

Long Range Bi-spectrum Thermal Camera

User Manual



2014-11

Version: V1.1

Bi-spectrum Thermal Camera

Thank you for purchasing our thermal camera. Please read this manual carefully before using. This camera's technical specifications, operational methods and precautions are all included in this manual.

If you need any other information not included in this manual, please feel free to contact us.

The company reserves the right to modify this manual without prior notification.

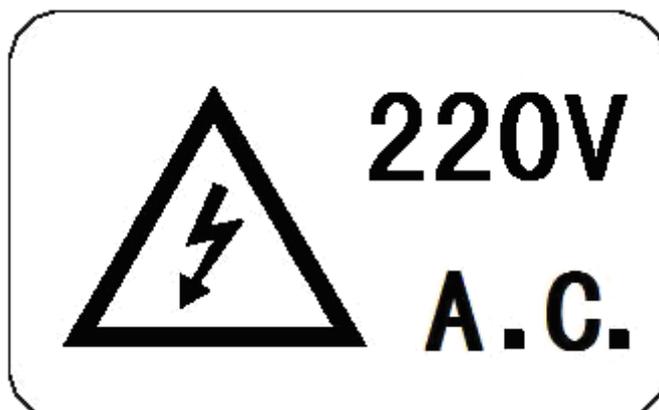
Precaution of potential dangers!

- 1, Please read this manual carefully before installation.
- 2, Please note the warning notices on the camera and in this manual.
- 3, Please apply exactly the power supply and voltage listed in this manual.
- 4, For safety and camera's proper functioning, please don't power on the camera while connecting cables.
- 5, Please ensure the intactness of the power line in case of injury and damage.
- 6, Please install anti-lighting device in case of thunderstruck.
- 7, Please mount this camera on a secure platform or bracket in case of injury.
- 8, Please clear all objects near the camera to prevent it from being damaged while rotating.
- 9, Unauthorized dismantling of this camera may incur injury or damage, so please contact us directly for any malfunction matters.
- 10, In order to protect the lens from being stained or scratched, please don't touch it.
- 11, Cable between power adaptor and camera shall not exceed 5 meters.

Caution

- 1, For ensuring camera's proper functioning, please don't cover camera front.
- 2, Protect the camera from direct sunlight to ensure the detector not being damaged.
- 3, In case of water leakage, please don't use organic solvent to clean camera's housing.
- 4, Please wait for another 30s before restarting camera.

Warning Mark



Potential Danger to Human Health

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Chapter 1 Camera Introduction

1. Overview

As a surveillance camera specially designed for 24-hour real time surveillance, TVC4515-2030-S Bi-spectrum Long Range Thermal Camera is capable of detecting targets, either human or vehicle, beyond 10000m. The camera employs 300m lens for daytime surveillance which enables it to cover wide surveillance area and obtain clear image in remote areas. For night surveillance, the camera adopts the 5th generation uncooled infrared detector.

2. Technical specifications

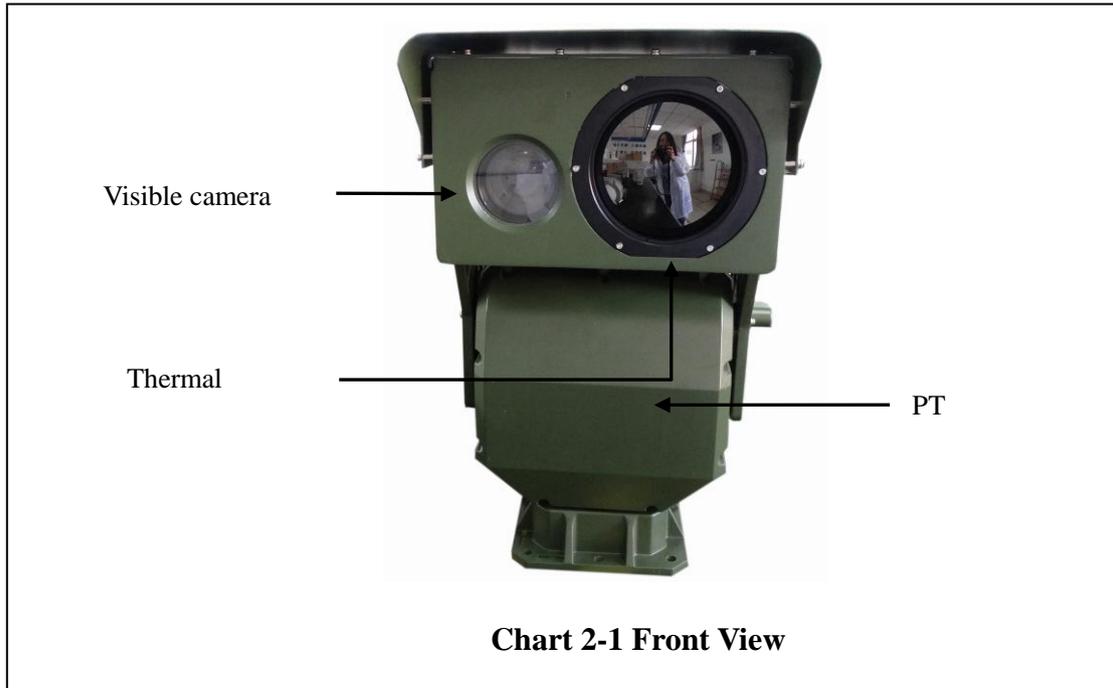
Detection	Target	Human (1.8m×0.5m)	Vehicle (2.3m×2.3m)
	Detection	4800m	13000m
	Identification	1300m	3400m
	<i>Note: detection range varies depending on different environmental conditions, operational experience and displaying medium. The abovementioned detection range is acquired when atmospheric attenuation coefficient is 0.15km-1km.</i>		
CCD	Sensor	1/3 ``; 2 mega pixels, auto color to B/W	
	Lens	12-320mm	
	Lens control	Motorized zoom and focus, auto iris	
	Color	ICR optical filter	
	Resolution	1920X1080	
	Illumination	Auto color to B/W at 0.01lux	
	Denoise	3 level DNR	
Thermal	Sensor	5th generation UFPA	
	Resolution	336X256	
	Spectral response	8-14um	
	NETD	50mK@F1.0, 300K	

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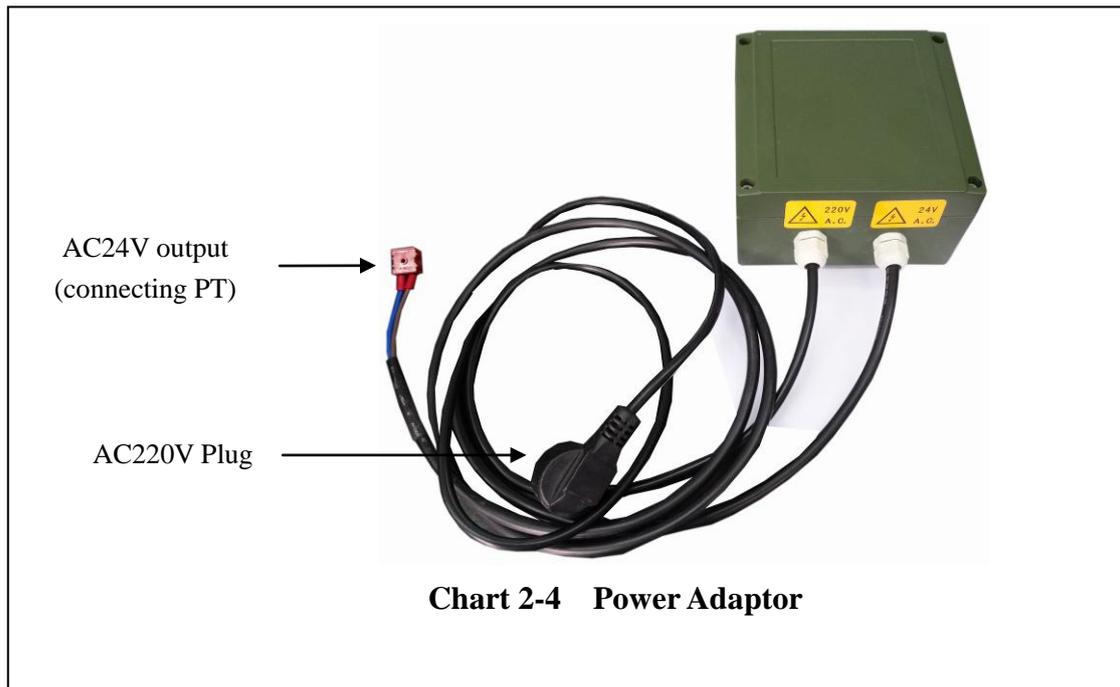
	Lens	31-155mm continuous zoom
	FOV(HON.)	10.4 °*7.8 °-2.1 °*1.6 °
	Lens control	Motorized zoom and focus
	Starting speed	Less than 4 seconds
	Digital zoom	2×
	Image enhancement	SDE
	Color mode	Hot black, hot white and color
	Brightness/contrast	32 levels, AGC
	Video	PAL, CCIR
Housing	Material	Aluminum alloy
	Structure	Double window
	Window glass	4mm pyroceram
	Coating	Army green
	Connector	Aviation waterproof connector
PT	Load duty	50kg max.
	Pan tilt	Pan: 0-360 °continuous; Tilt: +20 °~-90 °
	Speed	Pan: 60 %S; tilt: 30 %S
	Decoder	Built-in
	Preset	200
	Patrol	8
	Protocol	Pelco-P, Pelco-D; Baud rate: 2400, 4800, 9600, 19200
Interface	Control and video	1*BNC, 1*RJ45
	Communication	RS485, PELCO-D/P, baud rate: 2400, 4800, 9600, 19200
	Power supply	AC24V ±10%, 50Hz, AC220V->AC24V power box
	IP	IP: 192.168.1.64, Port: 8000, User name: admin, Password: 12345
Environmental parameters	Operating temp.	-25 °C ~+55 °C
	Storage	-40 °C ~+65 °C
	Anti-shock	150m/s ² 11ms
	Anti-corrosion	PH:6.5~7.2, 48 hours continuous spraying
Others	Power supply	AC24V ±10%
	Power consumption	≤60W
	Weight	40kg(PT included)

Chapter 2 Appearance and Interface

1. Appearance



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2. Dimension(mm for unspecified unit)

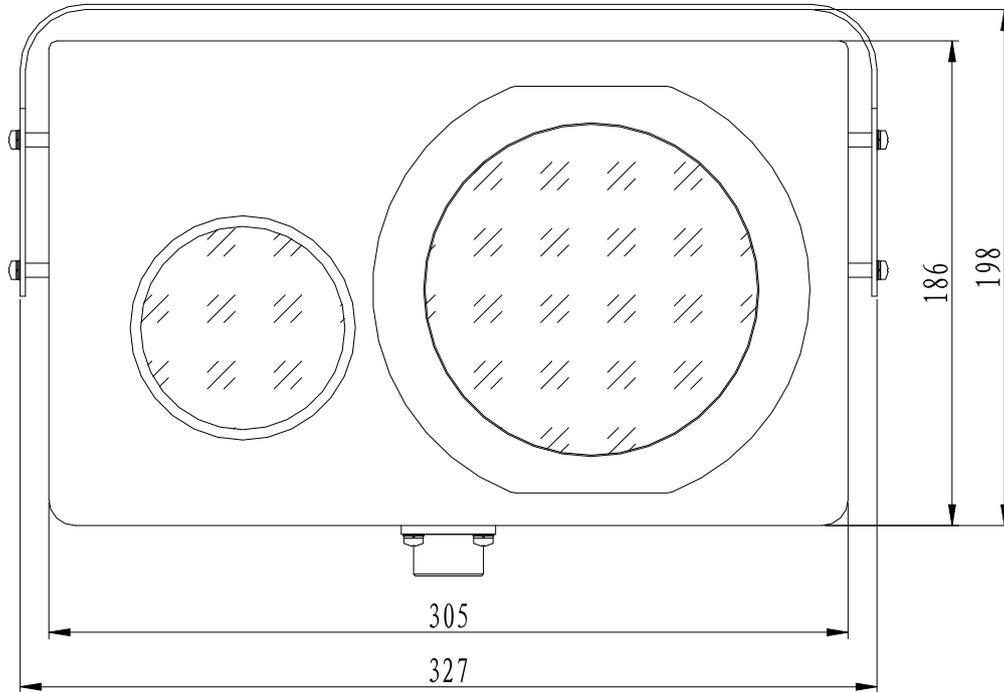


Chart 2-5 Front View of Camera

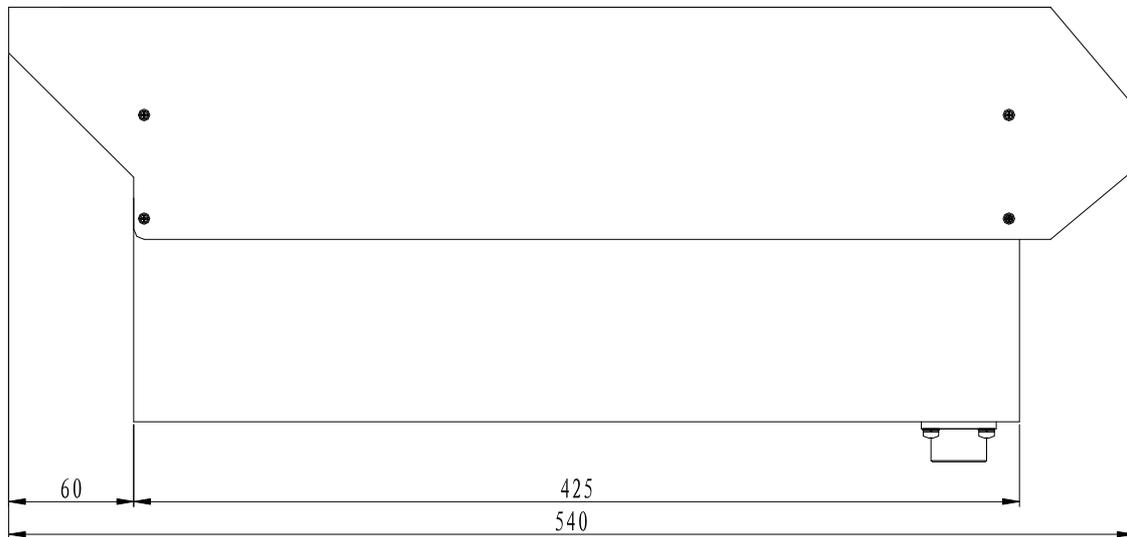


Chart 2-6 Lateral View of Camera

Bi-spectrum Thermal Camera

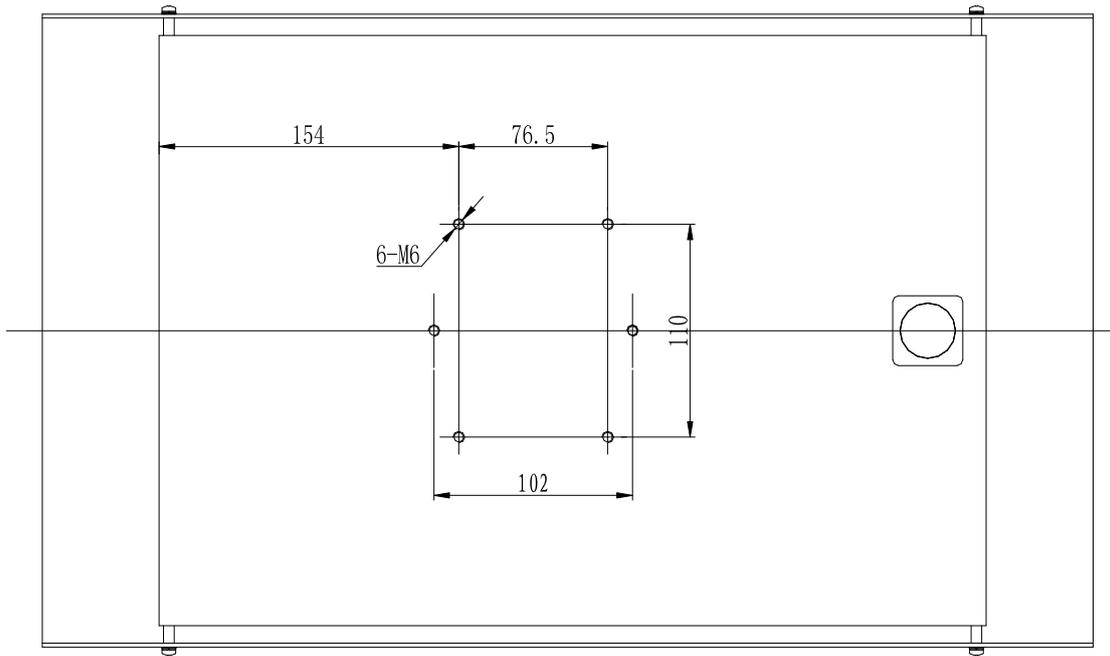


Chart 2-7 Bottom View of Camera

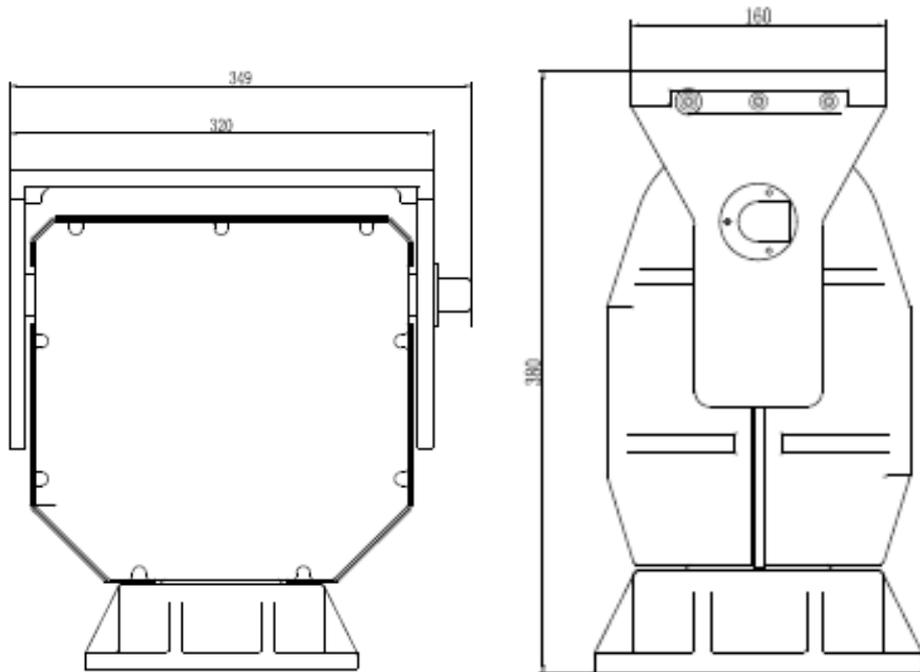


Chart 2-8 Front and Lateral View of PT

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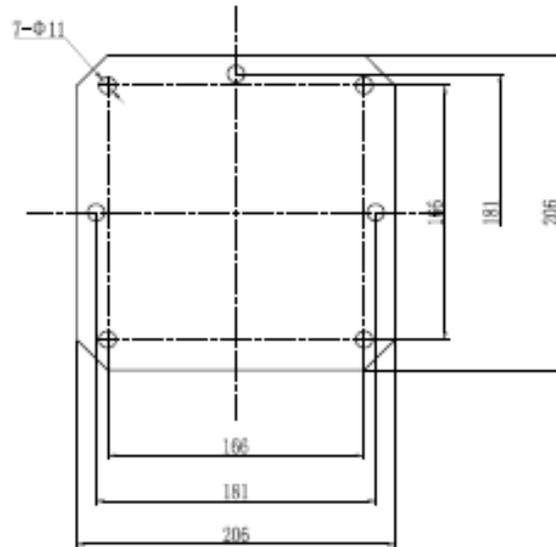


Chart 2-9 Mounting Hole at the Bottom

3. Connector

The connector employs waterproof connector with 26 cores, please refer to the following for specifics:

Pin No.	1	2	3	4	5	6
Pin definition	Blue COM	Brown Zoom	Orange Focus			
Pin No.	7	8	9	10	11	12
Pin definition	Pink 3.3V+	Light Blue GND	White Z preset	Purple F Preset	Grey K2	Grey K2
Pin No.	13	14	15	16	17	18
Pin definition	Core(white) Video+	Shield video-	Orange RS485A	Yellow RS485B	Orange and white TX+ (RJ45-1)	Orange TX- (RJ45-2)
Pin No.	19	20	21	22	23	24
Pin definition	Green and white RX+ (RJ45-3)	Green RX- (RJ45-6)		Red 12V+	Black 12V-	Blue 24VAC
Pin No.	25	26				
Pin definition	Brown 24VAC					

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Outgoing line at the base of PT

Left

Pin No.	1	2	3	4	5	6
Pin definition	Orange and white RJ45-1	Orange RJ45-2	Green and white RJ45-3	Blue RJ45-4	Blue and white RJ45-5	Green RJ45-6
Pin No.	7	8	9	10	11	12
Pin definition	Brown and white RJ45-7	Brown RJ45-8	Orange RS485A	Yellow RS485B	Core Video+	Shield video-

Right

Pin No.	1	2
Pin definition	Blue 24VAC	Brown 24VAC

Chapter 3 Camera Installation

1. Protocol, Baud rate and address setting

Visible Camera

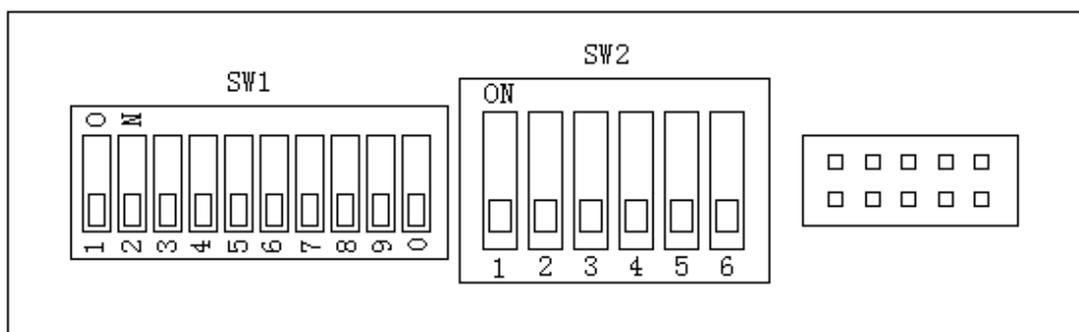
Protocol: PELCO-D; Address: 1; Baud rate: 2400bps; data bits: 8, stop bate: 1; no parity;

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Protocol: PELCO-D; Address: 2; Baud rate: 2400bps; data bits: 8, stop bate: 1; no parity;

1.1 Address setup

When setup the dip switch or function code switch, please open the small window which is in the front of pan tilt;



Address, protocol and baud rate setting

Address DIP:

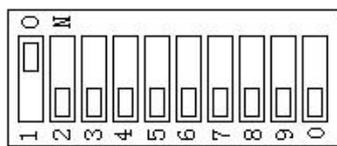
Address	SW1 On-off							
	DIP-1	DIP-2	DIP-3	DIP-4	DIP-5	DIP-6	DIP-7	DIP-8
1	ON	OFF						

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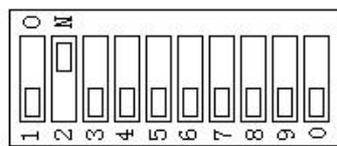
2	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
3	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF
4	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
5	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF
6	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF
7	ON	ON	ON	OFF	OFF	OFF	OFF	OFF
8	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
9	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF
10	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF
11	ON	ON	OFF	ON	OFF	OFF	OFF	OFF
12	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF
13	ON	OFF	ON	ON	OFF	OFF	OFF	OFF
14	OFF	ON	ON	ON	OFF	OFF	OFF	OFF
15	ON	ON	ON	ON	OFF	OFF	OFF	OFF
16	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF
17	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF
18	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF
...	...							
255	ON							

Note: Pls make sure the power is off when setting address, or pan tilt won't accept the setting.

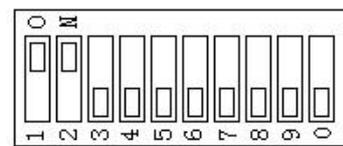
SW1:setup pan tilt address from 0~255. From DIP-1 to DIP-8, it equals to a binary system number with eight digits. Among them, DIP-8 indicates the top digit, while DIP-1 indicates the lowest digit. "ON" stands for "1", "Off" stands for "0".



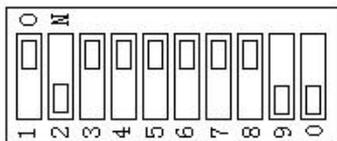
Address = 1



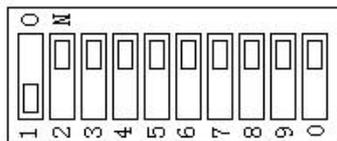
Address = 2



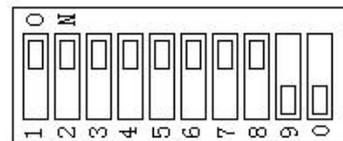
Address = 3



Address = 253



Address = 254



Address = 255

In the above picture, it shows one part of address code, the other addresses please refer to the same method according to binary code.

1.2 Baud rate setup

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Pan tilt can provide 2400bps、4800bps、9600bps、19200bps.This can change by setting button **9,10** on **SW1** as following:

Baud Rate	SW1 On-off	
	DIP-9	DIP-10
2400	OFF	OFF
4800	ON	OFF
9600	OFF	ON
19200	ON	ON

1.3 Protocol setup

This can change by setting button **1,2** on **SW1** as following:

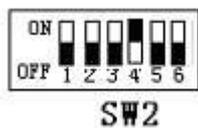
Protocol	Button 1	Button 2
Pelco-D	OFF	OFF
Pelco-P	ON	OFF

Note:Pelco-D, Pelco-P are common control protocol. This pan tilt can be controlled by keyboard or computer software.

After setting address, protocol and baud rate, pls close the small window and keep silicone seal still installed under the window.

1.4 Cruising presets setup

SW2's DIP4 is to set up cruising, when lens and pan tilt are working together, make DIP4 OFF, if not, make DIP4 ON.



Under single test pan tilt



Under test pan tilt with lens

2. Camera Installation and Cable Connection

2.1 Installation

Mount the pinboard on the camera with M6*12 hexagonal screw(already done).Then, mount the camera on PT with M6×12 hexagonal screw. Do not use screws too long in case of damaging the base plate of the camera; do not use screws too short in case of unsecure installation.

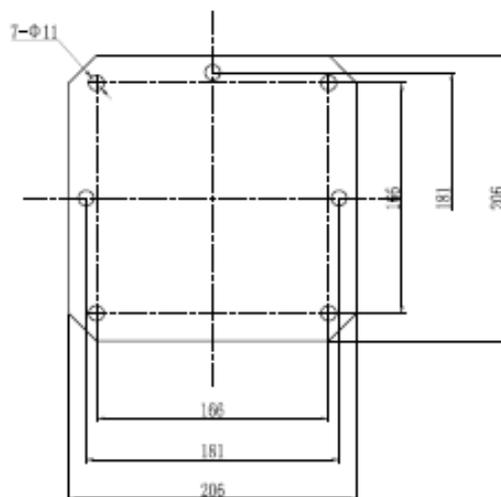
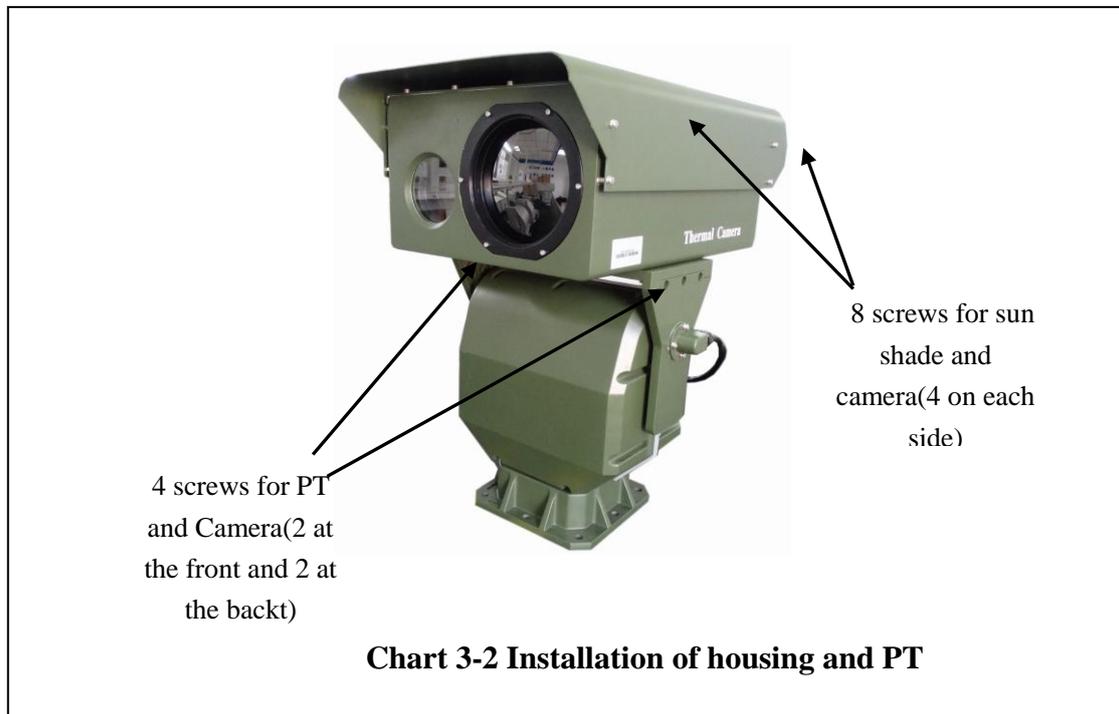


Chart 3-3 Mounting hole at the base of PT

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Make a support according to the chart shown above. Then use suitable bolts and nuts to secure the camera on the support. The support should be able to bear more than 100kg.

2.2 Cable connection

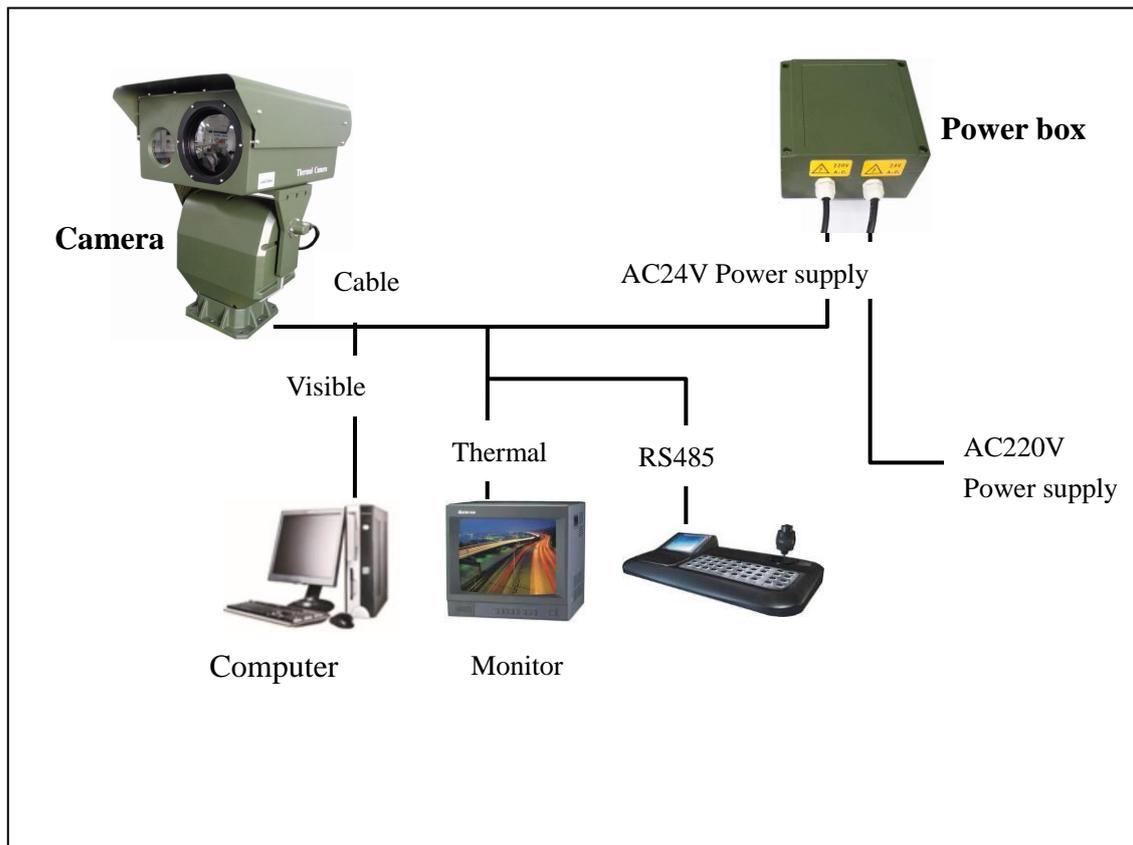


Chart 3-4 Connection diagram

3. Common operation

3.1 Common operation

The camera can be controlled by keyboard or software. We just listed some common operations below as there are too many controlling medium. Please refer to the following for specifics:

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Function	Keyboard	Software icon	Remark
PT rotates rightwards	Pull joystick rightwards	Right or 	
PT rotates leftwards	Pull joystick leftwards	Left or 	
PT rotates upwards	Pull joystick rightwards	Up or 	
PT rotates downwards	Pull joystick rightwards	Down or 	
Zoom+	TELE	Zoom+ or 	
Zoom-	WIDE	Zoom- or 	
Focus-	NEAR	Focus- or 	
Focus+	FAR	Focus+ or 	
Thermal menu	OPEN	Open or 	Thermal mode
Close thermal menu	CLOSE	Close or 	Thermal mode
Preset setting	X+SHOT+ON	Setup or  or 保存预置点	X is the No. of preset
Call preset	X+SHOT+ACK	Call or  or 载入预置点	X is the No. of preset

Note: for reference only.(Mainvan keyboard,Pelco-D or Pelco-P)

3.2 OSD of thermal camera

Press “OPEN” to enter thermal camera’s menu, press “OPEN” again to select the next item(the interval shall exceed 100ms). Press “CLOSE” to close the menu. Items include white hot/black hot/color x(1 to 11), DDE off /x (1 to 8) D-zoom 1x/2x/4x, auto FFC on/off, man FFC, external FFC, brightness auto/xx(1to 31), contrast auto/xx(1 to 31), address xxx(0 to 255), baud rate xxxx(2400 4800 9600), reset

Press “Focus far” and “Focus near” to select items under current item(flickering).Manual function parameters will be displayed on the screen after user selected manual function. Then, press “OPEN” to select “Manual function parameters”.

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Adjust manual function parameters by pressing “Focus far” or “Focus near”.

Menu	Order/function	Remarks
Open menu	Press “OPEN” to select menu. Press again to select the next one.	
Close menu	Press “CLOSE”	
Parameters setting	Press “NEAR” or “FAR”	
White hot/ black hot /color	Change of displaying color, 12 colors in total.	Default: white hot
DDE	Turn it on to get a clear image of target. 1-8	Default: 3
D-zoom 1x/2x/4x	Choose 1X image/2X image to amplify the target. 1X image usually.	Default: 1X
Auto FFC on/off	Auto correction will be done routinely when it is on. Suggested to turn it on.	Default: on
Man FFC	Conduct manual correction when selected.	
External FFC	After being used for a period, correct the background with temperature drift. Aiming at the sky or cover the camera with black object when conducting background correction.	Do not conduct background correction with targets in sight.
Brightness auto/xx(1to 31)	Adjust brightness to achieve better imaging effect. Press “OPEN” to open menu, then select “Brightness”. Press “NEAR” or “Far” to adjust brightness. 0-31	Default: auto
Contrast auto/xx (1 to 31)	Adjust contrast to achieve better imaging effect. Press “OPEN” to open menu, then select “Contrast”. Press “NEAR” or “Far” to adjust brightness. 0-31	Default: 16
Auto focus ON/OFF	Auto focus when it is on.	
Address	1~255	Default: 2
Baud rate	2400 4800 9600bps	Default: 2400
Restore defaults	Users are suggested to restore defaults when needed.	

4. Common Faults

The table below includes the common faults during operation. Whenever these problems occur, you may refer to this table or contact us directly for proper solution.

Fault	Possible Cause	Solution
No movement and video after powering on	Power damage or under power	Replace the original power.
	Wrong connection of power line	Reconnect
	Circuit malfunction	Check circuit
Successful auto detection, but can't be controlled.	RS485 connected wrong or open circuit	Check RS485 connection and ensure its proper connection
	Wrong address	Reset the address code
	Wrong protocol and baud rate	Reset protocol or baud rate
Successful auto detection, but no video	Wrong cable connection or open circuit	Reconnect
	Network not connected successfully	Check the network connection
	Video blocked by firewall	Turn off firewall
Image loss while PT is rotating	Under power	Replace
	Bad connection of video line	Check and make sure video line is connected correctly
Unclear image	focus	Refocus manually
	Lens covered by objects	Check if there is any cover
	Dirty lens	Clear lens
Non uniform image	Temperature excursion noise as a result of long time no correction	Access manual correction or background correction via menu, or restore default.
Super high or low brightness Super high or low brightness	Inappropriate brightness and contrast parameters setting	Adjust brightness, contrast and gamma manually to adapt to corresponding environment or restore default.
	Inappropriate brightness and contrast parameters setting	Adjust brightness, contrast and gamma manually to adapt to corresponding environment or restore default.

Chapter 4 Network Set and Access

1. By client access

1.1 Operation System

Microsoft Windows 7/Windows 2008 (support 32/64 bit system),

Windows 2003/Windows XP (only support 32 bit system)

CPU: Intel Pentium IV 3.0 GHz or more

EMS Memory: 1G or more

Display: support 1024×768 or much higher resolution

Note: ①The preview of the multi-channel video or higher resolution video, require higher hardware configuration.

②Software does not support a pure 64-bit system, 64-bit systems mentioned above refers to 32-bit software support 64-bit systems.

1.2 Software Installation

Double-click the install software, open the installation guide.

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Click NEXT, and select the language ENGLISH, then click NEXT to continue.



Install vcredist_x86 patch/Card Driver/WinpCap

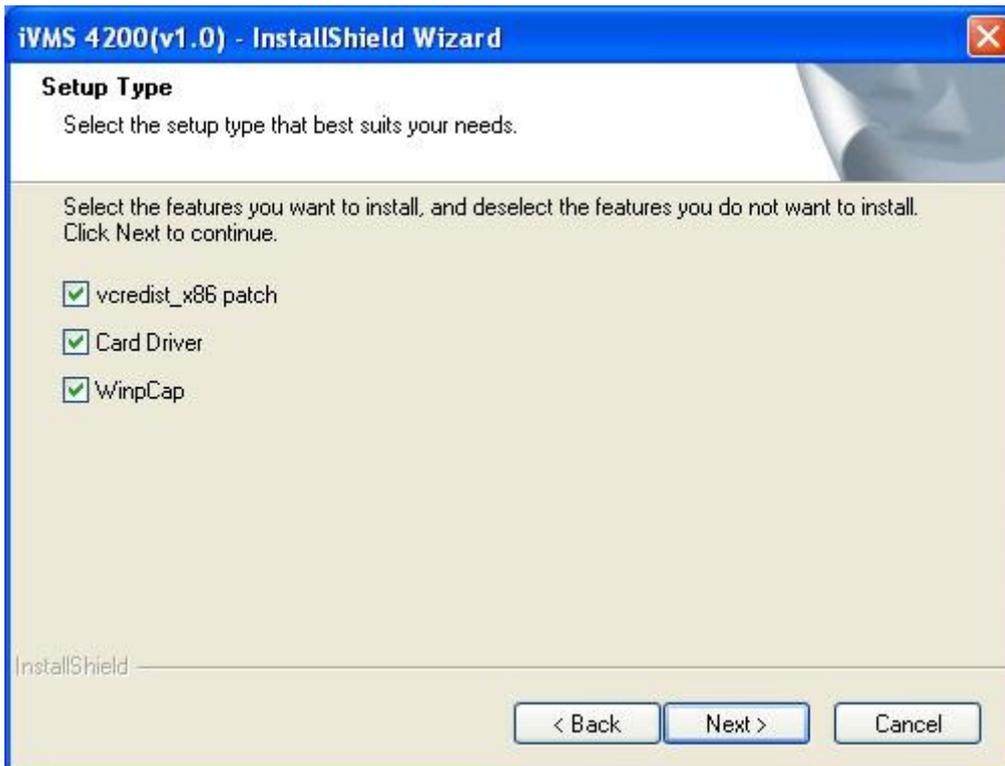
Select the driver you want to install.

vcredist_x86 patch: for X86 operating system

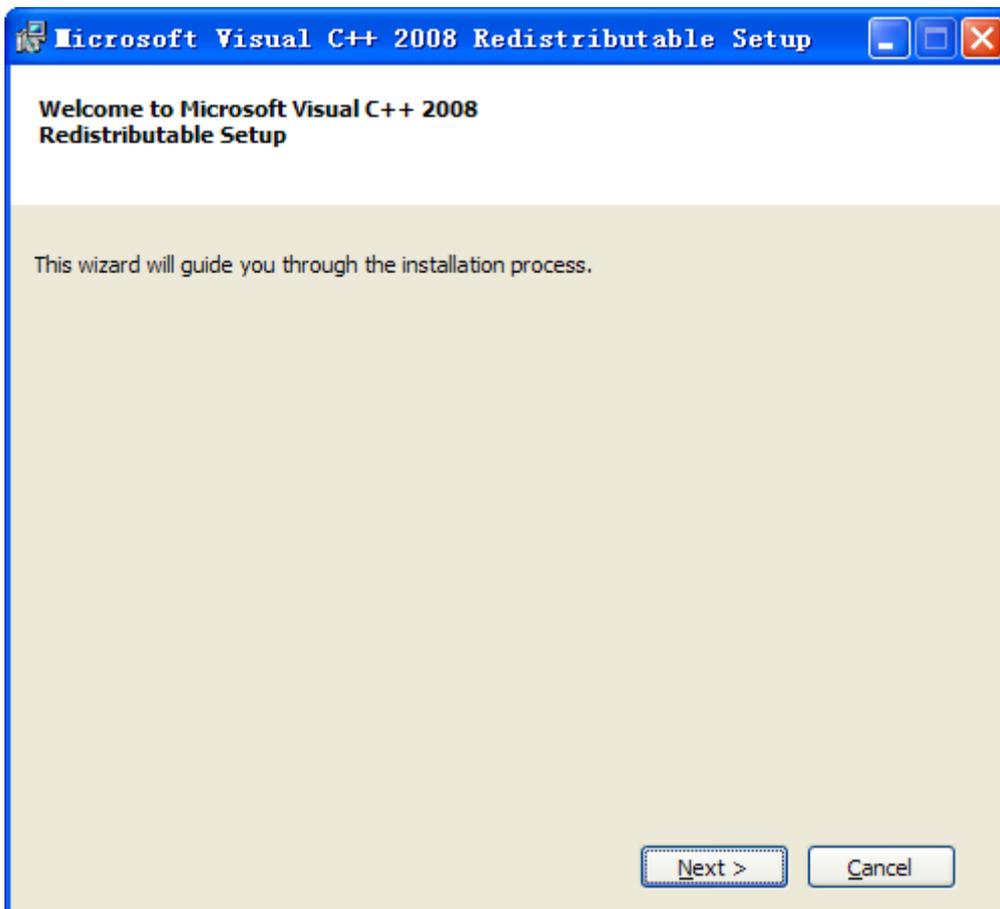
Card Driver: for compression card

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WinpCap: for open source software, SADP driver



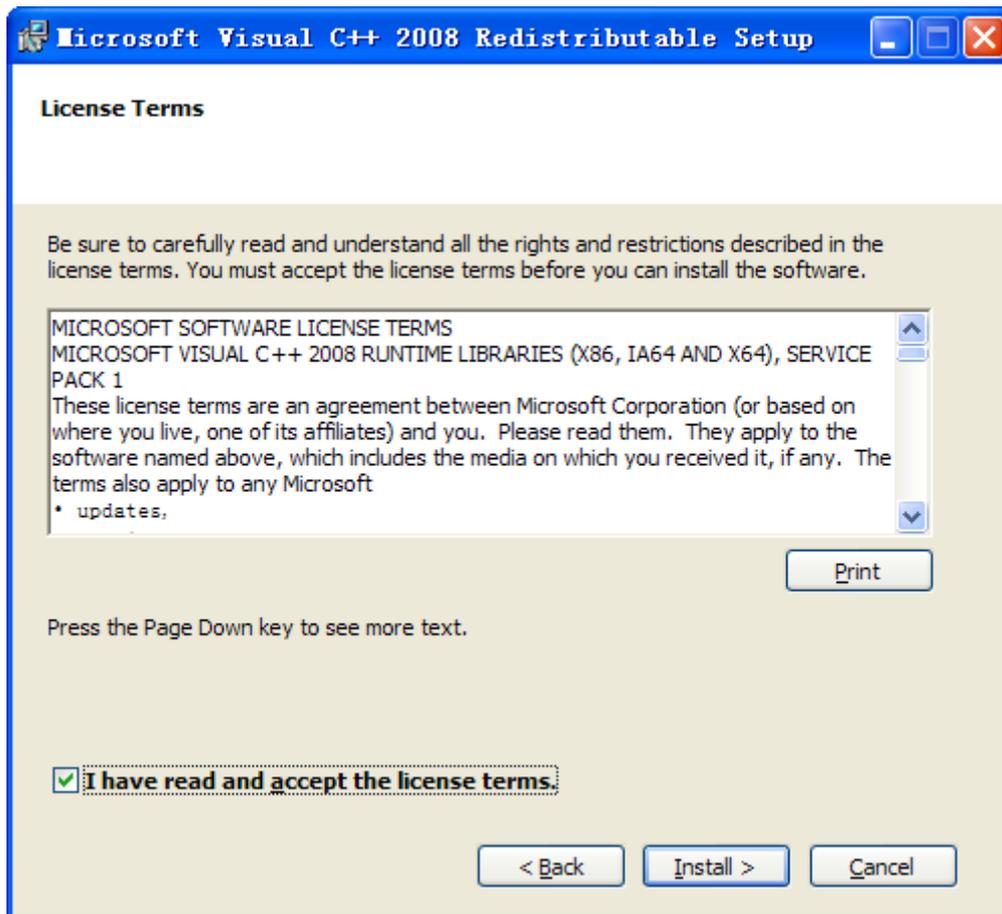
Start to install the vcredist_x86 patch and then click "Next" to continue.



In the License Terms dialog box, click "I have read and accept the license terms", and

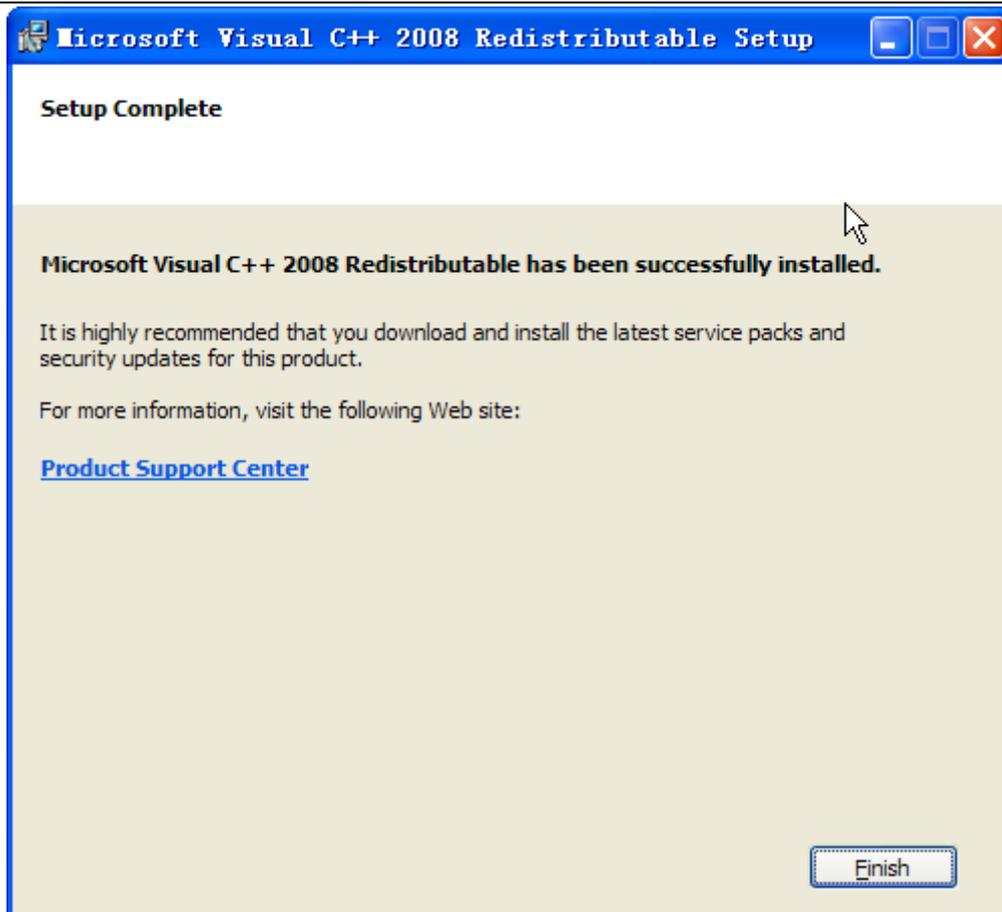
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then click “Install” to install the vcredist_x86 patch.



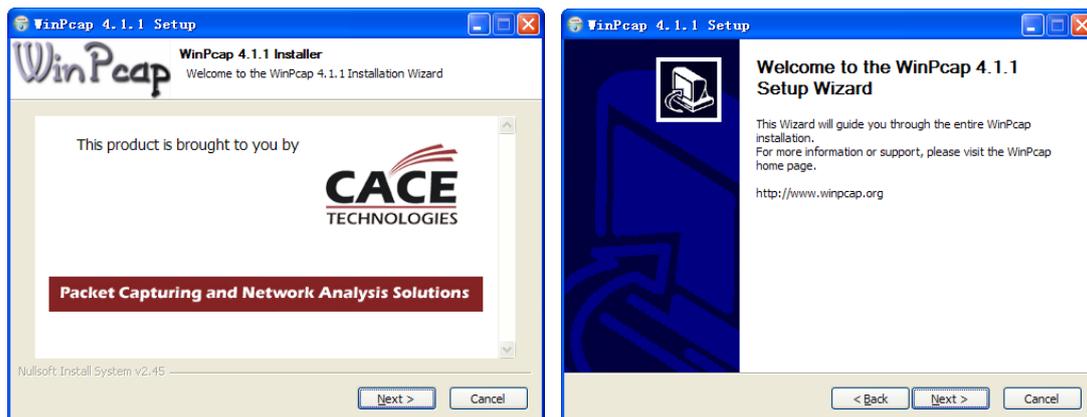
After the Setup Complete interface appears, click **Finish** to complete the installation of vcredist_x86 patch.

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Install WinPcap

Follow the installation prompt to complete the installation of WinPcap. If it has been installed on your computer, you can cancel this step.



Note: The SADP is used for automatically searching the online device in the local network. If the WinPcap is not installed, the SADP software cannot be used.

After the driver has been installed, continue the following steps.

Select the programs you want to install on your computer, including the User Client, PC NVR Server and Stream Media Server. User can also click Browse to change the

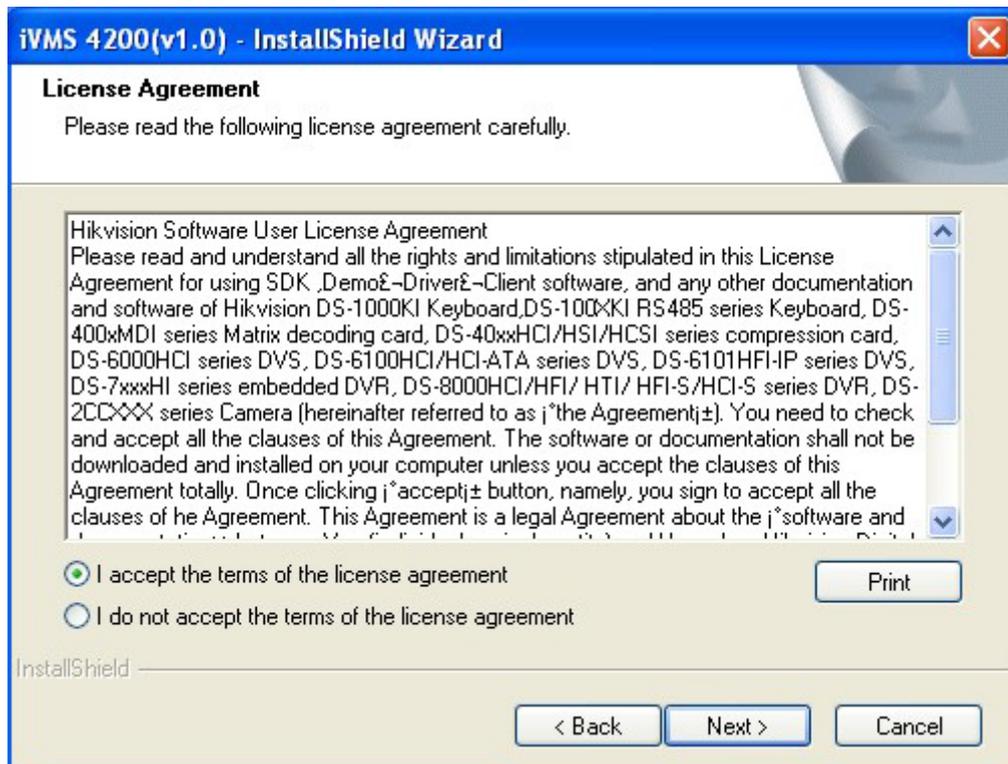
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destination folder for the program files.

Click “Next” to continue.

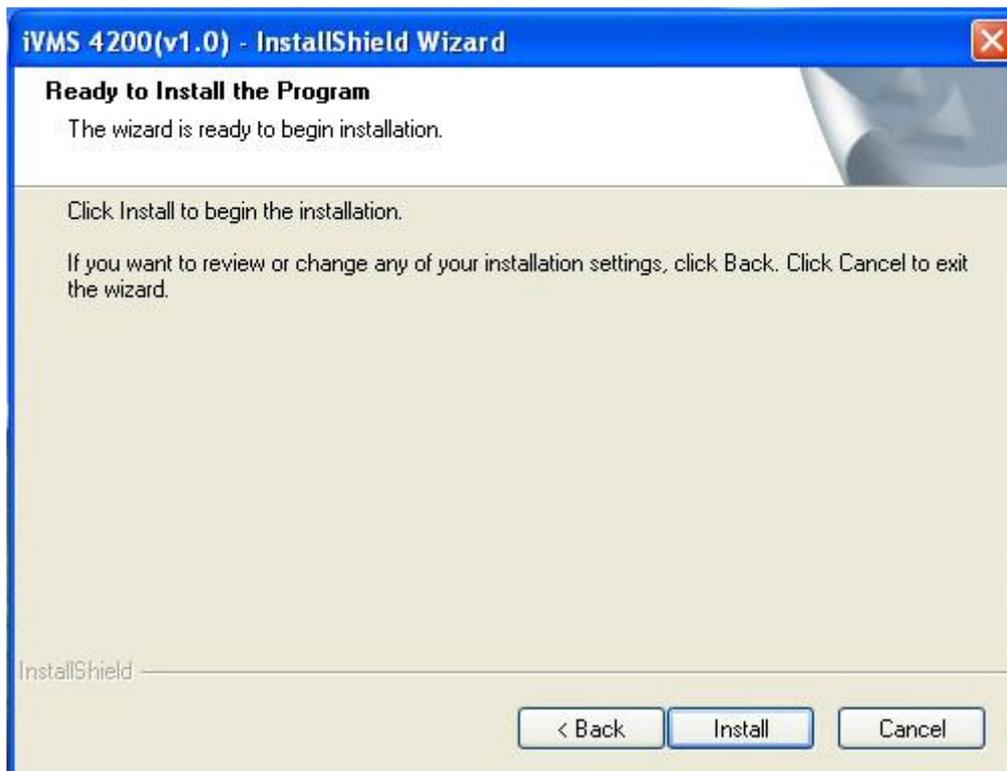


In the License Terms interface, click “I accept the terms of the license agreement”, and then click “Next” to continue the installation.



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Click “Install” to start installation of the selected programs.



After the installing progress is completed, enter the Setup Type interface to select the desktop shortcut icons for the installed programs. Click “Next” to continue the installation.



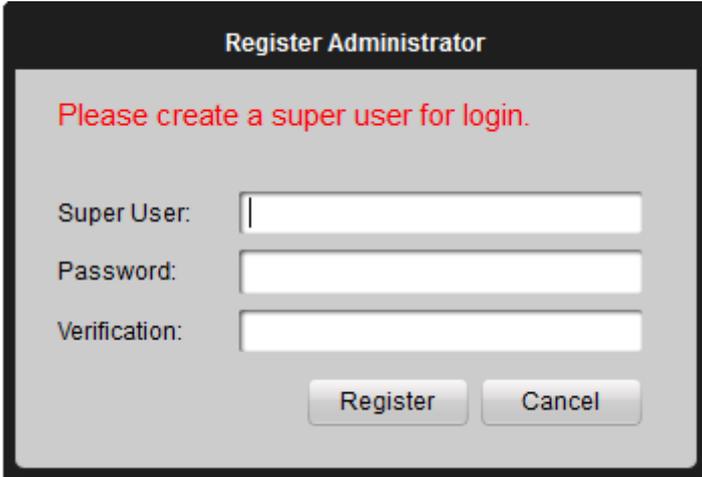
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Click “Finish” to complete the installation.



2. User Registration

For the first time to use the iVMS-4200 software, user needs to register a super user for login.

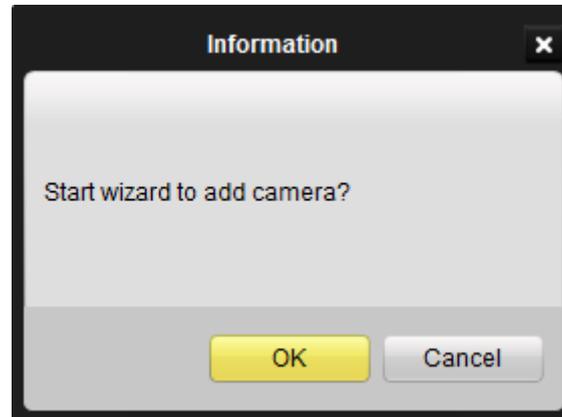
The image shows a dialog box titled "Register Administrator". It has a dark grey background. At the top, it says "Please create a super user for login." in red text. Below this, there are three input fields: "Super User:", "Password:", and "Verification:". Each field is a simple white rectangle with a vertical line on the left side. At the bottom, there are two buttons: "Register" and "Cancel".

Input the super user name, password and verification in the dialog box and click **Register**. Then, user can log in as the super user.

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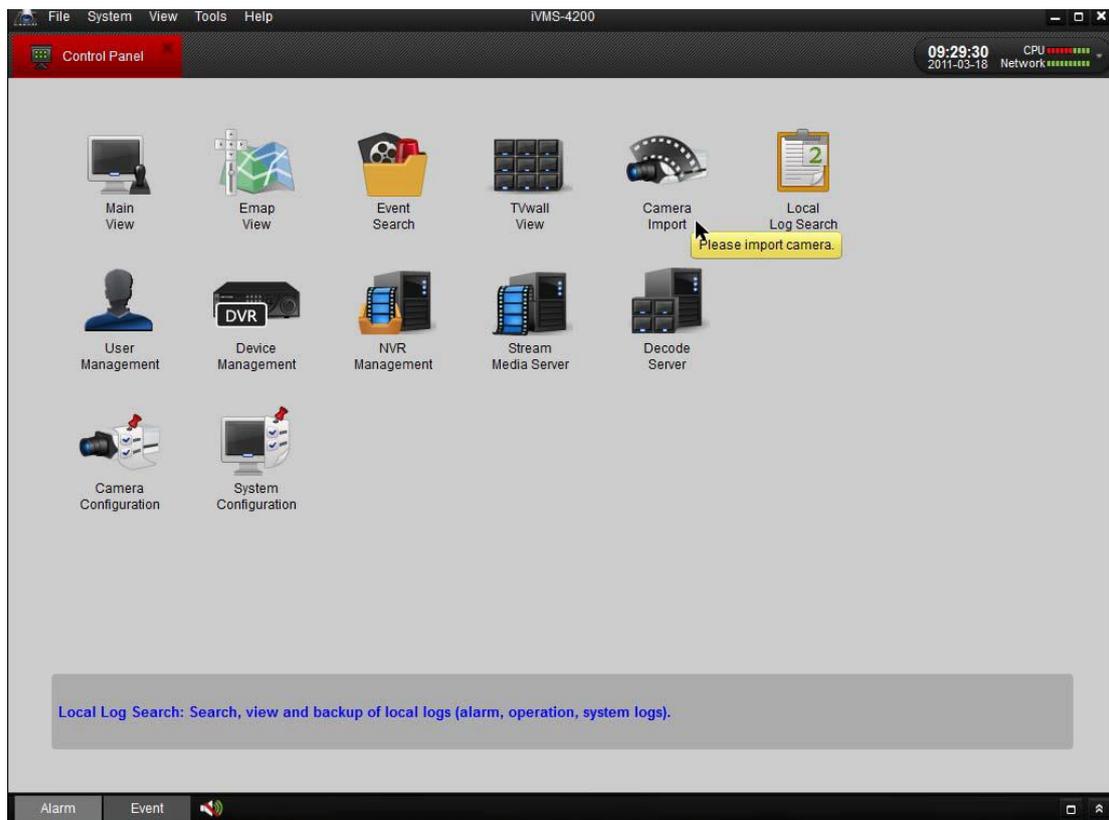
Note: Enter, Space, and TAB buttons are invalid for the user name and password. The password cannot be null, and it should not be less than six characters and does not support the copy and paste operation.

After registration and login, the following information will pop up:

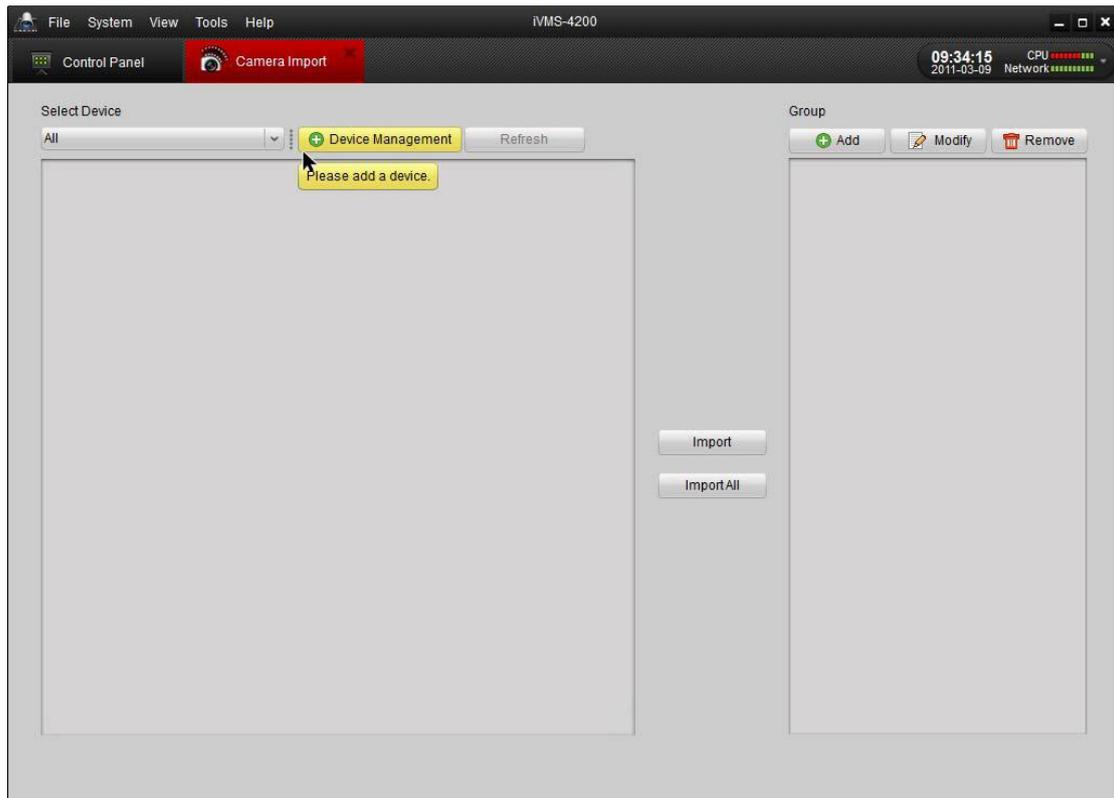


Click **OK** to start the wizard and add the device, or click **Cancel** to exit the wizard.

Step1: According to the hint, click **Camera Import** icon to enter the Camera Import control interface.

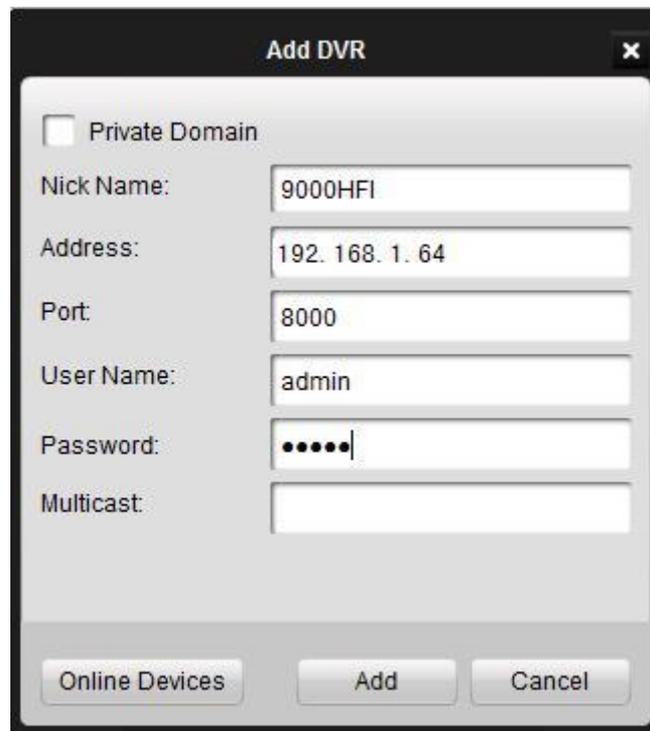


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Step2: Add DVR

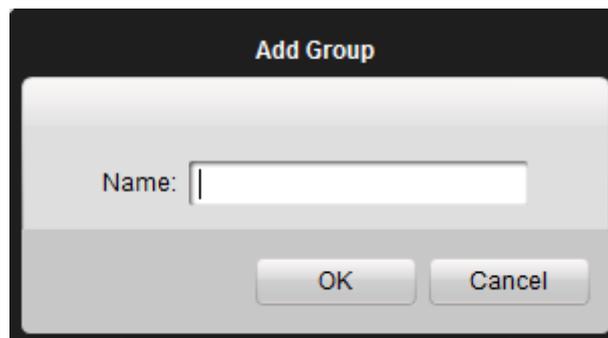
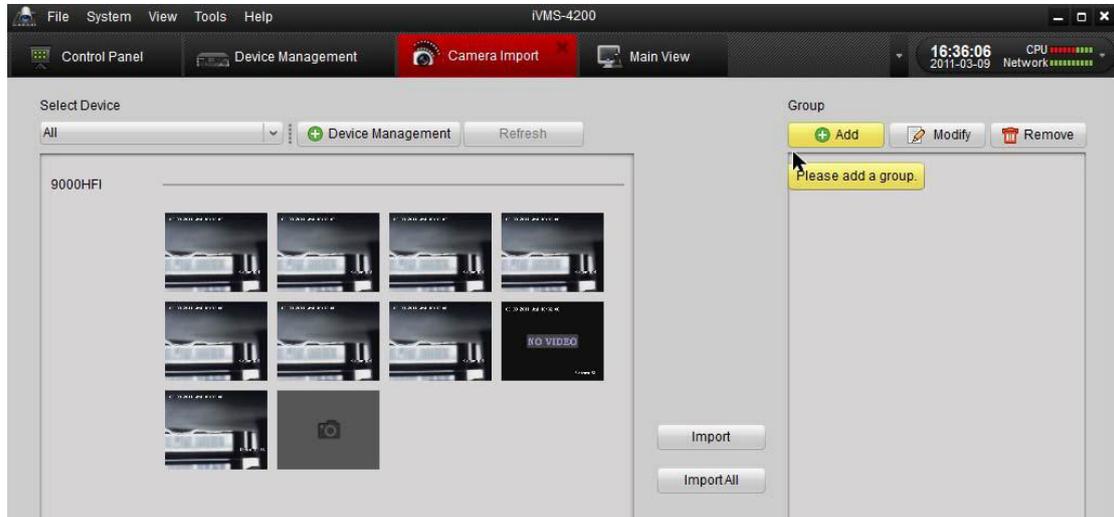
According to the hint, click **Device Management** to enter the Device Management interface and then click **Add** to enter the device information in the dialog box of Add DVR interface.



Step 3: Add Group

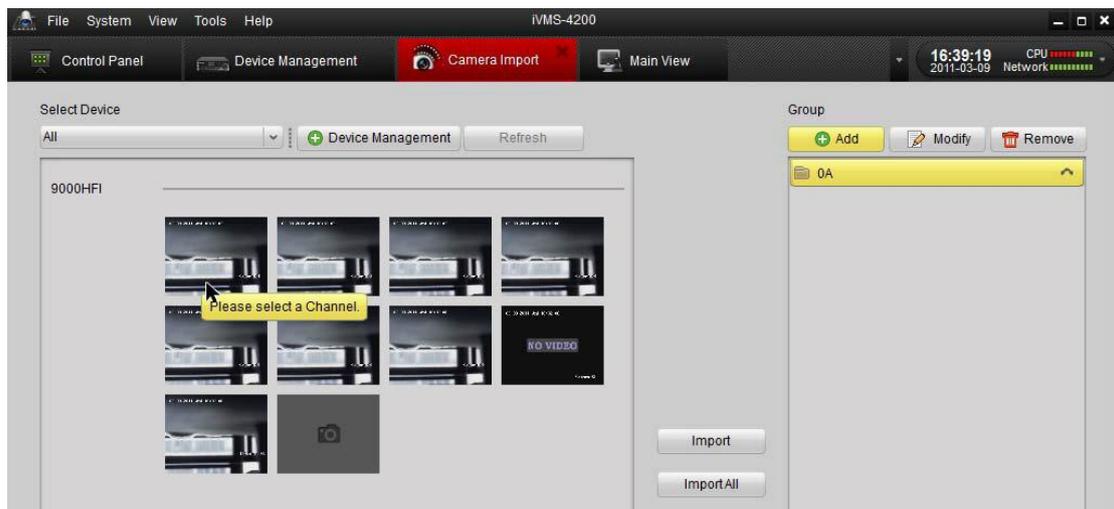
Bi-spectrum Thermal Camera

After having added DVR, please click the **Add** on the Camera Import interface to enter Add Group dialog box. Edit the name of group and then click **OK** to finish the adding of group. The added group will be displayed in the list.

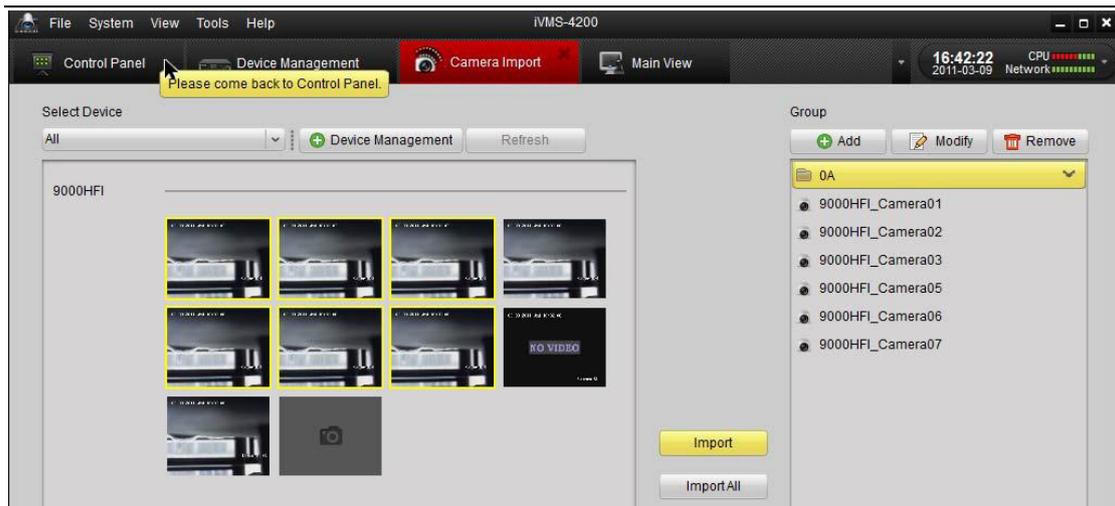


Step 4: Import Channel to Group

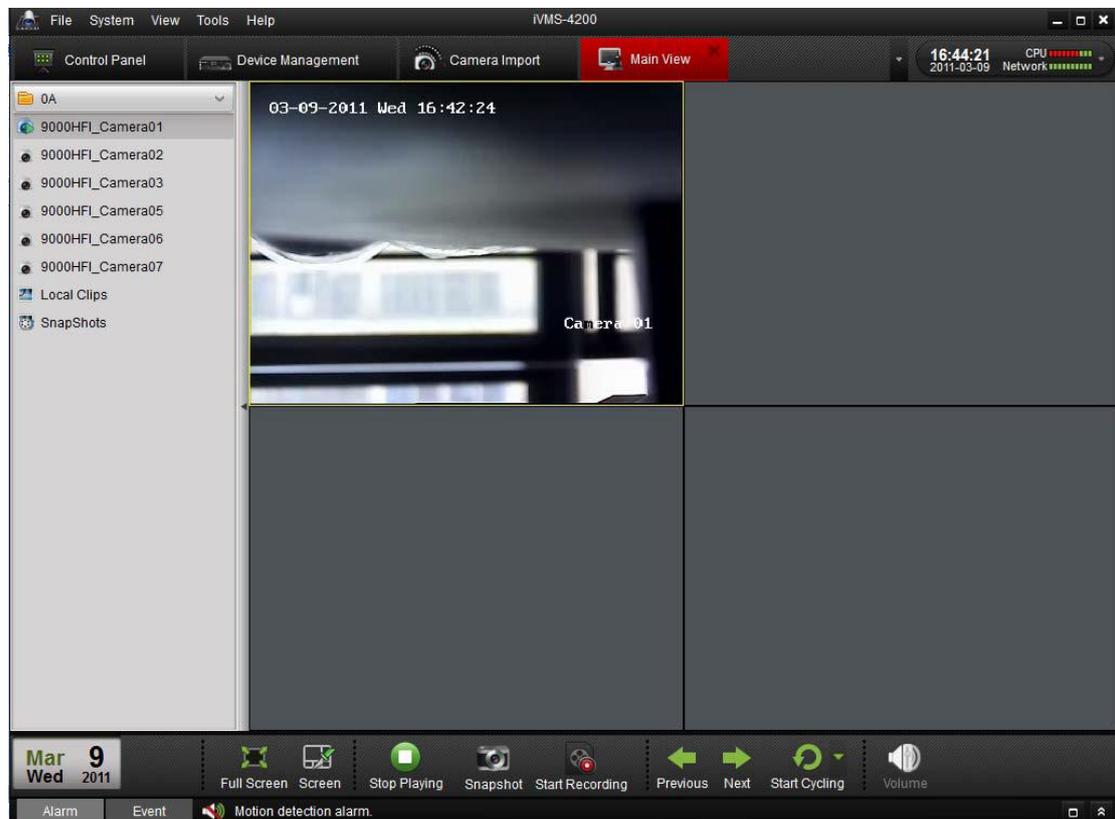
In the left area on the Camera Import interface, click and select the channels and then click **Import** button to import the selected channels to the Group on the right.



Bi-spectrum Thermal Camera

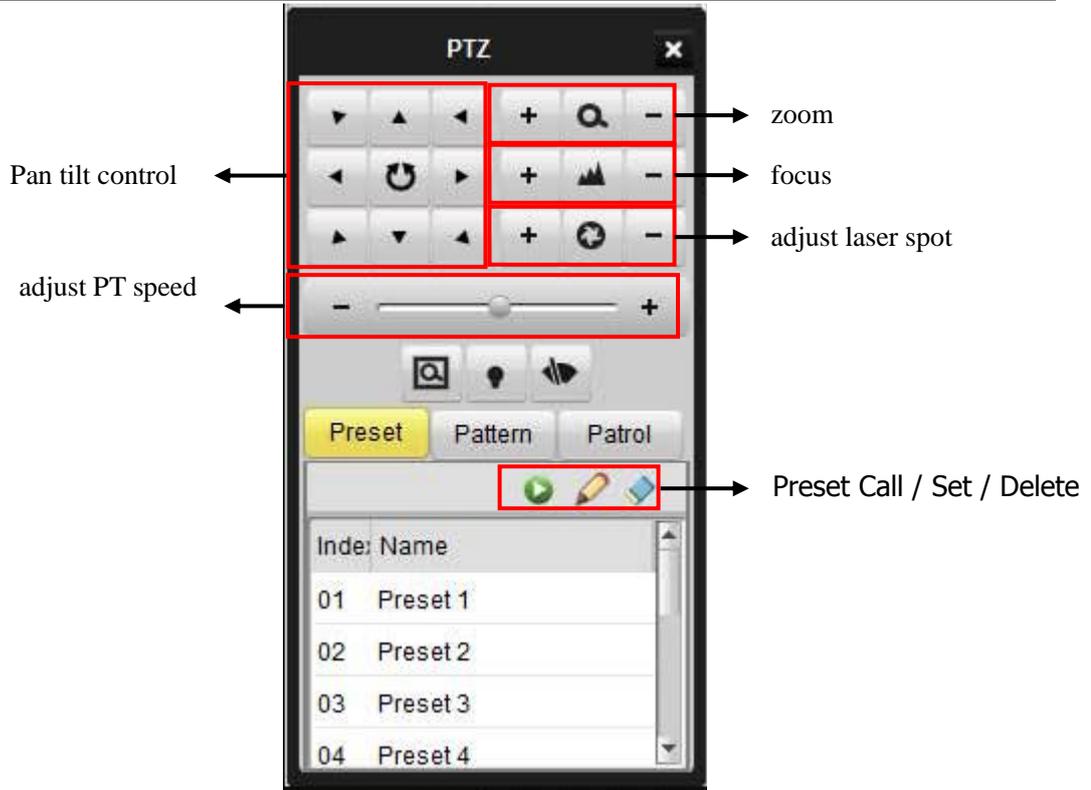


Step 5: After having imported the selected channels to the group, follow the hint to return to the control panel and then enter the main view interface.



Pan tilt control

Bi-spectrum Thermal Camera



Note : The client other detailed features , refer to Help → User Manual (in the browser window by pressing the F1 key)

Chapter 5 Warranty and After sales

- 1, Customer satisfaction is what we've been pursuing all along and quality is what brought our company prosperity. The night vision cameras manufactured by our company integrates independent technology and unique design.
- 2, If you have any suggestions either for our product or services, contact us. We'll do our utmost to improve and offer you the customized system you need.
- 3, All of our cameras are packed with detailed user manuals, we may also assist with the installation and debugging if it is feasible.
- 4, If any problems such as quality, technology and operation occur during operation, Hope Wish will give you our quickest response.
- 5, Your suggestions are valuable and your support will be our driving force. Thank you!