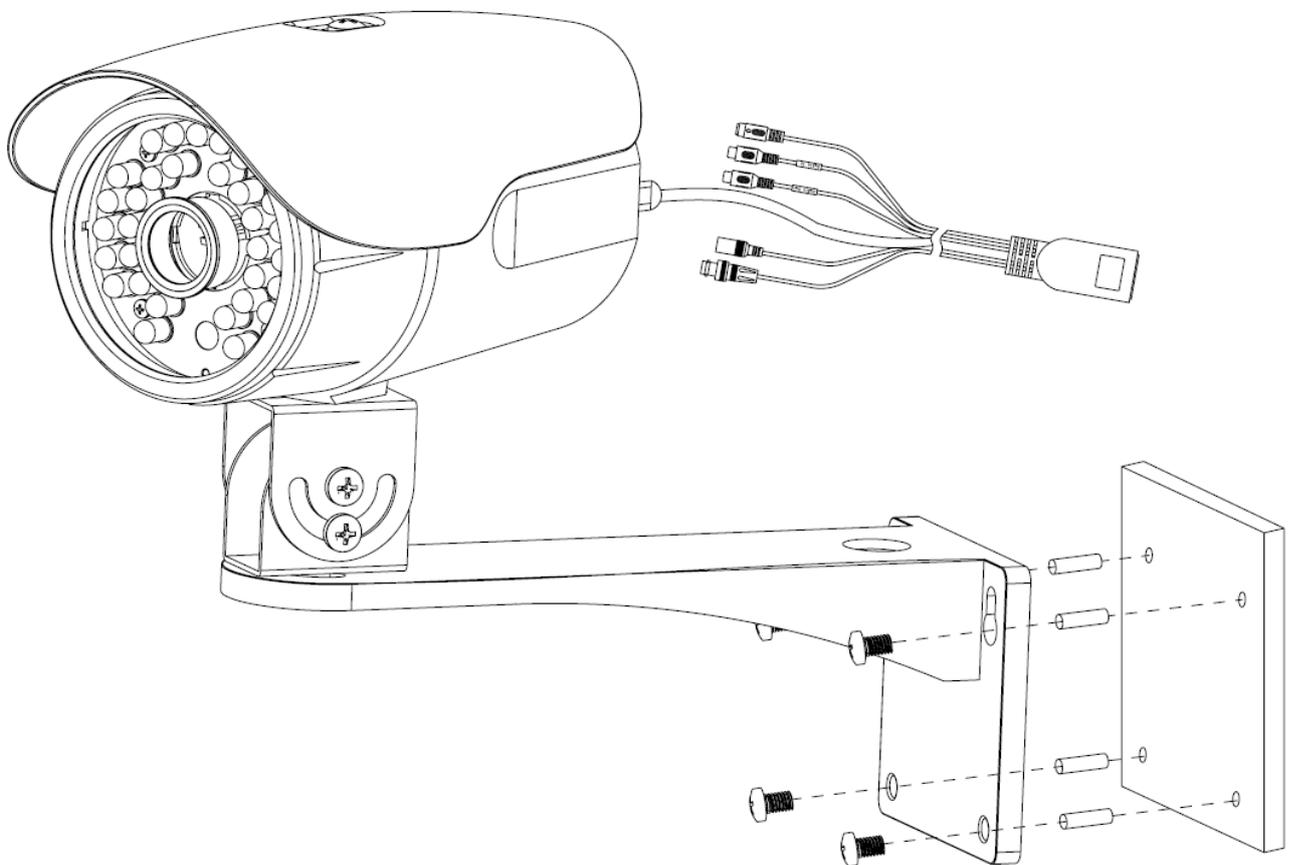


Figure 3-1

### 3.2 SD Card Installation

#### Important

Please unplug the corresponding power cable before the installation.

Please follow the steps listed below to install the SD card.

#### Step 1

Please use the inner hexagon wrench to turn counter clockwise to remove the front cap. See Figure 3-2.



Figure 3-2

**Step 2**

Turn counter clockwise to loosen the front cover of the camera. Finally you can remove it. See Figure 3-3.



Figure 3-3

**Step 3**

Use the general screwdriver to remove the four fixed screws in the connection board and then put the connection board, CCD board module aside. See Figure 3-4.



Figure 3-4

**Step 4**

Follow the proper direction; insert the Micro SD card to the SD card socket. See Figure 3-5.



Figure 3-5

**Step 5**

After Micro SD card installation, put the connection board, CCD board module to the device. Put the screw holes of the connection board to the four holes of the chassis, insert the screw and then fix firmly to secure the connection board.

### **Step 6**

Turn the front cover clockwise to put it back to the device and secure firmly. Then line up the screw hole of the protection cap to the screw hole of the device chassis. Insert the inner hex screw to the holes and fix firmly to fasten the front cap in the device.

## 4 Quick Configuration Tool

### 4.1 Overview

Quick configuration tool can search current IP address, modify IP address. At the same time, you can use it to upgrade the device.

Please note the tool only applies to the IP addresses in the same segment.

### 4.2 Operation

Double click the “ConfigTools.exe” icon, you can see an interface is shown as in Figure 4-1.

In the device list interface, you can view device IP address, port number, subnet mask, default gateway, MAC address and etc.

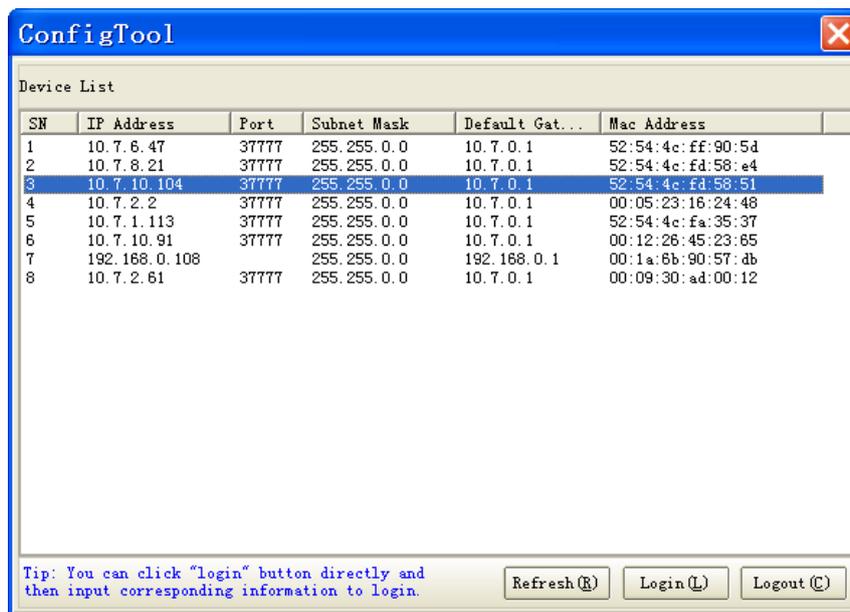


Figure 4-1

Select one IP address and then right click mouse, you can see an interface is shown as in Figure 4-2.

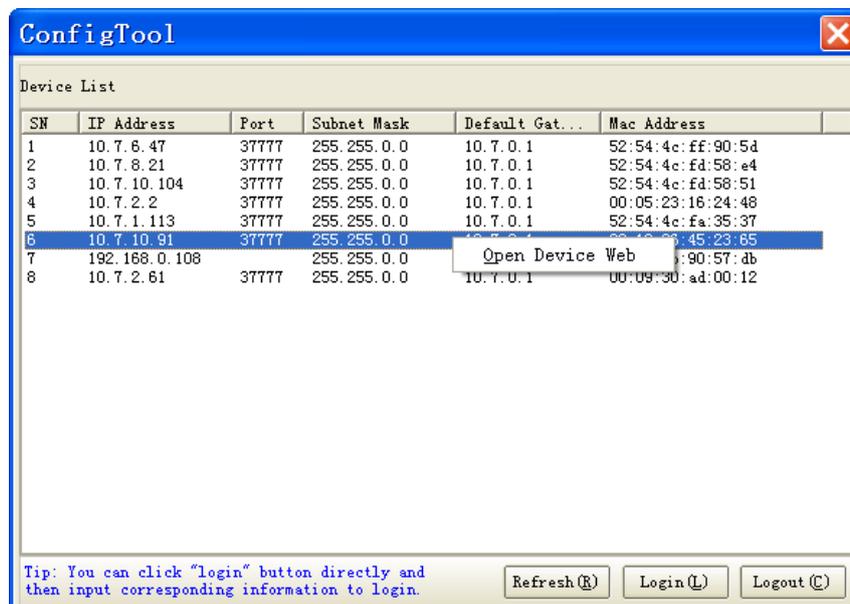


Figure 4-2

Select the “Open Device Web” item; you can go to the corresponding web login interface. See Figure 4-3.

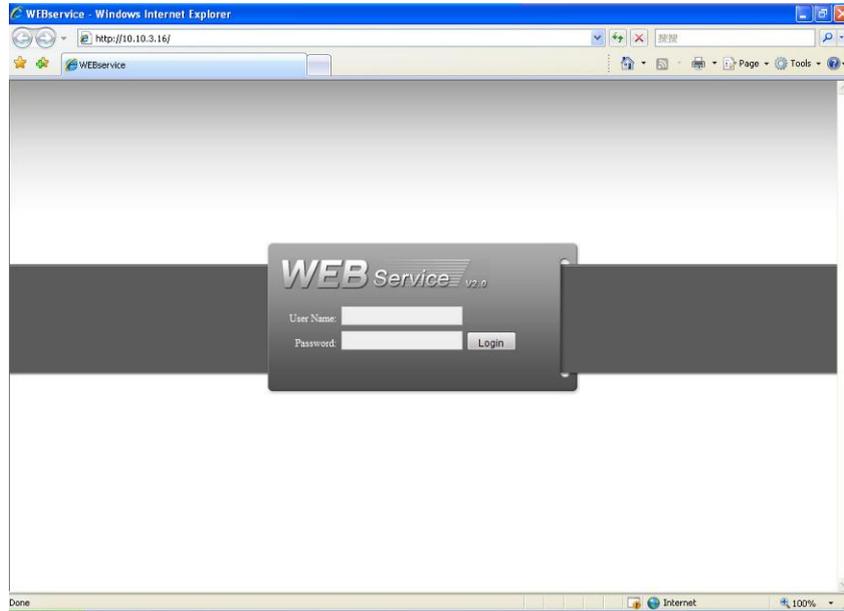


Figure 4-3

If you want to modify the device IP address without logging in the device web interface, you can go to the configuration tool main interface to set.

In the configuration tool search interface (Figure 4-1), please select a device IP address and then double click it to open the login interface. Or you can select an IP address and then click the Login button to go to the login interface. See Figure 4-4.

In Figure 4-4, you can view device IP address, user name, password and port. Please modify the corresponding information to login.

Please note the port information here shall be identical with the port value you set in TCP port in Web Network interface. Otherwise, you can not login the device.

If you are use device background upgrade port 3800 to login, other setups are all invalid.



Figure 4-4

After you logged in, the configuration tool main interface is shown as below. See Figure 4-5.

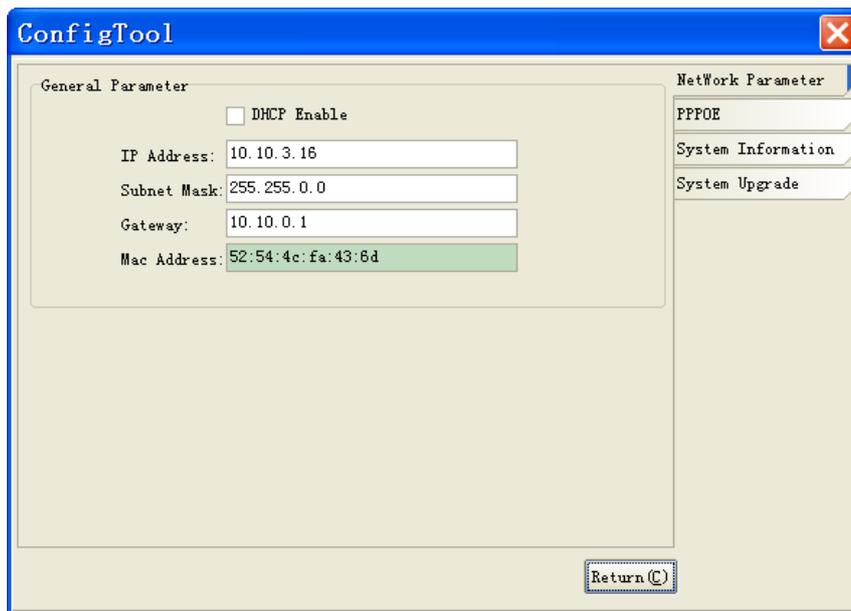


Figure 4-5

## 5 Web Operation

This series IPC product support the Web access and management via PC.

Web includes several modules includes monitor channel list, record search, alarm setup, system configuration, PTZ control, monitor window and etc.

IP camera factory default setup:

- IP address: 192.168.1.108.
- User name: admin
- Password: admin

### 5.1 Network Connection

Please follow the steps listed below for network connection.

- Make sure the IPC has connected to the network properly.
- IPC IP address and PC IP address shall be in the same network segment. IPC default IP address is 192.168.1.108. If there is router, please set the corresponding gateway and subnet mask.
- Use order ping `***.***.***.***`(\* IP camera address) to check connection is OK or not.

### 5.2 Login and Main Interface

Open IE and input IP camera address in the address bar.

For example, if your camera IP is 192.168.1.108, then please input `http:// 192.168.1.108` in IE address bar. See Figure 5-1.

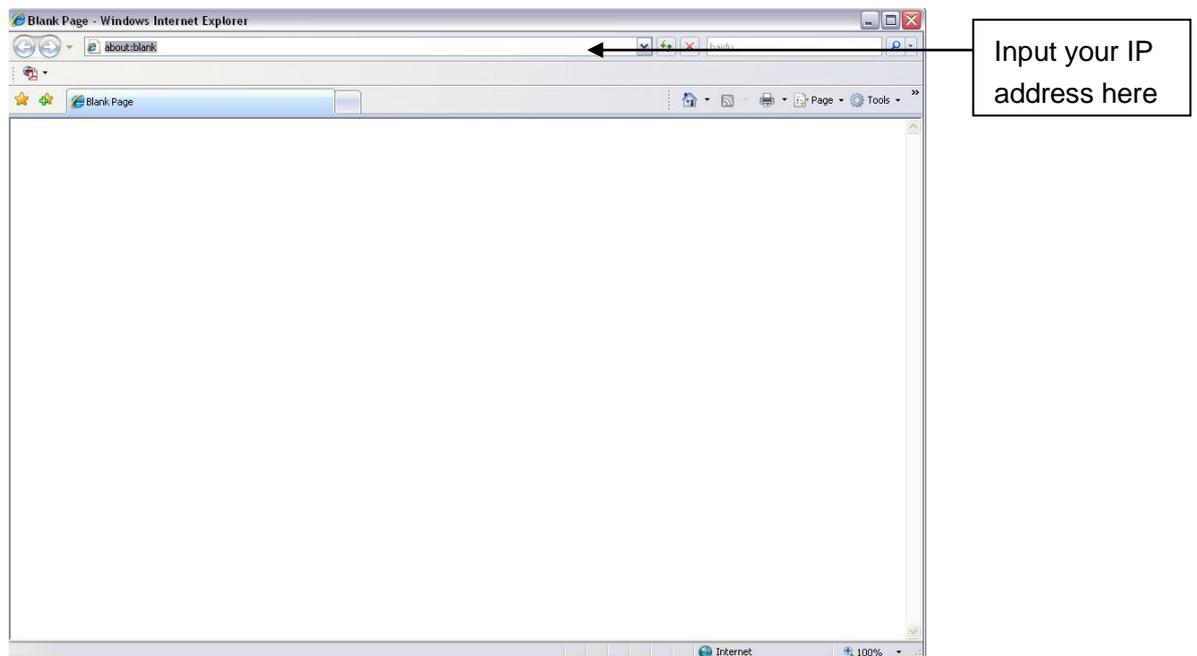


Figure 5-1

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

Please click OK button, system can automatically install the control. When system is upgrading, it can overwrite the previous Web too.

If you can't download the ActiveX file, please check whether you have installed the plug-in to disable the control download. Or you can lower the IE security level. See Figure 5-2.

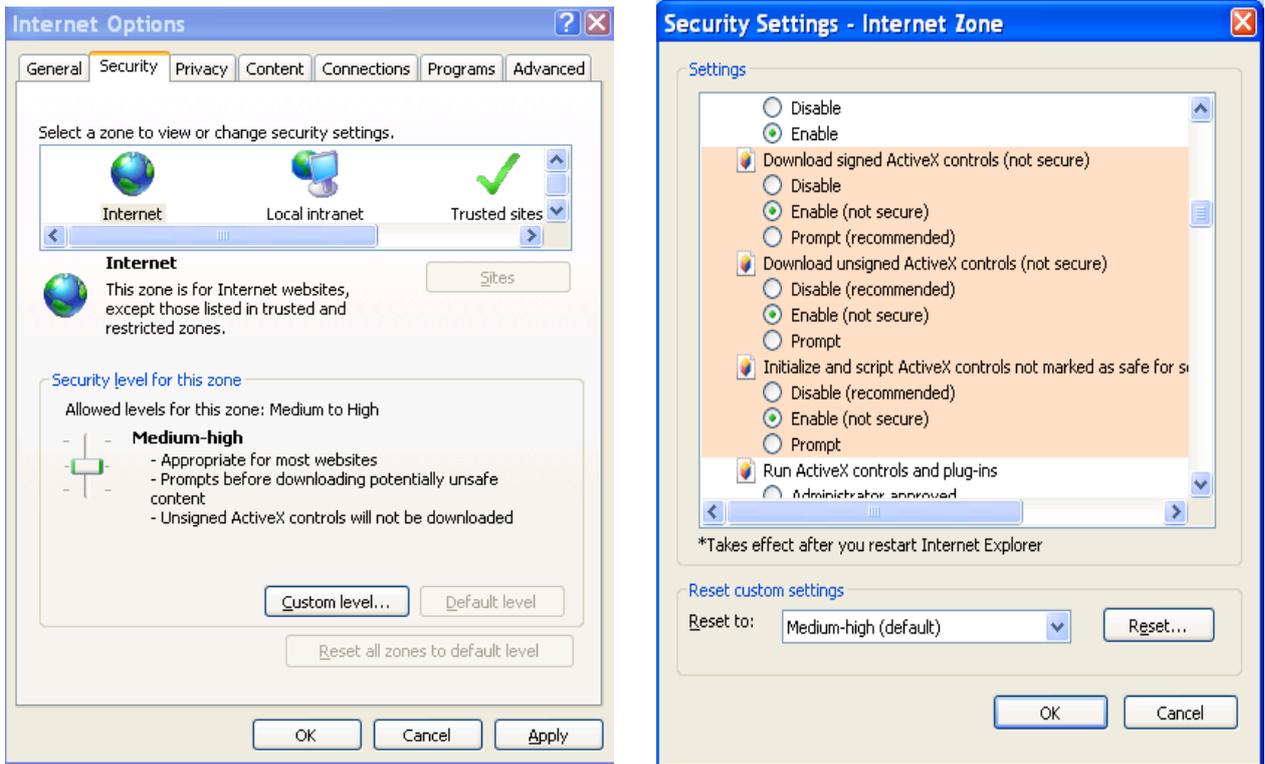


Figure 5-2

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

Please input your user name and password.

Default factory name is admin and password is admin.

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

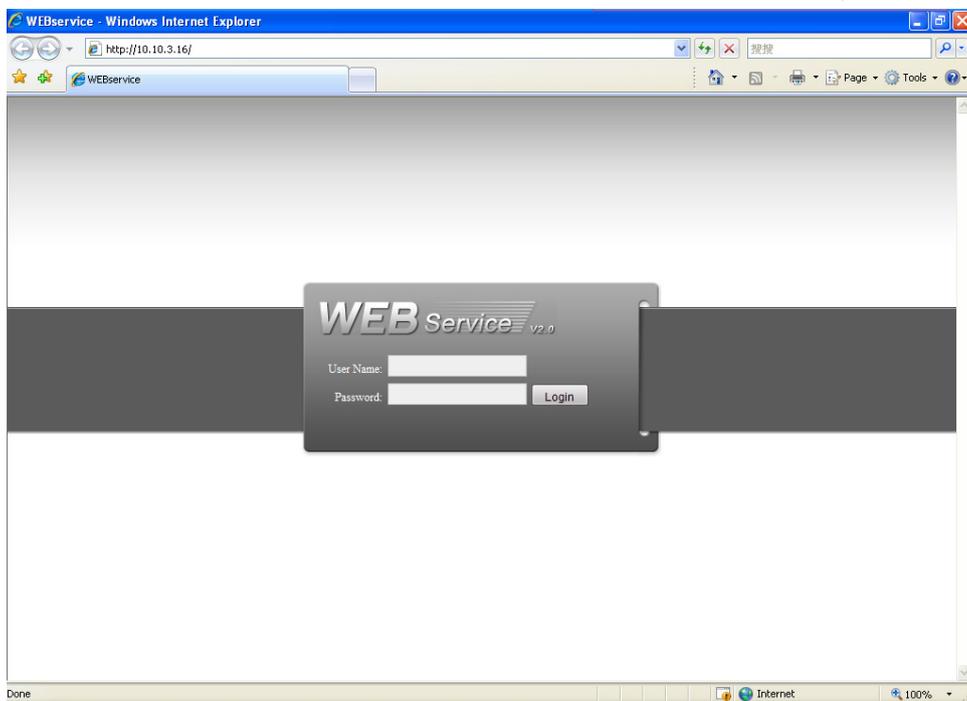


Figure 5-3

After you logged in, you can see the main window. See Figure 5-4.

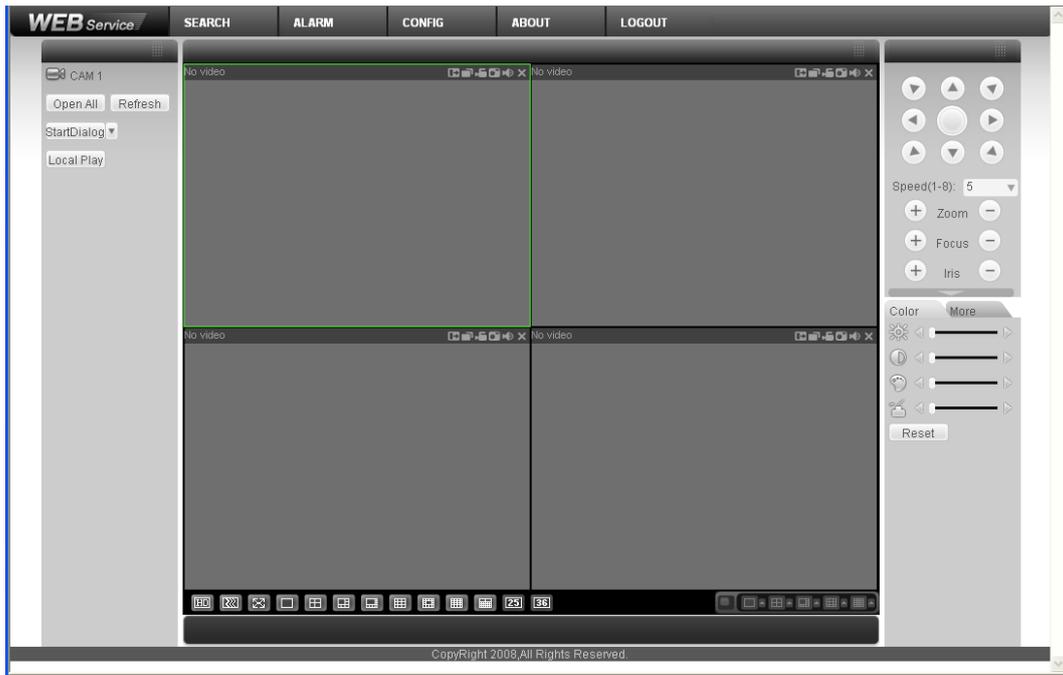


Figure 5-4

Please refer to the *Outdoor IPC Web Operation Manual V1.0* included in the resource CD for detailed operation instruction.

## 6 FAQ

Bug	
I can not boot up the device.	Please click RESET button for at least five seconds to restore factory default setup.
SD card write times	Do not set the SD card as the storage media to storage the schedule record file. It may damage the SD card duration.
I can not use the disk as the storage media.	When disk information is shown as hibernation or capacity is 0, please format it first (Via Web).
I can not upgrade the device via network.	When network upgrade operation failed, you can use port 3800 to continue upgrade.
Recommended SD card brand	Kingston 4GB、Kingston 1GB、Kingston 16GB、Transcend 16GB、SanDisk 1G、SanDisk 4G Usually we recommend the 4GB (or higher) high speed card in case the slow speed results in data loss.
Audio function	Please use active device for the audio monitor input, otherwise there is no audio in the client-end.
To guarantee setup update	After you modified the important setup, please reboot the device via the software to make sure the setup has been updated to the storage medium.
Power adapter	The power adapter included in the accessories bag can work ranging from 0°C to 40 °C. The device may result in unstable power supply when the temperature exceeds the working temperature. Please replace an industry-level power adapter if you are using in the harsh environments.

### Note

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