2.0 MP CMOS HD Camera User's Manual

Version 1.0.0

Welcome

Thank you for purchasing our HD intelligent traffic 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.
The power shall conform to the requirement in the SELV (Safety Extra Low Voltage) and the Limited power source is rated 90-240V.
We assume no liability or responsibility for all the fires or electrical shock caused by improper handling or installation.

2．Transportation security

Heavy stress, violent vibration or water splash are not allowed during transportation, storage and installation.
Please keep package material well in case you need to send it back to your local retailer or manufacturer for maintenance work.
Non-original package material may result in device damage during the transportation.

3．Installation

Do not apply power to the camera before completing installation.
Please install the proper power cut-off device during the installation connection in case there is any emergency situation.
Always follow the instruction guide the manufacturer recommended.

4．Qualified engineers needed

Do not replace the button cell on the internal circuit of the main board without the prior authorization.
Improper button cell type may result in risk of explosive.
Please process the used button cells properly according to its usage instruction.
All the examination and repair work should be done by the qualified service engineers.
We are not liable for any problems caused by unauthorized modifications or attempted repair.

5．Environment

This series camera should be installed in a cool, dry place away from direct sunlight or strong light, inflammable, explosive substances and etc.
The working temperature ranges from -30℃ ~ to +60℃. Do not touch the external metal part of the device when it is working in harsh environments.
Please keep it away from the electromagnetic radiation object and environment.
Please keep the sound ventilation.
Do not allow the water and other liquid falling into the camera.
Usually we recommend thunder-proof device to prevent thunder strike.
The GND port of the product shall be grounded to further enhance the reliability of the device.

7.Daily Maintenance

Please shut down the device and then unplug the power cable before you begin daily maintenance work.

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.

8. Accessories

Be sure to use all the accessories recommended by manufacturer.

Before installation, please open the package and check all the components are included.

Contact your local retailer ASAP if something is broken in your package.

You may install the device if nothing is missing or broken in your package.

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1 General Introduction

1.1 Overview

This product can monitor entrance/exit status and clearly snapshot vehicle plate in both day and night time. It can analyze and process plate snapshot.

This series of product integrates video data capture and management as video surveillance of road monitoring core. It can snapshot different scenes, and send video data to controller via Internet or to central control department, back-end storage device for management.

It is widely applied in entrance/exit monitor system.

1.2 Features

White List	● Set whether vehicle to have open gate right or not.
OSD	● Set picture OSD info and position, video channel related info can be set in camera setup page.
User Management	● Different user rights for each group and you may modify the setup anytime. ● The user right cannot exceed the right setup. ● Support 2-level user.
Log Management	● Support 1024 log. ● Support account right setup.
Storage Function	● Support FTP and offline transfer. ● According to user config and strategy store video data to central server. ● User can record via WEB. Record files are saved on PC where client is installed. ● Local hot swap, offline transfer. Picture can be overwritten auto for capacity warning.
Alarm Function	● For camera abnormity, it can send alarm via network, such as storage damage. ● Real-time respond to external alarm input(within 200MS) as user pre-defined activation setup and exert corresponding message in screen and audio prompt(allow user to pre-record audio file).
Network Monitor	● HD intelligent traffic camera supports one-channel A/V data transmit to network terminal and then decode. Allowed by the band width, delay is less than 500ms. ● Max supports 10 connections. ● Adopt the following A/V transmission protocol: HTTP, TCP, UDP, MULTICAST and RTP/RTCP and etc. ● Support web access, widely used in WAN.
Snapshot	● Snapshot picture and encode, with watermark. ● Snapshot picture can auto record vehicle time, location, plate color and ANPR info.
Recognition	● Support plate, vehicle color recognition function.
Network Management	● Realize HD intelligent traffic camera configuration and management via Ethernet. ● Support device management via web.

Peripheral Equipment	● Support peripheral equipment management, each peripheral equipment control protocol and interface can be set freely. ● Support activation devices such as vehicle detector.
Power Supplying	● ITC237-PW1B-IRZ：DC 12V / PoE power supply. ● ITC237-PU1B-L, ITC237-PU1B-IR device：AC 24V / DC 12V / PoE power supply.
Auto White Balance	● The white balance refers to the camera to restore the white object color. It allows the camera to adjust the color temperature in indoor and outdoor environment.
Auto Exposure	● System can automatically set shutter speed and iris value according to the snapshot video exposure condition.
Auto Gain	● To output the standard video signal in the different illumination environments, the amplifier needs to adjust in a wide range. The system can enhance the camera sensitivity in low illumination and enhance the video signal output to get the clear and high definition video.
Assistant Function	● Support video watermark function to avoid vicious video modification. ● Log ● System resource info and operation live display.

2 Framework

2.1 Appearance

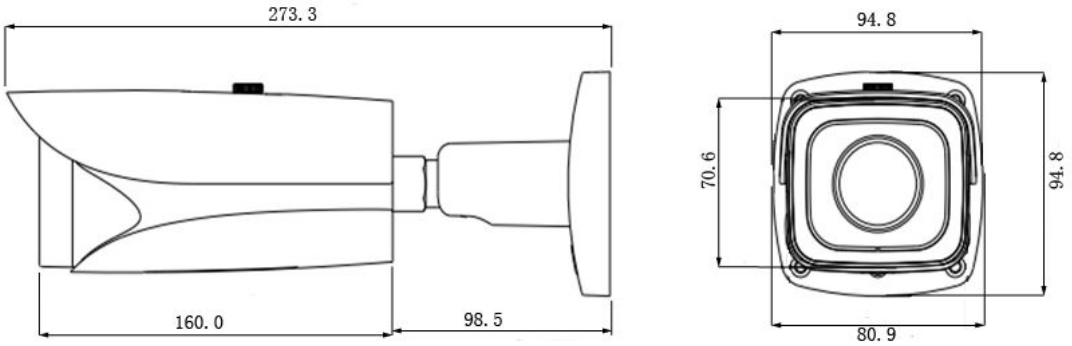

Figure 2-1 ITC237-PW1B-IRZ

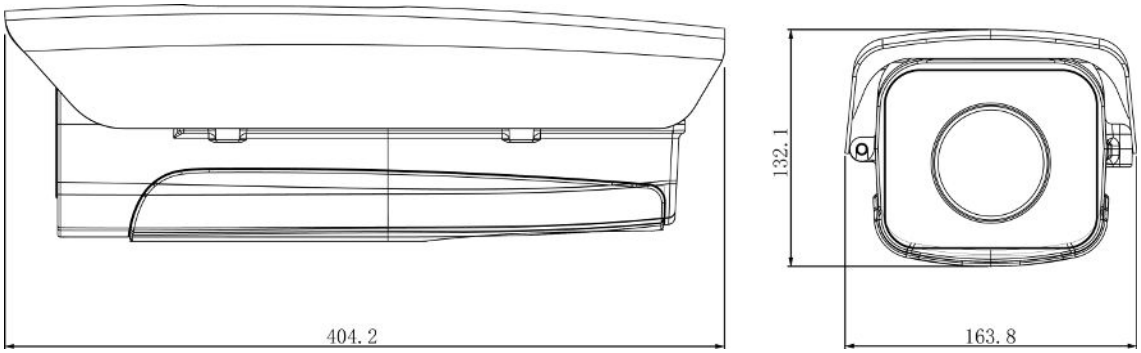

Figure 2-2 ITC237-PU1B-IR, ITC237-PU1B-L

2.2 Product Structure

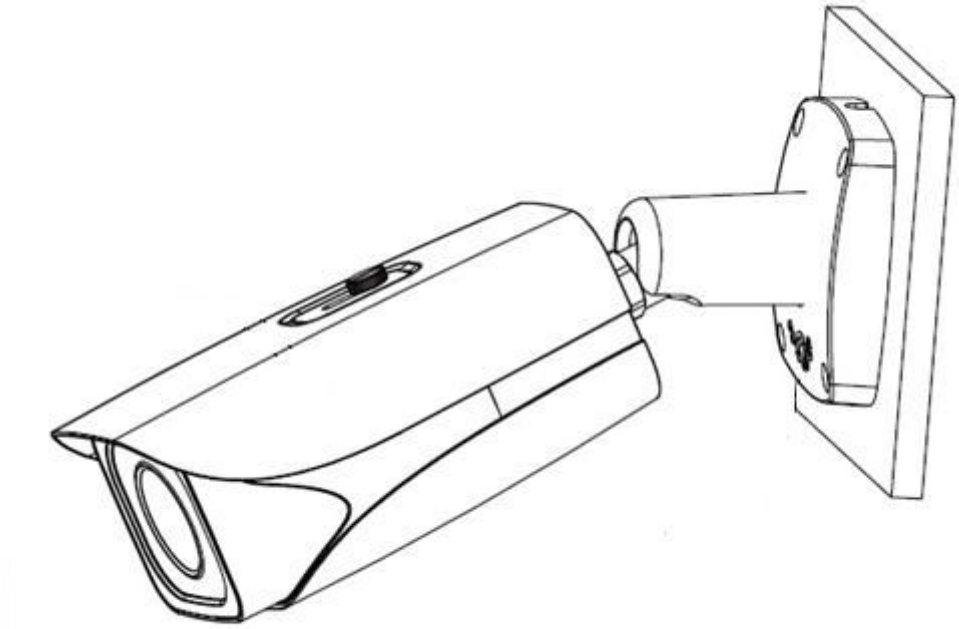

Figure 2-3 ITC237-PW1B-IRZ

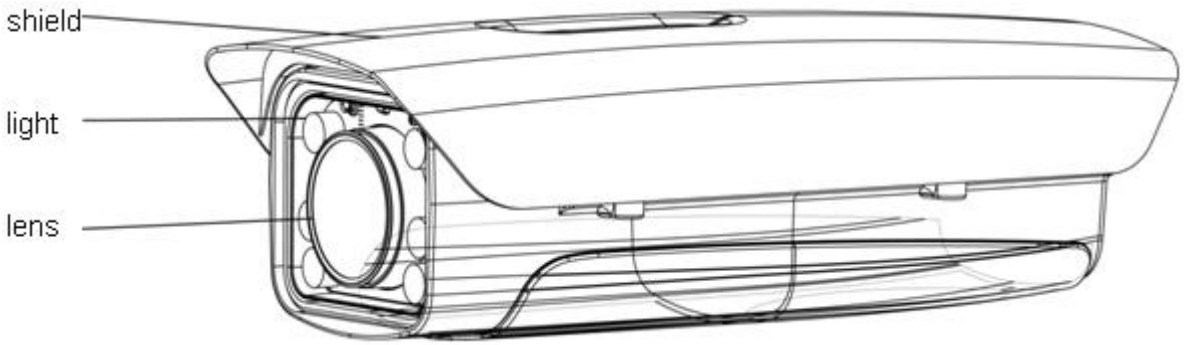

Figure 2-4 ITC237-PU1B-IR, ITC237-PU1B-L

2.3 Port

2.3.1 Device Wiring

Note:

This figure is for ITC237-PW1B-IRZ.

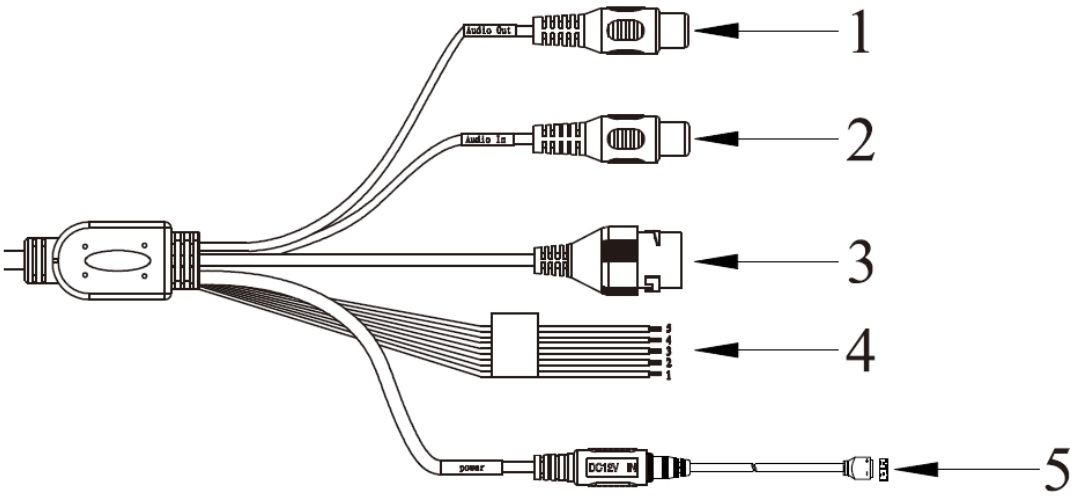

Figure 2-5

No.	Port	Function	Connector	Description
1	AUDIO OUT	Audio output port	RCA	Reserved
2	AUDIO IN	Audio input port	RCA	Reserved
3	LAN	Ethernet port	Ethernet port	Connect to standard Ethernet, provide PoE power.
4	I/O	I/O port	-	Alarm signal input, output. See Chart 2-2.
5	Power	Power input port	-	Input DC 12V，power supply must follow device label. **Warning:** **If you do not follow device label for power supply, the device may be damaged.**

Chart 2-1

Interface Name	No.	Port Name	Description
I/O Port	1	ALARM_OUT	• Alarm output interface, output alarm signal link to open barrier. • NO：NO alarm output. • Used with ALARM_OUT_GND end.
	2	ALARM_OUT_GND	Alarm output puclic
	3	ALARM_IN1	2-ch IO output（receive external alarm source switch signal）, used to trigger snapshot.
	4	ALARM_IN2	
	5	ALARM_IN_GND	Grounding

Chart 2-2

2.3.2 Rear Panel

Note:

- Rear panel structure is for ITC237-PU1B-IR, ITC237-PU1B-L.
- Structure figure is for reference only.

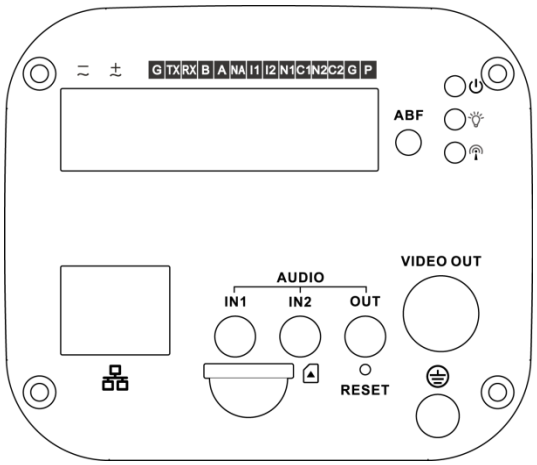

Figure 2-6

Port Name		Function
VIDEO OUT	Video output port	Reserved
AC 24V / DC 12V	Power	Input AC 24V or DC 12V power supply, can supply at the same time, only for camera, no lighting.
Indicator Light	Red indicator ⏻	● System enanle —red indicator NO ● System upgrade—red indicator flash ● System reset—green indicator, red indicator NO.
	Green indicator 💡	● Normal work—green indicator NO ● Record status display：record indicator flash when recording.
	Yellow indicator 📶	Detect wireless device—yellow indicator NO.
G	GND	RS232 GND
TX	RS232 port	RS232 send
RX		RS232 receive
B	RS484 port	RS485 port connect shield light. Camera control shield light via 485.
A		
NA	-	-
I1	Alarm input port 1	2-ch IO input（switch signal receives external alarm source）, used to trigger camera snapshot.
I2	Alarm input port 2	
N1	Alarm output port	Alarm output port，output alarm signal link to open barrier. ● N1/N2：NO alarm output ● C1/C2：alarm output public end Note: When device is conencted, N1 can only work with C1 while N2 can only work with C2.
C1		
N2		
C2		
P	Power return output port	Output DC 12V power, P +, G -
G （close to P）		
RESET	Reset	● Restore device default setup ● When device normally work, keep holding this button for 5s, system will be reset.
ABF	Auto adjust back focus	Auto adjust back focus, by adjusting Sensor board position, adjust back focus, one-click to complete.
AUDIO OUT	Audio output port	Reserved
AUDIO IN1	Audio input port	Reserved
AUDIO IN2		Reserved
LAN/OPT	Net port/MB fiber port	● LAN ● OPT
SD	SD card port	Connect to SD card
⏚	GND port	When client is using device, connect this port to GND

Chart 2-3

3 Device Installation

3.1 Lens Installation

Warning:
Contents in this chapter are for ITC237-PU1B-IR, ITC237-PU1B-L only.

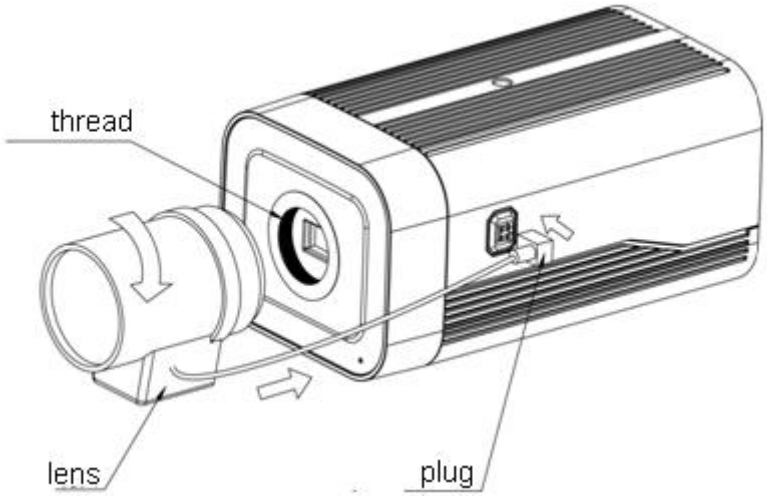

Figure 3-1

3.1.1 Auto Iris Lend Installation

Step 1. Remove device CMOS cover, face the lens at installation position on camera, clockwise rotate lens until it is in place.
Step 2. Insert lens cable into auto iris lens connector at side of camera.
Step 3. Adjust focus to get clear image.

3.1.2 I/O Port

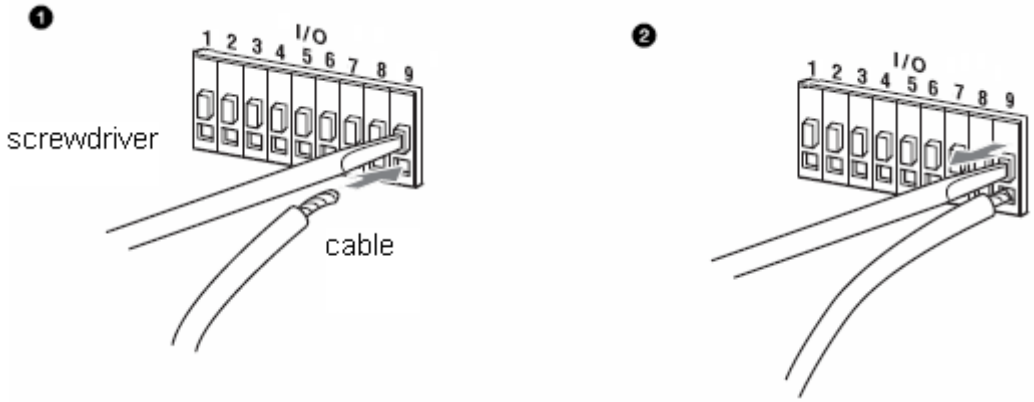

Figure 3-2

Step 1. Use a small straight screwdriver to press the slot button corresponding to the cable you want to connect.
Step 2. Insert cable into the slot hole.

Step 3. Release the screwdriver that hold the slot.

3.2 Device Installation

Warning:
Contents in this chapter are for ITC237-PW1B-IRZ only.

3.2.1 (Optional) Install SD Card

Note:
When the device has SD card slot and needs SD card, you shall:
Step 1. Open lower cover to see SD card slot, analog output and bidirectional button, reset.
Step 2. Insert SD card into Figure 3-3.

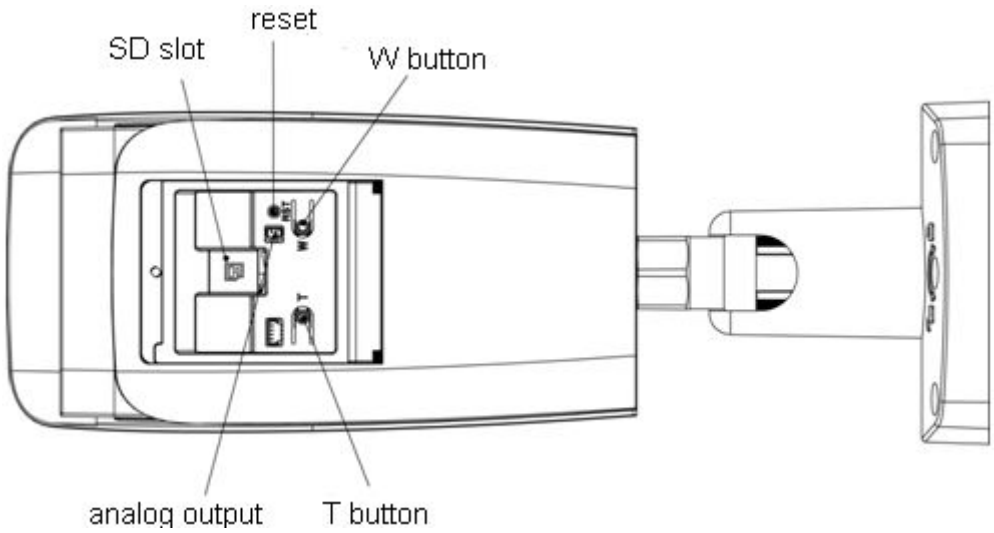

Figure 3-3

Note:

- Motorized focus series device has standard motorized lens, without manual adjustment, meantime has bidirectional button to support focus adjustment on panel.
- Long press RESET for 4s~5s to reset.

3.2.2 Adjust Device Direction

Note:

- Different devices may have different adjusting screw positions.
- Before adjustment, please loosen adjusting screw, and then when adjustment is complete, fasten screw.
- Never rotate a device continuously in one direction over 3 loops.
- Never open lower cover in humid environment for a long time.

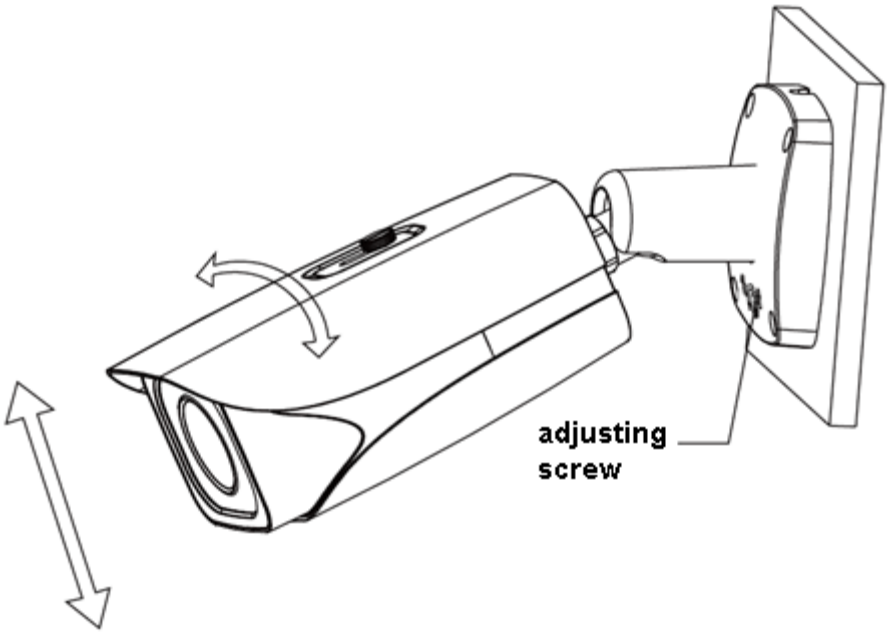

Figure 3-4

Step 1. Loosen adjusting screw with screw driver.

Step 2. Adjust in up/down/left/right directions, set device direction according to need.

Step 3. Fasten the screw.

3.2.3 (Optional) Install Network Port Waterproof Cover

Note:

This step is mandatory for outdoor device with standard waterproof cover.

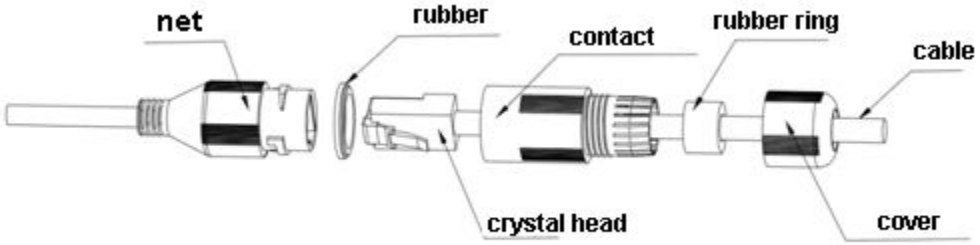

Figure 3-5

Step 1. Place the nipple on the port and press the rubber bead into the main body of the waterproof connector.

Step 2. Thread the cable without the crystal head through the waterproof connector body, tighten the rubber ring and waterproof fastening cover. Then, make the crystal head of the cable and insert the crystal head into the network port.

Step 3. Put the main body of the waterproof connector on the network port and turn the waterproof connector body clockwise to lock the network port and the waterproof connector body.

Step 4. Put the waterproof fastening cap over the waterproof connector body and turn the waterproof tightening cover clockwise to lock the waterproof connector body and the waterproof fastening cover.

4 System Network

Please refer to

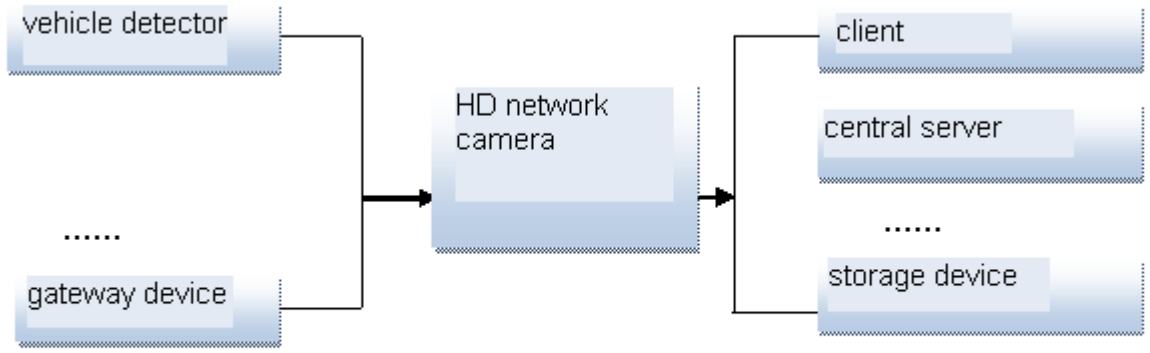

Figure 4-1 for system connection.

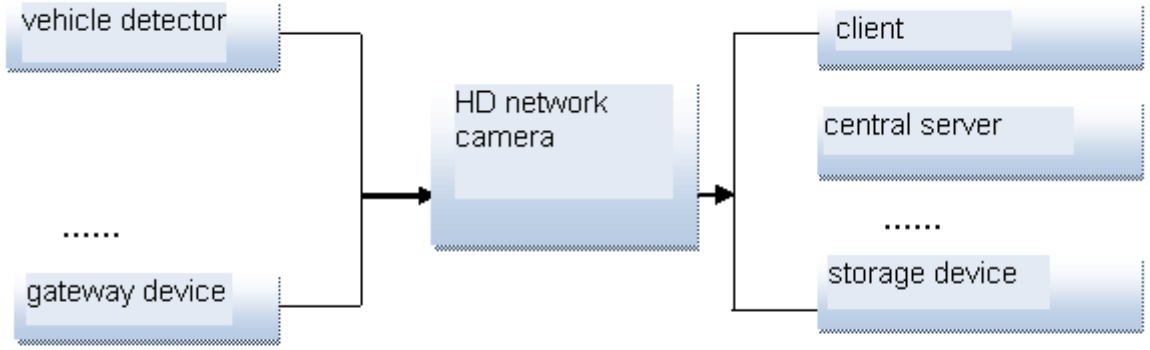

Figure 4-1

5 Quick Configuration Tool

5.1 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.

5.2 Operation

Step 1. Double click the “ConfigTools.exe”icon, you can see an interface is shown as in Figure 5-1.

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

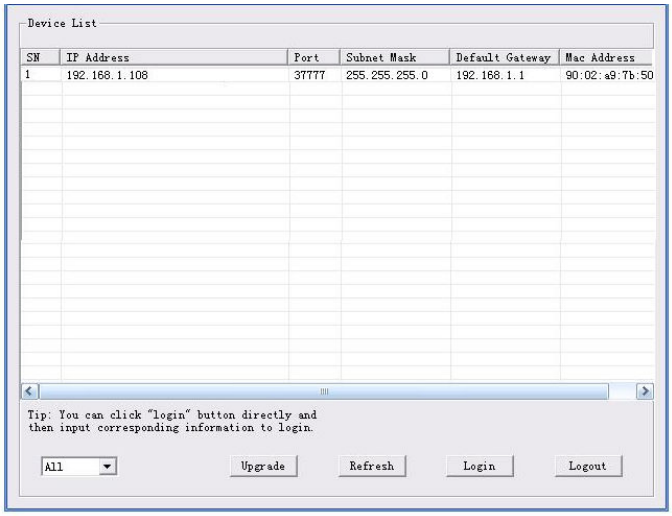

Figure 5-1

Step 2. Select one IP address and then right click mouse, you can see an interface is shown as in Figure 5-2.

Note:

You can set the IP address, subnet mask and gateway for the network camera and PC. Please note network camera IP address and PC IP address shall be in the same network segment if there is no router. Network camera default IP address is 192.168.1.108. If there is a router, please set the corresponding gateway and subnet mask.

The factory default user name is **admin** and password is **admin**. For security reasons, please modify your password after you first login.

For detailed WEB operation, please refer to the Network Camera Web Operation Manual in the resource CD.

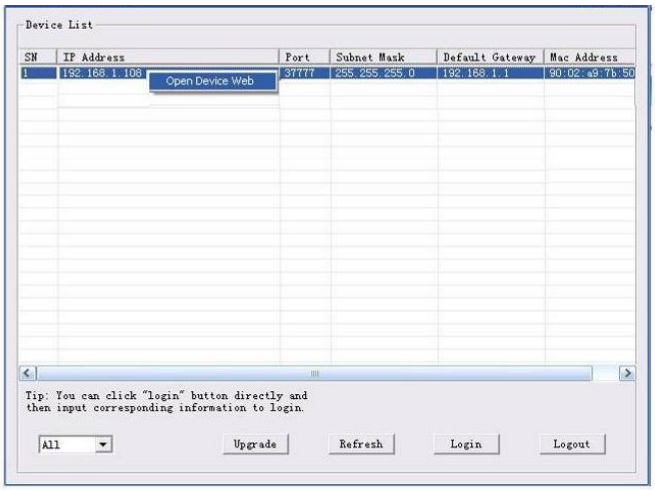

Figure 5-2

Select the “Open Device Web” item; you can go to the corresponding web login interface. See Figure 5-3.

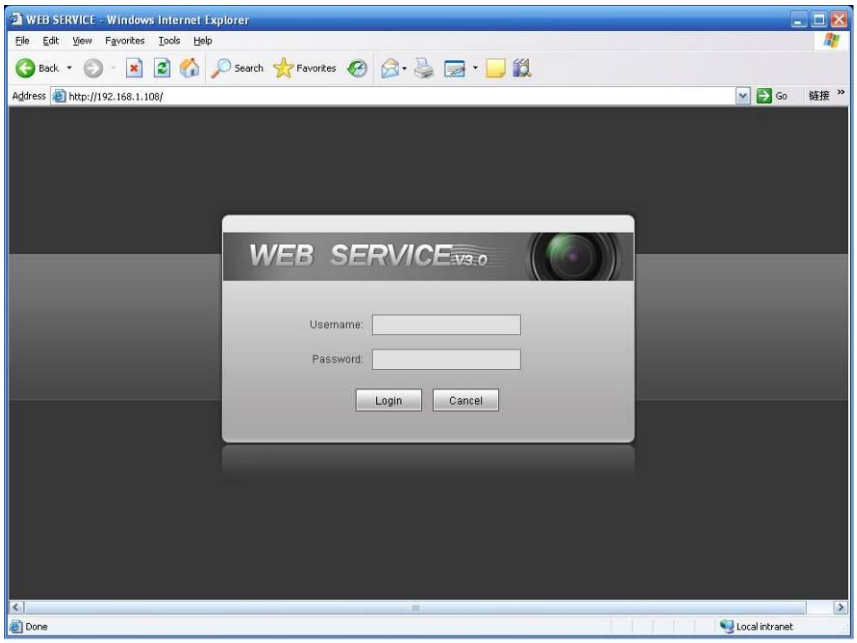

Figure 5-3

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 5-4), 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 5-4.

In Figure 5-4, 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 cannot login the device.

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

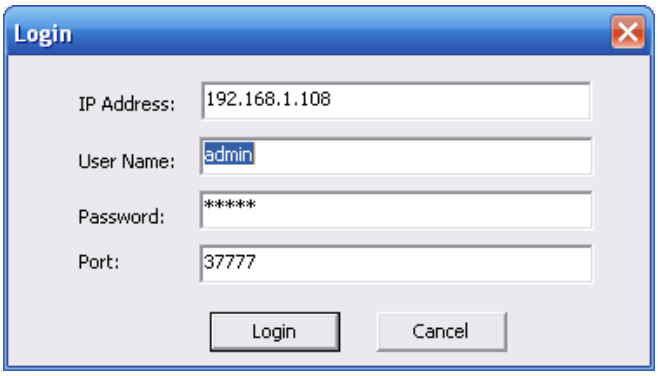

Figure 5-4

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

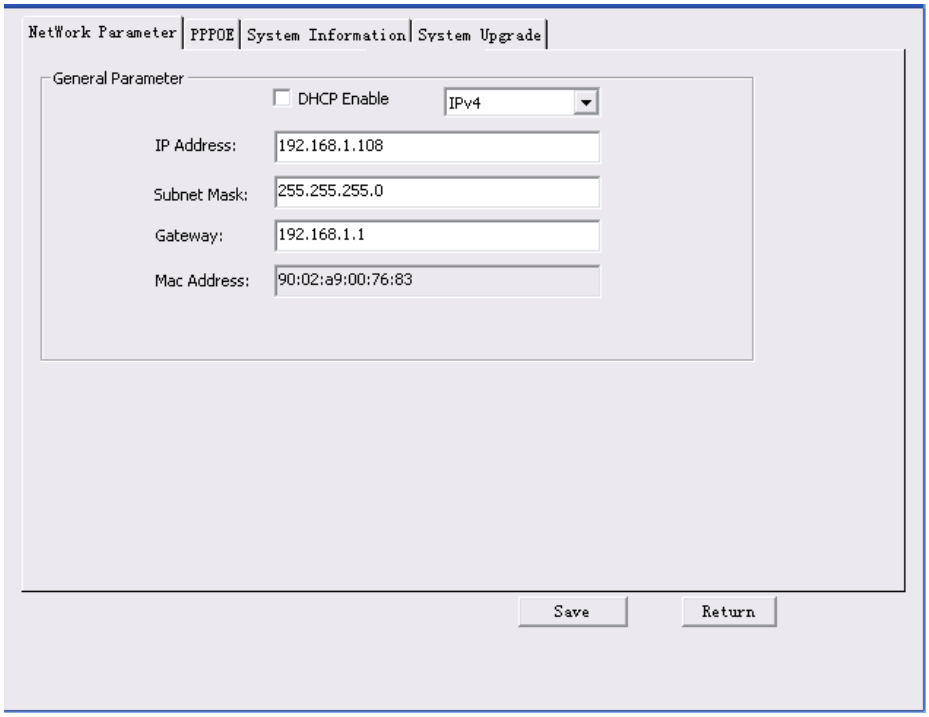

Figure 5-5

For detailed information and operation instruction of the quick configuration tool, please refer to the *Quick Configuration Tool User's Manual* included in the resources CD.

6 Web Operation

The device supports device access and management via WEB on PC.

Note:

Interface and settings here are for reference only.

6.1 First Time Log in

Open IE and input HD intelligent traffic camera IP address in the address column. For example, if your IP is 192.168.1.108, then please input http:// 192.168.1.108 in IE address column. See Figure 6-1 IE.

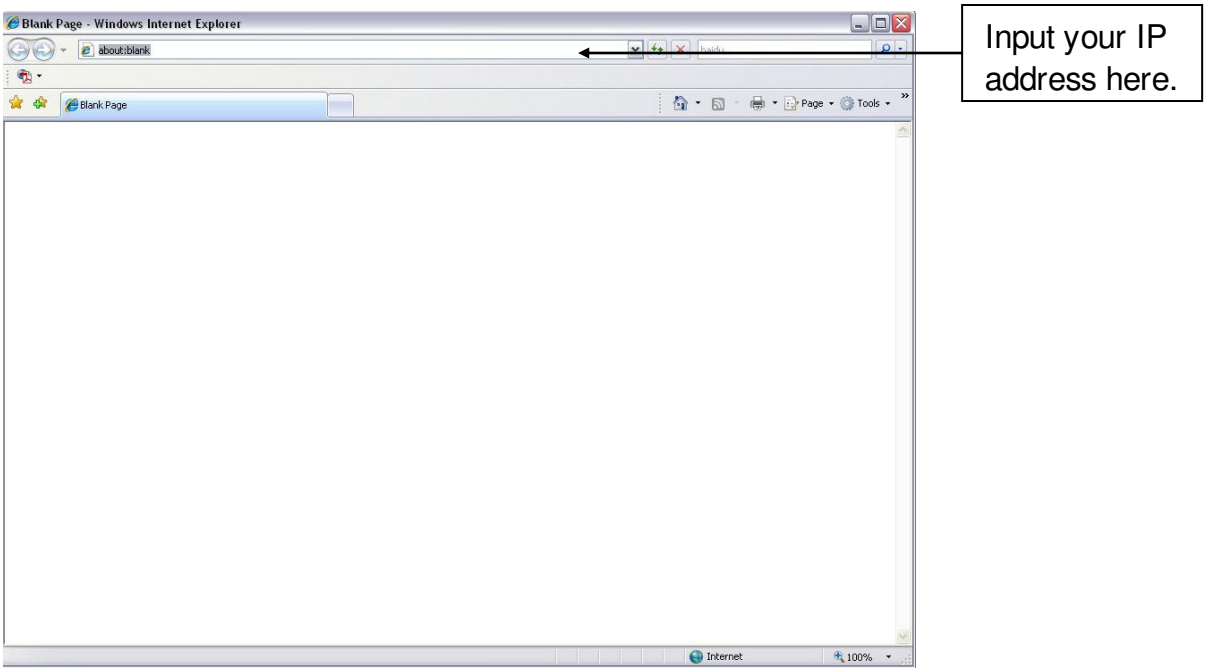

Figure 6-1 IE

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

If you can't download the ActiveX file, please modify your settings as follows. See Figure 6-2 Security Settings.

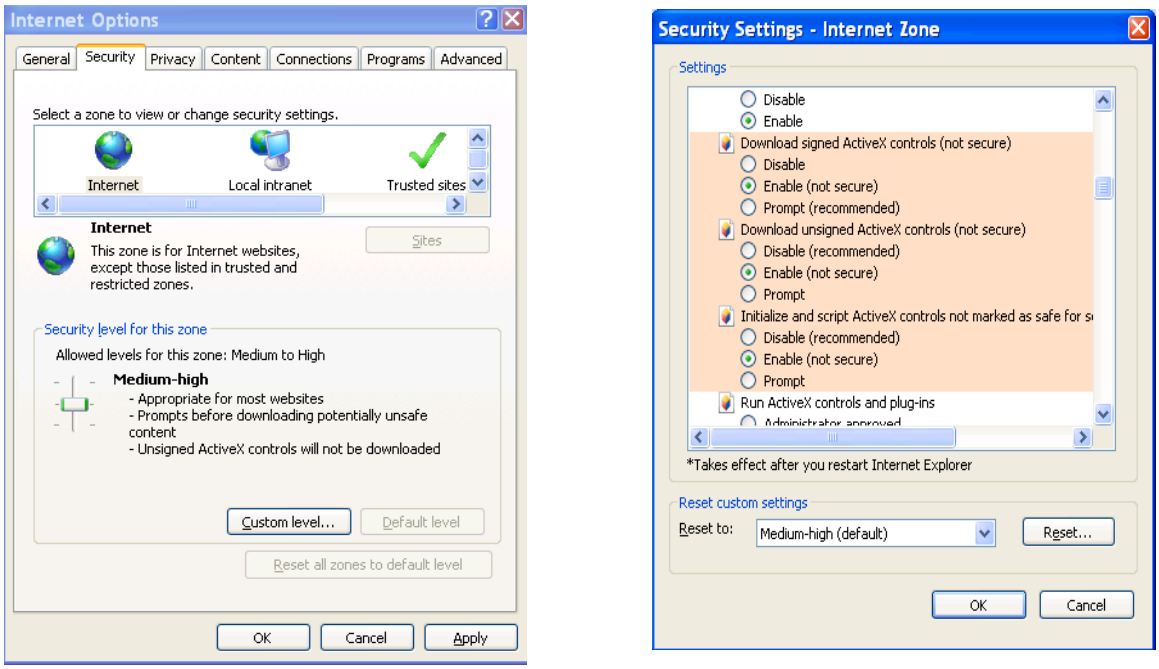

Figure 6-2 Security Settings

After installation, the interface is shown as below. See Figure 6-3 Login Interface.

Please input your user name and password.

Follow system instructions to change password, and click OK.

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

Note: For security reasons, please modify your password after you first login. You can go to Setup>System>Account>User Name to change password.

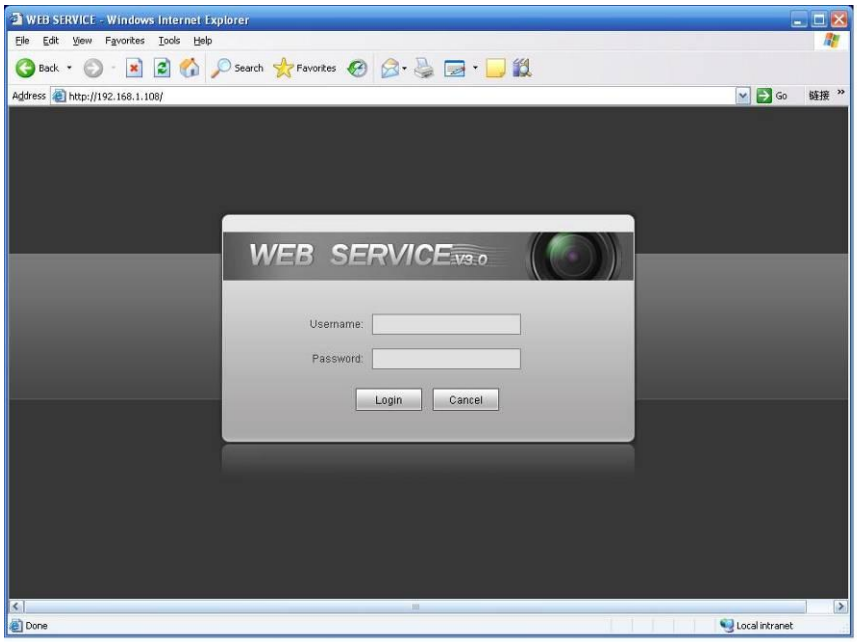

Figure 6-3 Login Interface

After you logged in, HD intelligent traffic camera web homepage is shown as in Figure 6-4 Web Homepage.

Note:

Download and install plug-in if you cannot enter the homepage.

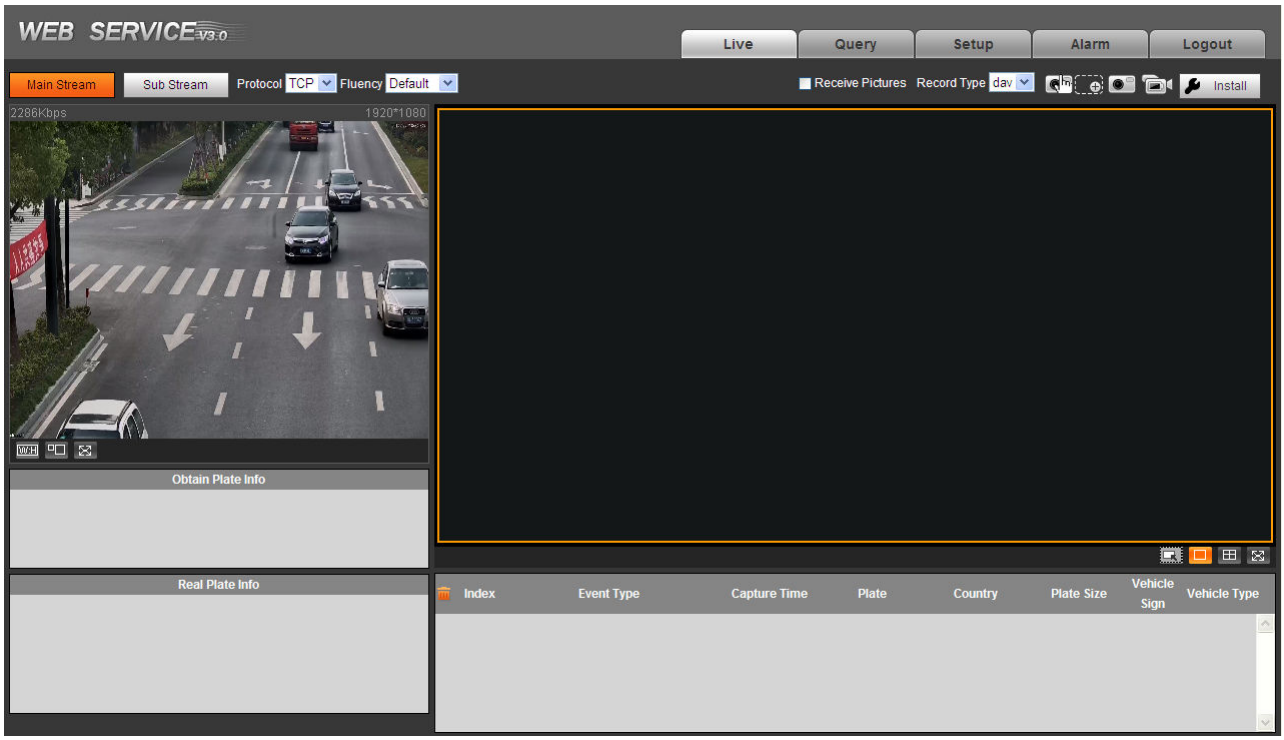

Figure 6-4 Web Homepage

6.2 Non-first Time Login

Step 1. Open IE and input HD intelligent traffic camera IP address in the address column.

Step 2. Please input your user name and password. Click Login.

6.3 System Menu

System menu is shown as in Figure 6-5 System Menu.

Figure 6-5 System Menu

Tab	Function
Preview	Installation debugging, adjust video and image window, record video and image, set client image parameter.
Query	Query image and record in different types, watermark and vehicle pass record.
Setup	Set ITC rule, camera attributed, network, event, storage, system and view system info.
Alarm	Set alarm prompt.
Logout	Logout WEB client.

Chart 6-1

The followings are common buttons you may see on WEB. See Chart 6-2.

Button	Note
Default	Click this button, and click OK to restore system default settings.

Button	Note
Refresh	Click this button, each parameter will resume to its latest saved parameter.
Save	After parameter is set, click this button to save.

Chart 6-2

7 Technical Specification

Parameter Type	Parameter Name	Value		
Model		ITC237-PW1B-IRZ	ITC237-PU1B-IR	ITC237-PU1B-L
Camera	Sensor	1/2.8 inch CMOS		
	Shutter	1/50～1/10000		
	Min Illumination	0.002Lux/F1.2（color mode）；0 Lux/F1.2（B/W mode）		
	Scan	Progressive scanning		
	Day/Night Mode Switch	IR-CUT		
	Exposure Mode	Full auto; customize range auto, customize		
	White Balance	Full auto; color temperate range range; customize color temperature		
	HLC	Support		
	Edge Enhance	Support		
	IMX NR	Support		
	WDR	Support		
Lens	Lens Port	● ITC237-PU1B-IR, ITC237-PU1B-L：CS port ● ITC237-PW1B-IRZ：built-in lens		
	Lens Iris	DC drive		
	Lens Focus	● ITC237-PU1B-IR, ITC237-PU1B-L manual fovus, focal length 5～50mm ● ITC237-PW1B-IR，focal length 2.7～12mm		
Image	Image Compression Standard	JPEG		
	Image Resolution	1920×1080		
	Video Compression Standard	H.265；H.264；H.264H；H.264B；MJPEG		
	Bit Stream	Support N/P switch PAL 1～25 FPS (adjustable) NTSC 1～30 FPS (adjustable)		
	Video Frame Rate	1920×1080		
Trigger Mode	I/O Coil Trigger	Support		
	Video Detection	Support		
Function	White-list	● Max support 10,000 white list vehicles, can directly link to barrier output ● Max support 10,000 black list vehicles, snapshot and meantime record alarm		
	Intelligent Recognition	Plate recognition		
	Remote Control	May remote config, control via Web		
	OSD Info Overlay	Support, may costimize time, location, direction lane no. and etc.		
	Water-proof	Support, videl/snapshot have watermark		
	Built-in Algorithm	Integrate numberok alogorithm, support specific plate recognition of some nations		
	Network Port	1，100/1000M Ethernet		
	Alarm Input Port	2-ch I/O input, may be used for loop input		
	Alarm Output	● ITC237-PU1B-IR，ITC237-PU1B-L：2-ch，alarm output, may be used for link barrier ● ITC237-PW1B-IRZ：1-ch，alarm output，may be used for link barrier		

Parameter Type	Parameter Name	Value
	BLC	● ITC237-PU1B-IR, ITC237-PW1B-IRZ：built-in IR BLC ● ITC237-PU1B-L：built-in white light BLC
General	Power	● ITC237-PU1B-IR ， ITC237-PU1B-L ： PoE+ power supply ● ITC237-PW1B-IRZ：DC 12V/PoE power supply
	Consumption	● ITC237-PU1B-IR, ITC237-PU1B-L：unit<17W（BLC all on） ● ITC237-PW1B-IRZ：unit<12W（12V power supply, IR on，when ICR switch, motorized focus, heating）
	Temperature	－30℃～+70℃
	Protection Level	IP66
	Humidity	≤95%

8 FAQ

Bug	
I cannot boot up the device.	Please click RESET button for at least five seconds to restore factory default setup.
SD card hot swap	Before draw out SD card, please stop record or snapshot first and then wait for at least 15 seconds to remove the SD card. All the operations before is to maintain data integrity.
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 cannot 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 cannot upgrade the device via network.	The status indication light is shown as red 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.
Web control webrec.cab not pop up	Please set IE security level to low and enable ActiveX plug-in.

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.**
- **All trademarks and registered trademarks mentioned are the properties of their respective owners.**
- **If there is any uncertainty or controversy, please refer to the final explanation of us.**
- **Please visit our website or contact your local retailer for more information.**